
BAKU-TBILISI-CEYHAN (BTC) Pipeline Project **Report of the Post-Financial Close Independent Environmental Consultant (IEC) Thirteenth Site Visit, September 2011**

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**REPORT OF THE POST-FINANCIAL CLOSE
INDEPENDENT ENVIRONMENTAL CONSULTANT (IEC)
BAKU-TBILISI-CEYHAN (BTC) PIPELINE PROJECT
THIRTEENTH SITE VISIT, SEPTEMBER 2011**

EXECUTIVE SUMMARY

This report presents the results of the thirteenth post-financial visit of the Independent Environmental Consultant (IEC) to Azerbaijan, Georgia and Turkey, between September 11 - 24, 2011 to monitor compliance with BTC Project Environmental and Social (E&S) commitments. The IEC team conducted the visit as a single team covering all three countries.

This site visit represents the fifth IEC Operations audit, which is an annual verification that represents the continuation of an ongoing monitoring process initiated during the construction phase and continued during Operations. The Operations audits focus on the operations team and ongoing operations activities. The reference documents for the Operations audits are the Operations ESAP and the relevant management plans.

The primary finding of this field trip is that construction-related issues are all resolved or have defined solutions and are in the process of being resolved. These construction-related issues were defined as part of Schedule 21, the IEC Completion Environmental Compliance Certificate, which was signed by the IEC team in 2007. The commitments made by BTC associated with the Schedule 21 represented follow-up activities intended to close construction-related issues that by their nature extended into the Operations phase of the BTC Project. Four years later, these issues are now considered closed, pending implementation of some offset programs.

Azerbaijan

Two construction-related issues remained at the time of the last field visit in July 2010: right-of-way (ROW) access; and protection of the *Iris acutiloba*. The Project has maintained a dialogue with the Export Pipelines Protection Department (EPPD) of the Azeri Government to encourage the patrols not to use the ROW for their security patrols. Reinstatement has reached equilibrium with EPPD requirements for ROW access. IEC considers that the Project has exerted enough effort to resolve this situation such that it is no longer considered to be a construction legacy, but rather a long-term Operations issue. There are possibilities that the EPPD will eventually adopt an alternative means to monitor the pipeline route (e.g., with remote sensing technology), but this will not be under BPs control and the issue will effectively become moot with the expected construction of a new pipeline along the BTC ROW as part of South Caucasus Pipeline (SCP) expansion (estimated start ~2015). The Project has not been able to successfully reinstate the *Iris acutiloba* plant along the ROW in the Gobustan Desert, but this issue has been resolved with an offset program acceptable to the IEC.

The single operations issue over the past several field visits has been non-compliant NO_x emissions from PSA-2. It has not been possible to resolve this issue with operational changes or changes to the Project emissions standard. Accordingly, BTC has defined an offset program acceptable to the IEC that is in the process of being implemented.

IEC considers that the BTC Project has fully entered into environmental management as part of Operations. The main activities are associated with ROW maintenance, which in Azerbaijan is significant, especially at river crossing. At the time of the visit, major construction was underway at the Shamkir Chai river crossing.

Georgia

The basic observation for Georgia is the same as for Azerbaijan, which is that the BTC Project has fully entered into environmental management as part of Operations. Reinstatement of the pipeline has reached the stage where the process is now effectively maintenance checks and reacting as appropriate and this is being done. Schedule 21 commitments were resolved prior to the July 2010 field visit and the single Operations issue of non-compliant NO_x emissions from PSG-1 and PSG-2 has been resolved with an offset program acceptable to the IEC.

A major accomplishment in Georgia is the full completion of all of the Kodiana Projects for secondary containment of oil from a potential pipeline rupture that could possibly affect the Borjomi area of Georgia. This area is one of the most significant parts of Georgia in terms of environmental, economic, cultural and aesthetic considerations and the construction of these facilities represents the completion of the construction phase of the BTC Project in Georgia.

Turkey

In Turkey E&S performances continues to improve since operations began and it is evident that the remaining issues associated with construction legacy are now resolved and management activities are operational. BOTAŞ International Ltd (BIL), the designated operator of the Turkish section of the BTC pipeline, continues to properly implement maintenance and management procedures and repairs to ensure pipeline right-of-way (ROW) integrity in a proactive manner.

In spite of the overall progress, action or lack of action by BIL/BTC apparently based on financial considerations has the potential for adverse environmental consequences. In particular, two significant issues were encountered in Turkey. The first relates to the discontinuance of the services being provided by SESMEKE for Tier 2 oil spill response. SESMEKE is a joint venture between SEACOR Environmental Services (SES) with the Turkish firm MEKE Marine Environmental Services (MEKE), an experienced oil spill contractor. It was not clear to the IEC that BIL could independently assume the responsibilities of SESMEKE and we consider that the discontinuing of their services to represent a significant risk to the BTC Project. It is understood that BTC Co. has assumed responsibility for Tier 2 oil spill response and has retained the services of Seacor, who have reactivated the four spill response bases and have employed over 50 experienced response staff. These are available on a full-time basis to respond to any incident in Turkey. Nevertheless, we recommend that the independent review of oil spill response capabilities by Polaris be expedited. The second issue also has a high cost consequence and this is construction of a treatment plant for marine slops. Marine slops are mixtures of residual fuel oils and water (not salt water) which are produced by the fuel handling systems employed on large ocean going vessels. The Turkish Ministry of the Environment has fined BTC/BIL for not having a slops treatment plant in place at the CMT, although the reality is that very few ships have asked for this service and it is likely that it would be underutilized if constructed. This situation represents a non-compliance with the ESAP, which requires regulatory

compliance. It is understood that at the time of the site visit the Project made the decision to construct an onshore facility with storage capacity and new treatment plants.

At the time of the last field visit in July 2010, a non-compliance was assigned due to staff shortages with no back-to-back capacity of public community relations (PCR) personnel at PT1, PT3, and PT4 to manage community grievances. As of September 2011 field staffing still shows vacancies at PT3 and PT4, but their scope of work no longer involves significant grievance management and is now primarily community awareness programs to prevent third-party incursions on the ROW. IEC considers that staffing is adequate for this revised role and the non-compliance is rescinded.

Construction of permanent Central Waste Accumulation Areas (CWAAs) at Pump Stations has started at PT1 and plans have been established and action is expected in the near term at the other Pump Stations. Materials from the construction phase, including unused hazardous chemicals and construction material from BOTAŞ, are still present at the Pump Stations, but contracts are now in place for this material to be removed and properly disposed beginning in October 2011. This will finally end one of the last remaining issues associated with the construction phase.

The process of enhancing the performances of the Wastewater Treatment Plants (WWTPs) at fixed facilities has continued and an upgrade program is in place such that new WWTPs have been installed at PT1, PT3, and IPT1. The existing WWTPs at PT2 and PT4 will be upgraded as acceptable discharges standards will be achieved, but it is emphasized that any non-compliant effluent is not discharged to the environment. General improvements at Storm Water Ponds (SWPs) and Primary Withholding Ponds (PWHPs) at all the PTs have commenced. An issue requiring urgent attention is that the PWP at PT3 has a leak such that the potential exists for non-compliant discharge. Oil water separator (OWS) performance at fixed facilities is still an open issue, but problems associated with the OWS malfunctioning have been identified through a third-party review of OWS performance across all fixed facilities and a site-specific action plan has been developed to address this long-standing problem. Implementation of improvements for SWPs, PWHPs and OWSs at all fixed facilities is progressing quite slowly as a consequence of lack of overall Management of Change (MoC) definition and approval process.

1 INTRODUCTION

D'Appolonia S.p.A.(D'Appolonia), located in Genoa, Italy, has served since the first field trip in February 2004 as the post-financial close Independent Environmental Consultant (IEC)¹ to the Lender Groups for the Baku-Tbilisi-Ceyhan (BTC) Pipeline Project (BTC Project).² The BTC Project is owned by BTC, a company formed by a consortium of the Main Export Pipeline Participants (MEPs)³. The BTC Project is constructed through Azerbaijan, Georgia and Turkey and the first shipment of oil from the BTC pipeline took place at the Ceyhan Terminal in Turkey on June 5, 2006, after which the transition to Operations was completed. The BTC pipeline currently carries Azeri-Chirag-Gunashli (ACG) oil and Shah Deniz condensate from Azerbaijan; the BTC Pipeline also transports some crude oil from Turkmenistan. Oil from the Tengiz field in Kazakhstan is no longer transported via the BTC Pipeline.

2011 throughput of the pipeline is around 747,500 barrels per day (b/d) through the middle of August, but the capacity of the BTC Pipeline is approximately 1.2 million b/d. The lower than expected throughput is one of the factors claimed by BIL for financial losses in Turkey and is mentioned because financial constraints appear to be affecting decisions affecting environmental management. The development of the new Chirag Oil Project (COP) is expected to increase oil production and recovery of an additional 360 million barrels of oil from the ACG field through a new offshore facility to be installed between Deepwater Gunashli and Chirag platforms by the end of 2013. This development is underway and reported to be on schedule. The BTC Pipeline is expected to function at or near its capacity with the completion of the COP. Since shipments began the beginning of July 2010 up to August 22, 2011, 1624 tankers have been loaded at Ceyhan with a total of about 1261 million barrels (169 million tons) of crude oil transported via BTC and sent to world markets.

The overall role of D'Appolonia within the BTC Project is to assess and report to the Lender Group on the compliance with the environmental and social provisions contained within the project Environmental and Social Action Plan (ESAP) and associated Management Plans and with HSE management systems. This report summarizes the results of D'Appolonia's thirteenth field visit held September 11 - 24, 2011 for the BTC Project.

¹ IEC Team members: William J. Johnson (Team Leader); Marcello Iocca (Team Member).

² The Lender Group for the BTC Project (BTC Finance Parties) comprises the International Finance Corporation ("IFC"), the European Bank for Reconstruction and Development ("EBRD"), Compagnie Française d'Assurance pour le Commerce Extérieur ("COFACE"), Her Majesty's Secretary of State acting by the Export Credits Guarantee Department ("ECGD"), Euler Hermes Kreditversicherungs-AG ("Hermes"), Japan Bank for International Cooperation ("JBIC"), Nippon Export and Investment Insurance ("NEXI"), Overseas Private Investment Corporation ("OPIC"), Servizi Assicurativi del Commercio Estero ("SACE"), the Export-Import Bank of the United States ("US EXIM") and any other export credit agencies and commercial lenders and any other providers of debt financing or political risk insurance for the BTC Project, in their capacity as the providers of debt financing or political risk insurance for the BTC Project, including, for the avoidance of doubt, the Sponsor Senior Lenders.

³ Also termed the "BTC Sponsors", the BTC Co. shareholders are: BP (30.1%); AzBTC (25.00%); Chevron (8.90%); StatoilHydro (8.71%); TPAO (6.53%); ENI (5.00%); Total (5.00%), Itochu (3.40%); INPEX (2.50%), ConocoPhillips (2.50%) and Hess (2.36%).

This IEC trip represents the fifth annual verification of BTC Operations focusing on the operations team and ongoing operations activities and represents a continuation of a monitoring process initiated during the construction phase. The reference documents for the Operations audits are the Operations ESAP and the relevant management plans. In addition to this aspect of the field visit, the IEC has also focused on commitments made by BTC as part of the terms of the Schedule 21 Completion Certificate signed by the IEC On October 8, 2007. The commitments made by BTC associated with the Schedule 21 represented follow-up activities intended to close construction-related issues that by their nature extended into the Operations phase of the BTC Project. Four years later, these construction-related issues are now effectively resolved and this report focuses primarily on operations.

Most of the findings identified in this report have been based on field observations, and interactions with the individuals actually responsible for the field implementation of the ESAP. Social and community relations aspects have only been addressed based on documentation review and management interviews, but no field audits and potentially affected community meetings have been held. Similarly, the review of BTC oil spill response plans (OSRPs) and related issues is not included in the IEC scope of work as this forms part of the work scope of the OSRP expert (Polaris).

Subsequent sections of this report provide the following:

- Section 2 presents the review of the Project in Azerbaijan;
- Section 3 presents the review of the Project in Georgia;
- Section 4 presents the review of the Project in Turkey;
- Appendix A presents the trip itinerary;
- Appendix B presents lists of non-compliances with the ESAP, with relevant observations and recommendations.

2 AZERBAIJAN

The BTC Project in Azerbaijan includes 443 km of pipeline extending from the first pump station (PSA1) in Sangachal Terminal, to the border with Georgia. The corridor followed by the pipeline is close to the existing Western Route Export Pipeline (WREP) and is also the corridor that is followed by the South Caucasus Pipeline (SCP), which transports gas from the Shah Deniz field to the Georgian/Turkish border in a separate, related project. The BTC Project in Azerbaijan includes several permanent Above Ground Installations (AGIs) including an Intermediate Pigging station (IPA1) near KP 125, and a second Pump Station (PSA2) near KP 245, as well as necessary block and check valves. PSA1 at the Sangachal Terminal is not within the scope of the BTC audit in Azerbaijan.

BP/AIOC First Oil in Azerbaijan was celebrated on May 25, 2005. The entire BTC pipeline became operational on June 5, 2006 with the first shipment from Ceyhan, Turkey. Approximately 10 million barrels of oil were required to fill the line. BTC has the capability to increase its capacity for throughput to 1.2 mmb/d with the injection of drag reducing agent (DRA), but as the pipeline is still within its design capacity its use has not been required. One of the drawbacks to having a DRA system and not using it has been maintenance to remove blockages in the DRA pipe work caused by the stagnation of the product. The Project is currently entering a standby mode of operation whereby pipes are purged of DRA and flushed with glycol until throughput exceeds 1 mmb/d, estimated not to happen until 2013.

This mission represents the fourth IEC visit fully associated with BTC Operations [although this is the fifth Operations audit, the first Operations audit was combined with the last Construction audit]. Nevertheless, many of the aspects of Operations still relate to completion of the pipeline (e.g., bioremediation) and programs started during construction and which have follow-up during Operations (e.g., erosion and sediment control monitoring along the ROW; ecological monitoring; cultural heritage), as well as topics common to either construction or Operations (waste management, wastewater treatment, and emissions monitoring). Two topics specific to Azerbaijan that were issues for the preparation of the Schedule 21 Completion Certificate and reviewed during this trip are the implementation a ROW access strategy to eliminate routine driving along the ROW and the management of the red-listed plant *Iris acutiloba*.

2.1 ENVIRONMENTAL AND SOCIAL MANAGEMENT ORGANIZATION AND RESOURCES

2.1.1 Resources and Organization - Observations

The BTC environmental and social management organizations continue to be organized within the AGT Region (formally called the Azerbaijan Strategic Performance Unit) whose operational activities cover Azerbaijan, Georgia and Turkey. Environmental, health & safety, and social groups are organized under the AGTR Regulatory Compliance and Environment Organization of HSE - Engineering.

The single point of accountability for environmental management in Azerbaijan is the Team Leader for the Az Export Pipeline Environmental Team (covering the BTC, SCP and Western Route projects), who reports to Exports Compliance & Environmental Manager

who is part of the AGTR Regulatory Compliance and Environment Organization of Safety and Operational Risk (S&OR). The Team Leader in Azerbaijan works with an Exports Compliance Lead who also reports to the Exports Compliance & Environmental Manager. The team leader is also supported by six environmental advisors, four of them site-based on a back to back schedule. The social team is organized similarly through the Community and External Affairs group. Health & Safety (occupational health and safety) and Emergency Response are together under a single Az Pipelines HS&ER Team who reports to the VP S&OR in Baku, as does the Health (medical) team. All of the teams in Azerbaijan are comprised by nationals, except for the uppermost management of AGTR.

