

Uranium Leasing Program Program Management Plan

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U.S. DEPARTMENT OF
ENERGY

Legacy
Management

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Appendix A	<i>United States Department of the Interior, Colorado Bureau of Land Management, Closure/Reclamation Guidelines, Abandoned Uranium Mine Sites</i>
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Abbreviations

AEC	U.S. Atomic Energy Commission
ATV	all-terrain vehicle
BLM	U.S. Bureau of Land Management
CDPHE	Colorado Department of Public Health and Environment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	<i>Code of Federal Regulations</i>
CWBS	Contract Work Breakdown Structure
DOE	U.S. Department of Energy
DRMS	Division of Reclamation, Mining, and Safety
DRRP	Dolores River Restoration Partnership
DRUM	Defense-Related Uranium Mines
EC	Environmental Compliance
EMS	Environmental Management System
EO	Executive Order
FOIA	Freedom of Information Act
FONSI	Finding of No Significant Impact
FR	<i>Federal Register</i>
IA	interagency agreement
IWCP	Integrated Work Control Process
JSA	job safety analysis
LCB	life-cycle baseline
LM	Office of Legacy Management
LMBC	LM Business Center
LMFSC	LM Field Support Center
LMOC	LM Operations Center
LMS	Legacy Management Support
MAP	Mitigation Action Plan
MOU	memorandum of understanding
NEPA	National Environmental Policy Act
OpEx	Operating Experience
PEA	Programmatic Environmental Assessment
PEIS	Programmatic Environmental Impact Statement

PgMP	Program Management Plan
PIC	person in charge
PL	Public Law
QA	Quality Assurance
QAM	Quality Assurance Manual
QMS	Quality Management System
RILOR	reclamation in lieu of royalties
ROD	Record of Decision
ULMP	Uranium Lease Management Program
ULP	Uranium Leasing Program
URP	Uranium Related Programs
USC	<i>United States Code</i>
USFWS	U.S. Fish and Wildlife Service
UTV	utility task vehicle
V&V	verification and validation
WBS	work breakdown structure

Forms Referenced in This Manual

LMS forms are accessible on the **Document Management** homepage > **LMS Forms**.

Plan of the Day/Plan of the Week

LMS 2130

LM forms and templates are accessible on the
LM Portal > Services > Controlled Documents > LM-Federal Controlled Documents.

NEPA Categorical Exclusion Evaluation (CXE) Form

LM-Form-4-20-5.0

ULP Lessee Environmental Checklist Instructions

LM-SOP-4-20-6.0

Uranium Leasing Program Lessee Environmental Checklist

LM-Form-4-20-22

1.0 Overview

This Uranium Leasing Program (ULP) Program Management Plan (PgMP) is the program's primary planning document and outlines the structure and basis for the U.S. Department of Energy (DOE) Office of Legacy Management's (LM's) and its Legacy Management Support (LMS) contractor's implementation strategy for the ULP. This plan addresses the scope, administration, and approach involved in conducting the program. This PgMP is the primary guiding document of the program and describes how LM, the LMS contractor, and partner agencies will work as an efficient and cohesive team to execute the ULP. The PgMP is a living document and will be revised as necessary.

The ULP PgMP supports LM's mission of protecting human health and the environment by administering the exploration, development, and production of uranium and vanadium ore from the DOE uranium lease tracts. Through the support of mineral extraction, LM can ensure the continued environmental stewardship of the leases and the lessees' observation of federal, state, and local requirements. The ULP provides oversight of lessee activities and technical support to DOE following the principal objectives of providing a safe environment for employees and the general public while allowing timely, responsible, and competitive development of mineral resources.

While LM's primary focus is the long-term surveillance and monitoring of legacy sites, the ULP facilitates the leasing of uranium and vanadium resources to private companies.

The ULP traces its lineage to the U.S. Atomic Energy Commission (AEC) Mineral Leasing Program established in 1948. While the methodology and implementation of the original AEC mission to charter and develop a domestic uranium industry remain ingrained within the ULP, the scope and implementation of the program continue to evolve.

The primary goal of the program is the protection of human health and the environment. To this end, program objectives include responsible administration of exploration, development, and production of minerals from the DOE uranium lease tracts by the program's lessees. The lessees are comprised of external mining companies. Covering over 26,000 acres of public land, the program has succeeded in alignment with the four lessees of the 29 active lease tracts. Starting in January 2020, a new 10-year leasing period was initiated. LM issued 10-year leases to three of the lessees in January 2020 and to the fourth lessee in July 2020.

The scope of the ULP consists of LM's oversight, environmental review, and inspections of both the lease tracts and lessee activities with a focus on actively permitted mine sites and related infrastructure. The program may modify or amend leases as environmental regulations change or are introduced and continually maintains the best management practices of the industry. Through responsible resource development and extraction, the program has improved site safety, wildlife habitat, and native ecosystems on and around the lease tracts. LM provides support to lessees while maintaining the highest environmental standards for exploration, development, and extraction of ore reserves. The ULP remains focused on public engagement, education, and outreach to promote history, environmental stewardship, and DOE's contribution to national defense and energy security.

2.0 Purpose

This 2020–2030 ULP PgMP presents LM’s and its LMS contractor’s implementation strategy for the ULP. This plan addresses the scope, administration, and approach involved in conducting the program. This PgMP is the primary guiding document of the program. It describes how LM, the LMS contractor, lessees, and partner agencies will work as a cohesive team to execute the ULP. This PgMP is a living document and will be revised as necessary.

3.0 Introduction

The ULP PgMP supports LM’s mission of protecting human health and the environment by administering the exploration, development, and production of uranium and vanadium ore from the DOE uranium lease tracts. Through the support of mineral extraction, LM can ensure the continued environmental stewardship of the leases and the lessees’ observation of federal, state, and local requirements. The ULP provides technical support to DOE for the administration of the DOE uranium leases and includes, as a minimum, the following principal objectives:

- Provide a safe working environment for employees and provide protection to the general public and the environment
- Provide fair and timely monetary return to the federal government
- Establish a climate that stimulates competition for ore supplies in the area
- Achieve an orderly development of mineral resources and maximize the extraction of ore
- Make program activities compatible with a free and open market

These lease administration activities are different from many LM projects, which are chiefly concerned with long-term surveillance and monitoring of legacy sites. Additionally, the ULP includes the oversight of lessee activities; review of plans; and monitoring, closure, maintenance, and reclamation of prelaw mines on the lease tracts.

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 thorough project planning and understanding the organization influences and project constraints. Other key elements are clearly defining the project scope and mitigation of project risk. This updated PgMP reflects all these key elements.

3.1 ULP History

Currently, the ULP includes 31 lease tracts, 29 of which are actively leased. The 31 lease tracts comprise a total of 26,115 acres in western Colorado (Figure 1). The 10-year leases were issued to three different entities on January 6, 2020, and to a fourth entity on July 6, 2020. The following sections describe the history of the ULP as the scope evolved along with the various federal agencies and programs involved.

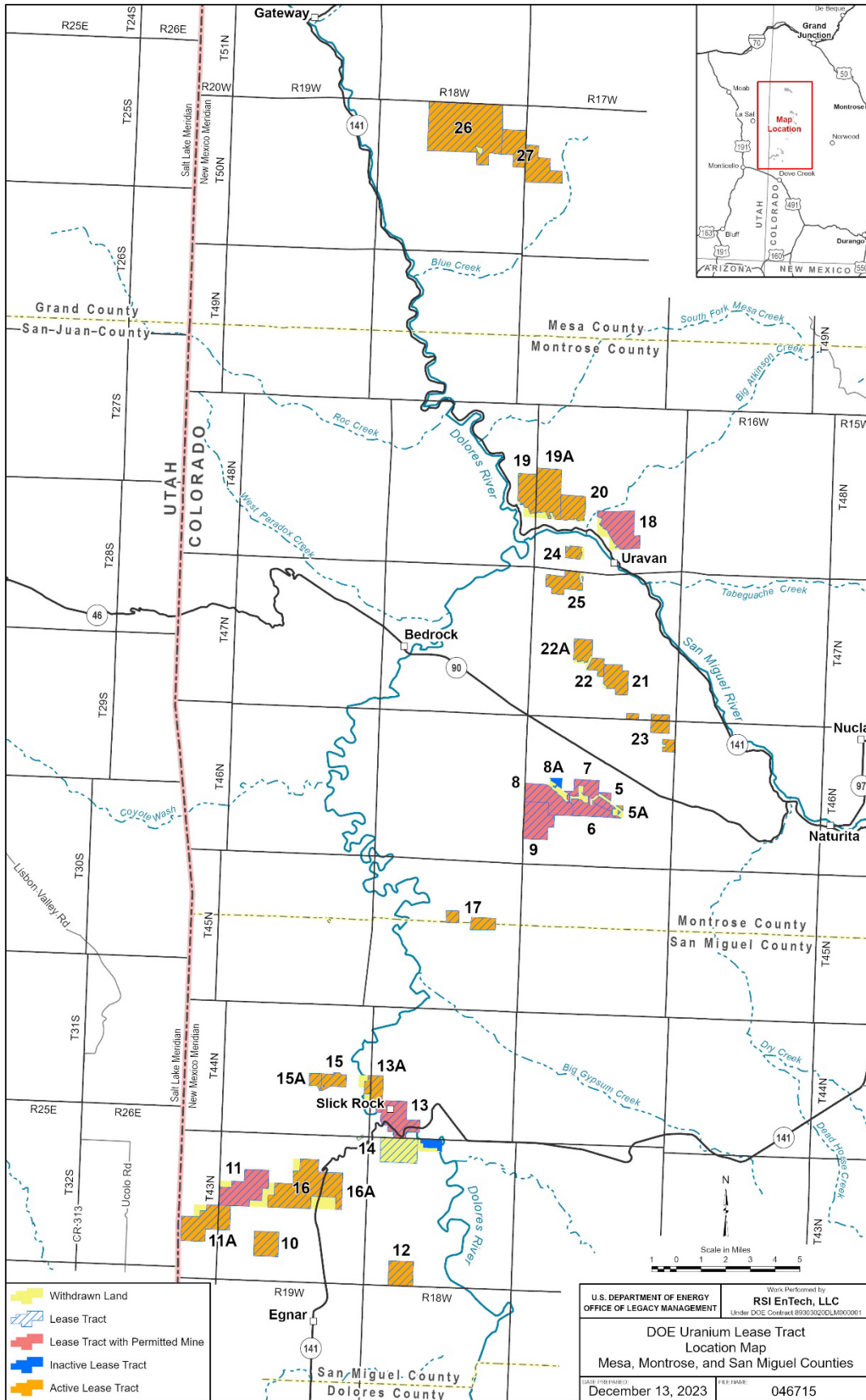


Figure 1. Lease Tract Location Map

3.1.1 Mineral Leasing Program

The AEC Mineral Leasing Program, conducted from 1948–1962, resulted in the production of approximately 1.25 million tons of ore, yielding more than 7 million pounds of uranium, 40 million pounds of vanadium, and approximately \$5 million (in unadjusted dollars) in royalties to the federal government. The large uranium discoveries in New Mexico and Wyoming in the late 1950s resulted in an overabundance of uranium. Consequently, AEC began to limit purchases of uranium ores. Ultimately, the Mineral Leasing Program was terminated in April 1962, and the ore purchase program concluded at the end of 1970. As this original leasing program was terminated, most of the mine portals were backfilled at AEC’s direction to deny entry; however, little else was done to reclaim the environmental disturbances that resulted from the program. DOE, as successor agency to AEC, inherited this legacy of abandoned mine sites and became responsible for their ultimate reclamation.

3.1.2 Uranium Lease Management Program (ULMP)

In the early 1970s, AEC determined that a second leasing program was warranted to recover the ore reserves remaining on AEC’s withdrawn lands while milling facilities still existed in the area. The new leasing program was hailed as a means to recover the uranium resources developed by AEC, while improving the prospects for continued mill operation and encouraging further exploration and development on privately held lands.

The ULMP was initiated by AEC in 1974 under Domestic Uranium Program Circular 8, revised (1973). Forty-three tracts, containing approximately 25,000 acres of withdrawn land, were leased to the general public through a competitive bid process (see Table 1). A 10-year leasing period was established for the ULMP, with provisions for one automatic renewal (at the discretion of the lessees) for an additional 10-year period.

The bids were percentage royalties to be paid to the federal government from the extraction of tract-specific uranium reserves. One additional tract, with limited reserves and minimal potential for development, was retained by AEC in withdrawn status and was not offered for lease with the other 43 tracts.

All leases were awarded based on the highest “bid” royalty received. In addition to the bid royalties, all leases were subject to an ongoing “base” royalty that varied depending on the value of the ore produced. The bid royalty (determined by the entity that made the competitive bid) also varied from property to property and terminated after a specified number of pounds of uranium were produced.

At the end of the first 10-year lease period (1974–1984), nine leases were relinquished, terminated, or allowed to expire without being renewed. Consequently, only 34 leases were renewed in 1984 for the second 10-year term. At the end of the second 10-year lease period (1984–1994), four additional leases were relinquished or terminated.

During the 1974–1994 lease period, the ULMP produced approximately 1.7 million tons of ore, yielding 6.5 million pounds of uranium, 33.4 million pounds of vanadium, and \$52.8 million (in unadjusted dollars) in royalties to the federal government (see Table 1).

