



44265 Plymouth Oaks Blvd.  
Plymouth, MI 48170-2585  
T 734-455-8600  
F 734-455-8608  
www.ttlassoc.com

March 31, 2011

Materials Licensing Division  
United States Nuclear Regulatory Commission  
Region III  
2443 Warrenville Road, Suite 210  
Lisle, Illinois 60532-4352

RE: License Amendment Request for NRC Materials License No. 21-26666-01

To Whom It May Concern:

This letter is being sent to request an amendment to the above-mentioned license. TTL Associates, Inc. (TTL), utilizes portable moisture-density testing gauges containing Radium 226 and a x-ray florescence device containing Cadmium 109 which have historically been regulated by the State of Michigan. It is our understanding that as a result of a change in the US's energy policy these sources are now regulated by the NRC. As such, TTL would like to amend our current NRC license to add these sources.

As part of this amendment request, we have addressed items identified NUREG 1556, Volume 21, Section 8.5.1, Sealed Radioactive Materials and Discrete Sources of Radium-226. These items are as follows:

- Identify each radionuclide that will be used in each source:

Radioisotope	Physical Form	Maximum Possession Limit	Proposed Use
Radium 226	Sealed source	4.5 millicuries per source and 31.5 millicuries total	Portable moisture/density gauges
Cadmium 109	Sealed Source	40 millicuries per source and 80 millicuries total	Portable X-Ray Florescence Device

RECEIVED APR 05 2011

- Provide the manufacturer's name and model number for each sealed source and device and discrete source of Radium-226 requested:

Manufacturer	Model Number	Serial Number	Radioisotope
Seaman Nuclear	C-200	A-174	Radium 226
Seaman Nuclear	C-200	H-016	Radium 226
Seaman Nuclear	C-200	H-174	Radium 226
Seaman Nuclear	C-200	L-280	Radium 226
Seaman Nuclear	C-200	L-664	Radium 226
Thermo Fisher Scientific	XLp300A	25587	Cadmium 109

In addition, copies of the current leak tests for each of the previously mentioned gauges have been attached to this correspondence. We have also included a copy of our State of Michigan Registration as well as two copies of NRC Form 313. There are no changes to any of the other sections of our current license.

If you have any question or require further information, please feel free to contact me at 734/455-8600 extension 1238.

Respectfully submitted,

**TTL Associates Inc.**



Jeffrey S. Elliott, P.E.  
Vice President

**Attachments**

- Michigan Department of Environmental Quality Registration
- Leak Tests
- NRC Form 313

T:\Plymouth\Admin\Nuclear Information\NRC License Amendment - March 31 2011.doc

## NRC FORM 313

(3-2009)

10 CFR 30, 32, 33,  
34, 35, 36, 39, and 40

## U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0120

EXPIRES: 3/31/2012

## APPLICATION FOR MATERIALS LICENSE

Estimated burden per response to comply with this mandatory collection request: 4.3 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 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to [infocollects.resource@nrc.gov](mailto:infocollects.resource@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:

OFFICE OF FEDERAL & STATE MATERIALS AND  
ENVIRONMENTAL MANAGEMENT PROGRAMS  
DIVISION OF MATERIALS SAFETY AND STATE AGREEMENTS  
U.S. NUCLEAR REGULATORY COMMISSION  
WASHINGTON, DC 20555-0001

## ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS:

## IF YOU ARE LOCATED IN:

ALABAMA, CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, FLORIDA, GEORGIA,  
KENTUCKY, MAINE, MARYLAND, MASSACHUSETTS, 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:

LICENSING ASSISTANCE TEAM  
DIVISION OF NUCLEAR MATERIALS SAFETY  
U.S. NUCLEAR REGULATORY COMMISSION, REGION I  
475 ALLENDALE ROAD  
KING OF PRUSSIA, PA 19406-1415

## 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  
2443 WARRENVILLE ROAD, SUITE 210  
LISLE, IL 60532-4352

ALASKA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, HAWAII, IDAHO, KANSAS,  
LOUISIANA, MISSISSIPPI, 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 BRANCH  
U.S. NUCLEAR REGULATORY COMMISSION, REGION IV  
612 E. LAMAR BOULEVARD, SUITE 400  
ARLINGTON, TX 76011-4125

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
- ☒ B. AMENDMENT TO LICENSE NUMBER 21-26666-01
- ☐ C. RENEWAL OF LICENSE NUMBER \_\_\_\_\_

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

TTL Associates, Inc.  
44265 Plymouth Oaks Blvd.  
Plymouth, Michigan 48170

## 3. ADDRESS WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED

44265 Plymouth Oaks Blvd.  
Plymouth, Michigan 48170

## 4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

Jeffrey S. Elliott, PE, Vice President

## TELEPHONE NUMBER

(734) 455-8600

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  
which will be possessed at any one time.

