U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 93-23

Docket No. 030-29462

License No. 45-23645-01

Permit No. 04-60530-L1NP

Licensee: Naval Air Weapons Station
China Lake, California 93555-6001

Inspection at: address above

Inspector: Kent M. Prendergast, Radiation Specialist — Date Signed: 1/20/94

Inspector: John M. Jacobson, Radiation Specialist — Date Signed: 1/20/94

Approved by: Gregory P. Yuhas, Chief, Radioactive Materials Safety Branch — Date Signed: 1/21/94

Inspection Summary:

Special Inspection conducted on October 5-8, 12-13, 20, 27, and December 1, 1993

Areas Examined: This special, unannounced inspection was conducted to review the radiological controls implemented during remediation of depleted uranium contamination at the Tower 11 catch box area. The scope of the inspection included physical observation of the work area, discussions with individuals involved, and a review of records.

Results: The findings of this inspection indicate the Navy provided little supervision of the remediation activities performed by contractors at the Tower 11 catch box area. Three violations were identified during the inspection and are summarized below.

1. Failure to make and maintain records of contamination surveys of cotton glove liners removed from the restricted area for washing, as required by 10 CFR 20.2103(a). Section 3. (93-23-01)

2. Failure to survey potentially contaminated water released to the roads surrounding the Tower 11 site, an unrestricted area, during the period from early January, 1993 to March 4, 1993, as required by 10 CFR

20.201(a). Section 3. (93-23-02)

3. Failure to instruct three individuals on the uses and hazards associated with the clean-up of radioactive material contamination in the licensee's restricted area at the Tower 11 site prior to their carrying out duties within the restricted area and to instruct contractor personnel on the provisions of the radioactive materials permit under which operations at the Tower 11 clean-up site are conducted, as required by 10 CFR 19.12. Section 3. (93-23-03)

DETAILS

1. Persons Contacted

* Captain Stevenson, Commanding Officer, Naval Air Weapons Station (NAWS)
* Captain Hull, Vice Commander, NAWS
* Commander Mills, Executive Officer, NAWS
* William Deem, Safety Director, NAWS
* John Bradford, Radiation Safety Officer (RSO), NAWS
* Gary Beckstrom, Assistant RSO, NAWS
* Geary Bloodsaw, Bartlett Senior Health Physicist (sub-contractor)
* Sean Crumes, AWC Lockheed HP Technician
* George Biddlecombe, AWC Lockheed HP Technician
* Paul Hewen, AWC Lockheed Cost and Scheduling Analyst

Tommy Richards, AWC Lockheed Equipment Operator
Mark Boron, AWC Lockheed Senior Health Physicist
Cecil Hickman, AWC Lockheed Manager, Environmental, Safety and Health

* Present during exit briefing

2. Background and Purpose of Inspection

On September 3, 1993, Region V received a request for inspection assistance dated August 31, 1993 from Region II. The special inspection was conducted on October 5-8, 12-13, 20 and 27, and December 1, 1993 to review operations underway at the Tower 11 clean-up site at China Lake Naval Air Weapons Station (NAWS). The site consists of an area contaminated with depleted uranium (DU) from approximately 10 years of range tests of DU-containing projectiles targeted into the Tower 11 catch box. The tests were conducted on NAWS land under a Navy radioactive materials permit (No. 04-60530-L1NP) and under a Department of the Army contract with Alliant Techsystems Inc. The NAWS RSO stated that remediation of the Tower 11 site was based on a verbal agreement between the Navy and Alliant at the end of testing. Alliant has a contract with AWC Lockheed to concentrate and remove the DU-contaminated materials on-site so that the unrestricted release criteria provided in NRC Policy Issue Statement SECY-87-576 dated October 5, 1981, of 35 picocuries/gram (pCi/g) for DU contamination in soil concentrations will be met. The release criteria and sampling programs are provided in the "Tower 11 Site Acceptance Protocol" dated January 2, 1992. Alliant also has a contract with Rogers & Associates Engineering Corporation, an independent laboratory, to perform the final survey of the Tower 11 site after Lockheed has finished clean-up to determine that the site meets the free release criteria.

