

**REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF DEVICE
(CORRECTED COPY)**

NO.: NC-585-D-106-G

DATE: July 26, 2007

PAGE: 1 of 5

DEVICE TYPE: Self Luminous Light Sources - Military & Law Enforcement

MODEL No.: Betatorch, Aiming Post Lamp, Map Reader Magnifier, Personnel Marker, Route/Defile Marker, Peg Light

DISTRIBUTOR: SRB Technologies, Inc.
2580 Landmark Drive
Winston Salem, NC 27103

MANUFACTURER: SRB Technologies (Canada), Inc. SRB Technologies, Inc.
320-140 Boundary Road 2580 Landmark Drive
Pembroke, Ontario Winston Salem, NC 27103
K8A 6W5

ISOTOPE Hydrogen 3 (Tritium)

MAXIMUM ACTIVITIES & SOURCE DESIGNATION

<u>Device</u>	<u>Sealed Source</u>	<u>Maximum Activity</u>	<u>Housing Components</u>
Betatorch	One Type F, or mb-microtec USA, Inc. Type 400/4 Source	5 Curies (185 GBq)	Polycarbonate & Rubber
Aiming Post Lamp	One Type SW, or mb-microtec USA, Inc. Type 400/5 Source	2.5 Curies (92.5 GBq)	Rubber, Plastic, & Glass Lens
Map Reader Magnifier	Two or Four Type R, or mb-microtec USA, Inc. Type 400/3 Sources	5 Curies (185 GBq)	ABS Plastic, Rubber, & Glass Lens
Personnel Marker	One Type RH, or mb-microtec USA, Inc. Type 400/3 Source	0.25 Curies (9.25 GBq)	Polycarbonate & Acetal
Route/Defile Marker	Two or Three Type C, or mb-microtec USA, Inc. Type 400/1 Sources	5.13 Curies (190 GBq)	Polycarbonate
Peglight	One Type C, or mb-microtec USA, Inc. Type 400/1 Source	1.85 Curies (68.5 GBq)	Polycarbonate & Aluminum

LEAK TEST FREQUENCY: None Required

PRINCIPAL USE: (W) Self Luminous light sources - for Military and Law Enforcement Personnel

CUSTOM DEVICE: _____ YES _____ X NO

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DEVICE TYPE: Self Luminous Light Sources - Military & Law Enforcement

DESCRIPTION:

The Models Betatorch, Aiming Post Lamp, Map Reader Magnifier, Personnel Marker, Route/Defile Marker, and Peg Light each contain at least one (1) sealed boro-silicate glass capsule internally coated with phosphor and filled with Hydrogen 3 gas, which activates the phosphor to produce light. Each sealed source is housed within a lightweight, rigid, shock-resistant, portable casing. Each of these sources is mounted in their respective devices to produce light in low-light environments.

These devices are designed for use in low light, military or law enforcement environments, and are not considered for permanent installation. The active life for each of these devices is approximately 10 years. The sources and devices are manufactured to rigorous manufacturer's tolerances.

LABELING:

Each of the devices shall be permanently stamped or etched with "H3" and the manufacturer's name "SRBT."

DIAGRAMS:

See Attachment 1 for the drawing of the Betatorch.
See Attachment 2 for the drawing of the Aiming Post Lamp.
See Attachment 3 for the drawing of the Map Reader Magnifier.
See Attachment 4 for the drawing of the Personnel Marker.
See Attachment 5 for the drawing of the Route/Defile Marker.
See Attachment 6 for the drawing of the Peglight.

CONDITIONS OF NORMAL USE:

Each of these devices is constructed to perform certain types of tasks that could be encountered in low light military or law enforcement environments.

Betatorch – provides a compact, durable, self-powered, light source that can illuminate approximately 50 square inches.

Aiming Post Lamp – used as an aiming point for the alignment of infantry and artillery weapons at night.

Map Reader Magnifier – provides a self-lighting magnifier to be able to read maps in low light conditions.

Personnel Marker – used as a lightweight personnel identifier when attached to an individual during night-time activities.

Route/Defile Marker – used as a compact, self-illuminating indicator that permits reliable marking of routes at night.

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DEVICE TYPE: Self Luminous Light Sources - Military & Law Enforcement

CONDITIONS OF NORMAL USE (continued):

Peglight – an illuminated peg used as an area covert marker, that may be hand inserted into soft soils or gravel to identify direction, areas, paths, or positions.

The recipient of these devices shall be either Military or Law Enforcement Agencies. The devices shall not be distributed to members of the general public.

