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D'APPOLONIA

BAKU-TBILISI-CEYHAN (BTC) Pipeline Project

Report of the Post-Financial Close Independent Environmental Consultant (IEC) Fourteenth Site Visit, July 2012

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REPORT OF THE POST-FINANCIAL CLOSE INDEPENDENT ENVIRONMENTAL CONSULTANT (IEC) BAKU-TBILISI-CEYHAN (BTC) PIPELINE PROJECT FOURTEENTH SITE VISIT, JULY 2012

EXECUTIVE SUMMARY

This report presents the results of the fourteenth post-financial visit of the Independent Environmental Consultant (IEC) to Azerbaijan, Georgia and Turkey, between July 8 - 21, 2012 to monitor compliance with BTC Project Environmental and Social (E&S) commitments.

This site visit represents the sixth 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 nearly all closed. Current main environmental issues relate prevalently to maintenance. As the Project is in an advanced Operations phase, the focus of the site visit was to understand if maintenance issues are correctly identified and managed effectively. In general, the management system is working and the systems within the Project are in place.

Azerbaijan

The BTC Project has fully entered into environmental management as part of Operations. The main activities are associated with the development of offset programs and with ROW maintenance, which in Azerbaijan is significant, especially at river crossing.

The Project is currently dealing with two offset programs: NO_X offset projects; and the *Iris acutiloba* offset project. These are two offset programs considered acceptable to the IEC. NO_X offset projects are evolving properly: two schools and one kindergarten have been identified where solar water systems will be installed and construction is projected start on the August, 1 2012. With regards to the *Iris Acutiloba* offset project, planting of red listed trees is expected to start at IPA1 and PSA2 between September and November 2012 which may also slip to March of 2013. In total, 3,154 trees are planned to be planted which may vary depending land acquisition. Although an offset program has been defined, the Project has continued to develop an *Iris Acutiloba* restoration program. *Iris Acutiloba* plants have been transplanted from the Garadag Cement Plant to the pipeline. Different from previous years, this time Irises were transplanted maintaining the soil around the roots. In this way, it was possible to obtain an actual survival rate of 55% within two years after transplantation. This is an excellent result compared to the previous very low survival rates that led to the development of the offset program. This "lesson learned" for the transplanting of plants in the Gobustan is expected to benefit BP when planning future projects such as SCP Expansion.

Generally, the reinstatement has been consistent with the construction phase commitments, but there are two exceptions, the Gobustan Desert area (KP1 – KP32) and the area between KP309 – KP311. In these areas, the efforts made by the Project towards reinstatement have not been effective due to local adverse soil/climatic conditions and by EPPD driving over the ROW. In these areas there has been little improvement since the first year after completion

of construction. This situation is a long-term Operations issue, but at this stage the overall feasibility of reinstatement needs to be evaluated. The work that Project is doing can continue and serve as lessons learned for upcoming works, or maybe an offset could be considered.

In spite of the reinstatement difficulties, the Project has continued to strengthen its efforts in biorestoration and it is still maintaining a dialogue with the Export Pipelines Protection Department (EPPD) of the Azerbaijani Government to encourage the patrols not to use the ROW for their security patrols. 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 BP's 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).

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. The reinstatement of the pipeline is not as problematic as in Azerbaijan and has reached the stage where the process is now effectively maintenance checks and reacting as appropriate.

The Project successfully completed the offset project related to waste management by purchasing land, developing the design, and completing the permit application documents for the Gardabani Municipal Landfill back in 2009. In 2012 it is good to see that the landfill has been constructed and is now operational.

Another positive development is that the Project has completed two out of three offset programs related to NO_X emissions. The solar water heating systems in the Public Boarding School No 203 for deaf and diminished hearing children of Tbilisi and at the Tbilisi SOS Children's Village are now installed and working well. The Project has also completed the phase one (planning, permit preparation, conceptual design) of the Borjomi Micro Hydro Power Plant project and construction is expected to star this year. IEC is positively impressed with the progress of the offset programs and is looking forward to the completion of the remaining one.