## 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.

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 CONTAINED 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

Jeffrey S. Elliott, PE Vice President

## SIGNATURE

## DATE

03/31/2011

## FOR NRC USE ONLY

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

## NRC FORM 313

(3-2009)  
10 CFR 30, 32, 33,  
34, 35, 36, 39, and 40

## U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0120

EXPIRES: 3/31/2012

## APPLICATION FOR MATERIALS LICENSE

Estimated burden per response to comply with this mandatory collection request: 4.3 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 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to [infocollects.resource@nrc.gov](mailto:infocollects.resource@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:

OFFICE OF FEDERAL & STATE MATERIALS AND  
ENVIRONMENTAL MANAGEMENT PROGRAMS  
DIVISION OF MATERIALS SAFETY AND STATE AGREEMENTS  
U.S. NUCLEAR REGULATORY COMMISSION  
WASHINGTON, DC 20555-0001

## ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS:

## IF YOU ARE LOCATED IN:

ALABAMA, CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, FLORIDA, GEORGIA,  
KENTUCKY, MAINE, MARYLAND, MASSACHUSETTS, 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:

LICENSING ASSISTANCE TEAM  
DIVISION OF NUCLEAR MATERIALS SAFETY  
U.S. NUCLEAR REGULATORY COMMISSION, REGION I  
475 ALLENDALE ROAD  
KING OF PRUSSIA, PA 19406-1415

## 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  
2443 WARRENVILLE ROAD, SUITE 210  
LISLE, IL 60532-4352

ALASKA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, HAWAII, IDAHO, KANSAS,  
LOUISIANA, MISSISSIPPI, 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 BRANCH  
U.S. NUCLEAR REGULATORY COMMISSION, REGION IV  
612 E. LAMAR BOULEVARD, SUITE 400  
ARLINGTON, TX 76011-4125

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
- ☒ B. AMENDMENT TO LICENSE NUMBER 21-26666-01
- ☐ C. RENEWAL OF LICENSE NUMBER \_\_\_\_\_

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

TTL Associates, Inc.  
44265 Plymouth Oaks Blvd.  
Plymouth, Michigan 48170

## 3. ADDRESS WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED

44265 Plymouth Oaks Blvd.  
Plymouth, Michigan 48170

## 4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

Jeffrey S. Elliott, PE, Vice President

## TELEPHONE NUMBER

(734) 455-8600

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  
which will be possessed at any one time.

## 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.

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 CONTAINED 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

Jeffrey S. Elliott, PE Vice President

## SIGNATURE

## DATE

03/31/2011

## FOR NRC USE ONLY

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



MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
WASTE AND HAZARDOUS MATERIALS DIVISION

RADIOACTIVE MATERIAL REGISTRATION



This information is required under authority of Part 135, 1978 PA 368, as amended.  
Failure to provide the information could result in legal action and penalties.

1. Registrant Name (individual/legal entity to whom registration is to be issued) <i>TTL Associates, Inc.</i>		2. Facility Name (location of the radioactive sources) <i>Same</i>	
Street Address/P.O. Box <i>44265 Plymouth Oaks Blvd</i>		Street Address Suite/Office Building	
City/Township <i>Plymouth</i>		City/Township State Zip + 4 <i>MI 48170-2585</i>	
3. State-Regulated Radioactive Material (e.g., F-18, Na-22, Co-57, Ga-67, Pd-103, Cd-109, In-111, I-123, Tl-201, Ra-226) If currently registered, please provide current radioactive material registration number: <i>593-2</i>			
Unsealed Sources		Sealed Sources	
Radionuclide	Maximum Activity at Facility (millicuries)	Radionuclide	Maximum Activity at Facility (millicuries)
		<i>Ra-226 Be</i>	<i>32.0</i>
		<i>Cd-109</i>	<i>10.0</i>
4. Radiation Protection Supervisor's Name <i>Jeffrey S. Clifton, PE</i>		Area Code and Telephone No. <i>734/455-8600</i>	Facsimile No. <i>734/455-8609</i>
Title <i>Vice President</i>		Electronic Mail Address <i>JClifton@TTLASSOC.COM</i>	
Signature <i>[Signature]</i>		Date <i>11-7-03</i>	
5. Radioactive Material Licensed by the U.S. Nuclear Regulatory Commission or Another State Specific License Numbers: <i>STATE OF OHIO RADIOACTIVE MATERIAL LICENSE #31211490000</i> <i>NRC License 21-26666-01</i>			
REGISTRATION DOES NOT IMPLY APPROVAL OF THE FACILITY BY THE MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY (MDEQ) Registration will not be acknowledged by the MDEQ by return of a receipted copy of this document unless it is properly completed and signed. Please return this completed document to:  MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY WASTE AND HAZARDOUS MATERIALS DIVISION HAZARDOUS WASTE AND RADIOLOGICAL PROTECTION SECTION PO BOX 30241 LANSING MI 48909-7741  For additional information, please contact us at: Telephone: 517-335-2690 Fax: 517-373-4797			

