

37-02006-05

LICENSE NO: _____

DOCKET NO. (s) 030-06046
030-12894
040-07344

PAGE _____ OF _____

ATTACHED

- Appendix A
- Appendix B
- Appendix C
- Memo

INSPECTION REPORT NO. _____

General Electric Company
Valley Forge Space Center
P.O. Box 8555
Philadelphia, PA 19101

LICENSEE CONTACT: _____ Telephone No: _____

LICENSE NO: 37-02006-05 CATEGORY EIA PRIORITY: III
37-02006-09 CATEGORY E PRIORITY: III
9UB-831 CATEGORY I PRIORITY: III

INSPECTION DATE (s): 11/13-14/85 TYPE OF INSPECTION: SPECIAL ANNOUNCED

260 Goddard Blvd.

- ROUTINE UNANNOUNCED
- DAYSHIFT
- OTHER

SUMMARY OF FINDINGS AND ACTION

- NO NONCOMPLIANCE, CLEAR 591 ISSUED
- NO NONCOMPLIANCE, LETTER
- NONCOMPLIANCE, APPENDIX A
- ACTION ON PREVIOUS NONCOMPLIANCE, APPENDIX B
- NONCOMPLIANCE, 591 ISSUED
- SUPPLEMENTAL INFO, APPENDIX C

RECOMMENDATIONS
SEE BASIS IN APPENDIX C

CHANGE CATEGORY TO: _____ CHANGE PRIORITY TO: _____
NEXT INSPECTION DATE: 11/88

PERSONS CONTACTED

Alfred Kobylinski, Senior Industrial Hygienist, RSO
Brad Berkowitz, Health & Safety Adm.
Paul Vincent, Specialist Fine Protection & Safety
Charles Chilton, Mgr. Industrial Safety & Hygiene
Charles Gilman, Supervisor for Kr-85 Leak Tester of Propulsion Systems
Thomas P. Handley, Chairman RSC, Mgr. Industrial Safety Security, Safety & Adm. Services

INSPECTOR: E. White / A. Doustra

APPROVED: J. Glenn 12/16/85

FOIA - 2007-304
Information in this record was deleted in accordance with the Freedom of Information Act, exemptions 2

F-14

(July 82)

77710E Industrial - Academic

INSPECTION PLAN AND REPORT NUMBER _____ Page _____ of _____

Plan Approved: _____ Date: _____

Licensee: _____ License No. _____

Inspection Items	Scheduled for Inspection	Post Inspection Status	Module No.
Management Meeting - Entrance and Exit Interviews (Required)			30703B
Program Requirements, MC 2850 (Required)			77710B
Followup on Noncompliance and Deviations			92702B
Independent Inspection Effort (Required)			92706B
Transportation			86740B

AREAS INSPECTED AND FINDINGS

Licensee: _____ License No: _____ Amendment No: _____

INSPECTION ITEMS	CRITERIA	FINDING
1. <u>Organization</u>	Lic Cond _____	<u>C</u>
Management organization?	<i>Ionizing Radiation Advisory Group oversees</i>	
Radiation Protection Organization?	<i>all authorizations, Membership includes</i>	
Scope of Operation? Activity	<i>Mgr. Industrial Security, Safety & Adm. Services or</i>	
NOTES & REMARKS: <i>limited to Mg/Th, K-85 leak tests of propulsion units, activated electronics parts and irradiation</i>	<i>Chairman, Director of Medical Division, Safety Officer, and RSO</i>	
2. <u>Licensee Internal Audits</u>	Lic Cond _____	<u>C</u>
Scope and frequency?	<i>Few audits being done, mentioned that Rad Safety</i>	
Management controls?	<i>"gov & practice" includes an audit program.</i>	
NOTES & REMARKS:		
3. <u>Training and Instructions to Employees</u>	Lic Cond _____	<u>C</u>
Training program, scope and frequency, retraining?		
Required tests administered; scores satisfactory?		
Instructions to workers? <input checked="" type="checkbox"/>	19.12	
NOTES & REMARKS: <i>Discussed training with several individuals involved with licensed materials, all had received instruction.</i>		
4. <u>Radiation Protection Procedures</u>	Lic Cond _____	<u>C</u>
Operating & emergency procedures implemented? <input checked="" type="checkbox"/>		
Security? <input checked="" type="checkbox"/>	20.207	
NOTES & REMARKS:		
5. <u>Materials, Facilities and Instruments</u>	Lic Cond _____	<u>C</u>
Authorized uses and quantities? <input checked="" type="checkbox"/>		
Restricted areas, posting requirements? <input checked="" type="checkbox"/>	20.203	
Survey instruments & dosimeters; operable, properly calibrated? <input checked="" type="checkbox"/>		
NOTES & REMARKS:		

