Status of the Decommissioning Program

2019 Annual Report

Division of Decommissioning, Uranium Recovery, and Waste Programs
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
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Enclosure 1

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ABBREVIATIONS

ADAMS	Agencywide Documents Access and Management System
ALARA	As low as reasonably achievable
ANC	American Nuclear Corporation
BLEU	Blended low enriched uranium
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	*Code of Federal Regulations*
CRR	Completion Review Report
DandD	Decontamination and Decommissioning
DOE	U.S. Department of Energy
DoD	U.S. Department of Defense
DP	Decommissioning plan
EIS	Environmental impact statement
EPA	U.S. Environmental Protection Agency
FCSE	Division of Fuel Cycle Safety, Safeguards, and Environmental Review
FSSR	Final status survey report
FY	Fiscal year
GCAP	Ground water compliance action plan
GE	General Electric
GETR	General Electric-Hitachi Test Reactor
IAEA	International Atomic Energy Agency
IDIP	Integrated decommissioning improvement plan
ISFSI	Independent spent fuel storage installation
ISOE	Information System on Occupational Exposure
ISR	In-situ recovery
JPG	Jefferson Proving Ground
LM	Office of Legacy Management
LTP	License termination plan
LTR	License Termination Rule
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MOU	Memorandum of understanding
MPPB	Main Process Plant Building
N/A	Not applicable
NARM	Naturally-occurring and accelerator-produced radioactive material

NEA	Nuclear Energy Agency
NEIMA	Nuclear Energy Innovation and Modernization Act
NFS	Nuclear Fuel Services
NMED	New Mexico Environment Department
NMSS	Office of Nuclear Material Safety and Safeguards
NOW	New Opportunities of Waterbury, Inc.
NPS	National Park Service
NRC	U.S. Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
NSIR	Office of Nuclear Security and Incident Response
NYSERDA	New York State Energy and Research Development Authority
OCA	Office of Congressional Affairs
OGC	Office of the General Counsel
OPA	Office of Public Affairs
PSDAR	Post-shutdown decommissioning activities report
RAMP	Radiation protection computer code, analysis, and maintenance program
RES	Office of Nuclear Regulatory Research
RESRAD	Residual Radioactivity
RP	Reclamation plan
SDMP	Site Decommissioning Management Plan
SER	Safety evaluation report
SFC	Sequoyah Fuels Corporation
SNM	Special nuclear material
SRM	Staff requirements memorandum
TBD	To be determined
TRIGA	Training, Research, Isotopes General Atomics
UMTRCA	Uranium Mill Tailings Radiation Control Act
UNC	United Nuclear Corporation
USACE	U.S. Army Corps of Engineers
VESR	Vallecitos Experimental Superheat Reactor
WPDD	Working Party on Decommissioning and Dismantling
WVDP	West Valley Demonstration Project

1. INTRODUCTION

This report provides a summary of decommissioning activities at nuclear facilities in the United States. Its purpose is to provide a reference document that summarizes the U.S Nuclear Regulatory Commission's (NRC's) decommissioning activities in fiscal year (FY) 2019, including the decommissioning of power reactors, research and test reactors, complex materials sites, uranium recovery facilities, and fuel cycle facilities. As such, this report discusses the current progress and accomplishments with respect to the NRC's Decommissioning Program, provides information supplied by Agreement States on the status of decommissioning activities at sites within their States, and identifies key Decommissioning Program activities that the NRC staff will undertake in the coming year. Unless specified otherwise, the information contained in this report is current as of September 30, 2019.

As of September 30, 2019, 23 nuclear power and early demonstration reactors, 3 research and test reactors, 12 complex materials facilities,[1] 5 Title II[2] uranium recovery facilities, and parts of 1 fuel cycle facility are undergoing decommissioning or are in long-term safe storage (SAFSTOR) under NRC jurisdiction. In addition, 20 of the 22 Title I legacy uranium recovery sites are under general license with the U.S. Department of Energy (DOE).[3] Many power reactors undergoing decommissioning remain in SAFSTOR, with Zion Units 1 and 2, Humboldt Bay, La Crosse, Vermont Yankee, Oyster Creek, Pilgrim, Nuclear Ship Savannah, and San Onofre Units 1, 2, and 3 in active decommissioning. In FY 2019, the staff approved the license termination plan (LTP) for the La Crosse facility and the transfer of the license from LaCrosse*Solutions* back to Dairyland Power Cooperative, the site's original licensee as decommissioning work is nearly complete. Decommissioning work is also nearly complete at Humboldt Bay and Zion Units 1 and 2. The inventory of decommissioning power reactor sites increased in 2019 as Three Mile Island Unit 1 and Pilgrim permanently ceased power operations in May and September, respectively. Licensees for eight additional reactors have announced their intent to shut down by 2025: Duane Arnold (2020), Indian Point Units 2 and 3 (2020 and 2021, respectively), Beaver Valley Units 1 and 2 (2021 and 2022, respectively), Palisades (2022), and Diablo Canyon Units 1 and 2 (2024 and 2025, respectively).

In FY 2019, the NRC staff terminated the materials license for the General Atomics facility in San Diego, California. The staff also amended the materials license for the U.S. Army's Jefferson Proving Ground (JPG) changing its status to possession-only, completing a project that began in 1999. The staff, in conjunction with the Wyoming Department of Environmental Quality, completed stabilization of the American Nuclear Corporation site in Wyoming and developed options for the eventual decommissioning of the site. The staff completed the acceptance review of a license amendment for the United Nuclear Corporation (UNC) Church Rock site to dispose mine waste on top of the existing mill tailings at the site, and held a public scoping meeting in Gallup, New Mexico, to obtain input for the Environmental Impact Statement. In addition, the staff successfully dispositioned all of the identified sites with potential contamination from historic radium use in non-Agreement States.

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[1] Complex materials sites are defined as sites where the complexity of the decommissioning process will require more than minimal technical and administrative support from the headquarters program office.
[2] "Title I" in this report refers to facilities under the Uranium Mill Tailings Radiation Control Act of 1978, as amended, that were inactive, unregulated processing sites when the act was passed, while "Title II" refers to facilities that were licensed by the NRC or an Agreement State in 1978 or after UMTRCA was enacted.
[3] Two of the 22 Title I sites are former processing sites and general licenses under 10 CFR 40.27 are not in effect at those sites because UMTRCA only addresses the licensing of mill tailings disposal sites.

2. DECOMMISSIONING SITES

The NRC regulates the decontamination and decommissioning of materials and fuel cycle facilities, power reactors, research and test reactors, and uranium recovery facilities. The purpose of the Decommissioning Program is to ensure that NRC-licensed sites, and sites under NRC authority, are decommissioned in a safe, timely, and effective manner so that they can be returned to beneficial use and to ensure that stakeholders are informed and involved in the decommissioning process, as appropriate. This report summarizes a broad spectrum of activities associated with the program's functions.

Each year, the NRC terminates approximately 100 materials licenses. Most of these license terminations are routine and the sites require little, if any, remediation to meet the NRC's unrestricted release criteria. This report focuses on the more challenging sites where the termination of the site's license is not a routine licensing action.

The NRC public Web site contains status summaries for the facilities managed in the Decommissioning Program (http://www.nrc.gov/waste/decommissioning.html). These summaries, which are updated annually or when significant changes in status occur, describe the status of each site and identify the major technical and regulatory issues affecting the completion of decommissioning. For those licensees or responsible parties that have submitted a decommissioning plan (DP) or license termination plan (LTP), the schedules for completion of decommissioning are based on an assessment of the complexity of the DP or LTP review. For those that have not submitted a DP or LTP, the schedules are based on other available site-specific information and on the anticipated decommissioning approach. The processes for decommissioning reactors, materials facilities and uranium recovery sites can be found at http://www.nrc.gov/waste/decommissioning/process.html.

Through the Agreement State Program, 39 States have signed formal agreements with the NRC, by which those States have assumed regulatory responsibility over certain byproduct, source, and small quantities of special nuclear material (SNM), including the decommissioning of some complex materials sites and uranium recovery sites. Agreement States do not have regulatory authority over nuclear reactors, which are licensed under either Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," or 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," or over fuel cycle facilities. Section 7 of this report discusses the NRC's coordination with the Agreement States' decommissioning programs.

2.1 Nuclear Power Reactor Decommissioning

The NRC's power reactor decommissioning activities include project management, technical review of licensee submittals in support of decommissioning, core inspections, support for the development of rulemaking and guidance, public outreach efforts, international assistance and cooperation, and participation in industry conferences and workshops. In addition, the NRC staff routinely processes license amendments and exemptions to support the progressive stages of decommissioning. The Decommissioning Program staff regularly coordinates with other offices on issues affecting decommissioning power reactors, and with the Division of Fuel Management in the Office of Nuclear Material Safety and Safeguards (NMSS) regarding the independent spent fuel storage installations (ISFSIs) at reactor sites undergoing decommissioning.

As of September 30, 2019, the 23 nuclear power and early demonstration reactors identified in Table 2.1-a are undergoing decommissioning. Table 2.1-a provides an overview of the status of these nuclear power reactors. Plant status summaries for all decommissioning nuclear power reactors are available at http://www.nrc.gov/info-finder/decommissioning/power-reactor/. Table 2.1-b lists the decommissioned power reactors that have ISFSIs onsite.

2.1.1 Summary of Fiscal Year 2019 Activities

- In October 2018, the NRC staff approved the direct transfer of the Vermont Yankee license from Entergy to NorthStar as part of a sales agreement to purchase the plant and spent fuel.

- In December 2018, project management responsibility for Oyster Creek was transferred from the Office of Nuclear Reactor Regulation (NRR) to NMSS. Region I inspection responsibility for the site was internally transferred from the Division of Reactor Projects to the Division of Nuclear Materials Safety in FY 2018. In June 2019, the NRC staff approved the direct transfer of the Oyster Creek license from Exelon to Holtec as part of a sales agreement to purchase the plant and spent fuel.

