



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION I
2100 RENAISSANCE BOULEVARD, SUITE 100
KING OF PRUSSIA, PA 19406-2713

June 2, 2015

Docket No. 03029462

License No. 45-23645-01NA

RDML K. Slates, NRSC Chairman
Department of the Navy
Radiological Controls and Health (N455)
Energy and Environmental Readiness Division (N45)
Office of the Chief of Naval Operations
2000 Navy Pentagon (2D253)
Washington, DC 20350-2000

**SUBJECT: NRC INSPECTION REPORT NO. 03029462/2015003, DEPARTMENT OF THE
NAVY BIENNIAL INSPECTION**

Dear Admiral Slates:

This refers to the announced U.S. Nuclear Regulatory Commission (NRC) onsite team inspection conducted from April 20 through April 23, 2015. The purpose of the inspection was to review the activities authorized under the Department of the Navy (Navy) Master Materials License (MML) for the period of March 6, 2013, through April 23, 2015. At the conclusion of the inspection on April 23, 2015, the findings were discussed with Mr. Karnig Ohannessian, Dr. Lino Fragoso, CDR Douglas Fletcher, CDR Greg Fairchild, CDR Jerry Sanders, CAPT Lisa Kennemur, LCDR Jeffrey Delzer, HTCS Joshua Mullen and LT Benjamin Dabney of your organization. The enclosed report presents the results of this inspection.

This inspection consisted of an examination of activities conducted under the Navy's MML as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of the MML. Areas examined during the inspection are identified in the enclosed report. Within these areas, the inspection consisted of a selective examination of procedures and representative records, observations of activities in progress, and interviews with personnel.

The NRC determined that overall the Navy implemented its MML in accordance with the NRC licensing and inspection policies and procedures, and in a manner that protects the public health and safety.

No violations of the NRC requirements were identified during the course of this inspection.

In accordance with Title 10 of the *Code of Federal Regulations* (CFR) 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically in the NRC's Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC's website at <http://www.nrc.gov/reading-rm/adams.html>.

K. Slates

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Communications. The current Enforcement Policy is included on the NRC's website at www.nrc.gov; select **About NRC, Organizations & Functions; Office of Enforcement; Enforcement documents**; then **Enforcement Policy (Under 'Related Information')**. You may also obtain these documents by contacting the Government Printing Office (GPO) toll-free at 1-866-512-1800. The GPO is open from 8:00 a.m. to 5:30 p.m. EST, Monday through Friday (except Federal holidays).

No reply to this letter is required. Please contact Shawn Seeley of my staff at 610-337-5102 if you have any questions regarding this matter.

Sincerely,

/RA/

James P. Dwyer, Chief
Medical Branch
Division of Nuclear Materials Safety

Enclosure:
Inspection Report No. 03029462/2015003

cc w/enclosure: D. Fletcher, NRSC Executive Secretary
District of Columbia

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EXECUTIVE SUMMARY

U.S. Department of the Navy
NRC Inspection Report No. 03029462/2015003

This announced Nuclear Regulatory Commission (NRC) inspection evaluated the Department of the Navy's implementation and administration of activities conducted under its Master Materials License. The inspection included an assessment of the licensee's implementation of its centralized radiation control program; an evaluation of the adequacy of the licensee's technical staffing and training; a review of the results of NRC independent inspections of the licensee's permitted facilities; an evaluation of the licensee's incident and allegation response programs; a review of the licensee's radioactive materials permitting and inspection programs, including accompaniments of licensee inspectors during the performance of its inspections; a review of the licensee's implementation of its enforcement policy; and an examination of the Naval Radiation Safety Committee's oversight of activities. Licensed activities conducted from March 6, 2013, through April 23, 2015, were reviewed during this inspection. In evaluating the licensee's overall performance, the inspectors conducted interviews and discussions with licensee staff, evaluated the licensee's response to an NRC questionnaire, reviewed documents related to Master Materials License activities, and observed licensee staff during the performance of their duties.

The inspection team concluded that the licensee's permitting, inspection, allegation, and incident response programs were adequate and implemented in a manner that protected the health and safety of workers and the general public.

Additionally, the inspection team evaluated the corrective actions taken by the licensee to correct the violations identified during the previous biennial inspection. Based on a review of the corrective actions, the violations are considered closed.

The team's assessments of the program areas are summarized below.

Management Oversight

The inspection team concluded that the Naval Radiation Safety Committee had centralized control over the radioactive materials program and that it executed its responsibilities and provided adequate oversight of the licensee's radiation safety and regulatory compliance programs in a manner that protected the health and safety of licensee staff and the public.

Technical Staffing and Training

The inspection team concluded that the licensee had a sufficient number of fully qualified and experienced staff to implement oversight of the day-to-day operations of the licensee's radioactive materials program, and was making progress toward the full qualification of new staff members. The team also concluded that the licensee achieved a successful balance in the acquisition and training of staff and the subsequent management of the permitting and inspection workload.

Technical Quality of Inspections

The inspection team concluded that the licensee's inspection program was adequate to ensure that inspection findings were well-founded, appropriately documented, and communicated to permittees in a timely manner. The team noted that during subsequent permittee inspections, the licensee inspectors reviewed any violations identified during the previous inspection, and confirmed that corrective actions were implemented by the permittees.

Status of Materials Inspection Program

The inspection team concluded that the licensee conducted inspections in accordance with the intervals described in NRC Inspection Manual Chapter 2800. The team determined that the licensee appropriately assigned priority codes and inspection due dates to permittee programs. The team also determined that the inspections were conducted and findings communicated to the permittees in a timely manner.

Technical Quality of Permitting

The inspection team concluded that technical permitting reviews performed by licensee staff were processed in a manner consistent with NRC licensing policies, procedures, and guidance. In addition, the team determined that the technical permitting reviews performed by licensee staff addressed health and safety issues.

