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# Defense-Related Uranium Mines (DRUM) Mine Safeguarding Program Management Plan

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**Defense-Related Uranium Mines (DRUM)  
Mine Safeguarding Program Management Plan  
Document History**

<b>Version No./ Revision No.</b>	<b>Revised</b>	<b>Description of Change</b>
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# Contents

Abbreviations .....	iv
Glossary .....	v
Executive Summary .....	x
1.0 Purpose .....	1
2.0 Introduction .....	1
3.0 Background and Overview .....	2
3.1 Background.....	2
3.2 Overview .....	3
3.3 Program Authority.....	5
4.0 Safeguarding Program Goals and Objectives.....	5
5.0 Safeguarding Program Approach .....	6
5.1 Strategy.....	6
5.2 Collaborative Partnerships.....	7
5.3 Implementation.....	7
5.3.1 Scheduling.....	9
5.3.2 Funding .....	9
5.3.3 Risk Assessment and Partner Agency Concurrence .....	9
5.3.4 Environmental Review and National Environmental Policy Act (NEPA) Documentation .....	9
5.3.5 Contracting and Construction .....	11
5.3.6 Monitoring and Maintenance .....	11
5.3.7 Notification of Hazard Mitigation .....	11
6.0 Safeguard Project Implementation .....	11
6.1 Overview .....	11
6.2 Project Organization.....	12
6.2.1 Partner Engagement .....	14
6.2.2 Project Planning.....	14
6.2.3 Prioritization .....	15
6.2.4 Location Delineation.....	16
6.2.5 Preconstruction Environmental Review Requirements .....	17
6.2.5.1 Safeguard Design .....	17
6.2.6 Safety Considerations .....	17
6.2.7 Contracting.....	18
6.3 Construction .....	18
6.3.1 EC Construction Considerations.....	18
6.3.2 Construction Safety Considerations.....	21
6.3.3 Construction Project Management.....	21
6.3.4 Sampling of Safeguarded Mines for Quality Assurance.....	22
6.3.5 Safeguard Project Closeout.....	22
7.0 Postsafeguard-Construction Monitoring and Maintenance.....	22
7.1 Monitoring.....	23
7.2 Maintenance .....	23
8.0 Safeguarding Program Administration.....	24
8.1 Cost Administration.....	24
8.2 Safeguard Project Acceptance .....	24
8.3 Completion of Monitoring.....	24

8.4	Completion of Maintenance .....	25
8.5	Notification of Hazard Mitigation .....	25
9.0	Education and Outreach .....	25
10.0	Program Organization .....	26
10.1	Office of Legacy Management .....	27
10.2	LMS Contractor .....	27
10.3	Cooperative Agreements, Interagency Roles, and Responsibilities .....	27
10.3.1	State and Tribal Agencies .....	27
10.3.2	U.S. Bureau of Land Management .....	28
10.3.3	U.S. Forest Service .....	28
10.3.4	National Park Service .....	29
10.3.5	Other Agencies .....	29
10.3.6	Abandoned Uranium Mines Working Group .....	29
11.0	Reporting .....	30
11.1	Program and Project Status .....	30
11.1.1	Project Closeout Reporting .....	30
11.1.2	Monitoring Reporting .....	30
11.1.3	Maintenance Reporting .....	30
11.2	Annual Safeguarding Program Reporting .....	31
12.0	Environmental Compliance .....	31
12.1	Environmental Reviews .....	31
12.2	Cultural Resources .....	32
12.3	Natural Resources and Surface Water .....	32
12.4	Environmental Sustainability .....	32
13.0	Quality Assurance .....	32
13.1	Quality Assurance Program Plan .....	33
13.2	Quality Assurance Requirements .....	33
13.2.1	Data Management .....	33
13.2.2	Operating Experience Program .....	33
13.3	Assessments .....	34
13.3.1	Management Assessments .....	34
13.3.2	Surveillances .....	34
14.0	Safety and Health .....	34
14.1	Personnel Protection .....	35
14.2	Radiological Protection .....	35
15.0	Risk Management .....	36
15.1	Statement of Risk .....	36
15.2	Summary of Anticipated Program Risks, Uncertainties, and Major Obstacles .....	36
16.0	Program Communications .....	37
16.1	Internal LM Communication .....	38
16.2	Partner Federal, State, and Tribal Agency and Private Landowner Communication .....	38
16.3	Safeguarding Team Communication .....	38
16.4	Internal LMS Communication .....	38
16.5	Public Relations .....	38
16.6	Freedom of Information Act (FOIA) .....	39
16.7	Stakeholder Inquiries .....	39

17.0 Program Completion .....	39
17.1 Program Closeout .....	39
18.0 References .....	40

## Figures

Figure 1. DRUM Safeguarding Program Flow Diagram.....	4
Figure 2. Collaborative Partnership Matrix .....	8
Figure 3. Safeguard Project Process .....	13
Figure 4. DRUM Safeguard Project Timeline .....	15

## Tables

Table 1. Typical Safeguard Attributes .....	20
Table 2. Program Risk Screening .....	36

## Appendixes

Appendix A	Safeguarding Mine Features on Private Property
Appendix B	Safeguarding Project Process

## Abbreviations

AEC	U.S. Atomic Energy Commission
AML	abandoned mine lands
AUMWG	Abandoned Uranium Mines Working Group
BCI	Bat Conservation International
BIA	U.S. Bureau of Indian Affairs
BLM	U.S. Bureau of Land Management
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	<i>Code of Federal Regulations</i>
DOE	U.S. Department of Energy
DRUM	Defense-Related Uranium Mines
EC	environmental compliance
ECHO	Education, Communications, History, and Outreach
EMS	Environmental Management System
EPA	U.S. Environmental Protection Agency
FOIA	Freedom of Information Act
FOP	Field Operations Plan
FY	fiscal year
ISO	International Organization for Standardization
LM	Office of Legacy Management
LMS	Legacy Management Support
MOU	memorandum of understanding
NAAMLPL	National Association of Abandoned Mine Land Programs
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPS	National Park Service
PL	Public Law
QA/QC	quality assurance/quality control
QMS	Quality Management System
SHPO	State Historic Preservation Office
SPgMP	Safeguarding Program Management Plan
URP	Uranium Related Programs
USC	<i>United States Code</i>
USFS	U.S. Forest Service
V&V	verification and validation

## Glossary

**adit.** A mine opening greater than 10 feet (ft) deep driven horizontally for the purpose of providing access to a mineral deposit.

**attractive nuisance.** A potentially hazardous object or feature that arouses curiosity to the point of enticing an individual into a potentially hazardous situation for the purpose of investigating the object or feature; features may include buildings and structures, adits or shafts, equipment, nearby springs or bodies of water shown on maps, or other attractions that could encourage an individual to spend time on a mine property.

**closed.** The egress condition of a single mine feature such as an adit or shaft with a barrier which prevents human access to the mine.

**decline.** A sloping, three-sided (two sides and a floor) excavation trending from ground surface elevation to a subgrade mine entrance.

**disturbed area.** The portion of the ground surface that is impacted by mechanical mining-related activities. The area includes mine entries, rim cuts, open pits, waste rock piles, topsoil, and overburden stockpiles. Roads providing access to mines and natural features such as ephemeral drainages are excluded from the disturbed area. Features associated with a mine, but which are separated from the disturbed area by undisturbed lands will be mapped as disparate, isolated portions of the disturbed area for purposes of completing the risk scoring assessment. Examples of such features may include vents, buildings, and waste rock piles.

**drainage.** A large-scale natural erosional feature that is present at a mine but existed before the mining disturbance (e.g., wash, ephemeral or perennial creek, canyon floor).

**duplicate mine resolution.** The resolution of duplicate mines is complete when two or more mines are reconciled into a single name and location. Irrelevant names and incorrect locations are removed from the Defense-Related Uranium Mines (DRUM) Program database. Merged duplicate records are documented using a certificate generated by the database titled the *Defense-Related Uranium Mines Program Verification and Validation Certificate of Completion: Merged Duplicates*.

**ecological unit.** A plant community that is distinct in terms of dominant species and successional stage from proximate communities within the mine disturbed area and surrounding undisturbed areas.

**endangered species.** Any species that is in danger of extinction throughout all or a significant portion of its range and that is protected by federal, state, or tribal statute.

**engineered closure.** A mine safety closure designed by a state or federal abandoned mine land program or equivalent. The closure may have been installed by an abandoned mine land program, a mining company, or other entities.

**environmental sampling.** A verification and validation (V&V) activity designed for the collection of soil, sediment, water, gamma radiation, or other environmental and ecological data at a mine.

**environmental sampling completed.** Environmental sampling at a mine is complete when the U.S. Department of Energy DRUM Program database is updated with field data collected by the Legacy Management Support contractor or obtained from an approved third party. V&V completion is documented when the database includes the date that field sampling occurred.

**erosional feature.** Small-scale erosion resulting in sediment transport of mined waste or disturbed soil from wind, water, or slope failure (e.g., rill, gully, unstable slope, soil piping, or sheet wash).

**Field Operations Plan (FOP).** A plan written to ensure that field teams are ready to perform their work as described in the *Defense-Related Uranium Mines Verification and Validation Work Plan* (DOE 2023) (V&V Work Plan) before initiating field activities. FOPs are used to coordinate fieldwork and document that the necessary sampling and inventory preparations have been completed before deploying to the field. The FOP describes any deviation from the V&V Work Plan to the extent that such are anticipated before initiating environmental sampling work, lists the mines to be evaluated, describes the division of work tasks, identifies the inventory and environmental sampling responsibilities, and lists partner agency contacts.

**habitat.** A specific set of physical and biotic factors to which an individual, a species, or an ecological community is adapted.

**hazard.** A threat to physical safety of humans, the environment, or animals posed by conditions at a mine; something that can cause harm.

**human use.** Observable evidence of past and present human activity: Current activity might include mine inhabitation, recent campfire rings showing evidence of burning, or vehicle tracks, and past activity might include weathered foot or vehicle tracks, vegetative growth invading use areas, or relics such as weathered, discarded cans or trash. It is used in the context of the risk scoring assessment to partially describe degrees of mine occupancy.

**inventory.** A V&V activity designed primarily for the collection of observational data, such as the location of specific points or features at a mine. These geographic points may include the perimeter of the disturbed area, the crest and toe of a waste rock pile, or the location of a mine entry.

**mine entry.** A point at which people, wildlife, or materials can enter or leave an underground mine. Mine entries include adits and shafts but are not the same as ventilation raises meant for the intake or exhaust of mine air.

**mine site location.** A point at or immediately adjacent to a defense-related uranium mine from which most, if not all, mine features are visible.



**mine size.** Determined by the U.S. Atomic Energy Commission-documented quantity (tons) of uranium ore produced (DOE 1997). Mine sizes by production are as follows:

- small mine = 0–100 tons of ore
- small/medium mine = 100–1000 tons of ore
- medium mine = 1000–10,000 tons of ore
- medium/large mine = 10,000–100,000 tons of ore
- large mine = 100,000–500,000 tons of ore
- very large mine >500,000 tons of ore

**needs maintenance.** Status of a mine feature indicating that engineered abatement of physical hazards has been breached or otherwise damaged, and the engineering controls require maintenance to remain protective.

**not addressed.** Status indicating that no work has been conducted to reclaim or remediate the mine.

**notifiable feature.** A mining-related hazard that could pose a significant and immediate threat to a visitor who encounters such. Notifiable features may include subsidence areas, shafts, explosives, chemicals, or severely compromised structures.

**open.** The egress condition of a single mine feature such as an adit or shaft either without a barrier to human access or where underground mine workings may be observed from outside of the mine without a safety closure being present.

**operations not evident (ONE).** Status of a reconciled mine location where no evidence of mining operations is apparent during completion of V&V activities.

**physical feature.** An excavation created for the purpose of exploring for, extracting, or developing an orebody and consequent openings in the ground surface which result from such activities. Examples of physical features include trenches, prospects, pits, shafts, adits, vents, and subsidences.

**portal.** A surface entrance to an adit.

**potential wetland.** An area with a vegetation type that is ecologically distinct from surrounding vegetation types because of surface water or shallow subsurface water. Potential wetlands are generally lush and contain at least one wetland plant species (a plant classified as an obligate or facultative wetland species in the Arid West Region on the U.S. Army Corps of Engineers National Wetland Plant List).

**prospect.** A mine opening or excavation related to mining activities with a depth between 4 and 10 ft.

**reclaimed.** Mine description indicating that, in actions not performed under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), waste rock or other portions of the mine, such as roads or ponds, have been recontoured or graded to a stable

condition. The primary purpose of these actions is to minimize the potential for future erosion and make items blend with the original site topography. This may include covering the site with enough topsoil to enhance revegetation. Unless otherwise noted in a FOP, complete V&V activities as described herein are conducted at reclaimed mines.

**reconciliation.** The process of evaluating mine location data, U.S. Atomic Energy Commission production records, and other pertinent information for the purpose of correlating a specific mine with a specific geographic location.

**remediated.** Mine description indicating that, in CERCLA actions, response actions have been taken or Action Memoranda signed to mitigate the release or potential release of a CERCLA hazardous substance. The primary purpose of these actions is to mitigate potential risks to human health and the environment. Such actions include, but are not limited to, consolidation areas or repositories. Unless otherwise noted in a FOP, only inventory operations will be conducted at remediated mines.

**rim cut.** A mining technique in which uranium ore is removed by relatively shallow underground extraction methods. Mining follows the trend of the ore-bearing formation parallel with the outcrop and generally occurs at or near the top of a cliff or slope.

**risk.** Potential exposure to health or environmental hazards posed by conditions at a mine.

**safeguard.** An engineered barricade constructed for the purpose of preventing site visitors from approaching or accessing a mine or mine feature. Some state and federal abandoned mine lands agencies refer to safeguards as “mine safety closures.”

**sediment shed.** Earthen material transported from a disturbed area by aeolian or fluvial processes and subsequently deposited outside of the disturbed area of a mine.

**shaft.** A vertical excavation that provides access to an orebody, sometimes equipped with a hoist at the top that lowered and raised a conveyance for workers and materials at a mine.

**shallow excavation.** A horizontal or vertical excavation less than 4 ft deep which is associated with mining or exploration activities.

**special-status species.** Species listed as threatened or endangered or proposed for listing under the Endangered Species Act and species designated for special protection by states, tribes, and other agencies including the U.S. Bureau of Land Management and U.S. Forest Service.

**structure.** A building or building remnant originally constructed for the purpose of facilitating mining operations. Examples include former offices, ore bins and loadouts, stand-alone powder magazines, workshops, and equipment storage facilities.

**subsidence.** Downward deflection of the earth’s surface as a result of a roof (back) failure in an underlying mine. The result of subsidence may be a shallow trench, a vertical hole, or a broad downward deflection on the ground surface. The subsidence feature might or might not be open to the underground mine workings.

**threatened species.** Any plant or animal species likely to become endangered within the foreseeable future throughout all or a significant portion of its range and also protected by federal, state, or tribal statute.

**trench.** An excavation created for the purpose of exploring a potential ore-bearing formation. They are generally longer than wide and sometimes open at both ends.

**utility task vehicle (UTV).** Vehicle type that also includes off-highway vehicles and all-terrain vehicles that may engage in cross-country travel along roads not suitable for four-wheel-drive vehicles.

**verification and validation (V&V).** The DRUM Program process of verifying historic records and validating current mine conditions. Collectively, V&V is the process of reconciling mine data, inventorying mine features, performing environmental sampling, and documenting results in a database and report that provides a risk scoring assessment to federal land management agencies.

**waste rock.** Materials associated with an orebody of interest which, due to their subeconomic value, are disposed of onsite. Waste rock may contain constituents of interest and may exhibit elevated gamma radiation and thus is a focus of the DRUM Program.

