

**APPENDIX A
INDUSTRIAL/ACADEMIC/RESEARCH INSPECTION RECORD (IP 87110)**

REGION I

Insp. Report #	00-001	License #	29-01022-07	Docket #	030-06989
Licensee Name	Department of the Army				
Street Address	US Army Communications-Electronics Command				
City, State, Zip	Fort Monmouth, New Jersey 07703-5024 (see directions, last page)				
Location (Authorized Site) Being Inspected			same as above		
Licensee Contact Name		Joseph Santarsiero, RSO		Phone #	732-532-9723
Priority	3 E	Program Code	03511	Description	irradiator
Date of Last Inspection:		8/20/98		Date of This Inspection	12/12/00
Type of Insp.	Announced	Special	Initial		
	Unannounced	x	Routine	x	
Next Insp. Date	December 2005	Normal	Reduced	Extended	x
Justification for change in normal inspection frequency:		98-001 clear/591 00-001 clear/591			
Summary of Findings and Actions					
No violations, Clear 591 or letter issued		x	Non-cited violations		
Violation(s), 591 issued		Violation(s), letter issued			
Follow up on previous violations:					
Inspector - Printed Name		Betsy Ullrich, Senior Health Physicist, NMSB2			
- Signature		<i>Betsy Ullrich</i>		Date	<i>12/14/00</i>
Approved - Printed Name		John D. Kinneman, Chief, NMSB2			
- Signature		<i>John D. Kinneman</i>		Date	<i>12/15/2000</i>

PART I-LICENSE, INSPECTION, INCIDENT/EVENT, AND ENFORCEMENT HISTORY

1. AMENDMENTS AND PROGRAM CHANGES

License amendments issued since last inspection, or program changes noted in the license.

Am. No.	Date	Subject
29	12/7/98	
30	8/7/00	

2. INSPECTION AND ENFORCEMENT HISTORY

Unresolved issues; previous and repeat violations; Confirmatory Action Letters; and orders.

-06: 00-001 NOV issued for performing soil remediation without a decommissioning plan. The licensee contested the violation. This issue was cited, and will be resolved, by the D&L Branch.

3. INCIDENT/EVENT HISTORY

List any incidents or events reported to NRC since the last inspection. Citing "None" indicates that regional event logs, event files, and the licensing file have no evidence of any incidents or events since the last inspection.

None.

PART II - INSPECTION DOCUMENTATION

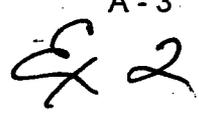
NOTE: References that correspond to each inspection documentation topic are in Inspection Procedure 87110, Appendix B, "Industrial/Academic/Research Inspection References."

The inspection documentation part is to be used by the inspector to assist with the performance of the inspection. Note that not all areas indicated in this part are required to be addressed during each inspection. However, for those areas not covered during the inspection, a notation ("Not Reviewed" or "Not Applicable") should be made in each section, where applicable.

All areas covered during the inspection should be documented in sufficient detail to describe what activities and procedures were observed and/or demonstrated. In addition, the types of records that were reviewed and the time periods covered by those records should be noted. If the licensee demonstrated any practices at your request, describe those demonstrations. The observations and demonstrations you describe in this report, along with measurements and some records review, should substantiate your inspection findings. Attach copies of all licensee documents and records needed to support violations.