Status of Permitting Program

The inspection team concluded that the licensee processed permitting actions in accordance with its NRC-approved timeliness goals. The team determined that the process for reviewing and issuing permitting actions by the licensee was adequate.

Decommissioning Oversight Program

The inspection team concluded that the licensee's decommissioning inspection program was adequate to ensure that a thorough assessment of the sites was performed and the findings appropriately documented.

Allegation and Incident Handling Programs

The inspection team concluded that the licensee's allegation and incident reporting was conducted in a manner that was in accordance with regulatory requirements. The team concluded that events were adequately reported and that corrective actions were appropriate.

National Source Tracking System Program

The inspection team concluded that the licensee's program for maintaining and updating the National Source Tracking System was adequate and implemented effectively.

NRC Independent Inspections of Licensee Permitted Facilities

The inspection team concluded that licensee and permittee activities were conducted in a manner that protected the health and safety of the licensee staff and the public, based on the results of the NRC's independent inspections.

REPORT DETAILS

1. Program Overview

The licensee is authorized under a master materials license (MML) to issue radioactive materials permits and to inspect permittees throughout the United States Navy (Navy) and Marine Corps. The licensee oversees 56 permittees at the Radiological Affairs Support Office (RASO) and 14 permittees at the Navy and Marine Corps Public Health Center (NMCPHC). The RASO also oversees activities relative to decommissioning at Naval and Marine Corps permitted sites in addition to those facilities designated for closure under the authority of the Base Realignment and Closure Commission (BRAC). The Navy MML, License number 45-23645-01NA, was issued by the NRC in 1987 and does not have an expiration date.

The Navy MML has centralized control over its radioactive materials program through the Naval Radiation Safety Committee (NRSC). The NRSC is responsible for providing oversight of the Navy's implementation of its MML and associated permittee activities. The NRSC has delegated the authority to manage the day-to-day operations of the Navy's radioactive materials program to the RASO and the NMCPHC. The RASO is responsible for managing the radiation safety program under the MML for the non-medical uses of radioactive materials. The NMCPHC is responsible for managing the radiation safety program under the MML for the medical uses of radioactive materials.

2. Management Oversight

2.1 Inspection Scope

The inspection team evaluated the NRSC's organization and management oversight activities to determine if the NRSC adequately controlled the use of licensed radioactive material as required by the conditions of the MML and NRC requirements. The evaluation included observations of NRSC quarterly meetings, discussions with licensee representatives, a review of audit reports and program documentation, and an assessment of the licensee's methods and effectiveness of communications with its permittees.

2.2 Observations and Findings

The NRSC had delegated the authority for routine oversight of permitted activities to two Technical Support Centers (TSCs): the RASO and the NMCPHC. The TSCs managed the licensee's day-to-day operations under the MML and were responsible for maintaining the licensee's radiation safety program, which was described in a standard operating procedure manual, revised on February 4, 2015. The NRSC responsibilities included, but were not limited to, maintaining an adequate level of staff to execute the radioactive materials program; training and qualifying the TSC staff; implementing the permitting, inspection, and enforcement programs; responding to events, incidents, and allegations; and maintaining effective communications with permittees under the MML.

The TSCs were also responsible for implementing the Letter of Understanding (LOU) between the Navy and the NRC. The LOU referenced policies and procedures that ensured consistency between the Navy and the NRC requirements. The Navy policies and procedures described the protocols for: processing permits; conducting inspections; taking enforcement action; training TSC staff in inspection and permitting activities; responding to incidents and events; and managing allegations. The RASO permittees are expected to follow the Naval Sea Systems (NAVSEA) Command Radiological Affairs Support Program Manual S0420-AA-RAD-010 (RAD-010). This manual was revised twice during the review period with the latest revision (revision 2) issued on January 20, 2015. The team noted that the LOU was in the process of being updated at the time of the review.

The NRSC met quarterly and was comprised of Senior Navy Headquarters and field representatives. The NRSC Executive Secretary was changed at the end of 2013 and notification was submitted to the NRC on January 3, 2014. The NRSC's Executive Secretary and selected members of the NRSC performed internal audits of the TSC's management of the licensee's radiation safety program. These annual audits were conducted in accordance with 10 CFR Part 20, and provided the licensee management with an opportunity to evaluate the TSC's effectiveness in the implementation of the radiation safety program.

The inspection team reviewed the audit reports for 2013 and 2014, which were performed by the Executive Secretary for the NRSC. Elements of the radiation safety program reviewed during the audits included: a selection of completed permitting actions and inspections conducted by TSC staff during each year; current TSC staffing levels; TSC response to events and allegations; and adherence to Navy processes, policies and procedures. The overall results for both audits were satisfactory, with minor deficiencies noted and recommendations provided. The audits were discussed at the next NRSC meeting. All noted deficiencies and recommendations were either completed or were in the process of being addressed.

The inspection team reviewed the licensee's methods used to communicate items of interest to its permittees. The primary methods of communication were through the RASO newsletters, information notices, and annual radiation safety officer meetings. The team evaluated the content of the newsletters and information notices and determined that relevant radiation safety regulatory and related issues were communicated to the permittees in an effective and timely manner. TSC staff used annual radiation safety officer meetings as a mechanism to reemphasize the topics presented in the newsletters and information notices.

2.3 Conclusion

The inspection team concluded that the NRSC had centralized control over the radioactive materials program and that it executed its responsibilities and provided adequate oversight of the licensee's radiation safety and regulatory compliance

programs in a manner that was consistent with the LOU and protected the health and safety of licensee staff and the public.