2.1.2 Management of Change (MoC) - Observations

Since the July 2010 IEC trip, BTC has not issued any new MoCs relevant to ESAP aspects for Azerbaijan. The MoC covering the topic of the continued storage of medical waste remains as it was at the time of the last field visit. Medical waste is still being stored at the Serenja storage facility and plans still exist for a third-party (Ekol-AA Services Joint Venture) to construct a dedicated incinerator. The development of this facility is later than what was expected at the time of the July 2010 field visit (Q3 2010), but the continued storage of medical waste, while not a desirable situation, is not contrary to the ESAP. As noted in the report for the July 2010 field visit, it should be noted that stack emissions will have to be monitored and an emissions Monitoring Plan detailing emissions composition and criteria, applicable limits, ash and residue disposal will need to be developed. It is also expected that the Project will conduct periodic audits of the facility.

2.2 HEALTH AND SAFETY

2.2.1 Health and Safety – Observations

The BTC organization continues to place emphasis on properly managing the safety performance of the different parties involved during the Project development. A comprehensive Health and Safety (H&S) Management system is in place and dedicated H&S Plans and Manuals are routinely followed. The activities performed by the H&S team are extensive and include the significant components of the most advanced safety management systems (training, monitoring, auditing, risk analysis, safety data collection and reporting, etc.). An extensive analysis of safety data and statistics is performed including incident analysis and evaluation of immediate and root causes.

Most of the workplace hazards that were associated with the construction phase are not significant during Operations, but there is one common denominator that has affected both phases of the Project: vehicular accidents. This was an issue flagged in the report for the July 2010 field visit and over the past year has continued to be a focus of attention for BP in Azerbaijan. During 2010, the BP Operations in Azerbaijan associated with the Export Pipelines reported an SVAR (Severe Vehicle Accident Rate) for 2011 down from 0.44 to 0.23 and none of the accidents were actually associated with the BTC Project. Recordable injuries were not associated with the BTC Project during 2011 through July, nor were there any first aid injuries.

One of the most significant potential hazards to the pipeline in Azerbaijan is proving to be grass fires. Within a single month (July 2011), 13 grass fires within the pipeline safety zone

were recorded as near misses. This is prompting increased community awareness programs to prevent these incidents and other third-party incursions along the ROW.

2.3 WASTE MANAGEMENT

2.3.1 Non-Hazardous and Hazardous Waste – Observations

Since December 2008 an EU-compliant non-hazardous waste landfill with a 54,000 m³ capacity active cell has been operational at Sumgayit. To date, about 70% of this cell has been filled and it has a life expectancy of about an additional year. The site has space for two additional cells, future expansion will be needed. In the future it may prove practical to recycle this waste currently being landfilled if the proposed “waste-to-energy” plant in Balakhani proves to be a viable disposal option. This project is currently under development by the Government, but will likely not be available for use for about 1.5 to 2 years based on BP’s assessment and even after it is commissioned it will still require a complete BP assessment based on both technical and cost considerations before it can be used.

The BP-owned ISO 14001 certified Hazardous Waste Management Facility (HWMF) in Serenja and the Central Waste Accumulation Area (CWAA) at the Sangachal Terminal are still being used, but other acceptable disposal solutions are being identified and implemented. At the time of the July 2010 field visit, BP had identified hazardous waste management solutions on the basis of a PSCM – SIWM (Procurement Supply Chain Management – Semi-Integrated Waste Management) procurement process. New contracts are being implemented through a Mobilization Plan involving three contractors: Karvan-L is receiving and disposing chemicals, paint sludge etc.; Real-Gas is receiving and disposing gas cylinders etc.; Ekol-AA is still in the process of developing an incinerator facility for disposal of the oily filters, rags, adsorbents, waste oil/diesel etc., so these waste streams still continue to go to Serenja. Since August 2011, some of the air filters previously sent to Serenja for storage are being segregated and disposed by ADES, who has a means to re-use the plastic parts of the filters. As noted in Section 2.1.2, Ekol-AA is still expected to construct a medical waste incinerator, a process that will require emissions monitoring and careful auditing by the Project.

2.3.2 Wastewater Management - Observations

The Rotating Biological Contactor (RBC) type sewage treatment units at PSA2, PSA2 Camp and IPA1 have been fully operational since the last IEC visit in July 2010. All of these facilities have biological treatment, UV treatment and a tertiary treatment through reed beds. The reed bed at PSA-2 accepts treated discharge from PSA2, PSA2 Camp and the PSA2 retention pond. The IPA1 treatment plant also has a dedicated reed bed that also accepts discharge from the retention pond. Discharges from both IPA1 and PSA2 reed beds are both generally compliant with Project effluent discharge standards, except for occasional excursions of total coliforms. Exceedances of ammonia and total nitrogen were measured during the startup phase at the beginning of the 2011, but by the middle of the year were compliant. An observation made by Project environmental staff is that exceedances of total coliforms from the reed beds tend to take place after heavy rains and it is speculated that the rains wash in bird droppings from the reeds. Field tests conducted on the effluent entering the reed beds do not indicate any problem with total coliforms.

Sludge from the sewage treatment was disposed at the Sahil until August 2010 after which the new Hovsan Municipal Treatment Facility has been used.

2.4 POLLUTION PREVENTION

2.4.1 Observations

Issues regarding the effectiveness of main oil-water separators designed to clean up surface water from the pump stations and IPA1 were resolved in Azerbaijan prior to the July 2010 field visit. A concern for potential contamination was with respect to releases of water from the retention ponds, but test results from 2010 and 2011 at the PSA2 and IPA1 retention ponds did not indicate any exceedances of Project effluent standards. An indicator of pollution prevention at PSA2 is groundwater monitoring of the Karayazi aquifer and surface water monitoring upgradient and downgradient of both PSA2 and IPA1. The results indicate no significant deterioration from pre-project baseline conditions based on monitoring from 2004 through 2011.

The BTC Environmental Team continues to conduct noise monitoring. The last round of noise monitoring for the BTC Project took place in November 2010 and the results are reported in the BTC Environmental and Social Annual Report. In essence, results indicated compliance with the ESAP standards for all locations, except for slight exceedances at BV-7 (2.9 dBA above the nighttime limit of 45 dBA due to close proximity to a highway) and BV-10 (2.2 dBA above the nighttime standard due to open door of the overheating security generator).

Stack emissions testing has continued at the MOL turbines at PSA2, the diesel generator stacks at both PSA2 and IPA1, as well at the PSA2 water bath heater in with the last tests for which results are available conducted in November 2010. The monitoring results of all diesel generators (PSA-2 Generators A, B, C; IPA-1 Generators A, B) and Water Bath Heater indicate that the oxides of nitrogen (NO_x), carbon monoxide (CO), sulfur dioxide (SO₂) and particulate matter (PM) concentrations were below the limits specified for these plants in the ESAP. The monitoring results of the PSA-2 gas-powered MOL Turbines indicated that the NO_x concentrations continue to be higher than the 75 mg/m³ limit specified in the ESAP. BTC recognizes that it will not be practical to reduce emissions to the point where the ESAP commitments can be achieved.

To resolve this non-compliance, the IEC recommended during the July 2010 field visit that BTC develop through an MoC mechanism an offset program as compensation. An MoC was developed by BTC and submitted to the IEC for approval in January 2011 and was approved in February 2011. The essence of the MoC is that NO_x emissions from BTC pump station gas turbines are treated for compliance purposes as if they were part of the Dutch NO_x emissions trading scheme rather than by reference to the Large Combustion Plant Directive, which is not applicable to turbines on the size used by BTC. As the Dutch system does not apply outside the Netherlands, the mechanism for achieving this is to implement environmental offset programs of a value comparable with the cost of obtaining emissions permits under the Dutch scheme. As these programs are related to atmospheric emissions the MoC proposed to implement projects that provide sustainable energy without such emissions. This has the added advantage of making these offset programs clearly distinguishable from other programs implemented by BTC, which are mainly biodiversity related. The offset will be to install solar thermal heating systems at three villages along the

pipeline route (Chobanabdalli of Samukh district kindergarten; Bashirli of Goranboy district school; and Qurbanzade of Goranboy district school). These programs are in the process of being organized through a local NGO. The IEC approves of the offset and the non-compliance for the stack emissions monitoring assigned a Level II with respect to the Emissions Management Plan - BTC Operations – Azerbaijan & Georgia (Commitment ID 1024) is rescinded.

2.5 ROW MANAGEMENT

2.5.1 Observations

Biorecovery monitoring has been conducted by BTC for the past five years in terms of percentage cover values and two years of species-diversity data, collected from 55 transects located along the length of the ROW (in areas with natural vegetation, not being farmed). The results from 2011 monitoring indicate conditions nearly identical to 2010. Vegetation cover data indicates that over half of transects have equal or greater vegetative cover than adjacent, undisturbed areas within a margin of 10%. At the majority of transects (89%), the vegetation on the ROW has shown an increasing trend vegetation in cover over the five years of monitoring and more than half have achieved natural levels of vegetative cover. Species diversity was measured in 2011, confirming that there still are some large differences between habitats in the rate and scale of increase and species-commonality between the ROW and adjacent, undisturbed areas (typically around 30%, although some are much lower). In particular, the vegetation recovery in the Gobustan region continues to be severely limited, where natural conditions are difficult and where erosion, vehicular traffic, and cattle have had a negative impact.

It is apparent that the Project reacts appropriately to situations where erosion represents a significant hazard to reinstatement, if not the actual pipeline. During this field visit one of the most difficult areas for river erosion, the Shamkir Chai River crossing at KP 344, was visited. During the construction phase it was necessary to construct a weir at this location to prevent pipeline erosion, but by June 2006, the IEC reported that “deep channels are forming downstream that could eventually undercut the weir and place the pipelines at risk.” During this visit a major construction project was being undertaken at Shamkir Chai to expand the protection offered by the original weir. This is an area of dynamic river movements where monitoring will always be required.

The Export Pipelines Protection Department (EPPD) of the Azeri Government continues to require that portions of the ROW be accessible for security patrols. 127.6 km of the BTC ROW corridor is exposed to EPPD vehicle patrolling. This portion of the ROW has been divided into 29 selected sections, three sections of which (Shamkir and Gobustan ROW) were reinstated in 2009 and in 2010 a decision was made that 13 out of the remaining 26 sections had the potential for reinstatement, pending the actual amount of EPPD patrolling. In 2010 trial projects were done in these 13 sections the result that success was achieved with 38 % of the area. EPPD patrolling in the remaining eight sections was found to be such that reinstatement would not be practical to implement. By the end of 2010 full reinstatement had been done at the five feasible sections.

The basic observation of the IEC is that reinstatement of the ROW used by EPPD has reached the stage where additional reinstatement not undertaken for routine maintenance has reached its maximum extent without significant behavioral changes by the EPPD. The

Project has exerted enough effort to resolve this situation such that it is no longer considered to be a construction legacy, but rather a long-term Operations issue. EPPD has responded to Project initiatives and the use of the ROW is certainly less than would have otherwise taken place, but at this stage the use of the ROW by EPPD has probably been reduced as far as practical without a major change in their approach to assuring pipeline security. There are possibilities that the EPPD will eventually adopt an alternative means to monitor the pipeline route (e.g., with remote sensing technology), but this will not be under BPs control and the issue will effectively become moot with the expected construction of a new pipeline along the BTC ROW as part of SCP expansion (estimated start ~2015).

2.5.2 Recommendations

1. Continue to offer EPPD field personnel training in terms of their awareness of environmental sensitivities and continue to negotiate a surveillance solution such that the bio restoration of the ROW can be completed (ongoing recommendation).

2.6 ECOLOGICAL MANAGEMENT

2.6.1 Observations

Regarding ecological management, there is only one issue remaining from the construction phase included as a Schedule 20 commitment, which is the management of the red-listed plant *Iris acutiloba*. Another detailed field survey was carried out in May 2011, consistent with the Schedule 21 Completion Certificate requirement of undertaking a comprehensive survey to prove or disprove the initial observations from May 2007 that species survival has been poor where transplanting has taken place.

The latest survey results indicate that the population of transplanted *Iris Acutiloba* continues to decline where replanted on or along the ROW. As a result of May 2011 monitoring only 147 items of *Irises* were found along the BTC/SCP ROW and that makes only 0.6% of totally trans-located *Irises* (24,000 items) from Mardakan in 2006. Over the past three years, these survival percentages have been as follows:

- 7.7% in 2008;
- 4.2% in 2009, and
- 2.8% in 2010.

This trend was already apparent at the time of the July 2010 field visit and a requirement for this field visit was that the Project needed to implement an offset program or face a significant non-compliance. Independent of this offset program it was understood that the Project would continue to attempt to grow this plant along the ROW, using plants obtained from the expansion of the Garadagh Cement Plant expansion that would otherwise have been destroyed. Results of preliminary monitoring indicate that these translocated plants also are experiencing a low survival rate, reinforcing the merits of an offset program.

BTC's offset program is acceptable to the IEC and consists of planting Cypress and Plane trees (Plane trees are a red-listed species) in a new area around the pump and pigging stations. These will be irrigated by effluent from the PSA2 camp, PSA2 and IPA1 sewage treatment plants. In addition to providing biodiversity, this afforestation will shield the stations from the surrounding area, reducing noise, light emissions and visual impact. In

total about 3154 trees (1970 Cypress and 1184 Plane) will be planted around IPA1 and PSA2 covering an area of about 4.7 Ha of which about 3.5 Ha will be covered by the red-listed Plane trees. BTC Azerbaijan has allocated a budget of \$50,000 in 2011 to implement this offset program and the tree-planting process started in September.

2.6.2 Recommendations

1. Monitor and verify the success of the tree planting, in particular the Plane trees.

2.7 CULTURAL HERITAGE MANAGEMENT

The cultural heritage program for the BTC project currently relates to the management of cultural heritage material encountered during construction, as well as management of situations that could occur along the pipeline route in the future. Operations have not faced any issues related to damage to cultural heritage due to new construction or third-party damage to identified sites. The main activities have been associated with the management of archaeological materials identified during the construction phase of the BTC and SCP Projects. This effort continues to be undertaken by AGTR's Communication and External Affairs (CEA) department based in Baku for both Azerbaijan and Georgia.

2.7.1 Observations

The activities associated with the management of cultural heritage from the construction phase in Azerbaijan are effectively complete. A "coffee table" book describing the cultural heritage of the BTC/SCP pipelines corridor has been published by the Smithsonian Institution.⁴ This book is essentially the introduction to the cultural heritage findings made along the pipelines provided in much greater detail online at <http://agt.si.edu/>. This web page not only summarizes the findings among archaeologists in Azerbaijan, Georgia, and Turkey and their colleagues from the Smithsonian Institution, but also contains the detailed site reports for the most significant excavations undertaken during the BTC/SCP projects. The site reports for Azerbaijan are fully represented on the web page. The Cultural Heritage Management Procedure for Azerbaijan has been updated (February 2011) and its implementation is the responsibility of the Environmental Team Leader.

2.8 SOCIAL MANAGEMENT

In this IEC monitoring visit and all previous visits, BTC Project related social and community relations aspects have been addressed based on documentation review and management interviews only; no field audits and community meetings have been held. The Azerbaijan Social Review Commission (ASRC), created in early 2007 continues to audit BP in Azerbaijan to promote transparency, dialogue and public engagement of BP activities. The most recent ASRC report from May 2010 is available online at:

http://www.bp.com/liveassets/bp_internet/bp_caspian/bp_caspian_en/STAGING/local_asset_s/downloads_pdfs/a/asrc_4th_report_en.pdf.