- In April 2019, the NRC staff approved the partial site release for two portions of the Fort Calhoun site, which included approximately 120 acres of the owner-controlled area and 475 acres of easement areas that formed the exclusion area during plant operations.

- In May 2019, the NRC staff approved the LTP for the La Crosse site. Decommissioning work at the site is almost complete and, in September 2019, the staff approved the transfer of the license from LaCrosse*Solutions* back to Dairyland Power Cooperative, the site's original licensee.

- In August 2019, the NRC staff approved the direct transfer of the Pilgrim license from Entergy to Holtec as part of a sales agreement to purchase the plant and spent fuel. The staff will continue to conduct routine inspections of this facility as active decommissioning work commences in FY 2020.

- In September 2019, the NRC staff approved the partial site release of the frontage property of the General Electric (GE) Vallecitos site to allow for expansion of the neighboring highway.

- In FY 2019, the NRC staff continued discussions with the DOE-Naval Reactors to provide support services for the decommissioning of naval nuclear vessels. In September 2019, the Naval Reactors Interagency Agreement was approved by both DOE-Naval Reactors and NMSS, which represents the first step for the NRC to provide support services to the decommissioning of nuclear navy surface ships.

- During FY 2019, the NRC staff continued its review of final status survey reports for the Zion and Humboldt Bay sites, as decommissioning work nears completion.

- Pilgrim and Three Mile Island Unit 1 permanently ceased operations and transferred into a decommissioning status in May 2019 and September 2019, respectively. The staff in NMSS, Region I, NRR, the Office of Nuclear Security and Incident Response, and the Office of the General Counsel (OGC) coordinated licensing activities, transfer of inspection responsibilities, and public meetings. Project management responsibility for the plants' decommissioning activities is expected to be transferred from NRR to NMSS in FY 2020.

- The NRC staff continued its evaluation of a request for an alternate decommissioning schedule for the reactors at the GE Vallecitos facility, which proposes to extend the schedule for decommissioning beyond the 60-year timeline required for power reactor licensees in 10 CFR 50.82(a)(3).

- To ensure openness during the regulatory process, the NRC staff participated in several public meetings, including meetings regarding the Pilgrim and Three Mile Island Unit 1 Post-Shutdown Decommissioning Activities Reports (PSDARs) and decommissioning webinars for the media and public. In addition, the NMSS staff supported regional staff at annual assessment meetings for licensees that have announced their intent to shut down within the next 3 years, including Indian Point Units 2 and 3 and Duane Arnold.

- The NRC staff participated in a government-to-government meeting with the Town of Cortlandt Community Unity Indian Point Task Force, Congressional staff members, and other local government officials to discuss the future decommissioning of Indian Point. The staff also participated in government-to-government meetings to discuss the future decommissioning of Duane Arnold and Palisades. The staff also delivered a presentation regarding the Pilgrim shutdown at a Massachusetts Nuclear Decommissioning Citizens Advisory Panel meeting.

- The NRC staff completed oversight activities and inspections at reactor decommissioning facilities in accordance with Inspection Manual Chapter 2561 at Crystal River 3; Dresden 1; Fermi 1; Fort Calhoun; GE Vallecitos reactors; Humboldt Bay; Indian Point Unit 1; Kewaunee; La Crosse; Millstone Unit 1; Nuclear Ship Savannah; Oyster Creek; Peach Bottom Unit 1; San Onofre Units 1, 2, and 3; Three Mile Island Unit 2; Vermont Yankee; and Zion Units 1 and 2.

Nuclear Energy Innovation and Modernization Act Section 108 Activities

Section 108 of the Nuclear Energy Innovation and Modernization Act (NEIMA), signed into law on January 14, 2019, requires the NRC to provide a report to the U.S. Congress identifying best practices for establishing and operating local community advisory boards, including lessons learned from existing boards. As part of developing the report, the NRC staff hosted 11 public

meetings to consult with host States, communities within the emergency planning zone of a nuclear power reactor, and existing local community advisory boards. These meetings took place from August through October 2019 and occurred near the following power reactors: Crystal River, Diablo Canyon, Humboldt Bay, Indian Point, Kewaunee, Oyster Creek, Palisades, Pilgrim, San Onofre, Vermont Yankee, and Zion. Representatives of former community advisory boards from Maine Yankee, Yankee Rowe, and Connecticut Yankee also attended the meetings to provide feedback based on their experiences.

The contents of this report, scheduled to be issued to Congress by July 2020, will include: (1) a description of the type of topics that could be brought before a community advisory board; (2) how the board's input could inform the decision-making process of stakeholders for various decommissioning activities; (3) how the board could interact with the NRC and other Federal regulatory bodies to promote dialogue between the licensee and affected stakeholders; and (4) how the board could offer opportunities for public engagement throughout all phases of the decommissioning process.

The report will also include a discussion of the composition of existing community advisory boards and best practices identified during the establishment and operation of such boards, including logistical considerations, frequency of meetings, and the selection of board members.

2.1.2 Fiscal Year 2020 Trends and Areas of Focus

The reactor decommissioning program remains very fluid with the uncertainty surrounding operating plants and the development of new asset sale decommissioning business model. The NRC staff will continue its extensive coordination with other offices while working to complete the transfer of recently shutdown reactors to the Decommissioning Program. Reactors that have ceased operation remain under NRR project management until formal transfer occurs shortly after the licensee’s defueled technical specifications are approved. The staff will continue to stay apprised of developments related to future license transfer requests to facilitate decommissioning, such as the license transfers approved for Oyster Creek and Pilgrim in 2019. In addition, the licensees for Duane Arnold and Indian Point Unit 2 have expressed their intent to permanently cease power operations in 2020. The staff will continue to coordinate with NRR, the Office of Congressional Affairs, the Office of Public Affairs, and the Regional offices, as necessary, to provide support with public outreach and ensure efficient reviews of all submittals. The staff will also continue to work toward the termination of licenses at sites where decommissioning is nearly complete, including Humboldt Bay, Zion Units 1 and 2, and La Crosse.

The NRC staff will continue evaluating a license transfer request for the Crystal River Unit 3 plant and ISFSI to Accelerated Decommissioning Partners to facilitate the decommissioning of the reactor site and management of the dry fuel storage facility. The staff is also anticipating a request in FY 2020 for the license transfer of Three Mile Island Unit 2 to Energy*Solutions* to allow for the accelerated decommissioning of the damaged reactor.

Table 2.1-a. Power and Early Demonstration Reactors Undergoing Decommissioning

Reactor		Location	Status	Date of Shutdown	Date PSDAR* Submitted	Date LTP Submitted	Date LTP Approved	Date of Decom Completion **
1	Crystal River Unit 3	Crystal River, FL	SAFSTOR	2/13	12/13****	TBD	TBD	2074
2	Dresden Unit 1	Morris, IL	SAFSTOR	10/78	6/98	TBD	TBD	2036
3	Fermi Unit 1	Newport, MI	SAFSTOR	9/72	4/98	2011***	TBD	2032
4	Fort Calhoun	Blair, NE	SAFSTOR	10/16	3/17	TBD	TBD	2065
5	GE-EVESR	Sunol, CA	SAFSTOR	2/67	N/A	TBD	TBD	2025
6	GE-Vallecitos Boiling Water Reactor	Sunol, CA	SAFSTOR	12/63	7/66	TBD	TBD	2025
7	Humboldt Bay	Eureka, CA	DECON	7/76	2/98	5/13	5/16	2020
8	Indian Point Unit 1	Buchanan, NY	SAFSTOR	10/74	1/96	TBD	TBD	2026
9	Kewaunee	Kewaunee, WI	SAFSTOR	5/13	5/13	TBD	TBD	2073
10	La Crosse	La Crosse, WI	DECON	4/87	5/91	7/16	5/19	2020
11	Millstone Unit 1	Waterford, CT	SAFSTOR	7/98	6/99	TBD	TBD	2056
12	Nuclear Ship Savannah	Baltimore, MD	DECON	11/70	12/08	TBD	TBD	2031
13	Oyster Creek	Forked River, NJ	DECON	9/18	6/18	TBD	TBD	2035
14	Peach Bottom Unit 1	Delta, PA	SAFSTOR	10/74	6/98	TBD	TBD	2034
15	Pilgrim	Plymouth, MA	DECON	5/19	11/18	TBD	TBD	2027
16	San Onofre Unit 1	San Clemente, CA	DECON	11/92	12/98	TBD	TBD	2030
17	San Onofre Unit 2	San Clemente, CA	DECON	6/13	9/14	TBD	TBD	2031
18	San Onofre Unit 3	San Clemente, CA	DECON	6/13	9/14	TBD	TBD	2031

Table 2.1-a. Power and Early Demonstration Reactors Undergoing Decommissioning

Reactor		Location	Status	Date of Shutdown	Date PSDAR* Submitted	Date LTP Submitted	Date LTP Approved	Date of Decom Completion **
19	Three Mile Island Unit 1	Middletown, PA	SAFSTOR	9/19	4/19	TBD	TBD	2079
20	Three Mile Island Unit 2	Middletown, PA	SAFSTOR	3/79	6/13****	TBD	TBD	2036
21	Vermont Yankee	Vernon, VT	DECON	12/14	4/17	TBD	TBD	2030
22	Zion Unit 1	Zion, IL	DECON	2/97	2/00	12/14	9/18	2020
23	Zion Unit 2	Zion, IL	DECON	9/96	2/00	12/14	9/18	2020

GE General Electric
TBD to be determined
EVESR ESADA (Empire State Atomic Development Associates) Vallecitos Experimental Superheat Reactor

* PSDAR or DP equivalent. Prior to August 28, 1996, the effective date of Final Rule "Decommissioning of Nuclear Power Reactors" (61 *Federal Register* 39278; July 29, 1996), licensees submitted DPs (or equivalent).