**waste rock crest.** The area of topographic transition of a waste rock pile from a relatively flat surface to a downward trending slope. Generally, the crest is at or near the top of the waste rock pile and is accessible for environmental sampling.

**waste rock toe.** The area of topographic transition of a waste rock pile from a downward trending slope to a relatively flat surface below the crest. Generally, the toe of a waste rock pile is at or near the base of the pile.

## Executive Summary

The May 2022 *Defense-Related Uranium Mines Program Management Plan* provided a strategic outline to guide safeguarding activities of mine-related physical safety hazards identified during field verification and validation (V&V) activities. The Defense-Related Uranium Mines (DRUM) Program Safeguarding Program Management Plan (SPgMP) provides the structure and basis for the U.S. Department of Energy Office of Legacy Management (LM) and its Legacy Management Support (LMS) contractor to manage safeguarding, monitoring, and maintenance of hazardous mining-related features at DRUM sites. This SPgMP describes how LM, the LMS contractor, other LM contractors, and partner agencies will work as a cohesive team to execute the DRUM safeguarding program. The SPgMP is a living document and will be revised as necessary to accommodate changing circumstances and lessons learned.

Safeguarding is the process of protecting the public from physical safety hazards posed by remnant mining-related features at DRUM sites. Safeguarding involves construction of barricades designed to prohibit public access to hazardous adits, shafts, subsidences, highwalls, and other excavated mine features. Safeguarding may, in limited cases, stabilize or remove hazardous structures. Hazardous features are identified and mapped in the field during V&V activities undertaken by DRUM Program field teams. The scope and relative degree of the hazard presented by each feature are documented in risk roll-up reports prepared by the DRUM Program for use by land management agencies, such as the U.S. Bureau of Land Management and the U.S. Forest Service (USFS). The federal land management agencies, in collaboration with LM and state and tribal abandoned mine lands (AML) programs, determine logical safeguard construction project parameters, such as project location boundaries and environmental reviews. AML programs, land management agencies, the LMS contractor, or other LM contractors will complete environmental reviews, National Environmental Policy Act documents, and safeguard design and construction and will perform postconstruction monitoring and any required maintenance. Monitoring of the safeguards should begin no later than 5 years after safeguard construction. Compromised safeguard functionality will be noted during monitoring, and maintenance will be completed as needed. Following monitoring and maintenance, if needed, LM will notify affected land management agencies and private landowners, where appropriate, that safeguards constructed at specific features are functional and that the hazards originally presented by the mine features have been mitigated.

The DRUM SPgMP aligns with Goal 1 of the LM *2020–2025 Strategic Plan*. Goal 1’s charge is “to protect human health and the environment.” To achieve this goal, LM is partnering with state, tribal, and federal agencies and, in limited circumstances, private landowners to implement the DRUM safeguarding program. As part of this approach, LM developed a memorandum of understanding with the State of Utah School and Institutional Trust Lands Administration. LM also has an interagency agreement with the USFS national office and the National Park Service. LM entered into Cooperative Agreements with the Navajo Abandoned Mine Lands Reclamation Department; the Colorado Division of Reclamation, Mining, and Safety; the Utah Abandoned Mine Reclamation Program; Bat Conservation International; and the Wyoming Department of Environmental Quality. These agreements outline the basis for collaborative interagency partnerships to implement safeguard construction in a manner that is most beneficial to the public.

Safeguard project planning will begin in those areas where risk roll-up reports have been completed. Safeguard project planning and construction has already begun on public land (DRUM V&V Campaign 1) in Colorado, New Mexico, and Utah. Safeguarding on tribal lands will be undertaken after consultation with affected tribes during execution of DRUM V&V Campaign 2. The plan for limited safeguarding of hazardous features on private property is addressed in Appendix A of this SPgMP. Safeguard construction on private property will primarily occur during execution of DRUM V&V Campaign 3. All safeguarding operations are slated to be completed by fiscal year 2030.

## 1.0 Purpose

This Defense-Related Uranium Mines (DRUM) Program Safeguarding Program Management Plan (SPgMP) presents the U.S. Department of Energy (DOE) Office of Legacy Management (LM) and its Legacy Management Support (LMS) contractor's implementation strategy for the DRUM safeguarding program. The SPgMP is the primary guiding document of the safeguarding program and describes how LM, the LMS contractor, and LM's safeguarding partners will work as a cohesive team to execute the DRUM safeguarding program. This SPgMP addresses the need to construct safeguards at hazardous mine features, collaborative interagency partnerships to facilitate safeguard design, environmental compliance (EC), and construction activities. It also addresses monitoring and maintenance activities and documenting the mitigation of the hazards originally posed by the mine features. This SPgMP is a living document and will be revised as necessary to accommodate efficient and effective completion of safeguarding activities.

The DRUM SPgMP supports LM's mission of protecting human health and the environment by addressing the human health and safety legacy of defense-related uranium mines (mines) by facilitating construction of safeguards at hazardous mine features.

The concepts outlined in the Project Management Institute's *A Guide to the Project Management Body of Knowledge (PMBOK Guide)* (PMI 2017a) and *The Standard for Program Management* (PMI 2017b) were considered in developing this plan. These guides focus on the key concepts for successful program and project management with the most critical elements being (1) thorough project planning and (2) understanding the organization's influences and project constraints. Other key elements are clearly defining the project scope and mitigating the project risks. This SPgMP reflects all these key elements, emphasizing safeguarding of physical safety hazards, including postconstruction monitoring and maintenance.

## 2.0 Introduction

LM has conducted verification and validation (V&V) evaluations at DRUM sites on public lands beginning in July 2017. These mining-impacted lands are predominantly in Colorado, Utah, Arizona, New Mexico, and Wyoming. A small number of DRUM sites are in other states. The screening-level V&V evaluations indicate that many mining-related features (e.g., adits, shafts, subsidences, and dangerous highwalls) pose a risk to the public. To mitigate the inherent risk posed by subsurface mine workings, LM has initiated a program to safeguard the public from these features while preserving the historic significance and ecologic resources of the affected mines. This program is being conducted in collaboration with federal land management agencies and state and tribal abandoned mine lands (AML) programs. The *Defense-Related Uranium Mines Program Management Plan* (LM-Plan-3-23-1.0, LMS/POL/S15809) provided a strategic outline to guide safeguarding activities of mine-related physical safety hazards identified during V&V activities.

The focus of this document is on implementing safeguard construction on public land. However, in some circumstances, safeguard construction may also occur on private property in advance of LM implementing Campaign 3 (V&V work on private property). Appendix A addresses safeguarding features on private property before the beginning of Campaign 3.

Generally, the observed hazards associated with the mines are unstable excavated mine entries, the areas immediately inside the mine entries, underground mines with unknown atmosphere quality inside, subsidences caused by ground collapse, or high or unstable highwalls adjacent to large pits. To safeguard the public from these physical hazards, safeguards will be constructed at mine entries and hazardous highwalls.

Safeguards, sometimes referred to as mine safety closures, are engineered barricades constructed at or immediately inside mine entries for the purpose of preventing human access to the subsurface. This SPgMP describes the LM strategy of constructing safeguards at hazardous mine features to protect the public. The strategy is focused on an efficient and cost-effective method of ensuring public safety at DRUM sites, utilizing partnerships with federal land management agencies and state and tribal AML programs. These agencies have local knowledge, environmental expertise, understanding of priorities in the context of land management decisions, and the ability and experience to design, contract, and manage safeguard construction projects.

In this and other DRUM Program documents, the LM mine safeguarding initiative is referred to as the “safeguarding program.” Individual mine safeguard installation initiatives are referred to as “safeguard projects.”

## **3.0 Background and Overview**

### **3.1 Background**

The U.S. Atomic Energy Commission (AEC) was created in 1946 by the Atomic Energy Act (Title 42 *United States Code* Section 2011 [42 USC 2011 et seq.]). The mines that are the focus of the DRUM Program have a production history that is generally limited to the period of 1947 to 1970, when uranium ore was sold to AEC for defense-related purposes.

The National Defense Authorization Act for Fiscal Year 2013 (Public Law 112-239 [PL 112-239]) mandated that DOE prepare a report to Congress on abandoned uranium mines. The act also required consultation with other relevant federal agencies, affected states and tribes, and interested members of the public.

In August 2014, LM submitted the *Defense-Related Uranium Mines Report to Congress* (DOE 2014), hereafter referred to as the Report to Congress, that generally addressed:

- The location of mines on federal, state, and tribal land and private property and the status of efforts to remediate or reclaim these mines.
- The extent to which mines pose a significant radiation hazard or other public health and safety threat and cause, or have caused, water contamination or other environmental degradation.
- A priority ranking for the reclamation and remediation of mines.
- The potential cost and feasibility of reclamation and remediation in accordance with federal law.

After submitting the Report to Congress, LM continued the collaboration and formed the Abandoned Uranium Mines Working Group (AUMWG), which is composed of representatives from federal agencies, including DOE, the U.S. Environmental Protection Agency (EPA), the U.S. Bureau of Land Management (BLM), the U.S. Department of the Interior, the U.S. Forest Service (USFS), the U.S. Department of Agriculture, and the U.S. Bureau of Indian Affairs (BIA). Through the AUMWG collaboration, DOE, BLM, and USFS determined that many unknowns (e.g., status, location, ownership) still exist for the approximately 2500 mines on public land. As a result, DOE entered agreements with various federal and state agencies to fill existing data and information gaps surrounding DRUM sites. The purpose of these agreements is threefold:

- Facilitating DOE’s capability to conduct V&V evaluations of the mines on public land
- Evaluating and documenting potential hazards to human health and safety posed by mining-related features at the mines visited
- Facilitating safeguarding of the public from the identified physical safety hazards at the mines visited

This collaborative effort with partner agencies led LM to develop the *Defense-Related Uranium Mines Verification and Validation Work Plan* (DOE 2023), hereafter referred to as the V&V Work Plan, which describes the activities and types of data to be collected. This work focuses on documenting mining-related risks to the public and environment. The collaboration of various agencies also contributed to the development of the DRUM risk screening process, including the evaluation of individual mine features and the creation of summary risk roll-up reports. V&V field operations and follow-up data analysis address the first two bullets above, while the mine safeguarding program is designed to address the third bullet.

## 3.2 Overview

The Report to Congress provides the framework for the DRUM Program. The program’s first objective, verifying and validating approximately 2500 mines on public land, is addressed in Campaign 1. Campaigns 2 and 3 are focused on conducting V&V activities at mines on tribal land and private property, respectively.

The three campaigns involve the following major activities: (1) mine location and production data reconciliation, (2) field mine feature inventory and environmental sampling, (3) risk screening, (4) data management, (5) reporting, and (6) safeguarding. Mine feature information is collected during field inventory operations. Risk screening is a systematic approach to evaluating the risks associated with the mines. Risk screening information is conveyed to partner agencies via risk roll-up reports. The safeguarding of the physical safety hazards identified during V&V operations and subsequently evaluated and documented in the risk roll-up reports is an extension of these activities.

Figure 1 shows how the safeguarding program aligns with the rest of the DRUM Program and how it will be managed through this SPgMP.





Legend			
AML	Abandoned Mine Lands	LMS	Legacy Management Support
BCI	Bat Conservation International	QAPP	Quality Assurance Project Plan
FOP	Field Operations Plans	V&V	Verification and Validation
LM	Legacy Management		

Figure 1. DRUM Safeguarding Program Flow Diagram

### 3.3 Program Authority

DOE has direct authority to evaluate the mines and implied authority to conduct safeguarding activities. LM is authorized to conduct the DRUM Program by the following:

- The National Defense Authorization Act for Fiscal Year 2013. DOE has the authority to undertake a review of abandoned uranium mines that provided uranium ore for defense-related activities of the United States.
- The Atomic Energy Act of 1954, as amended. DOE is authorized to protect public health and safety during its activities.
- The Department of Energy Organization Act of 1977 (PL 95-91, Stat. 565).
- DOE is authorized to enter agreements with other federal agencies to carry out its functions. Certain of these other agencies (e.g., BLM and USFS) have authority under the Comprehensive Environmental Response, Compensation, and Liability Act (42 USC 9601 et seq.).

## 4.0 Safeguarding Program Goals and Objectives

The DRUM Program aligns with Goal 1 of the LM *2020–2025 Strategic Plan* (DOE 2020), also known as the Strategic Plan. Goal 1 of the Strategic Plan is “to protect human health and the environment.” The DRUM Program mission directly aligns with this goal by completing a multiphased approach to screening abandoned mines for the purposes of evaluating risks and hazards presented by these mines and subsequently utilizing these data to develop plans to safeguard the public from the identified physical risks and hazards. Safeguarding the public from physical risks and hazards at DRUM sites is the major benefit of implementing the safeguarding program.

To those ends, the DRUM Program currently employs, or will employ, numerous strategies to fulfill its mission and meet the Strategic Plan’s challenges, including:

- Conducting site-specific screening-level evaluations, including inventory and environmental sampling at mines.
- Documenting the results of the site-specific evaluations, including an evaluation of potential risks and hazards.
- Providing land management agencies with risk roll-up reports that document the risks and hazards of each site visited and that propose potential safeguarding actions.
- Exchanging mine information with other federal land management agencies and state and tribal AML programs to help address land management and public safety concerns.
- Creating collaborative partnerships with land management agencies and AML programs to efficiently address issues of public health and safety through safeguarding of hazardous mine features.
- Safeguarding communities and the public from the inherent physical hazards presented by abandoned uranium mines through mine safeguard construction.
- Enabling monitoring and maintenance of safeguarded mines.

The overarching goal of the safeguarding program is to protect the public from the inherent physical hazards presented by DRUM sites by accomplishing the following objectives:

- Restricting human access, while conserving the ecological habitat, where possible
- Constructing physical barriers at hazardous mine entries associated with abandoned underground uranium mines and at dangerous highwalls associated with abandoned surface and underground uranium mines
- Accomplishing safeguarding in a manner which protects cultural and ecological resources by complying with all relevant federal, state, tribal, and local laws and regulations
- Completing safeguarding whenever possible in conjunction with partner state, tribal, and federal agencies in a collaborative manner that maximizes effectiveness and utilization of expertise to efficiently achieve program objectives

## **5.0 Safeguarding Program Approach**

Effective implementation of the safeguarding program will protect the public from hazardous DRUM mine features. To realize this goal, LM will coordinate all aspects of program implementation including the following:

- Program scheduling
- Funding
- Risk evaluation and partner agency concurrence
- EC documentation
- Contracting and construction
- Monitoring and maintenance
- Notification of hazard mitigation

LM will work closely with affected land management agencies and landowners, as well as state and tribal AML programs, to jointly prioritize safeguard construction project areas and work to cross-utilize agency resources to meet safeguarding program goals.

### **5.1 Strategy**

LM has developed a safeguarding program strategy that builds upon data collected during V&V activities and that takes advantage of existing resources provided by LM and the LMS contractor, land management agency partners, state and tribal AML programs, and a comprehensive safeguarding program support agreement with Bat Conservation International (BCI). The LM strategy relies heavily on a collaborative partnership model being implemented throughout all aspects of the safeguarding program. In addition, LM will rely on BCI to implement project-specific tasks when partner agencies are unavailable to do so. The ability to utilize BCI resources greatly enhances LM's ability to protect the public from physical hazards at DRUM sites within program time frames.

