

Installation of Submarine Gas Pipelines
and Associated Facilities from
To Kwa Wan to North Point for Former Kai Tak Airport Development
Consultancy Services for Feasibility Study and Detailed Design
Environmental Impact Assessment Report



Appendix F2

Pigging Operation and the PIG

Description of Pigging Operation

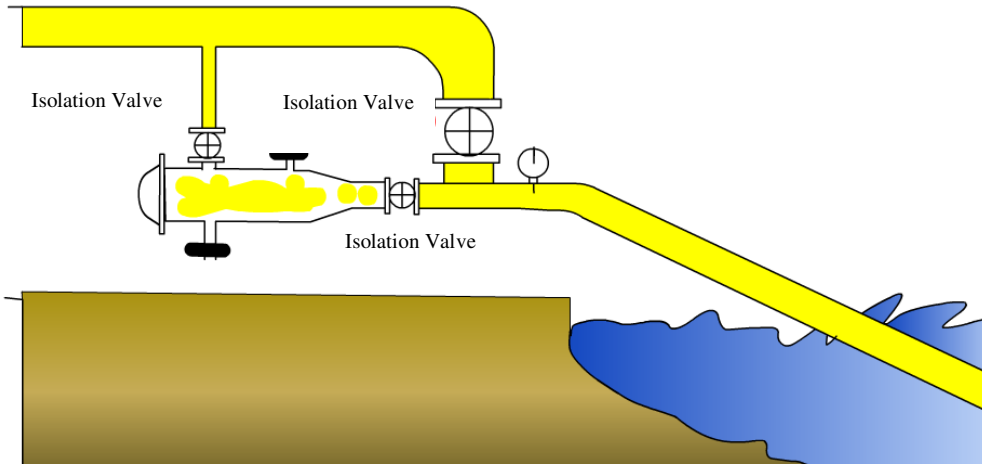
The gas pigging station is to facilitate the launching and receiving of inspection tools, for which HKCG usually described it as Pipe Inspection Gauge, PIG in short term. The pigging operation involves the cleaning, inspection and integrity check (such as checking of gas pipe's wall thickness) of the submarine gas pipelines. This kind of inspection method is so far the most reliable and comprehensive one for submarine gas pipelines. Here are the general procedures / steps to describe the pigging operation.

| Step | Description |
|------|---|
| 1 | Inert gas (Nitrogen) is injected into the pig launcher after confirmation of closing the isolation valve of the pig launcher to remove any residual town gas inside the pig launcher. This step is to provide a gas free environment when the pig launcher is opened in next step. |
| 2 | Upon the pig launcher is town gas free, the pig launcher is opened up. Pipe Inspection Gauge (PIG) is then inserted into the pig launcher. |
| 3 | After insertion of the pig into the launcher, close the door of the pig launcher and then purge the pig launcher with inert gas. The isolation valve for the pig launcher and behind the PIG is opened and the pig launcher will then fill up with town gas. The town gas flow will carry the PIG to pass through the submarine gas pipelines upon the open of another isolation valve of the pig launcher. |
| 4 | PIG arrives at the other end of the submarine gas pipeline at where a pigging station is designed for receiving the PIG. |
| 5 | Inert gas (Nitrogen) is injected into the pig receiver after confirmation of closing the isolation valve of the pig receiver to remove any residual town gas inside the pig launcher. This step is to provide a gas free environment when the pig receiver is opened in next step. |
| 6 | Upon the pig receiver is town gas free, the pig receiver is opened up. PIG is then taken out from the pig receiver. |
| 7 | All the isolation valves are then closed. The pipe receiver will be isolated from the main gas pipeline during normal situation. |

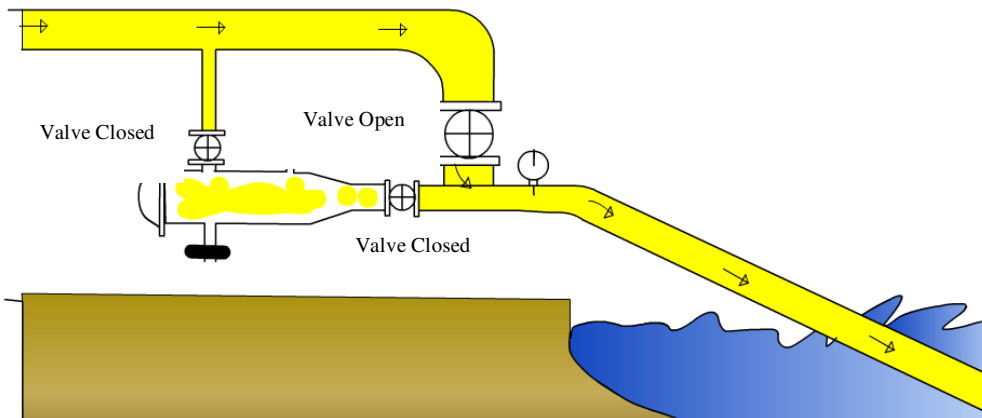
Remark: The duration of each run of PIG for one submarine gas pipeline from the pig launcher to the pig receiver is about 1-day.

