



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

Kevin Romney, General Manager  
21<sup>st</sup> Century Technologies, Inc.  
5050 E. Belknap St.  
Haltom City, TX 76117-5050

November 1, 2002

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION ON GHOSTRING SERIES 1000,  
AND 1100 GUN SIGHTS.

Dear Mr. Romney:

This letter is in response to your application dated October 14, 2002, and your letter dated October 24, 2002, requesting license amendment to NRC Licence No. 42-23850-02E, which requires an of amendment of registration certificate No. NR-0365-D-101-E, to include Ghostring 1000, and 1100 gun sights. Your request is being processed and evaluated on an expedited basis. In order to continue and complete our evaluation we need additional information in the Enclosure.

Please submit the requested information at your earliest convenience. If we have not received complete information within thirty days of the date of this letter, we will consider your application as having been abandoned by you. This is without prejudice to the submission of a complete application.

If you have any questions, please contact me at (301) 415-7894 or Douglas Broaddus at (301) 415-5847.

Sincerely,

A handwritten signature in black ink, appearing to read "Ujagar S. Bhachu".

~~Ujagar S. Bhachu~~, Mechanical Engineer  
Materials Safety and Inspection Branch  
Division of Industrial and  
Medical Nuclear Safety  
Office of Nuclear Material Safety  
and Safeguards

Enclosure: As stated

M203 GRENADE LAUNCHER DAY/NIGHT SIGHT MODULE  
REQUEST FOR ADDITIONAL INFORMATION

21<sup>st</sup>. Century Technologies, Inc. submitted an application on October 14, 2002, to Nuclear Regulator Commission (NRC) to include their Model M203 Grenade Launcher Day/Night Sight Module in their registration certificate No. NR-0365-D-101-E. Each Model M203 Grenade Launcher gun sights may have 90 mCi of maximum radioactive Hydrogen-3, maximum of three sources with 30 mCi per source. Sources to be used are registered Lumitech thin wall Models CL/1,5/4,85A and Model CL/0,95/3,3A.

Following the NRC review guidance, normally this application would have been rejected, but, due to the circumstances (approved, expedited handling), NRC would work with 21<sup>st</sup> Century through telephone calls or e-mails to resolve items that need to be addressed).

The information submitted, dated October 14, 2002, is insufficient to complete a safety evaluation and rendering a final decision. 21<sup>st</sup>.Century is requested to submit additional information and/or clarify the following issues:

1. GENERAL

- 1.1 It is NRC understanding that you are seeking expedited Exempt License approval of two gunsight models to enable you to supply these gun sights exclusively to the military. We confirm our earlier telephone conversation that NRC cannot issue a Exempt License to 21<sup>st</sup>. Century Technologies, Inc. that limits the distribution of products to US Military only.
- 1.2 Your application states that you intend to supply to Insight Technologies, Inc. Ghosting Series 1000 and 1100 gun sights installed with thin walled sealed source Lumitec Models CL/1,5/4,85A and CL/0,95/3,3A. In order for NRC to approve these sights for Exempt Licensing these gun sights must satisfy the regulatory provisions of 10 CFR 32.22, 32.23, 32.24 and 32.25. NRC NUREG-1556, volume 8, Appendix O, NRC NUREG 1556, Volume 3, Section 10 , ANSI N43.4-2000, provide guidance for testing and other acceptable methods for satisfying the regulatory requirements

2. RADIOACTIVE SEALED SOURCE GUN SIGHTS

To support your application you provided prototype test results and analysis. We reviewed the information provided and we need the following additional information or clarifications.

- 2.1 Please clearly describe and provide information, test procedures and test reports that verifies the product design will maintain its integrity when loaded with maximum radioactive activity and subjected to conditions of normal use and likely accident conditions. Likely use and accident conditions should include those experienced during installation, use, handling, maintenance, storage, and normal transportation by air, sea or land.

ENCLOSURE

Please demonstrate, the appropriateness of the methods used in prototype testing, complete representation of final products that include all safety features, safety markings and any accessory features, attachments or mounting that may have a detrimental effect to the safety and integrity of the product when subjected to normal or likely accident conditions by the mobile Military and the general public.

Please outline the pass/fail criteria used in such tests. Also, describe means of examining containment and boundary integrity (adhesives, discoloration) degradation of source or sources, decrease in illumination and source cracking. The means and methods used to calibrate the value of the visual tests.

Please confirm that the prototypes were, of the same design, constructed of the same materials, same dimensions and tolerances and representing the worst case scenario of tolerances and environment that could be experienced by the final product. Any variations of the product from the final product must be analyzed for the effect to the test results the change would be expected to cause. (Guidance for performing prototype tests is given in NRC NUREG Volume 8, Appendix O, and ANSI N43.4-2000).

- 2.2 During normal use, handling, storage, maintenance and shipment products may be subjected to cleaning, lubrication and protection (CLP). Please confirm that the chemical tests you did, encompass the CLP's such as gun oil , Break-Free, WD-40, Hoppes #9, Shooters choice, Nyoil, Accubore, gun scrubber, Rem oil and Tri-flow etc.
- 2.3 Please confirm that when all gun sights models were subjected to temperature shock test that they were transferred from the heated condition to the cold chamber within 15 seconds and state the method used for achieving the cold conditions. ( i.e., flowing or static cold water) (Section 3.2.3, Appendix O, Volume 8, NRC NUREG 1556).
- 2.4 Please provide your reasoned rational for not performing a reduced pressure test on gun sights or subject all models to a reduced pressure test of 0.25 Bar.
- 2.5 Please provide a copy of the missing information related to the Mechanical Shock Test (see section 3.2.7 of your application).

### 3. QUALITY CONTROL

Please confirm if you intend to continue to use the quality controls and procedures previously submitted to the NRC and provide quality control procedures for the gun sights manufactured by Insight Technologies, Inc.

ENCLOSURE

4. LABELING

The screw in front gun sight isotope-H3 and the trade mark P-T markings will not be visible once the source is installed on the weapon. Please reconsider the location of these markings so that the markings will be visible (NUREG 1556, Vol 3, Section 10.4)

5. MAXIMUM DOSE COMMITMENT CALCULATIONS

Please note that **only sample calculations of maximum dose commitment calculations** are provided in NRC NUREG 1556, Volume 8, Appendix O, Attachment 1. Please describe how the assumptions made in the sample calculations reflect your work environment and all other likely environments where the products may be stored, shipped or fielded (i.e., occupancy, air changes per hour and the presence of other products). We have noted some errors in your calculations, please review, revise and resubmit accurate and complete calculations for maximum dose commitments.

6. DRAWINGS AND DESIGN

Please note that we cannot perform a safety evaluation of your product with out the actual final design data and clearly dimensioned drawings. NRC NUREG 1556, Volume 3, Section 10 provides specific guidance regarding the amount of details required in drawings for a review.

Please provide copies of legible and dimensioned drawings with tolerances for Attachment A and B. Please include materials specifications for the components, methods of attachment of sources to the gun sights, the gun sights to the weapon and if applicable the mounting details of the weapon should be shown. The properties of adhesives, any springs and fasteners should be shown on the drawing or listed separately.