MDEQ USE ONLY	
MDEQ Registration Number: <i>593-2</i>	
Initial <input type="checkbox"/>	Staff No: <i>92 TRW</i>
Amendment <input checked="" type="checkbox"/>	County No: <i>82</i>
Receipted Copy Sent: _____	
RECEIVED MDEQ / WHMD NOV 12 2003 Hazardous Waste & Radiological Protection Section - RMSU	


[www.qaltek.com](http://www.qaltek.com)

Qal-Tek Associates

7801 N Lamar, Ste E204  
Austin, Texas 78752  
Ph: (512) 407-9252

3998 Commerce Circle  
Idaho Falls, Idaho 83401  
Ph: (208) 523-5557  
Fax: (208) 524-8470

712 S Hacienda Dr. Ste 6  
Tempe, AZ  
Ph: (480) 304-5199

## SEALED RADIOACTIVE SOURCE LEAK TEST REPORT

Company: TTL Associates

Acct#:

Ref #: S10-1895

Street: 44265 Plymouth Oaks Boulevard

City/St/Zip: Plymouth

MI

48170

Phone: 734-455-8600

Fax: 734-455-8608

LT Frequency:

6

Months

## TEST INSTRUMENT

Mfg'r:	Ludlum	Model:	3030_2	Serial #:	219696	Cal. Date:	08/18/10
MDA:	<0.005 $\mu$ Ci	$\alpha$ efficiency:	37%	$\beta$ efficiency:	43%	Det. Type:	ZnS (Ag)

Qal-Tek Associates certify the above instrument has been calibrated using radioactive standards traceable to NIST, or traceable to calibration facilities for other ISO members, or have been derived from acceptable values of natural/physical constraints, or have been derived by ratio type of calibration techniques. Accuracy of the principal radiation calibration sources used is greater than or equal to the required accuracy of the equipment being calibrated. The Qal-Tek Associates calibration system conforms to ANSI N323-1997. All calibrations are performed in accordance with the Qal-Tek Associates Quality Assurance Management Program (QAMP) by QP-PRO-001, which is available by written request.

## LEAK TEST RESULTS

Mfg'r	Model #	Inst. Serial #	Isotope	Activity	net $\alpha$ CPM	net b/g CPM	net $\alpha$ $\mu$ Ci	net b/g $\mu$ Ci	pass/fail
Seaman	C-200	H-174	Ra226	4.5	0	1	0.000000	0.000002	P

Date Sources Leak Tested:  
10/04/10

Next Leak Test Due:  
04/05/11

Qal-Tek Associates certifies that all leak test measurements are performed in accordance with NRC licensee requirements for isotopic detection limits. For this purpose the MDA is below the NRC regulatory limits of <0.005  $\mu$ Ci

Gary Stoddard

Instrument Technician

11/08/10

Date


[www.qaltek.com](http://www.qaltek.com)
**Qal-Tek Associates**

7801 N Lamar, Ste E204  
Austin, Texas 78752  
Ph: (512) 407-9252

3998 Commerce Circle  
Idaho Falls, Idaho 83401  
Ph: (208) 523-5557  
Fax: (208) 524-8470

712 S Hacienda Dr. Ste 6  
Tempe, AZ  
Ph: (480) 304-5199

**SEALED RADIOACTIVE SOURCE LEAK TEST REPORT**

Company: TTL Associates

Acct#:

Ref #: S10-1895

Street: 44265 Plymouth Oaks Boulevard

City/St/Zip: Plymouth

MI

48170

Phone: 734-455-8600

Fax: 734-455-8608

LT Frequency:

6

Months

**TEST INSTRUMENT**

Mfg'r:	Ludlum	Model:	3030 2	Serial #:	219696	Cal. Date:	08/18/10
MDA:	<0.005 µCi	α efficiency :	36%	β efficiency :	32%	Det. Type:	ZnS (Ag)

Qal-Tek Associates certify the above instrument has been calibrated using radioactive standards traceable to NIST, or traceable to calibration facilities for other ISO members, or have been derived from acceptable values of natural/physical constraints, or have been derived by ratio tye of calibration techniques. Accuracy of the principal radiation calibration sources used is greater than or equal to the required accuracy of the equipment being calibrated. The Qal-Tek Associates calibration system conforms to ANSI N323-1997. All calibrations are performed in accordance with the Qal-Tek Associates Quality Assurance Management Program (QAMP) by QP-PRO-001, which is available by written request.