3. Technical Staffing and Training

3.1 Inspection Scope

The inspection team reviewed the licensee's radioactive materials program staffing level and turnover, as well as the technical qualifications and training history of the Radiation Protection Managers (RPM) to determine whether staffing and training were adequate for the scope of the program and licensee commitments. In evaluating these elements, the team interviewed licensee management and staff members; reviewed the licensee's formal qualification program, including the status of staff members pursuing full qualification; and evaluated the licensee's refresher training program.

3.2 Observations and Findings

The inspection team determined that the licensee staff at the TSCs, referred to as RPMs, were trained as both inspectors and permit reviewers. At the time of the inspection, the licensee did not have a formal qualification process for permit reviewers in place, but had developed a draft program for the RPM's qualification and reported it was in the review and approval process. It is expected to be in place by the end of 2015. The TSC's are staffed with an Officer in Charge (OIC). The OICs are active duty members of the Navy and the positions turn over approximately every three years.

The RASO was staffed with an OIC, a Civilian Director of Inspection/Permitting, a Lead RPM, and nine RPMs. During this review period, there were six fully qualified RPMs who independently performed inspections. Currently, there are two RPMs in training to become fully qualified inspectors and there was one vacancy. In addition, permission is being sought to hire in advance from this search in preparation for an anticipated retirement of a RPM in the near future. The lead RPM performed inspections as necessary. The 10 RPMs report to the Radiation Program Director (RPD), who was also a qualified inspector. The inspection team reviewed the licensee's qualification plan for completion of the training of the newly hired RPMs by the end of fiscal year 2017.

The NMCPHC was staffed with an OIC, referred to as the Team Leader, and two RPMs. The RPMs and Team Leader independently performed inspections. The 2014 Annual Management Program Audit identified a concern that the two RPMs were both retirement eligible and no replacement plan had been established. It was identified that the loss of one would significantly impact the program and the loss of both would leave the program inadequately staffed to provide regulatory oversight. The NMCPHC has responded to the deficiency and is developing a plan to address this concern.

In accordance with the licensee's procedures, all qualified TSC staff members were required to be evaluated each year by licensee management while conducting an inspection. Through interviews of RASO management and staff and a review of records, the inspection team confirmed that since the last biennial inspection, all qualified TSC inspectors had been evaluated while conducting an inspection, as required.

Since the last biennial inspection, the licensee filled two vacancies in the RASO by hiring an RPD and an RPM. At the time of the inspection an additional vacancy was in the process of being filled and a request was submitted to overstaff by one RPM in anticipation of a pending staff retirement. The inspection team confirmed that the filling of vacancies through the Radiological Affairs Support Program (RASP) Technical Assistance Team (TAT) has been helpful. Although the TAT was part of the RASO, it functioned independently of the Navy's MML program. The TAT was comprised of a director, a lead trainer, and ten staff members.

The TAT had the following functions: 1) act in a support/advisory role for the RASO; 2) provide training and radiological technical assistance to permittee staff; 3) act as a potential feeder to fill vacancies that may occur in the RASO; and 4) respond to incidents. The team observed that while one vacancy in the RASO was filled through a personnel promotion from the RASP TAT during the review period, the employee eventually returned to the RASP TAT. Overall, the TAT serves as a support component of RASO.

The RASO also directed the Environmental Programs Division (EPD), which is staffed with Environmental Protection Managers (EPMs). These individuals were involved in the oversight of the Navy's decommissioning work, which was performed by contractors. The EPMs oversaw decommissioning projects and acted as the interface between the contractors and RASO. The EPD was staffed by a director, a lead EPM, and four EPMs.

3.3 Conclusion

The inspection team concluded that the licensee had a sufficient number of fully qualified and experienced staff to implement oversight of the day-to-day operations of the licensee's radioactive materials program, and was making progress toward the full qualification of new staff members. The team also concluded that the licensee achieved a successful balance in the acquisition and training of staff and the subsequent management of the permitting and inspection workload.

4. **Technical Quality of Inspections**

4.1 Inspection Scope

The inspection team reviewed inspection plans, inspection reports, enforcement documents, and correspondence associated with inspections conducted by licensee staff during the review period to determine if licensee inspections were consistent and conformed with the NRC's inspection procedures. The NRC conducted six independent inspections of licensee permittees and accompanied four licensee inspectors while they conducted inspections of permittees under the Navy's MML to evaluate the licensee's implementation of its radiation safety program, and compliance with NRC regulations. The team also interviewed the RPMs and reviewed the licensee's implementation of its enforcement policy. This included a review of the permit, permitting related documents, and regulatory requirements.

4.2 Observations and Findings

Radiological Affairs Support Office, Yorktown, VA

The inspection team determined that, at the time of the review, the RASO had 56 permittees on 31 separate commands subject to routine inspections. In discussions with the RASO staff, it was noted that the Navy and Marine Corps commands may have multiple permits and the RASO may inspect one or more of these permits during an inspection trip. In addition to the inspection of permits authorizing the use of radioactive materials, the RASO also inspects those permits authorizing x-ray or non-ionizing radiation uses.

The inspection team observed that the licensee developed checklists and field notes for each inspection type. The RPMs used these to ensure that complete and thorough inspections were performed. The RASO inspected 10 commands between February 28, 2013, and April 20, 2015, which had no violations. The RASO inspected eight commands which had Severity Level (SL) IV and V violations. However, none of the commands received an unsatisfactory rating based upon the multiple SL IV and V violations cited.

The inspection team also determined that the licensee had 20 permittees subject to 10 CFR Part 37 (Part 37). The team noted that the RASO inspectors performed the security inspections concurrently with the routine safety inspection.

Based on interviews of the seven qualified RPMs, the inspection team determined that each RPM was technically knowledgeable in radiation safety practices and NRC regulations. The RPMs utilized inspection checklists in an effective manner while performing inspections. In addition, the RASO staff had successfully integrated a review of safety culture into its routine inspection program.