PROTOTYPE TESTING:

Prototype testing conforms to the British Ministry of Defense Standard DEF 62-4 Issue 3. Tests of the sources were made in accordance with American National Standard N540 – Classification of Radioactive Self-Luminous Light Source. Date of approval was January 1, 1985, test serial No. 2257

EXTERNAL RADIATION LEVELS:

No external radiation levels should be detected.

QUALITY ASSURANCE AND CONTROL:

The manufacturer maintains full quality control over the assembly of the devices in that each stage is controlled by a production specification computer printout that requires assembly and testing in a specified frequency and at pre-determined stages. The lamps are tested for leakage prior to assembly. There is a final test for contamination and proper lumination.

A brief description of the quality control procedure used for the manufacture of the devices covered by this Sealed Source and Device Registry is given below.

- A. All sources used in the manufacturer of the devices must:
 - 1. meet all American National Standards N540 specifications,
 - 2. be listed on the U. S. NRC Sealed Source Registry,
 - 3. have sealed source certification issued by a recognized international competent authority,
 - 4. be leak tested before shipment and have the results reported in units of microcuries and to have removable activity of less than 0.005 microcurie (μCi).

- B. All device material type, dimensions, and assembly procedures be as specified on the attached manufacturer's drawings.

- C. All critical components are inspected before and after assembly to verify acceptability.

- D. Device is inspected to verify:
 - 1. the device is labeled in accordance with 15A NCAC 11 .0328,
 - 2. visual checks are made to verify correctness of labels and information is stamped thereon.

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DEVICE TYPE: Self Luminous Light Sources - Military & Law Enforcement

LIMITATIONS AND/OR OTHER CONSIDERATIONS OF USE:

Distribution: The recipient of these devices shall be either Military or Law Enforcement Agencies. The devices shall not be distributed to members of the general public.

Leak Testing: None required for the end user.

Servicing: None authorized or required. The manufacturer will accept these devices for disposal.

Dosimetry: None required.

Operating and Safety Instructions: The devices shall be used in accordance with the written operating and safety instructions given in their respective device manuals. The distributor/manufacturer provides a radiation safety manual to the customer that describes each type of device, and the necessary precautions of handling, storing, installing, and using the devices.

Training: None required for installation.

Use: The devices should be used according to the instructions indicated in the radiation safety manual. If any damaged components are found, the device should be returned immediately to the manufacturer for disposal. The end user shall make all reasonable attempts to recover the devices after their use.

Reviewer Note: This registration sheet and the information contained within the references shall not be changed without the written consent of the North Carolina Radiation Protection Section, Radioactive Materials Branch.

DOCUMENTATION:

The distributor/manufacturer provides a radiation safety manual to the customer that describes each type of device, and the necessary precautions of handling, storing, installing, using and disposing of the devices

SAFETY ANALYSIS SUMMARY:

The lamps used in the respective devices are SRB Technologies, Inc., Type F, SW, R, RH, or C, or mb-microtec USA, Inc. Type 400/1, Type 400/3, Type 400/4, or Type 400/5 that have been used for years by the manufacturer. Each device assembled is tested at pre-determined frequencies for leakage and acceptable construction. There should be no detectable radiation levels outside the completed device. The distributor/manufacturer provides a radiation safety manual to the customer that describes each type of device, and the necessary precautions of handling, storing, installing, and using the devices. The manual indicates what to do if a device is broken, and a list of "do's and don'ts."

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REFERENCES:

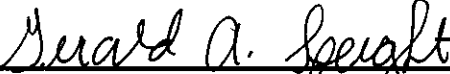
1. SRB Technologies, Inc. documents, drawings, test specifications and results, quality control procedures, and NC Radioactive Materials License.
2. Completed questionnaire dated March 30, 2004, and April 19, 2004, both signed by Jim Roberts, President and RSO.
3. Letter dated February 15, 2007, signed by Brian Pullen, President SRB Technologies, Inc.
4. **Letter dated July 23, 2007, signed by Brian Pullen, President SRB Technologies, Inc.**

ISSUING AGENCY:

State of North Carolina
Department of Environment and Natural Resources
Radiation Protection Section
1645 Mail Service Center
Raleigh NC 27699-1645

This Sealed Source & Device registry certificate is hereby amended.


