

Section 4

EMP Monitoring & Management Program

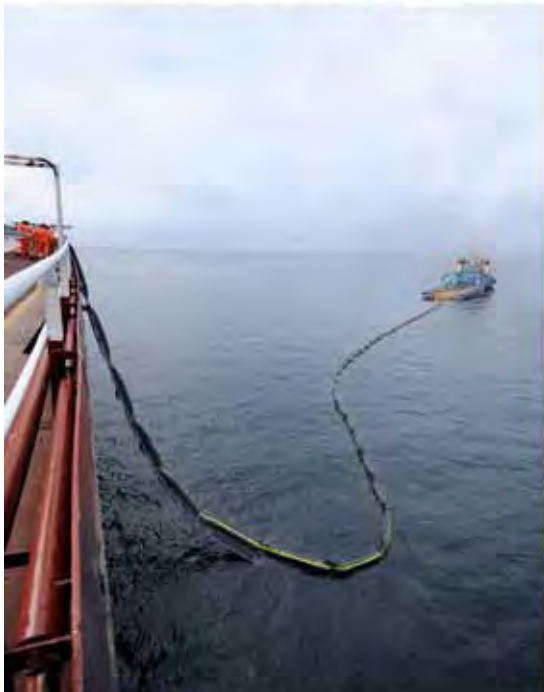
The project put a special focus on a wide range of spill prevention and response measures during the first half of 2010 —drills, integrity of pipelines and tanks, as well as community education were all included.

Ensuring
Readiness: From
Komé to Kribi



These two oil spill exercises are examples of the readiness work that frequently tests personnel and equipment throughout the project area, from a river near the oilfields at Komé (top) to the marine terminal off the coast of Kribi (bottom).

Ensuring Readiness: Marine Terminal



Emergency responders at a spill exercise inflate and launch a length of spill control boom specially designed for marine use from the deck of the Floating Storage and Offloading vessel (top). One of the ship's support boats deploys the boom in the water (bottom left). Support vessels practiced laying down a spray of hypothetical dispersant, using sea water for the purposes of the spill response exercise.

Ensuring Readiness: Oilfield Area River



Along the entire route of the pipeline, Area Specific Oil Spill Response Plans have established pre-planned Control Points like this one along the banks of a river in the Komé area. The Control Points allow rapid boom deployment to block the spread of oil in case of a spill. This emergency response team, conducting one of many exercises during the year, drove a trailer cache of spill response materials plus a motor boat (top left and right) to the site. Among other things, the trailer contains lengths of containment boom (bottom), various types of skimmers, absorbent material and personal safety equipment.

Spill Prevention: Marine Terminal Tanks



Every five years the project inspects the metal in the tanks of the Floating Storage and Offloading vessel on a rotating schedule. A specially trained shipyard team comes to Cameroon to conduct the inspections, including this seawater ballast tank. The tanks are drained and cleaned for the inspections so the inspectors can rappel along the sides of the multi-story tanks, checking every surface for corrosion. The technicians utilize precision ultrasound electronic measuring devices to measure the thickness of the metal and thus detect any areas that require reinforcement repair.



Spill Prevention: Export Pipeline



Smart pigs and ultrasound metal thickness testing — these technologies help the project make sure its corrosion prevention design is working to protect the export pipeline. “Pigs” are devices that are routinely sent through the pipeline to clean its inner surface and help inspect it. Smart pigs (middle right) contain sophisticated instrumentation to detect anomalies. In this case, smart pig data showed a potential issue. Crews excavated the pipeline at that location for a closer look (top). Using an ultrasound device (bottom left and right), they confirmed an issue which was then fixed before it could become a problem.

Lom Pangar Dam: Pipeline Modification Technical & Environmental Studies



Extensive environmental assessment and technical studies have been completed for the modification of the export pipeline, a modification required for Cameroon's Lom Pangar Dam electrification project. The findings of the studies support the plan to modify two sections of the pipeline that will be flooded when the dam has been completed. A crowd of Cameroonian government officials, NGOs and the media attended the project's seminar and received full details on the study.



Taco Hoencamp, Royal Haskoning company, environmental assessment contractor for pipeline modification: *"We have concluded this pipeline modification project will have only a minor environmental impact. Three major safeguards will be applied. The project will work in full compliance with the existing comprehensive Environmental Management Plan, which is very good. For limiting poacher access, we found a way to reduce the access tracks to the site which must be limited and controlled. Our recommendation will help preserve the existing environmentally sensitive area. The new Deng Deng National Park will not be affected and we have recommended combining the nearby construction camps to reduce the footprint of the project. The project design also includes additional safety control valves to limit a spill if it were to happen and there is a good oil spill response plan that provides for a new cache of oil spill response equipment and supplies in the area."*

Lom Pangar Dam: A Cooperation

Michael Ngako Tomdio, Minister of Energy and Water for Cameroon: *"The Lom Pangar Dam will...allow bringing about 140 to 170 additional megawatts of guaranteed energy to the system of existing power generating stations. It is important to say that this construction has great importance for the development of the energy sector in Cameroon. In other words, this installation constitutes the keystone in the arch of the Cameroonian electric system."*



Peter Matthys, COTCO/TOTCO General Manager: *"COTCO is pleased to cooperate with the authorities on the pipeline adaptation project that will be required to make the dam possible. COTCO and the government signed an agreement in 2009 in order to finance environmental and technical studies related to the pipeline adaptation project. The amount of \$3.1 million granted by the Government of Cameroon for the realization of these studies was received by COTCO in November. The studies were entirely realized within the budget and timeframe allocated by the government. The final reports were reviewed by independent experts for the account of COTCO's lenders and the Cameroonian Government."*



Waste Management

At midyear 2010, the project had just under 891 tonnes of hazardous waste in storage and awaiting processing. Some hazardous waste must be stored while awaiting the availability of batch disposal following guidelines set out in the EMP. For non-hazardous waste, the project utilizes a range of techniques for disposal, as described in the EMP (e.g., incineration, landfill, recycling and third party contractors) as shown in the following table.

◀ Non-Hazardous Waste Tabulation (Tonnes)

	3rd Qtr 2009	4th Qtr 2009	1st Qtr 2010	2nd Qtr 2010	12 Month Total
Domestic Garbage Incinerated On Site	245	573	424	516	1,758
Innocuous Solid Waste Buried (landfill)	111	353	187	171	822
Recycled to Local Communities	766	647	455	390	2,258
Sent to Approved Third Party Facilities for Re-use, Recycling, or Disposal	237	101	91	841	1,270
Total	1,359	1,674	1,157	1,918	6,108