AREAS INSPECTED AND FINDINGS

Licensee: _____ License No: _____ Amendment No: _____

INSPECTION ITEM	CRITERIA	FINDING
6. Receipt and Transfer of Materials <u>NC</u> C		
Procedures implemented, adequate?	20.205, 71.51	
Transfer of byproduct material?	30.41	
Control of source material,	40.51, 40.64, 70.42, 70.51, 70.53, 70.54	
Labeling and packaging?	71.5, 49CFR 170-189	
Records of receipt, transfer, storage, and monitoring?	49 CFR 173.475 30.51	
Procedures for pickup, receipt, monitoring of packages?	20.205(b)&(c)	Failure to do smears to evaluate the ensure that RAM containers do not exceed 2200 dpm/100 cm ² removable. No smears have ever been done. Shipments 3 Bbb) to Bonwell, SC (Chen Nuclear) on 2/29/85
NOTES & REMARKS:	<p>TH-Mg waste 7 Bbb) shipped to Laneko Precision Co Montgomeryville, PA on 9/11/85</p>	
7. Personnel Protection - External <u>C</u>		
Personnel monitoring control; minimize exposures, control of accumulated dose?	20.101, 201.102, 20.202	
Surveys conducted, adequate?	20.201	
Records of monitoring, surveys, disposals?	20.401, Lic Cond _____	
Levels in unrestricted areas?	20.1, 20.105	
NOTES & REMARKS:	<p>Area around Kr-85 bottle storage area near 2 MR/hr with ~ 8 Kr-85 bottles 7 x 2.95 Ci ~ 20 Ci</p>	
8. Personnel Protection - Internal <u>N/C</u>		
Airborne concentrations in restricted areas?	20.103	
Exposure of minors?	20.104	
Posting of airborne radioactivity areas?	20.203	
Survey, monitoring bioassay requirements, records?	20.201, 20.401	
Leak tests of sealed sources?	Non compliance Lic Cond <u>13</u>	
NOTES & REMARKS:	<p>Several sources not leaked tested @ proper freq.:</p> <p>Et (b)(2) High Ni-63 Electron Capture Detector cell last leak test 8/84</p> <p>Co-60 Irradiator (Gamma Cell 220) last leak tested 1/85</p> <p>3 10mCi Pu-238 & sources leak tested 8/84, 2/85, 8/85 not</p>	

AREAS INSPECTED AND FINDINGS

Licensee: _____ License No: _____ Amendment No: _____

INSPECTION ITEM	CRITERIA	FINDING
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9. Effluent Control, Waste Disposal

Release of effluents?

20.201 (b)
20.106 ~~etc~~?

N/C?

Waste disposal, proper packaging for shipment?

20.301, 20.303, 20.304, 20.305

Procedures, records?

~~etc~~
20.401, Lic Cond _____

NOTES & REMARKS:

Release of Kr-85 for leak tester has not been done as yet as per telephone conv. with J. Davis licensee could not find release surveys showing compliance @ 20.106 for Kr-85 leak tests. Approx. 2-3 times/yr a release of 0.5 Ci each.

10. Transportation

N/C

Management controls, audits?

Selection of packaging?

49 CFR 173.393-5; 10 CFR 71

Preparation of packages for shipment? Filling and loading, closing, liquids? Markings & labelling? Monitoring?