Table 1. Summary of Lease Tract Information for the 1974–1994 Leasing Period

Lease Tract Number	Leaseholder at End of Period	Royalty Bid (%)	Royalty Bid Quantity (pounds)	Uranium Produced (pounds)	Royalty Pound Balance	Vanadium Produced (pounds)	Minimum Advanced Royalty (\$)	Production Royalty (\$)
NM-B-1	Terminated (9/2/92)	5.55	190,000.00	458,579.06	0.00	0.00	58,000.00	576,377.09
U-CW-2	Relinquished (4/24/85)	8.03	45,000.00	4,540.36	40,459.64	27,334.85	5,000.00	16,363.03
U-CW-2A	Total Minerals Corporation	22.66	35,000.00	0.00	35,000.00	0.00	8,000.00	0.00
U-H-3	Lady Ann Company	12.88	130,000.00	11,043.49	118,956.51	67,733.19	30,500.00	80,545.79
U-E-4	Energy Fuels Nuclear, Inc.	16.50	85,000.00	0.00	85,000.00	0.00	12,500.00	0.00
C-JD-5	Blake Mining Company	12.00	700,000.00	410,951.40	289,048.60	1,732,465.90	188,000.00	1,846,787.79
C-JD-5A	Relinquished (4/13/83)	15.82	30,000.00	0.00	30,000.00	0.00	5,500.00	0.00
C-JD-6	Cotter Corporation	14.20	1,200,000.00	279,900.99	920,099.01	1,910,421.63	151,500.00	2,052,557.25
C-JD-7	Cotter Corporation	27.30	2,800,000.00	46,228.04	2,753,771.96	125,445.50	313,500.00	187,740.52
C-JD-7A	Cotter Corporation	31.30	30,000.00	0.00	30,000.00	0.00	7,500.00	0.00
C-JD-8	Cotter Corporation	38.20	375,000.00	0.00	375,000.00	0.00	51,000.00	0.00
C-JD-8A	Relinquished (4/14/83)	26.22	30,000.00	0.00	30,000.00	0.00	3,500.00	0.00
C-JD-9	Cotter Corporation	24.30	850,000.00	128,593.81	721,406.19	703,775.59	142,500.00	1,344,944.18
C-SR-10	Energy Fuels Nuclear, Inc.	21.76	110,000.00	273,298.44	0.00	2,323,124.44	31,000.00	1,694,414.29
C-SR-11	Cotter Corporation	11.67	900,000.00	161,997.44	738,002.56	924,981.50	136,000.00	795,460.69
C-SR-11A	Relinquished (5/14/82)	36.20	300,000.00	0.00	300,000.00	0.00	21,000.00	0.00
C-SR-12	Relinquished (5/29/86)	11.74	180,000.00	24,216.30	155,783.70	233,388.20	46,000.00	170,337.34
C-SR-13	Blake Mining Company	20.60	700,000.00	372,747.82	327,252.18	2,765,680.73	129,500.00	3,788,809.09
C-SR-13A	Cotter Corporation	36.20	350,000.00	129,011.21	220,988.79	744,264.36	51,000.00	1,851,714.94
C-SR-14	George S. Fender	26.00	55,000.00	0.00	55,000.00	0.00	13,500.00	0.00
C-SR-14A	Relinquished (5/10/81)	15.82	30,000.00	0.00	30,000.00	0.00	3,500.00	0.00
C-SR-15	Blake Mining Company	18.60	100,000.00	15,602.16	84,397.84	93,286.15	9,000.00	112,018.17
C-SR-15A	Umetco Minerals Corporation	23.00	275,000.00	28,411.66	246,588.34	155,604.84	36,000.00	287,211.15
C-SR-16	Relinquished (5/29/86)	23.60	70,000.00	26,287.30	43,712.70	155,832.40	7,000.00	236,239.10
C-SR-16A	Relinquished (7/23/84)	37.37	30,000.00	12,251.95	17,748.05	102,630.96	3,500.00	136,464.44
C-WM-17	Umetco Minerals Corporation	36.20	30,000.00	0.00	30,000.00	0.00	10,500.00	0.00
C-WM-17A	Taminco, Inc.	10.19	45,000.00	0.00	45,000.00	0.00	10,500.00	0.00
C-SM-18	Cotter Corporation	15.60	1,300,000.00	22,553.12	1,277,446.88	97,185.97	162,000.00	53,823.44
C-AM-19	Umetco Minerals Corporation	27.76	2,800,000.00	3,610,072.47	0.00	18,433,088.96	439,500.00	29,653,162.50
C-AM-19A	Umetco Minerals Corporation	18.10	1,500,000.00	0.00	1,500,000.00	0.00	126,000.00	0.00

Table 1. Summary of Lease Tract Information for the 1974–1994 Leasing Period (continued)

Lease Tract Number	Leaseholder at End of Period	Royalty Bid (%)	Royalty Bid Quantity (pounds)	Uranium Produced (pounds)	Royalty Pound Balance	Vanadium Produced (pounds)	Minimum Advanced Royalty (\$)	Production Royalty (\$)
C-AM-20	Umetco Minerals Corporation	19.60	800,000.00	0.00	800,000.00	0.00	75,000.00	0.00
C-LP-21	Cotter Corporation	18.40	1,200,000.00	175,769.65	1,024,230.35	1,235,865.28	159,000.00	1,801,979.69
C-LP-22	Relinquished (11/7/84)	15.30	180,000.00	39,746.80	140,253.20	202,763.10	25,500.00	279,377.74
C-LP-22A	Cotter Corporation	19.90	60,000.00	84,474.16	0.00	531,798.94	6,000.00	763,193.66
C-LP-23	Terminated (3/2/82)	33.51	375,000.00	24,064.86	350,935.14	116,989.45	52,000.00	207,154.30
C-BL-23A	Cotter Corporation	26.22	30,000.00	0.00	30,000.00	0.00	5,500.00	0.00
C-BL-23B	Relinquished (10/9/84)	11.11	170,000.00	5,038.33	164,961.67	39,919.57	28,500.00	25,755.84
C-CM-24	Terminated (10/28/81)	11.13	90,000.00	0.00	90,000.00	0.00	26,000.00	0.00
C-CM-25	Cotter Corporation	25.10	600,000.00	62,411.33	537,588.67	255,887.94	72,000.00	586,263.78
C-G-26	Rajah Ventures, Ltd.	9.04	50,000.00	4,220.24	45,779.76	18,846.09	17,000.00	7,878.01
C-G-26A	Lois B. Foster	4.12	30,000.00	8,342.05	21,657.95	44,293.99	18,000.00	24,000.51
C-G-27	Marjorie L. Foster and Dalton Foster	10.32	140,000.00	82,859.45	57,140.55	350,708.67	14,000.00	469,885.68
C-G-27A	Pioneer Uranium, Inc.	26.22	30,000.00	0.00	30,000.00	0.00	3,500.00	0.00
U-PM-28	Never leased in 1974							
Total				6,503,213.89		33,393,318.20	2,724,500.00	49,050,460.01

3.1.3 Uranium Leasing Program

In 1994, all the existing lease agreements were allowed to expire to allow DOE to prepare a National Environmental Policy Act (NEPA) (Title 42 *United States Code* Section 4321 et seq. [42 USC 4321 et seq.]) Programmatic Environmental Assessment (PEA) for a potential extension of the leasing program, which was completed in July 1995. On August 22, 1995, a Finding of No Significant Impact (FONSI) was issued for the proposed action. Based on the PEA and FONSI, DOE determined that the leasing program should continue and extended offers to the existing lessees for new 10-year leases. The new lease agreements were patterned after the 1974 agreement but were modified to incorporate new administrative requirements and the additional environmental obligations outlined in the PEA. During lease negotiations, the lessees of 15 lease tracts chose not to continue leasing with the program and reclaimed and relinquished their respective tracts back to DOE. Accordingly, 10 new 10-year lease agreements were executed with Cotter Corporation, effective March 20, 1996, and three new lease agreements were executed with Blake Mining Company, effective January 27, 1997. The leases with Blake Mining Company were later assigned to Telluride Mining Company, then to Gold Eagle Mining Inc. The ensuing leasing program and its associated activities were recognized as the ULP to differentiate it from the earlier 20-year ULMP. Two lease tracts, C-LP-22A and C-BL-23A, were subsequently fully reclaimed and relinquished back to DOE (Table 2).

In April 2003, Cotter Corporation resumed mining operations on Lease Tract C-JD-9. During the following 2 years, three additional lease tracts were brought back into production. Mining operations ceased on all tracts in November 2005. During this brief period, the four lease tracts produced approximately 64 thousand tons of ore, yielding 600 thousand pounds of uranium, 1.5 million pounds of vanadium, and \$6 million (in unadjusted dollars) in royalties to the federal government.

Through a series of lease modifications, the leases were extended through April 30, 2008. These extensions allowed DOE to perform its second PEA, which was completed in July 2007 and resulted in a FONSI supporting the continuation of the program for a fourth 10-year period. As the program continued, lease tracts were redefined to include the adjacent invalid claims, or portions thereof, within the withdrawal boundaries. DOE also decided to combine some of the less favorable lease tracts with the more desirable adjacent lease tracts. In April 2008, DOE executed new 10-year lease agreements with the existing lessees of the 13 active lease tracts. In June 2008, DOE executed new 10-year lease agreements with the successful bidders for 18 inactive lease tracts. The one remaining tract received no bids and was placed on inactive status indefinitely. Two lease tracts, C-JD-7 and C-JD-7A, were combined into a single lease tract (Table 3).

Table 2. Summary of Lease Tract Information for the 1995–2008 Leasing Period

Lease Tract Number	Lessee	Date of New Lease	Royalty Bid (%)	Royalty Bid Quantity (pounds)	Annual Royalty (\$)
C-JD-5	Gold Eagle Mining Inc.	1/27/1997	12.00	289,000	6,600
C-JD-6	Cotter Corporation	3/20/1996	14.20	920,000	16,600
C-JD-7	Cotter Corporation	3/20/1996	27.30	2,754,000	45,800
C-JD-7A	Cotter Corporation	3/20/1996	31.30	30,000	2,500
C-JD-8	Cotter Corporation	3/20/1996	38.20	375,000	8,000
C-JD-9	Cotter Corporation	3/20/1996	24.30	721,000	13,500
C-SR-11	Cotter Corporation	3/20/1996	11.67	738,000	13,700
C-SR-13	Gold Eagle Mining Inc.	1/27/1997	20.60	327,000	7,200
C-SR-13A	Cotter Corporation	3/20/1996	36.20	221,000	5,500
C-SR-14	No successful bids received				6,300
C-SR-15	Gold Eagle Mining Inc.	1/27/1997	18.60	84,000	3,300
C-SM-18	Cotter Corporation	3/20/1996	15.60	1,277,000	22,300
C-LP-21	Cotter Corporation	3/20/1996	18.40	1,024,000	18,300
C-LP-22A	Relinquishment approved on 10/3/2002				
C-BL-23A	Relinquishment approved on 1/4/2001				
C-CM-25	Cotter Corporation	3/20/1996	25.10	538,000	10,600
Total				9,077,000	168,400

Table 3. Summary of Lease Tract Information for the 2008–2018 Leasing Period

Lease Tract Number	Lessee	Date of New Lease	Royalty Bid (%)	Royalty Bid Quantity (pounds)	Annual Royalty (\$)
C-JD-5	Gold Eagle Mining Inc.	4/30/2008	12.00	233,704	10,600
C-JD-5A	Golden Eagle Uranium, LLC	6/27/2008	20.10	NA ^a	4,800
C-JD-6	Cotter Corporation	4/30/2008	14.20	846,916	28,300
C-JD-7	Cotter Corporation (combined with C-JD-7A on 2/16/2011)	4/30/2008	27.30	2,754,000	82,300
C-JD-7A	Cotter Corporation (combined with C-JD-7 on 2/16/2011)	4/30/2008	31.30	30,000	4,800
C-JD-8	Cotter Corporation	4/30/2008	36.20	328,663	13,600
C-JD-8A	No successful bids received				
C-JD-9	Cotter Corporation	4/30/2008	24.30	626,204	21,800
C-SR-10	Golden Eagle Uranium, LLC	6/27/2008	13.10	NA ^a	3,900
C-SR-11	Cotter Corporation	4/30/2008	11.67	738,000	24,900
C-SR-11A	Golden Eagle Uranium, LLC	6/27/2008	14.30	NA ^a	12,400
C-SR-12	U.S. Uranium Corporation	6/27/2008	17.57	NA ^a	8,300
C-SR-13	Gold Eagle Mining Inc.	4/30/2008	20.60	327,000	13,200
C-SR-13A	Cotter Corporation	4/30/2008	36.20	221,000	10,200
C-SR-14	Zenith Minerals, LLC (Relinquished on 8/24/2010)	6/27/2008	9.17	NA ^a	6,300

Table 3. Summary of Lease Tract Information for the 2008–2018 Leasing Period (continued)

Lease Tract Number	Lessee	Date of New Lease	Royalty Bid (%)	Royalty Bid Quantity (pounds)	Annual Royalty (\$)
C-SR-15	Gold Eagle Mining Inc.	4/30/2008	18.60	84,000	6,300
C-SR-15A	Golden Eagle Uranium, LLC	6/27/2008	15.05	NA ^a	10,900
C-SR-16	Golden Eagle Uranium, LLC	6/27/2008	15.10	NA ^a	5,200
C-SR-16A	Energy Fuels Resources Inc.	6/27/2008	7.67	NA ^a	4,400
C-WM-17	Golden Eagle Uranium, LLC	6/27/2008	15.20	NA ^a	6,000
C-SM-18	Cotter Corporation	4/30/2008	15.60	1,163,410	37,700
C-AM-19	Zenith Minerals, LLC	6/27/2008	8.65	NA ^a	3,900
C-AM-19A	Energy Fuels Resources Inc.	8/25/2009	15.20	NA ^a	46,600
C-AM-20	Energy Fuels Resources Inc.	8/24/2009	18.81	NA ^a	26,700
C-LP-21	Cotter Corporation	4/30/2008	18.40	1,024,000	33,000
C-LP-22	Golden Eagle Uranium, LLC	6/27/2008	15.10	NA ^a	7,900
C-LP-22A	Golden Eagle Uranium, LLC	6/27/2008	12.10	NA ^a	3,900
C-LP-23	Golden Eagle Uranium, LLC	6/28/2010	16.10	NA ^a	19,400
C-CM-24	Energy Fuels Resources Inc.	6/27/2008	8.60	NA ^a	6,500
C-CM-25	Cotter Corporation	4/30/2008	25.10	538,000	19,200
C-G-26	Energy Fuels Resources Inc.	6/27/2008	18.77	NA ^a	5,800
C-G-27	Energy Fuels Resources Inc.	6/27/2008	16.61	NA ^a	6,400
Total				NA^a	495,200

Note:

^a No discrete royalty bid quantity specified in lease agreement. The royalty bid applies to all ores produced from the lease tract during the lease term.