⁴ Taylor, P. M., C. R. Polglase, N. Museyibli, J. M. Koller and T. A. Johnson, 2011. "Past and Future Heritage in the Pipelines Corridor – Azerbaijan Georgia Turkey," Smithsonian Institution Asian Cultural History Program, ISBN: 978-09724557-4-9 (softcover): 978-09724557-6-3 (hardcover).

Grievances are still being documented and managed, but at this stage they no longer relate to construction issues, but operational aspects of the pipeline. Since the July 2010 field visit, there have been seven written complaints received, of which five have been resolved (four out of the five ruled to be groundless) and two (from July 2011) are still in the process of being resolved. Most relate to the ability of farmers to access land. Over the past year approximately 34 verbal community complaints have been received, about a quarter of which relate to interactions with the EPPD. All but one have been resolved and there were no valid complaints associated with pipeline construction.

3 GEORGIA

The BTC Project in Georgia encompasses 249 km of pipeline extending from Azerbaijan-Georgia border in the Gardabani District and finishing in the Akhaltsikhe District at the Turkish border. The corridor followed by the pipeline is close to the existing Western Route Export Pipeline (WREP) for a short distance from the Georgia – Azerbaijan border until the BTC pipeline deviates towards Turkey at KP 19. The BTC pipeline also shares the same corridor with the SCP pipeline, which is a subsequent separate related project that transports gas from the Shah Deniz field offshore Azerbaijan to the Georgian/Turkish border. The BTC Project includes several permanent Above Ground Installations (AGIs) including two pump stations, PSG-1 located at KP 3.8 and PSG-2 located at KP 88, as well as block and check valves.

The Georgian section of the BTC pipe was inaugurated in October 2005. Plans for future expansion are the same as described for Azerbaijan. Georgia began receiving the benefits of off take gas from the SCP Project in January 2007 and continues to do so.

This mission represents the fourth IEC visit fully associated with BTC Operations [Although this is the fifth Operations audit, the first Operations audit was combined with the last Construction audit]. Nevertheless, many of the aspects of Operations still relate to completion of the pipeline (e.g., bioremediation) and programs started during construction and which have follow-up during Operations (e.g., erosion and sediment control monitoring along the ROW; ecological monitoring; cultural heritage), as well as topics common to either construction or Operations (waste management, wastewater treatment, and emissions monitoring). Georgia is also the only country traversed by the BTC Pipeline where First Oil did not represent the end of the construction phase, as active construction as represented by the Kodiana Projects related to secondary containment of oil spills in the sensitive Borjomi area continued up until the time of the July 2010 visit and are now fully completed. Schedule 21 commitments were resolved prior to the July 2010 field visit.

3.1 ENVIRONMENTAL AND SOCIAL MANAGEMENT ORGANIZATION AND RESOURCES

3.1.1 Resources and Organization - Observations

The BTC environmental and social management organizations continue to be organized within the Azerbaijan Strategic Performance Unit (AzSPU) whose operational activities cover Azerbaijan, Georgia and Turkey. Environmental, health & safety, and social groups are organized under the AGTR Regulatory Compliance and Environment Organization of HSE - Engineering.

The single point of accountability for environmental management in Georgia is the Georgia Exports Compliance & Environmental Team Leader, who reports to Exports Compliance & Environmental Manager who is part of the new AGTR Regulatory Compliance and Environment Organization of HSE-Engineering in Baku, Azerbaijan. The Team Leader in Georgia is supported by nine support staff covering emissions management; ecological management and EIPs; ESMS implementation and compliance; waste management; remediation management; and the Operations Projects, including Kodiana. The social team continues to be organized similarly, with the Social Responsibility Manager reporting to an

in-country Community and External Affairs Manager and supported by nine staff members covering cultural heritage, community investment, energy and enterprise, and a social team leader with support from a group of community liaison officers. Health, Safety (occupational/medical health and safety) and Emergency Response (HS&ER) teams report to HSE and Engineering in Baku. All of the teams in Georgia are comprised by nationals.

3.1.2 Management of Change - Observations

Since the July 2010 IEC trip, BTC has issued implemented two MoCs for Georgia, one covering the disconnection of the retention pond discharges from the reed beds and the other the discontinuing of monitoring two faunal species from the biodiversity monitoring program. In the first case (Class I change), the Project did not consider it necessary to mix what is essentially stormwater from the retention ponds with sewage effluent receiving tertiary treatment at the reed beds. In the second case (Class II change), as monitoring has shown increases in the population of both Caucasian Mud-Diver (*Pelodytes caucasicus*) and Snake-Eyed Lizard (*Ophisops elegans*), these two species were omitted from the off-ROW Biodiversity Monitoring Program. At the time of this field visit, the Project had drafted a third MoC associated with the removal of coliform bacteria from the retention pond monitoring program. This last MoC has been developed to reflect retention pond improvements with their bottoms concreted and new pumps installed, which allows keeping the ponds as dry as practicable (literally dry), allowing their bottoms to be cleaned as required. Also given that the retention ponds do not store sewage, coliform bacteria are not expected to be present and there is no reason to monitor for this sewage parameter. IEC considers all of these MoCs to be acceptable.

3.2 HEALTH AND SAFETY

3.2.1 Health and Safety – Observations

The BTC organization continues to place emphasis on properly managing the safety performance of the different parties involved during the Project development. A comprehensive Health and Safety (H&S) Management system is in place and dedicated H&S Plans and Manuals are routinely followed. The activities performed by the H&S team are extensive and include the significant components of the most advanced safety management systems (training, monitoring, auditing, risk analysis, safety data collection and reporting, etc.). An extensive analysis of safety data and statistics is performed including incident analysis and evaluation of immediate and root causes.

Most of the workplace hazards that were associated with the construction phase are not significant during Operations, but there is one common denominator that has affected both phases of the Project: vehicular accidents. Since the July 2010 field visit BP Georgia excluding the WREP has recorded four minor vehicular accidents and the importance of defensive driving continues to be being emphasized with the drivers. BP Georgia reports an SVAR (Severe Vehicle Accident Rate) for 2011 slightly up from 0.14 to 0.19. The other significant issue identified by the H&S team and emphasized to the workers is with respect to equipment/property accidents, of which 21 have been recorded since July 2010. Recordable injuries were not associated with the BTC Project since July 2010 through July 2011, although four first aid injuries were recorded.

Testing of potable water from PSG1 site, PSG2 site, PSG2 camp and the Tsalka Hotel have shown several excursions in terms of total coliforms and a few detections of E coli (PSG2 camp, September 2010 and June 2011; Tsalka Hotel December 2010) based on internal lab testing. The case of E.coli in the tap water at PSG2 Camp was related to flooding, but the issue was resolved immediately by stopping the use of the contaminated water, making repairs to the water tank, undertaking super-chlorination and chlorination and finally retesting the water. System maintenance and monitoring is ongoing. The Tsalka Hotel is no longer being used by the Project. It is expected that the new PSG2 camp constructed in 2012 will have reduced risk with a more advanced water treatment unit designed for long-term use. The Project will need to focus on maintaining the quality of tap water, as water supplies for showers, faucets, etc. need to be as clean as bottled water.

3.3 CAMPS, INFRASTRUCTURE AND SERVICES

With the completion of the Kodiana projects, the construction phase of the BTC Project in Georgia is complete. Most of the temporary facilities associated with construction described in previous IEC reports are now closed, reinstated to the satisfaction of the landowners and relinquished to the landowners, unless their use has been required by Operations. The eventual fate of these facilities also depends on whether or not a new pipeline project is initiated to follow the BTC/SCP corridor. The current status of the temporary construction facilities, based on the information provided by BTC, is as follows:

- *PSG1 Camp* – still in place and has changed status to a permanent facility to accommodate the construction of an Oil Spill Response base for the easternmost section of the BTC pipeline and of Maintenance Workshop;
- *PSG2 Camp* – still in place and servicing Operations;
- *Akhaltikhe Camp* – reinstated and handed over to landowners;
- *Rustavi (Gatchiani) Pipeyard* – still in use as logistics base and pipe storage yard;
- *Andeziti Pipeyard / Bakuriani Mechanical Yard* – reinstated and handed over to landowners.

The IEC again visited reinstated sites associated with the Kodiana projects to review the final stages of tree planting associated with the biorestitution and found that the reinstatement has been to an acceptable quality (see additional details in Section 3.6.2).

With respect to the permanent Operations facilities a new project is the construction of additional accommodations at PSG2 for which a contractor is expected to commence mobilization at the end of September 2011.

3.4 WASTE MANAGEMENT

3.4.1 Non-Hazardous and Hazardous Waste – Observations

Non Hazardous Waste

The Project continues to operate the 2.6 ha BP Georgia EU-compliant non-hazardous waste landfill that started in May 2009. In 2010 BTC sites generated more than 1000 m³ of general waste and 600 m³ of hazardous waste. Most of the non-hazardous waste (paper 215 m³, plastic bottles 162 m³ and metal waste 40 m³) continues to be locally recycled. An

upcoming challenge will be the management of more than 60 tons of used and replacement batteries from BTC block/check valves. The Project has identified a local battery recycling company capable of safe disposal/recycling of these batteries and expects to have a contract in place in the near future.

The use of non-compliant municipal waste disposal facilities during the construction phase of the Project resulted in BP-Georgia agreeing to sponsor an offset, which is the development of Georgia's first EU-compliant non-hazardous waste disposal facility for the cities of Rustavi and Gardabani that is expected to include the closure of the existing Gardabani dump. The new Gardabani Municipal Landfill is being funded by EBRD. BP Georgia's support has been the preparation of the design of the facility, the landfill site selection studies, and preparation of an EIA including a public information and consultation process according to national, BP and EU requirements. This facility will be larger than the BP landfill and will cover 7.4 ha. Construction has started and is reported by the City of Rustavi⁵ to be ready by November 1, 2011. The landfill is expected to employ 35 local workers and a supply contract for operation and maintenance of the landfill is expected to be in place by Q2 2012.

Hazardous Waste

The final solution for the disposal of hazardous waste stored at the Central Waste Accumulation Area (CWAA) at PSG-1 continues to be based on international export and final disposal in EU-compliant facilities. Used oil generated continues to be injected into the BTC pipeline on an as-needed basis.

A crusher for fluorescent bulbs such that mercury can be recovered has been acquired since the July 2011 field visit and 22 drums (4.4 m³) of fluorescent lamps have been crushed with their volume reduced to 0.06 m³, resulting in non-hazardous waste that was disposed at the landfill. Also at this facility 988 oily solid waste drums have been compacted and 386 have been emptied, resulting in a volume decrease of 40% and a 35% reduction in the cost of disposal.

A roof for the central storage area at the CWAA has not yet been constructed, but the stored wastes are on pallets and covered with plastic. It is understood that there will be a full revision of the CWAA undertaken in 2012.

3.4.2 Wastewater Treatment – Observations

Wastewater treatment infrastructure continues to improve. In 2010 the PSG2 Camp unit was decommissioned and moved to the PSG1 camp where it replaced the old construction period Tetem type WWTP, which had not been working effectively. The new PSG1 unit accepts wastewater from both the PSG1 Camp and PSG1, where the sewage is piped to the PSG1 Camp RBC unit from PSG1 and no longer trucked. Wastewater is not disposed in municipal facilities, unless there is a failure of BTC project waste water treatment facilities, which has not happened recently. The Area 80 WWTP is constructed such that it no longer needs to truck sewage to the Akhaltsikhe construction-era WWTP, which in any case is no longer operational with the camp now reinstated and handed over to the landowners. The only pending improvement is the replacement of the WWTP at the EDDF. The original WWTP

⁵ Self-Governing City of Rustavi Official Web Site, Local people are employed on “Rustavi Landfill,” October 4, 2011.

at the EDDF was installed but failed to function effectively despite continual maintenance and was discontinued in favor of a septic tank that will serve until a new WWTP of the RBC type can be constructed (construction startup scheduled for September 2011).

Because of difficulties with their Intertek on-site laboratory the Project has discontinued its use for Coliform bacteria analysis and now only reports results from the independent laboratory CITO2 Ltd, with additional control provided by Azecolab in Baku, Azerbaijan. Azecolab reports the bacteriological testing from the CITO2 lab, but conducts the other standard effluent tests. The new WWTPs are generally operating well, although there are a few excursions from Project standards for total coliforms. The Project reacts to these situations and the excursions are not persistent.

The spent sewage sludge from the PSG1 and PSG2 facility treatment plants continue to be sent to the Gardabani municipal plant for final disposal. Disposal of sewage sludge at a municipal facility is not a non-compliance with ESAP commitments, but is also not considered to be best practice, because beneficial applications do exist for this material, including as fertilizer, fuel for incineration (after dewatering), gasification for gas recovery, or composting. It is understood that BP Georgia is considering incineration or agricultural applications for the sludge.

3.4.3 Non-Hazardous and Hazardous Waste - Recommendations

1. Although much of the hazardous waste stored at the PSG1 CWAA is under roof, the central storage area containing drummed waste does not have a roof. It is recommended that all of the hazardous waste be stored under cover to prevent the need for treating contaminated water (repeat recommendation)
2. BTC should consider developing an alternative disposal technology for the sewage treatment sludge such that this material has a beneficial application (repeat recommendation).

3.5 POLLUTION PREVENTION

3.5.1 Observations

As previously noted in previous IEC trip reports since 2006, one issue common to both Georgia and Azerbaijan has been the effectiveness of the main oil-water separators designed to clean up surface water from the pump stations. This situation is now resolved by means of an upgrade program, which was completed by the end of Q3 2010 along with the update of the OWS and included installation of new chopper discharge pumps, concreting of the retention ponds' bases and installation of the new pH meters, which are connected to the sites' control rooms.

A separate issue associated with the retention ponds at both PSG1 and PSG2 has been the quality of the discharge water, where the independent testing laboratory CITO2 has found high total coliform values. This issue has been resolved with the construction of the concrete liner and for the most part the pond is dry. In addition, sluice gates were installed at specific locations to enable storm water from non-hydrocarbon areas to deviate from retention ponds and no sewage water is discharged to the retention ponds. Accordingly, the Level I non-compliance for liquid effluent (open water discharge) exceeding Project standard for total

coliforms has been rescinded and, as noted in Section 3.1.2, the Project is enacting an MoC whereby coliforms are no longer monitored from the retention ponds.

The BTC Environmental Team continues to conduct noise monitoring. The 2010 BTC Annual Environmental and Social Report presents daytime monitoring results that are general compliant with the 55 dB (A) standard, except at the Borjomi Oil Spill Response Base (OSRB) where there was a 1.7 dB(A) exceedance attributed to external noise sources. The most recent monitoring results from September 2010 at Kesalo Village next to PSG1 demonstrate nighttime noise levels originating from PSG1 are within the nighttime standard of 45 dB(A). Noise monitoring was also conducted at Jandara village near PSG1 that showed compliance at that location.

Since the July 2010 field visit, stack emissions testing has continued at the MOL turbines at PSG1 and PSG2, along with the diesel generator stacks, and the water bath heaters (WBHs) with the testing conducted in December 2010. The results are reported in the 2010 BTC Annual Environmental and Social Report.