** Anticipated year of completion of decommissioning. For decommissioning reactors with no ISFSI or an ISFSI licensed under the specific license provisions of 10 CFR Part 72, completion of decommissioning will result in the termination of the 10 CFR Part 50 license. For reactors with an ISFSI licensed under the general license provisions of 10 CFR 72.210, completion of decommissioning will result in reducing the 10 CFR Part 50 license boundary to the footprint of the ISFSI.

*** Licensing action put on hold at licensee's request.

**** The staff expects to receive a revised PSDAR with a new decommissioning schedule, contingent on a license transfer for the site.

Table 2.1-b. Decommissioned Power Reactors That Have Independent Spent Fuel Storage Installations

	Reactor	Onsite Fuel Status	Cask Vendor	Model
1	Big Rock Point	10 CFR 50 ISFSI	Energy Solutions, Inc.	Fuel Solutions W74
2	Connecticut Yankee	10 CFR 50 ISFSI	NAC International, Inc.	NAC-MPC
3	Fort St. Vrain (DOE site)	10 CFR 72 ISFSI	Foster Wheeler Energy Applications, Inc.	Modular Vault Dry Store
4	Maine Yankee	10 CFR 50 ISFSI	NAC International, Inc.	NAC-UMS
5	Rancho Seco	10 CFR 72 ISFSI	Transnuclear, Inc.	NUHOMS-24P
6	Trojan	10 CFR 72 ISFSI	BNFL Transtor/Holtec International	HI-STORM 100
7	Yankee Rowe	10 CFR 50 ISFSI	NAC International, Inc.	NAC-MPC

2.2 Research and Test Reactor Decommissioning

The NRC research and test reactor decommissioning activities include project management, technical review of licensee submittals in support of decommissioning, inspections, support for the development of rulemaking and guidance, public outreach, and participation in industry conferences and workshops. In addition, the NRC staff routinely processes license amendments and exemptions to support the progressive stages of decommissioning.

As of September 30, 2019, the three research and test reactors identified in Table 2.2 were undergoing decommissioning. Plant status summaries for all decommissioning research and test reactors are available at http://www.nrc.gov/info-finder/decommissioning/research-test/.

2.2.1 Summary of Fiscal Year 2019 Activities

General Atomics has nearly completed physical decommissioning work at its two research reactors in San Diego, California. In August 2019, independent verification surveys of the site were conducted.

2.2.2 Fiscal Year 2020 Trends and Areas of Focus

The NRC staff expects to work toward the termination of licenses for the two General Atomics research reactors.

Table 2.2. Research and Test Reactors Undergoing Decommissioning

Reactor		Location	Date of Shutdown	Status	Date of Decommissioning Completion
1	General Atomics TRIGA Mark F	San Diego, CA	9/94	DP Approved	2020
2	General Atomics TRIGA Mark I	San Diego, CA	12/96	DP Approved	2020
3	General Electric-Hitachi GETR	Sunol, CA	1/85	Possession-Only	2025

GETR General Electric Test Reactor
TRIGA Training, Research, Isotopes General Atomics

2.3 Complex Materials Facility Decommissioning

Decommissioning activities associated with materials facilities include maintaining regulatory oversight of complex decommissioning sites, undertaking financial assurance reviews, examining issues and funding options to facilitate remediation of sites in Non-Agreement States and sites in Agreement States that have exclusive Federal jurisdiction; interacting with the U.S. Environmental Protection Agency (EPA), DOE, and the U.S. Army Corps of Engineers (USACE); inspecting complex decommissioning sites; conducting public outreach; participating in international decommissioning activities; conducting program evaluations; and participating in industry conferences and workshops. In addition, the NRC staff routinely reviews decommissioning financial assurance submittals for operating materials and fuel cycle facilities and maintains a financial instrument security program.

As of September 30, 2019, 12 complex materials sites are undergoing decommissioning (see Table 2.3). Complex materials sites are defined as sites where the complexity of the decommissioning process will require more than minimal technical and administrative support from the headquarters program office. It is expected that for these sites, it will take more than a year to complete the decommissioning process. Examples of complex materials sites include sites with groundwater contamination, sites containing significant soil contamination, sites in which the owners are in bankruptcy, any site where a decommissioning plan is required, all fuel cycle facilities undergoing decommissioning, and sites where there is significant public and/or Congressional interest.

Status summaries for the complex materials sites undergoing decommissioning are provided at http://www.nrc.gov/info-finder/decommissioning/complex/.

2.3.1 Summary of Fiscal Year 2019 Activities

- In June 2019, the NRC staff terminated the Part 70 materials license for the General Atomics facility in San Diego, California.

- The NRC staff is coordinating with the USACE Pittsburgh office for the cleanup of the Shallow Land Disposal Area (SLDA) site in Vandergrift, Pennsylvania. The USACE is in the process of developing new work plans for the NRC staff's review. The staff anticipates initiating its review of the new work plans in FY 2020. USACE plans to start remediation of the site by the spring of 2022.

- The NRC, U.S. Department of Justice, Oklahoma Department of Environmental Quality, and EPA are involved in the Fansteel bankruptcy proceedings and are monitoring the situation as it develops. The Federal and State regulatory agencies are continuing to work with Fansteel as it develops its liquidation plan. The EPA is conducting an extended site investigation to determine whether the site is eligible for listing on the National Priorities List pursuant to Superfund.

- In September 2019, the NRC staff amended the U.S. Army license for the Jefferson Proving Ground (JPG) site in Madison, Indiana to possession-only and approved an associated exemption to the decommissioning timeliness rule under 10 CFR 40.42, which was submitted in December 2016. The staff informed the Commission of its conclusion of this issue in SECY-19-0001, "Jefferson Proving Ground Request for

Possession-Only License Amendment and Exemption from Decommissioning Timeliness Rule," in December 2018.

- In November 2018, the Cimarron Environmental Response Trust (CERT) submitted a revision to its DP that includes active groundwater remediation (pump and treat). The NRC staff accepted the revised DP for technical review, which is currently ongoing. The staff held a meeting in April 2019 with CERT and the Oklahoma Department of Environmental Quality to discuss the DP and the NRC staff's request for supplemental information needed for its technical review.

- In June 2019, the NRC staff completed the review of the Derived Concentration Guidelines for the Sigma Aldrich site in Missouri. In August 2019, Sigma Aldrich submitted a revised DP incorporating additional site characterization and site-specific Derived Concentration Guidelines Levels. The staff is conducting an acceptance review of the revised DP and developing a review schedule.

- The NRC staff continues to coordinate with the DOE, the State of Connecticut, and other stakeholders to finalize cleanup of the former UNC Naval Products facility in New Haven, Connecticut. In March 2019, GE submitted a revised cleanup plan for the site. Cleanup activities are expected to commence in the fall of 2019 and the staff will conduct site visits and confirmatory measurement surveys during these activities.

- In addition, the NRC staff completed inspections or site visits at Cimarron, FMRI, UNC Naval, JPG, and West Valley Demonstration Project.

Radium Activities

Activities associated with discrete sources of radium and associated contamination, for which NRC's authority was established by the Energy Policy Act of 2005, include maintaining various levels of regulatory oversight at sites with identified discrete sources of radium or associated contamination; examining issues and funding options to facilitate remediation of sites in Non-Agreement States; interacting with the states, EPA, the U.S. Department of Defense (DoD), and the National Park Service (NPS) at their respective sites; inspecting service providers at the sites that are subject to exclusive Federal jurisdiction; conducting public outreach; and participating in industry conferences and workshops. NRC staff activities involve varying levels of oversight at both military and non-military sites. More information on the staff's radium activities is available at http://www.nrc.gov/materials/radium.html.

Summary of Fiscal Year 2019 Military Radium Activities

- The NRC staff continued implementing the "stay-informed" approach for remediation by the U.S. Navy at the Hunters Point Shipyard site in San Francisco, California, and Alameda Naval Air Station in Alameda, California; the U.S. Air Force at the McClellan Air Force Base, in Sacramento, California; and the U.S. Army at the Sharpe Depot in Lathrop, California. The staff reviewed reports provided by the U.S. Army and held discussions with various stakeholders in 2019. The staff plans to continue its reliance on the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process and EPA oversight at these sites.

- In June 2019, Greenaction for Health and Environmental Justice filed a fourth supplement to its petition to revoke Tetra Tech's service provider license due to falsification of records at Hunters Point Shipyard. The petitioner also addressed the petition review board with the licensee present. The petition review board is currently determining whether the petition, as supplemented, meets the criteria for acceptance into the 10 CFR 2.206 review process.

- The NRC staff continued monitoring activities at sites without EPA involvement for the ongoing cleanups by the U.S. Army at Dugway Proving Grounds in Dugway, Utah, and by the U.S. Navy at Long Beach Naval Shipyard in Long Beach, California; Mare Island Naval Shipyard in Vallejo, California; and Treasure Island Naval Station in San Francisco, California. In FY 2019, the NRC's monitoring has focused on reviews for two cleanup reports for the Treasure Island Naval Station and included coordination calls with the DoD to determine upcoming activities and schedules at a programmatic and site-specific level.

Summary of Fiscal Year 2019 Non-Military Radium Activities

As of September 30, 2019, the NRC staff has dispositioned all the sites[4] that were identified with potential contamination from historic radium use in non-Agreement States. The staff worked with site owners and Federal, State, and local officials, as needed, to properly disposition the sites to ensure that each site either meets the applicable criteria for unrestricted use or has controls in place to limit access during remediation so that no site poses a risk to public health and safety and the environment. Likewise, the staff continues to coordinate with Agreement State partners as they work to resolve non-military radium issues within their jurisdictions. Five of the original 47 sites identified had calculated doses from radium contamination that exceed unrestricted use standards, requiring remediation. None of the additional 11 sites identified as part of coordination with the states on naturally-occurring and accelerator-produced radioactive material (NARM) required remediation. Moving forward, the effort will be focused on working with the site owners on site remediation. Remediation at each of the five sites with contamination levels that exceed the NRC's unrestricted use standards is at a different stage as discussed below:

- The former Benrus Clock Company, in Waterbury, Connecticut, completed remediation activities. Waste was shipped offsite in 2018 and the NRC staff issued a closeout letter in March 2019 (ADAMS Accession No. ML19077A037).