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1.	ORGANIZATION AND SCOPE OF PROGRAM
<p>Management organizational structure; authorized locations of use, including field offices and temporary job sites; type, quantity, and frequency of material use; staff size; delegation of authority.</p>	
<p>The licensee has three NRC licenses that authorize activities at this location. LN 29-01022-14 is a license of limited scope authorizing possession and distribution of certain military commodities to Army facilities nation-wide. This license was inspected in August 2000, and was not inspected at this time.</p> <p>LN 29-01022-06 is a license of broad scope, which authorizes research and development at Fort Monmouth and at temporary job sites, training, and calibration and leak services for others (all military customers at this time). At the time of the inspection, no work had yet been done at temporary job sites. Activities under this license occur primarily with sealed sources in the range of microcuries to millicuries. A source was received during the past year and is in use. A is used almost daily for instrument calibration. A is used less frequently, for calibration of certain instruments. This license formerly authorized use of licensed materials at the Evans Area, but this area is being decommissioned. Decommissioning activities are authorized under this license, but are inspected separately by the RI Decommissioning and Laboratory Branch, and were not reviewed during this inspection.</p>	
<p>LN 29-01022-07 authorizes the use of a The area in which the irradiator was housed at the time of the last inspection required renovation, and the irradiator was in storage until fall of 2000, when it was re-installed in Building 2540A and is currently used for R&D.</p>	
<p>Two researchers routinely used licensed materials during the period since the last inspection. Two persons performed most of the instrument calibrations, and one individual performs most of the leak test analysis. Other individuals assist in these activities, as well as those authorized by the -14 license. Both Army and contract employees work with licensed materials.</p> <p>Stephen LaPoint is the Director of the Directorate of Safety. Joe Santarsiero, the Deputy Director, is the current RSO. Rich Lovell is the Chief, Radiological Engineering Division, and likely will be requested to be named the next RSO. Barry Silber is the Health Physicist principally involved in licensing activities. A Radiation Safety Committee is in place as required by 10 CFR Part 33.</p>	

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2.	MANAGEMENT OVERSIGHT
<p>Management support to radiation safety; Radiation Safety Committee (RSC); Radiation Safety Officer (RSO); program audits, including annual reviews of program and as low as is reasonably achievable (ALARA) reviews; control by authorized users.</p>	
<p>Minutes of the Radiation Safety Committee (RSC) were reviewed for December 1999, and March, June, and September 2000. The RSC is comprised by representatives of various licensed activities. Minutes included documentation of permit application review results, and discussions of radiation safety and compliance activities, including audits and inspections performed by internal and external groups. An audit was performed by TMDE (Redstone) of the calibration procedures and facilities during the past year.</p>	

3.	FACILITIES
<p>Facilities as described; uses; control of access; engineering controls; calibration facilities; shielding; air flow:</p>	
<p>The major activities covered by the -06 and -07 license are located in Building 2540, next to the Safety Office. Facilities were as described in the license. Access to the building was controlled. Sources were in locked areas when not attended. The facilities have visual and audible alarms and interlocks, which were demonstrated to be operable during the inspection. The room in which the irradiator is located also contains source and a RaBe source; the backstop wall contains supplemental shielding for gamma and neutron radiation. A confirmatory survey was performed during the inspection, outside the room along the outer walls, and along the perimeter fence. Radiation levels measured by the inspector were in agreement with those submitted to the NRC in a letter dated November 20, 2000, following re-installation of the irradiator.</p>	

4.	EQUIPMENT AND INSTRUMENTATION
<p>Operable and calibrated survey equipment; procedures; 10 CFR Part 21.</p>	
<p>All survey meters observed to be in use during the inspection were calibrated as required. Licensee representatives stated that they typically perform calibration of survey instruments each day, for themselves and other military groups (Army, National Guard, etcetera), and have standard operating procedures for various survey instruments and uses of the instruments. Licensee representatives stated that they plan to be ISO-9001 certified during the next year.</p>	

FX 2

The licensee also performs leak tests for their own sealed sources, and as a service to others, using a gas-flow proportional counter for most radionuclides, and a liquid scintillation counter for tritium and nickel-63. These instruments are calibrated quarterly using appropriate standards. A daily instrument check is performed to assure that the instruments are operating properly, and an LLD is calculated daily. For both instruments, the LLD was in the range of 1 E-6 microcuries. Calibration and daily records were reviewed during the inspection.

5.

MATERIAL USE, CONTROL, AND TRANSFER

Materials and uses authorized; security and control of licenses materials; and procedures for receipt and transfer of licensed material.

