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NUCLEAR REGULATORY COMMISSION  
REGION II  
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November 7, 2001

Department of the Navy  
Naval Radiation Safety Committee  
Chief of Naval Operations (N-45)  
ATTN: RDML R. Nolan  
Chairman  
Room 636  
2211 S. Clark Place  
Arlington, VA 22244-5108

SUBJECT: NRC INSPECTION REPORT 45-23645-01NA/01-04

Dear Admiral Nolan:

On September 28, 2001, the NRC completed an annual review of activities authorized under the Navy Master Materials License. The exit interview for this inspection was held with you and members of your staff on October 9, 2001. The enclosed report presents the results of the review.

During the inspection, records were reviewed, procedures were discussed with personnel, and direct observations related to the conduct of inspections were made by the inspectors. Within the scope of the inspection, violations were not identified.

The NRC found that the Navy's implementation of the permitting and inspection programs was adequate and, with minor exceptions, consistent with NRC licensing and inspection policies and procedures.

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Department of the Navy

2

Should you have any questions concerning this letter, please contact us.

Sincerely,

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Douglas M. Collins, Director  
Division of Nuclear Materials Safety

Docket No. 030-29462  
License No. 45-23645-01NA

Enclosure: NRC Inspection Report  
No. 45-23645-01NA/01-04

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.: 030-29462

License No.: 45-23645-01NA

Report No.: 45-23645-01NA/01-04

Licensee: U. S. Navy

Locations: Office of the Chief of Naval Operations (N45)  
Crystal City, Virginia

Naval Sea Systems Command Detachment  
Radiological Affairs Support Office (RASO)  
Naval Weapons Station Yorktown  
Yorktown, Virginia

Naval Environmental Health Center (NEHC)  
2510 Walmer Avenue  
Norfolk, Virginia

Dates: September 24-28, 2001 and October 9, 2001

Inspectors: Michael L. Fuller, Project Coordinator  
Navy Master Materials License

Kevin G. Null, Senior Health Physicist

José M. Díaz Vélez, Health Physicist

Approved by: Jay L. Henson, Chief  
Materials Licensing and Inspection Branch 2

## EXECUTIVE SUMMARY

U. S. Navy  
NRC Inspection Report No. 45-23645-01NA/01-04

This annual, announced program review was conducted to evaluate the U.S. Navy's implementation and administration of activities conducted under the Master Materials License (MML). It included a review of the licensee's radioactive materials permitting and inspection programs, results of NRC inspections of Navy facilities conducted during the review period, licensee event reports, and a review of matters related to the Naval Radiation Safety Committee's (NRSC's) oversight of activities authorized by the license. Licensee activities conducted during the period of July 22, 2000, through September 21, 2001, were reviewed during this assessment.

Through discussions with licensee staff, reviews of documents, and observations of licensee staff in the performance of their duties, the inspectors found the Navy's overall permitting and inspection program to be adequate to protect the health and safety of workers and the general public. A few minor examples where the Navy's implementation of its permitting program was not consistent with the NRC's licensing and inspection policies, procedures, and guidance were identified and are discussed in the report details.

Personnel performing Navy Radioactive Material Permit (NRMP) reviews and inspections of activities covered by NRMPs were knowledgeable. Both review and inspection criteria were generally comparable to NRC reviews and inspections of similar activities.

The program areas included in this report are listed below:

### Management Oversight

- The NRSC conducted operations in accordance with the MML conditions and NRC regulations. The NRSC was effective in carrying out its responsibility of providing oversight to the Navy's radiation safety and regulatory compliance program.

### Organization and Scope of the Licensee Program

- The Navy's permitting and inspection program was organized and implemented as required by the MML and NRC regulations.

### The Permitting Function

- With a few minor exceptions, the Navy's permitting program was conducted in a manner that was compatible with NRC's licensing policies, procedures, and guides.

### The Inspection Function

- The Navy's inspection program was conducted in a manner that was compatible with NRC's inspection policies, procedures, and guides.

Licensee Event Reports

- The NRSC reported seven events to the NRC since the last annual review. The threshold of reporting incidents or events to NRC was conservative and in some cases reports were made when there were no minimum regulatory requirements for the reports.

NRC Inspections of Navy Permittees

- The NRC inspected twelve permitted activities since the last annual review. No violations were identified during these inspections.

Attachment:

Persons Contacted

Manual Chapter Used

Items Opened, Closed, and Discussed

Abbreviations

## REPORT DETAILS

### **1. Management Oversight**

#### a. Inspection Scope

The inspectors reviewed the licensee's radiation safety committee (RSC) organization and management oversight activities to determine whether the NRSC controls the use of licensed materials as required by the MML and NRC regulations.