## 5.2 Collaborative Partnerships

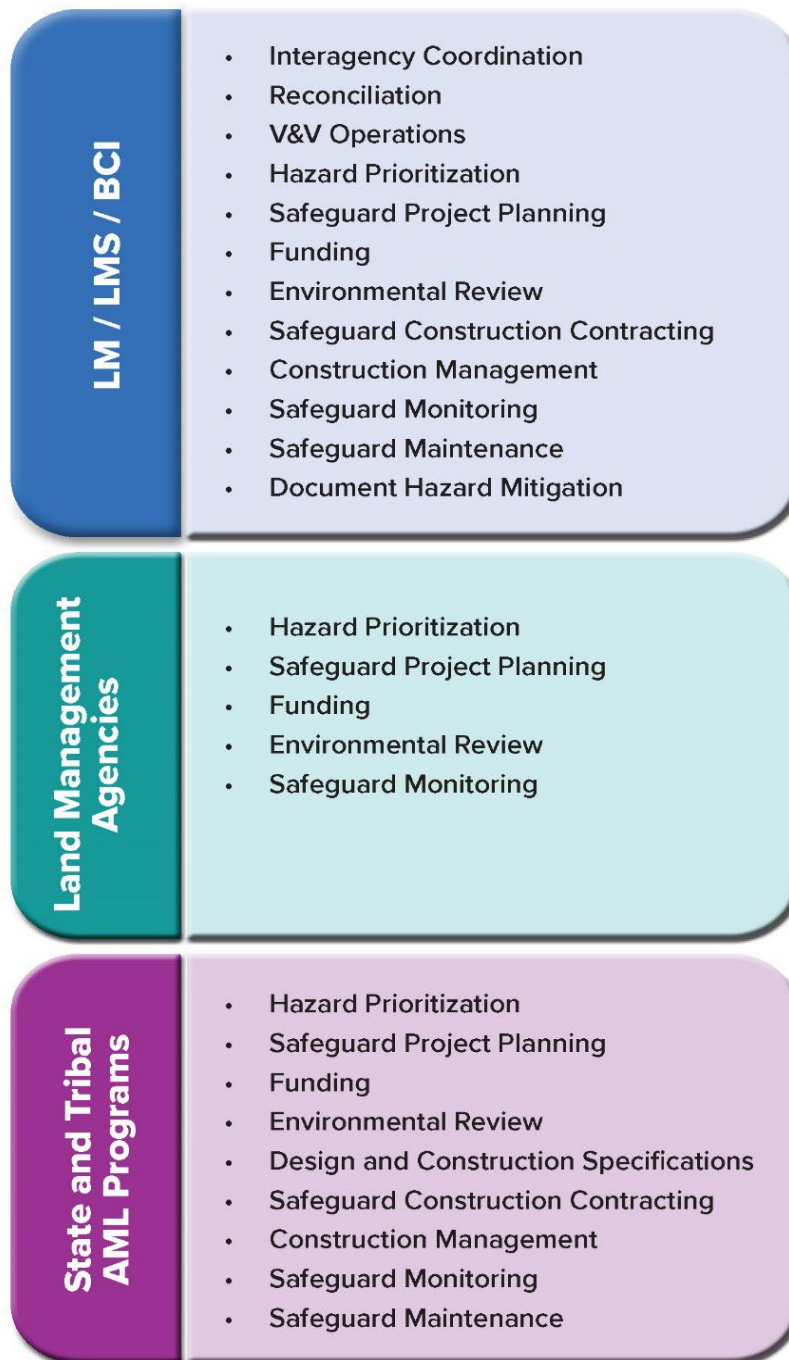
Collaborative partnerships are the most efficient and effective method of implementing the mine safeguarding program and individual safeguard projects. Successful collaborative partnerships involve multiple funding alternatives, clear delineation of tasks and associated timelines, an understanding of the goals and objectives of each involved agency, open lines of communication, and use of individual agency expertise in all aspects of a safeguard project. The intent of collaborative partnerships is to maximize the use of available collective expertise and resources. Therefore, it is important that all parties involved use their inherent strengths to the greatest benefit of the program and individual projects.

LM has partnered with state, tribal, and federal agencies and, in limited circumstances, private landowners to implement the DRUM safeguarding program. As part of this approach, LM developed a memorandum of understanding (MOU) with the State of Utah School and Institutional Trust Lands Administration. LM also has an interagency agreement with the USFS national office and the National Park Service. LM entered into Cooperative Agreements with the Navajo Abandoned Mine Lands Reclamation Department; the Colorado Division of Reclamation, Mining, and Safety; the Utah Abandoned Mine Reclamation Program; BCI; and the Wyoming Department of Environmental Quality. These agreements outline the basis for collaborative interagency partnerships to implement safeguard construction in a manner that is most beneficial to the public. Figure 2 describes some of the capabilities provided by the government entities which may be involved in the mine safeguarding program.

Due to overlap in expertise, resources, and capabilities, there are numerous staffing and task management options available for each safeguard construction project. As depicted in Figure 2, the capability to provide specific resources for certain tasks is shared by multiple agencies. This capacity allows safeguard project planning and construction to move forward even when any one agency may not have the appropriate resources available. As an individual agency's ability to commit resources will evolve, the capability to cross-utilize resources on a project-specific basis will allow agencies to participate to differing degrees and in varying capacities over time.

## 5.3 Implementation

LM will implement the safeguarding program via a program lead and state-specific project managers. The program lead will be responsible for overall program implementation, including interagency coordination, funding, project prioritization, and scheduling. LM state-specific project managers are responsible for working with land management agencies and state and tribal AML programs to identify individual safeguard projects; coordinate resources necessary to ensure project planning, environmental review, contracting, and construction are completed on schedule; and enable monitoring, maintenance, and project closeout to be completed within designated timelines. Section 6.0 discusses the implementation of individual safeguard projects.



Legend	
AML	Abandoned Mine Lands
BCI	Bat Conservation International
LM	Legacy Management
LMS	Legacy Management Support
V&V	Verification and Validation

Figure 2. Collaborative Partnership Matrix

### **5.3.1 Scheduling**

The safeguarding program is a systematic effort to protect the public from hazardous mine features identified during the V&V process. The program is designed to create a continual process that will complete multiple safeguard construction projects annually. The program is scheduled to terminate in fiscal year (FY) 2030. To successfully complete the goal of safeguarding these hazards in a relatively short period of time, nimbleness and flexibility in scheduling, planning, and implementation is necessary.

### **5.3.2 Funding**

LM is committed to pursuing funding to safeguard hazardous DRUM mine features in future fiscal year budgets through the program's termination in 2030. LM has developed the capability to provide funding to partner land management agencies and AML programs via interagency and Cooperative Agreements. Moreover, land management agencies may provide matching funds or in-kind resources as opportunities and agency priorities dictate. Similarly, state or tribal AML programs may provide matching funds or other resources.

### **5.3.3 Risk Assessment and Partner Agency Concurrence**

LM has evaluated the risk posed by individual mining-related features. Risk roll-up reports contain concise evaluations of the risk presented by individual hazardous features based on data collected during field V&V activities. The reports are provided to partner land management agencies for the purposes of documenting and prioritizing specific mining-related hazards as a precursor to initiating safeguarding activities.

LM will work with partner land management agencies to secure concurrence with the hazard assessment. Because land management agency concurrence triggers initiation of the safeguarding program process, it is a critical early step in the safeguard project identification and planning process.

### **5.3.4 Environmental Review and National Environmental Policy Act (NEPA) Documentation**

NEPA (42 USC 4321 et seq.) requires federal agencies to conduct environmental reviews and prepare documentation for all projects that may impact the environment. The federal agency taking an action or making a decision (the lead agency) must conduct and document environmental reviews. Effective and efficient safeguarding program implementation relies on thorough and timely completion of environmental reviews and NEPA documents. Environmental reviews evaluate the potential impacts of safeguard projects on natural resources and determine the level of NEPA documentation required and the need for National Historic Preservation Act (NHPA) (54 USC 300101 et seq.) or Endangered Species Act (16 USC 1531 et seq.) consultations or environmental permits. Primarily, the safeguarding program will rely on the expertise of partner agencies and offices to complete environmental reviews and NEPA documents well in advance of construction contracting. Some documents, consultations, and permits require a substantial amount of time to complete; therefore, environmental review responsibilities will be determined well in advance of scheduled construction. Partner land

management agencies may utilize regional NEPA documents to minimize duplicative efforts, while affording protections to valuable cultural and natural resources.

NEPA documents include Environmental Assessments (if no significant environmental impacts are anticipated) and Environmental Impact Statements (if there are expected impacts). A lead agency may adopt another agency's Environmental Assessment or Environmental Impact Statement when appropriate. Alternatively, a lead agency may apply a Categorical Exclusion to a project if it has previously determined that environmental impacts are minimal for a specific category of actions and that agency has previously created a Categorical Exclusion. Historically, many Categorical Exclusions have been applied to mine safeguard projects because the projects are minimally impactful to the environment and are protective of nearby ecological and historical resources. Many land management agencies have years of experience evaluating impacts of mine safeguard construction projects and can issue existing Categorical Exclusions to accommodate multiple mine safeguard construction projects.

To proceed in a protective and efficient manner, LM will work directly with land management agencies to determine whether the scope of proposed mine safeguard projects will fall within the purview of an existing Categorical Exclusion. To the extent possible, LM will utilize these Categorical Exclusions. When a Categorical Exclusion cannot be applied and when the scope of mine safeguard projects will continue for an extended period, LM intends to work with the appropriate land management agency to develop regional NEPA documents. Regional documents are the most efficient way to ensure resource protection and execute project goals and objectives.

Many mines contain potential historical resources, and consultations for safeguard projects will often include those required under NHPA Section 106. Consultation with the U.S. Fish and Wildlife Service will be required if listed threatened or endangered species or their designated critical habitat could be affected by a safeguard project. Projects at some mines may require consultation with state or tribal agencies (e.g., state or tribal departments of fish and wildlife).

The need for permits must also be evaluated for mine safeguard projects. For example, a state stormwater permit may be needed for ground-disturbing activities associated with safeguarding work. Permits will be coordinated by the safeguard project's lead agency, and all applicable permitting will be completed before a project begins.

Planning for environmental reviews and consultations will ensure that any resultant protective conditions are built into construction specifications. Careful timeline planning may also identify avoidance or mitigation measures early in the process that could be implemented to reduce the number of consultations or permits required for a project.

When available and appropriate through the use of interagency partnerships, LM may utilize existing resources and other agency contracts to complete portions of the environmental reviews, such as subsurface biologic investigations and historical resource evaluations. These practices may help expedite the drafting of NEPA documents while providing subject-specific expertise. An environmental review should begin well before the initiation of safeguard construction activities. LM may utilize the services of a NEPA coordinator who is knowledgeable about specific safeguard projects and mining-related resource issues, including cultural and historical resources and State Historic Preservation Office (SHPO) concerns.

### **5.3.5 Contracting and Construction**

Safeguard construction contracting may be accomplished by state and tribal AML programs, BCI, or partner land management agencies. Contracting of mine safeguard construction is a potentially time-consuming process. The ability to utilize the contracting capacity of safeguarding partners will provide flexibility to accommodate scheduling changes and management priorities. To proceed in a timely and efficient manner, an existing contracting system may be used, or a modification to an existing process may be identified and implemented. LM program management, in conjunction with safeguarding partners, will coordinate to define efficient purchasing processes in specific states, as needed. Generally, safeguarding partners will manage safeguard construction.

### **5.3.6 Monitoring and Maintenance**

Monitoring and maintenance of completed safeguards should be accomplished following construction. LM or any safeguarding partner may conduct monitoring. The result of monitoring will be documentation that each constructed safeguard either functions as designed or requires maintenance to achieve safeguard functionality.

Maintenance of compromised safeguards will be accomplished by the agency or office most capable of completing contracting and construction activities, when needed. Contracting capabilities will be similar to those required for safeguard construction.

### **5.3.7 Notification of Hazard Mitigation**

After completing monitoring or any required maintenance, LM will change the hazard status of individual mine features in the DRUM Program database to indicate that the originally identified hazard has been mitigated. LM will also notify the affected land management agencies of the status of the safeguards so that they are aware that the hazards have been mitigated.

## **6.0 Safeguard Project Implementation**

### **6.1 Overview**

LM is providing funds, oversight, and administrative functions to facilitate partnerships and promote the efficient and effective safeguarding of hazardous abandoned uranium mine features. Multiple agencies and organizations will be involved in the mine feature safeguarding process at any one time, as projects are conducted in different regions of the country with various state and tribal AML programs and land management agency partners. Each involved agency will have different roles in individual safeguard projects, depending on the circumstances of each project. Circumstances, which may vary from project to project for all partner agencies, include changing priorities, variances in funding availability, and shifting staff resources. Partner agencies or programs that undertake contracting and project management will provide resources to ensure that defined project outcomes are achieved. LM will provide support capabilities via the LMS contractor to accomplish program and project goals.



There are three major steps to safeguard construction project implementation: (1) initial project organization, (2) completion of individual safeguard construction projects, and (3) postconstruction project management. LM anticipates that multiple mine safeguard construction projects will be implemented annually through FY 2030. As a result, the process of defining projects, implementing construction, and managing the postconstruction process will be continual, with multiple iterations of each implementation step occurring simultaneously in different localities.

LM recognizes that land management agencies and AML programs have multiple responsibilities, limited resources, and competing priorities. Due to these dynamics, the implementation process is designed to be flexible to best accommodate partner agency needs while maximizing the opportunity to safeguard hazardous DRUM site features. The process will usually follow a similar format regardless of land management status. Figure 3 illustrates the project flow path.

The program approach described in Section 5.0 and safeguard project implementation share similar characteristics. This is largely because the resources of multiple agencies are being used to most efficiently manage and implement this program. The safeguarding program and the implementation of individual safeguard projects rely on the flexibility this approach offers. Some programmatic tasks are completed before construction, while some tasks are completed during and after safeguard construction. In all instances, an appropriate degree of planning and resource allocation is required so that goals and timelines are successfully met.

## **6.2 Project Organization**

Project organization describes presafeguard-construction activities and tasks coordinated by LM and completed by safeguarding partners. Timing of project initiation and completion of these tasks is critical in order that project timelines and construction goals are successfully met.

