Polyurea Goes Off Shore

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Looking for tough, atypical polyurea applications? How about an application 155 miles from shore, beating sun, hurricanes, heavy equipment and roughnecks? Now, in addition to these “normal” operational wear conditions, land 10,000 pound helicopters on the polyurea coating day after day. This is what was encountered with a local oil drilling company and their search for a durable coating for their heliports on their off shore drilling platforms.

Heliports are designed for flexibility, visibility and safety. Multiple colors are required for company logos, rig identification numbers and safety markings. Epoxies and urethanes have been used extensively in this application, but due to color instability in the sun, and significant cracking problems of the brittle epoxy as the heliport moves and flexes with the rig, the heliports are being repainted yearly. Furthermore, when a helicopter lands on a heliport, the hardened steel on the landing struts tend to scrape the coating, cutting through the coating, leading to immediate rust and coating failure. In addition to the cost of repainting, the downtime suffered by the rig during a multi day recoating job associated with epoxies and urethanes costs the company in expenses and delays in crew changes and resupplies. In some books, the operational cost of an offshore drilling platform is in the $1MM per day range. Shut down is expensive!

If this was an on shore structure, the logistics would be somewhat easy for the applicator. But, at a distance of 155 miles offshore, mobilizing a polyurea rig, crew and ancillary equipment requires planning and hours of land training. This task faced Coating Technologies, a polyurea applicator specializing in the oil patch. Coating Technologies was chosen for this job because of their extensive off shore oil field coatings experience.

First, Coating Technologies had to move all their equipment from their trailer to a container, suitable for placement on a crew boat for the long trip to the oil platform. Everything had to be secured for a rough trip in the Gulf of Mexico. The container also had to be capable of being lifted from the crew boat to the upper deck of the platform, over 6 stories high. Finally, the application equipment had to be modified to be off shore certified to operate in a hazardous environment. To accomplish this, Coatings Technologies reconfigured their design to maximize storage and stability of all their equipment, as well as to meet off shore operational codes.

Second, weeks of planning and trial runs were made at a local on shore rig manufacturing site. After all, there are no Lowes or Home Depots 155 miles in the Gulf, and no

daily ferries shuttling crews back to pick up more masking tape or spare equipment parts. Fed- Ex doesn't run out their either. Everything they would use, or might use has to be in the container- no exceptions.

Third, off shore platforms are not normal petrochemical plant operations. Numerous hours of certification in safety, operational standards and evacuation procedures are required for each employee before stepping foot on a platform. This takes time, money, and commitment by the applicator. Coating Technologies personnel completed this extensive training at their own cost.

Over a holiday weekend, a trial run was initiated, Coating Technologies was granted permission to use a local fabrication facility to prepare a heliport that would be placed on a jack up rig being built at the site. Prior to going out to the site, a stencil of the drilling company logo was laid out and cut to fit the platform. Numerous types of stencil backing were tried to find the best system which would not wrinkle in the high humidity, not be blown away by the high pressure spray and gulf winds, and release from the polyurea easily with a straight, clear edge. After identifying the best stencil system, the crew and equipment mobilized to the site.

The platform surface was first prepared according to NACE standards. In this high humidity and salty atmosphere, great care had to be taken to avoid flash rust of the surface prior to application of the polyurea. In addition, the support structure of the platform was already painted safety yellow and could not be damaged by overspray. Tarps were draped around the base of the platform, covering the legs and support beams. This was the first of many lessons learned- bring plenty of tarps to the rig.

Coating of the polyurea began with a base coat of standard Polyurea Coating Systems aromatic blue pure polyurea, covering the entire surface of the landing area. (Blue is one of the company's logo colors and would be left exposed in the logo area of the finished application). Immediately after this base coat was applied, the various safety areas were masked, such as edging, free walk zones, and emergency exits, and sprayed with red polyurea. The rig identification numbers were prepared in the same manner and sprayed black. Finally, these areas that were part of the final detail were over-masked and the entire unmasked area was sprayed with white aliphatic polyurea, creating the design of the landing pad surface. The white aliphatic pure polyurea ensured color stability of the majority of the surface.

Having the technical problems worked out, the crew was sent for their first offshore application. The training and land application paid off- the heliport and 14 subsequent heliports have been successfully coated by Coating Technologies, and Polyurea Coating Systems, Inc. In one application, as the crew was removing the hoses and equipment from the heliport, a helicopter landed- a

hurricane was coming and they were evacuating the rig!

These heliports have held up very well, and according to one rig owner, look the same now as they did over a year ago when they were applied. Polyurea technology allowed for this successful project, as well as the planning and training of the applicator.

Polyurea products were supplied by Polyurea Coating Systems, Inc.

Coating Technologies was the applicator.