#### b. Observations and Findings

Through observations of NRSC meetings, discussions with cognizant licensee representatives, and review of program documentation, the inspectors determined that the NRSC was organized as required and had implemented management oversight procedures to control the use of licensed materials. The Navy described the RSC's membership and responsibilities in OPNAV Instruction 6470.3, "Navy Radiation Safety Committee" (10 December 1985). The Navy further described the NRSC organization, responsibilities, and operating procedures in the NRSC Standard Operating Procedures Manual (SOPM), Revision 3 (Rev.), June, 1993.

The Chairman of the NRSC is the Director, Environmental Protection, Safety and Occupational Health Division, Office of the Deputy Chief of Naval Operations (DCNO), Logistics (N45). A new individual was assigned to this position in September, 2001. The Chief, Radiological Control and Health Branch is the NRSC Executive Secretary. The Executive Secretary is responsible for conducting day-to-day operations and issuing permits approved by the NRSC. Other members of the NRSC included representatives from the Chief, Bureau of Medicine and Surgery, the Commander, Naval Sea Systems Command, and the Office of the Commandant, U. S. Marine Corps.

The Navy's MML requires that the NRSC meet on at least a quarterly basis. Since the last annual review, the NRSC met on September 14 and December 13, 2000, and March 7, June 7, and August 28, 2001. The Region II Navy MML Project Manager attended each of these meetings. The Project Manager observed that the NRSC discussed, and took appropriate action on numerous substantive issues related to the Navy's MML program. During each meeting, the NRSC reviewed the status of the permitting and inspection program, events, special interest issues and regulatory compliance issues and updates. Minutes from these quarterly meetings were distributed to all attendees.

In addition to the permitting and inspection program reviews conducted during the quarterly meetings, the NRSC, through the Executive Secretary, reviewed and issued each NRMP completed by the two technical centers responsible for the review of NRMP applications. The Executive Secretary also reviewed each inspection report issued by

the two technical centers, and forwarded copies of the permits and inspection reports issued by the NRSC or the technical centers to Region II shortly after issuance. The Project Manager observed that when the inspection results concerned significant safety or regulatory compliance issues, the report was issued by the NRSC.

The Executive Secretary and others, also performed audits of the technical centers in April 2001. An NRC inspector reviewed the results of these audits. The Navy auditors did not identify any areas of non-compliance as a result of their reviews at the two centers.

c. Conclusions

The inspectors found that the licensee effectively executed its management oversight activities as required by the MML and in a manner to adequately control the Navy's use of licensed material. The NRSC conducted licensed activities in accordance with provisions of OPNAV Instruction 6470.3 and the NRSC SOPM. The inspectors also determined that the new Executive Secretary of the NRSC was effective in performing the required functions.

**2. Organization and Scope of the Licensee Program**

a. Inspection Scope

The inspectors reviewed the permitting and inspection organization and the licensed activities permitted by the Navy to determine whether they met the requirements of the MML and NRC regulations.

b. Observations and Findings

The inspectors reviewed the Navy program documents that described its permitting and inspection procedures, reviewed permits issued by the NRC, and visited the two technical support centers to observe and discuss how the Navy's permitting and inspection staff are organized, how they function, and to examine their qualifications. These activities also allowed the inspectors to review the scope of licensed activities permitted by the Navy.

The Navy's MML authorizes the NRSC to issue radioactive materials permits to users of licensed material within the U.S. Navy and Marine Corps. The Navy described its organization and permitting and inspection procedures in OPNAV Instruction 6470.3 and the NRSC SOPM (Rev. 3). As described in these documents, the NRSC manages the Navy's implementation of its MML program and the Executive Secretary of the NRSC is responsible for conducting day-to-day operations and issuing permits. The NRSC and Executive Secretary are assisted in the performance of their duties by two technical support centers.

Through discussion with key personnel and review of pertinent documentation, the inspectors verified that NEHC, which is a part of the Navy Bureau of Medicine (BUMED), reviewed applications to issue, amend, renew, and terminate permits received from

medical and medical research activities. NEHC also inspected these activities. The inspectors also verified that RASO, which is a part of the NAVSEA organization, reviewed applications to issue, amend, renew, and terminate permits received from industrial and non-medical research activities. RASO inspected these industrial and non-medical activities. Both centers forwarded all completed permits and inspection reports to the Executive Secretary for review, approval, and release by the NRSC.