49 CFR 172, 173
49 CFR 172.300
49 CFR 172.402, 403
49 CFR 173.393

49 CFR 173.475

Shipping papers, loading and placarding of vehicles?

49 CFR 172.200

Reports of Incidents?

None Incidents

49 CFR 171.15, 171.16

Training program?

Examination of packages? ✓

Failure to perform smears to ensure that RAM packages removable conform. not exceeding 2200 dpm/100 cc for Mg-Th waste shipment. Shipments on 8/29/85, 9/11/85 but smears have never been done.

11. Notifications and Reports

To individuals?

19.13

Overexposures, excessive levels and concentrations, incidents?

20.403, 20.405

None

Personnel exposures and monitoring, termination reports?

20.407, 20.408

Theft or loss of licensed materials?

20.402

NOTES & REMARKS:

304A & 304B Co-60 ~ 100 mCi sealed sources were unaccounted for in inventory but found later during inspection.

AREAS INSPECTED AND FINDINGS

Licensee: _____ License No: _____ Amendment No: _____

INSPECTION ITEM	CRITERIA	FINDING
12. <u>Posting of Notices</u>		<u>C</u>
Part 20, license & documents, procedures, notice of violations?	19.11(a) ✓	
NRC-37 ✓	19.11(c)	
NOTES & REMARKS:		
13. <u>Environmental Monitoring Program</u>		
	Lic Cond _____	<u>N/A</u>
Implementation of program, scope and frequency as required?		
Records maintained, reviewed by management?		
NOTES & REMARKS:		
14. <u>Emergency Preparedness</u>		
	Lic Cond _____	<u>C</u>
Procedures available for incidents and accidents? ✓		
Training for personnel; coordination with supporting groups and agencies? ✓		
NOTES & REMARKS:		
15. <u>Other License Conditions</u>		
		<u>NC</u>
<p><i>Failure to maintain radioactive materials inventory as reqd. by documents incorporated into license by application dated 11/16/84 cited in LC 20</i></p>		
NOTES & REMARKS:		

INSPECTION REPORT NUMBER _____

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AREAS INSPECTED AND FINDINGS

Licensee: _____ License No: _____ Amendment No: _____

INSPECTION ITEM	CRITERIA	FINDING
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16. Confirmatory Measurements

Licensee's surveys verified on sampling basis? 201.105, 20.201

Verified radiation level around Kr-85 bottle storage area < 2 mrem/hr in unrestricted area.

NOTES & REMARKS:

NRC Instrument: Ludlum 14C Calibration due date: 2/2/86
NRC# 009664

17. Independent Inspection Effort

NOTES & REMARKS:

INSPECTION REPORT NUMBER _____

Page _____ of _____

APPENDIX A - DOCUMENTATION OF NONCOMPLIANCE

Licensee: _____

License No: _____

Reference	Basis for noncompliance
Report item <u>8</u> 10 CFR _____ Lic Cond <u>13</u> Type n/c _____	Failure to perform leak tests with required frequency
Report item <u>9</u> 10 CFR 20.106 <u>20.201(b)</u> Lic Cond _____ Type n/c _____	Failure to perform surveys to comply with 10 CFR 20.106 regarding the release of effluents to unrestricted areas
Report item <u>10</u> 10 CFR <u>71.5</u> Lic Cond _____ Type n/c _____	Failure to perform smears to ensure that removable contain. of RAM packages do not exceed 2200 dpm/100cm ²
Report item <u>15</u> 10 CFR _____ Lic Cond <u>20</u> Type n/c _____	Failure to maintain RAM inventory as req'd. by doc. application incorporated into license.
Report item _____ 10 CFR _____ Lic Cond _____ Type n/c _____	
Report item _____ 10 CFR _____ Lic Cond _____ Type n/c _____	