Abbreviation:

NA = not applicable

3.1.4 Abandoned Mine Site Reclamation Program

In 1994, DOE initiated an abandoned mine site reclamation program to address the AEC legacy mine sites. To support this program, DOE initiated discussions with the U.S. Bureau of Land Management (BLM) to establish a reclamation strategy that was protective of human health and the environment. A reclamation guidance document (BLM 1995) was developed and used to standardize all subsequent reclamation activities (included as Appendix A).

In 1997, DOE performed a comprehensive reconnaissance survey of all lease tracts to identify and assess all legacy mine sites. During the next 4 years, these legacy sites were systematically reclaimed; reclamation was completed at the final legacy site in May 2001. In the early 2000s, numerous unpatented mining claims became invalid. Those within the withdrawal boundaries were incorporated into the lease tracts, and DOE accepted the liability for the legacy mine sites contained therein. From 2009–2011, DOE reclaimed these additional legacy mine sites.

A total of 182 separate and distinct mine sites were reclaimed at a cost of \$2,298,000. This included the permanent closure of 199 mine portals and openings, the fabrication and installation of 74 bat gate structures, the permanent closure of 19 shafts and 137 vent holes, the

backfilling of open pits and trenches with 145,000 cubic yards of material, the recontouring of 177,000 cubic yards of mine waste rock materials, and the revegetation of 185 acres of disturbed land with native species of grasses, forbs, and shrubs.

3.1.5 Litigation

On July 31, 2008, four environmental organizations filed suit against DOE and the ULP in U.S. District Court for the District of Colorado (Court), alleging that DOE violated NEPA by issuing the 2007 PEA and FONSI and “not taking a hard look at the potential environmental impacts of future ULP activities.” A second complaint was added in April 2009, alleging that DOE also violated the Endangered Species Act (16 USC 1531 et seq.) by “not adequately addressing the potential environmental impacts of future ULP activities to the four endangered Colorado River fish.”

On June 30, 2011, DOE notified its lessees of its intent to prepare a Programmatic Environmental Impact Statement (PEIS) for the ULP. At that time, DOE advised the lessees that during the PEIS process, estimated to take 12–15 months to complete, DOE would be unable to approve any new ground-disturbing activities (exploration or mining plans) on the lease tracts. DOE further advised the lessees that their annual royalties paid for the 2011–2012 lease year ensured that their lease tracts were in good standing, and would remain so during the PEIS process, and that no further royalties would be required until after the PEIS process was completed. Finally, DOE advised the lessees that the “reasonable diligence” portion of Article IV of each lease agreement was waived during the PEIS process.

On October 18, 2011, the Court ruled in the plaintiffs’ favor and issued an injunction against DOE that prohibited all lease-related activities until DOE performed an environmental analysis that adequately addressed all potential environmental impacts of future ULP activities. This included site-specific activities, which according to the Court were not adequately addressed in the 2007 PEA and FONSI. On February 27, 2012, the Court amended its ruling to allow DOE and its lessees to perform activities necessary to maintain permits and the tracts in an environmentally sound condition.

DOE completed its final PEIS in March 2014 and issued the “Record of Decision for the Uranium Leasing Program Programmatic Environmental Impact Statement” (Volume 79 *Federal Register* page 26956 [79 FR 26956]), also called the Record of Decision (ROD), in May 2014 supporting the implementation of its preferred alternative continuation of the ULP for an additional 10-year period. Subsequent to issuing the ROD, DOE submitted the Administrative Record for the PEIS and ROD to the Court for consideration.

In April 2017, DOE filed a motion with the Court to dissolve the injunction. In February 2018, the Court ruled that DOE had satisfied its obligation under NEPA; however, it directed DOE to consult further with the U.S. Fish and Wildlife Service (USFWS) concerning water depletion and its effects on the four endangered Colorado River fish species. In May 2018, DOE submitted a supplemental Biological Assessment to USFWS that provided the water depletion data, as directed by the Court. USFWS responded in June 2018 that the new information did not alter its original ecological opinion—that mining activities related to the continuation of the ULP would not adversely affect the four fish species or their habitat. In July 2018, DOE filed a second motion with the Court to dissolve the injunction and enter final judgement in the case.

On March 18, 2019, the Court ruled in DOE’s favor, dissolved the injunction against DOE and the ULP, and closed the case. Following the 60-day appeal period wherein the plaintiffs took no actions, the DOE Office of the General Council advised DOE that it was free to develop a path forward for the ULP, including the implementation of its preferred alternative as defined in the final PEIS and ROD, and to continue the program for an additional 10-year period and execute new leases with the existing lessees.

3.1.6 Continuation of the ULP

Upon dissolution of the injunction, DOE worked with the current lessees to execute new 10-year lease agreements that became effective January 6, 2020, for three lessees and July 6, 2020, for one lessee. The lease agreements were revised to incorporate new environmental requirements and stipulations outlined in the final PEIS. These new lease agreements also incorporated a change to the production royalty calculation methodology. The new calculation removed the base royalty and bid quantity and revised the bid royalty to be equitable to DOE and the lessee, thus standardizing the royalty calculations between the new and old leases. A summary of the current lease information is shown in Table 4.

Table 4. Summary of Lease Tract Information for the 2020–2030 Leasing Period

Lease Tract Number	Current Lessee	Date of New Lease	Royalty Bid (%)	Annual Royalty (\$)
C-JD-5	Gold Eagle Mining Inc.	1/6/2020	13.80	10,600
C-JD-5A	Golden Eagle Uranium, LLC	1/6/2020	20.10	4,800
C-JD-6	Highbury Resources Inc.	7/6/2020	19.92	28,300
C-JD-7	Highbury Resources Inc.	7/6/2020	16.86	87,100
C-JD-8	Highbury Resources Inc.	7/6/2020	15.02	13,600
C-JD-9	Highbury Resources Inc.	7/6/2020	16.26	21,800
C-SR-10	Golden Eagle Uranium, LLC	1/6/2020	13.10	3,900
C-SR-11	Highbury Resources Inc.	7/6/2020	13.73	24,900
C-SR-11A	Golden Eagle Uranium, LLC	1/6/2020	14.30	12,400
C-SR-12	Consolidated Uranium	1/6/2020	17.33	8,300
C-SR-13	Gold Eagle Mining Inc.	1/6/2020	15.52	13,200
C-SR-13A	Highbury Resources Inc.	7/6/2020	29.50	10,200
C-SR-15	Gold Eagle Mining Inc.	1/6/2020	15.12	6,300
C-SR-15A	Golden Eagle Uranium, LLC	1/6/2020	15.05	10,900
C-SR-16	Golden Eagle Uranium, LLC	1/6/2020	15.10	5,200
C-SR-16A	Consolidated Uranium	1/6/2020	7.67	4,400
C-WM-17	Golden Eagle Uranium, LLC	1/6/2020	15.20	6,000
C-SM-18	Highbury Resources Inc.	7/6/2020	16.08	37,700
C-AM-19	Consolidated Uranium	1/6/2020	8.65	3,900
C-AM-19A	Consolidated Uranium	1/6/2020	15.20	46,600
C-AM-20	Consolidated Uranium	1/6/2020	18.81	26,700
C-LP-21	Highbury Resources Inc.	7/6/2020	16.92	33,000
C-LP-22	Golden Eagle Uranium, LLC	1/6/2020	15.10	7,900

Table 4. Summary of Lease Tract Information for the 2020–2030 Leasing Period (continued)

Lease Tract Number	Current Lessee	Date of New Lease	Royalty Bid (%)	Annual Royalty (\$)
C-LP-22A	Golden Eagle Uranium, LLC	1/6/2020	12.10	3,900
C-LP-23	Golden Eagle Uranium, LLC	1/6/2020	16.10	19,400
C-CM-24	Consolidated Uranium	1/6/2020	8.60	6,500
C-CM-25	Highbury Resources Inc.	7/6/2020	18.93	19,200
C-G-26	Consolidated Uranium	1/6/2020	18.77	5,800
C-G-27	Consolidated Uranium	1/6/2020	16.61	6,400
Total				488,900

Because all lease-related activities were placed on hold during the injunction, the ULP was unable to review, approve, or deny any lessee-submitted exploration, mining, or reclamation plans. With the injunction dissolved, the ULP has resumed reviewing these documents to ensure the appropriate measures to address environmental regulations and requirements are taken and that they are conducted in accordance with ULP programmatic documents. New guidance and procedures have been implemented by the ULP to assist lessees in following LM procedure and properly documenting environmental compliance in their plans. The *Uranium Leasing Program Lessee Environmental Checklist* (LM-Form-4-20-22.0), described in the *Uranium Leasing Program Mineral Leasing Procedures Manual* (LMS/PRO/S04344) (Mineral Leasing Procedures Manual), is one such document now required by the lessee to provide sufficient data for the LM NEPA process and to comply with environmental regulations and statutes.

3.1.7 Other Reclamation Projects

After the injunction was lifted, the ULP began planning its largest reclamation project to date: the reclamation of the Burro Mines Complex to protect the Dolores River by addressing sedimentation issues. The Burro Mines Complex, on Lease Tract C-SR-13, is adjacent to the Dolores River, near Slick Rock, Colorado. This project involved reclamation of three legacy mines, including erosion control and relocating waste rock to a nearby former gravel pit. These mine sites included the Burro Tunnel mine, Burro No. 3 claim, and Burro No. 5 claim, which were developed and produced ore between 1948–1970 and 1975–1984.

Reclamation included removing the upper levels of the waste rock pile at the Burro Tunnel mine, improving six existing sediment basins, and installing two new sediment basins. The waste rock was relocated to a former gravel pit approximately 2500 feet from the Burro Tunnel mine. Remaining waste rock at the Burro Tunnel mine was left following consultation with the Colorado State Historic Preservation Office because it mimics the pre-1970 waste rock pile identified by historical information and includes armoring to protect against a 100-year flood event in Burro Canyon drainage. The pre-1970 waste rock remaining supports the historical integrity of this mining district.

A total of 72,117 cubic yards of waste rock were relocated. This exceeded LM’s objective by approximately 25%, as more waste rock was relocated than originally planned. The project was

conducted safely with no injuries and was completed ahead of schedule on October 21, 2021, before the December 1 beginning of winter rangeland protections for desert bighorn sheep.

4.0 Program Authority

LM, through DOE and its predecessor agency AEC, has authority to control, lease, and administer the uranium lease tracts according to the following:

- The Atomic Energy Act of 1946 (Public Law 79-585 [PL 79-585]) [Section 12(a) 7]:
 - “In the performance of its functions, the Commission is authorized to acquire, purchase, lease, and hold real and personal property as an agent of and on behalf of the United States and to sell, lease, grant, and dispose of such real and personal property as provided in this act”
- Amendment to Section 5(b) 6 of the Atomic Energy Act of 1946, effective August 13, 1954:
 - “The commission is authorized, to the extent it deems necessary to effectuate the provisions of this Act, to issue leases or permits for prospecting for, exploration for, mining of, or removal of deposits of source materials in lands belonging to the United States . . .”
- Public Land Order 459 (13 FR 1763), “Colorado; Withdrawing Lands and Reserved Minerals in Patented Lands for the Use of the Atomic Energy Commission”
- Public Land Order 494 (13 FR 3870), “Colorado and Utah; Withdrawing Public Lands and Reserving Minerals in Patented Lands for Use of the Atomic Energy Commission”
- Public Land Order 565 (14 FR 1006), “Colorado and Utah; Withdrawing Public Lands and Reserved Minerals in Patented Lands for Use of Atomic Energy Commission; Revoking in Part PLO No. 494”
- Public Land Order 698 (16 FR 1638), “Colorado; Revoking in Part PLO Nos. 459 and 494”
- Public Land Order 779 (17 FR 160), “Colorado; Withdrawing Public Lands and Reserved Minerals in Patented Lands for Use of the United States Atomic Energy Commission; Amended by PLO No. 825 (17 FR 4576)”
- Public Land Order 1495 (22 FR 7313), “Colorado; Withdrawing Public Lands for Use of the Atomic Energy Commission; Corrected by PLO No. 1533 (22 FR 8536)”
- Title 10 *Code of Federal Regulations* Section 760 (10 CFR 760), “Domestic Uranium Program”
- DOE is authorized to enter into agreements with other federal agencies to carry out its ULP functions; certain of these other agencies (BLM) have authority under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 USC 9601 et seq.)

4.1 Regulatory Drivers

Regulations are in place at the federal, state, local, and tribal level according to which LM maintains programmatic compliance and provides oversight of lessee activities. These regulations guide the actions performed by LM, the LMS contractor, and lessees. On a federal

level, various Executive Orders (EOs), DOE orders and policies, and BLM requirements apply to the ULP. The ULP activities also must adhere to applicable state requirements established by the Colorado Department of Public Health and Environment (CDPHE) and the Colorado Division of Reclamation, Mining, and Safety (DRMS), which are the main regulatory agencies involved in the ULP. The following sections outline the regulatory drivers for LM and lessee activities.