- Remediation activities at the former New Haven Clock Company began on August 27, 2018 and are ongoing. Site cleanup is now anticipated to be completed in the fall of 2019. After the site cleanup is complete, the NRC staff will prepare a closeout letter that will be shared with State of Connecticut's Department of Energy and Environmental Protection prior to issuance.

[4] As described in SECY-16-0020, the staff originally identified 29 historic sites in non-Agreement States for follow-up. A site can have multiple property owners, and as such, from these 29 historical sites, there are 47 unique site owners. Subsequently, as part of continuing coordination efforts with the states on naturally-occurring and accelerator-produced radioactive material, 11 additional sites with potential radium contamination were identified. State of Michigan officials informed the NRC staff of 9 additional sites, and, during preparations for the site visit to a former clock factory in Connecticut, the NRC staff identified 2 additional sites in Connecticut.

- The NRC staff approved the Cleanup Plan for New Opportunities of Waterbury, Inc. (NOW), in Waterbury, Connecticut, in April 2019 (ADAMS Accession No. ML19044A522) and met with the site owner and Federal, State, and local partners to discuss the status of remediation planning and funding. In addition, the staff has been exercising a monitoring role at the portion of the NOW site currently under the EPA's Brownfields program. For the Brownfields portion of the NOW site, the State of Connecticut has requested EPA Region I perform an emergency removal action at this site due to structural concerns about portions of the site. EPA Region I staff is completing a preliminary assessment to determine whether they will perform an emergency removal action.

- The NRC staff received an update in June 2019, from the site owner of the former Seth Thomas Clock Company in Thomaston, Connecticut, on remediation planning efforts (ADAMS Accession No. ML19151A334). The staff will continue to ensure that controls remain in place and will work with the site owner to better understand the scope and schedule of planned remediation activities.

- In April 2019, EPA completed all site activities at the former Sessions Clock Company in Bristol, Connecticut, and issued a final report in August. The NRC staff will use the EPA's report to issue a closeout letter to the site owner.

The Agreement States continued their efforts in FY 2019 to develop or implement plans to address potential non-military radium contamination. As of September 30, 2019, 21 of 38 Agreement States have completed their investigation activities, have dispositioned all the sites on their lists, and have no further plans for additional investigations. The remaining Agreement States continued to conduct prioritized reviews of the sites within their jurisdictions, focusing on the most risk-significant sites.

Additionally, in FY 2019, the NRC and the NPS staffs continued to coordinate efforts, in accordance with the NRC-NPS MOU (ADAMS Accession No. ML19198A281), for the ongoing environmental response actions at Great Kills Park, in Staten Island, New York, and Spring Creek Park, in Queens, New York, that NPS previously identified with confirmed radium contamination.

- In August 2019, the NRC staff provided comments to NPS (ADAMS Accession No. ML19212A698) on a report associated with its environmental response actions for Great Kills Park.

- NPS also performed characterization activities at a third site, Dead Horse Bay, in Brooklyn, New York, and confirmed, in June 2019, the presence of radium-contaminated artifacts at this site. NRC staff will work with NPS to amend the NRC's current Memorandum of Understanding (MOU) with NPS to include this site.

<u>Depleted Uranium at U.S. Army Installations</u>

In February 2019, the NRC staff developed an implementation plan to identify depleted uranium (DU) spent munitions, armor, and other items used on U.S. military ranges (for training and other purposes) and determine its licensing status. The plan's primary objective is to provide the strategy that will enable the NRC to confirm that all DU on active or inactive military ranges is either authorized by an NRC license or addressed through the NRC/DoD MOU for

Coordination on CERCLA Response Actions at DoD Sites with Radioactive Materials (ADAMS Accession No. ML16092A294). In developing the implementation plan, the staff was informed by previous DU licensing (i.e., the NRC's previous approach related to unlicensed Davy Crockett DU) and established a strategy to provide appropriate oversight for any unlicensed DU that is identified. The NRC staff developed a process to work with the U.S. Navy Master Materials Licensee, the U.S. Air Force Master Materials Licensee, and the U.S. Department of the Army (Army), to provide regulatory oversight for the DU that remains on active and inactive ranges, while minimizing unnecessary regulatory burden.

In May 2019, the NRC staff formally rolled out the plan with a public webinar outlining the background components and schedule of the plan. The staff is nearing completion of its document reviews for additional sites with DU. In the spring of 2020, the staff will request the Navy, Air Force, and Army to confirm any additional sites with DU that have not been remediated are categorized as follows: (1) authorized by an NRC license; (2) addressed through the DoD MOU; and (3) are unlicensed. If any ranges are listed under Category 3, the DoD and NRC will proceed towards regulatory oversight.

West Valley Demonstration Project

The West Valley Reprocessing Plant licensees' (New York State Energy Research and Development Authority [NYSERDA's] and the U.S. Department of Energy – West Valley Demonstration Project's [DOE-WVDP's]) preferred environmental impact statement (EIS) alternative for decommissioning and long-term stewardship of the West Valley Demonstration Project (WVDP) & Western New York Nuclear Service Center (WNYNSC) near Buffalo, New York, employs a two-phased approach.

Phase 1 involves the decommissioning of most WVDP site facilities, including demolition of the main plant process building and vitrification facility, clean-up of contamination soil, and studies to reduce uncertainties associated with decommissioning the remaining facilities (referred to as Phase 1 studies). Phase 1 of the decommissioning approach is being conducted in accordance with the NRC-approved DP, which estimated approximately 10 years for completion. The DOE is in the process of providing the NRC with an updated schedule.

Phase 2 involves the completion of the decommissioning process and long-term management decision-making for the site. In FY 2019, DOE-WVDP and NYSERDA continued to work on the Draft Supplemental EIS for Phase 2 Decommissioning and draft Phase 2 DPs. DOE-WVDP began preparing a Phase 2 DP for the WVDP. NYSERDA also began preparing a draft proposed DP to address anticipated license termination for the Cesium Prong, Bulk Storage Warehouse, and potential soil/streambed sediment contamination outside the WNYNSC. The State-licensed disposal area will also be included to allow a comprehensive view of dose contributions from the entire licensed premises.

Summary of Fiscal Year 2019 WVDP Activities

DOE-WVDP achieved significant progress during FY 2019. Approximately 98% of the Main Process Plant Building (MPPB) has been deactivated, and the demolition and waste disposition of five of the eight Ancillary Support Buildings has been completed. These facilities include: Utility Room Extension, Laundry Room, Master-Slave Manipulator Repair Shop, Contact Size Reduction Facility and the Head End Ventilation Building). Additionally, the demolition of nine Balance of Site Facilities were planned for FY 2019 and six were completed. These facilities are: Equalization Basin, Equalization Tank, Vitrification Facility, North Plateau Pump & Treat,

Contact Size-Reduction Facility and Laundry. Other work performed during FY 2019 includes the NDA toe armoring and cover extension, the installation of a new electrical substation, and the reconfiguration of infrastructure for facility demolition and future site needs. Lastly, DOE-WVDP has commenced deactivation of the Fuel Receiving and Storage Facility.

In April 2019, the DOE informed the staff that it is moving forward with the demolition of the above grade portion of the MPPB after a hiatus and requested that NRC resume its review of DOE-WVDP's responses to NRC's comments on the MPPB Decontamination and Demolition Work Plan. The staff completed its review in May 2019, requesting proof of concept information before open air demolition begins. The DOE is incorporating lessons learned from the successful demolition of the vitrification facility at West Valley, as well as other demolition activities at other DOE sites.

In FY 2019, ongoing performance of site operations were conducted to support Phase I decommissioning including Maintenance & Utilities, Permeable Treatment Wall Operations, Remote-Handled Waste Facility Operations & Maintenance, Low Level Radiological Waste Treatment System Operations, Waste Tank Farm Maintenance, and NRC-Licensed Disposal Area Maintenance. Also, in FY 2019, DOE-WVDP completed the waste disposition and shipment of the above grade demolition of the vitrification facility, as well as the removal and relocation of two High-Integrity Containers from the MPPB.

In FY 2019, the NRC staff conducted several monitoring visits covering the continuing deactivation of the MPPB to include the removal of the main plant process building stack.

2.3.2 Fiscal Year 2020 Trends and Areas of Focus

In FY 2020, the NRC staff intends to continue to make progress in the decommissioning of complex sites. The staff will also continue to work with the Oklahoma Department of Environmental Quality to evaluate funding options for the decommissioning of the FMRI site and work with the EPA to determine if the site is eligible for cleanup under CERCLA. The staff will review the new work plans for the SLDA in FY 2020 and will conduct site visits and confirmatory measurement surveys during the cleanup activities at the UNC Naval site.

The NRC staff intends to implement the MOU with the DoD for military radium beyond the initial "pilot" effort by prioritizing its activities based on available resources. Factors for consideration in prioritizing annual monitoring activities include: (1) involvement of other regulatory agencies; (2) use of engineered controls and/or land use controls as remedies; (3) contamination in buildings for reuse; (4) amount or type of material and how transportable it is; and (5) previous monitoring activities.

The staff plans to continue its efforts on non-military radium by working with site owners on risk-informed approaches for site cleanup, including confirmation that remediation activities are complete at the former New Haven and Session Clock Factories. Additionally, the NRC staff will continue to implement the MOU with the NPS as remediation activities progress at the parks.