The inspection team observed that the RASO staff utilized the Navy's RAD-010 as guidance for citing violations. Based on a review of permit files and interviews of the RASO staff, the team determined that the licensee was using the most current version of the RAD-010 to cite violations. The team also determined that the Navy's corrective actions included the incorporation of examples of violations from the NRC Enforcement Policy into the revised RAD-010. Subsequently, training was provided to the TSC staff on the required information necessary to properly document and cite violations.

The inspection team determined that permittee inspection findings and potential violations were initially communicated between the RASO management and the NRSC Executive Secretary by telephone. Subsequently, a written report with the inspection findings and violations as applicable (including the SL) or recommendations for improvement was sent to the permittee's Base Commanding Officer.

Navy and Marine Corps Public Health Center, Portsmouth, VA

The inspection team determined that the NMCPHC had 14 permittees; three were inspected annually (i.e., broad scope and high dose rate remote afterloader programs) and four were inspected at three-year intervals. Three permittees were subject to Part 37 and the security inspections were performed concurrently with the routine safety inspection.

The inspection team determined there were two fully qualified RPMs and a qualified Team Leader that performed inspections. The RPMs and Team Leader were found to be technically knowledgeable and well versed in the appropriate inspection methods including the use of appropriate survey meters to perform independent and confirmatory surveys. The team also determined that the NMCPHC staff developed inspection checklists and field notes for each inspection type. The RPMs and Team Leader used the checklists to ensure that complete and thorough inspections were performed. The team confirmed through a review of inspection files, that inspections and violations were generally well documented. In addition, the NMCPHC inspectors successfully integrated a review of safety culture into their routine inspection program.

The inspection team determined during the review period that 10 permittees were inspected by the licensee, with violations identified at nine. All violations were cited at SL IV or V. Inspection results were thoroughly documented and any cited violations were supported and well written.

The list of inspection casework files reviewed is found in Appendix A.

4.3 Conclusion

The inspection team concluded that the licensee's inspection program was adequate to ensure that inspection findings were well founded, appropriately documented, and communicated to permittees in a timely manner. The team determined that during subsequent permittee inspections, the licensee inspectors reviewed any violations that were identified during the previous inspection, and confirmed that corrective actions were implemented by the permittees.

5. Status of Materials Inspection Program

5.1 Inspection Scope

The inspection team reviewed the licensee's inspection frequencies for permittees, and its timeliness for completing inspections. In evaluating these elements, the inspection team interviewed licensee staff, reviewed permittee inspection files, and compared licensee inspection metrics data to determine inspection program status.

5.2 Observations and Findings

The inspection team determined that the licensee had updated its Standard Operating Procedures (SOP) Manual in March 2012, to coincide with NRC Inspection Manual

Chapter (IMC) 2800. The manual was subsequently revised on November 2, 2012. The inspection frequencies delineated in the licensee's SOPs were more stringent than those delineated in IMC 2800.

Through interviews of TSC staff and a review of selected permittee files, the team concluded that routine inspections were performed within the required timeframes (i.e. intervals less than + or - 25 percent) and that inspections following escalated enforcement, if applicable, were performed within a six-month timeframe.

The inspection team determined that the TSCs maintained databases to support the day-to-day management and planning of the inspection program. The database included the tracking of inspection results to ensure that reports were provided to permittees within the licensee metric of 60 days.

The inspection team determined that the inspections conducted by the licensee during the review period were unannounced, through interviews with TSC staff, NRC accompaniments of TSC staff, and NRC independent inspections, except in instances where overseas travel was required (i.e. Guam).

The team confirmed, through interviews with TSC staff and a review of the inspection tracker database, that the licensee had performed unannounced routine and follow-up inspections in accordance with IMC 2800.

5.3 Conclusion

The inspection team concluded that the licensee conducted inspections in accordance with the intervals described in NRC Inspection Manual Chapter 2800. The team determined that the licensee appropriately assigned priority codes and inspection due dates to permittee programs. The team also determined that the inspections were conducted and findings communicated to the permittees in a timely manner.

6. **Technical Quality of Permitting**

6.1 Inspection Scope

The inspection team assessed the technical quality of the permitting process by reviewing 17 actions completed at the TSCs. The permitting actions were evaluated to ensure that applicable regulations and guidance documents were used. This evaluation included, but was not limited to: a review of permit conditions; adherence to sealed source and device registration requirements; appropriate training and experience authorizations; adequacy of facilities and equipment; use of operating and emergency procedures for the radionuclides and quantities used; and consideration of enforcement history for permit renewals. The permitting actions were evaluated for completeness, consistency, timeliness, and adherence to good health physics practices. The retention of documents required to support the requested actions was also reviewed.

6.2 Observations and Findings

The inspection team determined that the technical permitting reviews conducted by the TSC staff were thorough, complete, of good quality, and focused on health, safety, and security issues. The permit files contained appropriate documentation to support the permitting actions. Permitting reviews were conducted by referencing and using NRC NUREG-1556 series guidance documents, licensing policies, and NRC regulations.

There were eight RPM's assigned to RASO with one vacancy, and two RPM's assigned to NMCPHC. Each RPM was responsible for managing the permitting of specific commands. All completed reviews were peer-reviewed for administrative accuracy and completeness of permitting documents. A technical peer review of each permitting action was conducted by the lead RPM. RASO and NMCPHC managers and the OIC reviewed and concurred on each action, and subsequently the Executive Secretary of the NRSC signed all completed permitting actions and cover letters. The team also noted that MML TSC staff were developing a procedure that would allow RPM's to independently sign and issue permitting actions involving RSO changes.

Deficiency documentation was succinct and cited appropriate regulatory requirements and NRC guidance to support the requested action. The team noted that communication between TSC staff and the permittee to resolve permitting deficiencies occurred by telephone or email. The team also observed that communications with permittees were well documented and maintained in the permitting files.