At the time of the inspection, NEHC and RASO were responsible for 27 and 116 permits, respectively. NEHC employed three individuals (one officer and two civilians) in its radioactive materials permitting and inspection program. RASO employed sixteen individuals (five military and eleven civilians) in its permitting and inspection program. Two positions at NEHC were vacated during the reporting period, one military (Officer-in-Charge) and one civilian. The vacated military position was filled, and at the time of the inspection, the position description for the civilian position was being developed. Also at the time of the inspection, NEHC had plans to begin actively recruiting for the position within a month's time. The recently hired military officer completed the NRC's licensing and inspection courses during the reporting period. All other permitting and inspection staff at NEHC and RASO had completed the NRC's materials licensing and inspection courses. Many of the staff had also attended other licensed materials related training courses since the previous inspection.

c. Conclusions

The inspectors found that the Navy's permitting and inspection program was organized as required by the MML. The inspectors concluded that the permitting and inspection staffing at both technical support centers was adequate to accomplish licensed activities.

**3. The Permitting Function**

a. Scope:

The NRC inspectors reviewed a sample of permitting actions completed by the technical support centers to assess consistency and conformity with NRC licensing procedures. The inspectors reviewed several permit applications and the associated permits to determine if the reviewer actions taken and conditions included in the issued permits were consistent with NRC licensing practices.

b. Observations and Findings:

(1) NEHC

At the time of the review, NEHC was responsible for 27 medical and medical research permits. Since the last annual review, NEHC had renewed 8 permits, and issued 19 permit amendments. The inspectors determined that at the time of the review, there were no overdue permitting actions awaiting completion.

The inspectors reviewed 12 of the 27 permitting actions completed by NEHC since the last annual review ( 5/8 renewals and 7/19 amendments).

The inspectors noted that the NEHC staff made use of checklists similar to those used by NRC license reviewers to document the results of their permitting action reviews. The NEHC reviewers clearly documented their reviews and the deficiencies they identified. Deficiencies were documented in letters and telephone records and communicated to their permit holders. The NEHC reviewers also prepared draft amendments to all permits for signature by the Chairman of the Naval Radiation Safety Committee (NRSC).

Based on a review of permit files and interviews, the inspectors noted that NEHC staff used applicable NRC licensing guidance and standard review plans, and that permit actions were completed within the NRSC's timeliness goals.

During the course of the review the inspectors noted only a few minor issues as follows: 1) inconsistency in permit format for approving authorized physician users; 2) failure to tie down a permittee's response to deficiencies identified by NEHC staff; and 3) failure to replace copies of unsigned permits with copies of signed permits. Each was discussed in detail and resolved with the NEHC Team Leader, prior to exiting with upper management.

(2) RASO

At the time of the review, RASO was responsible for 116 industrial use permits. Since the last annual review, RASO had issued 10 new, renewed 22, amended 44, and terminated 8 permits.

The inspectors reviewed 10 of the 84 permitting actions completed by RASO since the last annual review (2/10 new permits, 2/22 renewals, 4/44 amendments, and 2/8 terminations).

RASO staff performed detailed, thorough permit reviews and utilized licensing checklists similar in scope to those used by NRC staff. Deficiency letters and telephone conversation records adequately documented deficiencies. Permittee responses to deficiencies were consistently tied down in the permits. The inspectors noted, however that some licensing checklists did not always reflect deficiencies that were documented in either telephone records or deficiency letters. This was brought to the attention of the RASO licensing staff and management.

Based on a review of permit files and discussions with RASO staff, the inspectors noted that RASO reviewed permitting actions using applicable NRC licensing guidance and standard review plans and completed their permitting actions well within timeliness goals.

c. Conclusions:

Overall, the inspectors determined that the NEHC and RASO staff processed permits in a manner consistent with NRC licensing policies, procedures and guidance. Furthermore, based on a random review of licensing checklists and deficiency records and interviews of staff, it appears the two technical support centers conducted quality technical reviews based on sound health physics practices. The inspectors also concluded that the issues identified at the NEHC facility were isolated, not the result of poor performance, and had no impact on their ability to perform quality safety reviews.

**4. The Inspection Function**

a. Scope

The NRC inspectors reviewed a sample of the permit inspections completed by the technical support centers since the last annual review to assess consistency and conformity with NRC inspection procedures. The MML requires that the NRSC incorporate the NRC's inspection criteria into the Navy's inspection guides to assure compatibility of inspection programs between the Navy and the NRC. The NRC's inspection program is described in Manual Chapter 2800, Materials Inspection Program.

b. Observations and Findings

The Navy performed a total of 54 inspections of permits. The NRC inspectors reviewed a sample of 18 permit inspections completed by the licensee during the review period to assess consistency and conformity with NRC inspection procedures. NEHC personnel performed 13 inspections during the period and RASO personnel performed 41 inspections. The Navy announced all their inspections to their permittees.

