

400 Main Street East Hartford, Connecticut 06108

May 27, 2005

Licensing Assistance Team Division of Nuclear Material Safety U.S. Nuclear Regulatory Commission, Region 1 475 Allendale Road King of Prussia, PA 19406-1415

Ref: License No. SMB-151 0400079 Expiration Date: 06/30/2005

To Whom it May Concern:

Enclosed is Pratt & Whitney's application for license renewal in accordance with the renewal instructions received in March 2005. Our application is being submitted 30 days before the expiration date to ensure that the license will remain in effect until final action is taken on our application.

Sincerely,

LS0

Carlos J. Rivera, RSO

Enclosures:

NRC Form 313 (4-2004) NRC Form 313 Attachment Map of Thoriated Nickel locations in East Hartford Map of the Middletown Facility





NRC FORM 313 (4-2004) 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 and FOIA/Privacy Services Branch (T-5 F52), 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 GU SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO T	IDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. THE NRC OFFICE SPECIFIED BELOW.	
APPLICATION FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:	IF YOU ARE LOCATED IN:	
DIVISION OF INDUSTRIAL AND MEDICAL NUCLEAR SAFETY OFFICE OF NUCLEAR MATERIALS SAFETY AND SAFEGUARDS U.S. NUCLEAR REGULATORY COMMISSION WASHINGTON, DC 20555-0001	ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN, SEID APPLICATIONS TO:	
ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS:	MATERIALS LICENSING BRANCH U.S. NUCLEAR REGULATORY COMMISSION, REGION III 2443 WARRENVILLE ROAD, SUITE 210 LISLE, IL 60532-4352	
IF YOU ARE LOCATED IN:		
ALABAMA, CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, FLORIDA, GEORGIA, KENTUCKY, MAINE, MARYLAND, MASSACHUSETTS, MISSISSIPPI, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, NORTH CAROLINA, PENNSYLVANIA, PUERTO RICO, RHODE ISLAND, SOUTH CAROLINA, TENNESSEE, VERMONT, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA, SEND APPLICATIONS TO:	ALASKA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, HAWAII, IDAHO, KANSAS, LOURBIANA, MONTANA, NEBRASKA, NEVADA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, OREGON, PACIFIC TRUST TERRITORIES, SOUTH DAKOTA, TEXAS, UTAH, WASHINGTON, OR WYOMING, SEND APPLICATIONS TO:	
LICENSING ASSISTANCE TEAM DIVISION OF NUCLEAR MATERIALS SAFETY U.S. NUCLEAR REGULATORY COMMISSION, REGION 475 ALLENDALE ROAD KING OF PRUSSIA, PA 19408-1415	NUCLEAR MATERIALS LICENSING BRANCH U.S. NUCLEAR REGULATORY COMMISSION, REGION IV 611 RYAN PLAZA DRIVE, SUITE 400 ARLINGTON, TX 76011-4005 04000791	
PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR MATERIAL IN STATES SUBJECT TO U.S.NUCLEAR REGULATORY COMMISSION JURISDICT		
1. THIS IS AN APPLICATION FOR (Check appropriate liem)	2. NAME AND MAILING ADDRESS OF APPLICANT (Include ZIP code)	
A NEW LICENSE	United Technologies Corporation Pratt & Whitney	
B. AMENDMENT TO LICENSE NUMBER	400 Main St. Mail/Stop 124-26 East Hartford, CT 06108	
3. ADDRESS WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED 400 Main Street, East Hartford, Connecticut; and Aircraft Road, Middletown, Connecticut.	4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION Carlos J. Rivera TELEPHONE NUMBER (860) 557-2901	
SUBMIT ITEMS 5 THROUGH 11 ON 8-1/2 X 11" PAPER. THE TYPE AND SCOPE OF INFORMA 5. RADIOACTIVE MATERIAL a. Element and mass number; b. chemical and/or physical form; and c. maiximum amount	6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED.	
which will be possessed at any one time. 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 Renewal ENCLOSED \$ 0.00	
13. CERTIFICATION. (Must be completed by applicant) THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT. 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 ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION. CERTIFYING OFFICER - TYPED/PRINTED NAME AND TITLE SIGNATURE DATE		
Kevin Doyle, Vice President, Environment, Health & Safety 5-27-05		
APPROVED BY DATE		
NRC FORM 313 (4-2004)	PRINTED ON RECYCLED PAPER	