Some permittees under the MML were required to implement and comply with Part 37. At the time of the inspection, TSC staff was in the process of removing permit conditions that required permittees to comply with specific security measures as delineated in increased controls orders that were issued prior to Part 37 becoming a final rule. The team determined through interviews with TSC staff and a review of the permit files that documents were properly marked in accordance with the requirements.

During the last biennial inspection, the team identified that some permits, primarily industrial radiography, did not contain maximum possession limits in accordance with an NRC memorandum dated, January 27, 2010. The 2015 biennial inspection team noted that the licensee addressed this issue and that radiography permits contained maximum possession limits.

The list of permit casework files reviewed is found in Appendix B.

6.3 Conclusion

The inspection team concluded that technical permitting reviews performed by licensee staff were processed in a manner which was consistent with NRC licensing policies, procedures, and guidance. In addition, the team determined that the technical permitting reviews performed by licensee staff effectively identified and addressed health and safety issues.

7. Status of Permitting Program

7.1 Inspection Scope

The inspection team reviewed the licensee's permitting process to verify that permitting actions were handled and processed as required. In evaluating these elements, the inspection team interviewed licensee staff, reviewed permittee files, and compared licensee permitting action metrics data to determine permitting program status. The inspection team also evaluated the effectiveness of the licensee's system for tracking permitting actions.

7.2 Observations and Findings

The inspection team determined that the licensee was responsible for 70 permittees at the two TSCs; 56 industrial or non-medical research permittees under the authority of RASO and 14 medical permittees under the authority of NMCPHC. The inspectors noted that the licensee issued permits with a 10-year expiration date.

The inspection team determined that the NRSC had established goals to complete all permitting amendment actions within 180 days, and news, renewals, and terminations within 365 days. Revisions to these timeliness goals were being considered which would reduce amendments to 60 days, and news, renewals, and terminations to 180 days.

7.3 Conclusion

The inspection team concluded that the licensee processed permitting actions in accordance with its NRC-approved timeliness goals. The team determined that the process for reviewing and issuing permitting actions by the licensee was adequate.

8. Decommissioning Oversight Program

8.1 Inspection Scope

The inspection team reviewed the Navy's oversight of decommissioning activities at permitted sites. The scope of the activities examined included: the technical quality of inspections; amendments to permits for decommissioning sites; reviews of decommissioning related documents and correspondence; tracking decommissioning progress at sites in progress or under consideration; and decommissioning timeliness milestones. The team evaluated these elements through discussions with the RASO technical staff and supervisors and review of procedures and documents. The team did not review decommissioning activities for facilities designated for closure under the authority of the BRAC process.

8.2 Observations and Findings

The team reviewed activities and/or documentation related to six permitted sites in

various stages of decommissioning. The sites included the Naval Research Laboratory, Chesapeake Beach, Maryland; the Naval Surface Warfare Center Dahlgren Division,

Dahlgren, Virginia; the Space and Naval Warfare Systems Center Pacific, San Diego, California; the Naval Postgraduate School, Monterey, California; Naval Surface Warfare Center, Crane, Indiana; and the Naval Air Warfare Center, China Lake, California.

Alternate decommissioning schedules have been approved by the NRC for the Dahlgren, Virginia, and the Chesapeake Beach, Maryland sites. The NRC is reviewing alternate decommissioning requests for the Space and Naval Warfare Systems Center Pacific, San Diego, California; the Naval Postgraduate School, Monterey, California; and the Naval Air Warfare Center, China Lake, California.

The inspection team reviewed the results of inspections conducted by the RPMs at the sites undergoing decommissioning and confirmed that principal activities with licensed materials were no longer conducted at these facilities, and there was no active decommissioning in progress. The RPMs conducted inspections with the aid of inspection checklists and appeared thorough and complete. Historical Radiological Assessments (HRAs) are underway for each of these sites to allow for the radiological characterization of each site to determine if further decommissioning activities were required prior to site release.

The inspection team determined that the licensee staff had implemented SOP RPD-010, Decommissioning Process for Naval Radioactive Material Permits. It delineates the decommissioning process to be used by the Navy in decommissioning activities, including compliance with 10 CFR 30.36. Please note that the SOP is written by the radiation programs division and is not to be confused with the acronym for the radiation program director used throughout this report.

Additionally, the inspection team evaluated the corrective actions taken by the licensee to correct the violations identified during the previous biennial inspection. The violations involved the failure to provide written notification to the NRC that the Navy decided to permanently cease principal activities at two permitted sites and to complete decommissioning at two permitted sites within 24 months. Based on a review of the corrective actions, the violations are considered closed.

8.3 Conclusion

The inspection team concluded that the licensee's decommissioning inspection program was adequate to ensure that a thorough assessment of the sites was considered and the findings appropriately documented.

9. **Allegation and Incident Handling Programs**

9.1 Inspection Scope

The inspection team reviewed the licensee's program for handling allegations and responding to incidents. This included a determination of the applicability of NRC

reporting requirements, the effectiveness of the licensee in handling allegations and responding to incidents, and the status of any open allegations. In evaluating this program, the inspection team utilized the MML's responses to the questionnaire sent to the licensee prior to the inspection, and interviews with personnel. In addition, the inspection team assessed the communication between the TSCs and the NRSC to determine how allegations were communicated to the NRSC.

9.2 Observations and Findings

The inspection team noted that the licensee received one allegation during the review period. The team reviewed the licensee's handling of the allegation and determined that their process was in accordance with the licensee's procedures and the terms and conditions of the MML.