The monitoring results of all diesel generators and WBHs at both PSG1 and PSG2 indicate that the oxides of nitrogen (NO_x), carbon monoxide (CO), sulfur dioxide (SO₂) and particulate matter (PM) concentrations were below the limits specified for these plants in the ESAP. In contrast to the stack emissions test results from Azerbaijan from similar units where there was a general exceedance with respect to NO_x concentrations, the monitoring results from the MOL Turbines at PSG1 and PSG2 showed general compliance with the 75 mg/m³ limit specified in the ESAP with the exception of MOL Turbine 1 at PSG1 and Turbines 1 and 5 at PSG2 (Turbine 3 was not in operation at the time of testing). Most of this testing was conducted with the units operating in a Solar Turbines Dry Low Emissions Technology (SoLoNO_x) mode where the efficiency of combustion is increased. Unexpectedly, PSG2 MOL Turbine 2 showed compliance with the ESAP NO_x standard despite not running in SoLoNO_x mode. As previously noted in the report for the July 2010 field visit, if the MOL turbines are driven at high loadings (SoLoNO_x mode) such that NO_x emissions are reduced to compliant levels, fuel must be consumed unnecessarily and CO₂ emissions are greatly increased. In any case, the MOL Turbines do not always operate in a SoLoNO_x mode and it is expected that the NO_x emissions will frequently exceed the 75 mg/m³ limit specified in the ESAP. BTC recognizes that it will not be practical to reduce emissions to the point where the ESAP commitments can be achieved.

To resolve this non-compliance, the IEC recommended during the July 2010 field visit that BTC develop through an MoC mechanism an offset program as compensation. An MoC was developed by BTC and submitted to the IEC for approval in January 2011 and was approved in February 2011. The essence of the MOC is that NO_x emissions from BTC pump station gas turbines are treated for compliance purposes as if they were part of the Dutch NO_x emissions trading scheme rather than by reference to the Large Combustion Plant Directive, which is not applicable to turbines on the size used by BTC. As the Dutch system does not apply outside the Netherlands, the mechanism for achieving this is to implement environmental offset programs of a value comparable with the cost of obtaining emissions permits under the Dutch scheme. As these programs are related to atmospheric emissions the MoC proposed to implement projects that provide sustainable energy without such emissions.

The NO_x offset program in Georgia has been initiated with three projects:

- Borjomi Micro Hydro Power Plant – intends to produce renewable clean electricity, which will be used by Borjomi Park, where the very first in Georgia hydro power station had been constructed on river Borjomula and utilized since 1898;
- Solar thermal system for Tbilisi public boarding school No 203 for deaf and diminished hearing children – aims to decrease consumption of natural gas used for central heating and electricity used to heat water for showers and kitchen improving living conditions for school residents; and
- Solar thermal system for Georgia SOS Children's village Tbilisi – aims to decrease consumption of natural gas used for central heating and hot water supply for showers and kitchens improving living conditions for 233 children and 137 employees.

These projects have been initiated in 2011 to the stage of identifying potential contractors and implementation is scheduled for 2012. The IEC approves of the offset and the non-compliance for the stack emissions monitoring assigned a Level II with respect to the Emissions Management Plan - BTC Operations – Azerbaijan & Georgia (Commitment ID 1024) is rescinded.

3.6 ROW MANAGEMENT

3.6.1 ROW Reinstatement - Observations

ROW reinstatement was reviewed in the field at the difficult reinstatement areas from the Kodiana Pass at KP 193 (El 2,263 m) through the Tskhratskaro Pass at KP 176 (El 2,456 m) approximately to the town of Tsalka (~KP 125). Throughout the areas visited, the biorestitution appears to have been generally successful. Even in areas where farmers have not conducted the reinstatement it was often difficult to follow the ROW through natural ground, Reinstatement of the pipeline has reached the stage where the process is now effectively maintenance checks and reacting as appropriate and this is being done.

The current status of biorestitution of the pipeline ROW in Georgia is reported in the 2010 BTC Environmental and Social Annual Report and is not repeated here. The main observation of the 2010 surveys is that significant improvements were observed in the vegetative cover from what was encountered in 2009. This is consistent with the visual observations made during this field visit.

One of the difficulties of ROW reinstatement identified in past IEC reports was the transplantation of trees and shrubs along the ROW. Consistent with a previous IEC recommendation, the Project has developed an offset program to compensate for the loss of forest habitat in consultation with the Government of Georgia. This offset project is designated the Bakhmaro Resort Zone Forest Recovery and Reforestation Program also supported by the Eco Awards program. This program was approved by the Georgia MoE in October 2010 and is currently being implemented with a budget of \$500,000.⁶

Biorestitution of the pipeline is continuing with respect to the re-planting of high conservation value species. The most recent reporting available for this program is also

⁶ See agreement at:
<http://www.bpgeorgia.ge/external/content/document/1339/1021631/1/Agreement%20on%20Bakhmaro%20Resort%20Zone%20eng%20.pdf>

presented in the 2010 BTC Environmental and Social Annual Report and is not repeated here. The essence of the rare species reinstatement is that with 8 out of 11 translocated species the survival rates against the objective of re-establishing a minimum of 75% of the original population within the areas designated for translocation have been achieved. In particular, no individuals of *Gentiana angulosa* (two populations) and *Orchis coriophora* were recorded on the reintroduction sites for both 2009 and 2010 evaluations. Compensation for the loss of these species is currently based on the development and implementation a rare species restoration three-year program aimed at propagation and subsequent reintroduction into original habitats of fritillary and gentian. Maintenance of the plants grown from seeds is ongoing.

Another component of biorestitution that continues to be monitored along the ROW is invasive species. The current program has been based on mechanical removal: a combination of farm tractors (grass cutter) and a manual team equipped with scythes to access and manually cut the weeds where access by machinery is unachievable. Current removal efforts have been undertaken between KP 0 and KP 248 and removal has proved problematic only where weeds are also present throughout local farmers' fields. The most difficult weed has proven to be the Common Ragweed *Ambrosia artemisiifolia*.

3.6.2 Off-ROW Reinstatement – Observations

The only areas where off-ROW reinstatement was evaluated in the field were sites associated with the Kodiana Projects. At the time of the July 2010 field visit, good reinstatement had been achieved for all but the Andeziti pipe yard, which has now been reinstated and turned over to the landowners. Another component of the biorestitution process has been the planting of trees and shrubs. In 2010 5,310 trees and shrubs were planted around the EDDF and SCF sites and monitoring that took place in 2011 shows generally good survival rates after the 2010 – 2011 winter season.

3.7 KODIANA PROJECTS IN THE BORJOMI AREA

3.7.1 Observations

The Kodiana area extending from about KP 176 to KP 196 in the sensitive Borjomi region of Georgia is where the Government of Georgia requested that BTC implement special protective measures with multiple lines of protection and redundancy in design and operations on the pipeline to achieve as close to “zero risk” of an oil spill or leak as practical. These measures include: temporary secondary containment, permanent secondary containment, a drain down tank, and construction of a security base for a patrolling security crew (the “Kodiana Project”). At the time of the July 2010 field visit the Kodiana Projects were essentially complete and operational. All that remained was the completion of some minor electrical work and finalizing the reinstatement of disturbed land. At the time of this visit, the sites were reinstated and construction fully completed. The IEC does not expect that future visits will need to determine the status of these projects unless an unforeseen incident occurs.

3.8 ECOLOGICAL MANAGEMENT

The Biodiversity Monitoring Programme consisted of five years of monitoring selected floral and faunal species of concern, the first of which was conducted in 2004. This five-year

program identified trends, which has formed the basis for developing a revised monitoring program for 2011 – 2015. One aspect of the revised monitoring program was to eliminate the monitoring of the Caucasian Mud-Diver (*Pelodytes caucasicus*) and Snake-Eyed Lizard (*Ophisops elegans*). This change was presented to the IEC for approval in October 2010 and this change was approved in December 2010 on the basis that both species had demonstrated sustainable positive trends in their monitored populations.

The only species where it appears that the pipeline may have had an impact seem to be to Brandt's hamster (*Mesocricetus brandti*) and in the report for the July 2010 field visit it was recommended that hamster monitoring be continued to check whether hamster populations are able to recover within 400-500 m of the pipeline or, if their population continues to decline, develop some mitigation measures. The IEC also encouraged the Project to continue monitoring this species, not as a means to determine pipeline impact, but as research that will benefit knowledge of the behavior of important species in Georgia. Such research could also serve as a means to establish a sound baseline in anticipation that at some point in time another pipeline might be constructed. It is understood that Brandt's hamster is being included for ongoing and future monitoring.

The reviewed, revised and renewed scope for the biodiversity monitoring in off of the BTC/SCP ROW was submitted to the MoE on July 22, 2011 for their review and consideration. The Project is awaiting their response.

One additional aspect of ecological management undertaken by the Project is preparedness for ecological management in case of an oil spill. The wildlife rehabilitation center set up at PSG1 is constructed and served as a center for refresher training in July 2011 that forms part of the Emergency Response training as part of the oil spill response capability.

3.9 OFFSET MITIGATION AND ENVIRONMENTAL INVESTMENT PROGRAMS

The single EIP project related to the construction phase of the BTC Project still active at the time of the July 2010 field visit was the *Management Planning for Ktsia Tabatskuri Managed Reserve* project. This work was completed in November 2010.

Another construction legacy associated with the Offset Mitigation is the Forest Eco-Compensation Program. This program representing environmental offset for the loss of forest habitat started during the construction phase of the BTC Project had been the subject of long-term negotiations with the Georgian MoE. In February 2010, an agreement for this program involving the contribution of \$3.5 million in 2010 and 2011 towards the protection of the Sataplia State Reserve Infrastructure Development Project (SIDP) was reached with the Georgia MoE.⁷ Under this agreement, BP Georgia has no further obligations other than those in the Biorestitution Specification Plan and there is effectively nothing to report on the progress of this offset project.

New EIP projects undertaken strictly from BP Georgia Operations for both BTC and SCP Projects are under the umbrella of the Eco-Awards Program - \$900,000 for three years

⁷ See agreement at:
<http://www.bpgeorgia.ge/external/content/document/1339/1016747/1/Agreement%20on%20Sataplia%20State%20Reserve%20Infrastructure%20Development.pdf>

(2008-2010). These projects are described in detail in the 2010 BTC Environmental and Social Annual Report and are not repeated here.

3.10 COMMUNITY LIAISON

The Social Team of BP Georgia is responsible for communicating Project information to the general public and, specifically, the community in areas along the pipeline route, as well as receives and transmits community information regarding the BTC Project. The overall objective for the community liaison is to build a positive, non-dependent relationship between the BTC Project and the local communities. Specific responsibilities for community liaison include, but are not limited to:

- providing communities affected by the Project with regular information on the progress of construction (still ongoing in Kodiana area) and the implications for these communities and also informing the BTC Project of any community related issues that may impact on construction;
- monitor the impact of Operations via direct observation and feedback from communities;
- grievance management and managing disputes between the BTC Project and communities;
- Oil Spill Response Awareness for communities; and
- assisting with the implementation of community safety, health and investment programs.

The BP Georgia Social team is organized within the Community and External Affairs Organization of BP Georgia, with a social team leader based in Tbilisi and supported by five community liaison officers (CLOs), two of which are responsible for the BTC/SCP pipeline corridor and three more CLOs cover the Western Route Export Pipeline (WREP). CLOs are substituted as and when necessary to cover areas of increased activity or concern.

3.10.1 Observations

The IEC reviews the social programs undertaken in association with the BTC Project primarily from the standpoint of verifying that an organization is in place and is functioning such that it is clear that Project-related environmental issues affecting local communities are appropriately managed. External review responsibilities in relation to social and community issues, including land acquisition and compensation matters related to the BTC Resettlement Action Plan, were carried out by the Social and Resettlement Action Plan (SRAP) Panel, as dictated by the ESAP. BTC reports that the remaining issues identified by the SRAP Panel have been closed out, but this was not independently confirmed by the IEC. Georgia does not employ an external review body equivalent to the Azerbaijan Social Review Commission.

Based on a review of documentation provided by the Project, social issues associated with the BTC Project are minimal. Complaints continue to be being logged, tracked and closed out effectively in Georgia using the web-based tracking system established in November 2006. The number of complaints continues to decrease: a total of 46 in 2008; 20 recorded through June 2009; 44 recorded in the period of July 2009 through July 2010; and 6 recorded from August 2010 through July 2011 (3 accepted and 3 rejected claims related to irrigation, compensation disagreements, additional land occupied, and damage to household infrastructure).

3.11 CULTURAL HERITAGE MANAGEMENT

The cultural heritage program for the BTC project currently relates to the management of cultural heritage related material encountered during construction, as well as management of situations that could occur along the pipeline route in the future. Operations has not faced any issues related to damage to cultural heritage due to new construction or third-party damage to identified sites and the main activities have been associated with the management of archaeological materials identified during the construction phase of the BTC and SCP Projects. This effort is undertaken by BP's CEA department based in Baku for both Azerbaijan and Georgia.

3.11.1 Observations

Ground disturbance activities at areas with cultural heritage sensitivity are being conducted with archaeological monitoring, for example at village road upgrade and construction at BTC/SCP KP 203 where an important Bronze Age site is located. New construction projects are also conducted in compliance with the established standards (e.g., the new camp construction project at PSG2 included a pre-construction cultural heritage assessment. The Cultural Heritage Training Plan for Operations pipeline staff implements annual training sessions for relevant staff and training for new staff is planned for October and November, 2011.

In 2007, the BTC/SCP Project established a Memorandum of Understanding (MoE) with the Georgian National Museum whereby BP Georgia allocated of \$250,000 for the implementation of projects that included: excavations at two archaeological sites that had been damaged unintentionally during the pipeline construction; preservation of the archaeological material collected from the excavations in the storage areas equipped to international standards; public display of significant archaeological findings; scientific publications and use of modern multidisciplinary research methods in archaeological activities (landscape archaeology, archaeomagnetic dating, anthropological studies, etc.). On December 3, 2010, the National Museum provided BP Georgia with a letter confirming that all of the items of the MoE had been closed out to their satisfaction.

Archaeological materials discovered in Marneuli, Tetrtskaro and Tsalka Districts have located at the well-equipped storage areas that have been fully renovated for these special purposes at the Centre of Archaeology of the National Museum. One change from what has taken place to date is that the storage facility at the Akhaltsikhe Historic Museum where archaeological materials discovered in Borjomi, Akhaltsikhe and Adigeni Districts area either stored or are on display is currently is under reconstruction. The storage building has been demolished, but Project artifacts are being temporarily stored with the intent to provide permanent storage at a later date.

As described in greater detail in Section 2.7.1, the Smithsonian Institution has published a "coffee table" book summarizing some of the main finds of the BTC/SCP pipelines corridor, including Georgia. This book is essentially the introduction to the cultural heritage findings made along the pipelines provided in much greater detail online at <http://agt.si.edu/>. This web page not only summarizes the findings among archaeologists in Azerbaijan, Georgia, and Turkey and their colleagues from the Smithsonian Institution, but also contains the detailed site reports for the most significant excavations undertaken during the BTC/SCP projects. A general summary of the different historical periods of Georgia as encountered from archaeological remains is described on this web page. An outline of the detailed site

reports for Georgia is also found on the web page, but the links to the detailed reports are not yet set up and the web page has the note “Site reports will be available online shortly.”

3.11.1 Cultural Heritage – Recommendations

Expedite placing the detailed archaeological reports online. Georgia is the only country where their country-specific reports are not available to researchers via an online connection.

3.12 MEETING WITH GOVERNMENTAL OFFICIALS

During this site visit a meeting was not held between the IEC and representatives from the Georgian Ministry of Environmental Protection and National Resources (MoE) and the Georgian International Oil Corporation (GIOC), as has been past practice.

