

WORLDWIDE EPC SOLUTIONS FOR OIL & GAS SINCE 1962



“EARTH  
TO EARTH”

# Findings

## FGP PIPELINES

Carrying out every activity in **total protection of the environment, safeguarding biodiversity and with the least environmental impact** has always been an essential prerequisite for SICIM.

**SICIM Kazakhstan** works with all major oil & gas operators in the country, and it is one of the main direct contractors for Clients as: “TCO - Tengizchevroil LLP” in Tengiz oil field, the world's deepest largest oil field.

**SICIM Kazakhstan** branch engaged in various construction works for Future Growth Project/Wellhead Pressure Management Project within TCO and completed the implementation of the Priority 1 and Priority 4 oil pipeline projects for FGP. Successfully implemented and safely completed of all its obligations facing many unique challenges, including environmental issues which had to be effectively managed **to reduce or the impact on Environment during construction activities or improve final environment conditions thus having a positive impact.**



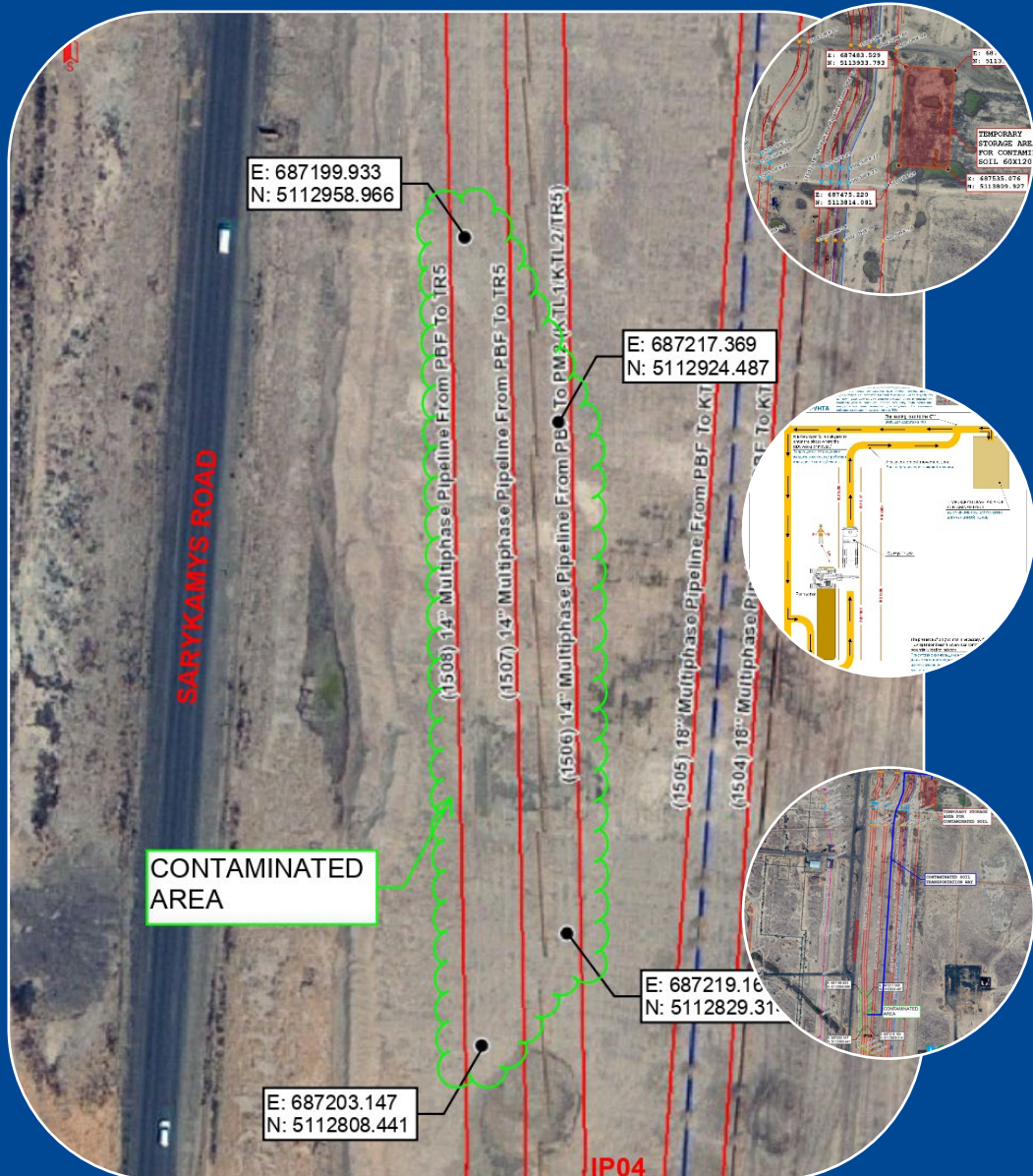
An historical contaminated site have been found along FGP Pipelines 1508/1507/1506 during Trench excavation which was an obstacle to construction works on Pipeline installation. The pollution was very extensive and posed a high risk to the environment and workers' health.

The excavation conducted in 2-meter depth groundwater detected contamination with hydrocarbons.

SICIM developed a detailed Work Method Statement to manage the unexpected find and submitted it to Company review prior to proceeding with further work in the area.

# Solutions & implementation

ANALISYS and MOS



The size of area contaminated by hydrocarbons was 150.6 meters along RID1508 and 95.2 meters on RID1506/1507.