A "Review of the Radiation Safety Practices at Naval Air Weapons Center, China Lake," performed by the Navy Radiation Safety Committee and enclosed in a letter to NRC Region II dated March 9, 1993, provides an outline of the Navy's oversight of operations at Tower 11. It states that the oversight by the NAWS RSO consists of protecting the interests of NAWS, China Lake, personnel, property, and equipment, and ensuring compliance with the Navy radioactive materials permit (NRMP). The permit was issued pursuant to the Navy's master license for byproduct, source, and special nuclear material (license no. 45-23645-01NA) which permits

the Navy to possess source material in any form in an amount as needed. The "Review" further states that the NAWS RSO does not provide direct health physics support to Lockheed personnel. The NAWS RSO confirmed this during interviews with the inspectors and stated that it was his understanding, and he believed it to be acceptable with the Navy Radiation Safety Committee, that NAWS was the generator of the waste at the Tower 11 site under their NRMP for DU-containing projectiles and that the remediation of the soil was licensed under the same NRMP, but that he was not required to supervise the radiological safety program at Tower 11. Rather, the contractor was to operate under their own radiation safety procedures as reviewed by the Navy Radiological Affairs Support Office (RASO) before the start of work. NRMP No. 04-60530-L1NP permits NAWS to possess 2500 kg of DU for testing of munitions, but does not address remediation of any contaminated sites.

According to the AWC Lockheed cost and scheduling analyst, the contaminated material remaining on-site consists of contaminated dirt and sludge remaining after the contractor, AWC Lockheed, concentrated the DU from the original unprocessed dirt by chemical and gravity separation methods. The number of contractor employees remaining on-site has been reduced from approximately 45-50 to about eight. The current health physics staff consists of three people; there are also two equipment operators, a cost and scheduling analyst, an administrative clerk, and a site manager. These employees are preparing to ship the remaining contaminated material to Envirocare of Utah, a low-level waste site.

The inspection included a review of health physics practices at the site, release of contaminated equipment and disposal of licensed material from the restricted area at Tower 11. The inspectors conducted interviews with personnel, performed independent measurements, and reviewed records and procedures for compliance with NRC regulatory requirements in 10 CFR Parts 19 and 20 and the Navy's master materials license. The inspectors noted that the Navy implemented 10 CFR 20.1001-2401 on April 1, 1993, so events after that date were evaluated for compliance with the new Part 20.

3. Radiation Protection Measures

a. Contamination Control

The inspectors observed that two water coolers were located directly outside the changeout/frisking area at the boundary of the radiation control area (RCA), a restricted area because of the contaminated dirt inside. Interviews with health physics staff and an equipment operator disclosed that it has been the common practice to have workers within the RCA remove their gloves and frisk their hands and faces before drinking water from these coolers. Someone outside the RCA would pour the water and hand it to the person in the contaminated area. Lockheed started this practice to accommodate workers within the RCA who were suited up in anti-contamination clothing under very hot conditions and required water frequently.

The drinking of liquids in a contaminated area is a deviation from the general requirements for contamination control in NAVSEA S0420-AA-RAD-010, "Radiological Affairs Support Program Manual (RAD-010)," dated October 1, 1991, Section 2.6.6, which prohibits drinking in contaminated areas or while wearing potentially contaminated clothing. As such, it appears to be a deviation from the NAWS Navy permit. However, it is not a violation of NRC regulations as RAD-010 is not incorporated into the Navy master materials license (No. 45-23645-01NA).

The inspectors determined that on June 4, 1993, an employee suffered an accident in which a piece of metal contaminated with DU broke the skin of his leg. Two health physics (HP) personnel, who were present on-site at the time of this accident, were interviewed concerning this incident. One Senior HP stated that he had authorized cutting the metal plate only with the use of respirators and air samplers. He further stated that the contamination on the plate was fixed, based on the analysis of swipes taken at the time, although the results of the swipe test were not available at the time the employee began cutting the plate. The Radiation Work Permit in existence at the time left the use of respirators and air samplers to the discretion of site HP, as do the Lockheed procedures reviewed by the inspectors.

