Lockheed Martin Commercial Space Systems Newtown
License Renewal/Amendment
NRC # 37-02006-09
April 25, 2003

LOCKHEED MARTIN

April 25, 2003

NMSB 2

Ms. Elizabeth Ullrich
Nuclear Materials Safety Branch
US Nuclear Regulatory Commission: Region 1
476 Allendale Road
King of Prussia, PA 19406-1415

RECEIVED REGION I 2003 APR 28 PM 3:17

Subject: License Renewal
Amendment Application
Reference: License No. 37-02006-09
Docket No. 030-12894

Dear Ms. Ullrich,

Lockheed Martin Commercial Space Systems hereby submits an Application For Material License Form 313 with attachments for the purpose of renewal and amendment of license number 37-02006-09. The intent of the amendments is to 1) request a change regarding item 6B Thorium; 2) change of facility name; 3) permission to change the Radiation Safety Officer and Assistant Radiation Safety Officer position; 4) change in members of the Radiation Safety Committee,and authorized radioactive material users.

1. Please terminate present item 6B Thorium. Thorium is no longer handled at Lockheed Martin Commercial Space Systems in Newtown. Magnesium-thorium alloy materials have been shipped to the Lockheed Martin Facility located at 1111 Lockheed Martin Way, Sunnyvale, CA 94089. The California State License number is 0169-43, contact person is Donald Mercado, phone number (408) 742-0759. A Confirmation Close-Out Survey of the magnesium-thorium handling areas was completed by Porter Consultants on December 6, 2001. A copy of this report is included as attachment No 3.

2. The facility name, Lockheed Martin Corporation Communications and Power Center has been changed to Lockheed Martin Commercial Space Systems (LMCSS).

3. LMCSS requests permission to change the Radiation Safety Officer (RSO) to Richard J. Shaw, Senior Occupational Health & Safety Engineer, and to

133106

NMSS/RGNI MATERIALS-002

F/5

change the previous RSO Sydney Porter, CHP to the Assistant Radiation Safety Officer.

4. LMCSS request permission to change the members of the Radiation Safety Committee (RSC) and radiation material users.

Should you have any questions or comments on these matters, please contact me at phone (215) 497-1331.

Sincerely,

Richard J. Shaw
Sr. Occupational Health & Safety Engineer

Enclosures
Cc: C. Krisch – LMCSS (w/o enclosures)
C. LumKong-LMCSS (w/o enclosures)
R. Herschitz – LMCSS (w/o enclosures)
S. Bean LM-VF
File 5.4

TABLE OF ATTACHMENTS

NRC FORM 313 U.S. NUCLEAR REGULATORY COMMISSION
(10-2002)
10 CFR 30, 32, 33, 34, 35, 36, 39, and 40

APPLICATION FOR MATERIAL LICENSE

APPROVED BY OMB: NO. 3150-0120 EXPIRES: 10/31/2005

Estimated burden per response to comply with this mandatory collection request: 7 hours. Submittal of the application is necessary to determine that the applicant is qualified and that adequate procedures exist to protect the public health and safety. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0120), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

INSTRUCTIONS: SEE THE APPROPRIATE LICENSE APPLICATION GUIDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.

APPLICATION FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:

DIVISION OF INDUSTRIAL AND MEDICAL NUCLEAR SAFETY
OFFICE OF NUCLEAR MATERIALS SAFETY AND SAFEGUARDS
U.S. NUCLEAR REGULATORY COMMISSION
WASHINGTON, DC 20555-0001

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS:

IF YOU ARE LOCATED IN:

CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, MAINE, MARYLAND, MASSACHUSETTS, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, PENNSYLVANIA, RHODE ISLAND, OR VERMONT, SEND APPLICATIONS TO:

LICENSING ASSISTANT SECTION
NUCLEAR MATERIALS SAFETY BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406-1415

ALABAMA, FLORIDA, GEORGIA, KENTUCKY, MISSISSIPPI, NORTH CAROLINA, PUERTO RICO, SOUTH CAROLINA, TENNESSEE, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA, SEND APPLICATIONS TO:

SAM NUNN ATLANTA FEDERAL CENTER
U. S. NUCLEAR REGULATORY COMMISSION, REGION II
61 FORSYTH STREET, S.W., SUITE 23T85
ATLANTA, GEORGIA 30303-8931

IF YOU ARE LOCATED IN:

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN, SEND APPLICATIONS TO:

MATERIALS LICENSING BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION III
801 WARRENVILLE RD.
LISLE, IL 60532-4351

ALASKA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, HAWAII, IDAHO, KANSAS, LOUISIANA, MONTANA, NEBRASKA, NEVADA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, OREGON, PACIFIC TRUST TERRITORIES, SOUTH DAKOTA, TEXAS, UTAH, WASHINGTON, OR WYOMING, SEND APPLICATIONS TO:

NUCLEAR MATERIALS LICENSING SECTION
U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TX 76011-8064

030-12894

PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S.NUCLEAR REGULATORY COMMISSION JURISDICTIONS.

1. THIS IS AN APPLICATION FOR *(Check appropriate item)*

- [ ] A. NEW LICENSE
- [x] B. AMENDMENT TO LICENSE NUMBER 37-02006-09
- [x] C. RENEWAL OF LICENSE NUMBER 37-02006-09

2. NAME AND MAILING ADDRESS OF APPLICANT *(Include ZIP code)*

Lockheed Martin Commercial Space Systems
100 Campus Drive
Newtown, Pa 18940

3. ADDRESS WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED

Lockheed Martin Radiation Effects Laboratory
230 Mall Blvd.
Building 100, Room M8820
King of Prussia, Pa 19406

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

Richard J. Shaw

TELEPHONE NUMBER

(215) 497-1331

SUBMIT ITEMS 5 THROUGH 11 ON 8-1/2 X 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.

5. RADIOACTIVE MATERIAL
a. Element and mass number; b. chemical and/or physical form; and c. maximum amount

6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED.

7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING EXPERIENCE.

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS.

9. FACILITIES AND EQUIPMENT.

10. RADIATION SAFETY PROGRAM.

11. WASTE MANAGEMENT.

12. LICENSE FEES *(See 10 CFR 170 and Section 170.31)*
FEE CATEGORY | AMOUNT ENCLOSED $

13. CERTIFICATION. *(Must be completed by applicant)* THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, 36, 39, AND 40, AND THAT ALL INFORMATION CONTANED HEREIN IS TRUE AND CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.

WARNING: 18 U.S.C. SECTION 1001 ACT OF JUNE 25, 1948 62 STAT. 749 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO

CERTIFYING OFFICER – TYPED/PRINTED NAME AND TITLE	SIGNATURE	DATE
Charles G. Krisch, Vice President	Charles G. Krisch	4/28/2003

FOR NRC USE ONLY

TYPE OF FEE	FEE LOG	FEE CATEGORY	AMOUNT RECEIVED	CHECK NUMBER	COMMENTS
			$		
APPROVED BY				DATE	133106

NRC FORM 313 (10-2002)

Attachment No. 2
Renewal Summary

Lockheed Martin Corporation, Commercial Space Systems Newtown hereby submits NRC Form 313 Application For Material License for the purpose of license renewal/amendment, including changing the RSO and Assistant RSO, changing the licensee name, changing RSC members and authorized users.

Please delete item 6B Thorium from license number 37-02006-09. Confirmation Close-Out Survey of the LMCSS magnesium-thorium panel area is Attachment 3. Please remove rooms 158A and 179G from the authorized RAM use locations.

The radioactive materials used at both the Newtown (exempt Cesium 137 sources), and Valley Forge sites will be under the control of the Radiation Safety Committee, a Radiation Safety Officer, an Assistant Radiation Safety Officer, and one set of Standard Operating Procedures. The details of this requested license renewal/amendment are enclosed.