Construction activities stopped and soil/groundwater sampling of the contaminated area (samples along each trench) conducted by specialized laboratory to determine further actions which could be applicable for the Project and location.

The results of soil sampling showed very high level of contamination by hydrocarbons above 20000mg/kg.

# Solutions & implementation

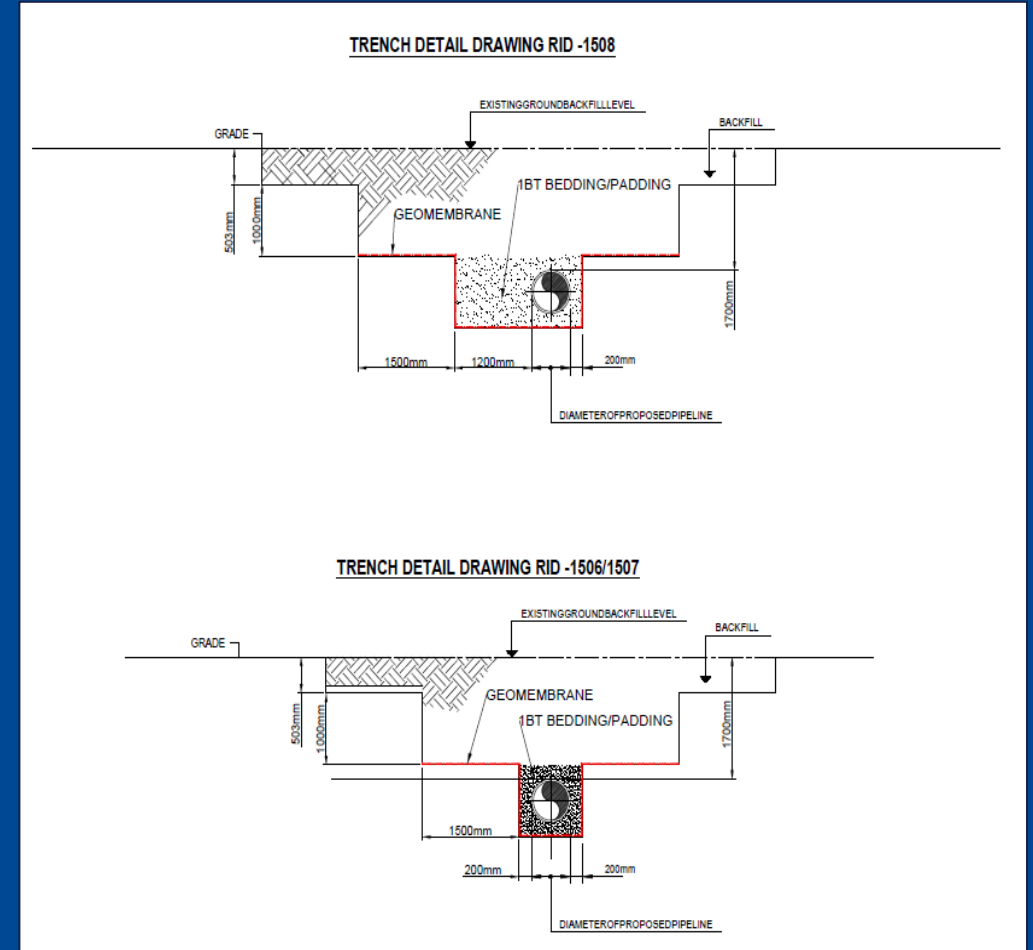
## ANALISYS and MOS

Construction site (pipelines 1506/1507/1508) was fenced considering access roads and space for the transit of operation of machineries.

All personnel involved were instructed to familiarize with Activity Method of Statement, potential safety and environmental risks so that cleaning activities could start.

As per MoS it was required to conduct excavation and removal of contaminated soil inside the trench plus 1 meter buffer zone along the Pipeline.

Finally, after the completion of clearance of contaminated area, according to the trench drawing in Picture, a geomembrane base was laid over the entire affected area to protect the Pipelines.



# Achievements

These initiatives and modifications to the initial project were aimed at enabling following **environmental benefits**:



During excavation activities, **+900 tons of contaminated soil were removed** and disposed by an authorized waste management contractor.

Following Client approval, the excavated material was replaced by clean granular fill material till to the original design depth.

All waste materials, including contaminated PPE, were collected and disposed of as hazardous waste.



As a result, **+3000 m2 were cleaned from hydrocarbons pollution** and the site returned to a landscaped environment by the reinstatement activities.

After full completion of construction works on RIDs 1506/1507/1508 overall 7.5 km area was fully reinstated and handed over to Client.

The area began to grow with grasses and return to its original state.

# Long term planning



## PRE-CONSTRUCTION ENVIRONMENTAL SURVEY

- conducting pre-construction environmental surveys before the mobilization to possibly identify any potential environmental and cultural impacts, historical contamination, unexpected finds, landfills, cultural heritage, etc.



## LAND RECLAMATION PLAN

- implementing Land Reclamation Plan containing financial estimates and justification of reclamation activities with supporting materials (graphics, calculations etc.).



## SOIL AND GROUND EROSION REDUCTION

- reinstatement of all disturbed areas shall be carried out as soon as possible after completion of works to avoid potential erosion, enhance re-vegetation, and return the site to its pre-works condition.



## SOIL AND GROUND MANAGEMENT

- give priority to the use of land already used for industrial purposes; in case the area is not mastered, organize a proper topsoil stripping and storage avoiding compaction and deterioration of soil fertility.