The team reviewed the licensee's SOP Manual and determined that the allegation SOP required that allegations be processed in accordance with the terms and conditions of the MML. The inspection team determined the licensee's SOP Manual had been revised and approved by the NRSC on February 4, 2015, and that it included revisions to Chapter 8, "Allegations." The revised SOP did not include specific guidance for investigation or confirmation of the validity of allegations; however, it required the licensee to submit all allegations to the office of the Navy Inspector General (NAVINSGEN). The revised SOP required the NAVINSGEN to review the information and determine the appropriate investigator to conduct the investigation, which may include the RASO. While the revised SOP did not provide specific guidance or instruction for completing allegation investigations, qualified RPMs and EPMs received allegation training on an annual basis. The inspection team confirmed that the annual allegation training, using the NRC read-and-sign course, was being implemented.

The licensee reported four incidents involving radioactive material during the review period, all of which involved lost or missing sources. The licensee reviewed the permittee actions in response to the incidents that resulted in prompt and effective corrective actions. The team determined that the NRC Region I office was notified of these events. The NRC's Nuclear Materials Event Database (NMED) and License Event Reports (LERs) database were also reviewed for completeness.

The following LER's and events were reviewed and closed during this review:

1. LER 2014-002: On or about September 4, 2014, seven In-Flight Blade Inspection System (IBIS) devices, each containing an 18.5 Megabecquerel (MBq) (500 microcurie (uCi)) strontium-90 (Sr-90) source, were lost when a CH-53 helicopter crashed while attempting to land on a ship in the Gulf of Aden. The aircraft sits at a depth of 3900 feet, 20 nautical miles of the coast of the Republic of Djibouti. There is no potential for personnel exposure. The Navy has determined that the aircraft is unsalvageable and therefore, no further recovery efforts are planned.
2. LER 2015-005 (NMED #140751): On November 18, 2014, one IBIS device containing an 18.5 MBq (500 uCi) Sr-90 source was lost when a box containing a CH-53 helicopter blade with the IBIS device installed went overboard into the Southern

Red Sea during an underway replenishment effort at sea. There was no potential for personnel exposure. Due to weather conditions at the time a recovery effort was abandoned. No further recovery efforts were planned.

3. LER 2015-006 (NMED #140553): On January 8, 2014, three IBIS devices, each containing an 18.5 MBq (500 uCi) Sr-90 source, were lost when an MH-53E helicopter crashed in the Atlantic Ocean during a routine training mission 18 miles off the coast of Virginia. The devices were likely destroyed during the crash and considered not recoverable. There was no potential for personnel exposure. No further recovery efforts were planned.
4. LER 2015-007 (NMED #130512): On November 4, 2013, one IBIS device containing an 18.5 MBq (500 uCi) Sr-90 source was lost when the co-pilot window flew off, struck the rotor blades and sheared the IBIS device off the #5 main rotor blade. The device was most likely destroyed during the event and occurred while over the St. Johns River in Jacksonville, FL. There was little to no potential for personnel exposure. Due to the size of the device and the suspected area over the river where the incident occurred, no further recovery efforts were planned.

The inspection team determined that there were no incidents identified during the inspection that impacted public health and safety or the environment during the review period.

9.3 Conclusion

The NRC inspection team concluded that the licensee's allegation and incident reporting was conducted in a manner that was in accordance with regulatory requirements. The team concluded that events were reported and corrective actions were appropriate.

10. **National Source Tracking System (NSTS) Program**

10.1 Inspection Scope

The inspection team reviewed the licensee's program for updating the NSTS. The review included an evaluation of how licensee personnel identified sources of concern, which personnel were responsible for entering the information into NSTS, the method that was used to enter the information into the NSTS database, and how the Navy communicated with the NRC regarding NSTS matters. The team assessed the communications between the permittees and TSC staff to evaluate the effectiveness and timeliness of updates to the NSTS.

10.2 Observations and Findings

The inspection team observed that in order to assure compliance with 10 CFR 20.2207, credentialed TSC staff members transmitted inventory records for certain radioactive sources in December of each year to specific commands under the MML. Each command verified the inventory and signed and returned a confirmation to a TSC. Upon receipt of the confirmation, MML staff compared and verified each command's inventory

against the NSTS records. Adjustments or corrections were documented on an NRC Form 748 and submitted to the NSTS.

At the time of the inspection there were approximately 100 sources under the Navy MML that were being tracked in the NSTS. The sources were being used by 20 permittees under the MML. The licensee maintains a hard copy of the reconciliation of sources for each command. Each record was coded to a specific command. The team reviewed a random selection of permittees which possessed sources tracked by the NSTS and confirmed that the licensee performed the required reconciliation in January 2014 and January 2015.

At the time of the inspection, the licensee had three individuals who were credentialed and authorized to act on behalf of the licensee and update the NSTS. The licensee is making an effort to credential all of their staff to perform this function, and is developing a procedure to formalize its process for making annual reports to the NSTS.

10.3 Conclusion

The inspection team concluded that the licensee's program for maintaining and updating the NSTS was adequate and implemented effectively.

11. **NRC Independent Inspections of Licensee Permitted Facilities**

11.1 Inspection Scope

During the review period, the NRC conducted independent inspections of licensee permitted facilities to assess the adequacy of their radiation safety programs and compliance with the NRC regulations and the MML.

11.2 Observations and Findings

During the period from March 2013, through March 2015, the NRC staff inspected four licensee locations. The NRC inspections focused on programs that the NRC had not inspected since the MML was issued and permittees that were determined to have a higher health and safety risk. The primary program types inspected by the NRC included the following: a broad scope medical institution; an industrial radiography with temporary job sites; a self-shielded irradiator containing less than or equal to 10,000 Curies; and a byproduct materials facility undergoing decommissioning. Two of the inspected permittees also had a secondary program code requiring additional security requirements. No violations were identified during the inspections.

The list of independent NRC inspections is included in Appendix C.

11.3 Conclusion

The inspection team concluded that licensee and permittee activities were conducted in a manner that protected the health and safety of the licensee staff and the public, based on the results of the NRC's independent inspections.

12. Exit Meeting

An exit meeting to discuss the overall scope and findings of the inspection was held on April 23, 2015.