125 Argyle Road
Ardmore, PA 19003-3201
Phone (610) 896-5353
FAX (610) 642-7804

Attachment No. 3

PCI-TR-465

"Confirmation Close-Out Survey Of The Lockheed Martin Mag-Thorium Panel Areas, Newtown, Pennsylvania"

Dec. 6, 2001

Prepared for:

Brad Heim,
Lockheed Martin Industrial Safety

Prepared by:

S. W. Porter, Jr., CHP

125 Argyle Road
Ardmore, PA 19003-3201
Phone (610) 896-5353
FAX (610) 642-7804

Confirmation Close-out Survey Of The Lockheed Martin Mag-Thorium Areas

A. INTRODUCTION

At the request of Brad Heim, on Sept. 22, 2001, PCI performed a series of surveys to determine if the rooms in the Lockheed Martin CPC where Mag-Thorium had been used could be unconditionally released from radiation protection restrictions. Detailed surveys and measurements were taken.

B. DESCRIPTION AND CLASSIFICATION OF BUILDING AREAS WHERE Mag-Thorium MATERIALS WERE UTILIZED.

AFFECTED: 1. Room 158A, including tables, work benches, cabinets, shelves, stands, and the outside of the absolute filter vacuum cleaner.

2. Room 179G. including tables, test benches, and thermal boxes.

POSSIBLY AFFECTED:

1. The hall area outside of both rooms.

C. OBJECTIVE OF SURVEY

The objective of this project is to perform a confirmatory survey of the rooms where the Mag-Thorium was utilized, to verify if radioactive material is present, that the residual radioactive contamination levels are below those specified in the USNRC Regulatory Guide 1.86, "Guidelines For Decontamination Of Facilities And Equipment Prior To Release For Unrestricted Use Or Termination Of Licenses For Byproduct, Source, Or Special Nuclear Material."

125 Argyle Road
Ardmore, PA 19003-3201
Phone (610) 896-5353
FAX (610) 642-7804

D. INSTRUMENTATION FOR RAD SURVEYS (REF: NUREG/CR-5849)

a. Surface/Area Scans for Gamma: A Ludlum Survey Meter Model 19, Serial # 77635, calibrated on Oct. 3, 2001.

The detection sensitivity is 100 % for Thorium Daughter gammas.

b. Gross Alpha on Smears: A Zinc Sulfide- PM Tube detector, Johnson Model ASP-2A, Serial # 973 in a three inch Pb shield, connected to a SAM-2 scaler, Serial # 569. The detection sensitivity (17 % forThorium-230) yields an MDA far less than 20 d/m/100cm squared.

E. SURVEYS OF AFFECTED AREAS

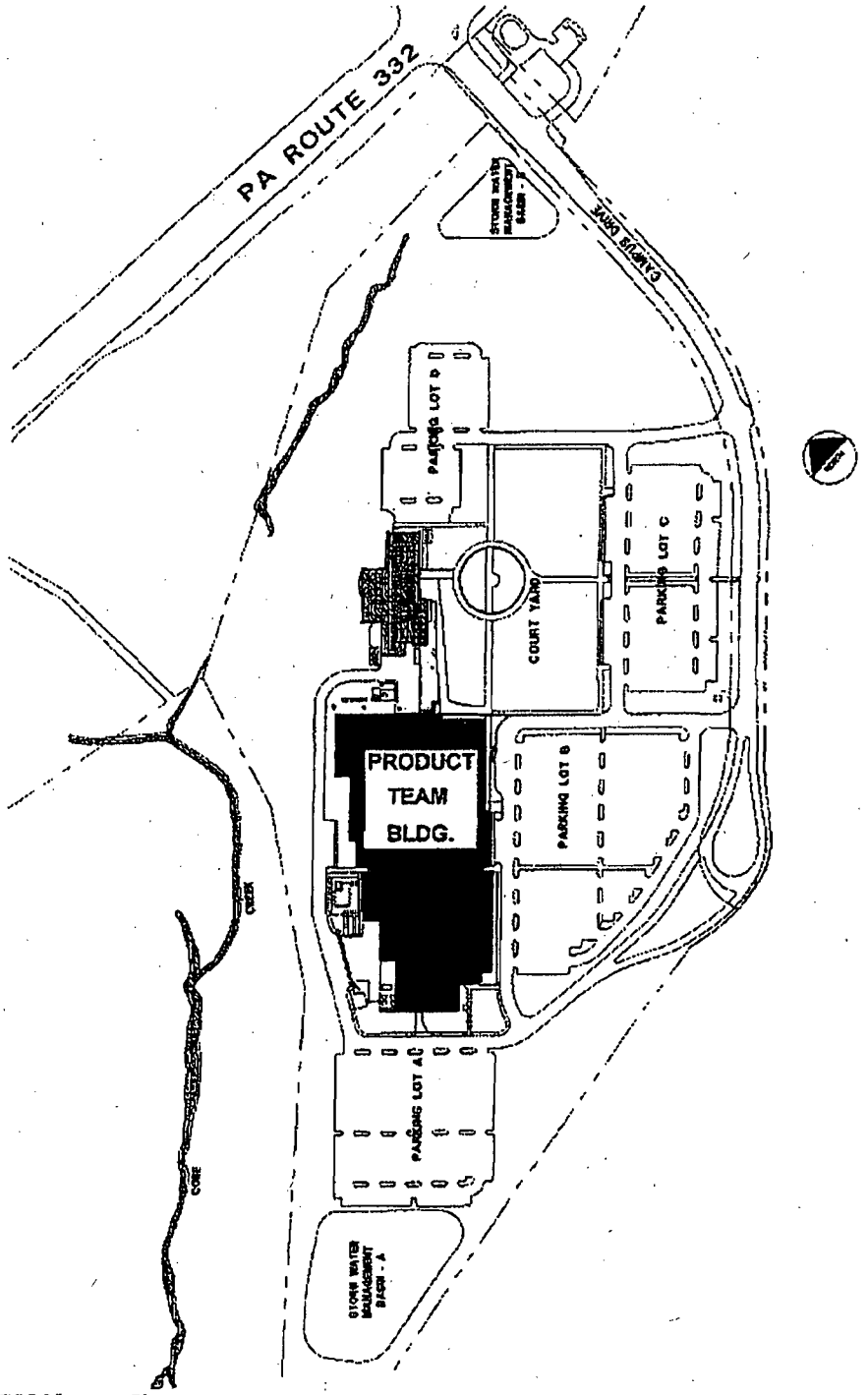
All of the affected areas were carefully surveyed for gamma radiation as well as being smeared for both removable alpha activity. The hallways were also checked for gamma.

The following attachments (A-C) indicate the detailed locations of Surveys, as well as the actual gamma levels.

