

# Off-shore Platform Glycol Dehydration

Adriatic Sea, Italy / 2015

## Problem

Contamination entering a 3000-7000 L glycol reservoir from a 32 km pipeline had high levels of contamination as a result of pipeline corrosion. The contamination would degrade new glycol and reduce its ability to cool and remove moisture from gas. Corrosion of the carbon steel piping would cause contamination build-up during transmission and storage. The glycol system was unmanned and required a low maintenance filtration solution with minimal changeouts. During the dehydration phase, if the temperature of the glycol is volatile (this occurs when high levels of iron are present), the likelihood of vaporization loss increases, resulting in lost production.

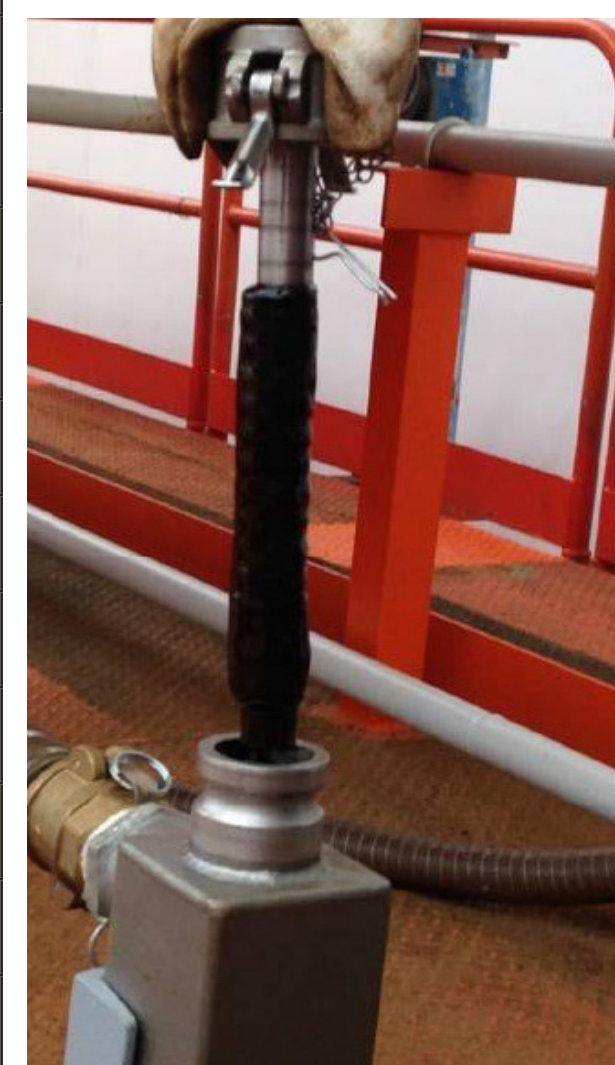
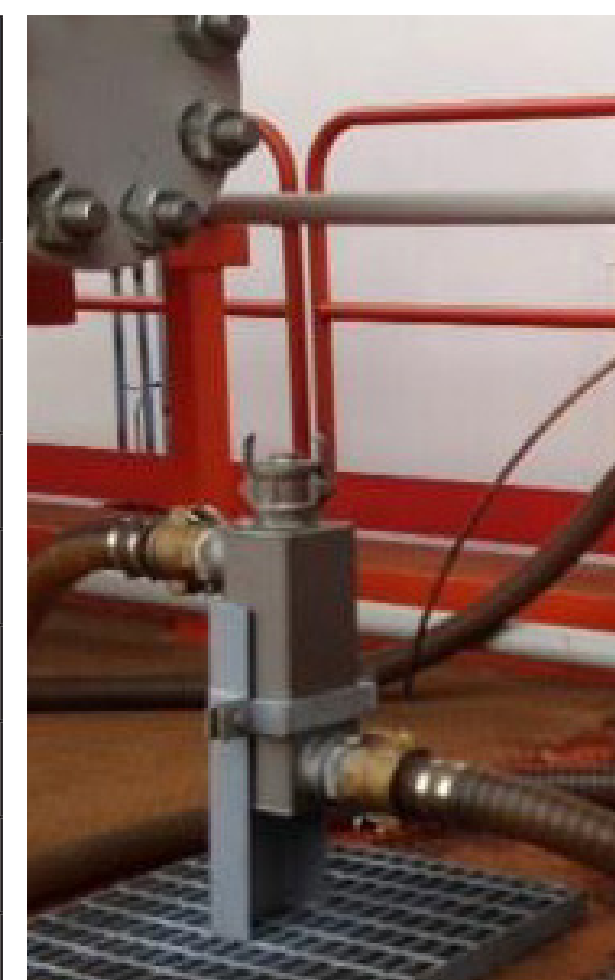
## Solution