**LEAK TEST RESULTS**

Mfg'r	Model #	Inst. Serial #	Isotope	Activity	net α CPM	net b/g CPM	net α µCi	net b/g µCi	pass/fail
Seaman	C-200	H-016	Ra226	4.5 mCi	0	12	0.000000	0.000034	P

Date Sources Leak Tested:  
10/04/10

Next Leak Test Due:  
04/05/11

Qal-Tek Associates certifies that all leak test measurements are performed in accordance with NRC licensee requirements for isotopic detection limits. For this purpose the MDA is below the NRC regulatory limits of <0.005 uCi

  
Brandt Hoopes  
Instrument Technician

11/08/10  
Date



www.qaltek.com

Qal-Tek Associates

7801 N Lamar, Ste E204  
Austin, Texas 78752  
Ph: (512) 407-9252

3998 Commerce Circle  
Idaho Falls, Idaho 83401  
Ph: (208) 523-5557  
Fax: (208) 524-8470

712 S Hacienda Dr. Ste 6  
Tempe, AZ  
Ph: (480) 304-5199

## SEALED RADIOACTIVE SOURCE LEAK TEST REPORT

Company: TTL Associates

Acct#:

Ref #: S10-1895

Street: 44265 Plymouth Oaks Boulevard

City/St/Zip: Plymouth

MI

48170

Phone: 734-455-8600

Fax: 734-455-8608

LT Frequency:

6

Months

## TEST INSTRUMENT

Mfg'r:	Ludlum	Model:	3030_2	Serial #:	219696	Cal. Date:	08/01/08
MDA:	<0.005 µCi	α efficiency :	36%	β efficiency :	32%	Det. Type:	ZnS (Ag)

Qal-Tek Associates certify the above instrument has been calibrated using radioactive standards traceable to NIST, or traceable to calibration facilities for other ISO members, or have been derived from acceptable values of natural/physical constraints, or have been derived by ratio type of calibration techniques. Accuracy of the principal radiation calibration sources used is greater than or equal to the required accuracy of the equipment being calibrated. The Qal-Tek Associates calibration system conforms to ANSI N323-1997. All calibrations are performed in accordance with the Qal-Tek Associates Quality Assurance Management Program (QAMP) by QP-PRO-001, which is available by written request.

## LEAK TEST RESULTS

Mfg'r	Model #	Inst. Serial #	Isotope	Activity	net α CPM	net b/g CPM	net α µCi	net b/g µCi	pass/fail
Seaman	C-200	A-718	Ra226	4.5 mCi	0	0	0.000000	0.000000	P

Date Sources Leak Tested:  
10/04/10

Next Leak Test Due:  
04/05/11

Qal-Tek Associates certifies that all leak test measurements are performed in accordance with NRC licensee requirements for isotopic detection limits. For this purpose the MDA is below the NRC regulatory limits of <0.005 µCi

Instrument Technician

Brandt Hoopes

11/08/10

Date




[www.qaltek.com](http://www.qaltek.com)

Qal-Tek Associates

7801 N Lamar, Ste E204  
Austin, Texas 78752  
Ph: (512) 407-9252

3998 Commerce Circle  
Idaho Falls, Idaho 83401  
Ph: (208) 523-5557  
Fax: (208) 524-8470

712 S Hacienda Dr. Ste 6  
Tempe, AZ  
Ph: (480) 304-5199

## SEALED RADIOACTIVE SOURCE LEAK TEST REPORT

Company: TTL Associates

Acct#:

Ref #: S10-1895

Street: 44265 Plymouth Oaks Boulevard

City/ST/Zip: Plymouth

MI

48170

Phone: 734-455-8600

Fax: 734-455-8608

LT Frequency:

6

Months

## TEST INSTRUMENT

Mfg'r:	Ludlum	Model:	3030_2	Serial #:	219696	Cal. Date:	08/18/10
MDA:	<0.005 $\mu$ Ci	$\alpha$ efficiency:	36%	$\beta$ efficiency:	32%	Det. Type:	ZnS (Ag)