Presafeguard-construction tasks include the following:

- Partner engagement
- Project planning
- Prioritization
- Location delineation
- Preconstruction environmental review
- Safeguard design
- Safety considerations
- Contracting

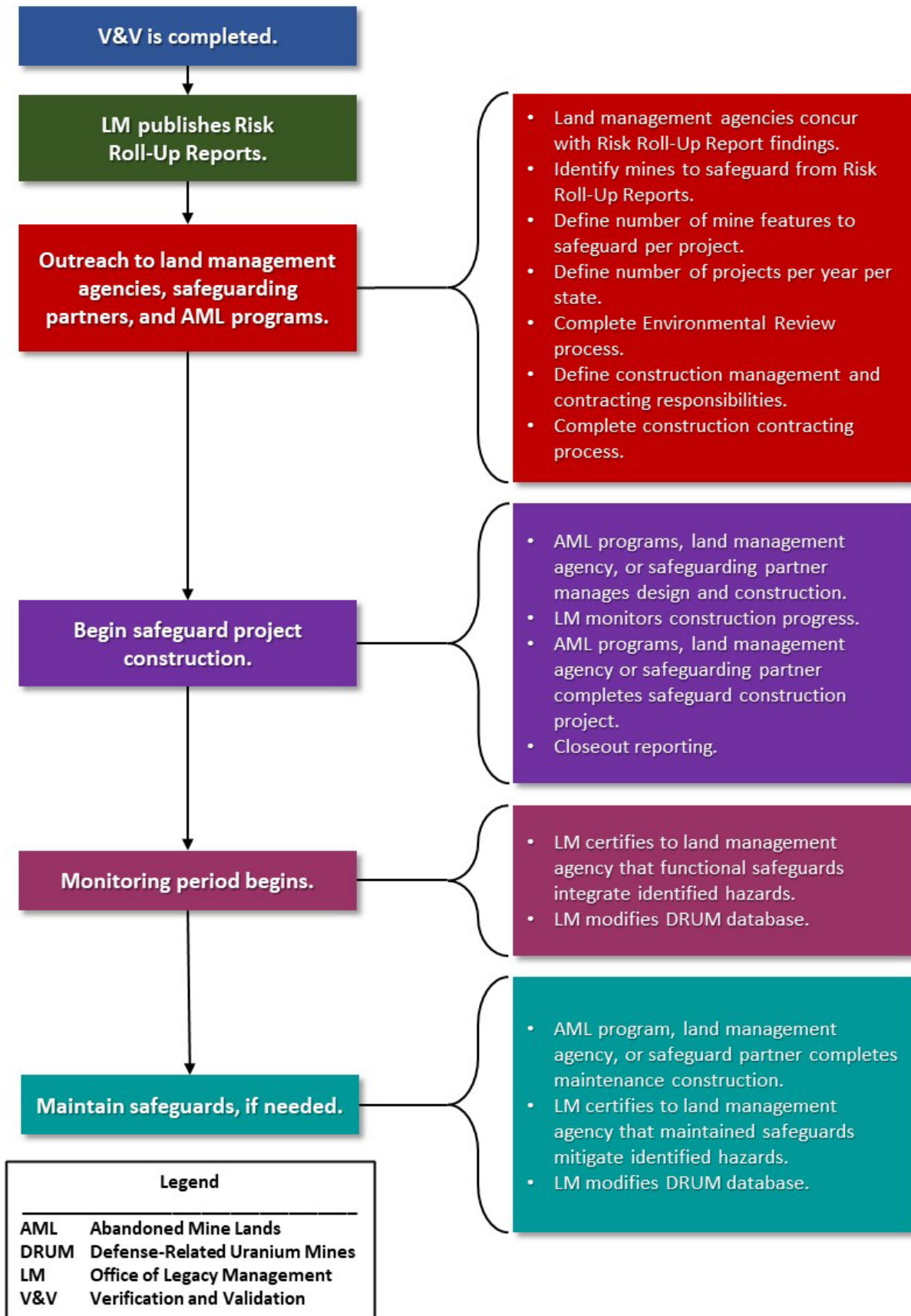


Figure 3. Safeguard Project Process

### **6.2.1 Partner Engagement**

Engagement of partner agencies begins at the administrative level when interagency Cooperative Agreements are completed and continues during V&V activities. Reengagement of partner agencies occurs following risk roll-up reporting. Safeguarding priorities for individual land management agencies may be established at a programmatic level when enough risk roll-up reports have been completed for a specific region. Early engagement with partner agencies provides an opportunity to prioritize and plan both long-term and short-term safeguarding goals and objectives. Early engagement also allows for preliminary project scheduling and early analysis of resource needs and provides an opportunity to strategically determine how to meet those needs.

Partner engagement and project planning processes may occur simultaneously. These two interrelated steps in the safeguard implementation process set the stage for both program and project implementation.

### **6.2.2 Project Planning**

Project planning is a multifaceted, all-inclusive process relying upon effective communications between LM as the safeguarding program coordinator and safeguarding partners. Partner engagement and project planning processes may occur simultaneously. These two steps are the foundation for both program and project implementation. Figure 4 illustrates the conceptual steps and relative timeline of the safeguard project planning process.

A critical step in project planning is ensuring that the appropriate land management agencies and state and tribal AML programs are engaged early in the process so that collaborative decision making between partners is accomplished. On a programmatic level, collaborative decision making provides the opportunity for LM and partner agencies to plan safeguard construction projects so that priorities are acknowledged, and necessary resources are identified to accommodate projected schedules. Engagement with state and tribal AML programs early in the planning process is essential on a construction-specific level for the opportunity to schedule compliance, contracting, and construction management activities. Engagement should occur early in the project planning process to accommodate resource needs.

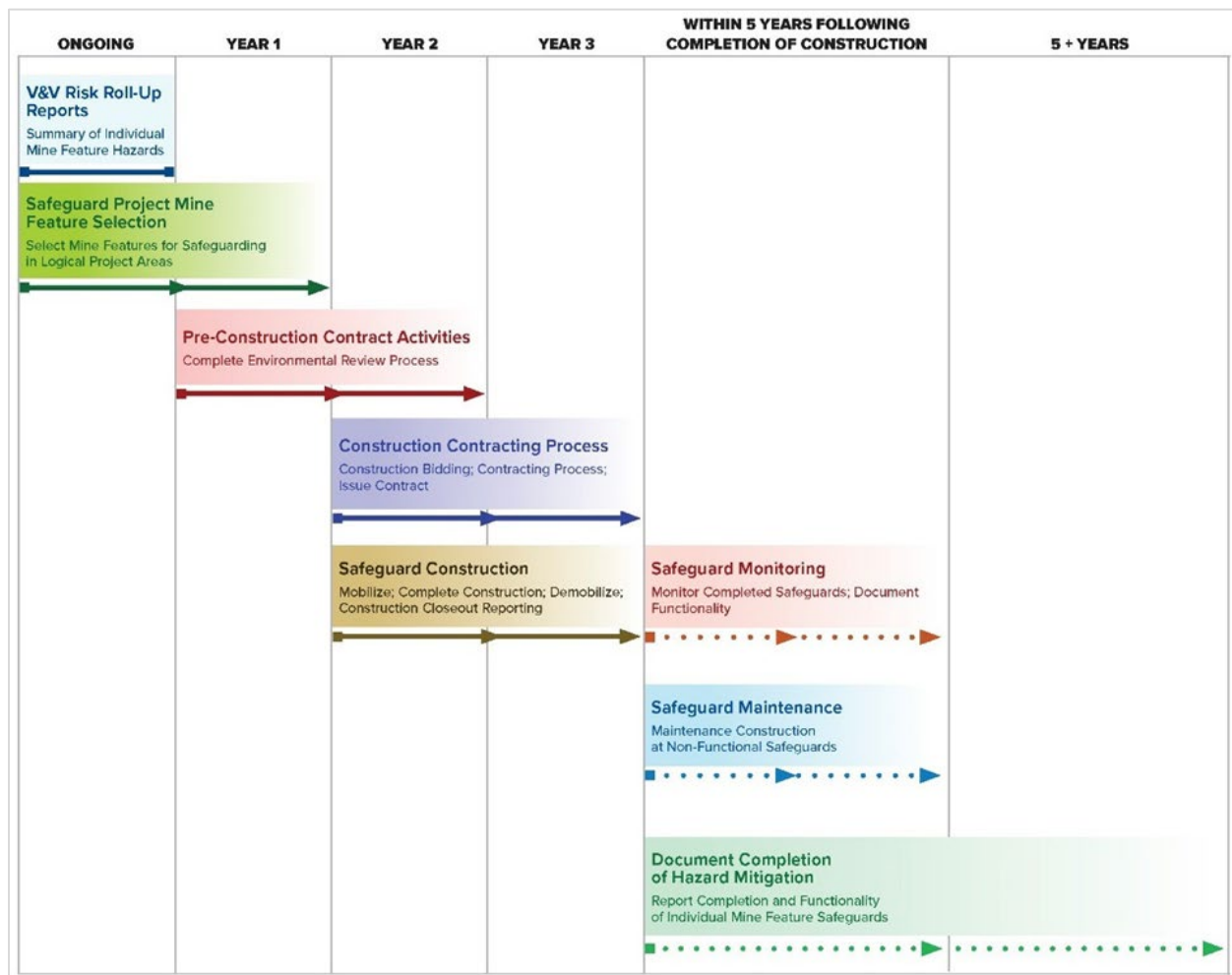


Figure 4. DRUM Safeguard Project Timeline

### 6.2.3 Prioritization

Because of the number and different types of hazardous mine features identified during V&V operations, there will be a need to prioritize the sequence in which safeguard projects are completed. Prioritization of mine safeguard projects may take into account variables such as the following:

- Partner agency goals and objectives
- Number and severity of public safety hazards in a specific geographic area
- Timing of land management agency concurrence with LM findings
- Availability of partner agency and state and tribal AML program staff
- Ability to complete environmental reviews and associated NEPA documentation in a defined time period

- Ability of the purchasing organization to process contracting documents in a defined time period
- Availability of partner agency and state and tribal AML program matching funds or in-kind services

Prioritization for completion of specific safeguard projects may consider the abovementioned variables and other project-specific or agency-specific variables which may arise. LM will strive to prioritize safeguard projects in consultation with land management agencies well before initiating environmental reviews, with the goal of establishing a time-dependent list of project priorities.

Prioritization of specific groups of hazardous features may be considered after the relative risks posed by individual features have been evaluated. Generally, all identified hazardous physical features will be safeguarded. If funding does not support safeguarding all hazardous features, an evaluation of individual features may be undertaken. This selection process, completed in consultation with partner land management agencies and state and tribal AML programs, will be focused on identifying the features to be safeguarded by evaluating the degree of risk posed by each.

#### **6.2.4 Location Delineation**

Safeguard projects will be organized in a manner which promotes efficiency in precontracting compliance activities, construction, and follow-up monitoring and maintenance tasks. Mines to be safeguarded should be grouped in such a way that (1) facilitates efficient access by a construction contractor, (2) makes each group inclusive enough for all hazards within the geographic constraints of a project area to be addressed in a single mobilization, and (3) facilitates follow-up administration by the affected land management agency. Safeguard project locations will be identified well in advance to allow adequate time to complete all administrative tasks, including environmental reviews, project design, and safeguard construction procurement processes.

Partner agencies, including state and tribal AML programs, will be contacted early in the project location delineation process to promote inclusive planning to most efficiently and effectively complete project objectives. The physical boundaries of a mine safeguard project may be defined by LM in conjunction with the affected land management agency and relevant state and tribal AML programs.

Risk roll-up reports, concise summaries of data gleaned from specific geographic areas, are a logical starting point when delineating safeguard project areas. The specific geographic areas summarized in risk roll-up reports are usually portions of Field Operations Plan (FOP) areas. Other factors which may be considered when defining safeguard construction project boundaries include the following:

- Proximity of mines to one another
- Watershed boundaries
- Mining district boundaries
- Ranger district boundaries

- BLM field office boundaries
- National Park Service (NPS), wilderness, or other restricted use area boundaries
- Proximity of concurrent state or tribal AML projects
- Partner agency funding opportunities

The number of mine features to safeguard in a project area may be influenced by the economics of optimizing construction-related costs, common land management administration, and timing limitations such as seasonal closures of certain areas due to wildlife or other environmental considerations.

## **6.2.5 Preconstruction Environmental Review Requirements**

This section describes preconstruction environmental review requirements, processes, and procedures. It also describes alternatives for accomplishing these environmental review requirements. Careful planning for environmental reviews and consultations will ensure that resultant protective conditions are built into construction specifications.

### **6.2.5.1 Safeguard Design**

Design of mine safeguards is relatively unique because the designs must be flexible enough to be utilized in varying conditions and circumstances. In acknowledgement of this, state and tribal AML programs and some land management agencies have developed safeguard designs that are flexible enough that they can, within certain limitations, be modified for use in differing circumstances. These designs have proven to be versatile, effective, and durable. Utilization of existing, proven safeguard designs has many benefits, including the following:

- No need to create new designs, thus saving time and funds
- Existing designs are adaptable to varying and unique site conditions
- Allows for clear, concise project specifications
- Construction contractors are familiar with existing designs, providing bidding efficiencies
- Creates construction management efficiencies
- Allows for implementation of best practices where no design standard is applicable

To promote efficiency, LM will adapt and accept existing state, tribal, or land management agency AML program safeguard construction specifications as design standards.

Safeguard construction will adapt to compliance requirements specified for a hazardous mine feature. For instance, animal-friendly safeguards will be constructed at those locations where habitat is known or suspected to be. Table 1 describes some typical safeguards and some attributes of each.

## **6.2.6 Safety Considerations**

Safety of personnel responsible for safeguard installation is a paramount consideration during safeguard design, construction, monitoring, and maintenance processes.

National safety protocols to be implemented by government agency personnel and their contractors at abandoned mines have not been definitively established over time. To establish safety protocols relevant to safeguard construction at abandoned mines, some state and tribal AML programs have individually established safety criteria for staff and mine safeguard installation contractors.

LM, the LMS contractor, and other LM contractors will defer to the established criteria used by state and tribal AML programs when those offices contract and manage safeguard construction activities.

Generally, health and safety protocols implemented at a safeguard construction project incorporate both surface and underground protocols. LM and LMS personnel will not work underground and, therefore, will adhere to surface safety protocols. When program staff and their contractors work on the surface and underground, they will adhere to both surface and underground protocols. Partner organization and contractor personnel choosing to work under or inside a mine opening or brow or work belowground at any mine will independently accept responsibility for this action. This acceptance of independent responsibility should be documented in agreements and contracts.

### **6.2.7 Contracting**

Safeguard construction contracting may be accomplished by safeguarding partners. The flexibility to utilize the contracting capacity of partners will accommodate variances in construction scheduling and program management priorities. However, the contracting of mine safeguard construction is a potentially time consumptive process. The projected contracting timelines must be factored into individual construction project schedules. For a project to proceed in a timely and efficient manner, preconstruction planning should identify efficient and focused contracting systems or, alternatively, identify and implement modifications to existing processes.

Safeguarding partners have established contracts specific to mine safeguard projects. Standard contract language provides guidance for construction performance, contractor and owner relationships and responsibilities, management of changes in working conditions or specifications, holding and releasing performance bonds, and courses of action and remedies in case of contractual disputes. Existing contract instruments will be utilized for safeguard construction contracting.

## **6.3 Construction**

Completion of preconstruction programmatic and project-specific tasks allows for implementation of safeguard installation, which involves several considerations and critical activities. The most critical considerations and major activities are described below.

### **6.3.1 EC Construction Considerations**

During construction, EC requirements will be met to ensure that cultural, ecological, and natural resources are protected. EC may involve various construction requirements and conditions so that affected resources are afforded the appropriate level of protection. Protections are most

effectively identified and accomplished by ensuring that the required environmental reviews, consultations, and permits are completed well in advance of final safeguard construction planning and specification development. Incorporation of resource considerations into final construction specifications facilitates economic and efficient completion of safeguard installation.

Considerations when designing safeguard projects include the following:

- Coordinating construction timing with scheduling or other restrictions associated with plant or wildlife conservation
- Including avoidance and mitigation measures whenever possible
- Designing safeguards to be consistent with identified resource concerns (e.g., bat habitat)
- Incorporating environmental permit conditions in construction specifications
- Including environmental consultation-related conditions in construction specifications
- Aligning revegetation materials and practices with land management agency practices
- Designing for carefully executed work near historical structures and features
- Accommodating tracking of compliance requirements



Table 1. Typical Safeguard Attributes

Safeguard Type	Safeguard Description	Feature Type	Equipment Utilized	Safety	Potential Maintenance Needs	Closure Type Advantages	Closure Type Disadvantages
Grate	Steel bars configured in a grid-like pattern across mine entry	Adits, shafts, vents, subsidences	Welding equipment, handheld drill, small track excavator, concrete mixing equipment	Work under the brow inside mine entry. Potential radiation and rockfall hazards.	Repair of vandalized bars or mine attachment points	Can be modified to fit many hazard circumstances and to allow for biologic habitation of a mine	Relatively expensive to construct. Radon safety considerations.
Polyurethane foam with backfill	Pour-in-place structural foam covered by earthen backfill to ground surface	Shafts, vents, subsidences	Mixing equipment, hand tools, small track excavator	Work immediately adjacent to vertical features.	Repair of safeguard subsided into underlying mine feature	Low maintenance requirements, can accommodate biologic habitation of a mine, relatively inexpensive to construct	Feature is open below base elevation of foam, creating subsidence potential. Preparation and initial installation work immediately adjacent to vertical features.
Backfill	Placement of earthen material within feature	Adits, shafts, vents, subsidences	Hand tools, small track excavator	Initial work is conducted under the brow inside mine entry or adjacent to vertical features.	Backfill settling creating a void allowing access	Complete filling of vertical features; substantial filling of horizontal mine entries. Inexpensive to construct.	Does not accommodate biologic habitation of a mine.
Bulkhead	Block wall constructed inside mine entry	Adits	Hand tools, small track excavator, mortar mixing equipment	Work under the brow inside mine entry. Potential radiation and rockfall hazards.	Repair of breached bulkhead materials	Can fit most adit conditions. Can be modified to allow for biologic habitation of a mine. Relatively inexpensive to construct.	Radon safety considerations.
Fence	Steel or barbed wire fencing constructed adjacent to a hazardous feature	Highwall	Small track-mounted or handheld drill, hand tools, welding equipment, concrete mixing equipment	Work adjacent to vertical features.	Repair of cut or failed fence	Relatively quick deterrent to hazardous highwalls	Moderately expensive to construct, work adjacent to vertical features, relatively susceptible to vandalism.