(1) Inspections by the Navy Environmental Health Center

The inspectors reviewed inspection documentation for eight inspections completed by NEHC since the last NRC inspection. There were no deviations from NRC inspection policies regarding documentation of observations and findings. In general, the details and the completeness of the inspection records, allowed NRC inspectors to clearly understand the Navy's inspection program. Inspections documented activities which demonstrated the permittees performance in a variety of safety related areas. The inspectors also noted that when violations were identified, NEHC inspectors substantially documented the findings, and generated inspection reports and issued enforcement documents on time. In addition, the inspectors noted that NEHC's review of corrective actions, proposed or implemented by permittees as a result of the Notices of Violations, were adequate. The inspectors noted that when deficiencies in corrective actions were identified, NEHC performed adequate follow-up to ensure that corrective actions were effective to prevent the re-occurrence of those, or similar deficiencies. NEHC issued 21 violations classified as Severity Level IV and 22 violations classified as

Severity Level V, and all but one programs were found satisfactory. The inspectors noted that on some occasions, violations identified by NEHC were characterized at a higher severity level when compared with the NRC Enforcement Policy. There were no violations that should have been classified as higher than Severity Level IV.

On August 13-14, 2001, two NRC inspectors accompanied a NEHC inspector during the inspection of the nuclear medicine permit at the Naval Hospital, Naval Air Station, Jacksonville, Florida. The NEHC inspector used a checklist to document the inspection findings. The NEHC inspector was very familiar with the permit and regulatory requirements and emphasized performance-based inspection techniques. However, the NRC inspectors noted that the individual needed additional training in nuclear medicine technology, in order to be more familiar with the day to day operations of a typical nuclear medicine department and its associated radiological safety requirements.

(2) Inspections by the Radiological Affairs Support Office

The inspectors reviewed inspection documentation for 10 inspections completed by RASO since the last NRC inspection. There were no deviations from NRC inspection policies regarding documentation of observations and findings. In general, the details and the completeness of the inspection records, allowed NRC inspectors to have a clear understanding of the Navy's inspection program. Inspections documented activities which demonstrated the permittees performance in health and safety related areas. The inspectors also noted that when violations were identified, RASO inspectors clearly documented the findings. In particular it was noted that RASO inspectors obtained copies of all pertinent records while on the permittees site. The inspectors noted that RASO inspectors generated inspection reports and issued enforcement documents on a timely manner. In addition, the inspectors noted that RASO's review of corrective actions, proposed or implemented by permittees as a result of the Notices of Violations, were adequate. The inspectors noted that when deficiencies in corrective actions were identified, RASO performed extensive follow-up to ensure that corrective actions were effective to prevent re-occurrence. RASO issued 8 violations classified as Severity Level III, 32 violations classified at Severity Level IV, and 6 violations classified as Severity Level V. Four programs were found to be unsatisfactory. The inspectors noted that on some occasions, violations identified by RASO were characterized at a higher severity level when compared with the NRC Enforcement Policy. In each instance when Severity Level III violations were identified by RASO inspectors, the NRC was promptly notified. In each case, the NRC determined that the violations were either more strictly classified by the NRSC when compared to the NRC Enforcement Policy, or were violations of Navy, and not NRC requirements.

c. Conclusions

The inspectors determined that the Navy's inspection program was conducted in a manner that was essentially compatible with NRC's inspection policies, procedures, and guides. No violations of NRC regulatory requirements were identified in this area.

## 5. Licensee Event Reports

### a. Scope

The NRC inspectors reviewed the event reports submitted by the NRSC to the NRC since the last annual review to determine if all events had been reported as required by the regulations.

### b. Observations and Findings

Through discussions with key Navy personnel, the inspectors determined that the NRSC's threshold for reporting incidents or events to NRC was conservative. The NRSC reported some incidents that were below the NRC reporting requirements.

Seven events were reported to the NRC since the last annual review. Six involved the loss of licensed material and one involved gamma radiography. Four of the loss of material events involved the loss of 9 microCi of americium-241 contained in laser target designator pods due to the loss of aircraft from aviation accidents. One of the loss of material events involved the loss of 6 Ci of H-3 (tritium) contained in an in-flight refueling hose and high-speed drogue assembly (12 self-luminating sources containing 500 mCi each). The in-flight refueling assembly was lost at sea. One of the loss of material events involved the loss of 10 mCi of Ni-63 contained in a Chemical Agent Monitor (CAM) that was apparently stolen from the 24<sup>th</sup> Marine Regiment in Kansas City, MO.