NMSS/RGNI MATERIALS-002

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Item 5 - Radioactive Material

Element and Mass Number	Chemical and/or Physical Form	Maximum Amount Which Will Be Possessed At Any One Time (Kilograms)
Natural Thorium-232	Solid thorium oxide not exceeding 4% dispersed in nickel	Not to exceed 910

Maximum amount of natural thorium possessed at any one time is 910 kilograms total. Typically the thorium content of this material is 2%. This equates to 100,310 pounds of 2% TDNi Material.

Item 6 - Purpose For Which Licensed Material Will Be Used

Thoriated nickel alloy, because of its heat resistant properties, will be used in the hot (burner section) area of the jet engines. Source material will account for approximately 0.1% of the assembled engine. The product (jet engine) containing the thoriated nickel components will be distributed to the customers as finished parts in accordance with the exception provided in 10 CFR 40.13 (c)(8).

Pratt and Whitney has thoriated nickel in various lengths and widths, the thickness of which varies from 0.45 to 0.050 inches. This material is kept segregated and identified. Exposure rates did not exceed 0.3 milliroentgens per hour when measured at a distance of 12 inches from the surface of the unpacked sheet stock. This measurement was performed on 05-05-2005, with a Ludlum Model 3 Geiger Counter serial number 94569 with a calibration date of 09-21-2004.

External radiation measurements on one piece of sheet stock sheet, Gamma emissions as measured on 05-05-2005.

<u>Distance</u>	<u>mR/hr (unpacked) 16 sq.ft.</u>	
1 inch	0.7	
12 inches	0.3	

Instrument used: Ludium Model 3 Geiger Counter serial number 94569 with a calibration date of 09-21-2004.

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The TDNi material will be used to manufacture of aircraft engine components, the fabrication processes include:

- Trimming
- Pressing
- Shearing
- Wet Vibratory Bowl Deburring
- Draw and Roll Forming
- Riveting
- Cleaning/Degreasing
- Marking and Inspecting
- Scrap Disposal

Quality control test performed on the material include:

- Creep
- Thermal Fatigue
- Tensile Strength
- Bend
- Shear
- Etching
- Plating
- Oxidation and Coatings

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<u>Item 7 – Individuals responsible for the Radiation Safety Program and their training experience.</u>

Judy M. Harvey, Sandy J. Soucy, Mark J. Skripol, and Carlos J. Rivera

Resume - Judy M. Harvey, MS, CIH

Certification:

Certified Industrial Hygienist

Education:

Masters in Industrial Hygiene, University of New Haven Connecticut

Bachelors of Science in Chemistry, Central Connecticut State University

Radiation Safety Officer Training, Radiation Safety Associates, Inc.

EXPERIENCE:

06/00 - Present Lead EH&S Engineer, UTC Pratt & Whitney, East Hartford, CT

Implement and manage the Industrial Hygiene Program for P&W. Provide Industrial Hygiene technical assistance to facilities including reproductive hazards evaluations. Implement and manage TSCA for P&W. Review regulatory and company compliance for the ionizing and non-ionizing radiation program.

7/99 – 6/00 Sr. I.H./Safety Engineer, UTC Pratt & Whitney, East Hartford, CT

Perform activities related to being the EH&S Coordinator for the 1,500 person business unit including the performance of hazard risk assessments, job hazard analysis and industrial hygiene qualitative assessments. Facilitated the incident investigation team meetings, maintained required records and assisted with the root cause and corrective action determinations.

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Resume - Sandy J. Soucy, RSO, LSO

Education:

Certificate in Occupational Safety and Health, University of Connecticut

Radiation Safety Officer Training, Radiation Safety Associates, Inc.

