

NANOTECH  
INNOVATION

# Cost Effective Corrosion Mitigation for Oil & Gas Metal & Equipment





# Client profile

The client was a senior Canadian oil and natural gas production company operating in Western Canada. The company is one of the largest producers of natural gas and heavy crude oil in Canada. In addition to its upstream hydrocarbon production, the client's operations also include midstream assets including pipelines, storage terminals, and processing plants.

# Challenge

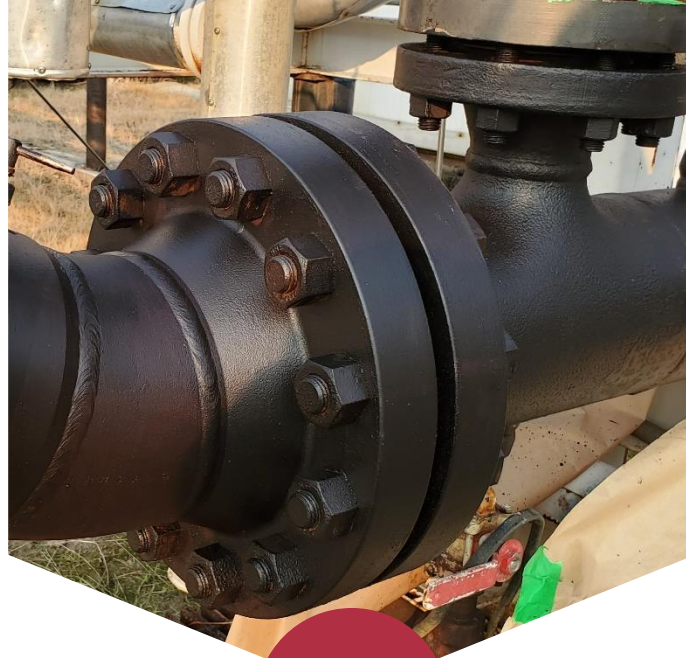
Corrosion is a challenge that many companies in energy and processing industries face within their upstream, midstream, and downstream operations. The existing maintenance methods are characterized as expensive, labor-intensive, and reliant on toxic chemicals. These methods often face limitations in their application due to factors such as plant continuous operation, equipment location, geometry, and worker health concerns.

The structures in the aimed field were severely corroded to full surface, and the overall paint condition of the main flanges, valves and surrounding pipes were poor with loose parts and flaking to 90% of surface area with pitting depths to .010 inches deep. The piping also showed pitting depths between .036 in. and .051 inch, which was within the corrosion allowance design considerations; thus replacement was not necessary.





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## Solution

The NanoTech eco-friendly rust converter product was chosen to coat 215 sq.ft of rusted equipment including separator valves, tanks, and pipes. Using NanoTech's product, significant savings on time and cost was achieved for the client. In the first step of the project, the blisters and flakes of rust were removed by using a jet wash and wire-brush (SSC-SP3). The NanoTech's nano rust converter was then applied, which was followed by the application of middle coat and top coat. The project, from preparation to applying the top-coat, took about two days to finish.



**No dangerous surface preparation processes required** prior to application (no sandblasting, no acid washing)



**Strong adherence** between the rust converter and metal surface providing a long-lasting solution



**Water-based product** has no gases, bad odours or toxic fumes



**No specialized equipment** required for applying product



**Achieve environmental objectives** – water-based formula that's good for people & the environment



**Saves time and money** due to fast and easy application

## Benefits and Results

Deploying NanoTech's nano rust converter led to significant savings in time and costs, compared to conventional methods. As the rust converter was applied, it was immediately visible to operators that the converter was chemically reacting with the rust and converting it into a stable coating. The product was easily applied in the difficult-to-access areas, and penetrated deep into the rust layer due to its engineered nano-sized particles. Lastly, NanoTech's eco-friendly solution resolved the customer's corrosion issues while contributing to the company's efforts to reduce GHG emissions and contributions to climate change



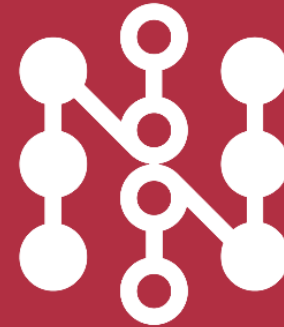
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The Nanotech product is a cheaper alternative solutions for the protection of facility metal and equipment. It has potential application scenarios for pressure piping, tank walls and vessel shell/heads. With minor preparation requirements (in lieu of sandblasting or acid washes), the product is recommended for future rust removal treatments. Its added corrosion resistance and non-toxic nature further act as further reasoning to consider the use of the product.

**Asset Integrity Manager – Large Canadian Oil & Gas Company**

# About NanoTech Innovation

NanoTech Innovation combines expertise in engineering and material science with rich experience in product innovation and operations to manufacture a line of novel plant-based rust converter products that are applied directly on rusted structures, equipment and pipes, with no or minimal surface preparation, to convert the existing rust into a primer and a protective layer that prevents future corrosion.



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**For more information please contact [info@nanotechinnovation.ca](mailto:info@nanotechinnovation.ca)**