After the accident, which severely gouged the employee's leg, the wound was dressed and bandaged and a survey of the bandaged wound was made by site HP with a pancake probe. The "Contamination Survey Form" dated June 4, 1993, reviewed by the inspectors indicated no gamma readings above background.

The inspectors requested to view the bioassay results from May to August 1993, but Lockheed was unable to obtain the bioassay results until late November 1993. The Manager of AWC Lockheed Environmental, Safety and Health Office stated that SmithKline Beecham Clinical Laboratories, the laboratory which performs the urine analysis for Lockheed, had been mailing the results to the SmithKline Las Vegas office. Apparently, the bioassay reports for this period had been sitting in the Las Vegas office until their location was tracked down by Lockheed AWC. A review of the bioassay results for the period from May through August 1993 indicated that the laboratory performing the bioassay had a lower limit of detection of five micrograms per liter and that all results observed for this period were less than the laboratory's occupational threshold of 35 micrograms per liter. Samples indicating results greater than 35 micrograms per liter would require a followup bioassay. The results for the terminated employee were noted to be 13 micrograms per liter which is less than half of the occupational threshold.

The Senior HP on-site and other HP personnel stated that there were "a few instances" in which cotton liners for gloves were bagged by a former HP Supervisor, surveyed for contamination with a pancake probe, and taken home by him to wash in his apartment. The former

HP Supervisor stated in a telephone conversation on October 13, 1993, that he had taken glove liners home to his apartment during his stay on-site in 1993 after surveying them to determine there was no contamination and washed them in an effort to save money. He stated that when he left his apartment he also surveyed his washer and dryer for contamination and there was none. He further stated that he had not made a record of these surveys, although he was aware he should have, because he forgot. 10 CFR 20.2103(a) requires, in part, that a licensee maintain records for three years showing the results of surveys required by 10 CFR 20.1501. 10 CFR 20.1501(a) requires, in part, that each licensee shall make surveys that may be necessary for the licensee to demonstrate compliance with 10 CFR 20 and are reasonable under the circumstances to evaluate concentrations or quantities of radioactive material or potential radiological hazards. The failure of the former HP Supervisor to make a record of his contamination surveys is a violation of 10 CFR 20.2103(a).

The Senior HP on-site as well as two additional HP personnel stated that due to the dusty environment and the fact that operations were conducted outdoors, the pancake probes used at Tower 11 must often be replaced because of puncture, dirt, etc. All three stated that there were times during which only 2-3 operational and calibrated probes were available and there may not have been a probe continuously available at the change-out station. In these cases, personnel leaving the contaminated area had to call for someone to bring a probe so that they could frisk out. One of the equipment operators stated that there had been a few occasions when he had to wait at the change-out station for a frisker. The Senior HP on-site stated that on a few occasions site HP borrowed a couple of probes from the NAWS RSO to increase the number on-site. However, he stated he was not aware of any instances in which personnel left the contaminated area without frisking out. Other HP personnel also stated they had not witnessed anyone leaving the contaminated area without frisking out. During the inspection, the inspectors observed at least 5 calibrated and operational pancake probes on-site.

b. Respiratory Protection Program

Personnel interviewed on-site at Tower 11 stated that there were times in which cuts were made on contaminated equipment or the contaminated catch plate without the personnel involved wearing respirators. The radiation work permit (RWP) and AWC Lockheed procedures observed by the inspectors on-site required that respirators be worn when site HP determined they were necessary for a particular operation. The RWP also stated: "any welding cutting or grinding on contaminated surfaces - notify HP; any non-normal operation or plant configuration." Navy procedures in RAD-010, Section 2.6.8, require protective gloves and clothing for personnel working in a radioactively contaminated area, but only require the use of respiratory equipment to meet the requirements in 10 CFR 20.