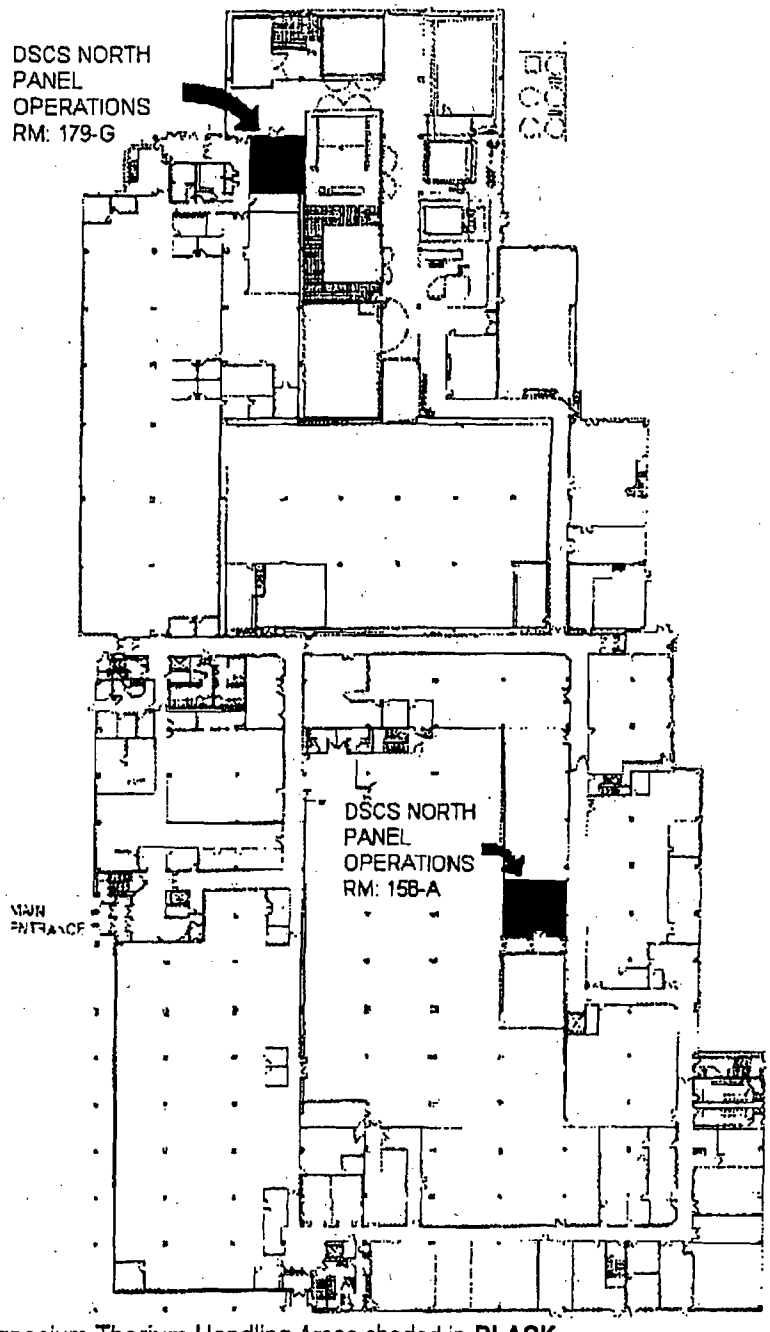
Attachment A: Overall Maps of Known & Suspected Rad Mat Use Areas

Attachment B: Removable contamination in Room 158A (44 Smear Survey Locations)

Attachment C: Removable contamination in Room 179G (15 Smear Survey Locations).



LMCSS Newton Site
Product Team Building



Magnesium Thorium Handling Areas shaded in **BLACK**

125 Argyle Road
Ardmore, PA 19003-3201
Phone (610) 896-5353
FAX (610) 642-7804

F. SUMMARY OF RESULTS

Type	Allowable		Results Found	
	Avg	Max	Avg	Max
(above bkgr	20 μR/hr		All within normal range	bkgr range
α Removable	20 d/m/100cm ^{2}	60 d/m/100cm^2	1 d/m/100 sq. cm; <3 d/m/100 sq. cm	
β Removable	1000 d/m/100cm ^{2}	3000 d/m/100cm^2	N/A	
α Fixed	100 d/m/100cm^2	300 d/m/100cm^2	N/A	
β Fixed	5000 d/m/100cm ^{2}	15000 d/m/100cm^2	N/A	

NOTE: REFER TO ATTACHMENTS B & C for actual SMEAR COUNT RESULTS.

G. CONCLUSIONS

Decontamination efforts have been successful in lowering the few above background readings to well below the allowable contamination limits. This Facility is ready to be released for Unrestricted Use .

Porter Consultants, Inc.
125 Argyle Road
Ardmore, PA 19003-3201
Phone (610) 896-5353
FAX (610) 642-7804

Updated 4.9.99

Smear Counting Log

Customer: LOCKHEED-NEWTOWN Site: ROOM 158A

Scaler: Model: SAM-2 Ser. #: 569 Cal. Date:
α Detector: Model: ASP-2A Ser. #: 973 Cal. Date:
β Detector: Model: GP-200 Ser. #: 658 Cal. Date:

Bkg. for α =0.2 c/m Eff. for α =17 % Smear Location: Surfaces - Thorium Alpha

Bkg. for β=13c/m Eff. for β =11% Smear Location: Smears taken 8/22/01

Smear #	Counts/10min	Gross cpm	Bkg cpm	Net cpm	Net dpm	Cleanup Criteria Exceeded /Results
α 1	1	0.1	0.2	0	0	NO
β 2	1	0.1	0.2	0	0	"
α 3	3	0.3	0.2	0.1	0.6	"
β 4	2	0.2	0.2	0	0	"
α 5	1	0.1	0.2	0	0	"
β 6	4	0.4	0.2	0.2	1.2	"
α 7	2	0.2	0.2	0	0	"
β 8	1	0.1	0.2	0	0	"
α 9	2	0.2	0.2	0	0	"
β 10	2	0.2	0.2	0	0	"
α 11	2	0.2	0.2	0	0	"
β 12	4	0.4	0.2	0.2	1.2	"
α 13	1	0.1	0.2	0	0	"
β 14	1	0.1	0.2	0	0	"
α 15	1	0.1	0.2	0	0	"
β 16	4	0.4	0.2	0.2	1.2	"
α 17	2	0.2	0.2	0	0	"
β 18	2	0.2	0.2	0	0	"
α 19	1	0.1	0.2	0	0	"
β 20	5	0.5	0.2	0.3	1.8	"
α 21	6	0.6	0.2	0.4	2.4	"
β 22	2	0.2	0.2	0	0	"
α 23	1	0.1	0.2	0	0	"
β 24	2	0.2	0.2	0	0	"

NBS Traceable α Std: Th-230, 15,100d/m. 10 min count =25,040=2,504 c/m=17% eff.
NBS Traceable β Std: Bi-210, 25,000 d/m. 10 min. count=27,415=2,742 c/m=11% eff.

S.W. Porter
Tech Signature

11/28/01
Date

PennoniSmrCnt4.9.99

Porter Consultants, Inc.
125 Argyle Road
Ardmore, PA 19003-3201
Phone (610) 896-5353
FAX (610) 642-7804

Updated 4.9.99

Smear Counting Log

Customer: LOCKHEED-NEWTOWN Site: Room 15B-A (Cont.)

Scaler: Model: SAM-2 Ser. #: 569 Cal. Date:
α Detector: Model: ASP-2A Ser. #: 973 Cal. Date:
β Detector: Model: GP-200 Ser. #: 658 Cal. Date:

Bkg. for α =0.2 c/m Eff. for α =17 % Smear Location: Surface - Thorium Alpha

Bkg. for β=13c/m Eff. for β =11% Smear Location:

Smear #	Counts/10min	Gross cpm	Bkg cpm	Net cpm	Net dpm	Cleanup Criteria Exceeded /Results
α 25	2	0.2	0.2	0	0	NO
β 26	1	0.1	0.2	0	0	"
α 27	2	0.2	0.2	0	0	"
β 28	2	0.2	0.2	0	0	"
α 29	5	0.5	0.2	0.3	1.8	"
β 30	6	0.6	0.2	0.4	2.4	"
α 31	1	0.1	0.2	0	0	"
β 32	1	0.1	0.2	0	0	"
α 33	4	0.4	0.2	0.2	1.2	"
β 34	2	0.2	0.2	0	0	"
α 35	1	0.1	0.2	0	0	"
β 36	1	0.1	0.2	0	0	"
α 37	1	0.1	0.2	0	0	"
β 38	3	0.3	0.2	0.1	0.6	"
α 39	5	0.5	0.2	0.3	1.8	"
β 40	4	0.4	0.2	0.2	1.2	"
α 41	4	0.4	0.2	0.2	1.2	"
β 42	3	0.3	0.2	0.1	0.6	"
α 43	1	0.1	0.2	0	0	"
β 44	2	0.2	0.2	0	0	"
α						
β						
α						
β						

NBS Traceable α Std: Th-230, 15,100d/m. 10 min count =25,040=2,504 c/m=17% eff.
NBS Traceable β Std: Bi-210, 25,000 d/m. 10 min. count=27,415=2,742 c/m=11% eff.