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Naval Radiation Safety Committee

- * K. Ohannessian, N45 SES (via telephone)
- * CDR D. Fletcher, Executive Secretary
- * CDR J. Sanders, NAVSEA, member
- * L. Fragoso, Ph.D., Deputy Executive Secretary
- * CAPT L. Kennemur, BUMED, member
- * LCDR J. Delzer, USMC-SD member

Radiological Affairs Support Office

- * CDR G. Fairchild, OIC
 - S. Doremus, CHP, Ph.D., Director, Environmental Program
 - E. Abkemeier, Radiation Program Director
 - T. Hart, RPM
 - W. Prioleau, Lead RPM
 - J. Black, RPM
 - K. Huhn, RPM
 - R. Erickson, RPM
 - M. McCormack, RPM
 - J. Hogan, RPM
 - V. Grason, RPM
 - C. Hendrickson, RPM
- * LT B. Dabney, EPM
 - E. Zachary, EPM
 - A. Stambaugh, EPM
 - S. Gaiter, Ph.D, TRNG
 - M. Famiglietti, TRNG
- * HTCS J. Mullen, TRNG

Navy and Marine Corps Public Health Center

- * LCDR C. Jackson, OIC
 - D. Clark, RPM
 - K. Ely, RPM

In addition, numerous licensee and permittee staff were interviewed during the independent inspections and accompaniments conducted by the NRC during the review period.

*Individuals present at exit meeting on April 23, 2015

ITEMS OPENED, CLOSED, OR DISCUSSED

Opened

NONE

Closed

These items were identified in NRC Inspection Report No. 03029462/2013001 and closed during this biennial review.

1. Failure to provide timely written notice to the NRC after permanently ceasing licensed activities at two permitted sites. SL IV NOV (Section 8.2)
2. Failure to timely complete decommissioning activities at two permitted sites. SL IV NOV (Section 8.2)

INSPECTION PROCEDURES USED

IMC 2810	Master Material License Inspection Program
IP 87129	Master Materials Program

LIST OF APPENDICES

Appendix A	Inspection Casework Reviews
Appendix B	Permit Casework Reviews
Appendix C	List of Independent NRC Inspections and Inspector Accompaniments

LIST OF ACRONYMS

BRAC	Base Realignment and Closure Commission
BUMED	Bureau of Medicine
CAPT	Captain
CDR	Commander
CFR	Code of Federal Regulations
CHP	Certified Health Physicist
EPD	Environmental Programs Division
EPM	Environmental Protection Manager
HTCS	Hull Tech Senior Chief
IBIS	In-Flight Blade Inspection System
IMC	Inspection Manual Chapter
IP	Inspection Procedure
LER	License Event Report
LOU	Letter of Understanding
LCDR	Lieutenant Commander
LT	Lieutenant
MBq	Megabecquerel
MML	Master Materials License
NAVINSGEN	Navy Inspector General
NAVSEA	Naval Sea Systems Command
NAVY	United States Navy
NMCPHC	Navy and Marine Corps Public Health Center
NMED	Nuclear Materials Event Database
NRC	Nuclear Regulatory Commission
NRSC	Naval Radiation Safety Committee
NSTS	National Source Tracking System
OIC	Officer In Charge
RAD-010	Navy RASO Radiation Safety Manual
RDML	Rear Admiral
RASO	Radiological Affairs Support Office
RASP	Radiological Affairs Support Program
RPD	Radiation Protection Director
RPM	Radiation Protection Manager
SES	Senior Executive Service
SL	Severity Level
SOP	Standard Operating Procedure
Sr-90	Strontium-90
TAT	Technical Assistance Team
TRNG	Training Center
TSC	Technical Support Center
uCi	Microcuries

APPENDIX A

INSPECTION CASEWORK REVIEWS

RADIOLOGICAL AFFAIRS SUPPORT OFFICE

File No.: 1 Permittee: Naval Submarine Support Facility Permit Type: Instrument Calibration	Permit No.: 06-68316-C1NP Date Inspected: 8/27-28/2013
File No.: 2 Permittee: SWOSU Permit Type: Radiography	Permit No.: 12-3203A-A1NP Date Inspected: 10/29-30/2013
File No.: 3 Permittee: Marine Corps Logistics Command Permit Type: Instrument Calibration	Permit No.: 10-67100(A)-C1NP Date Inspected:10/30-11/1/2013
File No.: 4 Permittee: Navy Munitions Command Permit Type: Instrument Calibration	Permit No.:45-47616-C2NP Date Inspected:1/28-29/2014
File No.: 5 Permittee: Naval Shipyard Permit Type: Radiography	Permit No.: 45-42158-A1NP Date Inspected:11/30-12/1/2013
File No.: 6 Permittee: Naval Surface Warfare Center Carderock Permit Type: R&D Broad Type A	Permit No.: 19-00167-E1NP Date Inspected:3/25-28/2014
File No.: 7 Permittee: USS Emory S. Land Permit Type: Byproduct Material Standby	Permit No.: 59-20635-X1NP Date Inspected:5/19/2014
File No.: 8 Permittee: Naval Research laboratory Permit Type: R&D and Academic Broad Type A	Permit No.:08-00173-E1NP Date Inspected:8/19-22/2014
File No.: 9 Permittee: Naval Air Systems Command Permit Type: R&D	Permit No.:19-00019-T2NP Date Inspected: 10/6-9/2014
File No.: 10 Permittee: Naval Air Systems Command Permit Type: Radioactive Commodities, Distribution and Use	Permit No.: 19-00019-T2NP Date Inspected: 10/6-9/2014

File No.: 11
Permittee: Strategic Weapons Facility
Permit Type: General Industrial