EXPERIENCE

11/01 – Present Senior EH&S Specialist, UTC Pratt & Whitney, East Hartford, CT.

Ensure site-wide regulatory and company compliance for the ionizing and non-ionizing radiation program. Site Radiation Officer, Laser Officer and Safety Engineer. Duties under these programs include managing the TDNi Safety Program, training, audits and inspections and the State of CT Radiation Registration for X-Ray units, Electron Beam Welders and Analytical equipment. Additional programs include Asbestos Management, Powered Industrial Vehicle and Motor Vehicle Safety Program and various Health and Safety programs.

 7/99 – 11/01
 EH&S Engineer, UTC Pratt & Whitney, E Hartford CT. Under the direction of the Pratt & Whitney's Radiation Safety Officer, conduct radiation surveys; conduct audits and inspections to ensure compliance with regulations and Pratt & Whitney's best management practices and procedures. Assist with the State of CT Radiation Registration and manage inventory of equipment including Lasers, Electron Beam Welders, X-Ray Units, and Analytical equipment and TDNi inventory.

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Resume - Mark J. Skripol, RSO, LSO, CIAQC

Education:

MS: Industrial Hygiene, University of New Haven

BS: Occupational Health & Safety Management, Keene State College

Radiation Safety Officer Training, Radiation Safety Associates, Inc.

EXPERIENCE

10/01 – Present Senior EH&S Specialist, UTC Pratt & Whitney, East Hartford CT.

Ensure site-wide regulatory and company compliance for all Industrial Hygiene programs. Duties under these programs include the respiratory protection program, process air monitoring & indoor air quality assessments, the ventilation program, and back-up support & inspections for the TDNi safety program, laser safety program and the radiation safety program.

1/99 – 10/01 **EH&S Engineer**, UTC Pratt & Whitney, East Hartford & Middletown CT.

Responsible for day-to-day implementation of EH&S programs for the Engine Center business unit. These programs include: Industrial hygiene air monitoring and assessments, completion of Job Safety Analysis and implementation of associated corrective actions, personal protective equipment assessments, and other various health & safety programs.

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Resume - Carlos J. Rivera, RSO, LSO

Education:

Bachelors Degree in Occupational Safety and Health, University of New Haven

Radiation Safety Officer Training, Radiation Safety Associates, Inc.

EXPERIENCE

06/01 - Present	Senior EH&S Engineer, UTC Pratt & Whitney, E Hartford CT.	
	Ensure worldwide regulatory and company compliance for the ionizing and non-ionizing radiation program. P&W World Wide Radiation Officer, Laser Officer and Safety Engineer.	
	Duties under these programs include managing the TDNi Safety Program, training, audits and inspections and the State of CT Radiation Registration for X-Ray units, Electron Beam Welders and Analytical equipment. Additional programs include Confined Space, Industrial Hygiene and Team Lead in the Pedestrian Safety Council and various Health and Safety programs.	
09/99 – 05/01	Industrial Hygienist I, Arch Chemicals, INC., Cheshire, CT	
	Conducted Industrial Hygiene and Safety Performance audits at various manufacturing facilities throughout the United States.	
	Duties include performing job analyses for ergonomic evaluations throughout the company. Able to conduct health and safety audits and recommend fixes to safety concerns. Performed quantitative respiratory fit testing with the TSI Portacount.	

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Item 8 - Training for individuals working in or frequenting restricted areas.

Pratt & Whitney trains all individuals working with thoriated nickel. The thoriated nickel radiation safety course outline is as follow:

Title: Thoriated Nickel Radiation Safety Course

Length: 1.0 hrs

Course Content:

- Radiation Terms
- Radiation Hazards (routes of Entry)
- Personal Protection Equipment
- Safe Handling Techniques
- Material Safety Data Sheet
- Proper Disposal/Waste Handling
- Security measures of license material
- Summary and Review

Attendees Include:

- Inspectors
- Tool & Die Makers
- Material Handlers
- Production Worker
- Heat Treat Operator
- Press Operators

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Item 9 - Facilities and Equipment

Work is performed on thoriated nickel sheet stock only within the East Hartford manufacturing facility and could be performed at any of the production locations listed in Item 3.