The gamma radiography incident involved the inability to fully retract a gamma radiography source to its fully shielded position. The Navy and vendor (AEA Technology) cooperated in determining the root cause. The root cause was determined to be a slight non-concentricity in the windings of the guide tube at the connection to the exposure device (camera).

The NRC continued to follow up on the event involving the improper expenditure of depleted uranium munitions in Vieques Island, PR. NRC continues to follow the Navy's actions with regard to decommissioning activities associated with the event.

### c. Conclusions

The inspectors determined that the NRSC had notified the NRC of reportable events as required by the regulations and in addition some incidents below the minimum reporting requirements.

## 6. NRC Inspections of Navy Permittees

### a. Scope

The NRC performed independent inspections of Navy permitted activities to assess the adequacy of permitted radiation safety programs and compliance with NRC regulations and the MML license. The NRSC's corrective actions implemented in response to cited violations was assessed for completeness, timeliness and effectiveness.

b. Observations and Findings

During this reporting period, the NRC inspected 12 Navy permitted facilities. All 12 were routine inspections during which no violations were identified. The inspections were performed by several different NRC inspectors, representing all four NRC regional offices. The results of these inspections were documented in separate inspection records.

c. Conclusions

The results of the NRC inspections of Navy permittees indicated that the Navy's permitting and inspection program was effective and permitted activities were being conducted as required by NRC regulations and the MML.

#### EXIT MEETING SUMMARY

An exit meeting was held with the NRSC on October 9, 2001. The overall scope and findings of the inspection were discussed. No dissenting comments were received from the NRSC, and the licensee did not specify any information reviewed during the inspection as proprietary in nature.

## ATTACHMENT

### 1. PERSONS CONTACTED

#### Licensee Personnel

\*RADM R. Nolan, Chairman, NRSC  
\*CAPT G. Higgins, Executive Secretary, NRSC  
\*CAPT D. Farrand, Director, Radiological Controls Program Office, NAVSEA  
\*LCDR V. Gaiter, Marine Corps Representative to the NRSC  
\*Dr. S. Frampton, NAVSEA-08R  
\*Dr. J. Jones, NAVSEA-08R  
CDR S. Doremus, Officer-in-Charge, NAVSEA Detachment RASO  
Mr. R. Lowman, Director, Radiation Safety and Environmental Program, RASO  
Mr. E. Abkemier, RASO  
Mr. T. Hart, RASO  
Ms. L. Lowman, RASO  
Mr. W. Morris, RASO  
Mr. R. Yonemitsu, RASO  
CAPT D. Sack, Officer-in-Charge, NEHC  
CAPT J. Need, Executive Officer, NEHC  
CAPT R. Thomas, Director, Occupational and Environmental Medicine, NEHC  
LCDR P. Fetherston, NEHC  
Ms. D. Clark, NEHC

#### NRC Personnel

\*Dr. B. Mallet, Acting Regional Administrator, NRC Region II  
\*Mr. M. Fuller, Health Physicist, NRC Region II, Materials Licensing and Inspection  
Branch 2 (MLIB2)  
\*Mr. J. Diaz Valez, MLIB2

\*Attended October 9, 2001, exit meeting.

### 2. MANUAL CHAPTER USED

MC 2810 Master Material License Inspection Program

## 3. ITEMS OPENED, CLOSED, AND DISCUSSED

OPENED

none

CLOSED

00-05-001      VIO      CEASING PRINCIPAL ACTIVITIES IN AN OUTDOOR AREA THAT CONTAINS RESIDUAL RADIOACTIVITY, SUCH THAT THE AREA IS UNSUITABLE FOR RELEASE IN ACCORDANCE WITH NRC REQUIREMENTS, AND THE LICENSEE HAD NOT MADE WRITTEN NOTIFICATION TO THE NRC.

DISCUSSED

none

## 4. ABBREVIATIONS

BUMED	Bureau of Medicine
CAPT	Captain
CDR	Commander
DCNO	Deputy Chief of Naval Operations
LCDR	Lieutenant Commander
LT	Lieutenant
MML	Master Materials License
NEHC	Naval Environmental Health Center
NRMP	Navy Radioactive Material Permit
NRC	Nuclear Regulatory Commission
NRSC	Naval Radiation Safety Committee
RADM	Rear Admiral
RASO	Radiological Affairs Support Office
Rev.	Revision
RSC	Radiation Safety Committee
SOPM	Standard Operating Procedures Manual
VIO	Violation