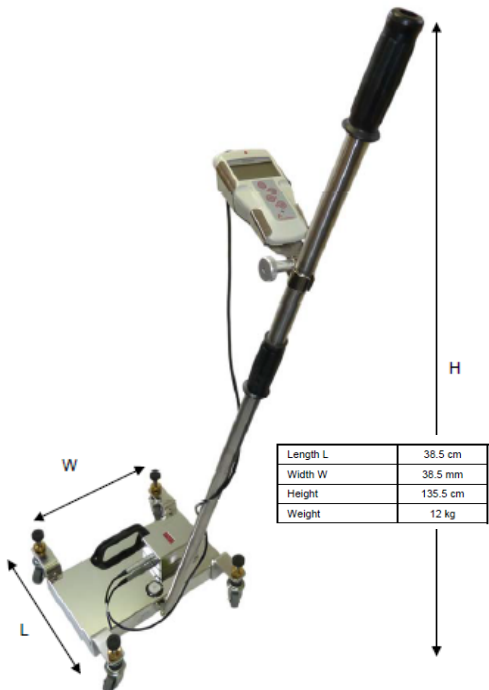


**AREA 1.3 – CANBERRA SOLUTION 2**  
**MOBILE WIDE AREA BETA SURFACE CONTAMINATION MONITOR**

**FORM 2**

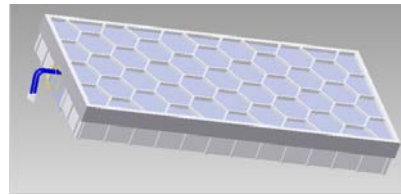
**(to be reported to Committee on Countermeasures for Contaminated Water Treatment and to be disclosed to public)**

Technology Information									
Area	<b>1.3 Accumulation of contaminated water (Storage Tanks, etc.)</b> Technology for detection of minor leaks Improvement in the detection ability of beta rays on patrol								
Title	Mobile wide-area $\beta$ surface contamination monitor								
Submitted by	CANBERRA								
<p><b>1. Overview of Technologies (features, specification, functions, owners, etc.)</b></p> <p><u>Objective</u></p> <p>We have proposed installed instruments as an alternative to deploying a large crew of technicians to walk around the tanks to hunt for leaks. To complement our proposed installed instruments, we propose a tool to make the task of performing further investigations by qualified radiation measurement technicians easier, more sensitive, and more reliable.</p> <p><u>Proposed Solution:</u></p> <p>We propose a modification of the system shown in the adjacent image to develop a portable instrument that much easier and more efficient for the operator to use, and will provide reliable repeatable results in the elevated 50uSv/hr background.</p> <p><u>Main specifications:</u></p> <ul style="list-style-type: none"> <li>-Type: Mobile, self-contained</li> <li>- BarCodes or RFID tags reading capability</li> <li>- Measurement logging capability</li> <li>- Emitters: <math>\beta</math> only, or alpha/beta, or beta/gamma, depending upon the type of probe</li> <li>- Detector: very large area very thin beta scintillator</li> </ul>									
 <table border="1" data-bbox="1150 1420 1364 1503"> <tbody> <tr> <td>Length L</td> <td>38.5 cm</td> </tr> <tr> <td>Width W</td> <td>38.5 mm</td> </tr> <tr> <td>Height</td> <td>135.5 cm</td> </tr> <tr> <td>Weight</td> <td>12 kg</td> </tr> </tbody> </table>		Length L	38.5 cm	Width W	38.5 mm	Height	135.5 cm	Weight	12 kg
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**AREA 1.3 – CANBERRA SOLUTION 2**  
**MOBILE WIDE AREA BETA SURFACE CONTAMINATION MONITOR**

Description:

The critical element in the success of the radioactive water leak detection instrument is the radiation sensor. The primary sensor proposed is a plastic scintillator beta module from our Argos Total Body Contamination Monitoring system. A graphic of the sensor is shown here. It is a large area sensor [16cm x 36cm] for maximum efficiency. The beta-sensitive layer is very thin to minimize the gamma sensitivity. Other sensors are available for alpha and gamma monitoring applications.



Owners: All of the key elements are manufactured by Canberra.

**2. Notes (Please provide following information if possible.)**

- Technology readiness level (including cases of application, not limited to nuclear industry, time line for application)

The sensor proposed is a plastic scintillator beta module from our Argos Total Body Contamination Monitoring system. Many hundreds of the sensors have been provided. The technical software is the same as in the standard Argos product, so no new technology to be developed. All of the key elements are manufactured by Canberra.



More information on the Argos technology available from the under link:

[http://www.canberra.com/products/hp\\_radioprotection/pdf/Argos-PB-SS-C40004.pdf](http://www.canberra.com/products/hp_radioprotection/pdf/Argos-PB-SS-C40004.pdf)

- Challenges

The instrument needs to give reliable results in a high background radiation area. We believe we have the sensor to meet this challenge.

The instrument also needs to be suitable for field radiation measurement workers to quickly and efficiently use. We believe we can meet this challenge.

- Others (referential information on patent if any)

Patent pending on the beta/gamma discrimination.