4.1.1 LM Program Oversight and Routine Activities

LM and the LMS contractor have ultimate responsibility for ensuring that lessee activities are in accordance with applicable environmental and programmatic compliance regulations and lease stipulations. Requirements flow from the LM program office to the LMS contractor through the work authorization directives and regulatory requirements included in the LMS contract.

The applicable environmental, safety, and health requirements that apply to LM's oversight of the ULP and routine activities performed by LM and the LMS contractor are outlined in the following documents, manuals, and procedures:

- *Mineral Leasing Procedures Manual*
 - Defines the procedures and requirements that guide both federal and LMS contractor personnel in conducting activities for administering the ULP
- *Final Uranium Leasing Program Programmatic Environmental Impact Statement* (DOE 2014a) and the ROD (79 FR 26956)
 - Establishes the environmental impacts and mitigation measures that apply to ULP exploration, mining, and reclamation activities and requires additional lease-tract-specific environmental analysis in accordance with NEPA
- *Environmental Protection Manual* (LMS/POL/S04329)
 - Provides the environmental and regulatory compliance requirements and programs that are generally applicable to activities conducted by the LMS contractor
 - Lists the major federal environmental statutes, EOs, and DOE requirements that govern many of the activities performed by the LMS contractor
- *Worker Safety and Health Program (10 CFR 851)* (LMS/POL/S14697)
 - Describes the work processes, plans, and procedures that implement the applicable requirements of DOE promulgated in 10 CFR 851, "Worker Safety and Health Program"

4.1.2 Lessee Activities

A lease agreement is in place with each lessee that establishes the terms and conditions of performing exploration, mining, and reclamation activities on the lease tracts. Article XI of each lease requires the lessees to comply with all applicable statutes and regulations, including specific requirements identified in Appendix C of the lease agreement. The specific requirements include those that affect mining and exploration disturbances on each specific tract.

Lessees are required to submit plans for all proposed exploration, mining, and reclamation activities in accordance with the Colorado Mined Land Reclamation Board and Articles XII and XIII of the lease agreement. These plans are reviewed in accordance with DOE's NEPA

regulations (including the *Uranium Leasing Program Lessee Environmental Checklist*) and policies and are approved or disapproved with the cooperation and input of federal and state agencies, including local BLM officials and representatives from Colorado DRMS.

5.0 Goals and Objectives

This section identifies the LM goals and objectives of the ULP.

5.1 Program Goals

The ULP aligns with Goal 1 of the LM *2020–2025 Strategic Plan* (DOE 2020) (Strategic Plan) which is “to protect human health and the environment.” The ULP mission is demonstrated by the program’s stewardship of federal lands withdrawn for uranium and vanadium development and production. While these lands were originally withdrawn for national security purposes, the program’s main objective has evolved to focus on environmental stewardship of these lands through all stages of resource development and extraction. The ULP has taken a proactive approach to mitigate environmental impacts and reclaim physical hazards of historical prelaw mines within the lease tracts. These actions have removed safety and environmental hazards with the potential to impact the public, the environment, livestock, and wildlife and have reestablished native topography, vegetation, and ecosystems on former mine sites.

The ULP currently employs, or will employ, numerous strategies to fulfill its mission and meet the goals of the Strategic Plan including:

- Ensuring that lessees maintain lease tracts in accordance with federal and state regulations, lease stipulations, and conditions consistent with environmental stewardship best practices.
- Acting as a liaison to assist lessees in navigation of regulatory requirements.
- Maintaining professional relationships with industry and regulatory organizations for the benefit of the lessees and to stay apprised of industry best practices and potential regulation that may impact the lessees or the ULP.
- Addressing the environmental legacy of and human health and safety risks posed by prelaw mine sites within the lease tracts in conjunction with land management agencies and state and tribal governments.
- Providing oversight, monitoring, and maintenance of lease tracts.
- Maintaining a presence in local communities through outreach and education, remaining involved with mining-related organizations, cultivating relationships with supporting businesses to better understand their needs, communicating program plans, and improving the impact of the program on those communities.

5.2 Program Objectives

In support of Goal 1 of the Strategic Plan, the objectives of the ULP are to:

- Perform site-specific inspections of permitted mine sites on an annual basis and summarize findings in annual reports. Annual inspections are further described in Section 8.1.2.2.

- Complete cursory field inspections on a more frequent basis to identify potential issues or concerns, especially of unpermitted and previously reclaimed mine sites. Cursory inspections are further described in Section 8.1.2.2.
- Complete or oversee reclamation, as necessary, to protect the public, livestock, and wildlife through safeguarding of prelaw mining features on the lease tracts.
- Provide lessees with the tools and regulatory support necessary to streamline the environmental review, related surveys, and NEPA evaluation process.
- Track, compute, and provide the spot and long-term market prices of uranium and vanadium to lessees on a weekly basis and formally establish the value of lease tract ore on a quarterly basis.
- Document and maintain a history of lease-specific data and information.

6.0 Program Administration

6.1 Contract Management

Effective contract management ensures that LM and LMS managers, staff, and subcontractors have a clear outline and understanding of what ULP activities and services are to be performed under the LMS contract. The process of contract work generally starts with LM direction and progresses to the LMS contractor's preparation of detailed work packages. Throughout the process, the LMS contractor prioritizes tasks to ensure that worker safety and environmental protection will not be compromised within the final approved work package.

6.1.1 Procurement and Contracts Management

The *Procurement Manual* (LMS/POL/S04334) provides direction for the procurement of equipment, services, and subcontracts and ensures that the most economic and efficient methods will be used. All procurement services for ULP work will be made in accordance with federal and prime contract requirements, programmatic schedules, best commercial practices, and established safety and health requirements.

6.1.2 Work Breakdown Structure (WBS)

All LMS contract costs are categorized by Contract Work Breakdown Structure (CWBS), cost element, and organizational structure. For subtask cost and performance measurement, all costs must be captured by the CWBS element.

CWBS accounting can be defined as the ability to account for all costs within the WBS network. The network collects costs at the lowest level of the network (the work package) and rolls them into successively higher levels of the WBS network. Integrated work packages roll up to a control account managed by a control account manager. The CWBS is the official internal breakdown for the purposes of tracking the approved ULP work scope as well as budget and cost collection.

At the work package level, the definition of work must include sequence, schedule, task breakdown, labor, or any other details that specify how and when work will be performed. These details are used to determine the ULP's standards and requirements for the work scope to analyze hazards, develop controls, and determine what skills and training are required. The LMS contractor also uses the details to ensure that the right resources are allocated to address safety, environmental, and operational considerations.

6.1.3 Performance Milestones

Contract performance milestones are events identified in the schedule baseline marking the due date for the accomplishment of a specified effort (work scope) or objective. A milestone may mark the start, an interim step, or the end of one or more activities. There are four types of milestones used: performance evaluation and measurement plan, contract, baseline, and internal. Each has an established change control level and is used for tracking and reporting purposes.

LM establishes performance milestones for the ULP to measure LMS performance on priority ULP tasks and deliverables.

6.1.4 Budget and Cost Baseline

LMS work performance begins after LM has approved the contract task plan and after contract funding has been received. Formal task order controls for funds management, accounting, work authorization, performance analysis, and reporting ensure completion of the technical work scope in a cost-effective and timely manner. The contract budget baseline is associated with the baseline milestones, and performance is tracked using earned value management tools.

The *Project Management Control Systems Manual* (LMS/POL/S04330) and the *Finance and Accounting Manual* (LMS/POL/S04342) establish the requirements and responsibilities for management of LMS financial reporting. The LMS organization maintains a cost management information system to identify, assemble, analyze, classify, record, and report its transactions, events, and conditions. Clear and concise communication of roles and responsibilities regarding financial reporting objectives and controls to employees is the responsibility of management.

6.1.5 Life-Cycle Baseline (LCB)

Contract LCB planning information helps support the LM organization and a number of its orders and procedures. LCB planning is the starting point for contract budget planning and is used throughout the planning cycle. LCB planning provides the context for the budget and for how contract work is prioritized and executed.

While LM is responsible for LCB planning, the LMS organization provides support, ensuring inclusion of all scope elements described in this plan, including general lease administration, compilation and documentation of royalties, implementation of mitigation actions identified in the PEIS, review of lessees' plans and activities, and monitoring and maintenance of prelaw mines on the lease tracts.

6.1.6 Baseline Change Proposals

The LMS change control procedure is a formal, documented process in which changes are proposed to a task order budget or performance measurement baseline, including scope, budget, and schedule. Changes are controlled to maintain the validity and integrity of the task order baseline. A baseline change proposal is an internal change to the performance measurement baseline that is initiated by the LMS Uranium Related Programs (URP) manager when a potential scope, schedule, or budget change has been identified. The URP manager obtains technical direction from LM for the change being requested in the baseline. By following the direction in the *Project Management Control Systems Manual*, the URP manager will ensure that an accurate and complete baseline change proposal form has been prepared.

6.2 Schedule

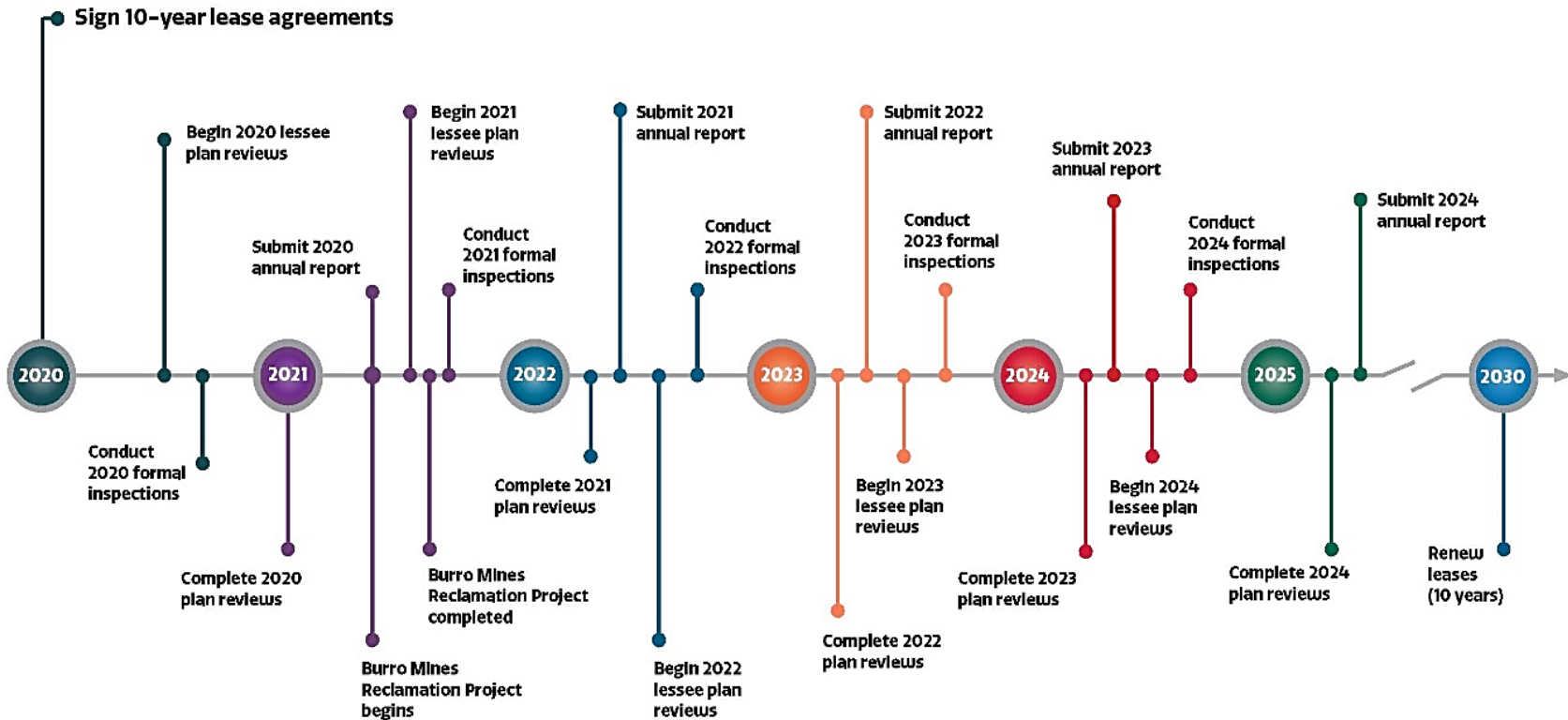
6.2.1 Baseline Schedule

Contract schedules that are consistent with the WBS, integrated with the cost baseline, and representative of all site and activity work scope will be developed. An approved schedule baseline that clearly depicts critical path activities and milestones will be established as part of the annual budgeting process.

6.2.2 Program Schedule

The program schedule is a collaborative effort by LM and the LMS contractor to plan key tasks and identify start and end dates as well as interdependencies with other schedule tasks. Critical milestones and deliverables are also identified. The program schedule is a management tool that is updated regularly. Figure 2 presents the overall ULP schedule.

URANIUM LEASING PROGRAM TIMELINE



Note: Review cycle repeats between 2025–2030.

Figure 2. Program Schedule

6.3 Records Management

The *Records and Information Management* policy (LM-Policy-1-11-1.0) establishes the requirements and responsibilities for the management of LM and LMS records. Records created or received during performance of the ULP are maintained at the LM Field Support Center (LMFSC) at Grand Junction, Colorado; the National Archives and Records Administration in Broomfield, Colorado; and the LM Business Center (LMBC) at Morgantown, West Virginia. A ULP LM file plan provides structure for developing and implementing continuous, systematic, and cost-effective controls over each phase of the records life cycle: creation or receipt, maintenance and use, and disposition.

A project-specific file plan identifies the records to be generated, the location where these files will be stored, and the retention schedule for the ULP records. The file plan is augmented by the *Records and Information Management* policy, which establishes the requirements for preparing, preserving, and storing records. Project personnel work with the Information Management lead to ensure that program records are correctly identified and maintained in accordance with the applicable file plan. Modifications to the file plans shall be submitted to the Information Management lead and are subject to review and approval by the URP manager.