APPENDIX B - LICENSEE ACTION ON PREVIOUS INSPECTION FINDINGS

Licensee: _____

License No: _____

Identification and summary of action taken	Status
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Report No: <u>84-01</u>	Type n/c: <u>SL IV</u>	Describe: <u>Failure to provide 10 CFR 19.12 training</u>
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Action taken: <u>Talked with RSO who indicated that all individuals who work in restricted areas received a special training document and had to sit through a film strip training session. All workers inspected talked to had received training</u>	OPEN CLOSED
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Report No: _____	Type n/c: _____	Describe: _____
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Action taken:	OPEN CLOSED
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Report No: _____	Type n/c: _____	Describe: _____
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Action taken:	OPEN CLOSED
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Report No: _____	Type n/c: _____	Describe: _____
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Action taken:	OPEN CLOSED
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Report No: _____	Type n/c: _____	Describe: _____
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Action taken:	OPEN CLOSED
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Report No: _____	Type n/c: _____	Describe: _____
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Action taken:	OPEN CLOSED
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APPENDIX C - SUPPLEMENTARY INFORMATION

Licensee: _____ License No: _____

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- | | |
|---|---|
| <input type="checkbox"/> () Uncorrected/repeated noncompliance | <input type="checkbox"/> () Unresolved items |
| <input type="checkbox"/> () Unusual occurrence, conditions, etc | <input type="checkbox"/> () Inspector's comments |
| <input type="checkbox"/> () Basis for change of Category or Priority | |
-

OFFICIAL TEST COPY

B4

DC3-TP-6421
31 May 1985

Data Sheet 5.6A. He/KR-85 Gas "K" Bottle Condition

<u>Gas Cylinder Initial Conditions</u>	<u>1st Cylinder</u>	<u>2nd Cylinder</u>	<u>3rd Cylinder</u>
Helium/Krypton 85 gas cylinder S/N	AS17110	43775T	92917
Tracer Gas Concentration (refer to cylinder log)	0.53×10^{-6}	0.53×10^{-6}	ci/cc
Cylinder Initial Pressure, P1 =	2000	1600	psig 1675
Cylinder Initial Activity, S1	2.95	2.38	ci 2.47

Gas Cylinder Final Conditions

Cylinder Final Pressure, P2 =	2000	1450	psig 1480
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Activity Removed from Cylinder S2

$$S_2 = (P1 - P2) (S1/P1) C1$$

$$S_{2I} = (2000 - 1450) (2.38 / 1600)$$

$$S_{2I} = (150) (0.0015) = \underline{0.225} \text{ ci (S/N 43775T)}$$

$$S_{2II} = (1675 - 1480) (2.47 / 1675) = 0.288 \text{ (S/N 92917)}$$

TOTAL LOSS IN ACTIVITY

$$= S_{2I} + S_{2II} = .225 + .288 = \textcircled{0.513 \text{ ci}}$$

FINAL ACTIVITY:

$$S/N 43775T = 2.38 - .225 = 2.16 \text{ ci}$$

$$S/N 92917 = 2.47 - .288 = \text{~~2.18 ci~~} \left. \begin{array}{l} 2.18 \text{ ci} \\ 2.18 \text{ ci} \end{array} \right\} \text{7/16/85}$$

Stock	Magnesium	Thorium			wt
7 Stock Panels	at	410 lbs each	=	2870.00	lb
12 small parts				500.0	"
1 stock panel				410.0	"
1 stock panel				410.0	"
				<hr/>	
Total				4190	lbs

Vehicles	Vehicle #	Pannels		wt	
	3A3	3		172	
	B6	3		172	
	A2	3		172	
	B7	3		172	
		1 extra		75	
Total				<u>763.0</u>	lbs

Scrap in Vault
waste for disposal

435 lbs

Chips + trash

13 drums at 10 lbs @ = 130 lbs

38 drums at 50 lbs @ = 1950 lbs

2080

7468

Grand Total

7468 x 0.02 = 149.36

Other Thorium

Thorium Oxide

25 lbs

Thorium Nitrate

1 lb

Thorium (1575 grams)

3.5

Total

29.5 lbs

$$\begin{array}{r} 149.36 \\ + 29.5 \\ \hline 178.86 \end{array}$$

Total Thorium = 178.86 lbs

81 Kg