HISTORY
A major Oil & Gas company operating a large conventional heat exchanger on an offshore platform in the North Sea has traditionally used organic acids as a method of removing scales from the heat exchanger (due to the hazards of HCl). They have made numerous attempts with this type of acid with limited success and no significant improvement of heat exchanger function.

PROPOSAL
To clean and return to full function, a large conventional heat exchanger that is clogged with hydrocarbon sludge (est 100 kg). Calcium carbonate scale (est 800 kg) and sulfate scale (est 100 kg) using a solvent & Fluid Energy Groups, HCR-2000N which is an environmentally responsible exposure safe acid which is approved for use in the North Sea.

OPERATIONS
Stage 1 of the treatment utilized a degreasing agent which was circulated while heated to help remove the hydrocarbons and expose the scale.
Stage 2 of the treatment was the application of HCR-2000N acid, to dissolve the estimated 800 kg of Calcium carbonate scale.

RESULTS
The HCR-2000N was spent and all available CaCO3 was dissolved. The heat-exchanger was successfully cleaned, and full functionality restored. The operator was very pleased in the increased functionality compared to previous treatments tried.

VALUE
Due to the low corrosivity, environmental rating and minimal personnel exposure risks, Enviro-Syn® HCR-2000N was considered a huge success. The operator was able to safely and economically complete the restoration of the large conventional offshore platform heat exchanger. The operator was also able to utilize localized pressure pumping equipment, dilute the HCR-2000N with seawater directly from the platform, and significantly reduce product delivery logistics and cost. The ability to utilize an environmentally responsible product that is non-hazardous, safe to handle and biodegradable was seen as an “excellent, cost-effective alternative.”