

CASE STUDY

CB&I RELYING ON SGS SERVICES IN COLOMBIAN REFINERY PROJECT

MAY 2012

SGS was awarded a contract to perform pre-and post-weld heat treatment (PWHT) services for the CB&I expansion project at the Refineria de Cartagena S.A. (REFICAR) refinery in Cartagena, Colombia. SGS is to provide PWHT services compliant to manufacturing codes ASME VIII, ASME B31.3 and B31.1 for pipes ranging from one to twenty-four inches in diameter. Dated March 20, the agreement specifies a project execution period of fourteen months which began on April 1 this year and will proceed until June 1, 2013.

SGS PWHT SERVICES FUELING CARTAGENA REFINERY EXPANSION

One of the largest industrial projects to be undertaken in Colombia, the expansion of the REFICAR refinery in Cartagena is a strategic project. Its goals are to increase gasoline and diesel fuel production to 140,000 barrels per day meant for both domestic consumption and export sales, to improve the quality of fuels in accordance with mandatory emissions protocols to meet international environmental standards and to optimise operational and financial indicators. For an efficient, environmentally-sound and profitable concern, the existing refinery will undergo renovations and a new multi-process unit refinery will be built adjacently enabling REFICAR to take full advantage of a modern complex.



CB&I, one of the world's leading engineering, procurement and construction (EPC) companies and a major process technology licensor, provides a comprehensive range of EPC solutions and proven technologies to the energy and natural resource industries.

In keeping with the very high standards required of CB&I project partners, SGS was selected due to its extensive experience and expertise in PWHT services.

SGS ARRAY OF PWHT SERVICES

SGS PWHT services in the Cartagena project have included heat treatments done both before and after welding to optimise the chemical properties and mechanical functions of weldment surfaces. During the process of applying heat treatment, SGS inspectors wrapped electrical heating elements of Ni-Cr wire of suitable gauge and insulated with porcelain beads around the weld portion to locally heat the entire weld and surrounding area of the base metal. Pre- and post-weld heating treatments, carried out by SGS experts, have prevented or eliminated irregularities to guarantee the integrity of the finished welds.

SGS

SGS professionals have implemented pre-heating techniques to eliminate any moisture from the weld surface and prohibit any contamination which might result in porosity or hydrogen cracking. SGS pre-heating treatment has lowered the thermal gradient and reduced the temperature differential to improve the micro-structure of the heat affected zone (HAZ), decreased residual thermal stress and prevented rapid cooling to avoid cracking due to weld hardening.

SGS experts have also introduced post-weld heat treatments to rule out

any internal or residual stresses caused by the welding process. By excluding such stresses, SGS inspectors have been able to bypass distortions through subsequent handling, to eliminate the risk of stress-related corrosion and to improve the overall metallurgical structure of the material by removing diffusible hydrogen, tempering the metal and enhancing metal strength and life expectancy.

SGS QUALITY ASSURANCE PROMISE

In those welding operations warranting pre-and/or post-weld heat treatments within the REFCAR expansion project, SGS has ensured that treatment processes have been correctly conducted in compliance with the relevant welding procedure specifications and code requirements. SGS PWHT services have been essential in assuring Colombian partners high-quality, compliant components and eliminating exorbitant costs associated with substandard, non-regulatory products.

SGS is proud to be providing CB&I and the REFCAR refinery expansion project with these preventive services sought by successful, professional construction contractors, business owners and facility operators around the globe.



CONTACT

INDUSTRIAL.GLOBAL@SGS.COM, WWW.SGS.COM/INDUSTRIAL

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