### **6.3.2 Construction Safety Considerations**

This section and Section 14.0 of this plan describe specific safety requirements and documents that govern mine safeguard project safety protocols. Contracting organizations will require that health and safety protocols be adopted by construction contractors. Some key components of safeguard construction safety and health protocols include the following:

- Surface safety
  - Gamma radiation monitoring
  - Hazards associated with heavy equipment
  - Hazards associated with working at the base of excavated highwalls
  - Hazards associated with dust inhalation
  - Hazards associated with noise in the work zone
  - Hazards associated with unstable structures
  - Incident prevention
  - Incident reporting
- Underground safety
  - Alpha radiation monitoring
  - Minimizing radon exposure
  - Subsurface atmospheric monitoring (gasses, barometer)
  - Hazards associated with working under the brow (mine back and rib stability)
  - Hazards associated with dust inhalation
  - Hazards associated with noise in the work zone
  - Incident prevention
  - Incident reporting

### **6.3.3 Construction Project Management**

A single organization will be responsible for safeguard construction project management for any one project. The purpose of this focused responsibility is to ensure consistency in the implementation of the contract vehicle and construction quality in completing safeguards at the population of mines included in a safeguard construction project. The organization tasked with construction project management will be responsible for all aspects of the project from awarding the contract to final acceptance of the completed safeguards. These responsibilities include all aspects of completing construction of the specified mine safeguards.

Five primary construction management responsibilities are as follows:

1. Ensure that each safeguard is constructed to design specifications
2. Ensure contractor compliance with all contract requirements, including EC and safety considerations

3. Evaluate requested changes to design specifications and commensurate changes in cost
4. Accept or require modification of completed safeguards
5. Approve payment for successfully completed safeguards

The agency responsible for safeguard construction project management will provide an on-the-ground project manager. The project manager is responsible for communicating project progress and ensuring that all work is performed to design specifications in compliance with contractual obligations.

#### **6.3.4 Sampling of Safeguarded Mines for Quality Assurance**

LM will maintain a quality assurance presence during safeguard construction to ensure that the highest quality safeguards are consistently constructed. Safeguards under construction will be evaluated at previously identified critical construction points to ensure that the quality and resultant integrity of constructed safeguards meet project specifications. LM will complete a random sampling of features safeguarded during each project. Reports of the quality assurance findings will be provided to the agency or contractor responsible for construction project management. The agency or contractor responsible for construction management will ensure that any deficiencies noted by LM are remedied at all affected safeguards.

#### **6.3.5 Safeguard Project Closeout**

The agency or contractor responsible for construction project management will notify LM that it has accepted all constructed safeguards at the completion of each project. This safeguard project closeout indicates that the agency or contractor responsible for construction project management has evaluated the installation of each safeguard and certifies that each safeguard meets project specifications and expectations. The notification to LM will include a list of each hazardous mine feature safeguarded, the corresponding LM identification number, the type of safeguards installed, and the final cost of each safeguard installed.

Unless the LM quality assurance oversight detected substantial uncorrected issues with the safeguard construction process, LM will accept the safeguards as complete and will notify the appropriate land management agency of project completion. Acceptance of the completed safeguards by LM initiates the 5-year monitoring program described in Section 7.0.

## **7.0 Postsafeguard-Construction Monitoring and Maintenance**

Monitoring of constructed safeguards and performance of maintenance when needed is a logical outgrowth of the safeguarding processes. Monitoring evaluates the effectiveness of individual safeguards in preventing human ingress. In addition, newly developed hazardous features, such as recent subsidences, can occur after safeguard construction. Newly formed hazards, if observed during monitoring near safeguarded mine entries, will be noted and safeguarded.

## 7.1 Monitoring

The goal of the safeguarding program is to protect the public from the dangers posed by hazardous mine features at DRUM sites. Though the initial safeguard is the primary focus of the safeguarding program, the functionality of constructed safeguards should be evaluated following installation. Monitoring of completed safeguards should be accomplished at least once during the first 5 years following completion of installation. Monitoring may be accomplished more frequently for specific safeguarded features as a result of evolving modifying factors, such as increased site use or improved site access. Further, it is important to identify and safeguard recently developed mining-related hazards at previously safeguarded mines, such as new or forming subsidences. This forward-looking approach to safeguarding recently developed and forming hazardous features is cost and time efficient and proactively protects the public from potentially hazardous mining-related features.

A GPS-based data dictionary and field form application will be employed during monitoring operations. Use of this technology will guide field observations and quantify, in real time, site observations pertaining to constructed safeguard functionality. Collected data will be downloaded into mine-specific folders in the DRUM Program database so that a complete log and history of specific features in the context of the DRUM Program is created. The information will also be used to drive maintenance construction specifications and contracts.

Following monitoring field visits, the DRUM Program database will be updated to document both the date that monitoring was completed and observations regarding safeguard functionality, including the need for safeguard maintenance. The DRUM Program database will also be modified to reflect the change in hazard status for each feature safeguarded where the safeguard is found to be functional, and this modification will reflect that the hazard identified during V&V operations and documented in risk roll-up reports has been mitigated. The DRUM Program database update will be made within 60 days of receiving the finalized monitoring data when maintenance is not required.

## 7.2 Maintenance

Maintenance will be conducted if monitoring identifies a departure of safeguard functionality from design specifications or if a previously unidentified (new or developing) hazardous mine feature, such as a subsidence, is observed at the mine. For example, a significant departure of safeguard functionality from design specifications could mean that a constructed safeguard no longer prohibits access to the subsurface or that it is in danger of allowing such access in the foreseeable future. Maintenance activities will be focused on addressing the causes and resultant issues associated with the observed change in safeguard functionality and on constructing safeguards at previously unidentified (new or developing) hazardous features.

Maintenance activities may include repairing breached, incompetent, or nonfunctional safeguards; installing new safeguards to replace failed safeguards; or constructing safeguards if previously unidentified hazardous features have developed or are actively developing at a safeguarded mine.

Maintenance will be completed by trained personnel who will complete required tasks safely and efficiently without collateral damage to the adjacent environment or other resources.

Maintenance activities will be coordinated with the affected land management agency in advance of mobilizing to a mine so that any required compliance or local issues may be addressed in advance of projected work activities. Maintenance contracting, accounting, project management, safety, and construction closeout processes will mirror those used in the safeguard project process.

Following completion of maintenance at individual features, the DRUM Program database will be modified to indicate the extent and final disposition of maintenance activities at each affected site. The DRUM Program database will also be modified to reflect the change in hazard status for each feature maintained, and this update will reflect that the hazard identified during V&V operations and documented in risk roll-up reports has been mitigated. The DRUM Program database update will be made within 60 days of receiving the finalized maintenance data.

## **8.0 Safeguarding Program Administration**

LM will ensure that the safeguarding program is appropriately implemented through active participation in all facets of the program. LM will actively participate in interagency communications, including the concurrence process; safeguard project development, design, construction, monitoring, and maintenance; and program administrative tasks, including agreement development and implementation, cost administration, and other related tasks.

### **8.1 Cost Administration**

LM will provide funding to land management agencies and state and tribal AML programs using an agreement. These agreements will describe tasks, responsibilities, and project costs, as appropriate. Cooperating agencies will report progress, accomplishments, and expenditures to LM as described in individual agreements. Established federal practices will be followed to manage the funds used by partner agencies performing safeguard-related tasks. Partner agencies will bill against these agreements, and LM will track these costs and expenditures.

### **8.2 Safeguard Project Acceptance**

The contracting partner responsible for safeguard project construction will notify LM when each safeguard project has been completed. This notification will be made in consultation with LM to ensure that any concerns noted by LM during its quality assurance activities have been satisfactorily addressed. This oversight process ensures that each affected agency or AML program and LM are mutually assured that the constructed safeguards meet design specifications and that the goals of a specific safeguard project have been accomplished.

### **8.3 Completion of Monitoring**

Completion of monitoring and documentation of successful safeguard functionality initiates notification to land management agencies that previously identified hazards have been mitigated. LM will participate in the monitoring documentation process, including DRUM Program database updates and notifications made to partner land management agencies.

## **8.4 Completion of Maintenance**

Completion of maintenance, when needed, and documentation of successful safeguard functionality initiates notification to land management agencies that previously identified hazards have been mitigated at features which required postsafeguard-construction repair. LM will participate in this documentation process, including DRUM Program database updates and notifications made to partner land management agencies.

## **8.5 Notification of Hazard Mitigation**

Following completion of monitoring, or subsequent maintenance if required, LM will complete a brief safeguard closeout report describing the results of safeguard construction at specific mine features. The closeout reports will be presented to the appropriate land management agencies in a spreadsheet-style, database-driven report format. The DRUM Program database will be updated simultaneously with the issuance of the closeout report. The closeout reports will document successful completion of a specific safeguard project. Reporting will include documentation that the hazards identified during V&V operations and tabulated in risk roll-up reports have been mitigated. Similar reports will be issued by LM following maintenance construction at those safeguards requiring additional work. Section 11.0 describes reporting in more detail.

LM anticipates that affected land management agencies will concur that the successfully completed safeguards have mitigated the hazard previously identified in risk roll-up reports. LM intends that notification of hazard mitigation will terminate DOE involvement at individual mine features.

## **9.0 Education and Outreach**

Public outreach and education are important components of safeguard projects. Public education regarding the inherent hazards associated with abandoned mines, provision of mining-related historical interpretive information, and safeguard-specific outreach have been hallmarks of AML programs on both the state and federal levels. The DRUM safeguarding program is uniquely positioned to participate in these educational outreach efforts.

The hazards and risks associated with abandoned uranium mines allow the opportunity to provide public service messaging pertaining to safety at abandoned uranium mines to local communities. The National Association of Abandoned Mine Land Programs (NAAML) and state and federal AML programs have organized and participated in the nationwide “Stay Out Stay Alive” campaign. The safeguarding program provides an opportune moment to participate in this national educational effort while emphasizing the unique issues associated with abandoned uranium mines.

Community outreach during the planning and implementation phases of a safeguard project is an important consideration in promoting mine safety awareness and describing the inherent dangers of abandoned uranium mines and represents an opportunity to gather and disperse information regarding the human element of the historical importance of the uranium mining industry.

Community outreach during safeguard project planning may include participation in or organization of the following:

- Public scoping meetings
- County commissioner meetings
- Tribal council meetings
- Public service announcements
- School presentations
- Historical interpretive signs
- Signage at project areas

The DRUM Program is unique in scope on both national and regional levels. The unique objectives of evaluating physical hazards at a specific subset of abandoned mines and taking collaborative steps with land management agencies and AML programs to safeguard hazardous mine features provide educational opportunities. The safeguarding program affords the opportunity to present methodologies, scope, findings, lessons learned, and path forward strategies to audiences for the purpose of disseminating information that others may use in addressing particular mine hazards. Technical presentations to specific audiences provide the opportunity to gather information that may further enhance the tools used to obtain and evaluate data. Some methods to disseminate and collect information include the following:

- Presenting papers at conferences
- Publishing papers in journals
- Actively participating in AUMWG and NAAML
- Maintaining an active website
- Facilitating relationships with historical preservation organizations

## **10.0 Program Organization**

The DRUM Program structure defines the organizational elements to plan and implement the safeguarding program. The LM Uranium Mine Team lead is responsible and accountable for program and project management, contractor oversight and performance evaluation, interagency coordination, as well as the overall success of the DRUM Program.

In addition to the LM and LMS program organizations, BLM, USFS, state and tribal AML programs, and other private and nonprofit organizations provide support to the DRUM safeguarding program. Examples of how partner agencies contribute to the program include providing LM with (1) timely concurrence with hazardous mine feature safeguarding priorities, (2) information and support regarding the completion of various tasks to promote efficient execution of individual safeguard projects, and (3) access to mines on land they manage.

## **10.1 Office of Legacy Management**

LM is a DOE Headquarters office that is managed from Washington, D.C.; Grand Junction and Westminster, Colorado; and Morgantown, West Virginia. The safeguarding program operates out of the LM Operations Center at Westminster, Colorado and is managed by the LM Uranium Mine Team lead. The LM Uranium Mine Team also consists of other federal employees and support contractors who directly support the DRUM Program. The team works collaboratively to define program goals, objectives, and priorities and accomplish tasks necessary to ensure program success.

## **10.2 LMS Contractor**

The LMS contractor provides support to LM through safeguarding program execution, including various support functions, as required. The safeguarding program is part of the DRUM Program administered by the DRUM subtask. The LMS lead for the safeguarding program is the Uranium Related Programs (URP) manager. The URP manager is supported by direct staff and mission support organizations. LMS safeguarding program-related activities are operated from the LM Field Support Center at Grand Junction, Colorado.

The Data Management; Environmental Compliance; Quality Assurance; Education, Communications, History, and Outreach (ECHO); and Records Management groups are available to provide support to the safeguarding program. Program activities are supported by DRUM Program administrative staff who help track, organize, and facilitate work being done by the program.

## **10.3 Cooperative Agreements, Interagency Roles, and Responsibilities**

LM has a Cooperative Agreement with BCI and multiple state AML agencies to provide services directly supporting all aspects of safeguarding program activities. The Cooperative Agreements are managed by the LM Uranium Mine Team lead or designee. These agreements identify the partnership team, which is supported by staff and subcontractors capable of fulfilling agreement specifications.

Partner agencies and state and tribal AML programs have differing roles within the safeguarding program. LM engages these agencies through agreements and MOUs, which define general roles and responsibilities. Land management agencies also function to support DRUM safeguarding efforts via their enabling legislation. LM consults with partner agencies to develop safeguard projects and scope and to collaboratively define safeguard project parameters related work tasks and schedules. LM provides direction to cooperating partners about what activities need to be conducted. Cooperative partner management provides direction to each partner organization's staff to execute the work associated with the program.

### **10.3.1 State and Tribal Agencies**

LM's Cooperative Agreements with some state AML programs facilitate activities and funding necessary to initiate, complete, and monitor safeguard projects. LM will establish agreements with additional state and tribal AML programs as the safeguard program initiates activities in affected areas.



Some state and tribal AML programs have existing administrative agreements with partner land management agencies (e.g., USFS, BLM). These preexisting agreements provide funding mechanisms and a general scope of responsibilities pertaining to safeguarding of abandoned mine features. These agreements may be utilized to facilitate safeguarding of hazardous DRUM site features on certain public lands.