S.W. Porter
Tech Signature

12/1/01
Date

PennoniSmrCnt4.9.99

125 Argyle Road
Ardmore, PA 19003-3201
Phone (610) 896-5353
FAX (610) 642-7804

Smear Counting Log

Customer: LOCKHEED-NEWTOWN Site: ROOM 179G

Scaler: Model: SAM-2 Ser. #: 569 Cal. Date:
α Detector: Model: ASP-2A Ser. #: 973 Cal. Date:
β Detector: Model: GP-200 Ser. #: 658 Cal. Date:

Bkg. for α =0.2 c/m Eff. for α =17 % Smear Location: Surface - Thorium Alpha

Bkg. for β=13c/m Eff. for β =11% Smear Location: Smears taken on 8/22/01

Smear #	Counts/10min	Gross cpm	Bkg cpm	Net cpm	Net dpm	Cleanup Criteria Exceeded /Results
α A	3	0.3	0.2	0.1	0.6	NO
β						
α B	4	0.4	0.2	0.2	1.2	"
β						
α C	4	0.4	0.2	0.2	1.2	"
β						
α D	5	0.5	0.2	0.3	1.8	"
β						
α E	4	0.4	0.2	0.2	1.2	"
β						
α F	5	0.5	0.2	0.3	1.8	"
β						
α G	1	0.1	0.2	0	0	"
β						
α H	1	0.1	0.2	0	0	"
β						
α I	3	0.3	0.2	0.1	0.6	"
β						
α J	4	0.4	0.2	0.2	1.2	"
β K	4	0.4	0.2	0.2	1.2	"
α L	1	0.1	0.2	0	0	"
β M	2	0.2	0.2	0	0	"
α N	2	0.2	0.2	0	0	"
β O	1	0.1	0.2	0	0	"

NBS Traceable α Std: Th-230, 15,100d/m. 10 min count =25,040=2,504 c/m=17% eff.
NBS Traceable β Std: Bi-210, 25,000 d/m. 10 min. count=27,415=2,742 c/m=11% eff.

S W Porter Jr.
Tech Signature

12/1/01
Date

PennoniSmrCnt4.9.99

Attachment No. 4
List of Radioactive Sources, including
Maximum Form and Maximum Amount
For Inclusion on License No. 37-02006-09

Element and Mass Number	Chemical and/or Physical Form	Maximum Activity per Source and Total	Facility Where Material is Stored and Used	Comments
Any byproduct material with atomic numbers 3 through 83 inclusive	Neutron-irradiated electronic components	200 microcuries per component and 100 millicuries total	Lockheed Martin Valley Forge Space Center	Non destructive evaluation of radiation effects
Cobalt 60	Sealed source (AECL Capsule Model C-166, C-167, or C-198)	(b)(4) curies ce and curies total	Lockheed Martin Valley Forge Space Center	For use in AECL Model Gamma Cell 220 irradiator

Attachment No. 5

Statement of Purpose for Use of Licensed Material

LMCSS uses licensed material for the overall purpose of research and development as defined in 10 CFR 30.4 and manufacturing related to missile and space programs.

The uses include:

- The Neutron-Irradiated Electronic Components will be used for nondestructive evaluation of radiation effects following reactor exposure.
- The Cobalt 60 is currently being used in two AECL Model 220 Gamma Cells for irradiation of material. The purpose is to determine the effects of radiation on spacecraft material from simulation of cosmic radiation.

Attachment No. 6
Radiation Safety Committee Members
Resumes of the Radiation Safety Committee Members
Radiation Safety Committee Operating Procedures

Name	Title	RSC Designation
Roman Herschitz, PhD	Manager, Specialty Engineering Department LMCSS	Chairman Member
Clare Lumkong	Manager, ESH LMSSC	Assistant Chairman Member
Richard J. Shaw	Senior Occupational Health & Safety Engineer Proposed RSO (proposed) LMSSC, M&DS Valley Forge	Secretary RSO (proposed) Member
Scott Bean	Staff Occupational Safety & Health Analyst M&DS Valley Forge ESH	Member
Mark W. MacGregor	Payload Power Specialist LMCSS Antenna	Member
Sydney Porter, CHP	Assistant Radiation Safety Officer for MCSS, M&DS Valley Forge	Assistant RSO Member
Larry Bruccoliere	Test Engineer LMCSS Valley Forge Survivability Engineering	Member
Robert Horton	Supervisor Failure Analysis X-Ray LMCSS	X-Ray Advisor

Roman Herschitz

Roman Herschitz, Ph.D.
Manager, Specialty Engineering Department
CPC, Newtown, PA

A. Education

Physics/Mathematics, BS, City Univ. of New York
Materials Science/Physics, MS, Cornell Univ., Ithaca, NY
Materials Science/Engineering, Ph.D., Cornell Univ., Ithaca, NY

B. Experience

- Lockheed Martin Corp. CPC, Newtown, PA (1996 to present)
  Manager, Specialty Engineering Department

Manages department responsible for survivability engineering (radiation and laser), reliability engineering and advanced process development in support of RF and power subsystem components. Manages Radiation Effects Laboratory (Valley Forge facility) used for testing of ionizing dose and dose-rate response of electronics parts and circuits, and materials. Led successful team for $ 2M RF technology study proposal to NASA.

- Lockheed Martin Corp. (and predecessors), Astro Space Div., East Windsor, NJ (1983-1996)
  Senior Staff Engineer

Performed and guided radiation effects, EMI/EMC, materials and process engineering on multiple NASA spacecraft programs. Performed R & D on controls and thin film materials for reducing and eliminating ESD in spacecraft designs. Designed and implemented new ESD detector for spacecraft. Directed proposal and contract for laser weapon response methodology. Active in R & D of RF superconducting materials and devices.

- Rutgers Univ. and The College of New Jersey (1984-1989)
  Adjunct Faculty Member

Taught courses in materials science and engineering technology.

- Cornell Univ., Ithaca, NY (1977-1983)
  Research Assistant

Researched in area of radiation effects on materials and devices; activity involved handling of reactor-irradiated samples. Taught college-level courses in materials science and engineering.

C. Associations

American Institute of Aeronautics and Aerospace
International Electronic and Electrical Engineers
SAMPE

D. Awards, Patents & Publications

Dean's List, Magne Cum Laude Graduate
GE Engineering Excellence Team Award
3 Patents
40 technical paper publications- covering wide range of engineering studies

Clare LumKong

Professional Experience

ESH Lead and Manager — June 1995 - Present
Lockheed Martin Commercial Space Systems

ESH Manager for an ESH group of four for the Lockheed Martin Commercial Space Systems LMCSS facility. Direct Report to the Vice President of Operations/Engineering at LMCSS.