The inspectors evaluated the Tower 11 respiratory protection program for compliance with 10 CFR 20.103 and 10 CFR 20.1702 (the licensee implemented 10 CFR 20.1001-2401 on April 1, 1993) which require the licensee to limit intakes of airborne radioactive material when the concentration exceeds that for an airborne radioactivity area. One means of limiting intakes is a respiratory protection program. Based on a review of air sample log data from January 1, 1993 to March 21, 1993, the concentrations of airborne activity at various locations on-site were below the limits defining an airborne radioactivity area. The former HP Supervisor stated that the use of respirators was required for all operations in the RCA and extensive air sampling was performed, especially during the initial cutting of the catch box, during the first months of operations in 1992. He stated that because these samples were always far below maximum permissible concentrations and the bioassay results for employees cutting and working in the contaminated area were negative, the requirement for using respirators was relaxed and he didn't feel respirators were necessary during cutting or welding operations based on the historical evidence. The Senior HP on-site, currently acting as the HP Supervisor, stated that he required the use of a respirator and an air sampler for cutting contaminated equipment as a precaution. He further stated that there were numerous respirators on-site in storage for such operations. Based on the interviews, there were times when cutting was performed on contaminated equipment without the use of respirators and although it does not appear that the use of respirators was required for compliance with 10 CFR 20.103 or 20.1702, it was required by certain HPs as a precaution when cutting or welding in the RCA under the Lockheed RWP program.

c. Release of Material from Restricted Area

The inspectors interviewed personnel on-site in both HP and Operations and determined that in early January 1993, Lockheed acquired a water truck for two purposes: to provide dust abatement on-site and to decrease the amount of processed water in the holding pond on-site. Water was released to the holding pond from holding tanks at the end of Lockheed's leach circuit for removing DU from contaminated soil. The Senior HP on-site, as well as others interviewed, stated that water was not released from the holding tanks to the pond until the concentration of radioactive material in the water was below the Navy-approved limit for release of 35 pCi/g. Samples of the water in the holding tanks were analyzed using a kinetic phoshporesence analyzer (KPA) in the laboratory on-site. In addition, samples were sent to BC Laboratories, Inc., an independent laboratory, to confirm Lockheed results. Once the water was released to the pond, it was only sampled infrequently and assumed to be "clean."

The inspectors reviewed Lockheed Standard Operating Procedure No. CLP-301, "ANALYSIS OF LEACH CIRCUIT DISCHARGE," dated February 2, 1993. Section 5.1 states, in part, that "prior to discharge from

the holding tank, a representative sample (approximately 1 liter) is taken from the discharge of the recycle line in the recycle loop to determine if the contents are within release limits. The sample is then submitted to the laboratory for analysis. NOTE: Release limits are as follows:

-Slurry pH = between 2 and 12.5
-MCA (pCi/gm) = 35 +/- conf. level
-Residue analysis (U_{ppm}) = 105 +/- conf. level
-Liquid analysis (U_{ppm}) = 50 +/- conf. level*

There is no mention of the slurry meeting the release limits for effluents to unrestricted areas provided in 10 CFR 20, Appendix B. The NAWS RSO stated that he was familiar with these criteria for releasing the slurry from the holding tanks to the pond. His signature was not on the approvals section of the procedure, however.

An environmental/HP technician on-site stated that he had taken 4-10 truckloads a day of 2000 gallons of water from the holding pond between early January, 1993 and March 4, 1993 and discharged it to the dirt roads around the Tower 11 site outside the RCA down to the paved road at the bottom of the Tower 11 hillside. Water was discharged up to approximately 1.25 miles from the RCA. The Senior HP on-site and a former HP Supervisor stated the practice had not been approved by site HP, the NAWS RSO, the Navy Radiation Safety Committee, or the NRC. When the NAWS RSO discovered that Lockheed was discharging water from the holding pond, he immediately stopped the practice and Lockheed made no further discharges. Lockheed, the NAWS RSO, and a representative from the Base Environmental Office had a meeting prior to January 1993 concerning the release of water from the pond. It was the NAWS RSO's understanding that no releases would occur until Lockheed had approval from both his office and the Base Environmental Office. The Lockheed environmental technician stated that a verbal approval from the Base Environmental Office had been obtained, but not approval from the NAWS RSO. The inspectors were unable to determine what actually transpired at the meeting because there were no minutes at the Base Environmental Office, the NAWS RSO had no notes, and the individual involved from the Environmental Office has since retired.

