Case Study
Abu Qir Fertilizer Plant

<table>
<thead>
<tr>
<th>Application:</th>
<th>Fertilizer Plant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location:</td>
<td>Egypt</td>
</tr>
<tr>
<td>Year:</td>
<td>2017</td>
</tr>
<tr>
<td>Instrumentation involved:</td>
<td>Hard Rubber Lined Pipes</td>
</tr>
<tr>
<td>Provided Solution:</td>
<td>On Field Analysis, Planning &amp; Intervention</td>
</tr>
</tbody>
</table>

Project:

The Abu Qir Fertilizer Complex consists of:

- No. 1 Ammonia Plant 1000 & No. 1 Urea Plant 1550 mtpd & No. 1 Urea Drilling Plant

- No. 1 Ammonia Plant 1000 mtpd, No. 1 Nitric Acid Plant 1800 mtpd & No. 1 Ammonium Nitrate Granulation Plant 2400 mtpd

- No. 1 Ammonia Plant 1200 mtpd, No. 1 Urea Plant 1750 mtpd & No. 1 Granulation Plant 2000 mtpd.

Figure 1.1 Abu Qir Fertilizer Plant - Egypt
Description:

The client asked for valveIT support concerning problems occurred on hard rubber lined pipes used for abrasive fluid. In details, damages referred to:

a) Adhesion of hard rubber on pipes

Figure 1.2 Adhesion Problems with Abu Qir’s Hard Rubber Pipes
b) Arising of bubbles between lining and pipe body

Figure 1.3 Non-performing Bubbles arising between Body and Lining of the Abu Qir Fertilizer Plant
c) Conductivity of the rubber surface & Failure of the Spark Test

*Figure 1.4 Spark Test Failure for Abu Qir’s pipes due to the Conductivity on their rubber parts*
valveIT Intervention:

a) Removing of previous lined material with pyrolysis process & Removing of previous rubber by pipe heating & air flushing. Subsequent Internal & External Sandblasting of the pipes

Figure 1.5 Damaged Pipes are cleaned and restored through Heating, Air Flushing and Sandblasting processes

b) Application of special chemicals glue for adhesion purpose

Figure 1.6 New Adhesion on the pipe surface is obtained thanks to the application of a special glue on it
c) Application of adhesion new rubber

*Figure 1.7 New rubber coverage is applied on the pipe*

d) Autoclaving for Vulcanization process

*Figure 1.7 Rubber is finally fixed through the Vulcanization method*