Qal-Tek Associates certify the above instrument has been calibrated using radioactive standards traceable to NIST, or traceable to calibration facilities for other ISO members, or have been derived from acceptable values of natural/physical constraints, or have been derived by ratio type of calibration techniques. Accuracy of the principal radiation calibration sources used is greater than or equal to the required accuracy of the equipment being calibrated. The Qal-Tek Associates calibration system conforms to ANSI N323-1997. All calibrations are performed in accordance with the Qal-Tek Associates Quality Assurance Management Program (QAMP) by QP-PRO-001, which is available by written request.

## LEAK TEST RESULTS

Mfg'r	Model #	Inst. Serial #	Isotope	Activity	net $\alpha$ CPM	net b/g CPM	net $\alpha$ $\mu$ Ci	net b/g $\mu$ Ci	pass/fail
Seaman	C-200	L-280							
			Ra226	4.5	1	13	0.000003	0.000037	P

Date Sources Leak Tested:  
10/04/10

Next Leak Test Due:  
04/05/11

Qal-Tek Associates certifies that all leak test measurements are performed in accordance with NRC licensee requirements for isotopic detection limits. For this purpose the MDA is below the NRC regulatory limits of <0.005  $\mu$ Ci

  
Instrument Technician

Brandt Hoopes

11/08/10

Date


[www.qaltek.com](http://www.qaltek.com)
**Qal-Tek Associates**

7801 N Lamar, Ste E204  
Austin, Texas 78752  
Ph: (512) 407-9252

**3998 Commerce Circle**  
**Idaho Falls, Idaho 83401**  
**Ph: (208) 523-5557**  
**Fax: (208) 524-8470**

712 S Hacienda Dr. Ste 6  
Tempe, AZ  
Ph: (480) 304-5199

**SEALED RADIOACTIVE SOURCE LEAK TEST REPORT**Company: **TTL Associates**

Acct#:

Ref #: **S10-1895**Street: **44265 Plymouth Oaks Boulevard**City/ST/Zip: **Plymouth****MI****48170**Phone: **734-455-8600**Fax: **734-455-8608**

LT Frequency:

**6**

Months

**TEST INSTRUMENT**

Mfg'r.:	<b>Ludlum</b>	Model:	<b>3030_2</b>	Serial #:	<b>219696</b>	Cal. Date:	<b>08/18/10</b>
MDA:	<b>&lt;0.005 µCi</b>	α efficiency :	<b>36%</b>	β efficiency :	<b>32%</b>	Det. Type:	<b>ZnS (Ag)</b>

Qal-Tek Associates certify the above instrument has been calibrated using radioactive standards traceable to NIST, or traceable to calibration facilities for other ISO members, or have been derived from acceptable values of natural/physical constraints, or have been derived by ratio tye of calibration techniques. Accuracy of the principal radiation calibration sources used is greater than or equal to the required accuracy of the equipment being calibrated. The Qal-Tek Associates calibration system conforms to ANSI N323-1997. All calibrations are performed in accordance with the Qal-Tek Associates Quality Assurance Management Program (QAMP) by QP-PRO-001, which is available by written request.

**LEAK TEST RESULTS**

Mfg'r	Model #	Inst. Serial #	Isotope	Activity	net α CPM	net b/g CPM	net α µCi	net b/g µCi	pass/fail
Seaman	C-200	L-664							
			Ra226	4.5	0	12	0.000000	0.000034	<b>P</b>

Date Sources Leak Tested:  
10/04/10

Next Leak Test Due:  
04/05/11

Qal-Tek Associates certifies that all leak test measurements are performed in accordance with NRC licensee requirements for isotopic detection limits. For this purpose the MDA is below the NRC regulatory limits of <0.005 uCi

  
Instrument Technician

Brandt Hoopes

11/08/10

Date

InstroTek, Inc.  
5908 Triangle Drive  
Raleigh, NC 27617  
(919)875-8371 Fax (919)875-8328

1062L

3/23/2011  
Test Number: 1

JEFF ELLIOT  
TTL ASSOCIATES, INC  
44205 PLYMOUTH OAKS BLVD  
PLYMOUTH, MI 48170

Phone: (734)455-8600

**LEAK TEST CERTIFICATE**  
**NC Materials License #092-1073-1**

This certifies that leak test analysis was conducted on the sample with the following information. The results shown below accurately represent the level of removable contamination.