Lockheed personnel on-site, including the individual who drove the truck, stated that no samples of the water taken from the holding pond and pumped into the truck were taken prior to discharge because the pond was assumed to be free of contamination. Subsequent testing of the sediment at the bottom of the pond indicates that concentrations of DU of 100 pCi/g or more are present in certain areas. This is believed to be due to a reconstitution of the DU due to gravity or organics which escaped from the leach circuit into the pond. Thus, the possibility exists that the water removed from the pond and discharged outside the restricted area was contaminated and did not meet the effluent release limits required by 10 CFR 20. 10

CFR 20.201(a) requires, in part, that each licensee perform an evaluation of the radiation hazards incident to the release, disposal, or presence of radioactive materials. On numerous occasions between early January and March 4, 1993, Lockheed removed water potentia containing radioactive material (DU) from the holding pond and disposed of it on the roads surrounding the Tower 11 site without performing surveys to evaluate whether on not it was contaminated or whether the concentrations of DU were above effluent release limits in 10 CFR 20, Appendix B. The failure to survey the water released to the roads around the site is a violation of 10 CFR 20.201(a).

The NAWS RSO stated that subsequent to the release of the pond water to the roads, he had Lockheed take soil samples along the road and road sides where water had been sprayed. The inspectors reviewed the results of these samples, provided in a facsimile dated June 29, 1993, and noted that the only positive sample was taken from the centerline of the road and read 2.13 pCi/g, below the free release limit.

The inspectors surveyed the shoulders of the road and other areas of the site outside the RCA using a Ludlum micro-R meter (Eberline PRM-7, NRC No. 010839, calibrated on April 1, 1993) to look for radiation levels above background (which varies between 15-20 uR/hr). None were observed. The inspectors took 5 random samples from the road and road shoulders at the site in areas where contaminated material might accumulate or might have been spread and had them weighed and counted using the Lockheed multi-channel analyzer and sodium-iodide crystal (ACEMATE, S/N IR0432, with an efficiency factor determined by a uranium standard on October 7, 1993) in the presence of the inspectors. Four of the five samples yielded negative results while one had a concentration of uranium of 0.27 pCi/g, below the free release limit of 35 pCi/g. However, these results do not prove that there was no release of contaminated material because the size of the area involved was too large to be sampled fully by the inspectors.

The inspectors interviewed HP personnel, environmental personnel, and operations personnel on-site. The HP personnel stated that contaminated materials were shipped to Envirocare of Utah, Inc. waste disposal facility as limited quantity packages using plastic liners in the trucks. The liners were fastened at the top to act as strong, tight containers, removable contamination swipes were taken at the closure and other areas where contamination might be expected on the vehicles, and a tarp placed over the top to close the vehicle. The "Low-Activity Radioactive Waste Disposal Agreement" between Envirocare, NAWS, and AWC Lockheed states that AWC will transport and deliver waste in accordance with the transportation regulations in 49 CFR 173. Any waste material not conforming to these regulations shall be returned to AWC. The Senior HP on-site stated that no shipments of waste from Tower 11 to Envirocare had leaked to his knowledge and that no shipments had been returned to

AWC because of leaking containers. The Senior HP on-site and an environmental technician stated that two or three shipments had be returned to Lockheed because the amount of standing liquids in the package was greater than Envirocare's acceptance criteria.

The inspectors reviewed Lockheed's survey procedures for release of equipment with the HP staff. The inspectors observed fixed-geometry swipe counters for counting contamination smears in the HP laboratory at the site: a Ludlum Model 120 gas proportional counter (S/N 50823) and a Ludlum Model 43-10 zinc-sulfide scintillation counter (S/N 79592) and two Ludlum 2000 scalers. Both instruments were within their calibration period. The licensee does daily source checks with a technetium-99 beta standard and a thorium-230 alpha standard to obtain the efficiency of each instrument.