- Responsibilities include full managerial responsibilities for the ESH
- Main point of contact for Senior Management, Corporate ESH, and Sunnyvale.
- Main point of contact for Local, Federal and State regulatory agencies.
- Incident Commander for fire and hazmat emergencies at the facility

Radiation Safety:

Hazardous Waste Disposal

- Disposed of low level radiation sources as part of the East Windsor facility closure.

Radiation Safety Training

- Ionizing radiation Safety
- RF Radiation Safety

Education:

Bachelor of Science in Environmental Studies
Rutgers University, Cook College Campus

Professional Training:

40 Hour OSHA training, 8 hour OSHA Refresher — CPR/ First Aid
New Jersey Certified Subsurface Evaluator — Life Safety Training
DOT HM-181/126F Trained
LMC Certified ESH Facility Auditor / ISO 9000 Internal Auditor / 1SO 14000 Lead Auditor
Certified Hazardous Materials Manager (CHMM)

Councils and Committees:

Radiation Safety Council member
Steering Council Chairperson

RICHARD J. SHAW

Senior Occupational Health & Safety Engineer
Environmental, Safety & Health Component
Lockheed Martin Commercial Space Systems, Newtown

Radiation Education and Certification Coursework:

- MS - Environmental Health; Temple University, Philadelphia, PA
  Health Physics; Summer Semester, 1995 – graduated 1996
- 40 Hour Radiation Safety Officer Training Course – CSI Radiation Safety Academy, Gaithersburg, Maryland, April 8-12, 2002
- U.S. Army Officer (74A) - attended Chemical School, Ft McClellan, Al. Nuclear Weapons Effects, Radiation Safety Training, September 1983 to February 1984.

Experience:

Lockheed Martin Commercial Space Systems Newtown
100 Campus Drive
Newtown, PA 18940
April, 2002 – Present

Duties Include:

- Maintain the LMCSS Radiation Safety Program to include training, standard operating procedures, employee exposure monitoring, surveys, leak testing, and equipment calibration.
- Renewal and Amendment of the NRC license held by LMCSS.
- Support the X-ray safety program which includes reviewing standard operating procedures, conducting audits and inspections for failure analysis x-ray equipment and equipment for non-destructive testing, and use of a 3.5 MeV flash X-ray.
- Coordinator and member of the Radiation Safety Committee.

Scott D. Bean [redacted]

CAREER HISTORY

Lockheed Martin M&DS Staff Occupational Safety and Health Analyst	2001 - present
GPS/DSCS Safety Engineer, Lockheed Martin Cape Canaveral Launch Operations	1998–2001
Industrial Hygienist, Martin Marietta, Lockheed Martin	1995-1997
Safety Engineer – GE Aerospace, Martin Marietta	1992-1994
Safety and Health Specialist – GE Aerospace Building B, Cassinni, MOD, and SP100 Programs	1991-1992
Sun Oil Corporation	1990-1991

GPS/DSCS Safety Engineer

Member of the launch team responsible for final checkout and test of the DSCS and GPS satellites

Focal point for all safety issues at Cape Canaveral involving the DSCS and GPS Satellites. Responsible for compliance with all Eastern Range, Air Force, Federal, State, and Local regulations

- Perform technical safety and health assessments of high-value ground and flight systems and the processes involved with those operations. Hazard analysis is required and performed on all upgrades /modifications to spacecraft.
- Oversee regular high-hazard operations including payload offload, large ordnance processing and installation, propellant sampling and filling, high-pressure leak test, spacecraft mate to rocket, satellite encapsulation, fairing installation, explosive transfer assembly connection, high-powered non-ionizing radiation transmittal, stray voltage testing, etc.
    - Review GPS/DSCS launch site SOP's and offer personnel safety / payload recommendations for spacecraft testing. Stressors involved include but are not limited to non-ionizing radiation, hydrazine, and ordnance. Offer guidance involving other potentially personnel hazards such as electrical and chemical handling.
    - Act as liaison with all local agencies and personnel on all levels including Aerospace, Air Force Quality, Air Force personnel, and other subcontractors such as Boeing, Sverdrup, Johnson Controls etc. Range Safety focal point for all LM safety and health matters directly affecting GPS/DSCS personnel and the spacecraft. Interface with other safety organizations such as the Kennedy Space Center (KSC) Radiation Health Affects Department, the KSC Health and Safety Training Department, and the Cape Canaveral Environmental Division
- Established site-specific programs and performed training for subject matter including radiation, personal protective equipment, process safety, hazard communication, emergency response actions, fall protection, nickel-hydrogen batteries, and crane operations.
- Responsible for maintaining and updating the MSPSP (Missile System Prelaunch Safety Package) and the ARAR (Accident Risk Assessment Report). These documents contain comprehensive safety data and analysis regarding all design and test aspects of both spacecraft

Industrial Hygienist/Safety Engineer

Member of the Valley Forge ES&H team with a broad range of experience affecting many different programs and facility activities. The Valley Forge Location manufactures defense products for the U.S. Military

Responsible for establishing and revising many of the existing Environmental Health and Safety procedures of the ES&H manual, and providing training for each subject. Affected procedures include but are not limited to lockout tag-out, electrical control, compressed gas cylinder safety, hand-tool safety, ladder safety, pressure vessels, powered industrial vehicles, roof top work, scaffolding, portable power tools, machine guarding, confined space entry, excavation program

- and checklist, eye protection, hand protection, hearing conservation, respiratory protection, asbestos
- Implemented asbestos abatement, electrical evaluations, accident investigations and follow-up blueprint reviews, medical monitoring system, new employee orientation, safety bulletin reports, near miss process and forms, chemical management
- Regularly performed industrial hygiene monitoring including noise abatement, ionizing and non-ionizing radiation surveys, chemical sampling, and ventilation surveys.
- Acted as safety and health focal point for a variety of corporate health and safety audits. Audits included Martin Marietta Due Diligence, Lockheed Martin Corporate Environmental Safety and Health Audits, conducted safety inspection of Chinese Launch Site in Xi Chang China
- Safety focal point for facility renovation. Oversaw activities including demolition of Building 100 facilities, equipment removal, EOS high-bay construction, out building demolition, etc.
- Radiation Safety Officer for the King of Prussia facility. Completed RSO training in July of 2001 with the Nevada Technical Associates, Inc. Responsibilities include assisting the RSO with his with surveys, dosimetry, operations reviews, procedural reviews, training, etc.
- Member of the Emergency Response Team and Medical Emergency Response Team

Safety Engineer 1991-1992

Safety engineer for the Building B manufacturing location with specific experience in the MOD, Cassini, and SP-100 Programs

- Focal point for all Environmental Health and Safety activities. Responsibilities included fire protection monitor, environmental operations focal point for hazardous waste, air permitting, and wastewater discharge, all safety activities, emergency response and high hazard processes. Ensured that the location complied with all applicable codes and regulations as well as corporate policies and procedures.
- Worked with program personnel to ensure safe working conditions for employees processing components for three different aerospace programs.