### **10.3.2 U.S. Bureau of Land Management**

BLM state offices will be the primary contacts for safeguarding efforts on BLM-managed public land. BLM state and field offices will work with LM to provide mine feature hazard priority concurrence, support for environmental reviews, preparation of NEPA documents, and input on safeguard construction activities. BLM also coordinates safeguard construction, monitoring, and maintenance access. BLM authorities that support the safeguard program include:

- The Federal Land Policy and Management Act of 1976 (43 USC 1701 et seq.). BLM has broad authority to manage public land and to protect public health and welfare from risks associated with abandoned mines on public land. BLM is authorized to enter into agreements with other federal agencies to carry out its responsibilities to manage public land.
- The Surface Resources Act of 1955 (30 USC 611 et seq.). BLM has broad authority to address an abandoned mine opening on an active mining claim staked after 1955 as long as the proposed safeguard work does not endanger or materially interfere with actual, established prospecting, mining, or processing operations or reasonably incidental uses. BLM is authorized to take the necessary steps to protect public safety and prevent further unnecessary and undue degradation caused by abandoned mines. BLM has the governing NEPA responsibility and authority for mines on BLM land and will determine the need for NEPA evaluation as necessary.

### **10.3.3 U.S. Forest Service**

The USFS national office is the primary contact for DRUM safeguarding efforts on National Forest System land. The national office facilitates LM's interaction with USFS regional and district offices to provide mine feature hazard priority concurrence, support for environmental reviews, preparation of NEPA documents, and input on safeguard construction activities. USFS also coordinates safeguard construction, monitoring, and maintenance access. USFS authorities that support the safeguarding program include:

- The Federal Land Policy and Management Act of 1976. USFS has broad authority to manage the National Forest System and to protect public health and welfare from the risks associated with abandoned mines on these public lands. USFS is authorized to enter into agreements with other federal agencies to carry out its responsibilities to manage National Forest System lands.
- The National Forest Management Act of 1976 (PL 94-588). USFS has broad authority to restore the land disturbed by historic mining activities and to protect public safety from the risks associated with abandoned mines on these public lands.

Because the mines are on National Forest System land, USFS has the governing NEPA responsibility and authority for these mines and will determine the need for NEPA evaluation as necessary.

#### **10.3.4 National Park Service**

The NPS Intermountain Regional AML coordinator will be the primary contact for safeguard efforts on NPS public land (i.e., national park units). The NPS Natural Resource Stewardship and Science Directorate Geologic Resources Division as well as individual park units work with LM to provide mine feature hazard priority concurrence, support for environmental reviews, preparation of NEPA documents, and input on safeguard construction activities. NPS also coordinates safeguard construction, monitoring, and maintenance access. NPS authorities that support the DRUM Program include:

- The National Park Service Organic Act (54 USC 100101 et seq.). NPS has broad authority to manage public land and to protect public health and welfare from risks associated with abandoned mines on national park units. NPS is authorized to enter into agreements with other federal agencies to carry out its responsibilities to manage these public lands.

For NPS-administered land, NPS has the governing NEPA responsibility and authority for mines on national park units and will determine the need for NEPA evaluation as necessary.

#### **10.3.5 Other Agencies**

LM and private and nonprofit firms will also work with other federal agencies, such as BIA, EPA, and state or tribal agencies, as needed, to facilitate safeguarding program tasks. In some instances, these and other federal, state, and tribal agencies may provide input to the environmental review process and NEPA documents, construction or other contract support, or monitoring or maintenance assistance. Utilizing the expertise and knowledge of other agencies enhances the ability to conduct the safeguarding program following an efficient one-government approach to program and project management.

#### **10.3.6 Abandoned Uranium Mines Working Group**

LM leads AUMWG. Federal agencies represented include DOE, EPA, BLM, the U.S. Department of the Interior, USFS, the U.S. Department of Agriculture, BIA, and NPS. The AUMWG agencies use a coordinated approach to share expertise, exchange technical and administrative information, and leverage resources to address problems posed by abandoned uranium mines. The DRUM Program sites subject to safeguarding activities are a subset of abandoned uranium mines. AUMWG reconfirmed the *Abandoned Uranium Mines Working Group Addressing Health and Safety Risks of Abandoned Uranium Mines Multiagency Strategic Plan* (AUMWG 2020) (AUMWG Strategic Plan) in 2021. The AUMWG Strategic Plan calls for the physical inventory, assessment, safeguarding, reclamation, and remediation of those abandoned uranium mines posing the greatest risks to human health, physical safety, and the environment. The safeguarding program helps LM achieve the goals established in the AUMWG Strategic Plan.

## **11.0 Reporting**

Reporting is an important function of the safeguarding program. Reporting tracks progress in meeting milestones and documents program achievements. LM and partner agencies will require status updates on the progress of safeguarding activities, environmental or safety issues which cause delay to safeguarding activities, completion of monitoring in discreet project areas, completion of maintenance activities in specific project areas, and completion of hazard status modification in the DRUM Program database. Project-specific reporting will be completed by the safeguard project contracting agency and will be provided to LM monthly during the life of each project. LM will report annually regarding program accomplishments during the preceding calendar year.

### **11.1 Program and Project Status**

Safeguarding program progress will be reported by LM and the LMS contractor to partner agencies and programs. Monthly meetings and teleconference calls with LM, the LMS contractor, and partner agencies and programs will be used to effectively communicate updates on programmatic issues and discuss safeguard project planning and scheduling, environmental review preparation, construction activities, and planning for future work.

#### **11.1.1 Project Closeout Reporting**

Project closeout reports will be prepared within 90 days of completion of each safeguard construction project. The report may simply communicate that all safeguarding was performed as described within the corresponding environmental analysis. Project closeout reports will be generated as work is completed throughout the year for specific safeguard construction projects. Monitoring and maintenance reports will be issued as described below.

#### **11.1.2 Monitoring Reporting**

LM should report on the status of individual safeguards within 60 days following the monitoring of specific safeguard projects. The LMS contractor will prepare these reports for presentation to the land management agencies responsible for the lands where specific safeguard projects are completed. The reports will describe whether individual safeguards are functional or whether maintenance construction is required. The DRUM Program database will be updated upon issuance of the monitoring report, and this update will indicate whether the hazard observed during V&V activities and documented in risk roll-up reports has been mitigated or whether safeguard maintenance is required.

#### **11.1.3 Maintenance Reporting**

Following maintenance of specific safeguards, LM should report on the status of those safeguards within 60 days of completing maintenance construction. LMS contractor or BCI personnel will prepare maintenance reports for presentation to the land management agencies responsible for the lands where specific safeguards were constructed and subsequently maintained. The reports will describe the scope of maintenance construction completed. The DRUM Program database will be updated upon issuance of the maintenance report, and these

updates will indicate that maintenance construction has abated the hazard observed during V&V activities and documented in risk roll-up reports.

## 11.2 Annual Safeguarding Program Reporting

The detailed summary of safeguarding program activities and achievements for a specific calendar year will be provided by LM as part of the DRUM annual report. The annual report will summarize safeguarding program progress and discuss safeguard projects, hazardous features safeguarded, and monitoring and maintenance activities. The report will account for changes to the DRUM Program database as hazardous features are mitigated by safeguard construction activities. Details will also be highlighted in AUMWG's annual stakeholder report.

## 12.0 Environmental Compliance

LM conducts environmental protection under the umbrella of the Environmental Management System (EMS) managed jointly by LM and the LMS contractor. The EMS conforms with International Organization for Standardization (ISO) 14001:2015, *Environmental Management Systems—Requirements with Guidance for Use*, and mandates compliance with applicable environmental regulations to ensure that air, water, land, and other natural and cultural resources are protected. It is described in the *Environmental Management System/Energy Management System Description* (LM-Procedure-3-20-12.0, LMS/POL/S04346) and is integrated with the LMS contractor's *Integrated Safety Management System Description* (LMS/POL/S14463).

Beyond the broad system activities, there are two components of EMS responsibilities: EC and environmental sustainability. The EC component implements federal, state, tribal, and local regulatory requirements, agreements, and permitted activities. EC is described in the *Environmental Protection Manual* (LMS/POL/S04329) and *Environmental Instructions Manual* (LMS/POL/S04338). The environmental sustainability component promotes and integrates sustainability initiatives as described in the *EMS Sustainability Teams Manual* (LM-Manual-3-20.3-1.0, LMS/POL/S11374) into all phases of work.

The authorities related to the EMS for the DRUM Program are described below. LM, the LMS contractor, and other contractor organizations manage work in a manner that protects natural resources in accordance with federal, state, local, and tribal laws and regulations; DOE policy; DOE directives; and Executive Orders.

### 12.1 Environmental Reviews

NEPA requires an environmental review for any action that occurs on federal land, any federally funded action, or any federal decision that would result in impacts to the environment. Therefore, an environmental review is required for safeguard projects. Safeguarding program work is conducted with partner agencies and may include agency contractors and subcontractors. Roles and responsibilities change with time, but these are described through MOUs and agreements.

DOE's NEPA expectations are summarized in DOE Policy 451.1, *National Environmental Policy Act Compliance Program*; NEPA regulations are in Title 40 *Code of Federal Regulations* Section 1500–1508 (40 CFR 1500–1508), and DOE's NEPA implementing procedures are in 10 CFR 1021.

## 12.2 Cultural Resources

The most comprehensive policy concerning the protection of cultural resources is the NHPA. The LM/LMS *Cultural Resources Management Plan* (LM Plan 3-3-1.0, LMS/PRO/S07371) provides information on cultural resource laws and regulations, outlines a consistent approach for how LM will manage cultural resources, and includes considerations related to Native nation people.

## 12.3 Natural Resources and Surface Water

Natural resources potentially affected by safeguard construction activities include vegetation, wildlife, special-status species, and water resources. Many of these resources are protected by federal laws that include the Endangered Species Act, the Migratory Bird Treaty Act (16 USC 703–712), the Bald and Golden Eagle Protection Act (16 USC 668), the Clean Water Act (33 USC 1251 et seq.), the Clean Air Act (42 USC 7401 et seq.), and the Resource Conservation and Recovery Act (42 USC 6901–6992k). State and tribal laws, especially those related to protecting wildlife, also apply. The V&V Work Plan provides information on compliance with applicable natural resource-related laws.

## 12.4 Environmental Sustainability

The environmental sustainability area of the EMS promotes and integrates initiatives such as energy and natural resource conservation, waste minimization, and the use of sustainable products and services in all phases of work. U.S. General Services Administration vehicle management is integrated with the EMS Vehicle and Fuel Use Team requirements. To support other goals of the EMS sustainability teams, DRUM personnel and partner agencies and offices practice water conservation, waste minimization, pollution prevention, and recycling whenever possible during work.

# 13.0 Quality Assurance

The LMS *Quality Assurance Manual* (LMS/POL/S04320) describes a Quality Management System (QMS) that incorporates the requirements of ISO 9001:2015, *Quality Management Systems—Requirements*; DOE Order 414.1D Chg 1 (Admin Chg), *Quality Assurance*; and other customer-requirement documents. The QMS describes a “Plan-Do-Check-Act” cycle that promotes continuous improvement in all work activities. Process controls are applied based on the significance of the work being performed and the identified risk or consequence of failure. All work performed for LM by the LMS contractor and partnering agencies shall comply with applicable regulatory, commitment, and guidance documents. Location-specific work conducted at mine sites under the LMS contract shall also comply with additional state, local, and tribal regulations, as appropriate. Any work performed by or for the LMS contractor must comply with the QMS requirements, which are based on the principle that work shall be planned,

documented, performed under controlled conditions, completed, closed, and periodically assessed to establish work-item quality and process effectiveness and to promote continuous improvement. Elements of the QMS apply to all activities and all LM contractor work. The achievement of quality is the responsibility of those who manage and, most importantly, those who perform the work. Each person is expected to do their job in accordance with procedures and other requirements.

### **13.1 Quality Assurance Program Plan**

The *Defense-Related Uranium Mines Quality Assurance Program Plan* (LMS/DRM/S15867) is intended for use by partner agencies and LMS contractor personnel performing various tasks, such as evaluating safeguard construction activity, collecting new data, and preparing reports for the DRUM Program. The ultimate success of the safeguarding program depends on the quality of the safeguards constructed and the ability to effectively communicate program goals and outcomes with partner agencies to assure appropriate decision making. A key component of successful program implementation depends upon a comprehensive understanding of the various subtasks of the program. All parties involved in the safeguard program (i.e., land management agencies; AML programs; and other data users, data producers, and decision makers) are involved in the planning process to ensure that their needs are adequately defined and addressed.

### **13.2 Quality Assurance Requirements**

The mine safeguard installation process includes establishing performance objectives, designing construction observation methods and procedures, monitoring procedures, and data reporting to satisfy the performance objectives. Quality assurance/quality control (QA/QC) checks will be performed by appropriate DRUM Program personnel at the safeguard location selection, construction, monitoring, and data input steps to verify that all necessary information has been properly collected and recorded for each safeguard or mine evaluated. The QA/QC checks will be documented to provide accountability and assurance that all quality checks have been completed.

#### **13.2.1 Data Management**

High-quality data are important to the DRUM Program, and effective decision making requires reliable information. Safeguard program monitoring, maintenance, and final hazard disposition data will be subjected to QA/QC processes, including visual representations, automated tools, and manual processes that check for completeness, accuracy, and internal consistency. Only data that meet DRUM Program quality standards will be loaded into LM systems.

#### **13.2.2 Operating Experience Program**

The LMS Operating Experience Program captures and disseminates lessons learned from past activities for the improvement of work processes, facility or equipment design and operation, quality, safety, and cost effectiveness. The DRUM Program will document lessons learned and incorporate operating experience from other programs. Further information on the LMS Operating Experience Program is found in the *Operating Experience (OpEx) Procedure* (LMS/POL/S28783).

### **13.3 Assessments**

Assessments, which are evaluations of the work tasks accomplished during safeguarding program implementation, should be conducted at a frequency commensurate with the risk and importance of the activity or dictated by a requirement. An assessment evaluates the effectiveness of an organization to determine how well it meets customer and performance expectations and mission objectives and how well it identifies strengths, improvement opportunities, and problems. An assessment should address the effective use of resources to achieve the organization's goals and objectives, determine whether an integrated management system exists, and evaluate whether the organization focuses on meeting both customer and performance requirements and strategic goals. Assessments must also be conducted using criteria describing acceptable work performance and should promote continuous improvement.

DRUM Program assessments must adhere to the applicable requirements of DOE Order 414.1D Chg 1 (Admin Chg), including those mandated by regulations, such as a DOE order or federal regulation, and the current ISO 9001 standard. Specific information on assessments is found in the *Assessment Program* (LMS/POL/S28474).

DRUM Program management will work with the Quality Assurance representatives to plan yearly assessments based on the criteria listed above. The assessment plan is provided to the Quality Assurance organization for incorporation into the integrated assessment schedule. Additional unscheduled assessments may be conducted at any time and are entered on the assessment schedule as they are identified. The scope of the assessments should highlight the highest risks of nonconformance in the program and what areas may have opportunities for improvement. The assessment plan will generally be a combination of management assessments and surveillances. The DRUM Program may also be subject to independent assessments, external assessments, or site visits (as described in the *Assessment Program*). One such example would be the Quality Assurance Surveillance Plan as implemented by the LM Uranium Mine Team lead.

#### **13.3.1 Management Assessments**

Management assessments are self-performed, internal evaluations of management systems, processes, and programs to identify and correct problems that hinder an organization from achieving its objectives. Responsible managers are tasked with identifying emergent issues, improvement opportunities, and focus areas for scheduled management assessments.

#### **13.3.2 Surveillances**

Surveillances are real-time activities to monitor and observe the performance of work or a specific job to verify that an item or activity conforms to procedures, practices, and other specified requirements. Surveillances are process or activity oriented; they require minimal planning and need not be on the assessment schedule before being conducted.