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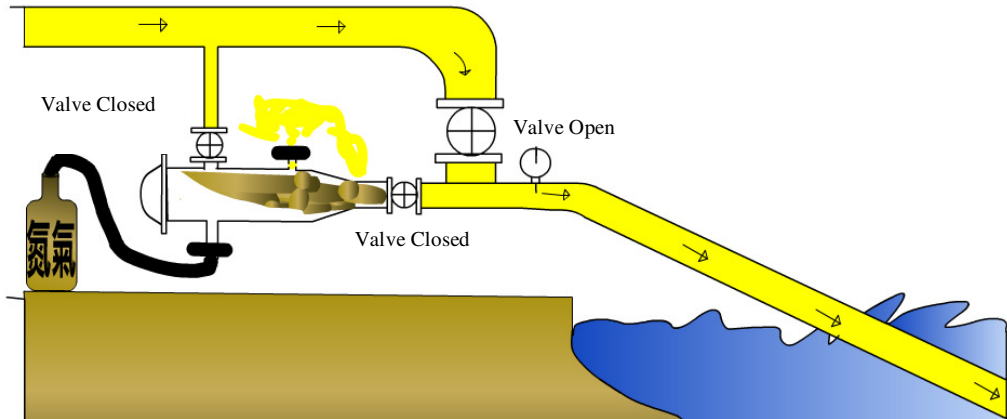


Setup of the Pigging Operation

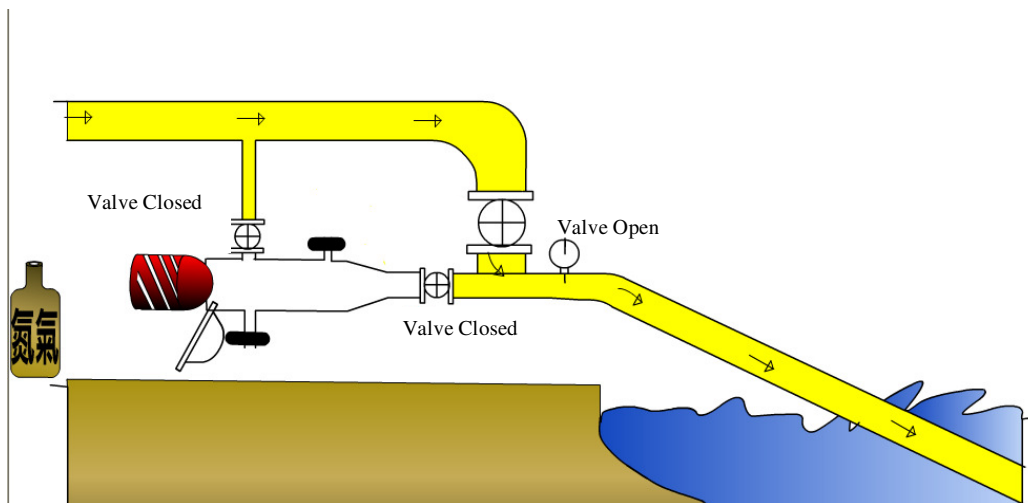


Town gas flows from pigging station to the submarine gas pipeline (as shown by arrows) under normal situation, pig launcher and pig receiver are isolated from the town gas transmission system