The ULP generates records that include:

- Quarterly reports from lessees.
- Royalty calculation and correspondence.
- Exploration and mining plans.
- Uranium and vanadium pricing.
- Environmental permits, related surveys, and NEPA documentation.
- Inspection reports.
- Reclamation bond calculations.
- Exploration maps, assay information, drill logs, and analytical reports provided by the lessees.
- Regulatory agency correspondence and other lease tract correspondence.
- Trip reports.
- Maps and figures.

LMS Information Management staff and the ULP administrative assistant will manage record storage. LM administrative support will manage the storage of records prepared by the LMS contractor for LM's distribution.

7.0 Program Scope

The ULP is the latest chapter in a legacy of land stewardship dating back to the AEC Mineral Leasing Program in 1948. While the methodology and focus of the program have evolved from being entirely related to national defense to supporting commercial nuclear power, the primary

scope of the ULP is to facilitate responsible exploration for, development of, and production of domestic sources of uranium and vanadium from the lease tracts in the most environmentally sound manner possible. Additionally, the ULP provides lessees with support in maintaining the leases. Further refinement of the scope may occur as the program progresses through subsequent leasing phases, regulatory updates, and other changes.

7.1 Program Implementation

Implementing the ULP requires program documents to specify how the LMS functions are to be carried out and identify who has the responsibility and authority to carry out those functions. Depending on the complexity of the document, it may specify the organizational structure, functional responsibilities, levels of authority, and interfaces for those managing, performing, and accessing the work. The documents indicate how responsibilities flow from management to the workers and down to subcontractors or suppliers, as applicable.

The *Integrated Work Control Process Manual* (LMS/POL/S11763) (IWCP) provides guidance for initiating, authorizing, performing, and conducting work within the scope in the LMS contract. The IWCP defines the roles and responsibilities of the LMS ULP staff and subcontractors, as applicable. The LMS organization may use subcontractors to provide services such as reclamation activities at mine sites or surveying. Part of the subcontracting process is to identify and communicate the hazards that the subcontractor may be exposed to while performing work. This process is also utilized to ensure that all applicable state and federal requirements are identified and met.

Implementing the ULP relies upon its lessees who propose operation plans. ULP personnel review, authorize, and inspect the operations plans. The program provides lessees with technical services to facilitate the development of lessee plans, including ecological, geologic, mining, and reclamation expertise.

Project management personnel are responsible for setting priorities, project management and planning, reporting, client interface, regulatory interface, and work authorization.

Project management personnel receive input from functional support groups. Work implementation is carried out in accordance with the LMS IWCP.

7.2 Uranium Leasing Plans

The activities performed as part of the ULP are described in detail in the Mineral Leasing Procedures Manual, which provides specific guidance and direction in the performance of a task or project activity. A brief summary of the manual is presented in Section 7.2.1.

7.2.1 Mineral Leasing Procedures Manual

The ULP is a program unique to LM in that many of the activities performed are responsive to lessee needs and requests and therefore cannot necessarily be scheduled in advance. The Mineral Leasing Procedures Manual clearly defines the roles and process for both federal and contractor personnel in conducting routine activities for administering the ULP. This is an evolving manual that is reviewed every 3 years and updated and expanded as necessary. This manual is controlled

and issued in accordance with the requirements in the LMS contractor's *LMS Document Types, Processes, and Responsibilities* (LMS/POL/S32426) document.

7.3 Program Management

Program management includes the functional support of Safety and Health (Section 4.1.1), Quality Assurance (QA) (Section 12.0), Environmental Compliance (EC) (Section 11.0), Public Affairs (Section 16.0), and budgeting and scheduling (Section 8.0). Program management includes the development and revision of program-related documents to support the ULP. Program management also implements the PgMP and the requirements of the prime contract.

8.0 Program Approach

LM, under the auspices of DOE, currently offers 31 separate mineral estates for lease to U.S.-based mining companies for domestic production of uranium and vanadium ores. In the current leasing program, the primary focus has been on the administration of uranium and vanadium ores developed and produced from the leases, monitoring and maintenance of the lease tracts so that they are in the best possible ecologic conditions, and reclamation and closure of prelaw mines that fall within the withdrawal but were not in the pre-2008 lease tract boundaries. LM has established memoranda of understanding (MOUs) with several federal, state, and local agencies and groups to efficiently and effectively administer the ULP.

The following activities are necessary for successful implementation of the ULP:

- Performing cursory and formal inspections of lease tract conditions, previously reclaimed or closed sites, and active mining infrastructure (both surface and underground)
- Identifying new or historical data, exchanging information with lessees or other agencies, and synchronizing agency and private company objectives, expectations, and needs in the most efficient manner
- Refining, managing, and continually updating the ULP geodatabase to accommodate data collection, analysis, and reporting
- Sharing information and data with partner agencies, lessees, and other organizations when appropriate
- Conducting outreach activities to educate and keep the public up-to-date on the activities of the ULP
- Participating in professional associations and attending industry conventions to stay current with industry operational experiences, challenges, and best practices

8.1 Work Breakdown Structure

The ULP is currently defined as within DOE Task Order 8, Subtask 12, and contains three distinct work packages, as described below. These work packages were established based on routine activities conducted on a continual basis. LM approves all work scope, schedules, and budgets before the initiation of activities, and performance is measured in accordance with a DOE-approved cost and schedule control system.

8.1.1 Project Management and Lease Program Administration

Program personnel, in the support of LM, will coordinate, plan, and provide technical and administrative support to the LM ULP program manager for the administration of the lease tracts. The LMS ULP lead ensures that specific tasks of the program are carried out in accordance with established policies and procedures. Specific tasks include:

- Developing annual budgets and schedules based on the scopes of work provided by LM.
- Reporting monthly the earned value progress against cost and schedule targets.
- Conducting public outreach and stakeholder engagement (acting as liaison between LM and other federal, state, and local agencies, tribal entities, and other interested parties).
- Periodically reviewing MOUs and other programmatic documents and revising them as appropriate.
- Monitoring industry activities, including market prices for uranium and vanadium resources.
- Issuing or terminating lease agreements.
- Training and professional development.

8.1.1.1 Reporting

ULP personnel will develop, prepare, and revise all project plans, reports, and procedures, to include at a minimum: the PgMP, annual status and activities reports, annual lease tract inspection reports, annual mitigation action reports, annual mill inspection reports, the Mineral Leasing Procedures Manual, and lease tract resumes. Other documents may be included as the need arises.

8.1.2 Surveillance, Investigations, Monitoring, Inspections, and Sampling

8.1.2.1 Lessee Plans and Activities

The ULP, in accordance with the lease agreements signed by the lessees, reviews exploration and mining plans submitted to LM for approval. Such plans include applicable NEPA documentation, completed *Uranium Leasing Program Lessee Environmental Checklist* forms, required surveys, and results of cultural resources and listed species consultations. Plans must be approved before surface-disturbing activities are initiated or surface facilities are constructed on the lease tract. The ULP will include partner agencies, as applicable, according to established MOUs.

Additionally, ULP personnel:

- Establish reclamation performance bonds to ensure that each lessee's financial warranties are adequate to cover full reclamation of the lessee's lease-related operations.
- Monitor the lessee's operations, both surface and underground, to ensure that all activities are conducted in accordance with approved plans, current regulations, and standard industry practices.

- Monitor the lessee’s ore production activities and royalty payments to ensure that the government gets a fair monetary return for the exploitation of its mineral resources.
- Monitor the lessee’s reclamation activities to ensure that all disturbed areas are restored to their premining conditions to the extent possible.

8.1.2.2 Inspections

ULP personnel will routinely monitor all lease tracts to identify any physical or environmental conditions that need to be addressed and then mitigate those conditions. This involves two types of inspections: formal annual inspections and cursory inspections.

Formal annual inspections of all lease tract operations with active permits will be conducted to assess those operations using the standard of the approved plans. A representative or representatives of the lessee are encouraged to join the inspections, as are interested regulators, to facilitate communication. Attempts will be made to include DRMS and BLM on permitted mine site inspections. The results of the annual inspections will be documented in annual reports that are submitted to LM for review and consideration.

Milling and other processing facilities receiving lease tract ores will be evaluated on an annual basis to ensure that the facilities are performing all sampling and analysis activities in accordance with industry standards. A formal report will be generated to document the results of the evaluation and any recommendations made. This report will be submitted to LM for review and consideration.

Cursory inspections are conducted at a higher frequency than formal inspections, typically once or twice monthly, depending on weather and other ULP activities. All lease tracts are routinely inspected to assess ecological conditions (primarily the existence of noxious weeds and other undesirable plant species), physical safety hazards, and environmental hazards. Inspections cover known hazards and attempt to identify any new or worsening hazards. Hazards are identified while surveying the lease tracts on foot or by vehicle. Findings are documented with photographs and a summary of conditions. Physical measurements of any hazards, such as the width and depth of a subsidence, are documented. Table 5 below describes the types of features typically monitored during cursory inspections and the target monitoring frequency associated with each feature type.

Table 5. Cursory Inspection Monitoring Frequency

Feature Type	Monitoring Frequency (inspections per year)	Comments
All lease tracts	1	Applicable to areas of lease tracts with no known hazards
Burro sediment basins	3	Includes Basins A through H at the Burro Tunnel mine
Recent Sustainment, Maintenance, or Reclamation Areas (less than 5 years since action)		
Adits, shafts, and vents	2	
Stormwater controls or diversions	3	Spring, summer, and fall to capture impacts of summer monsoon season and spring snowmelt
Revegetation areas	2	Establish and document photograph monitoring locations

The discovery of noxious weeds or undesirable plant species may be handled in multiple ways. The lessee will be apprised of weed conditions associated with their lease-related activities, and ULP personnel will focus weed control activities on all other areas. BLM and county weed programs will be enlisted to assist with these weed control efforts.

Physical safety hazards and environmental hazards, depending on their severity, may be fenced, designated for increased inspection frequency, or scheduled for maintenance activities to address the hazard (or more than one of these). Physical safety hazards or environmental hazards associated with an active lessee permit will be the responsibility of the lessee to correct.

8.1.3 Data Management

A major portion of the success of the ULP is dependent on proper management of data. Data must be properly managed during collection, use, and storage to ensure the integrity and viability of the program. The data will be managed through software products such as ArcGIS, AutoCAD, and other custom applications, as appropriate. Data include geospatial or tabular information regarding individual mine features, production data, historical and cultural features, radiological data, and mine surface and underground infrastructure. Chemical data, collected by LMS personnel, will be stored in Microsoft structured query language server databases and will be validated according to the *Environmental Data Validation Procedure* (LMS/PRO/S15870) and managed according to the *ESDM Environmental Data Management Team Work Procedures* (LMS/PRO/S13473). Chemical data include the results of laboratory analyses of soil and water samples collected on or near the lease tracts.

ULP personnel routinely collect, assess, and manage all geospatial data collected that are related to the DOE lease tracts and adjacent areas. ULP personnel also collect, assess, and manage all geospatial data received from the lessees related to their DOE lease tracts and adjacent areas. As part of this effort, ULP personnel will upload all data into a geospatial database that will be used to store and manage the data and subsequently produce maps and three-dimensional models of exploration drilling data, mine workings, and mineral resources. Data and models will be made available to lessees upon request and when appropriate.

8.2 Reclamation In Lieu Of Royalties (RILOR)

In accordance with Article XVI of the lease agreements, LM may enter negotiations with lessees to reclaim abandoned uranium mine sites and associated features on lessees' lease tracts in lieu of annual royalty payments to the government. RILOR is optional for lessees, with the value of the reclamation work to be performed being assessed by ULP personnel in accordance with the LM realty specialist and others. Some features associated with the abandoned mines may be left intact (barring imminent safety hazards) because they are considered historically significant.

The LMS contractor prepared an interim directive (ID-22-05) to identify, quantify, and determine the cost and scope of RILOR features on several lease tracts with the intent that work be conducted on them by lessees in the near future. LM issued the *Procedure for Reclamation In Lieu of Royalties (RILOR) for the Uranium Leasing Program* (LM-Procedure-3-13-5.0), effective August 1, 2022.

8.3 Dolores River Restoration Partnership (DRRP)

LM and the DRRP have worked together for over a decade to manage the riparian habitat along the Dolores River as it passes through two lease tracts, C-SR-13 and C-SR-14, in the Slick Rock area of southwestern Colorado. The DRRP consists of various federal, state, and local communities, nonprofit and private companies, and private landowners. The purpose of the DRRP is to restore the riparian corridor of the Dolores River and includes control of nonnative invasive plant species, revegetation, long-term monitoring and maintenance, education, and communication.

8.4 Working File Index

The ULP working file index defines project records, file organization, records custodians, active file locations, file transfer instructions, file retention, and other project-specific records guidance that is needed to effectively manage ULP records. The ULP working file index is maintained and accessible electronically.

In accordance with the *Document Management Services, Resources, and Procedures* (LMS/PRO/S32818) and *LMS Document Types, Processes, and Responsibilities* manuals, project records shall be labeled with the appropriate file index number at the time of creation. The record creator should designate the applicable file numbers. The file name and number should be included in the distribution list if the list is part of the record or placed on the face of the record in the upper or lower right-hand corner.

9.0 Program Organization

The program organization structure defines the organizational elements to plan and implement work. The LM director of site operations and the LM Uranium Mine Team lead are responsible and accountable for program and project management, contractor oversight and performance evaluation, and interagency coordination. The LMS URP manager is responsible and accountable for successful execution of the LMS contractor's scope of work and for adherence to regulatory and contractual requirements. Efficient execution of the above roles is imperative to the overall success of the ULP.