Table 2.3. Complex Decommissioning Sites

	Name	Location	Date DP Submitted	Date DP Approved	Compliance Criteria	Projected Date of Completion
1	Alameda Naval Air Station*	Alameda, CA	N/A	N/A	MOU**	N/A
2	Cimarron (Kerr-McGee)	Cimarron, OK	4/95 revised 11/18	8/99	Action-UNRES***	2039
3	Department of the Army, U.S. Armament Research, Development, and Engineering Center	Picatinny, NJ	11/13 Revised 8/19	04/17	LTR-UNRES	TBD
4	FMRI (Fansteel), Inc.	Muskogee, OK	8/99, revised 5/03	12/03	LTR-UNRES	TBD
5	Hunter's Point Naval Shipyard* (former Naval shipyard)	San Francisco, CA	N/A	N/A	MOU**	N/A
6	Jefferson Proving Ground	Madison, IN	8/99 revised 6/02	10/02 retracted 11/15	N/A	N/A
7	Lead Cascade Facility (Centrus)	Piketon, OH	1/18	8/18	LTR-UNRES	N/A****
8	McClellan* (former Air Force base)	Sacramento, CA	N/A	N/A	MOU**	N/A
9	Shallow Land Disposal Area (BWX Technologies, Inc.)*****	Vandergrift, PA	N/A	N/A	LTR-UNRES	TBD
10	Sigma-Aldrich	Maryland Heights, MO	10/08, revision pending	5/09, revised TBD	LTR-UNRES	2021
11	UNC Naval Products	New Haven, CT	8/98, revised 2004,12/06 revised 3/19	4/99, revised 10/07 revised 5/19	LTR-UNRES	TBD

Table 2.3. Complex Decommissioning Sites

	Name	Location	Date DP Submitted	Date DP Approved	Compliance Criteria	Projected Date of Completion
12	West Valley Demonstration Project	West Valley, NY	Phase 1 3/09	Phase 1 2/10	LTR-UNRES†	TBD

* The Hunter's Point Shipyard and Alameda Naval Air Station sites are being remediated by the U.S. Navy, and the McClellan site is being remediated by the U.S. Air Force, under the CERCLA process and EPA oversight. It is assumed that some licensable material might be present at both sites; however, the NRC has not licensed these sites. Instead, the Commission has approved a "limited involvement approach to stay informed" and the NRC staff will rely on the ongoing CERCLA process and EPA oversight. More information is available on this approach in SECY-08-0077, "Options for U.S. Nuclear Regulatory Commission Involvement with the U.S. Navy's Remediation of the Hunters Point Naval Shipyard Site in California," (ADAMS Accession No. ML080800110).

** "Memorandum of Understanding Between the U.S. Nuclear Regulatory Commission and the U.S. Department of Defense for Coordination on CERCLA Response Actions at DoD Sites with Radioactive Materials," dated April 2016 (ADAMS Accession No. ML16092A294).

*** Under the provisions of 10 CFR 20.1401(b), any licensee or responsible party that submitted its DP before August 20, 1998, and received NRC approval of that DP before August 20, 1999, may use the SDMP action plan criteria for site remediation.

**** In June 2019, Centrus withdrew its request to terminate the Lead Cascade license. In September the NRC staff confirmed that the site met the 10 CFR Part 20 limits and approved the cancellation of the Lead Cascade decommissioning fund.

***** USACE's remediation approach for the Shallow Land Disposal Area site is to follow the CERCLA process and adhere to the MOU between the NRC and USACE for coordination, remediation, and decommissioning of Formerly Utilized Sites Remedial Action Program sites with NRC-licensed facilities, “Memorandum of Understanding Between the U.S. Nuclear Regulatory Commission and The U.S. Army Corps of Engineers for Coordination of Cleanup & Decommissioning of the [FUSRAP] Sites with NRC-Licensed Facilities," 66 FR 36606. A Supplemental MOU between USACE, DOE, and the NRC was signed in June 2014, and complements the existing MOU by incorporating the relevant requirements of 10 CFR Parts 70, 73, and 74, and stipulates the specific roles of each Federal entity throughout the remainder of the remediation process.

† The West Valley Phase I DP includes plans to release a large portion of the site for unrestricted use, while the remainder of the site may have a perpetual license or be released with restrictions.

Notes:

- The compliance criteria identified in this table reflect the information in the most recent NRC-approved DP or approach. The compliance criteria may change if the NRC approves alternate compliance criteria requested by the licensee.
- Abbreviations used in this table include: “Action” for SDMP action plan criteria, “ADAMS” for Agencywide Documents Access and Management System, “CERCLA” for Comprehensive Environmental Response, Compensation, and Liability Act, “CFR” for *Code of Federal Regulations*, “DP” for decommissioning plan, “DOE” for U.S. Department of Energy, “EPA” for U.S. Environmental Protection Agency, “FY” for fiscal year, “FR” for *Federal Register*, “LTR” for License Termination Rule criteria, “MOU” for memorandum of understanding, “N/A” for not applicable, “NRC” for U.S. Nuclear Regulatory Commission, “RES” for restricted use, “TBD” for to be determined, “UNRES” for unrestricted use, and “USACE” for U.S. Army Corps of Engineers.
- Reasons for multiple DP submittals range from changes in the favored decommissioning approach, to the phased implementation of decommissioning, to poor quality submittals.

2.4 Uranium Recovery Facility Decommissioning

In enacting the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA), as amended, Congress had two general goals. The first was to provide a remedial action program to stabilize and control the residual radioactive material at various identified inactive mill sites (Title I). The second was to ensure the adequate regulation of uranium production activities and cleanup of mill tailings at mill sites that were active and licensed by the NRC (or Agreement States) (Title II). Additional information on the UMTRCA can be found at: https://www.nrc.gov/reading-rm/doc-collections/fact-sheets/mill-tailings.html

The NRC's uranium recovery decommissioning activities include project management, technical review of licensee and DOE submittals in support of decommissioning or long-term care and maintenance, the development of rulemaking and guidance, public outreach efforts, international assistance and cooperation, and participation in industry conferences and workshops.

Table 2.4-a identifies the 22 Title I sites: 20 that are under general license with the DOE and the former mill sites at Riverton, Wyoming, and Monument Valley, Utah, which have been designated as Title I sites by Congress. The regulation at 10 CFR 40.27, "General License for Custody and Long-Term Care of Residual Radioactive Material Disposal Sites," governs the long-term care of Title I disposal sites under a general license held by either DOE or the State in which the site is located, after decommissioning is complete. Additional information on the status of Title I sites can be found at: https://www.energy.gov/lm/sites/lm-sites

Table 2.4-b identifies the Title II sites that are no longer operating and in decommissioning status. As of September 30, 2019, five Title II uranium recovery facilities are undergoing decommissioning. The regulation at 10 CFR 40.28, "General License for Custody and Long-Term Care of Uranium or Thorium Byproduct Materials Disposal Sites," governs the long-term care of Title II conventional uranium mill disposal sites under a general license held by either DOE or the State in which the site is located, after decommissioning is complete. The six Title II sites that have been transferred for long-term care are identified in Table 2.4-c.

Status summaries for the Title II sites undergoing decommissioning are provided at http://www.nrc.gov/info-finder/decommissioning/uranium/.

2.4.1 Summary of Fiscal Year 2019 Activities

UMTRCA Title I Sites

- The NRC staff reviewed and provided comments to the DOE on: (1) the Materials Testing Workplan, Seep monitoring report, Slope cover depressions report and radiation monitoring report for the Mexican Hat, Utah, site; (2) the position paper on suspension of remediation and decommissioning of the evaporation pond at the Shiprock, Arizona, site; (3) the Interim Treatment System Evaluation Plan at the Tuba City, Arizona, site; (4) the Groundwater Corrective Action Plan workplan for the Monument Valley, Arizona site; and (5) the draft revised Long-term surveillance Plan for the Naturita, Colorado, site.

- In May 2019, the NRC staff completed its review of the Supplement Standards request for soil at the Moab site in Utah.

- The NRC staff continued the reviews of the Groundwater Corrective Action Plans for the Gunnison and Rifle sites in Colorado and the Green River site in Utah.

- The NRC staff completed observational site visits at the Canonsburg, Burrell, Shiprock, Mexican Hat, Slick Rock, Ambrosia Lake and Maybell sites, which are generally licensed pursuant to 10 CFR 40.27.

- The NRC staff continued its participation with other Federal agencies and the Navajo Nation in implementing the five-year plan to address uranium contamination on the Navajo Nation. The staff is working with the Federal agencies and the Navajo Nation to develop the next plan. The staff completed the development of a training programs on uranium and its health and environmental impacts and conducted two pilot sessions for community members at Navajo Chapter Houses. The staff worked with Navajo colleges towards improving a course offering in radiation safety. In addition, the staff continued participation in Navajo Nation/Hopi/DOE quarterly meetings and community outreach activities.

UMTRCA Title II Sites

- The NRC staff continued inspection and review of licensee actions as required by the confirmatory order issued in March 2017 at the Homestake Mining site in Grants, New Mexico. The staff continues communications between the EPA, DOE, and New Mexico Environment Department (NMED) through monthly teleconferences to discuss coordination and alignment between the agencies. The staff also participated in monthly teleconferences with interested members of the community to provide an update on all activities at the Homestake Mining site. In September 2019, the NRC conducted a public meeting to discuss ongoing activities at the Homestake Mining site.

- In April 2019, Rio Algom submitted responses to the requests for additional information for the license amendment request to release the former Ponds 4 Area from the Ambrosia Lake facility in Grants, New Mexico. In June 2019, the staff requested additional information regarding the characterization of the area. Rio Algom plans to conduct field work in 2020 to further characterize the former Ponds 4 Area at the Ambrosia Lake site.

- In June 2019, the NRC staff and the Wyoming Department of Environmental Quality completed the stabilization of the American Nuclear Corporation (ANC) site in Wyoming. The staff also completed an evaluation of potential funding options for completing the decommissioning of the site and is working with the DOE and the State of Wyoming to develop a path forward for completing the decommissioning.