4 TURKEY

The BTC Project in Turkey encompasses 1,074 km of pipeline extending from the Georgia - Turkey border in the Posof District to the Ceyhan Marine Terminal (CMT) on the Mediterranean Sea. From the Georgian border, the pipeline Right-of-Way (ROW) crosses the provinces of Ardahan, Kars, Erzurum, Erzincan, Gumushane, Sivas, Kayseri, Kahramanmaras, Osmaniye and Adana, terminating at Ceyhan. The BTC Project runs approximately parallel to the existing East Anatolian Natural Gas Pipeline (NGPL, completed in 2001) for about 30% of its length (approximately 330 km), between the cities of Erzurum and Sivas (Lot B). The BOTAS Gas Pipeline is parallel to the BTC pipeline at the Georgian border, where it connects to the South Caucasus Pipeline (SCP), but diverges until it terminates in Horasan. The BTC pipeline terminates at the Ceyhan Marine Terminal (CMT), which includes a 2.6 km long jetty and offshore loading facility, seven one-million barrel storage tanks, a central control building, housing compounds and administration, and a fiscal metering system.

Linefill of the BTC pipeline with oil began from the Sangachal Terminal near Baku on May 18, 2005, and crossed the Georgian Turkish border on November 18, 2005. Oil reached the Ceyhan Marine Terminal (CMT) on 28th May 2006. The first shipment of oil sailed from Ceyhan on June 4, 2006.

With linefill, the transition from construction to operations was initiated. BOTAS assumed responsibility for the operation of the pipeline until Provisional Acceptance (PAC) on 28th July 2006. From 29th July 2006 onwards, BOTAS International Ltd (BIL), the Designated Operator of the BTC pipeline in Turkey, assumed responsibility with BTC continuing to maintain an overall assurance role.

The September 2011 audit in Turkey consisted of a site visit to selected sections of the pipeline right-of-way (ROW), site visits to Pump Stations PT2 and PT3, and a visit to the Ceyhan Marine Terminal. The field visits were complemented by a review of documentation pertaining to project environmental, social and health and safety management as provided to IEC by BIL and BTC.

The 2011 audit in Turkey has confirmed that the project has reached the stage where the construction-related issues are effectively complete. The shift to the appropriate routine pipeline operations and maintenance phase also means that a different scope of work for certain activities, such as those of the Public Community Relation (PCR) team, needs to be re-defined.

Specific comments relating to the data are provided in each of the relevant sections that follow.

4.1 PROJECT STATUS

BTC provided the following summary of project status, relative to IEC's scope of work, as of September 2011.

- provisional acceptance was signed on July 29, 2006 for BIL to be the designated Operator of the BTC pipeline in Turkey, with BTC assuming an assurance role. The warranty period terminated on July 29, 2007;

- according to BTC, the outstanding items (LSTKA legacy) include three warranty items (one off-ROW and two Construction Camps); and
- BTCX 1.2 expansion completed in Q1 2009. Drag Reducing Agent (DRA) tests completed and ready for operations, although injection of DRA still has not been required as the pipeline is operated within its design capacity.

4.2 ENVIRONMENTAL AND SOCIAL MANAGEMENT ORGANIZATION AND RESOURCES

4.2.1 Observations

At the time of the construction phase, a turnkey contract was maintained between BTC and BOTAŞ, who subsequently awarded EPC contractors the construction work in each of the three Lots, the Pump Stations, and at the CMT. Now that the project fully entered the operational phase and the remaining issues associated with construction legacy are now resolved, BTC maintains an assurance and support role over BIL in fulfillment of Operations ESAP commitments in Turkey.

Although E&S performances continues to improve and BIL continues to properly implement maintenance and management procedures to ensure pipeline ROW integrity in a proactive manner, IEC noted a situation related to the overall management organization of BIL/BTC with the potential for adverse environmental consequences developed as consequence of action or lack of action undertaken by BIL/BTC. This specifically relates to oil spill response.

Under the terms of the Operating Agreement, the provision of adequate oil spill response capability to BTC operations in Turkey is the responsibility of BIL, which has until recently met this responsibility by subcontracting oil spill response services to a specialist response organization, SESMEKE (a Seacor Environmental Services and MEKE Marine Environmental Services joint venture). During the 2011 audit BTC and BIL reported to the IEC Team that this summer BIL made the decision to train their own personnel in oil spill response management, to manage oil spill response activities in-house and therefore not to extend the contract with SESMEKE, probably as part of the company strategy undertaken for containing operational costs.

Although the BIL's decision does not breach any of the ESAP requirements, it appeared immediately clear that the sudden termination of SESMEKE contract might have high risk consequences should an oil spill incident occur before the BIL oil spill response capacity is proven to be fully operational and adequately tested. The IEC Team was also informed that after BIL made their decision, BTC took steps to ensure the adequacy and continuity of oil spill response capability in Turkey by mobilizing the Seacor staff and equipment from Georgia to be on standby on site in Turkey when BTC carries out any project activities such as pipeline repair. In the meantime, BTC is also working with Seacor to maintain the SESMEKE oil spill response services in Turkey through a direct contract between BTC and Seacor. This solution will provide BTC with identical or similar services to those previously provided to BIL and consistent with those required by the BTC Turkey Oil Spill Response Plan.

The IEC Team discussed with BIL and BTC this awkward situation and recommended that an audit by Polaris to be conducted as soon as possible to verify the BIL response capacity

effectiveness. At the time when this report was written BTC provided information to indicate that for assurance purposes an internal review of BIL's oil spill response capability was already underway by a BP oil spill response expert to assess their actual response capability.

BTC

As per the 2010 re-organization, BTC ENV has a functional reporting line in place where the Compliance & Environmental Team Leaders of each country (Azerbaijan, Georgia and Turkey) directly report to the Exports Compliance and Environmental Manager, who, in turn, reports to the Regulatory Compliance and Environmental Manager.

In Turkey, the Compliance & Environmental Team Leader coordinates the Environmental Coordinator at Facilities, the Environmental Coordinator for the ROW and Marine Operations and the Environmental Investments Programme Coordinator.

BIL

The restructuring of BIL organization announced during the 2010 audit is still underway. As of September 2011, the BIL Health Safety and Environment organization has a Health, Safety and Environment Director reporting directly to the BIL President.

The Health, Safety and Environment Director coordinates five managers:

- Health and Safety Mgr.;
- Environmental Mgr.;
- Transport Mgr.;
- IMS Mgr.;
- the new position of Training & Development Mgr.; plus
- the Public & Community Relations Chief; and
- the Media Relations Chief.

Environment Department

The environmental manager reports to the HSE Director, and oversees the following:

- an Environmental Engineer and two Environmental Inspectors (one position vacant), at the CMT;
- an Environmental Pipeline (P/L) Engineer and eight P/L HSE Engineers (one position vacant at each of PT2 and PT4); vacancies covered by shift rotation of HSE Engineers from other PTs;
- an Environmental Engineer (Environmental Management System - EMS), an EMS inspector (vacant) and a compliance inspector;
- Cinar and Dokay consultancy company (environmental monitoring).

As of September 2011, BIL reports that recruitment of personnel to cover the vacant positions is underway.

Public and Community Relations (PCR) Team

Since the 2010 visit, the Public and Community Relations Team changed its internal organization and a new PCR Chief has been appointed. As of September 2011, the PCR Chief reports to the HSE Director and leads ten PCR experts (PCRE) - two PCRE for Area 1: km 0-164 and PT-1, one PCRE for Area 2: km 164-373 and PT2, one PCRS for Area 3: km 373-575 and PT3, one PCRE for Area 4 (km 575-767) and PT4, one PCRS for Area 5 (km 767-1004), two PCRE for Area 6: km 1004 -1076 and CMT.

As already observed since 2009, not all the PCRE positions are covered, as BIL does not have fully complete PCR coverage on a back-to-back rotational basis for Area 3 (IPT1 and PT3) and Area 4 (PT4). When necessary, the vacant positions at PT3 and PT4 are presently covered on call by the Area 2 and CMT PCREs, respectively, both of them working on a full time basis (please refer to Section 4.10 for further details).

Pipeline Technical Management

As of September 2011, the BIL Technical Management Team consists of a Pipeline Technical Manager and the Reinstatement Chief Engineer overseeing the Reinstatement Supervisor, the Land Supervisor and the Reinstatement Expert and six ROW patrol teams for six pipeline zones. The sixth zone, from KP 1001.375 to the CMT developed as a separate area where dedicated patrol teams monitor the last 74 km of the pipeline in Turkey to monitor the geo-hazards (landslides, subsidence, erosion, vegetation coverage, follow up the third party activities on and in vicinity of the RoW, etc.). In addition to the ROW team, a GIS Supervisor reports to the Pipeline Technical Manager and oversees three GIS engineers.

4.2.2 E&S Management Organization and Resources - Recommendations

1. Notwithstanding that IEC recognizes that BIL made unilaterally decision not to extend the contract with SESMEKE for the oil spill response services and that BTC took immediate steps to ensure the adequacy and continuity of oil spill response capability in Turkey, IEC considers this issue as a risk for the pipeline should an incidental oil spill occur in Turkey until same level services to those provided by SESMEKE will be re-established again in Turkey. It is therefore recommended that Polaris conduct a complete audit of the existing oil spill response capacity in Turkey and that necessary corrective actions will immediately be taken.
2. The BIL Environment and PCR teams are fully operational but still limited by a number of key vacancies. In particular, the two environmental inspector positions (at CMT and EMS), the two pipeline HSE engineers (at PT2 and PT4) and PCRE positions at PT3 and PT4 have remained still open. Although IEC understands BIL has encountered difficulties for recruiting adequate and prepared environmental engineers and social experts, it is recommended that BIL take immediate steps to fill those positions.
3. IEC observed that PCR organization is responding to a new scope of work more oriented to improve community awareness against ROW violations and to regulate third parties crossings, rather than dealing mainly with community construction-related complaints, restoration and compensation issues, nearly all of which are closed. Although the Level 1 non-compliance is rescinded, the IEC recommends that adequate PCR staff resources be maintained and new positions covered in a short time frame. It is still necessary to make sure that an effective grievance mechanism is still in place and the links established with the local communities are properly maintained even though the workload for the PCRE teams is now mainly community awareness programs and activities related to third party crossings.

4.2.3 Recommendation

1. Although the Level 1 non-compliance has been rescinded, the issue of CLO staffing still remains. The fact that there are numerous land use violations along the ROW indicates that the community awareness programs need to be stepped up.

4.3 ENVIRONMENTAL TRACKING AND PERFORMANCE

4.3.1 Observations

BIL received ISO 14001 certification in May 2008 and continues to implement procedures in the BIL Information Management System (BIMS) for tracking of environmental performance. Two surveillance audits were conducted in 2009 and 2010 and a re-certification audit was conducted in spring 2011.

The BSI ISO 14001 re-certification audit was conducted in March 2011 with the objective of re-assessing the existing certification to ensure that all elements of the proposed scope of registration and the entire requirements of the management standards are effectively addressed by the organization management system.

The re-certification audit identified 10 minor non conformities requiring attention; BSI required BIL a plan detailing non conformities causes, corrective actions, responsibilities and timescales allocated with a new verification visit is planned for September 2011. General observations are as noted:

- as part of routine internal auditing procedures, BTC and BIL conduct joint annual compliance audits which also serve as pre-IEC audit. In addition, BTC undertakes quarterly and ad-hoc site visits to all facilities. During these audits and visits non-compliances and recommendations resulting in corrective actions are identified and logged in the Operations Environmental Action Tracking Database;
- BIL's ultimate target is to obtain an Integrated Management System certification.
- BIL Information Management System (BIMS) portal is set up: implementation of Preventive and Corrective Action Request (PCAR) management system is accessible on BIMS.
- the Environmental Compliance Observation (ECO) CARD system was developed similar to the Behavior Observation Safety System (BOSS) program (see Section 4.13.1) and started to be used by ENV/HSE Engineers. The BIMS-based ECO-CARD action tracking system has been active since February 2010; new improvements implemented in 2011 require that the trial period be extended to 2012 to ensure that all the staff concerned are familiar with the revised version. In addition to the environmental action-tracking database, BIL also uses the STOP/SOC cards action tracker, also available on BIMS;
- the ECO-CARD system collates findings, observations and recommendations coming from the field. Data are stored into the system and made available to the site HSE Engineer and environmental issues are transmitted to the Environmental Supervisor for their consideration. The HSE Engineer or the Environmental Engineer can then initiate by e-mail the response action to be adopted through the action tracking system;
- as of September 2011, IEC was informed that 45 ECO-CARD were entered at CMT of which 31 are still open and 131 were entered at PT3, 18 of which open.

4.3.2 Environmental Aspects and Impacts Register – Recommendation

1. The implementation of the ECO-CARD system represents a step forward in achieving an effective operations management. IEC encourages additional effort be made to improve the action tracking system to make it fully effective and accessible to all BTC and BIL operating sectors.

4.4 CONSTRUCTION CAMPS, INFRASTRUCTURE AND SERVICES

4.4.1 Construction Camps – Current Conditions

Signoff closure reports for the following ten camps were prepared together with BP remediation actions: Andirin, Azizli, Cadirkaya, Illica, Koprukoy, Kova, Koyunkaya, Orensehir, Sivritepe and Yesilkent. BTC reported IEC that remaining two camp sites Kars and Hanak, handed over to Kars and Ardahan local municipalities, were not signed off yet due to the liability issues transferred to the local governments. BTC tracks with BOTAŞ the current and potential future use of these camps and correspondence is still ongoing between BOTAŞ and BTC Co.

In July 2010, IEC was informed that an MoC regarding the ongoing operation of construction camps at fixed facilities would be maintained as open until at least 2011 to reflect future uncertainties regarding the camp sites. In particular, BIL/BTC were evaluating whether or not to convert campsite and PT sites rental agreements into land acquisitions. IEC was informed that BTC has made funds available for this purpose. As of September 2011, no progress on the issue has been recorded.

4.4.2 Construction Camps – Recommendation

1. Concerning PTs camp sites rental agreements, IEC recommends that BTC to make the final decision as to whether to define an additional modification to the MOC to consider the possible conversion of PT sites rental agreements into land acquisitions, as communicated in 2010.

4.5 WASTE MANAGEMENT

4.5.1 Non-Hazardous and Hazardous Waste – Observations

In September 2011, IEC visited the Central Waste Accumulation Areas (CWAAs) at PT3 and PT2. Several observations were noted as part of site visits and from general discussions on waste management issues.

The new CMT Operations CWAA, completed in March 2008, become fully operational in 2010. Construction of permanent CWAA's at each Pump Station to fulfill ESAP requirements and included in the Waste Management Plan (WMP) have started only at PT1 (engineering work ongoing). Actions are expected for the other PTs as well. A scope of work for provision of CWAAs at all PTs has been developed and will be implemented through a phase approach. As the IEC observed in 2010, although BTC believes that there are no immediate compliance issues with the current state of the temporary CWAAs located in the construction camps, construction or enhancement works need to be identified and prioritized based on their current condition.

Hazardous wastes are transported by a licensed company and disposed of at BTC approved İzaydaş facilities. Since late 2010, non-hazardous wastes have been disposed at the Antakya Landfill instead of the İzaydaş facility, after a comprehensive review process to verify its acceptability with ESAP commitments. On-site and off-site waste transport contracts are fully in place and BIL provide specific training to on-site waste handling and transport contractors.

IEC was informed that the Best Practicable Environmental Option (BPEO) study for the review of solid wastes management expected to end by Q3 2010 is still ongoing. The BPEO study is expected to consider the use of alternative waste facilities, including those recently coming into operation in Turkey to reduce transportation of wastes over long distances with associated traffic risks, emissions of pollutants and GHG, overall transport costs etc. In 2010, the study identified five municipal landfills and four cement factories as potential disposal facilities for domestic waste and hazardous waste. Two potential municipal landfill sites, Erzurum and Antakya (already a Regional Development Initiative – RDI - Project of the BTC CSR Team) were then selected. As of September 2011, Erzurum landfill site was not fully compliant with EU Directives, but BTC expects that operation of this site may become compliant with some technical support and/or compliance gaps absorbed through a BPEO review. BTC is currently evaluating two hazardous waste incineration facilities (cement factories in Mersin and Kayseri) against EU emission standards. A final report with test results from collected data is expected to be finalized soon.