One concern regarding Georgia is related to archaeological reports. One of BP's commitments from the construction phase was to make the detailed site investigations readily available to researchers and the general public. This was supposed to happen with the publication of the site-specific reports on a web page of the Smithsonian Institute, but this has not happened yet. IEC recommends speeding up the publication procedure, as this issue has been open since 2010.

Turkey

In Turkey, EHS performance continues to improve and most construction legacy issues have been slowly resolved over the past year. Botaş International Ltd (BIL), the designated operator of the Turkish section of the BTC pipeline, continues to be proactive in their implementation of maintenance and management procedures and repairs to ensure pipeline ROW integrity.

With regards to the ROW, slope stability in a few sections has been a problem since the beginning of the Project. At two locations (KP1007 and KP383) it has not been practical to achieve final stabilization. BTC is planning to re-route the pipeline. IEC reminds the Project that there are specific Management of Change (MOC) Class changes associated with rerouting of the pipeline that may require Lender notification.

At the time of the October 2011 visit, two significant issues were encountered in Turkey relating to construction of a marine slops treatment plant and oil spill response capability. Although progress has been made, in July 2012 there is still work to be done.

The most serious issue continues to be construction of a treatment plant for marine slops. Marine slops are mixtures of residual oils and water, which are produced by the fuel handling systems employed on large ocean going vessels. In 2011 the Turkish Ministry of the Environment fined BIL for not having a slops treatment plant in place at the CMT and there is concern that BIL is going to get another fine if there is a further lack of progress. Currently a tendering process is underway and construction might start on November 2012, but the overall progress is slow and not consistent with the deadline to present a comprehensive work schedule imposed by Turkish Legislation for the end of May 2012, which BTC believes is impractical. As the Government could theoretically enforce a shutdown of the CMT, the Level II non-compliance assigned in 2011 has been maintained, but should the situation not be resolved by the next IEC visit it will need to be increased to a Level III.

The second issue relates to the Oil Spill Response (OSR). At the time of 2011 audit, BIL dismissed the services being provided by SESMEKE for Tier 2 oil spill response and BIL had assumed all OSR responsibilities. BTC was not sure that BIL could independently assume these responsibilities and tried to cover the gap by directly contracting SEACOR from Georgia which has brought the SESMEKE oil spill response personnel. Currently the Project has reached a compromised solution where: BTC maintains their contract with SEACOR; BIL provides OSR management and logistics, equipment, personnel, and readiness to intervention; SEACOR ensures personnel and assistance. The situation has improved, but more work is needed. Consistent with IEC recommendations, Polaris conducted an independent audit in April 2012 and found that there exists an appropriate, though reduced, response capability for the pipeline and the CMT. An increasing of BIL training is needed. An additional Polaris audit is recommended to verify that progress continues to be made in the area of oil spill response.

Construction of permanent Central Waste Accumulation Areas (CWAAs) at Pump Stations is still ongoing at PT1 and action is expected in the near term at the other Pump Stations. Materials from the construction phase that had to be managed by the end of 2011, including unused hazardous chemicals and construction material from Botaş, are still present at most of the Pump Stations. Material has been managed at PT4, partially managed at PT 3, not been managed at PT2. PT1 was not visited but BIL advised all of the construction phase hazardous wastes were sent to disposal. This cleanup of construction-phase materials has been an overly slow process.

The process of enhancing the performances of the Wastewater Treatment Plants (WWTPs) at fixed facilities has also continued slowly. New WWTPs have been installed at PT1 and PT3. The existing WWTPs at PT2 and PT4 will be upgraded to improve the level of compliance in order to achieve discharge standards. There are still performance issues resulting from non-compliant effluents at all locations (fecal coliforms) as chlorination is a problem, but it is emphasized that a valve system in place and any non-compliant effluent is not discharged to the environment. IEC suggests that other solutions instead of the chlorination, such as the inclusion of a UV sterilization process as done in Georgia, could be considered in Turkey. General improvements at Storm Water Ponds (SWPs) and Primary Withholding Ponds (PWHPs) at all the PTs have commenced and will continue during 2013. Progress has been made for the Oil Water Separator (OWS) as a tendering process has started for their improvement and construction is expected to start in Q3 2012. An issue that still requires

urgent attention since 2011 is that the PWHP at PT3 has a leak such that the potential exists for non-compliant discharge. A tendering process for fixing the leak is underway, but IEC suggests that the Project increase groundwater monitoring periods at PT3.