Licensed materials observed to be possessed and used during the inspection were as authorized on the license. Licensed material was secured and controlled. Few licensed materials have been purchased since the last inspection; during the past year, only the Cf-252 source was added to the sources inventory. The June 2000 inventory of licensed materials was reviewed in hard copy. The current inventory was reviewed in electronic format. Each source is assigned an in-house tracking number, and the data (radionuclide, activity/date, location, authorized user, etcetera) about the source is entered into the tracking system at the time the source is received.

6.

AREA RADIATION SURVEYS AND CONTAMINATION CONTROL

Radiological surveys; air sampling; leak tests; inventories; handling of radioactive materials; contamination controls; records; and public doses.

Leak tests are performed and analyzed as required. A separate database is maintained for leak test results records. This database was viewed. Annually, a list of sealed sources is developed showing each source that is required to be leak tested, in date order. Sources possessed under the -06 and -07 licenses were leak-tested at the required frequencies, based on review of the records for 2000. No leakage was identified. Inventory is also performed as required. No unsealed materials have been used recently, other than calibration standards for the liquid scintillation counter.

7.

TRAINING AND INSTRUCTIONS TO WORKERS

Training and retraining requirements and documentation; interviews and observations of routine work; staff knowledge of all routine activities; 10 CFR Parts 19 and 20 requirements; emergency situations; and supervision by authorized users.

Individuals interviewed during the inspection appeared knowledgeable about the materials they used, and the radiation safety procedures and the radiation protection program for their activities. Permit applications contained in the RSC minutes indicate that individuals have appropriate education and experience prior to approval by the RSC. Records for the 4 individuals who perform most work with licensed materials were reviewed, and training was provided as required.

8.	RADIATION PROTECTION
Radiation protection program with ALARA provisions; external and internal dosimetry; exposure evaluations; dose and survey records and reports; annual notifications to workers; bulletins and other generic communications.	
<p>Dosimetry is provided through the Army at Redstone Arsenal, Kentucky, which maintains NVLAP certification. Dosimeters are TLD, issued quarterly. Dosimeters were observed to be worn by all persons working with the -06 and -07 licensed materials during the inspection. Ring dosimeters are required to be worn for certain activities. The RSC minutes contained summaries of external dosimetry results; typical doses were less than measurable. Annual doses in 1999 were not measurable for most workers. Quarterly results were maintained in individuals' files; for the 4 workers who perform most work, records for the first and second quarters of 2000 were available; the maximum whole body dose was 28 millirem. Although the results for the third quarter 2000 have not yet been received, licensee representatives stated that Redstone would notify them immediately if doses exceeding internal action levels were measured on the dosimeters. The licensee does not expect to see any unusual doses for workers who performed re-installation of the 81-22 irradiator, because most of the work was performed using mechanical equipment, and the sources were in the shielded position at all times.</p>	

9.	RADIOACTIVE WASTE MANAGEMENT
Disposal; effluent pathways and control; storage areas; transfer; packaging, control, and tracking procedures; equipment; incinerators, hoods, vents and compactors; license conditions for special disposal method.	
<p>Most waste generated since the last routine inspection was generated by decommissioning activities. This was not reviewed during this inspection.</p>	

10.	DECOMMISSIONING
Records relevant to decommissioning; decommissioning plan/schedule; notification requirements; cost estimates; funding methods; financial assurance; and Timeliness Rule requirements; changes in radiological conditions since decommissioning plan was submitted.	
<p>See inspection 00-001.</p>	

11.	TRANSPORTATION
Quantities and types of licensed material shipped; packaging design requirements; shipping papers; hazardous materials (HAZMAT) communication procedures; return of sources; procedures for monitoring radiation and contamination levels of packages; HAZMAT training; and records and reports.	
Most shipments since the last inspection involved waste from decommissioning activities. This was not reviewed during this inspection.	

12.	NOTIFICATIONS AND REPORTS
Reporting and followup of theft; loss; incidents; overexposures; change in RSO; authorized user; and radiation exposure reports to individuals.	
-07, LC 14 requires the licensee to submit results of surveys of the irradiation facility following installation etcetera of sources. This was submitted as required.	