At the time of the 2010 field visit, hazardous and non-hazardous materials left from the construction phase, including unused hazardous chemicals and construction material from BOTAŞ, were still present throughout PT1 and PT3 and stored into two hangars at the PT3 construction camp. IEC was informed that BIL had reached an agreement with BOTAŞ for inventorying/disposing/recycling construction phase materials and wastes. As of September 2011, BIL had completed the inventory of these materials. Some materials are recoverable or recyclable (paints, chemicals, technical equipment, etc.) to be donated to the local communities through specific procedures to be completed in the next months. The remaining materials are considered to be hazardous waste and beginning in October 2011 will be disposed at the İzaydaş landfill.

IEC reviewed the waste log register provided by BIL during this field visit. As observed during past visits, the information continues to be well recorded in terms of waste description, class of waste, volume collected, transport, disposal, destination and receipt notification. As observed in 2010, IEC also notes that there are still some entries where the receipt notification has not been received or is in progress, including some hazardous wastes going to İzaydaş (records of oil filters, contaminated material, oily soil, and medical waste) from PT2 and CMT. Although IEC was informed that follow-up does take place in the case of non-receipt of shipping manifests, it is important to pass a reminder that confirmation that receipt notification needs to be done on a regular and routine basis.

4.5.2 Chemical Storage Facilities at Fixed Facilities

During the July 2010 visit, the IEC was informed that the punch list items were resolved and all the chemical storage areas at CMT, PTs and IPTs were operational. As of September 2011, IEC noted that, although completed and ready to be used, handover of chemical storage areas at PTs was not completed.

4.5.3 Non-Hazardous and Hazardous Waste – Recommendations

1. Despite observations of good operating standards at construction camp CWAA's during audits, IEC notes that only the CWAA at PT1 is currently in progress while no work schedule for constructing permanent CWAA's at the other fixed facilities has been established. IEC recommends that BIL/BTC speed up the process of developing work scopes and related plans for the construction of the new CWAA's in replacement of those currently in use.
2. IEC recommends that remaining BPEO studies for optimizing hazardous waste disposal and for the identifying sustainable options for the recycling and re-use of wastes be completed by the time of the 2012 audit. BPEO study results and construction of new CWAA's at fixed facilities should be included in the Waste Management Plan review.

4.5.4 Wastewater Management – Observations

As of September 2011, IEC observed that the wide review of all waste water treatment (WWT) systems that started in 2007 is now almost complete, but the actual implementation of these necessary improvements works progressing slowly, as only some of the upgrades have been completed so far. Upgrading consists of a combination of building new WWTPs, improving the existing oily water separators (OWSs), improving the Storm Water ponds (SWPs) and the Primary Withholding Ponds (PWHPs) and reviewing all connection pipes systems by adding valves that allow for diverting the different flows in case of plant failures or overflows. The following represents the status of the wastewater management systems.

Waste Water Treatment Plant (WWTP)

WWTP at CMT was previously upgraded and no issues were noted. After treatment, the effluent is discharged to the nearby storm water pond or sent to the OSKİ Municipality WWTP if non-compliant.

New WWTP facilities at PT1 and PT3 replacing the existing ones, (in any case still maintained in operation) have been generally operational since July and September 2010, respectively and discharges are compliant with ESAP standards. The new plant packages include first and secondary sedimentation tanks, first and secondary Rotating Biological Contactors (RBC) units, sand filters and chlorination units. In addition to the technical features of the plants that represent the state of the art for treatment technology, one of the main operational improvements observed was the installation of a valve system at the outlet that allows for diverting the outflow to the SWP, to recycle through the existing WWTP, or direct to the environment (creek or seepage shaft) when compliant.

At PT3 WWTP, it was noted that discharges were not compliant for the presence of coliform bacteria, probably due to insufficient chlorination of effluents. BTC reports that monthly analyses of PT3 discharges are conducted by an external contractor in Erzurum and lab results are made available one week after discharge sampling. This implies that in certain circumstances, potential non-compliance can be discovered only after 5 weeks from first discharge.

Regarding facilities at PT2 and PT4, the Project reported IEC that these will be not replaced (as in PT1 and PT3), as acceptable discharges standards are planned to be achieved by implementation of several improvements of existing WWTPs equipment provided in a scope of work currently under BTC approval. No work schedule is available for these works. Improvements will relate to the following: new access and installation of a new submersible

mixer pump in the buffer tank mixing system, new buffer tank feed pumps, primary and final settlement tank improvements, RBC interconnecting piping, chlorine dosing sampling point and a sand filter.

Kitchen grease trap will be provided at all the PTs camp sites outlets.

Storm Water Pond (SWP) and Primary Withholding Pond (PWHP)

As of September 2011 visit, some of the improvements at SWPs and PWHPs of all the PTs were completed. Enhancement works include fencing of ponds, realization of new access and sampling points. Further enhancement of SWPs and SWHP include:

- installation of submersible pumps at the pond's lowest point at PTs to fully empty the pond when the SWP analyses results meet the project limits are in the scope of work for 2012;
- MoC for construction of WWTP bypasses at CMT, PT2 and PT4 was raised and funds provided by BTC. BIL is currently carrying out the engineering work. WWTPs final effluent pipes will be equipped with bypass piping and all necessary valves to enable the bypass between the WWTP and the SWP/WWTP to the discharge point when WWTPs discharges are compliant;
- at all Pump Stations the PWHPs receive OWS effluents that are then sent to SWP; valves between the PWHP and the SWP will be installed to avoid SWP contamination in case of oil spill or PWHP non-compliance in general;
- at the CMT SWP, similar to the SWPs at PTs, a submersible pump inside the lowest point of the SWP to be able to empty the pond fully when the SWP analysis results meet the project limits will be installed; at the CMT SWP and PWHP safety barriers around the perimeter of the SWP final effluent pipes will be equipped with bypass piping and all necessary valves to enable the bypass between the WWTP and the SWP/WWTP to the discharge point when WWTPs discharges are compliant.

A new leak from the bottom of PWHP at PT3 has been identified. Leakage was first detected during construction time and then repaired, but the leak has reappeared. BTC/BIL expects that replacement of the HDPE geo-membrane underlying the geo-textile protective cover will be necessary to resolve the leakage.

4.5.5 Oily Water Separator Performance - Observations

A third party review of OWS performance across all fixed facilities in Turkey was completed in 2008. A number of improvements were recommended for each facility including: facilitate the access to OWS, increase the amount of oil removed from the OWS, install a valve on the by-pass line between OWS and the primary withholding pond, install block valve before the storm water pond. As of September 2011, IEC was informed that BTC had requested BIL to provide their cost and work schedule for the proposed improvements through and MOC. The OWS improvements are expected to include the following:

- OWS at all Pump Stations and IPT2 will have improved access (including a ladder and a platform inside) and a lighter cover to enable easier access for cleaning operations; a safety system that enables oil to be pumped to the slop tank or to barrels through a filtering system and a valve on the bypass line from the OWS to PWHP will be installed;

- IPT1 and IPT2 Pig Receiving Stations and Pressure Reduction (at IPT1 only) will be provided with a system that enables oil to be pumped to the slop tank or to barrels through a filtering system.

OWSs 1, 2, 3 and 5 at CMT will be also provided with improved access (possibly including a ladder and a platform inside); the installation of a system that enables oil to be pumped to barrels for the OWSs 1, 2, 3 and 5 is under consideration.

4.5.6 Wastewater Management – Recommendations

1. A quicker response method, like the use of field analysis kits to react to anomalous concentrations of coliforms should be implemented to monitor WWTP effluent. This would prevent the long term discharge of non-compliant effluent but, more importantly, it would also allow a much prompter activation of necessary corrective actions.
2. It is recommended that repair works of the PWHP at PT3, including replacement of the damaged HDPE geo-membrane underlying the geo-textile coverage be carried out as soon as possible. At the same time, an ad hoc monitoring of groundwater is also recommended.
3. The process of enhancing the performances of the WWTPs at PT2 and PT4 facilities as well as the implementation of the upgrade for SWPs, PWHPs and OWSs at all fixed facilities is progressing quite slowly as a consequence of long time taken for preparing an MOC and the associated approval process. It is recommended that BIL and BTC take their own responsibility in order to speed up the implementation of the upgrading to be able to close this long-standing issue.
4. Now that the issues associated to the OWS have been identified and a site-specific action plan has been developed, IEC recommends that BTC and BIL implement the actions to finally solve these issues, particularly those relating to consistency of maintenance operations across all fixed facilities.

4.6 POLLUTION PREVENTION AND ENVIRONMENTAL MONITORING

4.6.1 Observations

Since June 2006, the Project has adopted a pollution prevention plan aimed at systematically identifying potential impacts from operations activities and implementing avoidance and mitigation measures to minimize potential adverse effects on the environment. The mitigation measures are aimed at preventing oil/chemicals spills and their management, monitoring air emissions, maintaining track of waste production and disposal at each facility, and protecting surface water and groundwater.

The Operations Environmental Action Tracker continues to be maintained and includes the records of environmental incidents and spills incurred, including their location, size information, clean-up actions undertaken, priority, the Preventive and Corrective Action Requests (PCAR), audit/inspection actions, MOCs and a list of enhancement actions.

Oil Spill

Project reported that no contained spills greater than 1 bbl occurred in the 2010 reporting period while there were 2 uncontained spills: one of estimated 0.06 bbl crude oil (PT2 – October 2010) and an estimated 44 bbl crude oil (ROW – December 2010) due to illegal taps

into the pipeline. The oil contaminated areas were cleaned up and approximately 65 tons of contaminated soil sent for disposal to the Izaydaş facility. Soil sampling was conducted during and after cleanup activities while no groundwater monitoring was conducted. IEC was informed that BIL is now capable of discovering illegal tap locations in a short time frame, although oil spills are still frequent in Area 6 (KP 1004 to KP1076). Accordingly, patrol teams in this area have been reinforced.

Concerning the oil spill response strategy (OSR) throughout Turkey after BIL rescinded the OSR contract service with SESMEKE, described in Section 4.2.1, it is important to note that BTC has ensured the adequacy and continuity of OSR capability in the country by extending the call off contract with Seacor until the end of 2012. This contract allows Seacor to provide staff and equipment on site in Turkey to support Project operations there. The next BTC priority is to put in place a short term contract with Seacor whereby they will retain as many staff as possible from the previous SESMEKE contract and have them return to work at the four SESMEKE bases. This interim arrangement is intended to allow the best possible OSR coverage to be provided until a long term contract with Seacor for the provision of full OSR services can be put in place. Information provided during the preparation of this report is that BTC Co has finalized a contract with Seacor, who have reactivated the four spill response bases and have employed over 50 experienced response staff. These are available on a full-time basis to respond to any incident in Turkey.

With reference to the ongoing Operations phase, Dokay and Çınar continues to be in charge of conducting all environmental monitoring activities at pipeline facilities as dictated by the Operations ESAP Environmental Emissions Monitoring Plan (EEMP) and Ecological Monitoring and Management Plan (EMMP).

Air Quality Monitoring and Stack Emissions

As reported in the 2010 BTC Annual Report, ambient air quality monitoring was undertaken at ten locations in and around the CMT on four occasions in 2010. The annual average values of parameters measured in 2010, are very close to or lower than the associated values of 2007, 2008 and 2009 as well as baseline values. Ambient air quality monitoring included NO_x, SO₂ and BTEX (benzene, toluene, ethylbenzene and xylene).

In June 2009 and in July 2010 IEC noted that BTEX in air was measured as a parameter at the CMT. IEC requested the project to clarify how BTEX levels are measured in accordance to a specific standard and the relevance of these measurements, given that standards exist for indoor exposure in workplaces, but not as air quality standards, except for benzene. On this issue, the ambient monitoring study review completed in 2010 specifies that annual average toluene, ethylbenzene, and xylene (TEX) concentrations are below the California EPA's Chronic Reference Exposure Level criteria. As of September 2011, IEC considers the issue still open as the finalities and the rationale behind the air quality monitoring criteria at the CMT are not sufficiently clear.

The review of the ambient monitoring results started in 2009 and was completed in 2010. The ambient monitoring study review (covering six years monitoring data) results indicate that:

- a. Ambient BTEX levels are increasing in the project area as more industrial sources are increasing their activity levels without implementing adequate control measures.
- b. Annual average toluene, ethylbenzene, and xylene concentrations are below the California EPA's Chronic Reference Exposure Level criteria.

- c. There are unusually high short-term (2-weekly) BTEX measurements which may be due to short-term air pollution episodes. These episodes may be due to short-term releases of pollutants under adverse meteorological conditions. There are no QC measurements/data available to prove or disprove that these high concentrations are due to erroneous measurements.
- d. However, by 2011 benzene levels may exceed the annual limits as the standards are made more stringent.

All annual average measurement results of parameters are in compliance with the Project-specific Standards and limit values set forth by the Turkish Regulation. Anomalously high results for benzene (up to 269 $\mu\text{g}/\text{m}^3$) were obtained for four sites in the autumn round of monitoring. Nevertheless, it was noted in the diffusion tube analysis report of these monitoring locations that benzene was co-eluted with another substance and therefore, the concentration could not be determined accurately. Also, these very high levels of benzene were not accompanied by a corresponding increase in other BTEX levels as would be expected and elevated levels of benzene were not detected in nearby monitoring stations. BTC therefore concluded that these were due to erroneous readings.

Flue gas emissions originating from the gas fired reciprocating engines, water heaters, diesel fired generators were reported in compliance at all PTs, CMT and IPT1 during 2010; in addition, one round of monitoring consistent with the Regulation on Control of Air Pollution Originated from Heating (RCAPOH) was realized in 2010 by BIL.

In June 2009 IEC requested BTC/BIL to provide additional information regarding VOC monitoring at the CMT and how VOC emissions will be compliant with project standards. The detailed VOC monitoring study has been completed but IEC was not provided with a copy of the study. BTC reported that study results confirmed that the mass flow rate of emissions was below the regulatory threshold such that installation of a Continuous Emission Monitoring was not required and that VOC emissions at the ground flare are non-detectable and below the limits given in the national regulation.

Emissions results from a total of 36 stacks monitored in 2010 show compliance at all facilities except for the CMT camp site heater soot. Maintenance of the heater was done by BIL Maintenance Department.

As of September 2011, BTC reported that a new regulatory system to combine all types of emission permits in a unique authorization was enforced in Turkey (transposed from IPPC EU Directive). Application has been submitted. The Ministry of Environment and Urban Planning (MoEUP) has granted a temporary permit to at PTs and IPTs until the final authorization is issued.

Noise

Internal workspace noise monitoring measurements were completed over 2009 at all Project facilities to assess workers exposure did not identify major risk for exposed operators. No ambient monitoring was conducted at off-site residential receptors in 2010.

Groundwater Monitoring

In June 2008, IEC was informed that BIL was planning to monitor groundwater at the CMT by September 2008. According to the 2008 BTC Annual Report a full groundwater and surface water monitoring was under development and scheduled to commence in 2009. According to the 2009 annual report, the monitoring for operations has been developed by BIL but its implementation has been postponed to 2010. As of September 2011, IEC was informed that groundwater monitoring began in May 2011 and monitoring reports were under review. Objectives of monitoring are as follows: monitor the impacts of groundwater abstraction from the wells, the potential for groundwater contamination from BTC facilities operations, and saline intrusion at the CMT.

Management of Contaminated Soil

Current final disposal options being considered are landfilling at Izaydaş or incineration at a closer incineration facility licensed by MoEUP. IEC was informed that activities at the CMT soil remediation site, mainly consisting in mechanical aeration of the soil to continue enhancing natural biodegradation, are very limited. Soil after treatment can be classified as inert material but a final disposal method for this material has not yet been defined.