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 and from the State Oil Company of Azerbaijan (SOCAR).

Current throughput of the pipeline is around 700,000 barrels per day (b/d) through the middle of July, but the capacity of the BTC Pipeline is approximately 1.2 million b/d. 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. The BTC Pipeline is expected to function at or near its capacity with the completion of the COP.

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 fourteenth field visit held July 8 - 21, 2012 for the BTC Project.

This IEC trip represents the sixth 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

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1 IEC Team members: William J. Johnson (Team Leader); Luca Marini (Team Member); 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%).

the Operations phase of the BTC Project. Five years later, these construction-related issues are now 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) which provided the OSRP audit report in June 2012.

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, and approximately 10 million barrels of oil were required to fill the line that became operational on June 5, 2006. 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.

This mission represents the fifth IEC visit fully associated with BTC Operations [although this is the sixth 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., biorestoration) and programs started during construction and which have follow-up during Operations (e.g., erosion and sediments transport 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).

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 Azerbaijan Georgia Turkey Region (AGTR) whose operational activities cover Azerbaijan, Georgia and Turkey. Environmental and health & safety groups are organized under the AGTR Regulatory Compliance and Environment (RC&E) Organization of Safety and Operational Risk. Social team resides within Communication and External Affairs Organization.

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 the Regulatory Compliance and Environment Director. The team leader is also supported by seven environmental advisors. The social team is organized similarly through the Community and External Affairs group. Health & Safety (occupational H&S) and Emergency Response (ER) are together under as single Az Pipelines HS&ER Team who reports to the Midstream HS Director S&OR in Baku, the Health (medical) team reports to Health Director within S&OR. The H&S team leader is supported by an ER coordinator, an H&S assurance lead and an H&S Lead for field location who in turn is supported by eight H&S site representatives. All of the teams in Azerbaijan are now comprised by nationals.

2.1.2 Management of Change (MOC) - Observations

In 2011, BTC issued one Class II and one Class III MOCs relevant to ESAP aspects for Azerbaijan. The Class III MOC is referred to establishment of the NO_X offset program. The Class II MOC defines the *Iris Acutiloba* offset program. 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 construction of this facility at TTMMC\ Sumgayit site is expected by end of 2012 (Q4 2012) with commissioning by end of 2Q 2013. At this moment, the contractor hired to develop the facility is currently buying the needed equipment. 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 2011 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.

During the Operations phase, most of the workplace hazards are related to vehicular accidents. This was an issue flagged in the report for the July 2011 field visit and over the past year has continued to be a focus of attention for BP in Azerbaijan. During 2012, BP Operations in Azerbaijan associated with the Export Pipelines reported an SVAR (Severe Vehicle Accident Rate) rate equal to 0.25. Recordable injuries were not associated with the BTC Project during 2012 through May.

In Q1/Q2 2012, 35 incidents were recorded, 22 of them recorded as near misses and 13 as accidents. A total of two accidents were related to material releases, one to first aid intervention, one to a severe vehicle accident, two related to thefts and seven to equipment/property damage.

In 2011, the most significant potential hazards to the pipeline in Azerbaijan proved to be grass fires. In contrast, from the beginning of 2012 up to June 2012, no fire grasses were recorded.

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 m^3 capacity active cell has been operational at Sumgayit. To date, about 90% of this cell has been filled and it has a life expectancy of about 3/6 months. In July 2012, a Contractor was

awarded a contract to increase the capacity of the landfill from 54, 000 m^3 up to 100,000 m^3. The expanded landfill is expected to be fully operating by the beginning of 2013.