Associate Industrial Hygienist 1990-1991

Assistant to the Lead Industrial Hygienist at the Sun Oil R&D department in Marcus Hook Delaware performed research on lubricants, oils, and gasoline

- Duties included chemical sampling for organic based solvents such as toluene, benzene, xylene. Additional sampling was performed for tetraethyl lead, asbestos, and additive materials used in the refining procedure.
- Assisted in the design of the local exhaust system to be used at the blending facility.
- Performed ventilation surveys
- Assisted in safety inspections of the refinery

EDUCATION

Temple University, Philadelphia, Pennsylvania, *Master of Science Degree*, Environmental Health, 1996

Millersville Universi(b)(6)ille, Pennsylvania, *Bachelor of Science Degree*, Occupational Safety and Hygiene Managemen(b)(6)

Montgomery County Community College, Blue Bell, Pennsylvania, *Associate of Arts Degree* in Liberal Art(b)(6)

Ex L

Mark W. MacGregor

Mark W. Macgregor
Payload Power Specialist
LMCSS, Newtown, PA

A. Education

Burlington Comm. College, Wrightstown, NJ
Electronic Tech., Assoc. Degr., PENNCO Technical Institute, Bristol, PA
Electronics Diploma, Fort Gordon Signal School
Gen'l. Studies, Georgia Military College, Fort Gordon, GA

B. Experience

- Lockheed Martin Corp., CPC and Astro Space, Newtown, PA and East Windsor, NJ (1990 to present)
  Payload Power Specialist

Responsible for corona, PIM and multipaction testing of RF components; multipaction tests involve handling and use of small Cs-137 radioactive sources. Wrote specs and designed RF test equipment. Supervises tech-nicians in RF test operations. Designed a ring resonator to increase TWTA peak power. Evaluated TWTA performance.

- General Electric Co., Valley Forge and Philadelphia, PA (1985-1990)
  RF Senior Electronic Technician

Performed tuning and testing of RF components for communications and arming/fusing subsystems. trained and supervised technicians in computer-based testing.

- Booze-Allen & Hamilton, DAL Div., Huntington Valley, PA (1984-1985)
  Specification Writer

Provided technical support to use of specs and drawings. Supported definition of procurement requirements.

- US Army, Fort Gordon, GA (1979-19833)
  Strategic Microwave Systems technician (Enlisted)

Provided technical support of documentation for equipment maintenance.

D. Radiation Safety Training: Radiation Safety Course (2 hours) – East Windsor, NJ. 1997

E. Awards

Honorable Discharge, US Army

Sydney W. Porter, Jr., CHP

Sydney W. Porter, Jr., CHP
Professor, Adjunct, Drexel University, Graduate School of Environmental Sciences
Diplomat: American Academy of Health Physics
Elected Fellow: Health Physics Society in 1997

Summary:

Over 40 years of experience in the fields of health physics, radiation dosimetry (including Radon), radiological environmental monitoring, emergency planning, nuclear engineering, radiation dosimetry and radiochemistry; certified by the American Board of Health Physics, (comprehensive practice) in 1966, recertified every four years; Elected President of the Health Physics Society Radon Section; Past President and founder of the Eastern PA Chapter of American Association of Radon Scientists and Technologist, Inc (AARST); Past President of National AARST, 1991-1992

Health Physics Audit Experience:

Mr. Porter has over 40 years of experience in professional power reactor Health Physics, including seven years experience as a member of the US Department of Defense Reactor Inspector General's Team. He has performed over thirty-five audits on pressurized water power reactors, plus numerous audits on boiling water reactors, high temperature gas cooled reactors and sodium-cool reactors, as well as research and testing reactors. He has also many years' experience in dose calculations from radionuclide releases as well as the design and implementation of radiological environmental monitoring programs (both on and off facility types): and also with installation; calibration and use of installed radiation-monitoring systems.

Mr. Porter has investigated over twenty suspected overexposure incidents and performed detailed dosimetry assessments, as wall as having taught over forty two-day Dosimetry/Hot Particle Assessment classes (28 continuing education credits from the American Board of Heath Physics). An important part of this class is a detailed appraisal of the existing dosimetry programs and procedures.

Research and Testing Reactor Audits include the Martin Nuclear Division APPR Prototype as well as the TRIGA mark1 (1600 MW pulse) – All radiation safety procedures, including radionuclide production operations, hot cell operations, stack monitor design and implementation. Special Department of Defense Site Audits include a Bomarc Missile Site – Assessment of a Broken Arrow incident (plutonium contamination). Technologically Enhanced Natural Occurring Radioactive Material Audits include Radium Dial Painting Facilities, Thorium in Glass Factory and Burial Ground, Radium Separation Factory, Lansdowne, PA, Radium Tailings in Private Homes, Orange, NJ, US Radium Corp. spoils site and Quehanna D&D site. University audits include University of Pennsylvania, Temple University and Drexel University. Dozens of large and small laboratory site have been audited.

Certifications:

Comprehensive certification in health physics (CHP) by the American Board of Health Physics in 1967. Re-certified in 1981, 1985, 1989, 1993, 1997 (through 2001).
Certification in the EPA Radon Measurement Proficiency Program, 1991 to present.
Pennsylvania State (department of Environmental Protection) Radon Testing, Certification #0004.

Experience:

1974-Present: President, Porter Consultants, Inc.
Responsibilities: include design, measurement, management, evaluation, implementation, calculation or control of the following areas: environmental radioactivity, power reactor health physics, environmental radiological dose assessment, radiation hazard surveys, emergency planning and occupation and medical radiation exposure. From 1979-1982 was Head, Radio-effluent and Dose Assessment Section, Three Mile Island Nuclear Station (all TMI accident related). Also responsible for the Radiological Environmental Monitoring Program at TMI. Responsible for a broad range of radiation dosimetry assignments (both external and internal) during both routine and emergency conditions. Radiation Dosimetry Consultant to the states of Pennsylvania, New Jersey, Delaware and Iowa.

1969-1974: Vice President of Health Physics Operations; Co founder of Radiation management
Corporation (RMC) in Philadelphia, PA

1963-1969: Head Radiological Safety Department, Armed Forces Radiobiology Research Institute (AFRRI) in Bethesda, MD

1957-1963: Assistant Coordinator, then Coordinator of Health Physics, Electric Boat Co., General Dynamics Corporation in Groton, CT

Education:

(b)(6)

St Johns College, MD-BS, Physical Sciences
John Hopkins University - Graduate studies i[illegible]hemistry, 1956
New York University - Graduate studies in Radiochemistry

Ex 1

Professional Organizations:

American Association of Radon Scientists and Technologists – President (1991-1992)
Air Pollution Control Association
American Association of Physicists in Medicine
American Chemical Society
American Industrial Hygiene Association
American Nuclear Society
American Physical Society
American Society of Testing Materials
Health Physics Society – Charter Member,
past president of two chapters, President Radon Section
Society for Risk Analysis – Charter Member
Society of Radiation Protection (UK)

Publications:

Published over thirty peer reviewed journal articles, books and guides relating to health physics, radiation dosimetry, emergency planning, environmental impact and radiological environmental subjects. Over three hundred Technical Reports produced for customers over the past twenty-five years.

Robert A. Horton (b)(6)

Ex 6

EDUCATION

Mercer County Community College:
AS degree in Physics.
Certificate of Proficiency in Total Quality Management.

American Society for Nondestructive Testing:
Radiographic Testing Level 3
Certificate KM-1765.

American Society for Materials:
Certificates in:
Metallurgy, Electroplating and Corrosion.

Drexel University:
Electrical Engineering.

Rutgers University:
Course in Radiation Physics.

RCA Institute:
Semiconductor Electronics.

Continuing Education Courses:
Microprocessors.
Microcomputers.
DOS Operating System.
UNIX Operating System.
Basic Programming.
FORTRAN Programming.
Statistical Control.
Word processing
Composite Materials.
Speed Reading.

FUNCTIONS

Customer and supplier relations.
Budget preparation and planning.
Technical writing;
MS Word, Power Point, Excel.
Presentations.
Procedures and specifications.
Metallography.
Optical and scanning electron microscopy.
Energy dispersive X-ray spectrometry.
Wavelength dispersive spectrometry.
Chemical analysis.
Radiography, ASNT RT Level 3.
Image processing.
Manual and automated testing of electronic devices.
Statistical process control.
TQM Team formation and coaching.
Computer programming.
Electroplating operations.
Printed circuit operations.
Organization.
Failure analysis operations.