Treatment of Slops at the CMT

In 2007, IEC approved a MoC in which BTC proposed to build a reception facility at the CMT for the treatment of slops from tankers and the consequent discharge to sea of the treated effluent. Since that time, BTC reconsidered as to whether such a treatment facility is necessary, given that of the over 700 vessels loaded at the CMT, none has yet requested to discharge slops. In 2009, BTC submitted to Turkish Government a MARPOL compliance strategy and in 2010 a response from Turkish authorities indicated some data gaps in the documentation provided and asked for a contingency plan to include oily slops as potential sources of contamination.

In May 2011, BTC/BIL incurred in a fine by the MoEUP for the failure of building the marine slops treatment facilities at CMT. The construction of a 500,000 cubic meters capacity treatment plant was a MARPOL 73/78 Convention and also an Environment Law No 2872 requirement to handle the anticipated marine slops, mixtures of residual fuel oils and water produced by the fuel handling systems employed on the large ocean tankers, once they approached the Ceyhan marine terminal. As alternative to the construction of the treatment facilities, the Ministry of environment asked that a protocol of understanding be defined with BOTAŞ for using their existing facility at the nearby marine terminal. As BTC/BIL failed to come up to an agreement with BOTAŞ, neither of the two solutions have so far been adopted, so the MoEUP issued a first fine to BIL, for non-compliance with the national law, with the effect that after a second fine, the ministry has the right to stop operations at CMT.

As a consequence of the action taken by the MoEUP to fine BIL, IEC Team consider the non-compliance with a Government requirement as a non-compliance with ESAP commitments and therefore a Level 2 non-compliance is assigned to this issue. It is considered a serious non-compliance, because the lack of resolution (previously identified in IEC reports) gives the MoEUP the possibility (albeit highly unlikely) of shutting down the CMT, which obviously be a serious consequence to the Project.

As of September 2011, the Project reported their decision to construct an onshore facility with storage capacity and new treatment plants, the design of which was currently underway.

4.6.2 Pollution Prevention and Environmental Monitoring – Recommendations

1. Inconsistent air quality data for benzene and other BTEX compounds were monitored in 2010-2011 measurement campaigns at the CMT. Air quality monitoring data review study indicates that ambient BTEX levels are increasing in the project area and anticipates that 2011 benzene levels may exceed the annual limits, a fact which has been in reality observed from 2011 quarterly measurements. BTC explains high concentrations of benzene as a consequence of incorrect data, but there is no evidence available to prove or disprove that these high concentrations are due to erroneous measurements. IEC recommends that the Project reconsiders air quality monitoring finalities at CMT, in particular with references to the toluene, ethylbenzene and xylene parameters. Regular indoor monitoring of BTEX for workers' exposure is also recommended.
2. During the June 2009 audit IEC requested that BTC clarify the site-specific groundwater monitoring procedures planned at each facility such that these procedures would be consistent with BP standards at other fixed facilities similar to those of the BTC project. In response, only in 2011 did BIL start a groundwater and surface water monitoring at Turkish AGI locations. At the time of 2011 visit IEC was informed that monitoring results were not available. The issue is therefore considered to be still open.

4.7 BVT 30 INCIDENT

On the night of August 6, 2008 an explosion at BVT30 site resulted in a fire and the burning of about 5,000 m³ of crude oil and the release of further 940 m³ of oil on to the surrounding land. In 2010, soil remediation and reinstatement works were carried out. As of September 2011, IEC visited the site that has been completely restored. No contamination of soil and groundwater has been reported. IEC consider the BVT30 incident issue closed.

4.8 ROW MANAGEMENT, EROSION CONTROL, REINSTATEMENT AND BIORESTORATION

4.8.1 Erosion Control, Reinstatement and Biorestoration - Observations

ROW Management and Reinstatement Progress

IEC considers that reinstatement of the pipeline has reached the stage where the process is now effectively maintenance checks and reacting as appropriate and this is being done. Notwithstanding the continuous improvements observed also during the September 2011 visit, actions are still needed to achieve permanent reinstatement and biorestoration conditions, monitor and maintain effective erosion control and make sure re-vegetation success continue to be required at some specific locations, such as KPs 983 and 362 and in general along all the ROW where necessary.

IEC noted that recent laying of a fiber optic cable along the BOTAŞ pipeline to BTC has in certain areas damaged the BTC ROW vegetative cover, slope breaks or other erosion control works. The BIL ROW management team has promptly reinstated the pre-existing erosion control measures and is monitoring the natural vegetative cover reinstatement. Intervention is required to reinstate vegetative cover where damaged.

As observed at the time of the field visit, in certain areas along the ROW, such as at KP 1021 and KP 983, vegetative cover has been damaged by wheels tracks. Although it seems not to

be regularly used, driving on the ROW is a potential ESAP non-compliance. IEC understood that the ROW management team was not aware of this situation. This is a subject that will be reviewed in greater detail during the next IEC visit.

Since 2007, ROW maintenance has been conducted by BIL. BTC has taken action only for some corrective actions related to construction legacy issues. BTC and BIL continue to work together on the ROW maintenance and the management system appears to be coordinated satisfactorily. BIL has clear roles and responsibilities in the ROW management through its Pipeline Technical Management Department. As of January 1st 2010, an integrated GIS-based ROW management system has been implemented and regularly updated. As an additional aspect of construction legacy items, soil fertilization took place in 2010-2011 to improve the texture and fertility of the top soils along the pipeline in Ecologically Sensitive Areas (ESAs) that have remained stripped over an extended period of time.

As a result of an extensive geohazard maintenance carried out throughout 2009, 2010 and 2011, the portions of the ROW affected by critical erosive or landslide phenomena, especially in Lot C between KPs 1007 and 1018, are now under control and the most serious ROW terrain stability problems have been addressed. In terms of risk prevention and geohazard, each of the critical areas identified is strictly monitored by BIL. In addition, the BTC satellite imagery analysis tool is still being used, although primarily for biorestitution-related issues (vegetation) and long-term erosion risk control.

As the post-construction ROW reinstatement phase is nearly completed, BTC/BIL are adequately adapting the ROW management organization toward an appropriate ROW maintenance phase. As of September 2011, pipeline technical management covers four main areas: pipeline patrolling activities, ROW repair and maintenance activities, third party crossings, and GIS.

BIL ROW Patrolling

Pipeline sections in Turkish are divided into 6 zones; the sixth zone, ranging from KP 1001+375 to CMT, was added after the 2010 field visit, to adequately respond to recurrent illegal hot taps occurring in this zone (17 out of 26 illegal acts). In zone 6, patrolling is maintained for 12 months per year, as this section is always free of snow and the patrolling team monitoring frequency is three days per week. Routine ROW patrolling activities in the other five zones cover the entire pipeline corridor every 2 weeks. Regular patrolling on the pipeline section between KP 0 and KP 1001+375 is carried out seven months/year (approximately from April 15th to November 15th because of snow cover in the north during the winter months) and each zone is patrolled by two ROW patrol teams covering approximately 10-15 km/day per team on a continual basis with the goal of surveying 20 to 30 km/day.

In addition to the routine daily patrolling, embankments of all ROW rivers and irrigation channel crossings are checked in detail annually 100 meters upstream and downstream. Additional Patrol reports include Road Crossing Reports, Pipeline Route Condition Reports and CP Potential Measurement Reports (differential measures of CP test posts). The reports are supplemented with adequate photo documentation.

Patrol team organization, logistics and coordination are regulated with the Right of Way Patrolling Working Instruction, document No: BIL-WIN-PLT-GEN-001 Rev. 001 which became effective June 10, 2011. The patrol team tracking system is currently being tested in

the CMT zone. If the system is found to be effective, its use will be extended to all patrol teams.

ROW Repair and Maintenance

BIL ROW patrol teams have improved their capacity to recognize potential problems. Reporting to supervisors is done on a systematic basis through daily reports with relevant information loaded in a timely manner onto the GIS database. The system is accessible at any time. All geohazard findings reported by pipeline patrols are evaluated and prioritized from high to low risk and related actions defined.

All minor findings reported by the patrolling teams are evaluated in the field by the reinstatement chief engineer and/or supervisor. Normally, the problem is fixed with local manpower, hand tools and light vehicles like tractors and pick-up trucks. An external contractor started minor repair works in June 2011 from Georgian border to downstream along the pipeline. As of September 2011, minor geohazard repair works were completed from KP 0 to KP 375 with the target to complete the repair works on the entire pipeline by the end of 2011.

Major repair works are evaluated by BTC pipeline integrity management. In the scope of the repair contract awarded in 2010, five landslide locations and 14 river crossings were repaired in 2010 and 2011.

The review of BIL Geohazard Monitoring Procedure (Document: BIL-PRO-PLT-GEN-002 Rev. 000 of February 2010) became effective the 14 June 2011. In this document, BIL establishes the process and responsibilities to actively manage the pipeline geohazard risks, remedial actions and monitoring activities through a coordinated GIS-based system.

Third Party Crossing

Pipeline third party crossing (telecommunication cables, power transmission lines, water pipes and aqueducts, irrigation channels, roads, railroads, etc.) is becoming an important issue for the ROW management as the number of crossing applications has progressively increased to the point that BIL and BTC pipeline technical management had to activate a specific approval procedure. IEC was informed that as of September 2011, most of the 164 pipeline crossings procedures were completed. Management of third party crossings includes several steps: third party application, BIL site visit for field investigation, BIL Land Supervisor detailed crossing design, BTC approval and crossing works carried out under BIL supervision.

BIL is currently testing an automated E-TPC electronic approval system able to reduce the overall approval process time by 50%.

Crossing of ROW by Third Party Procedure (Document BIL No. BIL-PRO-PPO-GEN-002 Rev.000) has been effective since the 5 April 2011.

Geographical Information System

In 2009, the GIS was re-generated and improved and continues to function well.

4.8.2 Erosion Control, Reinstatement and Biorestitution – Recommendations

1. Wheels tracks along the ROW were noted during the September 2011 field visit with no apparent justification. Given that there was no clear understanding of who is using the

ROW for driving, IEC recommend BIL patrol teams to carefully monitor and report potential violations of the ROW.

2. As of September 2011, IEC confirms the positive trend already noticed in 2010 on the progress made toward implementing a Preventive Corrective Action Request management system accessible on BIMS and the enforcement of the ECO-CARD action tracking system. As the ROW Register is intended to provide the most comprehensive and effective ROW management tool, it is recommended that environmental data entry into the BIMS be regularly maintained to ensure that monitoring data is updated on a current and consistent basis.
3. Major erosion and landslides were effectively addressed with the 2010-2011 major repair works contract and specific monitoring of high risk landslide area has been undertaken. In order to prevent further potential geohazard, IEC reiterates the recommendation made in 2010 for BIL and BTC to define a monitoring strategy to classify the whole ROW on the basis of the landslide risk and erosion risk potential. The areas characterized by a higher risk will have to be considered for specific monitoring and action strategies. Such a classification should also be able to allow for the early identification and of landslide risk along the ROW.

4.8.3 Access Roads - Observations

In 2007, a Level II non-compliance (*Reinstatement CCP, Commitment ID: 2*) was raised with respect to final reinstatement of Project access roads. In response, BTC provided the Report BTC-REP-ESM-GEN-003 - Created Access Roads, Stockyards, Borrow Pits and Quarries dated 17 of December, 2007.

In 2008, IEC recognized the improvements resulting from the corrective actions undertaken and recommended that BIL and BTC prepare an Operational Access Road Strategy and Plan to coordinate procedures as to how access roads are to be used during the operations phase, and as a first step toward a final access roads reinstatement and closure strategy. In June 2009, the Operational Access Road Strategy and Plan was still not available; BTC reported IEC that out of the among 20 open access road issues, 16 had been closed. In July 2010, 19 of the 20 issues were closed. As of September 2011, all access roads issues are closed.

The Access Roads Register accounts for a grand total of 798 access roads of which 83 are the newly built access roads plus 682 that were upgraded and 28 accidentally opened. All pending reinstatements issues in the three lots are closed. Newly Built/Accidentally Opened access roads reported as not reinstated in the register have been kept permanently opened as result of separate agreements stipulated with villagers/land owners that requested this option. IEC has been informed that all these issues are closed. Specifically during the September 2011 visit BTC reported the following:

- no residual action for construction period access roads. Final Access Road Register was transferred to BIL for their use;
- BIL ROW Management Team initiated access road strategy study. Environmental Team will support the study;
- the Access Roads Procedure preparation procedure is ongoing (Document No. BIL-PRO-PLT-GEN-00X Rev.000); and

- BIL has prepared the scope for BVT permanent signage and community awareness. BIL action is expected to follow.

4.8.4 Access Roads – Recommendations

1. IEC still recommends that BTC and BIL define an operational access road strategy to properly manage any possible liability issue that may arise with villagers, landowners and local authorities that requested to keep open some of newly-built or accidentally-opened access roads.

4.9 ECOLOGICAL MANAGEMENT

4.9.1 Observations

During this September 2011 visit, IEC observed that biorestitution efforts along the ROW in Turkey are satisfactory. Significant improvements in the quality and in the extension of the reinstated vegetative cover have been noted. Poor topsoil settling and irregular or absent vegetative cover are still present in critical steep slopes along the ROW in areas such as at KP 373 where diversion channels and slope breaks to prevent erosion and topsoil flushing works have been reinstated in 2011. These areas are well known to the Project and are managed within their routine maintenance programs.

In July 2010, the Ecological Monitoring survey focused on vegetative cover monitoring only. According to survey results, the ROW is in a good state in general; in areas that have attained sub climatic and climatic vegetation, nature would have completely repaired the damage and restored the area to its original state.

In June 2010, BIL's Environmental Services Contractor carried out the Physical Monitoring Report. No significant problems in the ESAs were in general reported as well as for the majority of the 74 river crossings inspected where rip-rap deformations and erosion were observed in about 30% of cases. 273 slope locations were covered during the 2010 monitoring me. About 87% of the monitored slopes were found to be in a good state, while in 50% of the remaining slope locations, erosion was a prevailing concern.

An MoC for reforestation was raised in July 2009. As of July 2011, BTC reported that the reforestation in Sivas and Kahramanmaras was completed in 2009 while it is still ongoing in the Kars province. Completion is anticipated by October 2011.

The annual marine sediment survey was conducted in August 2010. The survey study, comprising both Marine Biota&Water Quality (Marine Ecology) Survey and Marine Sediment Survey did not find negative impacts related to BTC activities.

The Coastal Process Survey was completed in January 2010. According to study results the presence of BTC Jetty does not impact the natural coastal development pattern and the existing benthic and nektonic communities.

The annual marine turtle survey was conducted from June to September 2010. As in previous surveys, the survey was carried out at four beaches in the vicinity of CMT jetty. In 2010, a total of 104 *Chelonia mydas* (Green Turtle) nests and 1 *Caretta caretta* (Loggerhead Turtle) nest were observed in the study area. An overall hatchling success of 89% has been observed in the four beaches surveyed in 2010, the highest hatchling rate since 2007.

4.9.2 Recommendations

1. IEC reiterates our recommendation to intensify restoration and revegetation efforts in those habitats where natural conditions make the re-growth very slow or where third party works (e.g. optic fiber cable laying on the adjacent BOTAS pipeline, areas of third party crossings) deteriorated pre-existing good vegetative cover.