## **14.0 Safety and Health**

Implementation of the safeguarding program will be undertaken by LM and the LMS contractor; nonprofit organizations; partner federal, state, and tribal agencies; and subcontractors to these

organizations. Each organization and LM contractor has safety and health protocols that they will individually implement in the performance of work described in the SPgMP. Each agency, contractor, and subcontractor is responsible for the development, implementation, and documentation of the safety and health protocols employed during the performance of safeguarding program-related tasks.

Protection of the safety and health of workers and the public is the prime consideration during LMS activities. Plans and procedures have been developed and implemented for the protection of the safety and health of workers, the public, and the environment. These plans and procedures include the *Worker Safety and Health Program (10 CFR 851) (LMS/POL/S14697)*, the *Integrated Safety Management System Description*, and the *Environmental Management System/Energy Management System Description* and implement the requirements of laws, regulations, orders, and standards applicable to LMS activities. All employees shall adhere to the requirements of worker safety and health programs, the *LMS Safety and Health Program (LMS/POL/S20043)*, and other applicable safety and health plans and procedures. The *Defense-Related Uranium Mines Safety Plan (LMS/DRM/S15804)* will be followed during the performance of V&V activities.

## 14.1 Personnel Protection

LMS staff shall follow good safety, industrial hygiene, and radiation protection practices and procedures to ensure that personal exposure to radiation, chemicals, toxic materials, and other personnel hazards is kept as low as reasonably achievable. Operations personnel shall:

- Adhere to posted personal protection requirements and observe proper practices and precautions.
- Correctly use appropriate monitoring instruments and take appropriate action in response to monitoring or system status indicators.
- Be aware of personal exposure, such as radiological or chemical exposures, and take appropriate action to minimize exposures.
- Be knowledgeable of the requirements listed in work control documents, such as workflow documents and job safety analyses.
- Promptly report protection deficiencies and hazards to their immediate supervisor, safety and health personnel, or the site operations lead; in addition, operators should take appropriate immediate action to reduce or correct the hazards.
- Inform the site operations lead before performing activities that could significantly change facility or site conditions.
- Wear required personal protective equipment as designated in the job safety analyses.

## 14.2 Radiological Protection

It is the policy of the LMS contractor to conduct radiological operations in a manner that ensures the safety and health of all its employees, subcontractors, and the general public. In achieving this objective, the LMS contractor ensures that radiation exposures to its workers and the public and releases of radioactivity to the environment are maintained below regulatory limits. Also, efforts are taken to further reduce exposures and releases to levels as low as reasonably



achievable. The LMS contractor is fully committed to implementing a radiological control program of the highest quality that consistently reflects this policy.

Work performed at the mines by the LMS contractor will follow the requirements of the *Radiation Protection Program Plan* (LMS/POL/S04373) and the *Radiological Control Manual* (LMS/POL/S04322).

## 15.0 Risk Management

LM guidance directs that a contingency be applied to all LM activities because of the uncertainties associated with long-term program management. This contingency includes assessing the probability of a major event negatively impacting the program and the uncertainty associated with the assumptions and costs of performing the planned activities. An analysis of the potential for risk not covered in budget estimates and schedules provides the program manager an opportunity to develop mitigating measures to reduce the probability of a risk to the program goals.

### 15.1 Statement of Risk

The DRUM Program is currently authorized to perform safeguard construction work at hazardous mine features. The biggest uncertainty for achieving program goals is likely to be the availability of requested outyear funding. Contracting capabilities and environmental review responsibilities are two additional uncertainties. The safeguarding program’s potential risks and mitigation measures are summarized in Table 2.

*Table 2. Program Risk Screening*

Potential Risk	Mitigation Measures
Funding	Outyear planning; scope or schedule reduction
Partner agency contracting capabilities	MOUs, operation plans, alternative contracting options
Environmental review responsibilities	Program-specific staffing

### 15.2 Summary of Anticipated Program Risks, Uncertainties, and Major Obstacles

- Long-term funding of the safeguarding program is an anticipated program risk. Two factors are integral to mitigating this risk:
  - DOE authority to fund and conduct safeguarding activities:
    - LM leadership will define program limitations in terms of congressional or statutory authority, available financial resources, and program time frames

- Long-term LM priorities:
  - LM will develop strategic planning to ensure that the safeguarding program is integral to its mission
  - LM may work with state and tribal AML programs and land management agencies to evaluate cost sharing arrangements to accommodate funding issues
- Partner agency contracting capabilities present a potential risk to completing individual projects as planned, resulting in potential programmatic delays. Some factors related to this risk include:
  - A successful safeguarding program is dependent on an efficient purchasing system that can complete timely contracting processes to secure safeguarding services, hold performance bonds, process change orders, and process construction-related and closeout construction contracts upon project completion. State and tribal AML programs are best positioned to accomplish the construction contract purchasing process. AML programs should strive to complete focused agreements with their affiliated purchasing systems to establish a timely and efficient system of completing safeguard construction contracts.
  - BCI has the capability to issue safeguard construction contracts. BCI contracting capabilities may be utilized to supplement both short-term and long-term construction needs, particularly when state and tribal AML programs are either unavailable or foresee time constraints in their associated purchasing processes.
- Environmental review responsibilities and timing:
  - Completion of environmental reviews is a potential constriction in safeguard project timelines. LM and partner agencies will consider adapting and utilizing existing AML safeguarding compliance procedures to provide an avenue for expedient completion and approval of NEPA documents. Alternatively, LM may help develop regional NEPA documents.
  - SHPO review and approval of safeguard construction projects may create a potential constriction point for safeguard project implementation. These organizations work independently of state and tribal AML programs. Utilization of mining-specific specialists to complete historic preservation investigations and reporting and to act as SHPO liaisons with contracting and land management agencies may help alleviate time and resource constraints.

## 16.0 Program Communications

The safeguarding program requires effective and comprehensive communication to be successfully completed. The organizations involved in the program include LM, the LMS contractor, nonprofit organizations, partner agencies, and private landowners. This section describes how effective communications will occur within and among these organizations.

## **16.1 Internal LM Communication**

LM will have regular team meetings where programmatic issues are addressed, current activities are reviewed, and planning for future work is discussed. A network share drive provides a repository for safeguarding program reports, environmental review documents, contracts, and other information pertinent to the program.

## **16.2 Partner Federal, State, and Tribal Agency and Private Landowner Communication**

LM will communicate with partner agencies and private landowners through a mix of meetings, conferences, briefings, telephone calls, emails, and the LM website, as appropriate. LM will work closely with partner agencies to determine the scope of work to be performed, including long-term and short-term planning and implementation of individual projects. At a minimum, LM will provide semiannual updates to brief relevant partner agencies on program-specific and project-specific status, planning needs, new developments, and coordination.

Communications with private landowners regarding site access agreements, environmental reviews, construction planning, and implementation and closeout processes will be initiated by LM and state or tribal AML programs. State or tribal AML programs will include LM in all program-specific communications. The agency or organization completing monitoring and maintenance will communicate directly with private landowners regarding site access and any needed maintenance construction planning and implementation. The agency or organization completing monitoring and maintenance will include LM in all relevant communications.

## **16.3 Safeguarding Team Communication**

The safeguarding team meetings will be held monthly. The purpose of these meetings is to complete program-specific and project-specific planning, discuss specific work products, identify program strengths and needs, exchange ideas, and discuss issues key to the program's success. Project status tracking and reporting will be used to determine safeguard construction status and to help measure overall program success.

## **16.4 Internal LMS Communication**

All internal LMS communications will be coordinated through the LMS safeguarding program manager. The safeguarding program manager will communicate within the LMS organization to ensure that effective and efficient coordination between the safeguarding program and other groups, such as Environmental Compliance and Safety and Health, is accomplished so that goals and objectives are achieved and issues are identified and resolved to avoid crisis.

## **16.5 Public Relations**

The LMS Public Affairs program will collect, collate, and provide program-specific and project-specific public relations information. The LMS Public Affairs program will provide this information directly to LM and the LMS safeguarding program manager. LM will, at its discretion, disseminate this information to the public. The LMS Public Affairs program

includes national, intergovernmental, and local stakeholder involvement; public affairs and outreach; and community involvement required for the acquisition, maintenance, dissemination, and delivery of program and project knowledge and information. The *Public Affairs Manual* (LMS/POL/S11690) provides the responsibilities of, requirements of, and procedures followed by the Public Affairs program.

## **16.6 Freedom of Information Act (FOIA)**

The DOE Office of Information Resources is responsible for administering policies, programs, and procedures to ensure the agency's compliance with FOIA (5 USC 552). All FOIA requests received by the program are directed to the FOIA coordinator and follow protocols established by LM. The investigatory records, specifically mine locations captured by the DRUM Program using GPS, could reasonably be expected to endanger the life or physical safety of any individual if disclosed before safeguard installation. Presafeguarded hazardous features are considered attractive nuisances. These features are both dangerous and inviting or intriguing to the public. The condition of these abandoned uranium mines has the potential to cause serious bodily harm to the public, specifically recreators and tourists.

Abandoned mine sites may contain mineral and cultural resources and may serve as habitat for threatened and endangered species. Disclosure of specific mine location information may lead to unauthorized extraction, vandalism, and theft and may have adverse consequences for human safety, cultural resource protection, and wildlife protection. As a result, the locations of hazardous mine features should not be disclosed before the functionality of the constructed safeguards is assessed and monitored.

## **16.7 Stakeholder Inquiries**

Public inquiries will be sent to the LM Uranium Mine Team lead (or delegated individual) to coordinate a response. The LM Uranium Mine Team lead will engage the LM Education, Communications, History, and Outreach team, as necessary. Some inquiries must be coordinated with the DOE Office of Congressional and Intergovernmental Affairs in accordance with the *Processing Records Requests* procedure (LM-Procedure-3-11-5.0).

# **17.0 Program Completion**

The DRUM Program will complete the safeguarding program by September 30, 2030. Completion of the safeguarding program will coincide with the completion of the DRUM Program.

## **17.1 Program Closeout**

As described in the *Integrated Work Control Process Manual* (LMS/POL/S11763), a project completion report may be required by the URP manager when the safeguarding program ends. Safeguarding program accomplishments will be included in DRUM Program congressional overview reports that will be submitted as the individual DRUM Program campaigns are completed.

Records will be retained in the LM Business Center at Morgantown, West Virginia, until the established retention period has expired or transfer to another facility is required to comply with approved disposition. Physical program records will be retained in the format in which they were created unless a need for a particular record calls for digitization—in whole or in part—at which point the electronic copy will be maintained and considered the official record. It is strongly recommended that records be “born” in electronic format and managed electronically. If record transfer is required, Information Management personnel will perform the necessary tasks, as applicable, including acknowledgment of receipt.

Monitoring and maintenance of sites that were safeguarded will be the last DRUM Program activity and may continue past 2030. However, monitoring and any required maintenance will continue for no longer than 5 years following safeguard construction.

## 18.0 References

10 CFR 1021. U.S. Department of Energy, “National Environmental Policy Act Implementing Procedures,” *Code of Federal Regulations*.

40 CFR 1500–1508. “CEQ Regulations for Implementing the Procedural Provisions of NEPA,” *Code of Federal Regulations*.

5 USC 552. “Freedom of Information Act,” *United States Code*.

16 USC 668. “Bald and Golden Eagle Protection Act,” *United States Code*.

16 USC 703–712. “Migratory Bird Treaty Act,” *United States Code*.

16 USC 1531 et seq. “Endangered Species Act,” *United States Code*.

30 USC 611 et seq. “Surface Resources Act,” *United States Code*.

33 USC 1251 et seq. “Clean Water Act,” *United States Code*.

42 USC 2011 et seq. “Atomic Energy Act,” *United States Code*.

42 USC 4321 et seq. “National Environmental Policy Act,” *United States Code*.

42 USC 6901–6992k. “Resource Conservation and Recovery Act,” *United States Code*.

42 USC 7401 et seq. “Clean Air Act,” *United States Code*.

42 USC 9601 et seq. “Comprehensive Environmental Response, Compensation, and Liability Act,” *United States Code*.

43 USC 1701 et seq. “Federal Land Policy and Management Act of 1976,” *United States Code*.

54 USC 100101 et seq. “National Park Service Organic Act,” *United States Code*.

54 USC 300101 et seq. “National Historic Preservation Act,” *United States Code*.

AUMWG (Abandoned Uranium Mines Working Group), 2020. *Abandoned Uranium Mines Working Group Addressing Health and Safety Risks of Abandoned Uranium Mines Multiagency Strategic Plan*, December 3.

DOE (U.S. Department of Energy), 1997. *Tabulation of Uranium Ore Production Under AEC Program, 1948–1970*, National Archives Record Group 434-00-287.

DOE (U.S. Department of Energy), 2014. *Defense-Related Uranium Mines Report to Congress*, August.

DOE (U.S. Department of Energy), 2020. *2020–2025 Strategic Plan*, DOE/LM-1488, Office of Legacy Management, January.

DOE (U.S. Department of Energy), 2023. *Defense-Related Uranium Mines Verification and Validation Work Plan*, LMS/DRM/S13690, Office of Legacy Management, February.

DOE Order 414.1D Chg 1 (Admin Chg), *Quality Assurance*, U.S. Department of Energy, archived August 26, 2020.

DOE Policy 451.1, *National Environmental Policy Act Compliance Program*, U.S. Department of Energy, December 21, 2017.

ISO 9001:2015. *Quality Management Systems — Requirements*, International Organization for Standardization.

ISO 14001:2015. *Environmental Management Systems — Requirements with Guidance for Use*, International Organization for Standardization.

LMS contract implementing documents, continually updated, prepared by the LMS contractor for the U.S. Department of Energy Office of Legacy Management.

*Assessment Program*, LMS/POL/S28474

*Cultural Resources Management Plan*, LM Plan 3-3-1.0, LMS/PRO/S07371

*Defense-Related Uranium Mines Program Management Plan*, LM-Plan-3-23-1.0, LMS/POL/S15809

*Defense-Related Uranium Mines Quality Assurance Program Plan*, LMS/DRM/S15867

*Defense-Related Uranium Mines Safety Plan*, LMS/DRM/S15804

*EMS Sustainability Teams Manual*, LM-Manual-3-20.3-1.0, LMS/POL/S11374

*Environmental Instructions Manual*, LMS/POL/S04338

*Environmental Management System/Energy Management System Description*, LM-Procedure-3-20-12.0, LMS/POL/S04346

*Environmental Protection Manual*, LMS/POL/S04329

*Integrated Safety Management System Description*, LMS/POL/S14463

*Integrated Work Control Process Manual*, LMS/POL/S11763  
*LMS Safety and Health Program*, LMS/POL/S20043  
*Operating Experience (OpEx) Procedure*, LMS/POL/S28783  
*Public Affairs Manual*, LMS/POL/S11690  
*Quality Assurance Manual*, LMS/POL/S04320  
*Radiation Protection Program Plan*, LMS/POL/S04373  
*Radiological Control Manual*, LMS/POL/S04322  
*Worker Safety and Health Program (10 CFR 851)*, LMS/POL/S14697

PL 94-588. “National Forest Management Act of 1976,” Public Law.

PL 95-91, Stat. 565. “Department of Energy Organization Act,” Public Law.

PL 112-239. “National Defense Authorization Act for Fiscal Year 2013,” Public Law.

PMI (Project Management Institute), 2017a. *A Guide to the Project Management Body of Knowledge (PMBOK Guide)*, sixth edition, September 22.

PMI (Project Management Institute), 2017b. *The Standard for Program Management*, fourth edition, October 1.