Standard Operation Procedures
Responsibilities of the Lockheed Martin Commercial Space Systems Radiation Safety Committee

1.0 Purpose

The purpose of this Procedure is to set for the policies governing the Lockheed Martin Commercial Space Systems Radiation Safety Committee (RSC).

2.0 Scope

These policies apply to all members of the RSC, and impact all users and uses of radiation/radioactive materials.

3.0 Responsibilities

3.1 Meetings

3.1.1 The RSC shall meet at least annually

3.1.2 Minutes shall be taken at each RSC meeting, and shall be retained for at least 5 years, or until all issues have been resolved (whichever is longer).

3.1.3 A quorum of at least 3 members, (including the RSO or Assistant RSO) is required for an official meeting.

3.2 Members

3.2.1 The RSC shall consist of the following persons (as a minimum):

- A Manager as Chairman
- B The Lockheed Martin RSO
- C The Lockheed Martin Assistant RSO
- D An engineer/specialist from Survivability Engineering Group,LMCSS Valley Forge Facility
- E An engineer/specialist from Antenna Group. Newtown Facility
- F An Certified Health Physics Consultant

3.2.2 The RSC will develop, administer, update, and monitor the compliance to the written Radiation Safety program. This program will consist of the following elements:

- A Records
- B Employee Requirements
- C Safety Education/Orientation of Employees
- D RSC and RSO Responsibilities
- E Radiation Work Permits
- F Personal Radiation Monitoring Program
- G Notification and Reports to the NRC/PA Bureau of Radiation Protection (BRP)
- H Radiation Overexposure/Spill Emergency Plan

3.2.3 The RSC will monitor all Government Regulations (Federal, State, and/or Local) to ensure that all applicable changes to existing provisions and new provisions are incorporated in the defined programs, policies, rules, and procedures.

3.2.4 The RSC will propose changes to the radiation safety programs, policies, rules, and procedures to ensure employee safety.

3.2.5 The RSC shall meet no less than once per year with the meeting dates and times to be defined by the RSO.

3.2.6 The RSC will review the results of an annual audit of LMCSS radiation safety practices at both sites. Changes that substantially effect radiation safety will be forwarded to both the NRC and the PA BRP.

Attachment No. 7

Authorized Radioactive Materials Users (Principle Investigators)
Resumes of the Principle Investigators

Name	Title	Radioactive Material
Larry Bruccoliere	Engineering Specialist LMCSS Valley Forge	Neutron irradiated electronic components; Cobalt 60
Stephen K. Moyer	Engineering Specialist LMCSS Valley Forge	Neutron irradiated electronic components; Cobalt 60

Larry Bruccoliere

(b)(6)

TITLE: Test Engineer

SUMMARY: Extensive experience in the production and testing of electronic parts in a radiation environment. Expertise in the improvement of production, testing and data presentation techniques through the use of computers. Attention to all details and excellent organizational skills. Strong background in testing, leadership, and creative problem solving.

EXPERIENCE: Lockheed Martin Corp. 1974 to Present

1/82 to Present – Specialty Engineering – Test Engineer

Responsibilities:

Conduct EMC / EMI testing per program requirements.
Responsible for the maintenance and operation of two Radiation Sources.
Radiation testing of electronic parts in neutron, gamma ray, and flash x-ray environments.
Design and build circuits for radiation exposures.
Program and setup a wide assortment of automated test equipment to perform parametric testing of electronic devices.
Organize and maintain Labs test database on Lockheed Martin's server.
Property Manager for Specialty Engineering.
Write Purchase Orders for supplies and equipment.
Interface with outside test laboratories for neutron testing.
Interface with outside customers dealing with specialized test and support.
Maintain accurate documentation of radioactive components for both the Nuclear Regulatory Commission and Environmental Health and Safety.
Receives yearly radiation safety training to perform duties.

11/79 to 1/82 - Systems Test - Test Conductor
Responsibilities:

Spacecraft Test Conductor on the DSCS Vehicle.
Responsible for setup and running simulation test using automated test equipment.
Assumed responsibility for meeting schedule goals.
Allocated time according to shift change.

PERSONAL INFORMATION WAS REMOVED
BY NRC. NO COPY OF THIS INFORMATION
WAS RETAINED BY THE NRC.

4/79 to 11/79 - RF Laboratory – RF Test Technician
Responsibilities:

Initiated the development of special test fixtures for GaAs FET's.
Monitor and run high temperature life test.
Conduct and schedule testing of over 500 FET's.

2/77 to 4/79 - Engineering Ground Support – Test Technician
Responsibilities:

Check out and test manufacturing panels.
Troubleshoot and repair of Ground Station Equipment.
Make instantaneous wiring modifications and maintain accurate documentation.

6/74 to 2/77 - Parts & Micro-Electronics Lab. - Test Technician
Responsibilities:

Run a wide variety of mechanical and electrical tests on electronic parts and hybrids.
Perform life test, including shock, acceleration, and burnout.
Troubleshoot and diagnose problems on micro-electronic boards.
Operator of a hybrid x-ray machine.

Education: Camden County Technical School
Sicklerville, NJ
Associates Degree

Stephen K. Moyer

Stephen K. Moyer

Engineering Specialist

Specialty Engineering, CPC, Newtown, PA

Education:

EE, BSEET, Ohio Institute of Technology, Columbus, Ohio

Radiation Training:

Radiation Safety Training for Authorized Radiation Users (9/99)

Experience:

Lockheed Martin Corp, Newtown, PA (1984 to present)

Test Engineering Specialist

Coordinates radiation testing of electronic parts in neutron, gamma ray, cosmic ray, and flash x-ray environments. Design and develop circuits and software for the radiation exposure performance testing of all in-house electronics.

Design and conduct heavy-ion testing at Brookhaven National Laboratory to simulate cosmic ray effects in space.

Design and conduct gamma ray and flash x-ray testing at LMMS Radiation Test Facility in King of Prussia, PA. Testing includes developmental parametric studies as well as production radiation hardness assurance testing.

Principal Investigator (PI) responsible for radiation safety in the LMMS Radiation Test Facility. Receives yearly training to perform duties.

Attachment No. 8

Facilities and Equipment
Radiation Detection Instrumentation, Calibration & Leak Test Requirements

LMCSS has facilities, storerooms and equipment for the proper utilization and control of radioactive materials at the Valley Forge, Pennsylvania sites. Site maps have been provided in the following pages identifying the locations where the radioactive materials are used and stored.

The Cobalt 60 sealed sources remain in use at the Valley Forge site, Building 100, Room (b)(4) as part of the Gamma cell 220 Irradiator. No changes have been made to this operation.

LMCSS has continued the research and development work with the neutron irradiated electronic components as previously listed under the current license. This material will be tested and stored at the Valley Forge site, Building 100, Room (b)(4)

(b)(4)

Sub11

(b)(4)

Instrument Type	Radiation Detected	Ranges	Window Thickness	Use
Nuclear Measurements Corp PC-55	Alpha, Beta, Gamma	0/99,000K counts	Windowlwss gas flow counter	Measuring swipes
Victoreen Model 470A	Beta, Gamma	0/3,10,30,100, 300,1000 mR/hr, 10R/hr	17 mg/cm2, 500mg/cm2	Survey meter
Ludlam Model 18	Alpha, Beta	0/500,000 CPM	0.8 mg/cm2, 1.2 mg/cm2	Survey meter
Ludlam Model 19 Micro R Meter	Gamma	0/25, 0/50, 0/250, 0/500, 0/5000 microR/hour	None	Low level survey meter
Eberline SRM 100	Gamma 60 KeV-1 MeV	10 mR/500/hr	Energy compensated GM tube	Area radiation detector
Eberline Model E120	Beta, Gamma	0/50 mR/hr	Sise window GM Tube, 30mg/cm2	Survey meter
Victoreen Model 190	Alpha, Beta, Gamma	1/50,000 CPM	1.4 mg/cm2	Survey meter
Victoreen Panoramic	Beta, Gamma	0/1000mR/hr	Ion chamber calibrated to 1R/hr ~2mg/cm2 foam	Survey meter
Eberline Geiger Counter Model E520	Alpha, Beta, Gamma	0.01/200 mR/hr	30 mg/cm2	Survey meter

Radiation Detection Instrumentation, Calibration & Leak Test Requirements

Instrument Calibration:
The radiation survey meters are calibrated at least twice per year by an approved calibration laboratory with NIST traceability.

