

Technology Information	
Area	3
Title	Removal of radioactive materials from the sea water in the harbor
Submitted by	NUKEM Technologies GmbH, in cooperation with FEBRAS
<p>1. Overview of Technologies (features, specification, functions, owners, etc.)</p> <p>In some parts of the area inside the harbor the concentration of radioactive isotopes of Cesium and Strontium exceeds statutory limits.</p> <p>NUKEMs parent company (the Russian entity ROSATOM) has gained valuable experience with similar contamination at their naval installations in Russia. To solve these problems the Russian Academy of Science in Vladivostok, together with their Far Eastern Branch (FEBRAS) has developed both materials and processes for the purification of these solutions. It has therefore been proven that for such big volumes and low radioactivity concentrations to be treated, a simple and fast process is required, which FEBRAS has developed and implemented an operational method.</p> <p>The process can be characterized as follows:</p> <ul style="list-style-type: none"> • A continuously operated facility with a throughput of 100 m³/hour, • A slurry of absorbers (highly selective for Cs resp. Sr) is added in a stirred vessel of 50 m³ volume, • The loaded absorbers are separated from the purified water in a centrifuge. <p>An amount of approx. 0.1 m³/h of spent sorbent and a decontamination factor of 10 – 100 can be expected.</p>	
<p>2. Notes (Please provide following information if possible.)</p> <p>Technology readiness level (including cases of application, not limited to nuclear industry, time line for application):</p> <p>The process has been tested at the naval site at Vladivostok.</p> <p>To solve the on-going issues at Fukushima, NUKEM Technologies proposes to take this tried and tested solution, transfer the lessons learned in Russia to the Japanese scenario. NUKEM will also take into consideration any requirements for adapting the system for the FUKUSHIMA situation.</p> <p>Challenges</p> <p>The process requires scale up, given the simplicity of the process, problems are not expected.</p> <p>Others (referential information on patent if any)</p> <p>none</p>	