- The NRC staff received a license amendment request in September 2018 for the UNC Church Rock site in New Mexico to construct a disposal cell for mine spoils atop the existing mill tailings cell. The staff completed the acceptance review of the license amendment and is proceeding with the detailed safety, technical, and environmental reviews. The staff held a public scoping meeting in Gallup, New Mexico, in March 2019, to obtain input for the Environmental Impact Statement that the staff will prepare to support the review of the license amendment request.

- In support of Sequoyah Fuels Corporation's (SFC's) program of shipping its bagged raffinate material off-site, the Cherokee Nation provided $980,000 in additional funding to ensure that all the raffinate material was removed from the site. As of December 2018, all the bagged raffinate material was safely removed from the SFC site. A total of 12,644 bags containing 10,972 tons of raffinate material were shipped without any incidents to the White Mesa Uranium Mill in southeast Utah for processing and disposal. SFC will submit a license amendment request for alternate concentration limits for groundwater by December 2019. SFC has resumed its remaining decommissioning activities and anticipates completion of these activities in 2025.

- In March 2016, the State of Colorado submitted the Completion Review Report (CRR) for the Durita site. However, the NRC staff identified issues related to the groundwater at the site that has delayed the staff's completion of its review of the CRR. In September 2019, the staff resolved the groundwater issues and resumed its review of the Durita CRR. In August 2019, the State of Texas submitted the CRR for the Panna Maria site and the NRC staff initiated its review of the CRR.

- In addition, the NRC staff completed inspections or site visits at the ANC, UNC Church Rock, Homestake Mining, Sequoyah Fuels, and Rio Algom sites.

<u>UMTRCA Title II Sites Transferred to DOE for Long-Term Care</u>

- The NRC staff continued to discuss options with DOE to resolve two technical concerns associated with the Bluewater site in Grants, New Mexico, that involve: (1) several feet of subsidence of approximately 40 acres of the cover causing ponding of several acres of water on the tailings impoundment after heavy rains; and (2) contaminants in the groundwater plume from the site that have impacted a portion of a regional drinking water aquifer. In September 2019, the staff participated in a public meeting with the DOE to provide an update on site status and next steps to the public. DOE submitted a report in March 2019 that outlines its previous efforts to characterize the extent of the groundwater plume at the site. Additionally, with the assistance of NMED, DOE has offered to sample public groundwater wells at an owner's request.

- The NRC staff conducted observational site visits at the L-Bar, Shirley Basin South, and Maybell West sites.

Throughout FY 2019, the NRC staff continued interactions with DOE regarding those sites that are generally licensed under 10 CFR 40.27 and 40.28. The staff has continued to hold quarterly telephone conference calls with DOE to discuss overarching policy and technical issues associated with managing the generally licensed sites. The staff also continued its participation in DOE meetings with the Navajo Nation and Hopi Tribe pertaining to the sites on the Navajo Nation and Hopi Reservation.

2.4.2 Fiscal Year 2020 Trends and Areas of Focus

In FY 2020, the NRC staff will continue its participation in the activities associated with the Navajo Nation five-year plan and the DOE/Navajo Nation/Hopi quarterly meetings. Additionally, the staff will review DOE reports and plans for the reclamation and management of these sites. The staff will continue its review of the UNC license amendment request and the reviews of the Groundwater Corrective Action Plans for the Gunnison and Rifle sites in Colorado and the Green River site in Utah. The staff will continue to work with DOE to resolve issues associated

with the Bluewater site and will work with DOE and the State of Wyoming to explore and implement options for decommissioning the ANC site. The staff will also work with Colorado and Texas in reviewing CRRs for the Durita and Panna Maria sites.

Table 2.4-a. Decommissioning Title I Uranium Recovery Sites

	Name	Location	Status
1	Ambrosia Lake	Grants, NM	Monitoring
2	Burrell	Blairsville, PA	Monitoring
3	Canonsburg	Canonsburg, PA	Monitoring
4	Durango	Durango, CO	Monitoring
5	Falls City	Falls City, TX	Monitoring
6	Grand Junction	Grand Junction, CO	Monitoring
7	Green River	Green River, UT	Monitoring
8	Gunnison	Gunnison, CO	Monitoring
9	Lakeview	Lakeview, OR	Monitoring
10	Lowman	Lowman, ID	Monitoring
11	Maybell	Maybell, CO	Monitoring
12	Mexican Hat	Mexican Hat, UT	Monitoring
13	Monument Valley	Monument Valley, AZ	Monitoring
14	Moab Mill	Moab, UT	Active – surface and groundwater remediation
15	Naturita	Naturita, CO	Monitoring
16	Rifle	Rifle, CO	Monitoring
17	Riverton	Riverton, WY	Monitoring
18	Salt Lake City	Salt Lake City, UT	Monitoring
19	Shiprock	Shiprock, NM	Active – groundwater remediation
20	Slick Rock	Slick Rock, CO	Monitoring
21	Spook	Converse Co., WY	Monitoring
22	Tuba City	Tuba City, AZ	Active – groundwater remediation (currently suspended*)

* DOE has suspended active remediation, except for evaporation, and is evaluating several new remediation approaches.

Note: Active denotes that a site is still undergoing surface reclamation or is resolving groundwater issues. Monitoring denotes that the site is being monitored under its long-term surveillance plan or a groundwater compliance action plan.

Table 2.4-b. Decommissioning Title II Uranium Recovery Sites

	Name	Location	Date DP/RP Approved	Date of Decomm. Completion
1	American Nuclear Corporation	Gas Hills, WY	10/88, Revision 2006	TBD
2	Homestake Mining Company	Grants, NM	Revised plan—3/95 Revision pending	TBD
3	Rio Algom–Ambrosia Lake	Grants, NM	2003 (mill); 2004 (soil)	2025
4	Sequoyah Fuels Corporation	Gore, OK	2008	2025
5	United Nuclear Corporation	Church Rock, NM	3/91, Revision 2018	TBD
TBD to be determined				

Table 2.4-c. Title II Uranium Recovery Sites – DOE Licensed Under 10 CFR 40.28

	Name	Location	Date Transferred to DOE
1	Bluewater (Arco)	Grants, NM	1997
2	Edgemont	Edgemont, SD	1996
3	L-Bar	Seboyeta, NM	2005
4	Maybell West	Maybell, CO	2010
5	Sherwood	Wellpinit, WA	2001
6	Shirley Basin South	Shirley Basin, WY	2005

2.5 Fuel Cycle Facility Decommissioning

There is one fuel cycle facility undergoing partial decommissioning: the Nuclear Fuel Services (NFS) site in Erwin, Tennessee, in accordance with applicable provisions under 10 CFR 70.38. The NRC's public Web site at http://www.nrc.gov/info-finder/decommissioning/fuel-cycle/ summarizes additional information about the status of the facility.

2.5.1 Summary of Fiscal Year 2019 Activities

During FY 2019, NFS has continued to work toward releasing different areas within its site. NFS is remediating the Building 234 site (former plutonium building). The building has been dismantled and removed from the site. The current phase of decommissioning involves excavation of the contaminated soil that was located under the building. NFS has completed remediation of the North Site area, which includes former radiological burial areas and ponds that received effluents. NFS submitted the last of several final status survey reports (FSSRs) in FY 2018. The NRC staff completed its review of the FSSR in December 2018 and confirmed that the North Site was suitable for unrestricted release.

2.5.2 Fiscal Year 2020 Activities and Areas of Focus

In FY 2020, the NRC staff expects remediation work to continue at the Building 234 site.

3. GUIDANCE AND RULEMAKING ACTIVITIES

In FY 2019, the NRC staff worked to increase the effectiveness of the Decommissioning Program through a rulemaking effort for reactor decommissioning and updates to decommissioning guidance. The Decommissioning Program has also been performing a self-evaluation of dose modeling to help it become more effective in the decommissioning of sites.

Decommissioning Rulemaking

In SRM-SECY-14-0118, "Request by Duke Energy Florida, Inc., for Exemptions from Certain Emergency Planning Requirements," (ADAMS Accession No. ML14364A111) the Commission directed the staff to proceed with rulemaking on reactor decommissioning.

The NRC's goals in amending these regulations would be to provide a more efficient decommissioning process, reduce the need for exemptions from existing regulations, and support the principles of good regulation, including openness, clarity, and reliability.

The staff submitted the draft proposed rule package to the Commission for vote in May 2018. If the Commission approves the proposed rule, then any Commission-directed changes will be incorporated, and the proposed rule package, including the draft guidance documents intended to help implement the new rule, will be published for a public comment period. The staff will consider any comments received during this period in developing the draft final rule package.

Decommissioning Guidance

In FY 2019, the NRC staff continued its multi-year effort to update decommissioning guidance documents including Volumes 1 and 2 of the Consolidated Decommissioning Guidance, NUREG-1757. Revision 1 of NUREG-1757, Volume 2, "Consolidated Decommissioning Guidance: Characterization, Survey, and Determination of Radiological Criteria," (ADAMS Accession No. ML063000252) was last published in September 2006. An effort to update the volume is currently underway. This update will amend the guidance to address longstanding technical issues and lessons learned, which would improve the quality of licensee DPs and LTPs and improve the efficiency of the staffs review of these documents. Revisions related to dose modeling reviews include additional guidance on topics such as model abstraction and simplification, consideration of uncertainty, use of distribution coefficients, consideration of intrusion scenarios for buried residual radioactivity, and consideration of elevated areas or "hot spots." Revisions related to radiological surveys include new or updated guidance on composite sampling, subsurface surveys (e.g., excavations), and Scenario B final status survey designs. Revisions also include updated guidance on conducting "as low as reasonably achievable (ALARA)" reviews. Similarly, the staff continued its efforts to update Revision 2 of NUREG-1757, Volume 1, "Consolidated Decommissioning Guidance: Decommissioning Process for Materials Licensees," (ADAMS Accession No. ML063000243), which was also last published in September 2006. During FY 2019, the staff completed its revision to NUREG-1507, "Minimum Detectable Concentrations with Typical Radiation Survey Instruments for Various Contaminants and Field Conditions," and expects to issue this revised guidance in FY 2020.