4.10 COMMUNITY LIAISON

4.10.1 Observations

In 2008, IEC noted a lack of staff resources and vehicles for Public and Community Relations (PCR) staff that restricted their effectiveness to operate in more remote areas. A Level 1 non-compliance was assessed for the failure of the BIL organization to adequately address these known resource shortages. In 2009, IEC observed that the PCR teams had improved their operational capabilities, although full-time PCRE presence was not provided in Area 3. In July 2010, IEC observed that vacant positions in PCR Dept. had increased from 2009, as the PCR Chief and three PCRE positions for pump stations (PT1, PT3, and PT4) were not covered. As of September 2011, IEC notes that notwithstanding that BIL has filled the PCR Chief position and the PCRE position at PT1, there is still no full PCR coverage on a back-to-back rotation basis for Area 3 (IPT1 and PT3) and Area 4 (PT4) is still vacant. BIL reports that, when necessary, the vacant positions at PT3 and PT4 are covered on an as-needed basis by the Area 2 and CMT PCREs, respectively, both of whom work on full time basis. It is also understood that the PCR reorganization expected to be completed in 2010 is still ongoing, so the situation could still change.

In 2010, a Level 1 non-compliance was assigned due to lack of adequate PCR staffing to manage community grievances. Although PCR staffing is basically the same as in July 2010, this non-compliance has been revisited on the basis that grievance management is no longer the main function of the PCR staff. The construction-related grievances associated with land, compensation, etc. have been effectively resolved and the main responsibility of the PCREs is associated mainly with community awareness programs to prevent inappropriate third-party encroachments on the pipeline ROW and to support the ROW Monitoring and Maintenance Team in managing ROW third party crossing (please refer to Section 4.8.1 *Third Party Crossing*). In particular, BIL reports that regular training is needed to make land users aware of land use restrictions on the ROW, in particular in the Southern sections of the pipeline where agriculture is largely diffuse and land users frequently change. PCRE training is also addressed to the Jandarma, because of the frequent rotation of jandarma assignments, and to the public institutions, such as mayors as they are also subject to change after elections. As the scope of work of the PCR staff has progressed away from dealing with ESAP requirements dealing with community grievances, IEC no longer believes that staffing is a compliance issue and the non-compliance (Commitment ID CH7 S2) is rescinded.

Concerning local employment at CMT, BIL reports that KPI targets have not been met for skilled and semi-skilled laborers. Figures provided in August 2011 indicate 16.4 % semi-skilled employed (80% target) and 64.2% of skilled (100% target). Local employment along the pipeline and at the AGIs in Turkey shows slightly better figures: 54.7 % and 47.6 %, respectively. BIL also reports that the five years period of time set in the EIA to achieve the KPI standards expires in 2011. Although IEC recognizes that KPI standards set during the

EIA process may not be a realistic representation of the actual situation, IEC considers the reduction observed KPIs gap an objective on which BTC and BIL should put more effort, or else redefine the KPIs on the basis of an MOC whereby the actual situation is justified.

Concerning PCR activities, IEC was provided the following information.

- Village-level information and consultation meetings continued throughout 2006 to 2011. In total 480 community meetings and 356 stakeholders meetings are expected to have been organized by PCREs by the end of 2011. As of August 31, 2011, PCREs had organized 187 Community Awareness Meetings in villages, 41 at Jandarma stations and 45 for public institutions;
- BIL tracks complaints on the basis of a Complaints Management Tracker, which is an improved version of the CRM Module used during construction phase. All of the recorded reinstatement related complaints in Lot A, Lot B and Lot C (in total 346) were resolved by a contractor under direct management of BTC with the support of BIL PCREs. Other complaints continue to decline in number. As of September 2011, 22 complaints have been received (against 51 complaints recorded in 2010, 87 in 2009 and 531 in 2008). In September 2011, BIL reports a total of 53 complaints are still open, most of which refer to reinstatement issues and to damage to infrastructure and community assets;
- BIL ROW Monitoring and Maintenance team registers all land use violations and third party crossing issues (including those are caused by land users or owners and local authorities construction activities). As of August 2011, BIL reported a total of 765 land use restriction violations (455 in 2010), 601 of which are closed (152 in 2010), 101 pending (82 in 2010) and 63 still open (211 in 2010). BIL reports that 40% of these violations are related with planting and approximately 60% of the violations occur in the southern section of the pipeline where an intense agriculture is present. It is apparent that it is this type of activity that is now the focus of the PCR staff;
- in order to close out third party violations, in 2010 BIL developed and implemented an action plan to identify the high risk and important areas where violation issues should be closed out with priority. BIL has also established a task force to initiate these emergency items in August 2010;
- BIL PCREs are also involved in management of third party crossing projects such as construction of drinking water, roads etc.;
- in addition, BIL and BTC have planned a new round of awareness campaigns along the ROW targeting different stakeholders including school children for BVTs, land users for land use restrictions on the pipeline, jandarma and local state authorities for third party crossing issues. Visual media (films) to improve communication with local stakeholders and communities were also part of 2011 work plan.

During September 2011 visit, BIL reported that the 2012 PCR program will include: closure of complaints in coordination with BTC the reinstatement contractor; identification of third party ROW violations (ROW maintenance team); management of third party crossing projects; consultations with local authorities (approximately 330 meetings with muhtars, 35 with mayors, etc.); awareness campaign on land use restrictions (including landowners/users and school children at 160 schools along the pipeline route); gap assessments of Emergency Response Planning; development of relationships among PCREs and CIP&RDI partners; and creating synergies between social assurance and social projects (skill development, training

of local authorities on hydrocarbon fires, local procurement through SME development, etc.).

4.10.2 Recommendations

1. BIL needs to carefully reexamine if the PCR organization is appropriately structured to manage a scope of work where grievance management is a minor component of their overall workload (53 unresolved complaints vs. 111 land use violations to manage).
2. If it is really not practical to comply with employment KPIs, the KPIs need to be revised to reflect actual conditions, presented with a good explanation. That stated, it is not obvious to the IEC why the employment discrepancy with KPI is so large. Ceyhan is one of the biggest districts in Turkey where it should be possible to employ trained, semi-skilled people from the region, especially when it is considered that semi-skilled workers were found in the rural environments surrounding the pump stations. We also believe that there are opportunities for local employment through RDI projects implemented in the region that could help achieve the original KPIs.

4.11 ENVIRONMENTAL AND SOCIAL INVESTMENT PROGRAMMES

4.11.1 Environmental Investment Programme (EIP)

The original EIP strategy was focused entirely on the issue of promoting biodiversity and all ten construction-phase projects (EIP I) were successfully completed. From 2010 onwards, in addition to promoting biodiversity along the pipeline route, EIP aims are to extend into other areas of stakeholder concern including national environmental infrastructure (i.e. waste disposal and waste water treatment facilities), wildlife care and regulator awareness and experience.

During the Operations phase, the EIP has started nine projects (EIP II), out of which five were completed by mid-2011 and three projects will continue until the end of 2011. The Terrestrial Wildlife Rehabilitation Centre Project is due to end by December 2012.

As reported in the 2010 BTC Environmental and Social Annual Report, by the end of 2010 a total of \$6.6 million had been expended in Turkey since EIP initiation in 2003. The 2010 BTC Environmental and Social Annual Report summarizes the key EIP II ongoing project achievements in 2010 and is not repeated here.

4.11.2 Community Investment and Regional Development Initiative (CIP and RDI)

BTC continues to implement Community Investment me (CIP) and Regional Development Initiative (RDI) as part of its commitment to enhance positive effects of business for project affected communities in Turkey. 2010 was the fourth year of Phase II CIP Implementation in Turkey. Budget for CIP in Turkey for 2011 is \$2.1 million for CIP and \$0.5 for regional projects. The most detailed information regarding the status of the CIP and RDI Programs is presented in the 2010 BTC Environmental and Social Annual Report and is not repeated here.

4.12 CULTURAL HERITAGE MANAGEMENT

As described in greater detail in Section 2.7.1, the Smithsonian Institution has published a “coffee table” book summarizing some of the main finds of the BTC/SCP pipelines corridor, including the BTC ROW in Turkey. This book is essentially the introduction to the cultural heritage findings made along the pipelines provided in much greater detail online at <http://agt.si.edu/>. This web page not only summarizes the findings among archaeologists in Azerbaijan, Georgia, and Turkey and their colleagues from the Smithsonian Institution, but also contains the detailed site reports for the most significant excavations undertaken during the BTC project. The detailed site reports for Turkey are available online and represent an important source of information for archaeological research in Turkey and throughout the entire Project region.

New members of the BIL environmental and ROW maintenance teams are given training on Cultural Heritage Management Plan commitments through a dedicated section on Cultural Heritage Management that was reported to have been included as part of the Environmental training. BIL has now an archaeologist in the HSE team to support in case of chance findings.

BIL has set the archaeological responsibilities within the ROW and maintenance teams. Responsibilities are addressed through training, competency reviews of roles in the organization and regular audits. BIL has included an archaeologist in the OSR team, responsible for supporting the team when needed.

4.13 HEALTH AND SAFETY

4.13.1 Observations

Health and Safety issues continue to be a major focus of the Project in Turkey. In particular, the increased number of personnel hired for working on the ROW patrolling and maintenance activities and outsourced maintenance and reinstatement activities require that full HSE awareness training is provided to all personnel. BIL continues to provide site-specific and role-specific HSE training to all new employees of BIL and subcontractors. In addition, the training given by BIL staff at the different facilities is supplemented by specific training modules provided by staff coming from Ceyhan or external specialist companies.

According to the Project safety statistics for 2010 included in the 2010 BTC Annual Report for operations phase, the majority of targets and key performance indicators set at the beginning of 2010 for Operations have been met. All operational activities were conducted in a safe manner without any major (MI) or high potential incidents (Hi-Po).

In 2011 through July no fatalities have been recorded in Turkey, although there have been two recordable injuries, one where an employee fell and injured his forehead while descending stairs at the CMT and another associated with a BIL Contractor employee, who hit his face while emptying a lubrication oil barrel at a waste segregation area and received a cut on the face. During this same period, ten first aid cases were also reported, several of which were associated with tick bites. During this field visit in Turkey the IEC team wore tick repellent PPE.

Travel continues to represent the highest personal safety risk. BIL reported that two Severe Vehicle Accidents (SVAs) occurred in 2010; in 2011 up through July one SVA has occurred (at KP 468 a vehicle lost control and tipped on its side with no injuries) with two other minor

accidents that lift the Total Vehicle Accidents (TVAs) to three for the year through July. BIL HS Management continues to emphasize drivers' training and company travel is still minimized as practical.

With reference to monitoring Occupational Health standards in workplaces, in 2009 IEC observed that major pollutant monitoring systems should have been implemented at CMT and fixed facilities by including noise and VOCs/BTEX. During the July 2010 visit IEC was informed that noise monitoring at work locations had taken place and that high noise work spaces had been identified and specific instructions for the use of personnel protective equipment (increased use of hear protecting devices and shift rotation) were given to limit worker exposure to noise. During the September 2011 visit IEC was also informed that VOCs and BTEX monitoring of work places results indicates that all values are below the limit exposures, but as discussed in greater detail in Section 4.6.1, ambient air monitoring is reported to show an increase in BTEX. No workplace data were provided to the IEC on this issue.

4.13.2 Recommendations

1. IEC recommends that adequate and regular workplace monitoring systems be implemented for VOCs and BTEX at the CMT.

APPENDIX A

**TRIP SUMMARY- 13TH IEC MISSION BY D'APPOLONIA FOR THE BTC
PIPELINE PROJECT – SEPTEMBER 2011**

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TRIP SUMMARY- 13TH IEC MISSION BY D'APPOLONIA FOR THE BTC
PIPELINE PROJECT – SEPTEMBER 2011

For this mission, three members of the team toured Turkey, Azerbaijan and Georgia. The trip summaries are presented below.

September 11 – Team arrives in Adana by air.

September 12 – Kick-off and E&S meetings at the CMT, presentation on project status from last visit; CMT site visit closeout meeting to review initial impressions with BTC and BIL staff.

September 13 – Tour the ROW from CMT northward – overnight at Kayseri.

September 14 – fly from Kayseri to Erzincan via Istanbul – conduct ROW inspections at BVT30 and at KPs 484, 520 and 588 – overnight in Erzincan.

September 15 – Drive from Erzincan to PT3 – receive briefings and tour PT3. Conduct closeout meeting at PT3 and then conduct ROW inspections at KPs 362, 371, 372, and 388. Overnight in Ezerum.

September 16 – Conduct ROW inspections at KPs 291 and 301 – arrive at PT2. Receive briefings and tour PT2. Conduct closeout meeting at PT2 and then depart Ezerum for Tbilisi via Istanbul.

September 17 – Arrive in Tbilisi and attend kick-off meetings at AGT offices. Overnight in Tbilisi.

September 18 – Drive to Bakuriani area to review Kodiana Projects' completion status and tour portions of ROW. Overnight in Bakuriani.

September 19 – Review reinstatement of ROW from Bakuriani area to Tsalka and drive back to Tbilisi. Conduct closeout in AGT office. Overnight in Tbilisi.

September 20 – Fly to Baku, meeting with AZ team, briefings on status of environmental monitoring, in particular stack emissions, EPPD and ROW access, the iris acutiloba status. Overnight in Baku.

September 21 – Travel to Ganja by air. Visit PTA1 and tour ROW. Overnight in Ganja.

September 22 – Tour ROW and river crossings, in particular Tovuz Chai and Zamchir Chai where major remedial construction to protect the pipeline was underway. Fly back to Baku. Overnight in Baku.

September 23 – Additional meetings with BTC staff and final discussions regarding trip findings. Overnight in Baku.

September 24 – Depart Baku for home.

APPENDIX B
TABLE B-1: NON-COMPLIANCES WITH ESAP

APPENDIX B

Table B-1: Non-Compliances with ESAP – Azerbaijan

Section Ref.	Observation	Non-Compliance	Level	Comments / Recommendations
2.4.1	Stack emissions for NOx non-compliant with ESAP	Emissions Management Plan - BTC Operations – Azerbaijan & Georgia (Commitment ID 1024)	Closed	Offset program define acceptable to IEC

Table B-2: Non-Compliances with ESAP – Georgia

Section Ref.	Observation	Non-Compliance	Level	Comments / Recommendations
3.5.1	Stack emissions for NOx non-compliant with ESAP commitments	Emissions Management Plan - BTC Operations – Azerbaijan & Georgia (Commitment ID 1024)	Closed	Same as for Azerbaijan
3.5.1	Non-compliant discharge of retention pond water into surface water environment	Emissions Management Plan - BTC Operations – Azerbaijan & Georgia (Commitment ID Y9)	Closed	This issue has been resolved with the construction of the concrete liner and for the most part the pond is dry. In addition, sluice gates were installed at specific locations to enable storm water from non-hydrocarbon areas to deviate from retention ponds and no sewage water is discharged to the retention ponds.

Table B-3: Non-Compliances with ESAP – Turkey

Section Ref.	Observation	Non-Compliance	Level	Comments / Recommendations
4.10.1	Failure to implement an adequate PCR program during the Operations Phase	Social Management Plan, Commitment ID CH7 S2	Closed	2011 field staffing still shows vacancies at PT3 and PT4, but their scope of work no longer involves significant grievance management and is now primarily community awareness programs to prevent third-party incursions on the ROW. IEC considers that staffing adequate for this revised role and the non-compliance is rescinded.
4.6.1	Failure of building the marine slops treatment facilities at CMT has reached a level of attention such that the Project has been fined by the Turkish MoE.	MARPOL 73/78 Convention and also Turkish Environment Law No 2872 – situation is a non-compliance with Section 5.2 of the ESAP, whereby the Project commits to follow applicable laws and regulations	II	The situation is considered serious, because the MoE has the power to shut down the CMT, even recognizing that this would be highly unlikely