The inspectors reviewed the survey records from June 11, 1993 to August 22, 1993 for all equipment which had been approved by site HP for free release using the criteria in RAD-010 Table 4 and NRC Regulatory Guide 1.86 (both contain the same limits). The contamination limits for free release are 5,000 dpm/100 cm^2 for average alpha and average beta-gamma fixed contamination and 1,000 dpm/100 cm^2 for removable alpha and beta-gamma contamination. A review of survey records for all equipment released by Lockheed (dated June 11, 1993 to August 17, 1993) indicated that sufficient swipes had been taken from each piece of equipment prior to release and all fixed and removable contamination levels were below the free release limits.

d. Personnel Monitoring

Based on discussions with personnel on-site and a telephone conversation with the former HP Supervisor on-site, the frequency of personnel thermoluminescent dosimeter (TLD) processing was changed from monthly to quarterly by the Lockheed RSO when Lockheed changed TLD processors from Teledyne to TMA/Eberline at the start of 1993. The change in frequency was made because TMA/Eberline uses quarterly readouts instead of monthly and the Lockheed RSO determined that there would be no need for monthly readouts because the annual exposures for personnel on-site during 1992, due to the DU present, were 0. The Lockheed RSO did not document why the frequency was changed. The inspectors reviewed occupational exposure results for the second quarter of 1993 and the annual exposure results for 1992. The maximum dose recorded for any contractor employee who spent time on-site during the quarter was 57 millirem. The inspectors examined records for personnel on-site and working in the restricted area during the same period as this employee and noted that these individuals received 0 millirem, indicating that the dose was probably received at another facility. Most employees received no exposure for the quarter and no exposure for 1992. Based a review of the personnel dosimetry records, a quarterly frequency for processing TLDs appears to be appropriate for the external hazard

on-site.

e. Radiation Safety Training

The inspectors reviewed Lockheed training records and interviewed personnel on-site to evaluate compliance with 10 CFR 19.12. 10 CFR 19.12 requires, in part, that all individuals working in or frequenting any portion of a restricted area shall be kept informed of the use of radioactive materials and the health protection problems associated with exposure to such radioactive materials, and in the applicable provisions of the Commission's regulations and licenses (NRMP No. 04-60530-L1NP in this case). An employee interviewed by the inspectors stated that he had not received instruction in the hazards and health protection problems present in the Tower 11 restricted area even though he has routinely worked in the area since arriving on-site. A review of the training records and the entry log for the restricted area indicates that two employees worked in the RCA on May 24-27, 1993, but did not receive any occupational radiation protection training from Lockheed until May 28, 1993 or the China Lake environmental, safety, and health overview until June 2, 1993. The NAWS RSO stated that he had performed no training for any contractor personnel at the Tower 11 site on the NRMP and its conditions since the beginning of the project because he believed that the Navy RASO had agreed that he was not to provide supervision for the Lockheed radiation safety program. The failure of the licensee to instruct these three individuals on the uses and hazards associated specifically with the DU contamination in the restricted area at Tower 11 and the failure of the NAWS RSO to provide instruction to Lockheed employees on the provisions of the permit under which Tower 11 operations are conducted is considered a violation of 10 CFR 19.12.

f. Air Sampling

The airborne radioactivity sampling program was reviewed for consistency with guidance provided in U.S. NRC Regulatory Guide (RG) 8.25 "AIR SAMPLING IN THE WORKPLACE." RG 8.25, Section 1.2, states, in part, that the extent of air sampling may be based on estimates of worker intakes and on estimates of airborne concentrations of radioactive materials. Estimates of potential intakes and concentrations should be based on historical air sampling or bioassay data if these data are available. The inspectors reviewed air sample log entries from January 1, 1993 to March 21, 1993, a period in which the site was at full operation. Air samples were taken during working hours, at intervals of 20 or 30 minutes, and at various locations in the RCA. The sample concentrations did not appear to be greater than 10% of the maximum permissible concentration for uranium-238 (1×10^{-10} uCi/ml) when averaged over a 40-hour week and varied greatly from one location to another within the RCA. RG 8.25, Table 1 states that intermittent or grab samples are appropriate in this case.