13.	POSTING AND LABELING
Notices; license documents; regulations; bulletins and generic information; posting of radiation areas; and labeling of containers of licensed material.	
Postings and labelings were observed during the inspection, and were as required.	

14.	INDEPENDENT AND CONFIRMATORY MEASUREMENTS
Areas surveyed, both restricted and unrestricted, and measurements made; comparison of data with licensee's results and regulations; and instrument type and calibration date.	
Confirmatory surveys were performed inside and outside of the room containing the source, as follows:	

Ex 2

With the [redacted] in its shielded location, using a Ludlum Model 14C survey meter with a thin-end window GM, NRC SN 009658, calibrated 7/13/00

- 0.5 mR/h at appr. 1 meter from irradiator sides and back, in agreement with readings by licensee ion chamber
- 3-4 mR/h at appr 1 meter from [redacted] "howitzer" container (in good agreement with the TI of 4 for this
- outside building (licensee survey locations 53 through 58 along perimeter fence, outside wall): background (less than 0.05 mR/h)

With [redacted] in open position, using Ludlum model RO-2 ion chamber, NRC SN 010353, calibrated 11/7/00:

- inside building, at closed interlocked door (approximately at licensee survey location 8): 7-8 mR/h at 3' height
- outside building wall, appr. licensee survey location 7, 8 ground level: 1 mR/h
- outside building wall, licensee survey locations 10, 11, 12 ground level: less than 0.2 mR/h
- inside perimeter fence, appr. licensee survey location 54: 0.2 mR/h
- inside perimeter fence, appr. licensee survey locations 52, 53, 56, 58: all less than 0.2 mR/h

15. VIOLATIONS, NON-CITED VIOLATIONS (NCVs), AND OTHER SAFETY ISSUES

State requirement and how and when licensee violated the requirement. For NCVs, indicate why the violation was not cited. Attach copies of all licensee documents needed to support violations.

None.

16. PERSONNEL CONTACTED

Identify licensee personnel contacted during the inspection (including those individuals contacted by telephone).

Use # to indicate individual present at entrance meeting.

Use * to indicate individual present at exit meeting.

Name	Title	Phone No.	In Person or By phone
*Stephen LaPoint #Barry Silber *#Rich Lovell Nick Antonelli Gary Zimmerman Mary Chislett Otto Bismark	Director Health Physicist Branch Chief leak test lab calibration/irrad labs calibration/irrad labs calibration/irrad labs	732-427-4427 (Safety office)	in person (all)

EX 2

17.		PERFORMANCE EVALUATION FACTORS			
A.	Lack of senior management involvement with the radiation safety program and/or RSO oversight.	Y		N	x
B.	RSO too busy with other assignments.	Y		N	x
C.	Insufficient staffing.	Y		N	x
D.	RSC fails to meet or functions inadequately.	N/A		N	x
E.	Inadequate consulting services or inadequate audits conducted.	N/A		N	x
REMARKS : (Consider the above assessment and/or other pertinent Performance Evaluation Factors (PEFs) with regard to the licensee's oversight of the radiation safety program)					
None.					

18.		SPECIAL CONDITIONS OR ISSUES	
NONE		Special license conditions	
-07 LC 14: report results of survey, done in letter dated November 20, 2000.			
-07 LC 19: Licensee use of <input type="checkbox"/> meets requirements of this condition; uses option D not C			
-07 LC 21, letter dated August 1, 2000: one-time authorization to re-install the irradiator as described in the letter.			

