Penguins´ nest monitoring in pipelines´ construction areas

TECHINT Engineering and Construction

Techint Engineering and Construction Business Profile

- Techint Engineering and Construction (TE&C) carries out Engineering, Procurement, Construction and Management (EPCM) projects and engineering services understanding the needs of our industrial customers in the oil & gas, power, mining, infrastructure and steel markets, providing them the best-fit solutions.
- 550 workers, average TE&C and Contractors operational staff.
- TE&C has a Management Policy, Hygiene, Safety, Environmental and Quality Management Plan, certified by the OHSAS 18001, ISO 14001 and ISO 9001.

PIAM Pipeline Project
Cabo Vírgenes, Santa Cruz, Argentina

- The Project involved the Engineering, Construction and Management of on-shore pipelines for transporting fluids toward the scraper trap of the Gas Treatment Plant of a Transporting and Infrastructure Facilities company. The right of way of the pipelines was among the penguins' nests of the Magallanes colony, located in Cabo Vírgenes, Argentina.

Figure 1. Site location
PIAM Project - Latitud 53 S

Findings

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- Each September, the penguins arrive at Colonia Cabo Vírgenes to feed and procreate. Every April, they migrate to southern Brazil, where the temperature is warmer.
- During the field survey carried out around the pipeline right of way, before the arrival of the penguins, 180 empty nests of penguins were found.
- There was no technical or geographical feasibility to build the pipelines in another place.
- It was not possible to modify the nests' location, because the penguins would had rebuild them in the original place.
- Constructive tasks would interfere with the nesting.
- The scientific bibliography about the Magallanes penguins is very rich in specific research topics, but they were always carried out in the natural habitat of these birds.
- We did not find scientific investigations or reports about the consequences or possible behaviors of these birds towards continuous movement of people, vehicles, soil and machines.
- Along with the findings, we were full of doubts and questions: Would the ethology of the penguins be modified?. How?. Could they copulate?. Would the egg-laying be modified?. Would they change their plumage in time to feed and migrate?.
- Considering the 5.000 visitors from different parts of the world that Cabo Vírgenes colony receives per season, which tool would we have in case of any complaint of impact on the females fertility or chicks survival?
- In addition to the implementation of preventive environment measures, we had to measure the impact that constructive tasks would had have on the penguins that were nesting on the right of way.

Solutions

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- Regardless of the verification of compliance of preventive environment measures, through internal and external inspections and the diary controls of Fauna Provincial Authority, it was necessary to identify and develop a tool that would allow us to measure the impact that constructive tasks would had have on the penguins that were nesting on the right of way.
- The meetings with the different actors - project management, engineering and programming, environment, provincial authority, among others - allowed us to know potential causes of stress in female penguins, their customs and character. It also allowed us to obtain a work schedule, work histogram and identified the constructive tasks.
- Environmental aspects and impacts were identified as well as procedures and work programs were developed for the preservation of the fauna (penguins). The training plan for the work personnel, was oriented towards the biology of the penguins, in order to create a group dynamic to encourage people to avoid bothering the penguins.
- After having checked plenty of bibliography, it was decided to use as a Referential Monitoring, the one carried out by the biologist Mike Bingham in Cabo Vírgenes colony, during the years 2003 to 2015. Specifically the monitoring made on the grid/parcel located on the sides of the Tourist Path.
- Implementing the same methodology and parameters' measuring, our findings of the Penguins' nest monitoring in pipelines' construction areas, could be compared with those obtained in the monitoring carried out by the biologist Bingham. And they are able to provide a reliable answer to any social consultation.

Added value

- The added value of our monitoring is that it clearly shows the impact on the ethology of the penguins of the Magallanes Colony, inside the PIAM Project, during the activities of pipeline construction.
- From now on, repairs or other activities in PIAM Project can be made with greater certainty, even during the nesting season.
- This tool is essential for showing the real impact before any social requirement.
- This experience is applicable in others companies for similar situations.

Achievements

- For the first time in its history, Techint E&C developed a project inside a penguin Colony.
- The productivity was not affected by the implementation of the Penguins´ nest Monitoring and the Environmental Management Plan.
- TE&C considered the initiative was extremely beneficial and generate value in the work we carried out.
- The Project workers, always committed to the management and with a sense of belonging within the results, were very satisfied to know that they had collaborated to harmonize the ecological and the constructive needs.
- These results, which were plausible for the Project workers, increased the Company image.