

## **Section 8:** Environmental Monitoring Plan

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### *8.0 Environmental Monitoring*

#### **8.1 INTRODUCTION**

The Environmental Impact Assessment broadly identifies environmental impacts, positive or negative, that are associated with the concerned project. A

Monitoring Plan will be established in order to:

- Obtain, where appropriate, data for the environment during construction, commissioning and operation of the project;
- Monitor the discharges associated with all stages of the project, including the operation stage;
- Monitor any significant alteration of the physical, chemical or biological characteristics in the vicinity of the project and may be due to the project activities;
- Begin mitigation measures before these changes alter the natural processes and turn it to irreversible processes.

The following elements shall be taken into consideration throughout the different project stages.

#### **8.2 DURING CONSTRUCTION**

During the construction and mobilization phases, a strongly recommended set of procedures aiming at checking the integrity of some specific locations within the project area and insuring the compliance of different machinery and tools with environmental legislation. This can be summarized as follows.

- a. Visual check of the integrity of the following locations will be maintained:
  - Trench locations and its banks;
  - Waste collection/storage tanks, pits, locations, etc ;
  - Company Site Stores location.

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- b. Noise will be monitored to insure that the levels are below the permissible limits.
- c. Maintain Logbooks to record all kind of incoming and outgoing chemicals, paints, fuel, welding cylinders, welding rods, etc.
- d. Maintain Logbook for incidents involving environmental consequences.
- e. Water sampling and analysis from water that will be produced from hydrostatic test before final discharge.

### 8.3 DURING OPERATION

Though environmental hazards related to the operation of gas pipelines are considered minor, but because the strict environmental policy that *Egyptian Natural Gas Company (GASCO)* is obeying, the following environmental monitoring programme will be implemented on a yearly basis. We recommend a full Environmental Auditing will be performed each three years after the full operation of the pipeline.

- a. The pipeline track passing within agricultural areas, with 10 width band on both sides of the track, will be monitored for the status of the crop. If a substantial drop in the crop of this area is observed and proven to be related to the gas pipeline, mitigation measures and adequate compensation for the farmers will be bared by *GASCO*.
- b. The benthic and hydrophytes communities at the crossing point of the 1, 3, 5, 7 branch canals from El-Sheikh Gaber shall be monitored once a year.
- c. Environmental incidents shall be reported to relevant authorities, analyzed professionally by competent personnel and corrective measures shall be taken.

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### 8.3.1 Pipeline Integrity Monitoring

The following pipeline integrity monitoring systems could be used to assure the pipeline integrity during the operational phase.

The supervisory control and data acquisition (SCADA) system, which can detect when a leak occurs through a drop in pressure. This system allow very early detection of a leak and allow the operators to shut down the pipelines, identify the location of the leak and isolate it by shutting off block valves on either sides. This is remotely controlled by Remote Terminal Units (RTU) which monitors all changes in temperature, pressure and quantity of gas transported through the 24 hours. All information is transmitted via microwave network to covering 120 locations, where it will be analyzed through a computer system, to take necessary actions. The network covers Alexandria, Cairo, Suez, Sinai, the Delta connects them to the central SCADA Dispatching Center for the prevention and detection of corrosion and the detection of other defects could also be built into the proposed pipeline.

- Cathodic protection measures should be used to control pipeline corrosion to detect any potential hazard in preventive phase
- Regular checking using a pig should be used to check the state of the inside of the pipeline.
- Patrolling and Leakage surveys will be regularly conducted.

### 8.3.2. Prevention of Third-Party Interference

Third party interference is widely recognized as the single most probable cause of pipeline failure. It can arise from four major sources.

- Land owners.
- Utility companies.
- Contractors.



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- Local authorities.

In order to control such risk, the following measures will be conducted:

- Awareness about the risks associated with pipelines and the continual supply of information about the pipelines to the third party.
- One-call system, which allow any one wanting to carry out an excavation to telephone a central number to register their intention.
- Surveillance techniques to detect third - party interference with the pipeline.
- Clearly marking the pipeline route with suitable marks to identify the pipeline routing.

### 8.3.3. Record Keeping

Several basic information will be kept in order to facilitate the process of pipeline information access. Such basic information could include:

- Name, address and phone numbers of the land owners.
- Engineering data such as depth of burial and pipe wall thickness.
- Photographic documentation of the proposed pipeline route.

Additional information will also be kept to be used in the case of pipeline leak such as:

- The best access route the leaking section of the pipeline.
- Who to contact, with name and telephone number.
- Which settlements fall within the area affected by the release.