PART III - POST- INSPECTION ACTIVITIES	
1.	REGIONAL FOLLOWUP ON PEFs
NA	
2.	DEBRIEF WITH REGIONAL STAFF
Post-inspection communication with supervisor, regional licensing staff, Agreement State Officer; and/or State Liaison Officer.	
NA	

TO ADVANCE TO NEXT SECTION OF FORM - PRESS PAGE DOWN KEY

EX 2

**APPENDIX A - ATTACHMENT A
DECOMMISSIONING TIMELINESS INSPECTION**

Licensee: Army - Fort Monmouth		Date of Inspection: 12/12/00	
1.	COMPLIANCE WITH DECOMMISSIONING TIMELINESS RULE		
(NOTE: Repeat the answers given in Section 12 of the main body of the inspection record. The issues in subsequent sections are dependent on the answers to these questions.)			
	A.	License to conduct a <i>principal activity</i> <u>has</u> expired or been revoked:	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>
	B.	Licensee <u>has</u> made a decision to permanently cease <i>principal activities</i> at the entire site, or any separate buildings, or any outdoor areas, including inactive burial grounds:	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>
	C.	A 24-month duration has passed in which no <i>principal activities</i> have been conducted under the license at the site, or at any separate buildings, or any outdoor areas, including inactive burial grounds:	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>
	D.	If "Yes" to either A or B or C above:	
	(1)	Identify Site/Bldg./Area: Evans Area	
	(2)	Date of occurrence of A, B, or C:	
2.	NOTIFICATION REQUIREMENTS		
	A.	Licensee has provided written notification to U.S. NRC within 60 days of the occurrence of 1.A., 1.B., or 1.C. above.	Y <input type="checkbox"/> X <input checked="" type="checkbox"/> N <input type="checkbox"/>
	If "Yes," date of notification:		
	B.	If the licensee is requesting to delay initiation of the decommissioning process, the licensee <u>has</u> provided written notification to NRC within 30 days of occurrence of 1.A., 1.B., or 1.C. above:	N/A <input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/>
	If "Yes," date of notification:		
Basis for Findings: review of license file			
3.	DECOMMISSIONING PLAN/SCHEDULE REQUIREMENTS		
	A.	Licensee is required to submit a decommissioning plan per 10 CFR 30.36(g), 40.42(g), 70.38(g), or 10 CFR Part 72?	N/A <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/>
	If "No" to 3.A., answer the following items B - F:		

B.	The decommissioning work scope is covered by current license conditions.		Y			N	
C.	Decommissioning has been initiated within 60 days of notification to NRC, or NRC has granted a delay.		Y			N	
D.	If licensee has initiated decommissioning, give date the decommissioning was initiated:						
E.	If decommissioning has been completed, it was completed within 24 months of notification to NRC.	N/A		Y		N	
F.	If decommissioning is still scheduled to be completed, it is on schedule to be completed within 24 months of notification to NRC.						
		N/A		Y		N	
Basis for Findings: See Insp No. 03005248/00-001 and previous inspections of the decommissioning activities.							
If "Yes" to 3.A., answer the following items G - J:							
G.	The decommissioning plan has been submitted to NRC within 12 months of notification.		Y			N	
If "Yes," date of submittal:							
If NRC approved, date of NRC approval:							
H.	Has the licensee submitted an alternative schedule request?		Y			N	
If "Yes," date of submittal:							
I.	If decommissioning has been completed, it was completed within 24 months after approval of the decommissioning plan.	N/A		Y		N	
J.	If decommissioning is still scheduled to be completed, it is on schedule to be completed within 24 months after approval of the decommissioning plan.						
		N/A		Y		N	
Basis for Findings: See Insp No. 03005248/00-001 and previous inspections of the decommissioning activities.							
Violations identified, if any:							

END

DIRECTIONS TO FORT MONMOUTH. The Directorate of Safety is located in Building 2539 on Laboratory Road in the Charles Woods Area.

FROM ROUTE 35: Follow Route 35 to where it becomes Main Street. The main entrance to the Main Post at Fort Monmouth is at a traffic-light intersection of Main Street (Rt. 35) and Tinton Avenue (also known as Rt. 537). Take Tinton Avenue east (opposite from the Main Post entrance) until you reach Hope Street (Route 51). Make a left onto Hope Street. Laboratory Road will be the second entrance on the right, at a traffic light. Follow Laboratory Road to the left, and Building 2539 will be the first building on the left.