*Processing Records Requests*, LM-Procedure-3-11-5.0, continually updated, prepared by the U.S. Department of Energy Office of Legacy Management.

## **Appendix A**

### **Safeguarding Mine Features on Private Property**



## A1.0 Introduction

V&V activities will be conducted on private property during DRUM Program Campaign 3. Campaign 3 is scheduled to begin in FY 2024 and is scheduled to conclude by the end of FY 2028 (September 30, 2028). Generally, safeguarding of physical hazards identified during V&V operations on private property will be initiated during the later stages of Campaign 3 V&V fieldwork. The SPgMP is a living document that will be revised to accommodate lessons learned during Campaign 1 safeguard implementation. Anticipated future revisions of the SPgMP will address implementation of safeguard construction on private property and tribal lands.

As described below, there will be circumstances when safeguarding of privately owned hazardous mine features is necessary before Campaign 3. Many facets of the safeguarding program and project implementation on private property will be conducted as described in this SPgMP. Some key implementation elements will be modified to conduct safeguarding at privately owned hazardous mine features during the interim period. This appendix describes safeguarding program and project implementation tasks that will be modified to complete safeguarding of privately owned hazardous mine features before Campaign 3.

There will be circumstances before the initiation of Campaign 3 when safeguarding hazardous features on private property enhances DRUM Program or partner agency goals. Some circumstances in which early safeguarding of hazardous features on private property may benefit program goals include:

- Following V&V operations at mixed-ownership mines (mines with public and private land ownership components) when safeguard construction is scheduled at adjacent public features.
- Following V&V operations at private ownership mines which may be transferred to public management.

When safeguard construction is slated to be completed at hazards on the public portion of a mixed-ownership mine, it is most effective and efficient to also complete safeguard construction at any private hazards adjacent to the public hazards. In this instance, the hazards on both the private and public portions of the same mine would be safeguarded in a single mobilization.

Additionally, in some instances, a land management agency may decide to acquire ownership of private mine properties. Some land management agencies may not acquire mined land if hazardous mine features have not been mitigated before the land transfer takes place. In these circumstances, LM may facilitate a land exchange or other conveyance of the land to public management by completing V&V operations and the safeguarding of hazardous features before initiating Campaign 3.

In addition to safeguarding under these discreet and limited circumstances, safeguarding of hazardous mine features on private property will occur as an outgrowth of Campaign 3 V&V activities.

To facilitate early safeguarding of hazardous private mine features under limited circumstances, some modifications to the program's approach and implementation are necessary. These modifications to the program's approach and implementation are described here.

## **A2.0 Program Strategy**

LM will selectively choose to construct safeguards at hazardous mine features on private property before the implementation of Campaign 3. Hazardous mine features on private property will be safeguarded when doing so advances LM's mission of safeguarding the public from these hazards or if doing so advances partner agency goals and objectives.

Many aspects of Sections 5.0 and 6.0, including environmental reviews and safety considerations, are applicable to the safeguarding of private hazardous features. The primary distinction between safeguarding public and private hazardous features is that land management agencies will not participate in planning or completing safeguarding, monitoring, or maintenance construction in the case of private hazardous mine features. The functions that land management agencies would have performed in the safeguard planning or implementation process will be completed by LM via the safeguarding partners or by state or tribal AML programs. LM will strategically utilize the services of the LMS contractor, nonprofit organizations, and state or tribal AML programs to accomplish safeguarding-related tasks. These entities have the capabilities and expertise necessary to collectively accomplish all tasks required to complete a safeguard construction project on private property.

Individual private features to be safeguarded will be identified well in advance of planned construction. Early identification of private features to be safeguarded provides the opportunity to schedule adequate time to complete environmental reviews, obtain landowner consent (access agreements) for construction, and complete construction contracting.

LM anticipates that private features will be included and identified in safeguard projects that are primarily completed on public lands. Careful delineation of the private features is necessary to ensure appropriate allocation of resources before, during, and after construction occurs.

### **A2.1 Program Implementation**

Hazardous mine features on private property will be selected for safeguarding at LM's discretion. These features will not necessarily have been identified in risk roll-up reports, which are generally focused on features on public land managed by specific agencies. Therefore, the DRUM Program database will be relied upon for the identification of hazardous private mine features targeted for safeguarding.

Implementation of safeguard construction on private property will be considered during the planning phases of nearby safeguard projects on public land. Whenever possible, safeguards will be constructed as part of a larger safeguard project to maximize the benefits of distributing indirect costs among a larger number of features safeguarded.

## A3.0 Safeguard Project Implementation

### A3.1 Introduction

LM is providing funds, oversight, and administrative functions to facilitate effective and efficient safeguarding of select hazardous mine features on private property. Because this work will be completed on private property, land management agencies will not be involved in the safeguard process for these features. However, state and tribal AML programs, the LMS contractor, or nonprofit organizations will assist with the safeguarding of private hazardous mine features. State and tribal AML programs, the LMS contractor, and nonprofit organizations will have different roles in individual safeguard projects, depending on the circumstances of each project. Nonprofit organizations or state and tribal AML programs that undertake contracting and project management will provide resources to ensure that defined project outcomes are achieved. LM will provide support and oversight capabilities to accomplish program and project goals.

### A3.2 Project Implementation

There are three major steps to safeguard construction project implementation: (1) initial project organization, (2) completion of individual safeguard construction projects, and (3) postconstruction management.

#### A3.2.1 Project Organization

Generally, private mine features will be safeguarded as part of a larger safeguard project which addresses features on public land. However, federal land management agencies will not be involved in any aspect of project implementation, monitoring, and maintenance for private features. Therefore, a revised division of project tasks is required. Table A-1 describes safeguard project implementation tasks and the organizations potentially available to complete these tasks. Primary and secondary options for task implementation are included to allow for flexibility in scheduling and accommodate changes in priorities and resources.

*Table A-1. Implementation Tasks and Organizations*

<b>Task</b>	<b>Primary Responsibility</b>	<b>Secondary Responsibility</b>
Landowner consent	State or tribal AML program	LM
Environmental review	State or tribal AML program	LMS contractor
Project design	State or tribal AML program	Nonprofit organization
Project contracting	State or tribal AML program	Nonprofit organization
Construction management	State or tribal AML program or nonprofit organization	State agency or nonprofit organization
Monitoring	State or tribal AML program	LM or nonprofit organization
Maintenance construction management	State or tribal AML program or nonprofit organization	Nonprofit organization

LM will rely on nonprofit organizations, the LMS contractor, or state and tribal AML programs to complete preconstruction activities. Following the identification of specific features for safeguarding, preconstruction tasks like those for hazardous features on public land will be accomplished.

Consent of the landowner is required to accomplish safeguard construction, monitoring, and maintenance at private features. Therefore, obtaining landowner consent is an additional preconstruction task that must be completed. Many state AML programs have a consent process that provides the landowner the opportunity to consent to construction of the safeguard, allows indemnification for the contractor and contracting agency, and allows access for follow-up monitoring and maintenance, if required. When required, the consent document is attached to the property title and recorded with the appropriate county clerk.

### **A3.2.2 Safeguard Construction and Closeout**

Construction of safeguards built on private property will be managed by state or tribal AML programs, nonprofit organizations, or the LMS contractor. Construction management responsibilities, including the necessity of providing an on-the-ground project manager, are identical to those described in Section 6.0.

Safeguards constructed on private property will be built to the same specifications as those constructed on public lands. To accommodate this standard, LM will adapt and accept existing state, tribal, or land management agency AML program safeguard construction specifications as design standards.

LM, via safeguarding partnerships, will carry out sampling to maintain quality assurance oversight during safeguard construction, as described in Section 6.0. Quality assurance sampling will not be completed by the organization responsible for construction management.

Upon completion of safeguard installation, the construction management organization will notify LM that it has accepted all safeguards at the completion of each project. LM will accept the safeguards as complete and will notify the appropriate landowner that the safeguards have been installed. Acceptance of the completed safeguards initiates a 5-year monitoring program.

### **A3.2.3 Postconstruction Management**

Monitoring of completed safeguards will occur as described in Section 7.0. Monitoring of each completed safeguard will occur at least once within 5 years of safeguard completion. Following field monitoring, the DRUM Program database will be updated both to record the date that monitoring was completed and to document observations regarding safeguard functionality, including the need for safeguard maintenance, if required. The DRUM Program database will also be modified to reflect the change in hazard status for each feature safeguarded where the safeguard is found to be functional. Documentation of hazard mitigation will occur as described in Section 8.0. The DRUM Program database will be modified to reflect that the hazard identified during V&V operations and (potentially) documented in risk roll-up reports has been mitigated.

Maintenance of completed safeguards will occur as described in Section 7.0. Maintenance will be conducted if monitoring identifies a departure of safeguard functionality from design specifications or if a previously unidentified (i.e., new or developing) hazardous mine feature, such as a subsidence, is observed at the mine. Following completion of maintenance at individual features, the DRUM Program database will be modified to indicate the change in hazard status for each feature maintained. Documentation of hazard mitigation will occur as described in Section 8.0. The DRUM Program database update will reflect that the hazards identified during V&V operations and (potentially) documented in risk roll-up reports have been mitigated.

Following completion of monitoring or maintenance, if required, LM will complete a brief safeguard closeout report describing the results of safeguarding at specific mine features, site monitoring, and maintenance efforts, if undertaken. The closeout reports should be presented to the appropriate landowner in a spreadsheet-style, database-driven report format within 60 days of completing monitoring or maintenance, if required. The closeout reports will confirm that the specific mine hazards documented during V&V activities and (potentially) identified in risk roll-up reports have been mitigated. LM intends that landowner notification of hazard mitigation will terminate DOE involvement at individual mine features.

## **Appendix B**

### **Safeguarding Project Process**

## **B1.0 Safeguarding Project Process**

As DRUM Program field teams complete V&V activities at specific sets of mines (e.g., the group of mines within a FOP, mining district, or national forest) and the various mine-specific and risk roll-up reports are completed, LM will work with partner agencies to develop safeguard projects.

An LM project manager will be assigned to implement the process, which is designed to be flexible to best accommodate partner agency needs while maximizing the opportunity to safeguard hazardous mine features. The project manager will ensure that all facets of the project are accomplished, including project development (or identification), agreements, environmental reviews (including NEPA reviews) and supporting surveys, design and construction contracting and monitoring, and project closeout. The DRUM Program database and partner agency databases will be updated to reflect current conditions.

The safeguard project timeline in Figure B-1 delineates the process followed when existing NEPA documentation (e.g., documentation covering an entire BLM field office) is not applied to the project and new NEPA documentation needs to be developed. For efficiency and cost saving purposes, project and environmental planning for 1 calendar year (spring to fall) of safeguard construction is preferred. The process cycle begins (Year 1) with project development. This process considers environmental reviews (including NEPA Categorical Exclusion development) and the required archeological, historical, and bat and other wildlife surveys.

This process is developed using operational experiences and lessons learned from BLM Uncompahgre Field Office safeguard projects and BCI invoicing and subcontracting information.

## **B2.0 Safeguard Project Development**

Figure B-2 generally describes the safeguarding project development cycle over time (including those projects that do not require new NEPA documentation), including the various steps which need to be accomplished before initiating construction. The process is reiterative in that it will be initiated and repeated for new projects on an annual basis so that safeguard construction may proceed continually in a timely and uninterrupted manner.

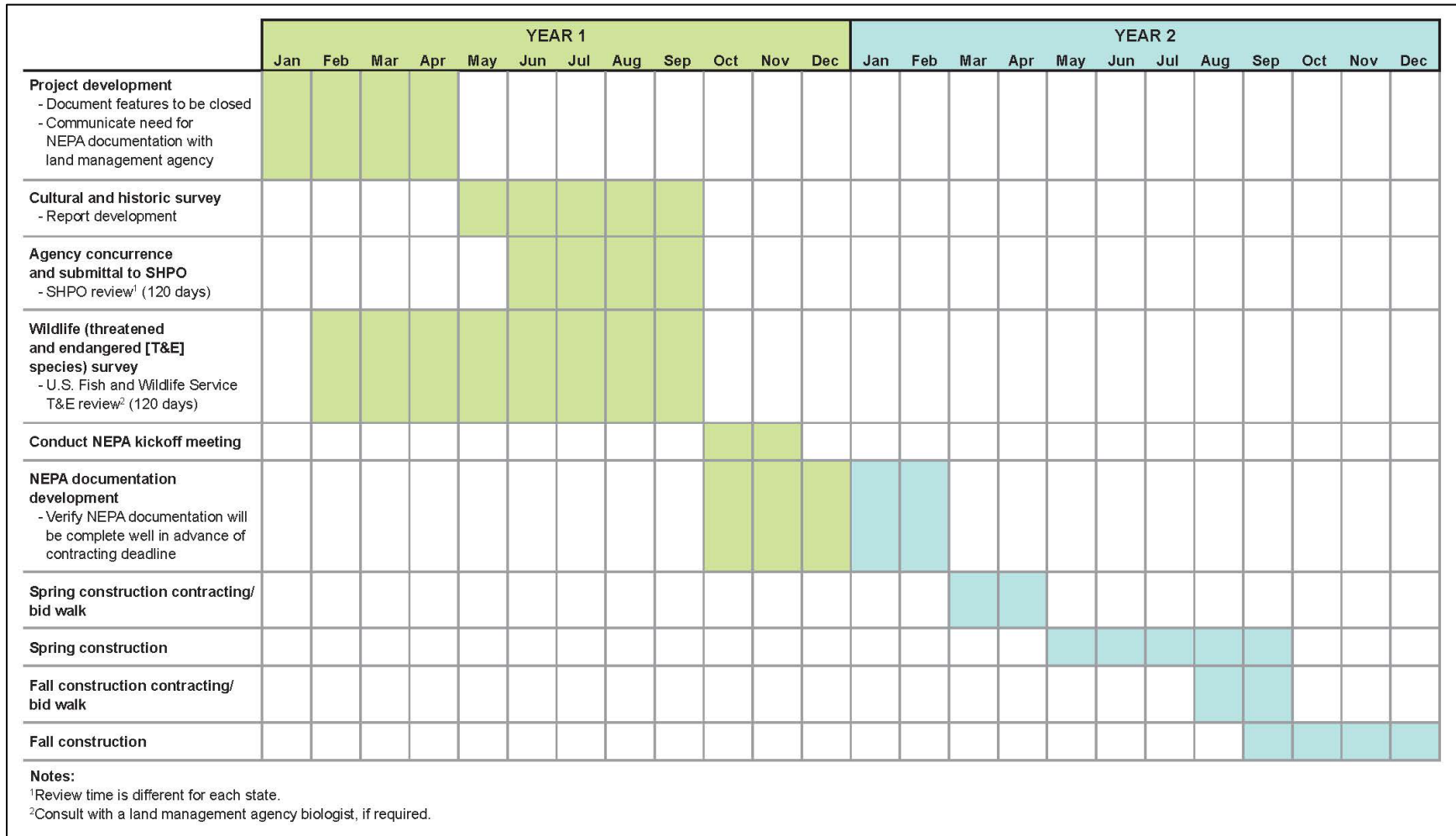


Figure B-1. Safeguard Project Timeline



	YEAR 1												YEAR 2											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Project Development																								
Cultural/Historic Survey																								
SHPO Review																								
Wildlife Survey																								
USFWS Biological Opinion																								
Kick-off Meeting																								
NEPA Development																								
Spring Contracting/Bid Walk																								
Spring Construction																								
Fall Contracting/Bid Walk																								
Fall Construction																								
Next Project																								
Project Development																								
Cultural/Historic Survey																								
Kick-off Meeting																								
NEPA Development																								

**Abbreviation:** USFWS = U.S. Fish and Wildlife Service

*Figure B-2. Typical Project Development Schedule*