The BP-owned ISO 14001 certified Hazardous Waste Management Facility (HWMF) in Serenja and the Central Waste Accumulation Area (CWAA) at the Sangachal Terminal is still being used, but other acceptable disposal solutions continue to be identified, and implemented. As noted in Section 2.1.2, Ekol-AA is still expected to construct a hazardous 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 September 2011. 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, whereas the IPA1 treatment plant has a dedicated reed bed. Discharges from both IPA1 and PSA2 reed beds are both generally compliant with Project effluent discharge standards, except for occasional excursions of total coliforms, ammonia and total nitrogen. An observation previously 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.

Sludge from the sewage treatment continues to be disposed at the municipal sewage treatment facility. Starting from August 2011, BP has started utilizing the Hovsan Municipal Treatment Facility, which has been upgraded to international standard.

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. The Project, as in 2011, is still evaluating the possibility of installing sewage sludge drying beds to dewater and dry sewage sludge at PSA2, which will reduce costs associated with transportation and disposal and allow for the dried sludge to be used as fertilizer for planting trees as part of the offset program described in Section 2.6.1.

2.4 POLLUTION PREVENTION

2.4.1 Observations

Groundwater monitoring results indicate no significant deterioration from pre-project baseline conditions. 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. Moreover, a concern for potential contamination was with respect to releases of water from the retention ponds, but, also in 2012, test results at the PSA2 and IPA1 retention ponds did not indicate any exceedances of Project effluent standards.

The BTC Environmental Team continues to conduct noise monitoring. The most recent monitoring results from the October - November 2011 campaign indicate general compliance with the Project noise standard. Only one minor exceedance of the nighttime standard was recorded at location AB-7: 51.8 dB(A), 6.8 dB(A) above the standard of 45 dB(A) based on nighttime measurements.

Stack emissions testing has continued at the MOL turbines at PSA2 with the last tests for which results are available conducted at two of the turbines in January 2012. Emissions testing was also conducted at the diesel generator stacks at both PSA2 and IPA1 in November 2011. The monitoring results indicate that the oxides of nitrogen (NO_x), carbon monoxide (CO), sulfur dioxide (SO_2) 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/m^3 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, and, to resolve this non-compliance, the Project developed an NO_x offset program. This offset project was submitted to the IEC for approval in January 2011 and it was approved in February 2011. The offset consists into the installation of 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 under development the construction of the three systems will start through a local NGO on August 1, 2012. The total cost of the offset program is approximately $ 120,000.

2.5 ROW MANAGEMENT

2.5.1 Observations

Biorestoration monitoring has been conducted by BTC for the past six years in terms of percentage cover values and three years of species-diversity data, collected from 60 transects located along the length of the ROW (in areas with natural vegetation, not being farmed). The results from 2012 monitoring indicate conditions nearly identical to 2011. Vegetation cover data indicates that over half of transects have at least equal 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 in vegetation cover over the six years of monitoring and more than half have achieved natural levels of vegetative cover. Even if the biorestoration for the middle and western sections has a positive trend, in the eastern area the vegetation recovery, in particular in the Gobustan region, continues to be severely limited. In this area natural conditions are difficult and, moreover, erosion, vehicular traffic, and cattle represent constant negative impacts. It is evident 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 Djeyrankechmez River crossing at KP 9, was visited. An intervention to repair the river's slopes and fix the deep erosion channels is again required. This is an area of dynamic river movements where monitoring will always be required. The difficulties related to the biorestoration in the Gobustan region were visible also at KP 7.

The Export Pipelines Protection Department (EPPD) of the Azerbaijani 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. In 2011, after discussions with the EPPD, 5 selected sections were restored. Based on monitoring results, only one section out of five achieved positive reinstatement results. Moreover, discussions and negotiations with EPPD are still ongoing and, on June 29th, BTC and EPPD agreed on restoration of the running track between KP 309 and KP 311, the other area outside of the Gobustan Desert where reinstatement has not been successful.