Pigging Operation

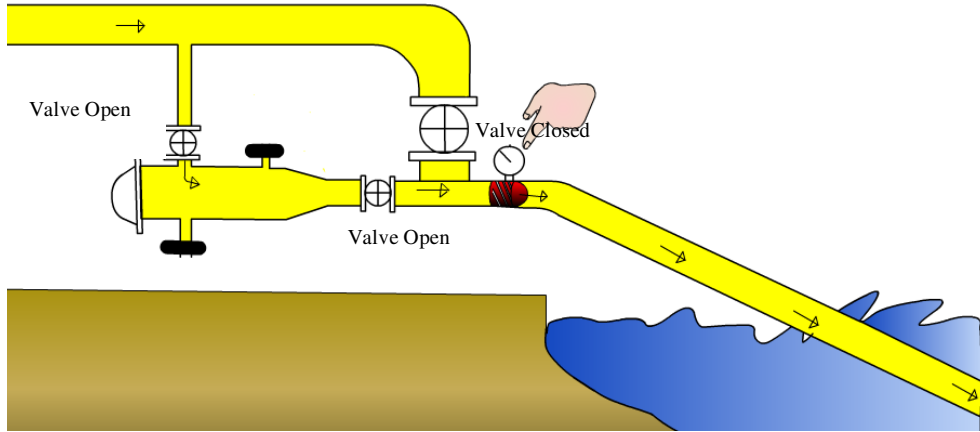


Step 1: Use an inert gas (Nitrogen) to remove residual gas inside the pig launcher

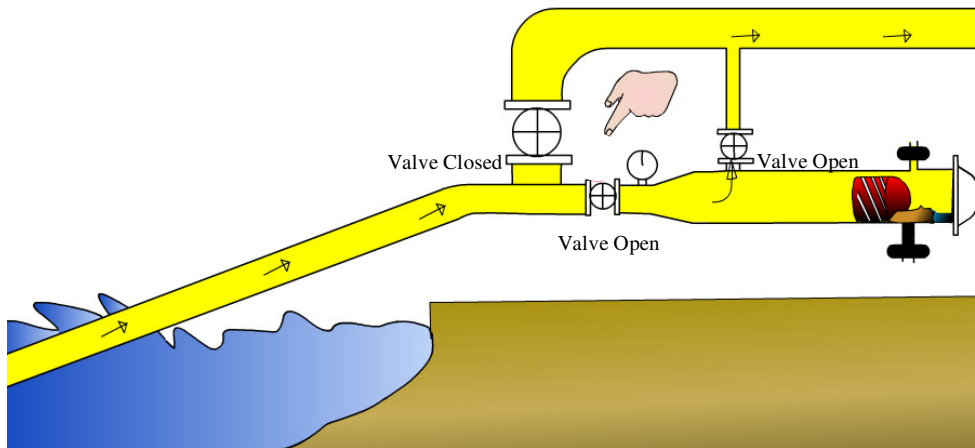


Step 2: Open up the pig launcher and insert the pig

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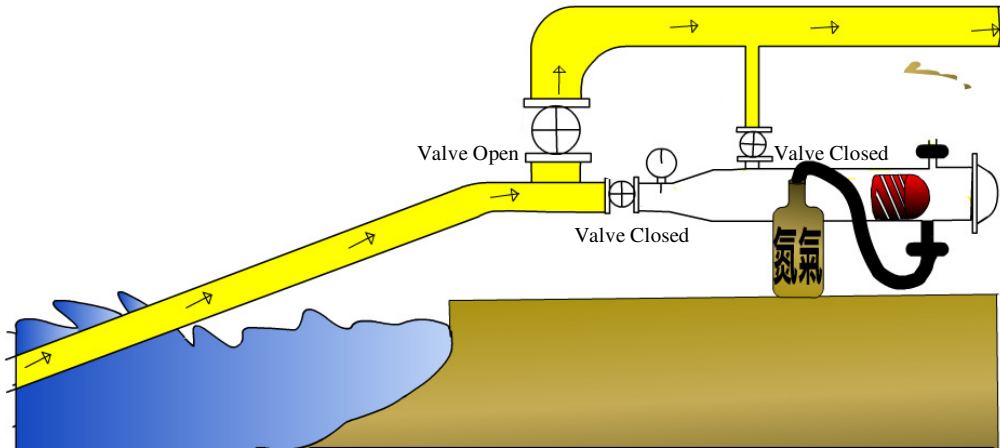