Principal Reviewer



Gerald A. Speight, Health Physicist

Date: July 26, 2007

Concurrence Reviewer:



J. Marion Eaddy III, Health Physicist

Date: July 26, 2007

**REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF DEVICE
(AMENDS IN ITS ENTIRETY)**

NO.: NC-585-D-106-G

DATE: February 19, 2007

ATTACHMENT:

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DEVICE TYPE: Self Luminous Light Sources - Military & Law Enforcement

Attachment 1: Betatorch

<p>APPROVED</p> <p>DATE</p> <p>REVISIONS</p> <p>DATE</p> <p>REVISIONS</p> <p>DATE</p> <p>REVISIONS</p> <p>DATE</p>		<p>THIRD ANGLE PROJECTION</p> <p>IF IN DOUBT - ASK</p>				<p>SRB TECHNOLOGIES</p> <p>TITLE</p> <p>Betatorch</p>		<p>DEVICE NO. AND DESCRIPTION</p> <p>122604X</p> <p>Brought back</p>		<p>SHEET</p> <p>1,1</p>	
<p>COMPONENTS</p> <p>ALL FROM COMPONENTS TO BE ASSEMBLED BY THE USER. COMPONENTS TO BE ASSEMBLED BY THE USER. COMPONENTS TO BE ASSEMBLED BY THE USER. COMPONENTS TO BE ASSEMBLED BY THE USER. COMPONENTS TO BE ASSEMBLED BY THE USER.</p>		<p>SEALING REQUIREMENTS</p> <p>SEALING REQUIREMENTS</p> <p>SEALING REQUIREMENTS</p> <p>SEALING REQUIREMENTS</p> <p>SEALING REQUIREMENTS</p>		<p>SEALING REQUIREMENTS</p> <p>SEALING REQUIREMENTS</p> <p>SEALING REQUIREMENTS</p> <p>SEALING REQUIREMENTS</p> <p>SEALING REQUIREMENTS</p>		<p>SEALING REQUIREMENTS</p> <p>SEALING REQUIREMENTS</p> <p>SEALING REQUIREMENTS</p> <p>SEALING REQUIREMENTS</p> <p>SEALING REQUIREMENTS</p>		<p>SEALING REQUIREMENTS</p> <p>SEALING REQUIREMENTS</p> <p>SEALING REQUIREMENTS</p> <p>SEALING REQUIREMENTS</p> <p>SEALING REQUIREMENTS</p>		<p>SEALING REQUIREMENTS</p> <p>SEALING REQUIREMENTS</p> <p>SEALING REQUIREMENTS</p> <p>SEALING REQUIREMENTS</p> <p>SEALING REQUIREMENTS</p>	

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DEVICE TYPE: Self Luminous Light Sources - Military & Law Enforcement

Attachment 3: Map Reader Magnifier

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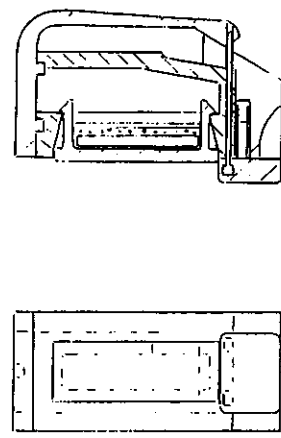
DATE: February 19, 2007

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DEVICE TYPE: Self Luminous Light Sources - Military & Law Enforcement

Attachment 4: Personnel Marker

<p>THIRD ANGLE PROJECTION  IF IN DOUBT - ASK</p>		<p>DEVICE DESIGN REQUIREMENTS</p> <p>COMPONENTS <small>ATTACHED COMPONENTS TO BE MADE OF 304 STAINLESS STEEL. COMPONENTS TO BE MADE OF 6061 ALUMINUM OR EQUIVALENT OR HIGHER GRADE EQUIVALENT MATERIALS. SURFACE FINISH: COMPATIBLE TO VEHICULAR USE.</small></p> <p>ASSEMBLY <small>INTEGRITY OF SEALING MATERIALS MUST BE MAINTAINED THROUGHOUT THE LIFE OF THE DEVICE.</small></p> <p>SEALED SOURCE DESCRIPTION <small>SEALED SOURCE MUST BE MADE OF 304 STAINLESS STEEL. THE SEALS MUST BE MADE OF 304 STAINLESS STEEL. THE SEALS MUST BE MADE OF 304 STAINLESS STEEL.</small></p> <p>SEALED SOURCE <small>ONE 1.0 MC Pu SOURCE (SEE ATTACHED DRAWINGS)</small></p> <p>MAXIMUM DEVICE ACTIVITY <small>1.0 MC</small></p> <p>SURFACE TEXTURE <small>SMOOTH</small></p> <p>MAXIMUM DIMENSIONS <small>4.0 IN. DIA. 3.0 IN. HGT.</small></p>				<p>DETAILED DESCRIPTION</p> <p>134602K Personnel Marker</p>	<p>SRB TECHNOLOGIES</p> <p>TITLE PERSONNEL MARKER</p>	<p>DETAILED DESCRIPTION</p> <p>134602K Personnel Marker</p>	<p>REVISED</p> <p>1/07</p>
<p>APPROVED</p> <p>DATE</p> <p>DATE</p> <p>DATE</p> <p>DATE</p> <p>DATE</p> <p>DATE</p>									