9.1 Office of Legacy Management

The LM organization is a DOE Headquarters office that is managed from Washington, D.C.; the LMFSC at Grand Junction, Colorado; the LM Operations Center (LMOC) at Westminster, Colorado; and the LM Business Center at Morgantown, West Virginia. The ULP operates out of the LMFSC and the LMOC and is managed by the LM Uranium Mine Team lead supervisory general engineer and the LM director of site operations.

9.2 LMS Contractor

The LMS organization provides support to LM through project execution and ongoing LM program support functions, as required by the contract. The ULP is part of URP, which is

managed by the URP manager. The URP manager is supported by the ULP lead, direct staff, and mission support organizations. Field operations are based out of the LMFSC. Daily operations conducted by the LMS contractor are facilitated by a staff that include the program manager, ULP lead, ULP field scientist, and other support staff.

9.3 Roles and Responsibilities

The LMS contractor consults with lessees and partner agencies to develop scope and projects for the ULP. Lessees submit their proposed plans to LM and the LMS contractor for review and approval. LM provides direction to the URP manager about what activities need to be conducted. From there, the URP manager provides direction to ULP staff and support organizations to execute the work associated with the program. Working closely with LM, the URP manager ensures that technical milestones and program objectives are accomplished and that program controls are implemented. The LM realty specialist is responsible for contractual-related actions associated with current lease agreements and communicating contractual-related decisions to the respective lessees.

9.4 Interagency Roles, Responsibilities, and Agreements

9.4.1 U.S. Bureau of Land Management

DOE has an MOU (BLM and DOE 2015) with the BLM district and field offices for areas in which the lease tracts are located. The purpose of this MOU is to identify individual and shared roles and responsibilities of DOE and BLM regarding the ULP, specifically concerning the management of the withdrawn lands and the development of vanadium and uranium ores. This MOU includes the following:

- Lease issuance, negotiation, and management
- Review and approval responsibilities for exploration, mining, and reclamation plans
- Review of site-specific environmental documents resulting from NEPA
- Conduct supporting environmental surveys, consultations, and permitting
- Field reviews of lessee exploration, mining, and reclamation activities
- Financial assistance
- Conflict resolution

DOE also has an interagency agreement (IA) with the BLM district and field offices for areas in which the lease tracts are located. The purpose of this IA is to provide the financial instrument for the limited areas of the MOU and additional scope where DOE has committed to disbursement of funds in support of the ULP.

9.4.2 Colorado DRMS

The MOU with Colorado DRMS (DOE and DRMS 2015) pertains primarily to management of withdrawn lands. The purpose of this MOU is to identify individual and shared roles and

responsibilities of DOE and DRMS regarding the ULP, specifically concerning the development and mining of vanadium and uranium ores. Items covered in this MOU include:

- Individual agency responsibilities.
- Financial warranty and bonding procedure.
- Review of site-specific environmental documents resulting from NEPA.
- Inspection.
- Enforcement.
- Conflict resolution.

9.4.3 State Mined Land Reclamation Board Regulations

The Colorado Mined Land Reclamation Act of July 1, 1976, requires notification and permitting of all exploration and mining operations within the state of Colorado. The act further requires that operations must comply with performance standards similar to those cited in the DOE leases. DRMS administers the state board program that requires surety bonds to guarantee performance under these standards. Only minimal bonds are required by the State of Colorado if the operators are bonded by other agencies, such as DOE, and those bonding amounts are deemed adequate. The state regulations act as double indemnity against environmental damage by DOE lessees. In the event of default, the board has the additional leverage of seeking restraining orders or injunctions on all the operators' activities within the state. The Colorado Mined Land Reclamation Board works with LM and the LMS contractor on potential rule changes and other items that potentially affect the lease tracts.

10.0 Reporting

10.1 Annual Status and Activities Report

On an annual basis, the LMS contractor prepares a comprehensive summary of the lessees' activities to demonstrate the progress that was made and the effectiveness of the mitigative measures that were implemented. This annual status and activities report includes the status of the lessees' activities as they relate to approved lessee plans and the lease-tract-specific *Uranium Leasing Program Mitigation Action Plan for the Final Uranium Leasing Program Programmatic Environmental Impact Statement DOE/PEIS-0472* (DOE 2014b) (Mitigation Action Plan [MAP]). After the LMS contractor finalizes the report, a condensed version with sensitive information extracted will be uploaded onto the ULP website and made available to other federal, state, and local agencies and the public. In addition to this report, the LMS contractor will report the status of any ongoing MAPs in the DOE annual NEPA planning summary, which is an annual report provided to the DOE Office of the General Counsel.

10.2 Annual Inspection Reports

Annual inspections of all lessee mining operations are conducted to assess the physical infrastructure and condition of all permitted mines on the lease tracts. Site conditions will be examined in accordance with federal, state, and local health, safety, and environmental

regulations to identify adverse safety and environmental issues that need to be addressed. The lessees are apprised of any such issues. Following the inspections, a report is prepared outlining the results of the inspections and the mitigative actions recommended. This report is forwarded to LM with a schedule for the proposed completion of the mitigation activities. Additional inspections are conducted as needed to verify that any mitigative actions required are satisfactorily completed.

10.3 Annual Mitigation Report

In accordance with LM's MAP (DOE 2014b), LM is required to submit an annual summary report of mitigation activities completed by the program's lessees. The report includes actions pertaining to mining, exploration, or reclamation on a site-specific basis related to plans submitted to LM by the lessees. LM will utilize this report to inform federal, state, and local agencies of the actions completed by the lessees.

10.4 DRRP Report

The DRRP is a coalition of public and private organizations working to restore the riparian corridor of the Dolores River in western Colorado and eastern Utah. LM's role in this partnership, defined by a 2015 MOU between DOE and DRRP, has led to the physical removal of invasive species and the reestablishment of native vegetation on 3.3 miles of the Dolores River as it passes through two of the ULP lease tracts. The LMS contractor conducts a monitoring program to assess success over time and summarizes its findings in an annual report that is submitted to LM for review and consideration.

11.0 Environmental Management System (EMS)

Environmental protection is conducted under the umbrella of the EMS run jointly by LM and the LMS contractor. The EMS mandates compliance with applicable environmental regulations to ensure that air, water, land, and other natural and cultural resources are protected. The EMS has two areas of focus: environmental compliance and environmental sustainability. The environmental compliance component implements federal, state, tribal, and local regulatory requirements, agreements, and permitted activities. The environmental sustainability component promotes and integrates sustainability initiatives into all phases of work. The EMS implementation strategy is documented primarily in the following:

- LM's *Environmental Policy* (LM-Policy-436.1C)
- LM's *Environmental Management System/Energy Management System Description* (LM-Procedure-3-20-12.0, LMS/POL/S04346)
- The LMS *Environmental Protection Manual* provides an overview of environmental compliance programs and requirements applicable to LM and LMS work activities
- The LMS *Environmental Instructions Manual* (LMS/POL/S04338) provides instructions and procedures to implement environmental requirements, such as managing hazardous and radioactive waste, evaluating chemical inventories, and preventing and responding to spills
- The LMS *Environmental Management System Description* describes the mechanisms for implementing the EMS

- The LM and LMS *EMS Sustainability Teams Manual* (LM-Manual-3-20.3-1.0, LMS/POL/S11374) describes the EMS sustainability teams, EMS support teams, and project teams
- The *Uranium Leasing Program Lessee Environmental Checklist* and *ULP Lessee Environmental Checklist Instructions* (LM-SOP-4-20-6.0)

The authorities related to the EMS for the ULP are described below. The LMS contractor manages the work it performs in a manner that protects natural and cultural resources in accordance with federal, state, local, and tribal laws; regulations; DOE policy; and EOs.

11.1 Environmental Compliance

The LMS contractor's EC organization provides oversight and support to help ensure that ULP activities are planned and performed in compliance with lease agreements and applicable environmental laws and regulations, including DOE policy and EOs. These include the federal laws listed below. Equivalent or additional requirements at the state (e.g., CDPHE and DRMS requirements) and local (e.g., Mesa, Montrose, and San Miguel Counties) level may also apply to activities on ULP lease tracts.

- Bald and Golden Eagle Protection Act (16 USC 668)
- Clean Air Act (42 USC 7401 et seq.)
- Clean Water Act (33 USC 1251 et seq.)
- Endangered Species Act
- Federal Insecticide, Fungicide, and Rodenticide Act (7 USC 136 et seq.)
- Federal Noxious Weed Act (7 USC 2801 et seq.)
- *Floodplain Management* (EO 11988)
- Migratory Bird Treaty Act (16 USC 703–712)
- NEPA
- National Historic Preservation Act (16 USC 470)
- *Protection of Wetlands* (EO 11990)
- Resource Conservation and Recovery Act (42 USC 6901 et seq.)
- Toxic Substances Control Act (15 USC 2601–2629)

11.1.1 Environmental Planning and Review

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 potential impacts upon the environment. An early review for environmental requirements often assists in better project planning and reduces potential impacts upon the environment. The federal agency taking the action or making the decision must conduct and document the NEPA review. The 2014 PEIS and ROD identify the preferred alternative to continue the ULP for an additional 10-year period. The PEIS requires that lease-tract-specific NEPA evaluations tier from the PEIS and be conducted for proposed exploration, mining, and reclamation plans. The ULP work is often conducted with partner agencies with roles and responsibilities described through MOUs, as well as private

mining companies. Work such as weed control on those tracts not under lease may also be performed by LM and LMS personnel, as described below. Information from government or private NEPA documents may be used, as appropriate, in DOE's lease-tract-specific NEPA evaluations for the ULP. DOE's NEPA expectations are summarized in DOE Policy 451.1, and DOE's NEPA implementing procedures are outlined in 10 CFR 1021.

As stipulated in lease agreements, lessees are responsible for providing the site-specific environmental review and analysis information to support LM's NEPA review process for proposed exploration, mining, and reclamation plans. To facilitate this effort ULP provides the lessee with the *Uranium Leasing Program Lessee Environmental Checklist* and the *ULP Lessee Environmental Checklist Instructions* to assist the lessee in providing appropriate documentation and information for the NEPA process. Depending on the scope of work, exploration and reclamation activities may fall under the class of actions that meet the criteria for DOE NEPA categorical exclusions, whereas, for proposed mining actions, lessees are required to provide site-specific environmental analysis information to LM to support a NEPA Environmental Assessment at a minimum. LM and the LMS contractor will review and evaluate the site-specific environmental analysis for completeness and coordinate with lessees throughout the NEPA evaluation process.

A NEPA review and subsequent *NEPA Categorical Exclusion Evaluation (CXE) Form* (LM-Form-4-20-5.0) are used to document that routine activities performed by LM, the LMS contractor, and the lessees have been evaluated and were determined to fit within classes of actions that do not individually or cumulatively have a significant effect on human health or the environment.

- Examples of routine activities performed by LM and the LMS contractor include site inspections, vegetation and noxious weed management, general maintenance, addressing safety and environmental hazards, site characterization, and administrative actions.
- Examples of routine activities performed by the lessee include inspection and monitoring of lease tract conditions; maintaining access roads, equipment, and mine-related features; addressing safety hazards; disposal of excess equipment and waste; collecting environmental samples; maintaining stormwater controls; and noxious weed and vegetation management.

11.1.2 Guiding Documents

The following key programmatic documents set the environmental planning and compliance framework for the ULP:

- *Biological Opinion Regarding the Effects to the Western Yellow-billed Cuckoo and the Gunnison Sage-Grouse from the Management of a Uranium Leasing Program in Western Colorado by the Department of Energy* (DOE 2017)
- *Cultural Resources Management Plan* (LM-Plan-3-3-1.0, LMS/S07371)
- *Final Uranium Leasing Program Programmatic Environmental Impact Statement* (DOE 2014a)
- *Programmatic Biological Assessment on the Western Yellow-Billed Cuckoo and Gunnison Sage-Grouse* (DOE 2016)
- The ROD (79 FR 26956)
- The MAP (DOE 2014b)

12.0 Quality Assurance

The *Quality Assurance Manual* (LMS/POL/S04320) (QAM) describes a Quality Management System (QMS) that incorporates the requirements of International Organization for Standardization (ISO) 9001:2015, *Quality Management Systems—Requirements*; DOE Order 414.1D Chg 1 (Admin Chg), *Quality Assurance*; and other customer requirement documents. This QMS describes a “Plan-Do-Check-Act” cycle that promotes continual improvement in all work activities. Any work performed by or for the LMS contractor must comply with the QMS requirements. Elements of the QMS apply to all LMS contractor activities and work products. The achievement of quality is the responsibility of those who manage and, most importantly, those who perform the work. Each person is required to do their job in accordance with procedures and other requirements.

The ULP incorporates QMS requirements using a graded approach, as defined in the QAM. The graded approach provides a flexible, efficient, and effective means of controlling items and activities to assure that the required quality is achieved and is commensurate with its importance and risk. The ULP lead notifies the QA manager of new work or significant changes in scope. Depending on the circumstance, a Quality Assurance Project Plan may be developed in accordance with the QAM to further define specific QA requirements for the ULP.

12.1 Assessments and Performance Evaluations

Assessments, which are evaluations of the ULP work tasks, will be performed at a frequency commensurate with the risk and importance of the activity or as dictated by a requirement. They must also be conducted using criteria describing acceptable work performance and should promote continual improvement. Assessments identify issues, opportunities for improvement, noteworthy practices, lessons learned, or problems that hinder the organization from achieving its objectives. Assessments will be planned, scheduled, conducted, and tracked according to the requirements outlined in the QAM.

The ULP management will work with the QA representatives to plan assessments based on the criteria listed above. The frequency will be determined by ULP management and may occur as a result of special request from other parties. The scope of the assessments should highlight the highest risks of nonconformance in the program and the areas in which there are opportunities for improvement. The assessment plan will generally be a combination of management assessments and surveillances. The ULP may also be subject to independent assessments, external assessments, or supplier evaluations (as described in the QAM).