A former HP Supervisor stated in a telephone discussion that extensive sampling had been performed when Lockheed first began operations on-site in 1992 to determine the extent of the airborne hazard. He further stated that none of the samples had revealed concentrations near the maximum permissible concentration (MPC) for uranium. He stated that all air samples were taken during operations and that the samples were taken in the breathing zone of personnel on-site. The Senior HP on-site during the inspection also stated that all air samples were taken in the breathing zone, although the flow of air on-site was sometimes difficult to determine because operations are conducted outside in a windy area and the wind frequently changes direction.

g. Navy Oversight of Decontamination Activities

The NAWS RSO stated that although AWC Lockheed was operating under the NAWS NRMP for DU munitions, he believed that the Navy RASO had determined that he was not required to supervise AWC's radiation protection program. He stated that he saw his role as insuring that the Tower 11 site was fully remediated and that the release criteria for the site are met. He stated that he has not been acting as the RSO for Tower 11 operations, but that the Navy did review and approve of AWC Lockheed's radiation protection procedures prior to the start of work. He also stated that he has contacted the site regularly to see how operations are proceeding. However, none of the surveys, radiation work permits, bioassay results, or personnel dosimetry records reviewed by the inspectors were signed by the NAWS RSO. Thus, it did not appear that the NAWS RSO performed oversight of operations at Tower 11.

The NAWS RSO performed one audit of the Tower 11 site under the NRMP on February 18-19, 1993. NAVMED P-5055, "Radiation Health Protection Manual," Section 1-6, which is incorporated into the Navy's master materials license (No. 45-23645-01NA), requires that evaluations of radiation health programs shall be conducted at least semi-annually by an independent person. The inspectors reviewed the NAWS RSO's audits of Tower 11 from 11/92 to 10/93. Based on a review of the audit performed by the NAWS RSO, this requirement appears to have been met. However, the NAWS RSO did not audit the radiation protection program at Tower 11 quarterly as required by RAD-010, Section 6.2.12 (incorporated into the NAWS permit) or supervise the AWC program. The failure of the Navy RSO to perform a quarterly audit of the radiation protection program at Tower 11 appears to be a deviation from the NRMP.

4. Posting

The inspectors observed site postings and reviewed them for compliance with 10 CFR 19. 10 CFR 19.11 requires, in part, that a licensee post current copies of the regulations in Parts 19 and 20, the license and license conditions (in this case, the Navy radioactive materials permit (NRMP) and its conditions), and operating procedures (in this case, Navy

RAD-010) applicable to licensed activities or a notice stating where these documents may be examined. In addition, the licensee is required to post NRC Form 3. The inspectors observed an NRC Form 3 posted in the office at the Tower 11 site upon their arrival. However, there was no posting of the other documents required by 10 CFR 19.11 nor a notice stating where they could be examined. Lockheed personnel on-site stated they were not aware of the requirement to post the documents or a notice and that some postings had been overlooked when the site configuration was changed after the leach circuit was dismantled. At least three site personnel interviewed by the inspectors were not aware that licensed activities on-site were being conducted under the China Lake NRMP for DU-containing munitions. The fact that some Tower 11 personnel were unaware they were operating under the NRMP and the lack of the required postings is further evidence that the NAWS RSO has performed little supervision of the radiation protection program at Tower 11. The lack of the required postings was immediately corrected by the licensee before the end of the inspection. Upon learning their posting was inadequate Lockheed AWC expediently posted current copies of the NRMP and its conditions and Parts 19 and 20 and Navy operating procedures. This violation was not cited because the criteria in Section VII.B. of the Enforcement Policy had been satisfied.

One non-cited violation was identified in this program area.

5. Exit Meeting

On October 7, 1993, two exit meetings were held with the persons noted in Section 1 of this report, one with contractor personnel and one with NAWS personnel. The inspectors discussed the scope and initial findings of the overall inspection. The inspectors also indicated their concern that the line of responsibility for the remediation activities at the Tower 11 site has never been adequately documented with the result that the contractor, AWC Lockheed, is operating under a NAWS radioactive materials permit with little supervision by the NAWS RSO.