Permit No.: 10-68733-B1NP
Date Inspected: 2/18-19/2015

File No.: 12
Permittee: Pearl Harbor Naval Shipyard &
Intermediate Maintenance Facility
Permit Type: Radiography

Permit No.: 53-32253-A1NP
Date Inspected: 3/6-13/2015

File No.: 13
Permittee: Pearl Harbor Naval Shipyard & Maintenance
Permit Type: Instrument Calibration

Permit No.: 53-32253-C1NP
Date Inspected: 3/6-13/2015

NAVY AND MARINE CORPS PUBLIC HEALTH CENTER

File No.: 1
Permittee: Naval Medical Center Portsmouth
Permit Type: Medical

Permit No.: 45-00183-11NP
Date Inspected: 11/17-19/2014

File No.: 2
Permittee: Naval Medical Center San Diego
Permit Type: Medical

Permit No.: 04-00259-11NP
Date Inspected: 7/21/25/2014

File No.: 3
Permittee: Fort Belvoir Community Hospital
Permit Type: Medical

Permit No.: 45-W6F1AA-JP
Date Inspected: 8/19-22/2013

File No.: 4
Permittee: Walter Reed National Military Medical Center
Permit Type: Medical

Permit No.: 19-00168-21JP
Date Inspected: 8/25-29/2014

File No.: 5
Permittee: Naval Hospital
Permit Type: Medical

Permit No.: 09-00232-11NP
Date Inspected: 6/24-28/2013

APPENDIX B
PERMIT CASEWORK REVIEWS
RADIOLOGICAL AFFAIRS SUPPORT OFFICE

File No.: 1 Permittee: NAVAIRSYSCOM Type of Action: Amendment	Permit No.: 19-00019-T5NP Date Issued: 10/10/14
File No.: 2 Permittee: NAVAL Surface Warfare Center Type of Action: Renewal	Permit No.: 19-00167-E1NP Date Issued: 10/20/14
File No.: 3 Permittee: NAVAL Surface Warfare Center Type of Action: Renewal	Permit No.: 45-00178-Y1NP Date Issued: 8/15/13
File No.: 4 Permittee: NAVAL Surface Warfare Center Type of Action: Amendment	Permit No.: 13-00164-Q1NP Date Issued: 7/19/13
File No.: 5 Permittee: SWF Pac Silverdale Type of Action: Amendment	Permit No.: 46-63402-B1NP Date Issued: 7/24/14
File No.: 6 Permittee: NASC Pax River Type of Action: Renewal	Permit No.: 19-00019-T2NP Date Issued: 4/22/14
File No.: 7 Permittee: NAVAL Shipyard and IMF Type of Action: Renewal	Permit No.: 53-32253-A1NP Date Issued: 9/19/13
File No.: 8 Permittee: Navy Munitions Command Type of Action: Amendment	Permit No.: 45-47616-C1NP Date Issued: 7/23/14
File No.: 9 Permittee: NAVAL Sea Systems Command Detachment Type of Action: Amendment	Permit No.: 45-45650-N1NP Date Issued: 7/25/13
File No.: 10 Permittee: Puget Sound Naval Shipyard Type of Action: Amendment	Permit No.: 46-4523A-C1NP Date Issued: 2/25/15

File No.: 11
Permittee: Naval Intermediate Maintenance Facility
Type of Action: Renewal

Permit No.: 46-4523A-A2NP
Date Issued: 5/13/14

File No.: 12
Permittee: NAVAL Air Warfare Center
Type of Action: Amendment

Permit No.: 04-60530-L1NP
Date Issued: 6/23/14

File No.: 13
Permittee: NAVAL Surface Warfare Center
Type of Action: Amendment

Permit No.: 45-00178-U1NP
Date Issued: 9/30/13

NAVY AND MARINE CORPS PUBLIC HEALTH CENTER

File No.: 1
Permittee: Medical Education Training Complex
Type of Action: Renewal

Permit No.: 42-41620-91NP
Date Issued: 6/11/13

File No.: 2
Permittee: Naval Medical Center
Type of Action: Renewal

Permit No.: 04-00259-11NP
Date Issued: 9/30/14

File No.: 3
Permittee: Naval Medical Center
Type of Action: Amendment

Permit No.: 45-00183-11NP
Date Issued: 1/17/13

File No.: 4
Permittee: Medical Education Training Complex
Type of Action: Amendment

Permit No.: 42-41620-91NP
Date Issued: 5/29/14

APPENDIX C

LIST OF INDEPENDENT NRC INSPECTIONS AND INSPECTOR ACCOMPANIMENTS

Independent Inspections:

NNSY TJS – Philly Navy Yard, Philadelphia, PA
(Permit No. 45-42158-A1NP)
NRC Inspection No. 03029462/2014-001 & 2014-002
Clear inspection, June 5, 2014

Naval Air Weapons Station - China Lake, CA
(Permit Nos. 04-60530-L1NP & 04-60530-RADIUM)
NRC Inspection No. 03029462/2014-003
Clear inspection, July 24, 2014

Medical Education and Training Center (METC) – Fort Sam Houston, San Antonio, TX
(Permit No. 42-41620-91NP)
NRC Inspection No. 03029462/2014-004
Clear inspection, November 20, 2014

Naval Surface Warfare Center, Carderock Division – Washington, DC
(Permit No. 19-00167-E1NP)
NRC Inspection No. 03029462/2015-001 & 2015-002
Clear inspection, January 29, 2015

Accompaniments:

Fort Belvoir Community Hospital – Fort Belvoir, VA, (2 NMCPHC Inspectors)
(Permit No. 45-W6F1AA-11JP), August 20, 2013

Naval EOD Unit - Indian Head, MD, (1 RASO Inspector)
(Permit No. 19-00174-A1NP), November 3, 2014

Naval Postgraduate School - Monterey, CA, (1 RASO Inspector)
(Permit No. 04-62271-D1NP), November 17, 2014