In FY 2019, the NRC staff also initiated revisions to NUREG-1569, "Standard Review Plan for In Situ Leach Uranium Extraction License Applications" (ADAMS Accession No. ML032250177). The planned revisions include guidance for alternate concentration limits at in

situ recovery facilities and other updates based on experiences with licensing and oversight at uranium recovery facilities and feedback from the public. Once drafted, the staff plans to share with the public for comment.

Self-Evaluation of Dose Modeling

The NRC staff continued to evaluate of the uses and applicability of computer codes employed in carrying out licensing activities, particularly those codes used for the demonstration of compliance with the decommissioning dose criteria. This evaluation is intended for NRC's use when assessing ways to enhance the efficiency of the use of codes and models and to establish consistency and relevance in the selection of these computer codes and models. This activity is expected to continue into FY 2020.

4. RESEARCH ACTIVITIES

The Office of Nuclear Regulatory Research (RES) and NMSS continue to coordinate activities focusing on key decommissioning issues, including updating computer codes, development of an MOU with DOE on the roles, responsibilities, and processes related to implementation of the radiation protection computer code, analysis, and maintenance program (RAMP), supporting international activities related to decommissioning, and studying the effects of engineered covers.

In FY 2019, the RES and NMSS staff continued activities with DOE national laboratories for the development or modification of computer codes useful for decommissioning analyses, including the upgrade of several codes identified as part of FY 2015 and FY 2018 User's Need requests from NMSS staff. This includes the following activities:

- Working on the Residual Radioactivity (RESRAD) family of computer codes that includes RESRAD-ONSITE, RESRAD-OFFSITE, and RESRAD-BUILD to enhance the realism of the modeling by updating default parameters and modifying RESRAD-OFFSITE V3.1 to include solubility and diffusion limited leaching source terms;

- Updating, benchmarking, and distributing the user manual and quality assurance documents for the MILDOS-AREA computer code, which is used by uranium milling, mining facilities, in-situ recovery licensees, NRC staff, and Agreement States to estimate radon effluents;

- Adding new features to Visual Sampling Plan based on the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) final survey protocols;

- Distributing and maintaining the Decommissioning and Decontamination (DandD) computer code, which is used by licensees to develop adequate or appropriate Derived Concentration Guideline Levels for cleanup and demonstrate compliance with the dose criteria of 10 CFR Part 20, Subpart E; and

- Supporting the development of the VARSKIN computer code, used in the analysis of hot particle doses at decommissioning nuclear power plants.

Additionally, RES is coordinating the signing and implementation of an MOU with DOE that describes the roles, responsibilities, and processes related to the implementation of RAMP. RAMP provides the nuclear energy and radiation protection community with access to the distribution, development, and use of radiation protection computer codes, including MILDOS-AREA and DandD, while ensuring sustainability of code development. This MOU is specific to the portion of RAMP in which NRC and DOE jointly conduct cooperative research and DOE provides programmatic support to DOE National Laboratories to manage the RESRAD family of computer codes.

The RES staff supports international activities through participation in the Information System on Occupational Exposure (ISOE) management board that oversees the Working Group on Radiological Aspects of Decommissioning Activities in Nuclear Power Plants. This working group's objective is to provide a forum for experts to develop a process to better share operational radiation protection data and experience for nuclear power plants in some stage of

decommissioning, or in preparation for decommissioning. The staff also participated in the Modeling Data for Radioactive Impact Assessment, which is an International Atomic Energy Agency (IAEA)-sponsored technical meeting that brings together modelers of computer codes to assess and benchmark them.

The RES staff continues to work on a research program that was created to study the effects of changes in properties of in-service engineered earthen covers over uranium mill tailings as these covers age. The purpose of this study is to evaluate the effects of soil structure formation by abiotic and biotic processes on the hydraulic conductivity and gaseous diffusivity of radon barriers, how structural development varies with depth and thickness of the radon barrier, and how structure influences transmission of radon and seepage carrying groundwater contaminants. This research is a collaborative effort between the DOE Office of Legacy Management (LM) and the NRC, with investigators at the University of Wisconsin, University of Virginia, University of California, Berkeley, and Navarro Engineering (the DOE contractor). Four mill tailing sites were visited by the research team: Falls City in Texas, Bluewater in New Mexico, Shirley Basin South in Wyoming, and Lakeview in Oregon. A workshop was held in July 2018 at NRC Headquarters where the research team members presented their observations. A Conference Proceedings, NUREG/CP-0312, was published to document this workshop (ADAMS Accession No. ML19239A170). The team also made four presentations at the DOE/LM 2018 Long-Term Stewardship Conference in August 2018. Currently, data are being prepared and interpreted from these sites and a NUREG/CR is being written. A White Paper is also being prepared that will outline key finding of the research and present topics and approaches for follow-on research.

The RES staff also continued to provide direct assistance to NMSS efforts through participating in the MARSSIM Interagency Working Group, which is revising the MARSSIM guidance document.

The RES and NMSS staff participated in the Federal Remediation Technologies Roundtable workshops and coordinated a session on use of nanotechnology in remediation of radionuclide-contaminated soil and water.

5. INTERNATIONAL ACTIVITIES

The NRC participates in multiple international activities to fulfill U.S. commitments to international conventions, treaties, and bilateral/multilateral agreements. The NRC staff is also actively engaged in reviewing, developing, and updating international radiation safety standards and technical support documents through interaction with international organizations, including the IAEA and the Organization for Economic Co-operation and Development's Nuclear Energy Agency (NEA), as well as foreign governments. The NRC participates in bilateral and trilateral exchanges with other countries in coordination with the U.S. Department of State and other Federal and State agencies. This is accomplished by hosting foreign assignees and participating in reciprocal assignments, developing and providing workshops to requesting countries, and providing technical support as needed. The NRC is generally recognized in the international nuclear community as an experienced leader in the regulation and safety of decommissioning, spent fuel management and storage, radioactive waste management and disposal, site remediation, and environmental protection. Interaction with international organizations and governments allows the NRC to share insights about lessons learned and successful, safe, and effective decommissioning approaches. This interaction also allows the NRC staff to provide input for various international guidance documents and standards that benefit the U.S. and other countries in establishing and implementing safe decommissioning strategies. In addition, the staff gains insight into approaches and methodologies, lessons learned, and new technologies used in the international community, and considers these approaches as it continues to risk-inform the NRC Decommissioning Program and gain further insights into the decommissioning process. The most significant of these FY 2019 activities are summarized below.

- The staff participated in the review and development of IAEA Safety Standards; participated in IAEA projects, conferences, peer reviews, and workshops related to decommissioning and waste disposal; and advised on the development of other countries' regulatory programs. For example, the staff: (1) conducted reviews and updates of IAEA standards related to decommissioning and low-level waste during the Waste Safety Standards Committee (WASSC) 46th and 47th review cycles; (2) participated in the NEA Working Party on Decommissioning and Dismantling (WPDD) 19th annual meeting and delivered presentations on stakeholder involvement representing U.S. views; (3) participated in a technical meeting and consultancy working group on the completion of decommissioning; (4) participated in a consultancy working group on the decommissioning of small facilities; (5) attended a technical meeting on institutional controls and the release of sites from regulatory control; and (6) developed modules and instructor notes for an IAEA training course for decommissioning regulators.

- The staff participated in the annual meeting of the International Forum on Regulatory Supervision of Legacy Sites, related to the remediation of legacy nuclear facilities.

- The staff completed its participation in the IAEA Project on the Decommissioning and Remediation of Damaged Nuclear Facilities.

- The staff participated in the 2019 Waste Management Symposia international conference.

- The staff participated in the organizational and extraordinary meetings of the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management in Vienna.

- The staff participated in the Integrated Review Service for Radioactive Waste and Spent Fuel Management, Decommissioning and Remediation (ARTEMIS) program, an integrated peer review service for radioactive waste and spent fuel management, decommissioning, and remediation programs.

- The staff participated in bilateral cooperation meetings with the Republic of Korea and Taiwan on decommissioning and spent fuel management, which included presentations on the U.S. reactor decommissioning process, reactor transition lessons learned, radiological characterization lessons learned, and decommissioning ALARA. The staff also supported visits to San Onofre, Oyster Creek, Vermont Yankee, and Pilgrim.

- The staff met with Japanese regulators and government officials to discuss reactor decommissioning regulatory programs.

- The Division of Decommissioning, Uranium Recovery, and Waste Programs hosted a foreign assignee from the French Nuclear Safety Authority. In addition, an NMSS employee was assigned to the French Nuclear Safety Authority for one year to provide decommissioning expertise.

6. PROGRAM INTEGRATION AND IMPROVEMENT

Given the scope of the decommissioning functional area, the Decommissioning Program has undertaken many initiatives to improve its efficiency and effectiveness.

Power Reactor Program Improvements

The Decommissioning Program has historically sought opportunities to improve its processes in order to accomplish decommissioning activities more effectively. In response to an anticipated increase in workload due to early reactor shutdowns, the NMSS staff conducted a program evaluation of its power reactor decommissioning regulatory function. The Power Reactor Decommissioning Program evaluation was an outgrowth of the NRC staff's Integrated Decommissioning Improvement Plan (IDIP) efforts and part of its initiative to foster continuous improvement. The evaluation resulted in a set of recommendations to update guidance and policy documents within the Power Reactor Decommissioning Program to capture program improvements and lessons learned. In March 2018, the staff published a revision of Inspection Manual Chapter (IMC) 2561, "Decommissioning Power Reactor Inspection Program," (ADAMS Accession No. ML17348A400), which reflects updates to the overall decommissioning reactor inspection program and changes to the core and discretionary inspection procedures. The staff has continued the revision of 12 reactor decommissioning inspection procedures referenced in IMC 2561, and anticipates completion of this effort in FY 2020.