Currently there is no processes or storage of thoriated nickel in our Middletown facility. Prior to utilizing the Middletown facility for any process we will ensure proper implementation of all requirement and techniques spelled out in this license in its entirety.

Virgin thoriated nickel sheet stock is stored in its original container in a normally unoccupied portion of the storage area at the East Hartford facility. Material inventory and production scheduling is controlled by the materials department. The Environment, Health and Safety department assists in the implementation of all requirements and compliance to the regulations pertaining to thoriated nickel.

License material will be kept secured from unauthorized accessed unless being worked on by trained individuals.

Thoriated Nickel Operations and Controls

- **Trimming** Not dust producing, done under general ventilation, e.g. shear operations.
- **Pressing –** Not dust producing, done under general ventilation.
- Wet Vibratory Bowl Deburring Tumbling rocks are wetted which prevents dust production, done under general ventilation
- **Drawing and Roll Forming** Not dust producing, done under general ventilation.
- Riveting Not dust producing, done under general ventilation.
- **Cleaning/Degreasing** Not dust producing, done under general ventilation.
- **Marking and Inspecting** Not dust producing, done under general ventilation.
- Scrap Disposal Scrap metal is packaged in a DOT specification package for shipment to a licensed waste disposal facility.

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Item 10 - Radiation Safety Program

- 10.1 <u>Personal Monitoring Devices</u> Not Required Projected annual dose <10% of annual limit for radiation work.
- 10.2 <u>Bioassays</u> Not Required Pratt & Whitney does not use any unsealed materials.
- 10.3 Surveys and Monitoring -

Environment, Health and Safety department on an annual basis will perform removable and non-removable contamination surveys. Air Sampling will be performed annually during a time when TD-Ni operation is in process. The results from our last air sampling survey taken on August 3, 2004 indicated concentration values less than 1E-12 μ Ci/ml. (The derived air concentration value listed in 10 CFR 20, Appendix B, Table 1, Column 3 for ²³²Th in the form of thorium oxide). In a year when no TD-Ni work occurs, no air sampling will be performed.

Wipe samples for removable activity were also taken on August 3, 2004 where thoriated material is used. These were analyzed using a Protean low-background gas-proportional gross alpha/beta counter. No activity distinguishable from background was detected on any of the wipe samples.

10.4 Radiation Detection Instruments and Instrument Calibration

Type of	Number	Radiation	Sensitivity
Instrument	Available	Detected	
Ludlum Model 3	3	Gamma, Beta, Alpha	0-200 mR/hr.
S.E. International	1	Gamma, Beta,	0-300,000 CPM /
Inspector		Alpha	0-100mR/hr.
Eberline E-520	1	Gamma, Beta, Alpha	0-20,000 CPM

These Instruments are readily available to the locations listed in Item #3.

Instruments are operationally checked with sources prior to use. Survey instruments will be calibrated at twelve-month intervals by sending them to either the manufacturer or the vendor listed below.

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> Radiation Safety Associates, Inc. 19 Pendleton Drive
> P.O. Box 107
> Hebron, CT 06248
> (860) 228-0487
> Email: info@radpro.com
> Web Site: www.radpro.com
> NRC license number: 0630007-01

10.5 <u>Audits</u>

Program audits are done annually.

10.6 Material Receipt and Accountability

Licensed material is received and inspected in accordance with the requirements of 10 CFR 20.1906. A material inventory is maintained in a computerized system.

10.7 Emergency

Emergencies related to radiation exposure from TD-Ni are not anticipated. The thorium in TD-Ni is dispersed in a nickel matrix and is not easily separated.