Install a magnetic separator after the reservoir to improve glycol quality.

## Results

Analysis of contamination collected on the magnetic element showed 74% nonferrous particles and 26% ferrous. The glycol quality was significantly improved with minimal maintenance requirements.

| Spectroscopic Analysis (ppm) |     |
|------------------------------|-----|
| Iron                         | 606 |
| Chromium                     | 17  |
| Nickel                       | < 5 |
| Manganese                    | 12  |
| Aluminum                     | 93  |
| Lead                         | < 5 |
| Copper                       | 24  |
| Tin                          | < 5 |
| Silver                       | < 5 |
| Titanium                     | 5   |
| Silicon                      | 410 |
| Sodium                       | 26  |
| Potassium                    | 130 |
| Vanadium                     | < 5 |
| Calcium                      | 14  |
| Magnesium                    | 64  |
| Phosphorous                  | 779 |
| Zinc                         | 30  |
| Barium                       | 86  |





**RENOX Srl**

ID Macchina: **P.ma Angelina - Residual on the OEI magnetic rod glycol circuit**  
 Model:  
 Type of machine: **Residue solids (Single sample)**



Object of analysis is a residue which requires characterisation. An allotment of the substance has been washed in heptanes and was immiscible. The residue was then vacuum filtered on a membrane and washed with water and observed under optical microscope (see attached pictures). For characterisation of the elemental composition of the residue a RDE spectrometry was carried out after filtration of the suspended residue in the heptanes with a porous disk electrode (Rotrode Filter Spectroscopy) and analysis with standard oil 0 ppm. The concentration reported is a semi-quantitative measure of the presence of the elements in the residue.

High presence of metals (Iron, with trace of aluminum, copper and chromium). Presence of contaminants non metallic and salts (phosphorus, silica and potassium). The particles are in the form of residues from a few microns to 0.5 mm.

Ing. Matteo Campatelli, 16 apr 2015

**OIL GENERAL**

Note:

Sample ID: **6401EE (P3038)**  
 Sample Date: **n.p.**  
 Date Received: **14 apr 2015**  
 Additives:

|   | Threshold values |  |
|---|------------------|--|
| Iron  | 606              |  |
| Chrome                                      | 17               |  |
| Nickel                                      | <5               |  |
| Manganese                                   | 12               |  |
| Aluminum                                    | 93               |  |
| Lead  | <5               |  |
| Copper                                      | 24               |  |
| Tin   | <5               |  |
| Silver                                      | <5               |  |
| Titanium                                    | 5                |  |
| ASTM D6595 mod. Rotrode Filter Spectroscopy |                  |  |
| Silica                                      | 410              |  |
| Sodium                                      | 26               |  |
| Potassium                                   | 130              |  |
| Vanadium                                    | <5               |  |
| Calcium                                     | 14               |  |
| Magnesium                                   | 64               |  |
| Phosphorous                                 | 779              |  |
| Zinc  | 30               |  |
| Barium                                      | 86               |  |
| Boron                                       | 45               |  |
| Molibdenum                                  | <5               |  |
| Cadmium                                     | 7                |  |

Date 16 apr 2015, Resp. Laboratorio