Comprehensive Decommissioning Program

The NRC staff has continued with the implementation of an enhanced Comprehensive Decommissioning Program, which allows the staff to compile, in a centralized location, information on the status of decommissioning and decontamination of complex sites and uranium recovery sites in the United States. In FY 2019, State contacts provided responses to letter STC-19-044, "Information Request: Status of Current Complex Decommissioning and Uranium Recovery Sites." This information was compiled and placed into a database, which can be found on NRC's public web site. Summaries of information on sites undergoing decommissioning that are regulated by the Agreement States are currently available to the public to ensure openness and promote communication, and thus enhance public confidence by providing a national perspective on decommissioning.

Knowledge Management

Progress continued on knowledge management activities identified as part of the IDIP. In FY 2019, the staff identified an opportunity to share programmatic background information with interested staff and foster both general and project-specific discussions. A team of experienced project managers familiar with different areas of the Decommissioning Program started a series of knowledge management sessions focused on high-level programmatic topics. The initial session on the Site Decommissioning Management Plan's transition to the Comprehensive Decommissioning Program covered major milestones from the 1980s to the present. A second session was held to discuss current and historical approaches for sites with inadequate financial assurance. Additional sessions will be held in FY 2020 to share other program information with interested staff.

In March 2019, the staff also chaired a session at the NRC's Regulatory Information Conference regarding current topics in reactor decommissioning, which focused on lessons learned in the area of reactor decommissioning. Presentations included an overview of the NRC's Decommissioning Program, and lessons learned during the decommissioning of the Humboldt Bay, La Crosse, and Zion sites.

Evaluation of Materials and Waste Business Lines

During FY 2017, a working group consisting of subject matter experts was formed to evaluate the Nuclear Materials and Waste Safety Program Business Lines with a goal of identifying alternative approaches that could result in fairer and more equitable fees. The working group evaluated workloads and programs/processes to identify opportunities to improve efficiency and effectiveness and to re-scope levels of effort. The working group considered a range of potential program/process changes including licensing process efficiencies, periodicity of certain licensing reviews, inspection scope and frequency, and changing the level of effort allocated for program infrastructure and other non-fee recoverable activities. The results of this evaluation were provided to the Office of the Executive Director for Operations in October 2017 and to the Commission in February of 2018.

During FY 2019, the NRC staff continued to implement several recommendations from the evaluation of the Materials and Waste Business Lines to improve effectiveness of licensing and oversight. Examples of these improvements include adjustments to the uranium recovery inspection program through the extension of inspection intervals, revisions to inspection procedures for decommissioning power reactors, and changes to the internal process of completing financial surety reviews for uranium recovery licenses.

7. AGREEMENT STATE ACTIVITIES

In addition to the sites undergoing decommissioning that are regulated by the NRC, many complex materials sites are being decommissioned under the regulatory oversight of Agreement States. Thirty-nine States have signed formal agreements with the NRC and assumed regulatory responsibility over certain byproduct, source, or small quantities of SNM, including the decommissioning of some complex materials sites. After a State becomes an Agreement State, the NRC continues to have formal and informal interactions with the State.

Formal interactions with Agreement States in FY 2019 included the following:

- In June an Alternate Concentration Limit Workshop was held in Salt Lake City. There was open discussion between the NRC and the States of Colorado, Utah, Washington, Wyoming, and Texas and DOE Legacy Management on the use of Alternate Concentration Limits during decommissioning of uranium recovery sites. During the workshop, there was open discussion on potential NRC guidance and rulemaking for in-situ recovery facilities.

- The staff worked with the Agreement States to incorporate more detailed information on the NRC's public Web site about complex materials decommissioning sites and uranium recovery facilities undergoing decommissioning that are under the regulatory purview of the Agreement States. These summaries are available at http://www.nrc.gov/info-finder/decommissioning/complex/ and http://www.nrc.gov/info-finder/decommissioning/uranium/ for complex materials sites and uranium recovery sites, respectively.

- Integrated Materials Performance Evaluation Program reviews that included an assessment of the decommissioning functional area were conducted in several Agreement States: Alabama, Florida, Maine, New Jersey, North Dakota, Ohio, Pennsylvania, Utah, and Wisconsin.

Table 7.1 identifies the decommissioning and uranium recovery sites in the Agreement States.

Table 7.1. Agreement State Decommissioning Sites

State	Name	Location	Date DP Submitted	Date DP Approved
CA	Eberline Services	Richmond, CA	TBD	TBD
CO	Colorado Legacy Land – Schwartzwalder Mine	Jefferson County, CO	11/16	6/17
CO	Cotter Uranium Mill	Canon City, CO	9/03	1/05
CO	Hecla Mining Company – Durita	Naturita, CO	10/91	3/92
CO	Umetco Uravan	Uravan, CO	6/93	6/93
FL	Iluka Resources	Green Cove Springs, FL	TBD	TBD
IL	Weston Solutions (formerly Kerr-McGee)	West Chicago, IL	9/93	2/94
MA	Norton/St. Gobain	Worcester, MA	TBD	TBD
MA	Starmet Corp. (formerly Nuclear Metals)	Concord, MA	10/06	TBD
MA	Texas Instruments	Attleboro, MA	TBD	TBD
MA	Wyman-Gordon Co.	North Grafton, MA	TBD	TBD
NJ	Shieldalloy Metallurgical Corp.	Newfield, NJ	12/16	1/17
OH	Advanced Medical Systems, Inc.	Cleveland, OH	6/04	5/05
OH	Ineos USA (formerly BP Chemical)	Lima, OH	4/92	6/98
OR	PCC Structurals, Inc.	Portland, OR	6/06	9/06
OR	TDY Industries d/b/a Wah Chang	Albany, OR	6/03	3/06
PA	Global Tungsten & Powders Corp.	Towanda, PA	6/13	9/13
PA	Karnish Instruments	Lock Haven, PA	TBD	TBD

Table 7.1. Agreement State Decommissioning Sites

State	Name	Location	Date DP Submitted	Date DP Approved
PA	Keystone Metals Reduction	Cheswick, PA	TBD	TBD
PA	Remacor	West Pittsburg, PA	TBD	TBD
PA	Safety Light Corporation	Bloomsburg, PA	TBD	TBD
PA	Superbolt (formerly Superior Steel)	Carnegie, PA	TBD	TBD
PA	Westinghouse Electric (Waltz Mill)	Madison, PA	4/97	1/00
PA	Whittaker Corporation	Greenville, PA	12/00, revised 8/03, 10/06	5/07
SC	Starmet CMI	Barnwell, SC	TBD	TBD
TN	CB&I Federal Services, LLC	Knoxville, TN	6/14	7/14
TX	Ascend Performance Materials	Alvin, TX	11/03	3/04
TX	ConocoPhillips (Conquista Project)	Falls City, TX	11/87	9/89
TX	ExxonMobil (Ray Point Mill)	Three Rivers, TX	4/85	9/86
TX	Intercontinental Energy Corp.	Three Rivers, TX	3/03	TBD
TX	Pearland-Manvel Landfill	Pearland, TX	2/02	TBD
TX	Rio Grande Resources	Hobson, TX	4/93, revised 5/97	5/97

Table 7.1. Agreement State Decommissioning Sites

State	Name	Location	Date DP Submitted	Date DP Approved
TX	Solvay USA, Inc.	Freeport, TX	7/15	9/15
UT	Rio Algom Uranium Mill	Lisbon Valley, UT	9/02	7/04
WA	Dawn Mining Company	Ford, WA	6/94	1/95
WY	Bear Creek	Converse County, WY	11/91	12/91
WY	ExxonMobil Highlands	Converse County, WY	12/84	1990
WY	Pathfinder – Lucky MC	Gas Hills, WY	3/92	7/98
WY	Umetco Minerals Corporation	Gas Hills, WY	12/80	3/91
WY	Western Nuclear, Inc. – Split Rock	Jeffrey City, WY	2/94	1997

N/A not applicable
TBD to be determined

8. FISCAL YEAR 2020 PLANNED PROGRAMMATIC ACTIVITIES

The Power Reactor Decommissioning Program evaluation resulted in a set of recommendations, including the recommendation to review all guidance and policy documents within the program to identify guidance documents in need of updating as well as other potential improvements. Subsequently, NMSS management reviewed the tasks identified as part of this program evaluation to promote programmatic enhancement and set task priorities. Throughout FY 2020, the staff will continue to work on these programmatic enhancement tasks. The staff will also continue its multi-year effort to update decommissioning guidance documents including Volumes 1 and 2 of the Consolidated Decommissioning Guidance, NUREG-1757, and will issue a revision to NUREG-1507 in FY 2020.

The staff will continue to stay apprised of developments related to plant shutdowns and future license transfer requests to facilitate decommissioning, and will coordinate with NRR, the Office of Congressional Affairs, the Office of Public Affairs, and the Regional offices, as necessary, to provide support with public outreach and ensure efficient reviews of all submittals. The staff will evaluate the impact on resources of a possible increase in the number of license transfer requests and, as a result, an increase of the number of plants moving into active decommissioning.

During FY 2020, the staff will continue to ensure newly proposed work activities are justified with respect to their safety-significance, value added, and overall contribution to agency goals. The staff will continue to implement the recommendations from the 2017 Evaluation of Materials and Waste Business Lines and the self-assessment of the uranium recovery licensing program.

To address recommendations in the NRC Office of the Inspector General's August 23, 2019, report, "Audit of NRC's Transition Process for Decommissioning Power Reactors" (OIG-19-A-16), in FY 2020, the staff will develop internal interim guidance documents to address the new decommissioning license transfer business models and the applicable recommendations of the 2016 Power Reactor Transition From Operations to Decommissioning Lessons Learned Report (ADAMS Accession No. ML16085A029), and to provide further clarification regarding the reactor decommissioning transition process from NRR to NMSS. NRR and NMSS will also develop a process for the transfer of NRR project manager site-specific knowledge to the receiving NMSS project manager. Once developed, the site-specific knowledge transfer process will be incorporated into the interim guidance documents.