The worst credible accident scenario involving TD-Ni would be a fire and explosion in the vicinity of the TD-Ni sheet stock. If this were to occur, the primary concerns would be evacuating and treating injured persons and putting out the fire. Since the thorium component of the TD-Ni is unlikely to be released during an incident such as this, no special radiological precautions need to be taken by emergency first responders.

Once the fire is out and the situation is stable, individuals with available radiation detectors should collect the TD-Ni material and put it into secure storage. An inventory should be made to ensure that all licensed material has been accounted for.

10.8 Financial Assurance

Due to an oversight Pratt & Whitney has not yet put in place the additional financial assurance funding required in FR Volume 68 No. 192 of October 3, 2003. The Bond for \$150,000 continues in force, and efforts are being made to increase this amount to \$225,000 on or before June 2, 2005. If this date is not met we will contact the NRC with the anticipated date of the increase in the bonding amount.

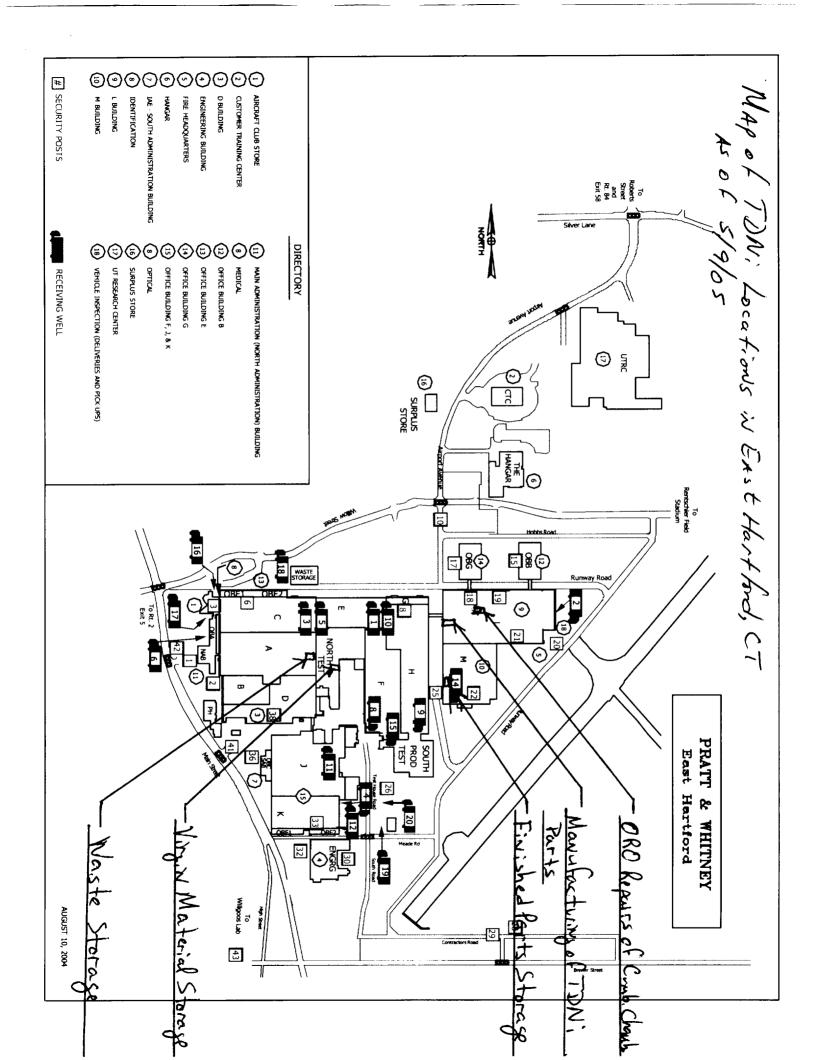
Re: NRC Form 313 (4-2004) 10 CFR 40 Page 11 of 11 Item 11 - Waste Management