12.2 Lessons Learned

Lessons learned are captured in the LMS contractor’s Operating Experience (OpEx) Program. The OpEx Program disseminates lessons learned from past activities to improve work processes, equipment operation, quality, safety, and cost-effectiveness. The ULP will document lessons learned from ongoing activities and incorporate lessons learned from other programs.

13.0 Safety and Health

Protection of the safety and health of workers and the public is the primary consideration during all LMS contractor 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)*, the *Integrated Safety Management System Description for LMS in Support of DOE Legacy Management Sites (LMS/POL/S14463)*, and the *Environmental 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 the Worker Safety and Health Program, the *LMS Safety and Health Program (LMS/POL/S20043)*, and other applicable safety and health plans and procedures.

13.1 Job Safety Analysis (JSA)

The JSA is used by the LMS contractor to identify unique hazards associated with each task and identify appropriate hazard controls for the tasks using the hierarchy of controls. The JSA is also used to identify bounding conditions, required permits (e.g., penetration permit), personal protective equipment, and training requirements. Specific requirements for the JSA may be found in the *Job Safety Analysis Development (LMS/PRO/S16030)*.

13.2 Personnel Protection

Employees will follow good safety, industrial hygiene, and radiological control practices and procedures to ensure that personal exposure to physical safety, radiation, chemical, toxic material, and other personnel hazards is kept as low as reasonably achievable. Operations personnel will do the following:

- 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 using as low as reasonably achievable and best practices
- Be knowledgeable of the requirements listed in work control documents, such as workflow documents and JSAs
- Promptly report protection deficiencies and hazards to the immediate supervisor, Safety and Health personnel, or the site operations lead; in addition, operators should utilize Stop Work authority to take 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 JSA

13.3 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 organization ensures that radiation exposures to its workers and the public and releases of radioactivity to the environment are maintained below regulatory limits and that efforts are made to further reduce exposures and releases to levels as low as reasonably achievable. The LMS contractor remains fully committed to implementing a radiological control program of the highest quality that consistently meets these objectives.

The ULP is unique in that radioactivity may be consistently encountered in the course of its execution as it is naturally associated with the development and extraction of uranium ore. Due to this unique circumstance, ULP personnel routinely utilize intrinsic knowledge and industry best practices that other LMS contractor personnel may not be familiar with. Therefore, field activities (especially mine inspections) are always conducted under the direction and guidance of highly trained ULP personnel.

Unusually high or significantly elevated radiation levels or surface radioactivity at a ULP lease tract (previously identified or suspected) will be brought to the attention of the URP manager, the ULP lead, and the LMS Radiological Control manager immediately. Radiological characterization of the ULP lease tract will be performed by the LMS Radiological Control organization, and proper radiological controls, except where lessees have instituted controls, in accordance with the *Radiation Protection Program Plan* (LMS/POL/S04373) and the *Radiological Control Manual* (LMS/POL/S04322), will be implemented for the ULP lease tract, as necessary.

14.0 Program Risk Management

LM guidance directs that a contingency be applied to all LM activities due to 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.

14.1 Statement of Risk

The ULP is unique to LM in that the majority of the work scope is entirely reactive to and dependent upon the activities of the lessees. The ULP is currently authorized to perform fieldwork and to evaluate lessee plans for exploration, mining, and reclamation. The biggest sources of uncertainty for achieving ULP goals are likely to include: fluctuations in commodity prices inherent in speculative markets, the availability of milling facilities or contracts, and downstream regulatory uncertainty. The ULP potential risk conditions and consequence are summarized in Table 6.

Table 6. Program Risk Screening

Risk Condition	Consequence
Low or variable commodity prices	Staffing, scope, and schedule reduction; lack of capital expenditures by lessees.
Environmental litigation	Loss of regulatory authority; repetition or expansion of environmental review.
Lack of ore processing	Source material cannot be processed without a U.S. Nuclear Regulatory Commission (or Agreement State) licensed mill. Currently licensed mills may require capital expenditures to update mill instrumentation and controls.
Lessee not performing as required by lease agreement or DRMS permit	Possible revocation of lease and takeover by the ULP of responsibilities for any outstanding reclamation work.
Litigation over hazardous mine features	Hazardous mine features pose a risk to public safety, and any injuries or property damage due to hazardous mine features could result in litigation.
Inability to negotiate a fair market milling contract	Inability to develop and extract ores or spur outside infusion of capital.
Regulatory changes	Impediments to and escalated cost of production for existing mining operations and conditions.

The ongoing activities of the program will increase the risks associated with regulatory authority, governmental environmental policy changes, economic and commodity market fluctuations, and ore development and extraction technical concerns. Strategies to overcome and mitigate these risks will be identified in project-specific implementation plans. As the program continues, the probability will increase that one or more of these potential risks will be realized. However, the overall ULP risk is moderate.

The ULP is determined to keep the potential consequences of realized risks to the program to a minimum. Utilization of operational experience gained over the last several leasing periods will assist in ensuring the program’s success. Oversight from experienced and seasoned personnel familiar with the particularities of the ULP will also assist in ensuring the program’s success. The mitigation strategies for the risks described above are summarized in Table 7.

Table 7. Program Risk Management

Risk Condition	Management
Low or variable commodity prices	Acceptance through reduction in activities
Environmental litigation	Mitigation by vigorous environmental review and implementation of best management practices
Lack of ore processing	Reduction through effective communication and alternative feed scenarios
Lessee not performing as required by lease agreement or DRMS permit	Regular communication with lessee to remind them of their responsibilities under the lease agreement and reclamation bonding to cover the cost of reclamation
Litigation over hazardous mine features	Performing cursory lease tract inspections, fencing any hazardous features identified, performing maintenance to address hazards
Inability to negotiate a fair market milling contract	Development and maintenance of a professional relationship with mill operators
Regulatory changes	Proactive monitoring of proposed regulatory changes and evaluation of possible impacts

As the program progresses, it will be the goal of ULP personnel to acknowledge risks and to cultivate and develop multiple potential solutions to possible risks. Specific strategies will be outlined as necessary, and lessons learned from each experience will be recorded. Other management strategies will likely become apparent as risk conditions evolve, diverge, or dissipate.

15.0 Program Communications

Effective, comprehensive, and consistent communication is fundamental to a positive branding of the ULP. A positive brand and program image are vital to the success of the program. Organizations participating in the program include LM, the LMS contractor, partner agencies, tribal organizations, private property owners, and lessees. This section describes how effective communications will occur within and among these organizations.

15.1 LM and LMS Communication

LM will have regularly scheduled (weekly) team meetings where programmatic issues are addressed, current activities are reviewed, and planning for future work is discussed. Multiple repositories exist for ULP documents and pertinent technical information, including a network share drive, the ULP website on the LM Portal, and other records management programs. These repositories are accessible by LM and LMS personnel, and access is granted to project personnel and select functional support staff to maintain their integrity.

15.1.1 Weekly Team Meetings

Routine staff meetings are conducted at all levels of LMS contractor management to ensure successful program integration. A weekly meeting between the program manager and staff will take place. Information is provided to staff during routine group meetings. Pertinent safety information delivered during LMS staff meetings is communicated to all relevant personnel during pre-job briefings or at the next available opportunity. Safety information requiring prompt attention is communicated immediately via email or phone.

15.1.2 ULP Website on the LM Portal

Documents for the ULP are managed using a dedicated LM Portal website. The LM Portal website system is a web-based collaborative platform that integrates with Microsoft Office and serves as a document management and storage system. The LM Portal website system consists of a central area for individual project folders, templates, documents, and spreadsheets. Access to the site is only granted to project personnel to ensure integrity.

15.1.3 Defense-Related Uranium Mines (DRUM) Program Interface

The DRUM Program is an LM program developed for the verification and validation (V&V) of over 3000 abandoned uranium mines on public land, tribal lands, and private property. The mines that are the focus of the DRUM Program have a production history that is generally limited to the period of 1947–1970, which is when uranium ore was sold to AEC for defense-related purposes. V&V activities are conducted to fully understand the scope of the risks posed by these mines by determining their location, reclamation or remediation status, and potential impacts on public safety, human health, and the environment.

A total of 190 DRUM sites are within the lease tracts, having produced ore from the mineral estates or having been incorporated into the lease tracts after the underlying claims became invalid. ULP has conducted inventory, closure, reclamation, or maintenance activities on these mines in the past in addition to similar work performed for BLM on adjacent mines in the 1990s and 2000s. ULP works closely with the DRUM Program to share expertise, inventory location data, closure methodology and condition, and reclamation status and information previously collected by ULP personnel to assist with V&V activities. The DRUM Program has completed V&V activities on the public land portions of the lease tracts. The information collected will identify any issues or action items to be addressed by the DRUM Program, by the lessee, or through RILOR before the eventual relinquishment of withdrawn lands back to BLM at the end of the ULP. The data provided by the DRUM Program will also act as a snapshot of the current condition of each of the lease tracts.

15.2 Internal Communications

Sustained integration of the different groups inside the LMS organization requires teamwork and mutual understanding between workers and management. Teamwork and understanding can be promoted only through effective communication that flows up, down, and side-to-side throughout the organization. The LMS organization is committed to ensuring effective communication by actively soliciting worker feedback. Employees can communicate directly with the LMS program manager and other subtask managers if concerns cannot be resolved at the line management level. All workers have access to the LMS contractor section of the LM Portal, which is used to communicate organizational goals, achievements, or concerns as well as current versions of policies and procedures. For example, workers and managers participate in safety and health planning at all levels, including hazard controls and tailgate meetings, and employees at every level have Pause and Stop Work authority. The Employee Concerns Program is an additional mechanism for communication within the organization.

15.2.1 Pre-Job Briefings

A pre-job briefing is a daily interactive discussion between the person in charge (PIC) for that job task and work participants regarding the work scope, anticipated hazards, planned mitigation controls, and responsibilities associated with an activity.

Initial pre-job briefings are conducted for large or complex projects to ensure that all personnel performing, overseeing, or supporting work activities understand and are adequately trained for the project requirements. Initial pre-job briefings cover additional information that is not required during routine daily pre-job safety meetings.

Pre-job safety meetings cover both daily pre-job briefs and routine LMS activities (e.g., field data collection or cursory inspections).

15.2.2 Work Authorization

Work authorization is initiated by the line manager by listing the specific job tasks necessary for completion. Each job task defines the type of work to be performed and the PIC for that job task. The work authorization will typically be described in the *Plan of the Day/Plan of the Week* form (LMS 2130) as defined by *Integrated Work Control Process*. Job tasks may be added to the previously approved scope of work by the PIC or line manager. Upon completion, the signed form will be stored as a record with the line manager for the time required.

16.0 Public Relations

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) describes the responsibilities of, requirements of, and procedures followed by the Public Affairs program.

Public involvement will be a routine component of program operations and planning activities. Public Affairs accommodates a full range of diverse viewpoints and values in all phases of a decision-making process. This enables LM to make better decisions and build mutual understanding and trust in a way that is consistent with program branding as portrayed to stakeholders and the public.

ULP lease tract locations are mostly on federally managed land; therefore, most public affairs activities (public meetings, press releases, etc.) will be coordinated with the appropriate federal agency, typically BLM.

ULP has created a *Uranium Leasing Program Communications Plan* (LMS/PLN/Y00389) (ULP Communications Plan) to provide details on stakeholder engagement and proactive media outreach for the ULP. The ULP Communications Plan is a “living document” that will be updated and revised as needed.

16.1 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). This law provides any person with the statutory right to obtain access to government information in executive branch agency records and is often described as the law that keeps citizens knowledgeable about their government.

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 and cultural features collected by the ULP that could reasonably be expected to endanger the life or physical safety of any individual, are redacted and not disclosed. These mines, and particularly their features, are considered attractive nuisances. The mines generally have openings, structures, equipment, and objects that are both dangerous and irresistibly inviting or intriguing to the public. The physical condition of these uranium mines has the potential to cause serious bodily harm to the public and specifically to recreators and tourists.

Additionally, the chemical, radiological, geophysical, geological, metallurgical, and industrial practices and records of current or past lessees entrusted to the ULP are proprietary to the program and lessee and not generally disclosed. The dissemination of information would provide competing companies with an unfair market advantage in the exploration and beneficiation of resources adjacent to the lease tracts.

Mineral reserves and resources are commercially valuable. The earth’s surface near these deposits often contains cultural resources or is a cultural or historical resource in itself

(e.g., Calamity Camp on Lease Tract C-G-26). Abandoned mine sites likewise contain mineral resources and cultural resources and often serve as habitat for threatened and endangered species. Disclosure of specific mine location information may lead to unauthorized excavation, vandalism, and theft and have adverse consequences for human safety, cultural resource protection, and wildlife protection.

16.2 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, Communication, History, and Outreach Team, as necessary. Some inquiries must be coordinated with the DOE Office of Congressional and Intergovernmental Affairs, according to *Processing Records Requests* (LM-Procedure-3-11-5.0).

16.3 Stakeholder Engagement

The ULP recognizes the value of stakeholder involvement in making decisions regarding the program's activities and operations. DOE routinely solicits input from other federal and state agencies (primarily DRMS and BLM) before making decisions concerning the program. Through the Public Affairs team, the ULP has compiled and maintains a list of stakeholders and other interested parties. This list is used to disseminate ULP information or solicit input for the decision-making process. Additionally, LM maintains a website for the ULP that contains general information about the program; this website can be found at <https://www.energy.gov/lm/uranium-leasing-program>.

LMS Public Affairs will evaluate the level of stakeholder involvement for LM programs, as described in the *Public Affairs Manual*. Public Affairs maintains a stakeholder database of individuals that have requested notification regarding ULP activities, including federal and state agencies and officials, tribal governments, environmental organizations, lessees, and the public. Read-only user privileges are granted on a case-by-case basis by requests for permission from LM. Public Affairs plans and coordinates stakeholder engagement and provides logistical support.