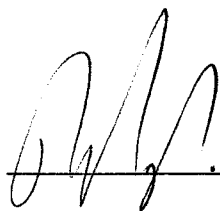
Gauge Model: 3440  
Gauge S/N: 26515

Test Date: 3/9/2011

Source (Model/Serial#)	Reading in microCuries
47-22961	0.00000
Cs-137	0.00022

Note: 0.005 microCuries (185 Bq) or greater is considered a leaking source.<sup>°</sup> The source(s) tested above may remain in use.

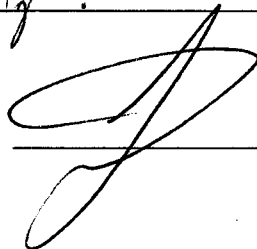
Reviewed by:



Date:

3/23/2011

Customer Signature:



Date:

3-28-11

<sup>°</sup>CPN gauges are 50 mCi Am241:Be and 10 mCi Cs-137. Humboldt gauges are 40 mCi Am241:Be and 10 mCi Cs-137. InstroTek Gauge is 40 mCi Am241:Be and 10 mCi Cs-137. Troxler gauges all, except 4640, are 40 mCi Am241:Be and 8 mCi Cs-137. Troxler 4640 is 8 mCi Cs-137.


[www.qaltek.com](http://www.qaltek.com)
**Qal-Tek Associates**

7801 N Lamar, Ste E204  
Austin, Texas 78752  
Ph: (512) 407-9252

3998 Commerce Circle  
Idaho Falls, Idaho 83401  
Ph: (208) 523-5557  
Fax: (208) 524-8470

712 S Hacienda Dr. Ste 6  
Tempe, AZ  
Ph: (480) 304-5199

**SEALED RADIOACTIVE SOURCE LEAK TEST REPORT**

Company: TTL Associates

Acct#:

Ref #: S10-1895

Street: 44265 Plymouth Oaks Boulevard

City/State/Zip: Plymouth

MI

48170

Phone: 734-455-8600

Fax: 734-455-8608

LT Frequency:

6

Months

**TEST INSTRUMENT**

Mfg'r:	Ludlum	Model:	3030_2	Serial #:	219696	Cal. Date:	08/18/10
MDA:	<0.005 µCi	α efficiency:	36%	β efficiency:	32%	Det. Type:	ZnS (Ag)

Qal-Tek Associates certify the above instrument has been calibrated using radioactive standards traceable to NIST, or traceable to calibration facilities for other ISO members, or have been derived from acceptable values of natural/physical constraints, or have been derived by ratio type of calibration techniques. Accuracy of the principal radiation calibration sources used is greater than or equal to the required accuracy of the equipment being calibrated. The Qal-Tek Associates calibration system conforms to ANSI N323-1997. All calibrations are performed in accordance with the Qal-Tek Associates Quality Assurance Management Program (QAMP) by QP-PRO-001, which is available by written request.

**LEAK TEST RESULTS**

Mfg'r	Model #	Inst. Serial #	Isotope	Activity	net α CPM	net b/g CPM	net α µCi	net b/g µCi	pass/fail
Troxler	3430	25213	AM241	40 mCi	0	0	0.000000	0.000000	P
			Cs137	8 mCi	0	1	0.000000	0.000003	P

Date Sources Leak Tested:  
10/05/10

Next Leak Test Due:  
04/06/11

Qal-Tek Associates certifies that all leak test measurements are performed in accordance with NRC licensee requirements for isotopic detection limits. For this purpose the MDA is below the NRC regulatory limits of <0.005 µCi

  
Instrument Technician

Brandt Hoopes

11/08/10

Date



www.qaltek.com

Qal-Tek Associates

7801 N Lamar, Ste E204  
Austin, Texas 78752  
Ph: (512) 407-9252

3998 Commerce Circle  
Idaho Falls, Idaho 83401  
Ph: (208) 523-5557  
Fax: (208) 524-8470

712 S Hacienda Dr. Ste 6  
Tempe, AZ  
Ph: (480) 304-5199

## SEALED RADIOACTIVE SOURCE LEAK TEST REPORT

Company: TTL Associates

Acct#:

Ref #: S10-1895

Street: 44265 Plymouth Oaks Boulevard

City/St/Zip: Plymouth

MI

48170

Phone: 734-455-8600

Fax: 734-455-8608

LT Frequency: 6 Months

## TEST INSTRUMENT

Mfg'r:	Ludlum	Model:	3030_2	Serial #:	219696	Cal. Date:	08/18/10
MDA:	<0.005 $\mu$ Ci	$\alpha$ efficiency:	36%	$\beta$ efficiency:	32%	Det. Type:	ZnS (Ag)

Qal-Tek Associates certify the above instrument has been calibrated using radioactive standards traceable to NIST, or traceable to calibration facilities for other ISO members, or have been derived from acceptable values of natural/physical constraints, or have been derived by ratio tye of calibration techniques. Accuracy of the principal radiation calibration sources used is greater than or equal to the required accuracy of the equipment being calibrated. The Qal-Tek Associates calibration system conforms to ANSI N323-1997. All calibrations are performed in accordance with the Qal-Tek Associates Quality Assurance Management Program (QAMP) by QP-PRO-001, which is available by written request.