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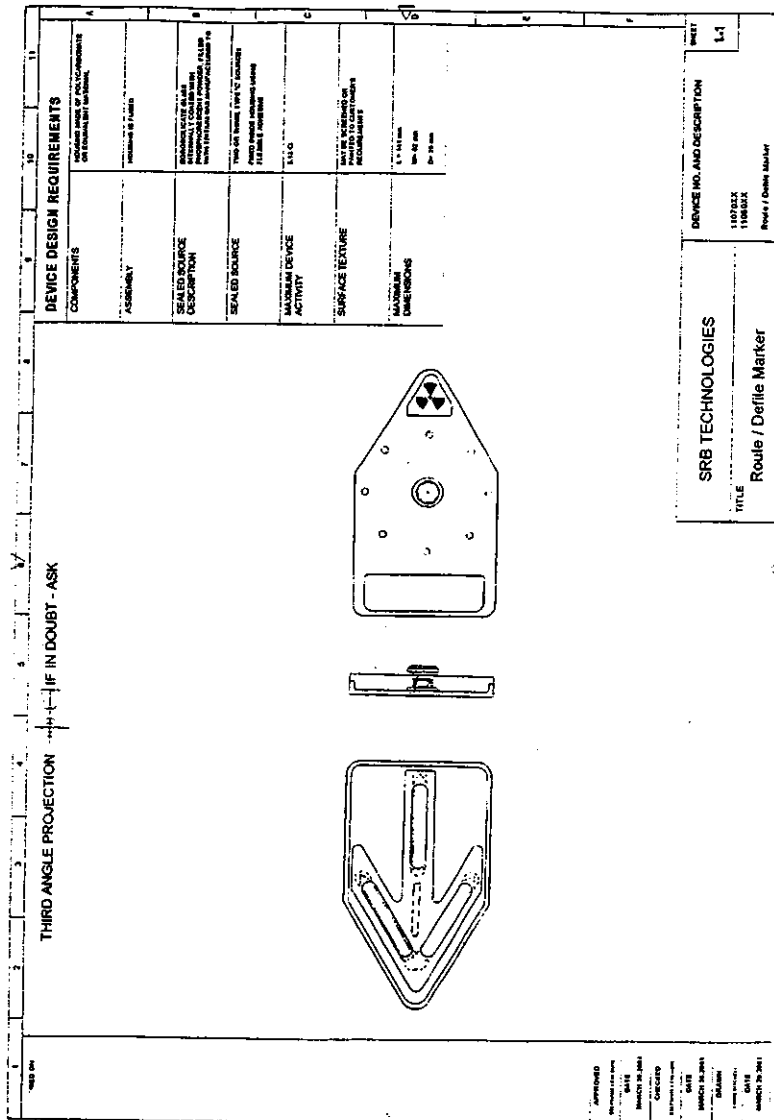
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DEVICE TYPE: Self Luminous Light Sources - Military & Law Enforcement

Attachment 5: Route/Defile Marker



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DEVICE TYPE: Self Luminous Light Sources - Military & Law Enforcement

Attachment 6: Peglight

THIRD ANGLE PROJECTION IF IN DOUBT - ASK										
<p align="center"></p>										
DEVICE DESIGN REQUIREMENTS										
SYSTEMS, COMPONENTS AND PARTS IDENTIFICATION OR NUMBERING NUMBER MADE OF MATERIALS										
MATERIALS, COMPONENTS AND PARTS IDENTIFICATION										
SEALED SOURCE DESCRIPTION ONE TYPE "C" SOURCE										
MAXIMUM DEVICE ACTIVITY 1.0 µCi										
SURFACE TEXTURE REQUIREMENTS TO CUSTOMER										
MAXIMUM DIMENSIONS L x W x H 2.5 x 1.0 x 0.5 Dia x Dia x H										
SRB TECHNOLOGIES TITLE Peglight			DEVICE NO. AND DESCRIPTION 133601X Peglight					SHEET 1-1		
<small> APPROVED _____ DATE _____ CHECKED _____ DATE _____ DRAWN BY _____ DATE _____ REVISED BY _____ DATE _____ PROJECT NO. 133601X SHEET NO. 1-1 DATE _____ DRAWN BY _____ </small>										