Step 3: Use town gas flow to carry the pig into the submarine gas pipelines

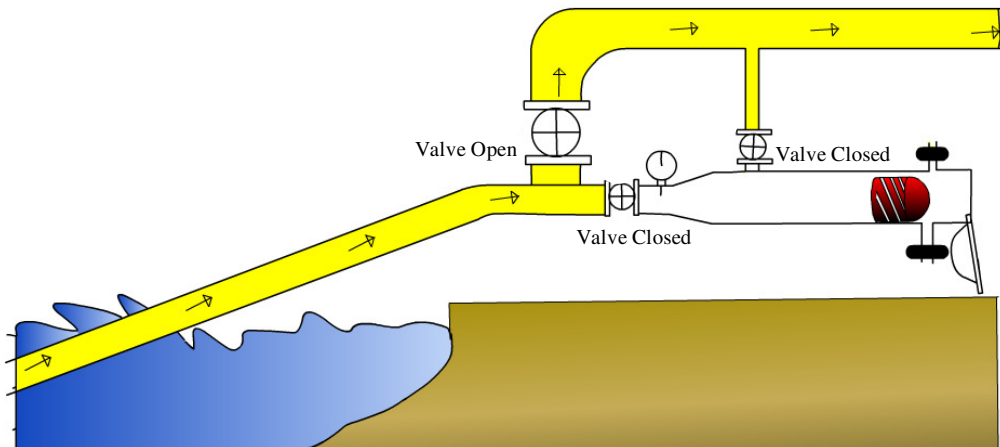


Step 4: Pig arrives at the other end of the submarine gas pipeline at where a pigging station is designed for receiving the Pig.

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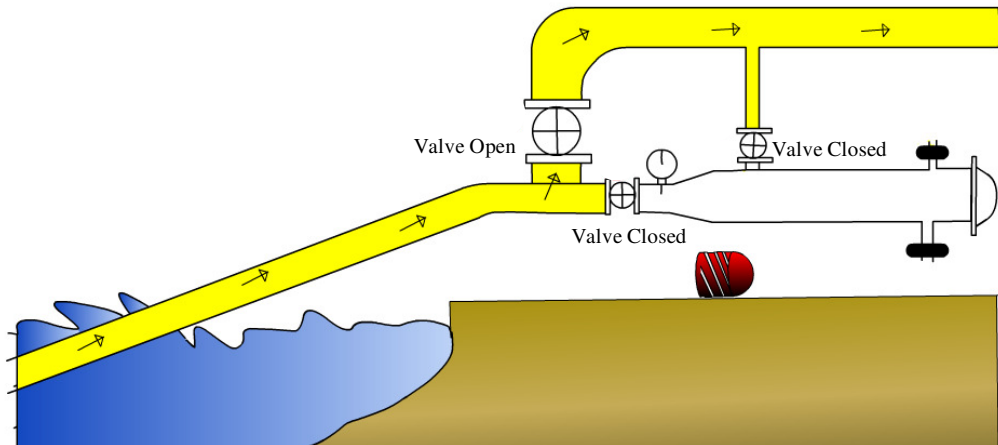
Step 5: Use inert gas (Nitrogen) to remove residual gas inside the pig receiver



Step 6: Open up the pig receiver and take out the pig

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Step 7: The pipe receiver will be isolated from the gas pipeline during normal situation.

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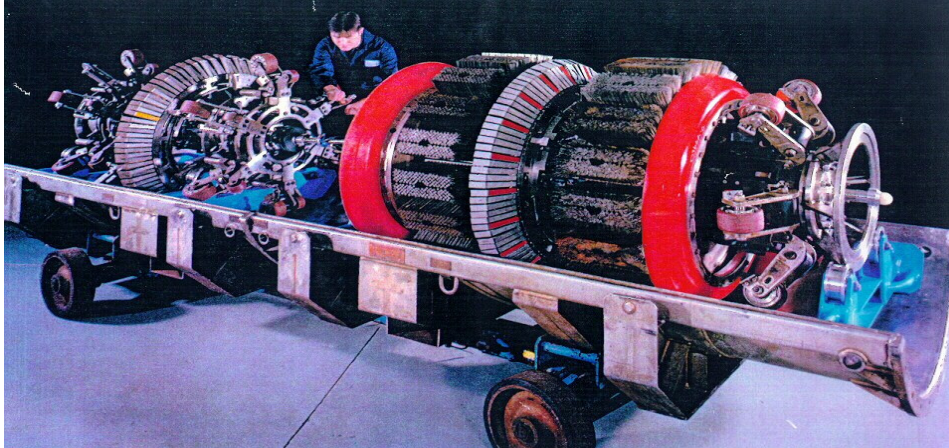


Photo: Example of Pig



Photo: Installation of the pig during pigging operation

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Photo: Installation of the pig during pigging operation