Formal communication with stakeholders will be coordinated through Public Affairs. The LMS contractor will ensure that content communicated with stakeholders is reviewed by subject matter experts and approved by LM and LMS senior management before being posted online through the LM public website, social media, or other public communication efforts. Public Affairs may assist with information distribution to stakeholders upon approval of the LM Uranium Mine Team lead or designee before distribution.

16.4 Education and Outreach

Public Affairs also coordinates community outreach activities to help brand the ULP and educate the public. Uranium mining has played a significant role in the nation's history and has dramatically impacted the communities around the lease tracts. The ULP plans to continue to educate the public about the history of the program and its continued role in the mining industry. ULP will continue to build relationships with key local and regional media outlets to secure coverage that includes LM message points and perspectives. Additional information on education and outreach is included in the ULP Communications Plan.

17.0 Program Completion

The ULP is currently scheduled to operate until 2055. Upon completion of the program's objective, LM's long-term goal is for the lands and mineral estates held under its administrative control to be restored to the public domain. The procedure set forward in the Mineral Leasing Procedures Manual details the steps to be taken in restoring the lands upon the decision to end the program.

17.1 Program Closeout

As described in the IWCP document, a project completion report may be required by the URP manager when the ULP ends. ULP personnel will consolidate the official lease tract files and provide them to the appropriate records coordinator for storage.

17.2 Long-Term Responsibilities

Records will be retained in the LMBC until the established retention period has expired or transfer to another facility is required to comply with approved disposition. If transfer is required, Information Management personnel will perform the necessary tasks, as appropriate, including acknowledgment of receipt.

Monitoring and periodic maintenance of reclaimed sites will continue until BLM has accepted the return of the mineral estates, at which time BLM will need to release DOE from any further liability concerning the ULP.

18.0 Glossary

annual royalty. The amount specified in each lease agreement that is due and payable to LM at the beginning of each lease year so that the lessee may retain the lease for the ensuing year.

beneficiation. In the mining industry or extractive metallurgy, any process that improves the economic value of the ore by removing the gangue minerals, which results in a higher-grade product and a waste stream.

cursor inspection. A less detailed inspection (compared to a formal inspection), typically conducted by ATV, UTV, or other vehicle, that focuses on the discovery of changes or potential changes in physical safety and environmental conditions on the lease tracts. These inspections include known physical safety or environmental hazards on the lease tracts. The identification of such conditions may warrant follow-up inspections.

extractive metallurgy. The practice of removing valuable metals from an ore and refining the extracted raw metals into a purer form.

formal inspection. A detailed inspection (compared to an informal or cursory inspection), typically conducted on foot or by all-terrain vehicle (ATV) or utility task vehicle (UTV), that focuses on areas under an active mining permit. Both mine sites in reclamation status and active operation areas are inspected.

gangue. The subeconomic material in which ore is found. After separation from the ore, gangue material is referred to as waste rock or tailings.

lease agreement. The document in which the lessee is permitted certain rights with respect to a given lease tract. Those rights include, among others, the right to explore for, develop, and mine ores containing uranium, vanadium, and associated minerals.

LM Uranium Mine Team lead. The LM employee who is responsible for programmatic oversight of the ULP and who ensures that technical and administrative objectives and milestones are accomplished. The Uranium Mine Team lead enlists the assistance of an LM realty specialist to enter into, administer, and terminate ULP contracts and make contractual determinations and findings on behalf of LM.

ore. A naturally occurring solid material from which a metal or valuable mineral can be profitably extracted.

prelaw mine. A mine that ceased operation before 1977 and has no responsible party.

procedures. Documented, detailed instructions that specify or describe how, and in what sequential order, required technical and administrative activities are to be performed.

public land. Land managed by a governmental agency for use by the public (excluding tribal lands and any land managed under the auspices of the U.S. Bureau of Indian Affairs). This includes land managed by BLM, the U.S. Forest Service, USFWS, the National Park Service, and the U.S. Bureau of Reclamation.

reclaimed. Mine description indicating that, in actions not performed under 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.

source material. Material containing nonenriched uranium as found in nature. Ores containing uranium, thorium, or any combination thereof, at one-twentieth of one percent (0.05%) or more by weight are source material.

tailings. The materials left over after the process of separating the valuable fraction from the uneconomic fraction of an ore. Tailings are distinct from waste rock, which is displaced during mining without being processed.

URP manager. The LMS contractor employee designated to administer the ULP and otherwise carry out the specific tasks assigned by the LM Uranium Mine Team lead.

verification and validation (V&V). The DRUM Program process of verifying historic records and validating current mine conditions. Collectively, V&V work 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.

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15 USC 2601–2629. “Toxic Substances Control Act,” *United States Code*.

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

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

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

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

42 USC 6901 et seq. “Resource Conservation and Recovery Act,” *United States Code*.

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Environmental Protection Manual, LMS/POL/S04329

ESDM Environmental Data Management Team Work Procedures, LMS/PRO/S13473

Finance and Accounting Manual, LMS/POL/S04342

Integrated Safety Management System Description for LMS in Support of DOE Legacy Management Sites, LMS/POL/S14463

Integrated Work Control Process Manual, LMS/POL/S11763
Job Safety Analysis Development, LMS/PRO/S16030
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LMS Safety and Health Program, LMS/POL/S20043
Procurement Manual, LMS/POL/S04334
Project Management Control Systems Manual, LMS/POL/S04330
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
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19.1 Relevant Links

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Appendix A

***United States Department of the Interior
Colorado Bureau of Land Management
Closure/Reclamation Guidelines
Abandoned Uranium Mine Sites***



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United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Colorado State Office
2850 Youngfield Street
Ft. Collins, Colorado 80513-7076

IN REPLY REFER TO:

CO-93300
3800

NOV 21 1995

Mr. Ray Plienness
U.S. Department of Energy
Grand Junction Projects Office
2597 B 3/4 Road
Grand Junction, Colorado 81503

Mr. Plienness:

This correspondence formally transmits closure and reclamation guidelines for abandoned uranium mining operations that exist on federal lands, encumbered by Department of Energy (DOE) Lease Tracts. The Uranium Closure/Reclamation Guidelines were developed by the Bureau of Land Management (BLM) Colorado State Office (CSO), Grand Junction District Office (GJDO), and Montrose District Office (MDO), in an effort to provide uniform guidance to Colorado BLM, DOE, and its contractors for the ongoing reclamation and remediation of abandoned uranium mines.

The closure and remediation methodologies contained in the guidelines are designed to significantly reduce the physical and radiological hazards, and restore the surface and vegetation to beneficial uses as expeditiously as practical. It is recognized by all involved parties that additional remediation and reclamation may be necessary in the future, if required by statutory or regulatory mandates.

Disturbance and conditions vary greatly from one mine site to another. Hence, BLM/DOE onsite consultation will be required to develop reclamation procedures appropriate to the unique characteristics of each site. The GJDO and MDO staff should be involved in this process well in advance of any planned work.

The Uranium Closure/Reclamation Guidelines are to supplement and be used in concert with the BLM Reclamation Handbook H-3042, also enclosed. It is hoped that this guidance will provide you with uniform standards to meet our immediate expectations for closure and reclamation of abandoned uranium operations existing on DOE Lease Tracts in Colorado.

Any questions regarding this matter may be directed to either, Roy Drew at (303) 239-3772, or Rob Robinson (303) 239-3642, at the BLM CSO.

Sincerely

Frank Salwerowicz
Deputy State Director
Division of Resource Services

2 Enclosures

- 1 - Uranium Closure/Reclamation Guidelines
- 2 - BLM Reclamation Handbook H-3042

UNITED STATES DEPARTMENT OF THE INTERIOR
COLORADO BUREAU OF LAND MANAGEMENT
CLOSURE/RECLAMATION GUIDELINES
ABANDONED URANIUM MINE SITES

The purpose of these guidelines is to supplement the Bureau of Land Management Solid Minerals Reclamation Manual Handbook H-3042-1 specifically for abandoned uranium mining operations. This guidance was found necessary due to the lack of national or state guidance on the closure and reclamation of abandoned uranium mining operations and their unique radioactive hazards. In addition, the guidance provides uniform requirements across BLM administrative boundaries in the State of Colorado.

A. RECLAMATION GOALS. Reclamation goals include the following:

1. **Mine Openings.** Close mine openings that are a physical hazard to public safety,
2. **Radioactivity.** Minimize radioactivity emanating from the site,
3. **Landform.** Reshape land disturbed by mining operations to an appropriate contour,
4. **Vegetation.** Provide a diverse vegetative cover, and
5. **Wildlife Habitat.** Consistent with the goals of a safe and healthy environment, use mine openings for wildlife habitat replacement.

B. CLOSURE OF MINE OPENINGS. Close mine openings that are a physical hazard to public safety and a source of significant radioactivity.

1. **Radioactivity.** All underground mine openings with a working level greater than 10 will be sealed to airflow.
2. **Closure Preference.** The closure of preference for all mine openings both open pit and underground is backfilling with mine waste rock. When backfilling, use the highest radioactive surface mine wastes.
3. **Other Closure Methods.** Backfilling may not be feasible in all cases due to remote access, re-establishing access to the site for reclamation would be a greater disturbance than existing disturbance, site stability, excessive cost, protection for other resources, etc. In these cases, other acceptable closure methods include grates, polyurethane

foam, bulkheads, and as a last resort blasting.

4. Protection of Existing Resources. Mine openings with resources (e.g. bats, other wildlife, etc.) that require protection will be grated to provide access for the resource and prevent access to the public.

5. Drill Holes. Backfill or plug dry drill holes as follows:

a) Dry drill holes greater than 8 inches in diameter shall be backfilled with suitable material (free flowing, non-reactive) and capped with a minimum of 3 feet of impermeable material.

b) Dry drill holes smaller than 8 inches in diameter may be plugged a minimum of 3 feet below the surface with non-metallic cones (or equivalent) and backfilled with cuttings or other suitable surface material.

c) Any drill hole that penetrates an aquifer shall be closed as required by Bureau of Land Management Manual/Handbook H-3042-1 Section V.B.

6. Signs. Post signs, as follows:

a) On likely approaches to site, sign with "Radiation Hazard No Camping" or equivalent.

b) On mine openings closed with grating, sign with "Radiation Hazard Keep Away".

7. Closure Specifications. At a minimum, design and construction of mine closures shall meet the standard work specifications and standard drawings and figures of the Colorado Inactive Mine Reclamation Program unless it can be shown that particular specifications and standard drawings are inappropriate or alternative closure methods are superior and meet the reclamation goals.

C. RECLAMATION OF SURFACE DISTURBANCE. Reclaim surface disturbance to the productive use required in the applicable Resource Management Plan.

1. EXCLUSIONS. Do not reclaim areas that have naturally revegetated and meet management objectives unless the disturbance must be regraded or backfilled to meet any of the other requirements in these guidelines.

2. FOOTPRINT. To the extent practicable, confine regrading within the limits of the existing disturbed areas

(footprint) unless disturbing areas outside the existing footprint will result in significant improvements in off-site impacts.

3. **LANDFORM.** In consideration of parts C.1. and C.2., the final landform should conform to the natural surrounding area with slopes generally not steeper than 3:1 for unconsolidated fill or cut slopes. Dumps higher than 60 feet may have slopes steeper than 2.5:1 only where long term stability is assured. In addition, dumps higher than 60 feet should have erosion control features such as run-on and run-off diversion, benches, terraces, contour furrowing, pitting, etc. (BLM Handbook H-3042-1 Part VIII-B.4.) When regrading a mine waste dump that lies on a steep slope (greater than approximately 30 degrees), the dump material will be pulled backed on top of the dump bench and filled against the highwall or back slope to the extent practical.

4. **RADIOACTIVITY.** When regrading or backfilling, bury higher radioactive material under lower or non-radioactive material where practical. In particular, remnants of ore piles, ore spillage around loadout areas, and higher radioactive material in mine rock dumps should be identified and selectively buried.

5. **TRASH.** Clean the site of trash, as follows:

a) Non-hazardous trash includes foundations, structures, and mine equipment, but does not include unmounted tires. If the site is regraded, non-hazardous trash may be buried in the fill or in backfilled mine openings; otherwise, remove trash from site.

b) Remove all unmounted tires and remove suspected hazardous materials utilizing hazmat procedures.

6. **MINE ROADS.** Reclaim mine roads to meet resource protection and management objectives. Road reclamation includes the following:

a) Where appropriate, regrade cut and fill slopes to conform to the natural surrounding area with maximum slopes of 3:1,

b) Where appropriate, rip or cross-rip roadways for seed bed preparation,

c) Block roadways to vehicle access (in easily accessible terrain, this will require blocking the roadway at numerous appropriate points along the

roadway), and

d) Prepare roadways and revegetate as required in sections C.8. through C.10.

7. STORM WATER. Where practical, redirect storm water around disturbed areas, and away from mine wastes and any areas with radioactivity higher than background.

8. EROSION CONTROL. As needed, install erosion control devices such as run-on and run-off diversion, contour ripping, pitting, water bars, slash, check dams, etc. Avoid impounding water on radioactive material, if possible, particularly on unconsolidated materials.

9. SURFACE PREPARATION. Immediately prior to reseeding and where revegetation will benefit, rip the surface, as follows:

a) Along contours,

b) To a depth of 12 - 18 inches, and

c) On a maximum spacing of 18 inches.

10. REVEGETATION. Revegetate with species that meet the management goals of the area. Use of native species in the seed formula should be given priority where consistent with management goals.

11. Additional Guidelines. At a minimum, reclamation shall meet the standards and guidelines of Bureau of Land Management Manual/Handbook H-3042-1.