The Nuclear Measurements Corporation PC-55 flow proportional counter is calibrated at least annually by an approved calibration laboratory with NIST traceability. The level of detection is such as to detect the presence of 0.005 microcuries of radioactive material on the test sample.

The Eberline SRM-100 Area Radiation Detection Instrument is calibrated on an annual basis by an approved calibration laboratory with NIST traceability.

Leak Samples:
LMCSS requests to continue performing leak sampling and analysis or alternatively, have the test for leakage and/or contamination performed by persons specifically licensed by the Commission or an Agreement State to perform such services.

Attachment No. 9
Radiation Safety Program Outline
And Training Requirements

	Rev. #	Date
LMCSS Radiation Control Program Section 6.11	A	1999

The Radiation Control Program outlines the following topics:

1. ALARA policy
2. Radiation Safety Committee
3. Radiation Safety Officer/Assistant RSO responsibilities
4. Procuring, Receiving, Transporting, and Disposal of radioactive materials
5. Handling, Storage, and Use of radioactive materials
6. Personnel Certifications and Training
7. Leak testing of Sealed Radioactive Materials
8. Use of Cesium 137 Sources (low level)
9. Neutron Irradiated Electronic Component, Atomic Numbers 3-83
10. Cobalt 60 Gamma Cells
11. Ionizing Radiation Producing Equipment – X-Ray

Training Requirements

Purpose
The purpose of this Procedure is to set forth the requirements and policies governing the LMCSS Nuclear Related Training.

Scope
These policies apply to all persons who work with radiation/radioactive materials as well as all persons who enter radiation areas for work and/or emergency reasons.

Training for Authorized Users/Principle Investigators

As a minimum, these persons will be given an initial specific 8-hour course on the hazards/regulations/user operating procedures that are specific to the radiation sources/radiation producing machines under control of the authorized users.

This 8 hour course will include the following objectives and elements and will be taught by a person familiar with these elements:

LMCSS
AUTHORIZED RADIONUCLIDE USERS

COURSE DESCRIPTION

Upon completion of this course, users will be able to:

Implement components of a radiation protection program that include monitoring and assessment of health risks associated with a variety of radiation sources routinely at LMCSS.

Demonstrate thorough knowledge of relevant standards and regulations.
Correctly assess the reading on a radiation survey meter.
Prepare for and respond to regulatory inspections.
Understand the relative importance of a wide range of Co-60, Th and neutron irradiated sources.
Communicate with the public regarding radiation protection issues.
Interpret and apply radiation protection limits specified in various federal, state and local regulations.
Address an accidental exposure or release of radioactive material within a laboratory.

TOPICS:

Welcome and Review of Course Objectives
Co-60 and neutron irradiated Emissions
Units of Activity and Dose
Relevant Standards and Regulations
External Radiation Protection, Applicable Critical Organs
Gamma and Beta Shielding and Use of Absorption Curve
Personal Dosimetry: Use of TLD's
Radiation Radiobiology
Skin Radiobiology
Allowable Dose Limits 10 CFR 20 (for Rad Workers and the public.)
Physics of Radiation Detectors
Use of Survey Instruments (hands-on surveying)
Internal Radiation Hazards
Laboratory Instrumentation
Accident/Incident Response
Skin Decontamination
Waste Disposal and Transportation

These Authorized Users will also be given an annual 1-hour refresher course.

Training for Radiation Workers under the Direct Supervision of Authorized Users .

As a minimum, these Radiation Workers will be given a 2-hour course covering the following elements:

Welcome and Review of Course Objectives
Units of Activity and Dose
Relevant Standards and Regulations
External Radiation Protection
Personal Dosimetry: Use of TLD's
Radiation Radiobiology
Use of Survey Instruments
Accident/Incident Response

These Workers will also be given an annual 1-hour refresher class.

Training for Ancillary Persons who may enter Radiation Material Areas.

Persons such as Janitors, Security or Shipping Clerks may ocassionally need to briefly enter Radiation/Radioactive Materials Areas. These persons will be given an annual 1-hour class which will cover the highlights of the Radiation Worker Class, described above.

Attachment No. 10

Waste Disposal Methods

Radioactive waste inclusive of exempt sources designated as waste, will be segregated and disposed of only through coordination with the LMCSS Radiation Safety Officer. The radioactive waste will be held in an approved container, which is labeled appropriately. Storage of the radioactive material will be controlled to prevent unauthorized access or disturbance of the material. All radioactive waste material will be processed for disposal through a licensed disposal firm in accordance with all applicable Federal, State, and local regulations.

Attachment No. 11

Decommissioning Funding Plan

Lockheed Martin Corporation submitted a trust agreement from the Bank of Montreal Trust Company and a standby letter of credit (LC[redacted]) from Wachovia Bank of Georgia for a total amount of US$226,000.00 to the attention of Dr. Mohamed M. Shanbaky with the USNRC on January 19, 2001. This agreement of financial assurance for decommissioning, covers control No. 129151, currently for license No. 37-02006-09.

The financial assurance will remain in effect for the requested amendment of license 37-02006-09. The trust agreement amount of US$226,000.00 shall remain the same.

133106

This is to acknowledge the receipt of your letter/application dated
LTR / NRC 313
4/25/2003 / 4/28/2003, and to inform you that the initial processing which includes an administrative review has been performed.

RENEW 37-02006-09

☑ There were no administrative omissions. Your application was assigned to a technical reviewer. Please note that the technical review may identify additional omissions or require additional information.

☐ Please provide to this office within 30 days of your receipt of this card

A copy of your action has been forwarded to our License Fee & Accounts Receivable Branch, who will contact you separately if there is a fee issue involved.

Your action has been assigned **Mail Control Number** 133106.
When calling to inquire about this action, please refer to this control number.
You may call us on (610) 337-5398, or 337-5260.

NRC FORM 532 (RI)
(6-96)

Sincerely,
Licensing Assistance Team Leader

E-29 (END)

BETWEEN:

License Fee Management Branch, ARM
and
Regional Licensing Sections

(FOR LFMS USE)
INFORMATION FROM LTS

Program Code: 11300
Status Code: 2
Fee Category: 3E 2C 3M
Exp. Date: 20030531
Fee Comments: _____
Decom Fin Assur Reqd: Y

LICENSE FEE TRANSMITTAL

A. REGION I

1. APPLICATION ATTACHED
   Applicant/Licensee: LOCKHEED MARTIN CORPORATION
   Received Date: 20030429
   Docket No: 3012894
   Control No.: 133106
   License No.: 37-02006-09
   Action Type: Renewal

2. FEE ATTACHED
   Amount: _____
   Check No.: _____

3. COMMENTS

Signed M. A. Perkins
Date 4/30/2003

B. LICENSE FEE MANAGEMENT BRANCH (Check when milestone 03 is entered /__/)

1. Fee Category and Amount: _____

2. Correct Fee Paid. Application may be processed for:
   Amendment _____
   Renewal _____
   License _____

3. OTHER _____

Signed _____
Date _____