Case study- SALPG project by L&T at Vishakhapatnam.

Introduction-

South Asia LPG Company Pvt. Ltd., (SALPG pronounced ‘essayLPG’) is 50:50 Joint Venture between Hindustan Petroleum Corporation Limited (HPCL), a Maharatna public sector enterprise and one of India’s largest Oil companies and Total Holding India (THI) which is a part of TOTAL France, one of the largest Oil & Gas companies in the world.

SALPG has developed Asia’s first underground LPG cavern to store propane. The cavern has been built deploying the best technology and design practices in the industry worldwide. The bottom-most point in the cavern is 196 meters below sea level which is equivalent to 16-floor levels below the ground and the footprint bigger than a football field.

This project was handled by L&T on the condition that the amount of water removed from the cavern during mining at the sea shore would be replenished after the project was completed. There was just one input and one output in this cavern. The design team decided that this cavern should be in the form of a U, but when they started digging, about 2 feet down there ~~is~~ was water, which they should have been draining before continuing. However, since the removed water would return to the ocean due to the situation, they wanted to quantify the amount of water removed during the mining process. As a result, they decided to use a flow meter to assess water flow. They ordered a flow meter from our dealer. The appropriate flow meter was delivered and installed on site.

The Problem-

Following installation, L&T received a report that the installed flow meter was not working properly. We didn't know the exact condition and situation at the site, how the flow meter was mounted, or what was causing the flow meter to stop working. Manas engineers gave them solution over the phone, but it did not work. Finally, they advised us to visit the site, so we did.

The real cause for the non-functioning flow meter was discovered by a team of Manas as follows:

1) Several sand particles and crushed stones were moving through the water in the flow meter.

2) After all the water in the pipeline was absorbed, the pump on site was trying to extract sand particles, stones, and air was passing through the flow meter.

Now the task was to provide the solution to this problem. The Manas flow meter is constructed in such a way that it is unaffected by sand particles. Hence sand particles was not the issue. In the second review, the key issue tackled was that of air bubbling, which induced flow meter fluctuations. The service engineer then checked the pump used to absorb water. It was observed that pneumatic pump was used for suction, which was not appropriate for this operation.

Remedy

The Manas team's solution was to build a platform higher than 2 meters off the ground and place a tank with a capacity of 5 tonnes on it. The tank must have one outlet that is higher than 2 feet, an attest filter for that outlet from the inside, as well as a valve that has the ability

to hold the tank open. Then place a flow meter on the outlet pipeline to measure water flow, and this pipeline would lead to the final tank. Using this process, the water consumed by the pump started entering the tank, sand particles and stones were placed at the bottom, and the air passing through the pump was released. Since the outlet was more than 2 feet above the tank's rim, it could only move water into it. Using this approach, the flow meter began to function properly.

As Manas Microsystem solved the problem at SALPG, the client was so pleased that they ordered more such water flow meters from Manas Microsystem.