

[Form 2 (to be reported to Committee on Countermeasures for Contaminated Water Treatment and to be disclosed to public)]

Technology Information	
Area	2: Treatment of contaminated water
Title	Under Vacuum Distillation
Submitted by	SHELL GMBH & Co.KG
<p>1. Overview of Technologies (features, specification, functions, owners, etc.)</p> <p>The under vacuum distillation is used to remove water or low boiling point compounds from process waters.</p> <p>Each plant is designed to optimize the vapor velocity in vapor–liquid separation, in order to minimize the entrainments.</p> <p>The adjustable vacuum degree helps to find the best equilibrium between temperature and vapor density, compared with the designed heating source (heat pump circuit, steam, hot water..)</p> <p>The production includes single effect, multiple effect (co-current, counter current and parallel) evaporators and crystallizer, so there's the possibility to work with batch operation or in line with the process with continuous plant.</p> <p>For the heat exchangers and reactors the standard material is the austenitic stainless steel AISI316L EN 1.4404, available materials are superaustenitic steels (as 254SMO[®] EN 1.4547), duplex and superduplex steels (as SAF2507[®] EN 1.4410) nickel alloy (as Hastelloy C series) and titanium grade 2.</p>	
<p>2. Notes (Please provide following information if possible.)</p> <ul style="list-style-type: none"> - Technology readiness level: since 20 years Schell GmbH develops, produces and sells machines for many industrial applications, from food and beverage till pharmaceutical, galvanic and nuclear plants. We cooperate in Japan with the company Eco-tech NSSMC (Nippon Steel & Sumikin, Tokio) who is our official dealer. - Challenges: for each customer and application Schell GmbH develops tailor-made plants answering to the needs from design till installation and start-up. Our technology is used and applied in 32 countries all over the world. - Schell GmbH ECOPRIMA[®] evaporator works in Trino Vercellese (Italy) nuclear plant, in the decommissioning project of the reactor developed by Sogin S.p.A and Ansaldo Nucleare S.p.A. 	

【Areas of Technologies Requested】

- (1) Accumulation of contaminated water (Storage Tanks, etc.)
- (2) Treatment of contaminated water (Tritium, etc.)
- (3) Removal of radioactive materials from the seawater in the harbor
- (4) Management of contaminated water inside the buildings
- (5) Management measures to block groundwater from flowing into the site
- (6) Understanding the groundwater flow