## LEAK TEST RESULTS

Mfg'r	Model #	Inst. Serial #	Isotope	Activity	net $\alpha$ CPM	net b/g CPM	net $\alpha$ $\mu$ Ci	net b/g $\mu$ Ci	pass/fail
Troxler	3430	23216	AM241	40 mCi	0	4	0.000000	0.000011	P
			Cs137	8 mCi	0	4	0.000000	0.000011	P

Date Sources Leak Tested:  
10/13/10

Next Leak Test Due:  
04/14/11

Qal-Tek Associates certifies that all leak test measurements are performed in accordance with NRC licensee requirements for isotopic detection limits. For this purpose the MDA is below the NRC regulatory limits of <0.005  $\mu$ Ci

Monte Pope  
Instrument Technician

11/08/10

Date



[www.qaltek.com](http://www.qaltek.com)

**Qal-Tek Associates**

7801 N Lamar, Ste E204  
Austin, Texas 78752  
Ph: (512) 407-9252

**3998 Commerce Circle**  
**Idaho Falls, Idaho 83401**  
**Ph: (208) 523-5557**  
**Fax: (208) 524-8470**

712 S Hacienda Dr. Ste 6  
Tempe, AZ  
Ph: (480) 304-5199

## SEALED RADIOACTIVE SOURCE LEAK TEST REPORT

Company: TTL Associates

Acct#:

Ref #: S10-1895

Street: 44265 Plymouth Oaks Boulevard

City/St/Zip: Plymouth

MI

48170

Phone: 734-455-8600

Fax: 734-455-8608

LT Frequency:

6

Months

### TEST INSTRUMENT

Mfg'r:	Ludlum	Model:	3030_2	Serial #:	219696	Cal. Date:	08/18/10
MDA:	<0.005 $\mu$ Ci	$\alpha$ efficiency :	36%	$\beta$ efficiency :	32%	Det. Type:	ZnS (Ag)

Qal-Tek Associates certify the above instrument has been calibrated using radioactive standards traceable to NIST, or traceable to calibration facilities for other ISO members, or have been derived from acceptable values of natural/physical constraints, or have been derived by ratio type of calibration techniques. Accuracy of the principal radiation calibration sources used is greater than or equal to the required accuracy of the equipment being calibrated. The Qal-Tek Associates calibration system conforms to ANSI N323-1997. All calibrations are performed in accordance with the Qal-Tek Associates Quality Assurance Management Program (QAMP) by QP-PRO-001, which is available by written request.

### LEAK TEST RESULTS

Mfg'r	Model #	Inst. Serial #	Isotope	Activity	net $\alpha$ CPM	net b/g CPM	net $\alpha$ $\mu$ Ci	net b/g $\mu$ Ci	pass/fail
Troxler	3430	25638	AM241	40 mCi	0	1	0.000000	0.000003	P
			Cs137	8 mCi	0	1	0.000000	0.000003	P

Date Sources Leak Tested:  
10/04/10

Next Leak Test Due:  
04/05/11

Qal-Tek Associates certifies that all leak test measurements are performed in accordance with NRC licensee requirements for isotopic detection limits. For this purpose the MDA is below the NRC regulatory limits of <0.005  $\mu$ Ci

  
Instrument Technician

Brandt Hoopes

11/08/10

Date

0737L

InstroTek, Inc.  
5908 Triangle Drive  
Raleigh, NC 27617  
(919)875-8371 Fax (919)875-8328

3/23/2011  
Test Number: 1

JEFF ELLIOT  
TTL ASSOCIATES, INC  
44205 PLYMOUTH OAKS BLVD  
PLYMOUTH, MI 48170

Phone: (734)455-8600

## LEAK TEST CERTIFICATE

**NC Materials License #092-1073-1**

This certifies that leak test analysis was conducted on the sample with the following information. The results shown below accurately represent the level of removable contamination.

