

Horizontal Wells Down Under: Horizontal Wells Were Tasked to Target Source Area Under Industrial Complex

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Background/Objectives. An active chemical manufacturer in Botany Bay, NSW, Australia needed a way to target a source area under the site that had both manufacturing facilities and underground storage tanks.

The main source area of the plume was centered directly under the processing area in the facility and three underground storage tanks. Horizontal wells were selected as the best choice to target the source and delivery of the oxidants. By targeting the source area directly with the horizontal wells, it allowed for direct contact of the well screen within the source area.

Approach/Activities. The main hurdle to overcome was finding an area where the horizontal wells would launch from while avoiding underground utilities and not impacting plant operations. Three 80 mm wells were installed with each well approximately 90 meters in length with a target depth of 8 meters below ground surface. All three wells were launched from one common pit. The starting angles were changed so the horizontal wells would have a fan shaped pattern allowing for better coverage of the plume. All three horizontal wells were installed using the blind well installation method. Blind horizontal wells were selected to eliminate the challenge of no clear exit location on the other side of the plant due to additional underground storage tanks, facility operations and truck traffic. The horizontal well screens were designed for site specific remedial goals and further engineered to ensure even flow distribution.

Results/Lessons Learned. The three horizontal wells were installed over the course of two weeks. The third horizontal well bore path had to be drilled twice because of difficult tracking conditions and a large sweeping right hand turn. Interference and poor signal quality to the walk-over locator caused the initial bore path to be out of alignment. Alignment and bore placement are critical factors to the success of horizontal wells targeting the sources area. By selecting the appropriate launching area for the horizontal wells, it allowed for normal operations at the plant to continue.