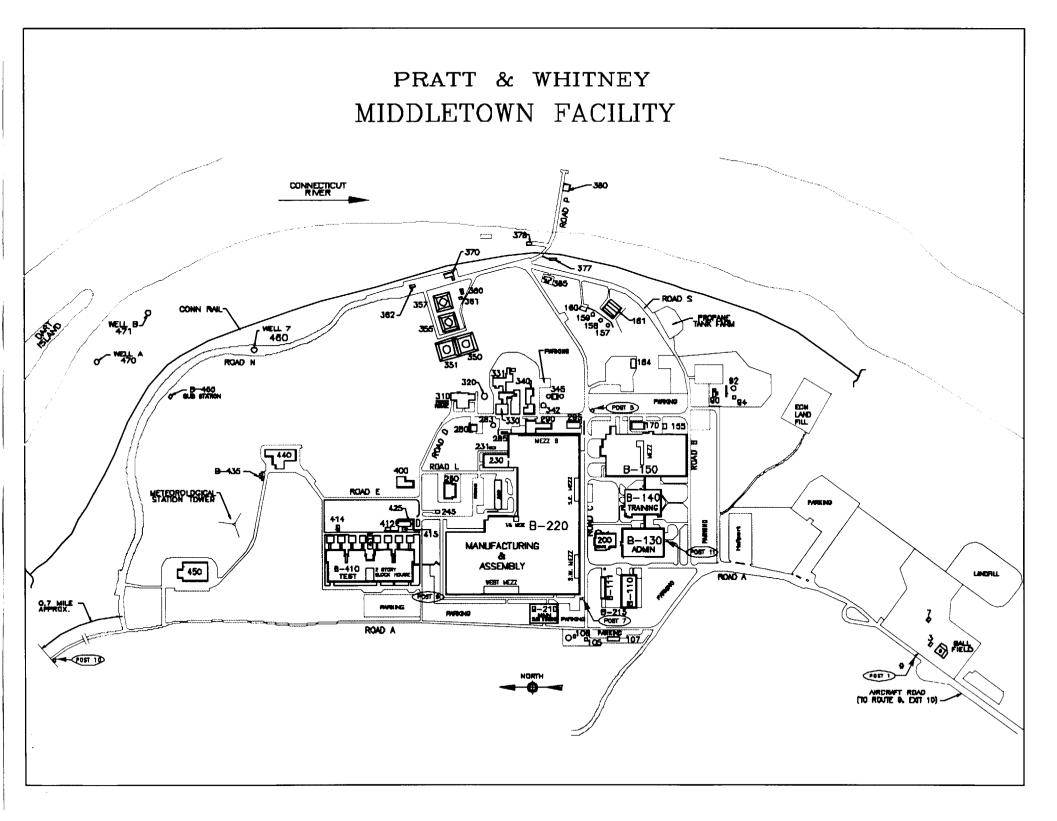
Scrap Disposal

Scrap generated during the manufacturing processes is segregated and secured from unauthorized access. The items are packaged in a DOT specification package for shipment with a manifest to a licensed waste disposal facility.

Other Items

- Map of Thoriated Nickel Locations in East Hartford
- Map of the Middletown Facility





This is to acknowledge the receipt of your letter/application dated

5 21 2005, and to inform you that the initial processing which includes an administrative review has been performed.

RENEW SMB-151/04000791 There were no administrative omissions. Your application was assigned to a

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	137125
When calling to inquire about this action, please refer to	
You may call us on (610) 337-5398, or 337-5260.	

NRC FORM 532 (RI) (6-96) Sincerely, Licensing Assistance Team Leader

: (FOR LFMS USE)
: INFORMATION FROM LTS
:
:
: Program Code: 11300
: Status Code: 2
: Fee Category: 2C
: Exp. Date: 20050630
: Fee Comments:
: Decom Fin Assur Reqd: Y

LICENSE FEE TRANSMITTAL

- A. REGION
- 1. APPLICATION ATTACHED

UNITED TECHNOLOGIES CORP.
20050531
4000791
137125
SMB-151
Renewal

- 2. FEE ATTACHED Amount: Check No.:
- 3. COMMENTS

Signed Date 2005

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 _____