Overfill Protection

An overhead piping system and flare header had occurrences of liquid hydrocarbon overflowing into the system. Rally had been tasked with replacing obsolete air actuated valves from fail last to fail close, along with rewiring actuators from the distributed control system (DCS) to safety instrumented system (SIS) to mitigate the problem. It was determined during FEED that effective protection could be gained using fewer electric actuated valves, upstream of the series of valves originally intended to be replaced. The use of these valves drastically reduced the field scope associated with the project, saving approximately $1.7MM in labour and material.

Rally

Overfill Protection

Alberta
Oil Sands & SAGD
$6M TIC

INSTRUMENTATION & CONTROLS

The original scope of the project required the replacement of 22 actuators, and the implementation of new SIS signals in the field to fulfill a SIL 1 requirement. Upon commencing FEED, the I&C team reviewed existing valve / actuator information and the SIS requirements to effectively determine the required inputs. Technical documents such as the Hazard Assessment and SIL Analysis were also reviewed, and the findings coupled with recommended solutions were communicated to the client.

VALUE ENGINEERING

By challenging the original PHA assessment, the Rally team was able to the provide the following value to the client:

1. Narrowed down the number of control valves being procured and installed from 22 to 3, saving ROM $600,000.
2. The project was intended to be executed during a scheduled turn around. By reducing the scope of work, costs associated with maintenance planning and execution were decreased.
3. Eliminated structural and piping engineering costs that would have been required to account for the large spring return air actuators originally part of the project.
4. Identified a gap in the previous design around existing equipment located within a fire zone and making changes to fireproof cables and equipment within the fire zone.