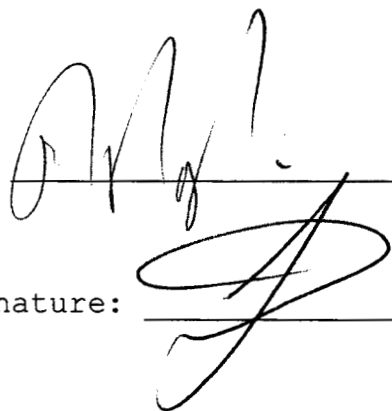
Gauge Model: 3440  
Gauge S/N: 17409

Test Date: 3/9/2011

Source (Model/Serial#)	Reading in microCuries
47-12831	0.00000
50-6788	0.00032

Note: 0.005 microCuries (185 Bq) or greater is considered a leaking source.° The source(s) tested above may remain in use.

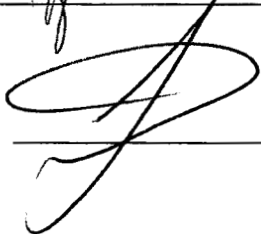
Reviewed by:



Date:

3/23/2011

Customer Signature:



Date:

3-28-11

°CPN gauges are 50 mCi Am241:Be and 10 mCi Cs-137. Humboldt gauges are 40 mCi Am241:Be and 10 mCi Cs-137. InstroTek Gauge is 40 mCi Am241:Be and 10 mCi Cs-137. Troxler gauges all, except 4640, are 40 mCi Am241:Be and 8 mCi Cs-137. Troxler 4640 is 8 mCi Cs-137.

InstroTek, Inc.  
5908 Triangle Drive  
Raleigh, NC 27617  
(919)875-8371 Fax (919)875-8328

0736L

3/23/2011  
Test Number: 1

JEFF ELLIOT  
TTL ASSOCIATES, INC  
44205 PLYMOUTH OAKS BLVD  
PLYMOUTH, MI 48170

Phone: (734)455-8600

**LEAK TEST CERTIFICATE**  
**NC Materials License #092-1073-1**

This certifies that leak test analysis was conducted on the sample with the following information. The results shown below accurately represent the level of removable contamination.

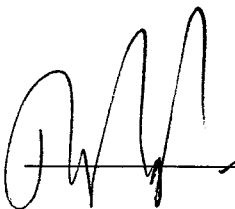
Gauge Model: 3411  
Gauge S/N: 18452

Test Date: 3/9/2011

Source (Model/Serial#)	Reading in microCuries
47-13907	0.00000
50-7963	0.00029

Note: 0.005 microCuries (185 Bq) or greater is considered a leaking source.\* The source(s) tested above may remain in use.

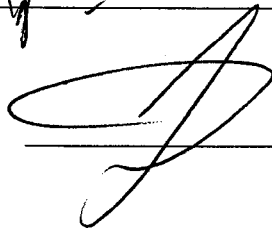
Reviewed by:



Date:

3/23/2011

Customer Signature:



Date:

3-28-11

\*CPN gauges are 50 mCi Am241:Be and 10 mCi Cs-137. Humboldt gauges are 40 mCi Am241:Be and 10 mCi Cs-137. InstroTek Gauge is 40 mCi Am241:Be and 10 mCi Cs-137. Troxler gauges all, except 4640, are 40 mCi Am241:Be and 8 mCi Cs-137. Troxler 4640 is 8 mCi Cs-137.



# Seaman Nuclear Corporation

7315 South First Street Oak Creek, WI 53154 USA

Tel 414-762-5100 Fax 414-762-5106

## Leak Test Certificate

March 14, 2011

A leak test has been performed on meter, serial number **25587**, a model XLP-300A, containing the radionuclide None.

Owned By: TTL & Associates  
1915 N. 12th Street  
Toledo, OH 43604

Date Sample Collected: 3/8/11  
Collected By: TM  
Date Sample Analyzed: 3/14/11  
Analyzed By: T. Lindemann

Most regulatory agencies consider a source to be leaking if a leak test reveals the presence of more than 0.005 microcurie of removable contamination.

Analysis found contamination of less than 0.005 microcurie.

Analysis authorized by Wisconsin license 079-1257-01.

Seaman Nuclear Corporation

**LEAK TEST DUE: 9/8/11**



Scott C. Seaman  
Radiation Safety Officer



44265 Plymouth Oaks Blvd.  
Plymouth, MI 48170-2585

Materials Licensing Division  
U.S. Nuclear Regulatory Commission  
Region III  
2443 Warrenville Road, Suite 210  
Lisle, IL 60532-4352