At this stage of the BTC Project, the possibility needs to be considered that it will never be possible to reinstate the ROW in the Gobustan area. Our impression is that many areas of the Gobustan had better reinstatement in 2007 than is apparent today. This is not for lack of trying. EPPD still drives vehicles along many tracks that impact the ROW and there have been some significant external factors that would fall under the heading of cumulative impacts: water pipeline; increased agriculture; expansion of the Gobustan Nature Preserve with new roads and bridges. The Project can continue to try to reinstate the ROW, but the cost benefit of this effort appears to be marginal. An alternative that would be acceptable to the IEC would be to undertake an offset program.

2.5.2 Recommendations

1. Consider an offset program as compensation for the Project's inability to achieve reinstatement goals in the Gobustan Desert. Such a program should have a focus on improving environmental conditions in the Gobustan Desert, if an offset is considered.

2.6 ECOLOGICAL MANAGEMENT

2.6.1 Observations

Progress can be reported with respect to the last remaining Schedule 20 commitment, which is the management of the red-listed plant *Iris acutiloba*. The offset program revealed at the time of the September 2011 IEC is progressing well and additional efforts to reinstate this plant are also showing success.

11,787 Irises from the Garadagh Cement Plant redevelopment area that would otherwise have been destroyed were translocated to the ROW at KPs 7, 11.8, 24.1, 25 and 26 between 22 November 2010 and 13 December 2010. The latest survey results indicate that the population of transplanted *Iris acutiloba* is now showing positive survival results where replanted on or along the ROW. Since monitoring started, the survival percentages of the Iris Acutiloba that were trans-located from Mardakan Arboretum have been as follows:

- 7.7% in 2008;
- 4.2% in 2009;
- 2.8% in 2010;
- 0.6% in 2011; and
- 8.5% in 2012.

For species that were trans-located from GCP, the survival percentages have been:

- 39.8% in 2011; and
- 55% in 2012.

The reversal of the population decline is mainly due to a new translocation technique adopted by the Project. Currently, Irises are moved from the RoW with the ground that surrounds their roots. This process that falls in the category of "lesson learned" appears to be the main reason for the improved survival rate.

BTC's offset program previously approved by the IEC is the planting of Cypress and Plane trees (Plane trees are a red-listed species) around the pump and pigging stations. This effort is now scheduled to take place in the period between September 15th and November 15th of 2012 and Q1 of 2013. The implementation of this offset program was delayed due to a lack

of engagement with the Minister of Ecology and Natural Resources (MENR), but this situation has been resolved and the planting is now scheduled to take place.

2.6.2 Recommendations

1. Continue to implement research strategies and methods in order to increase the *Iris acutiloba* survival rate.

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 BP AGTR 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 of the BTC Project in Azerbaijan are complete as previously reported. The current responsibility of Operations is to make sure that the sites identified along the pipeline route are protected. As the South Caucasus Pipeline Expansion (SCPX) Project will follow much of the BTC route, it is expected that many of the known archeological sites along the BTC Pipeline will again be impacted, as they were with the construction of the SCP. Accordingly, the BP archaeologists are now focused on developing procedures to appropriately manage the known sites well in advance of construction. As outlined in a briefing meeting held on July 9, 2012 in Baku, a number of significant sites that cannot be avoided have been targeted for mitigation excavations. BP will prepare the scope of work and apply for licenses for excavation as required, along with other permits needed to undertake the work and get agreement from landowners. BP will have a Site Manager / Cultural Heritage Monitor to Manage and oversee the project ensuring that correct archaeological practices are complied with. Institute of Archaeology and Ethnography (IoAE) staff will control and direct the excavation at each location with input from the BP contracted Archaeologist.

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 latest ASRC report from August 2011 is available online at http://www.bp.com/liveassets/bp_internet/bp_caspian/bp_caspian_en/STAGING/local_assets/downloads_pdfs/a/ASRC_Fifth_Report_2011.pdf.

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 September 2011 field visit, there have been two written complaints received, of which one has been resolved and one is still in the process of being resolved. The one solved relates to miscalculation of the

compensation paid to a villager due to crop loss. The one still open relates to the installation of electricity poles within the protection zone of a water channel. Over the past year approximately 24 verbal community complaints have been received. All complaints except one (related to a complaint about URS employees that have crossed a villager's parcel and damaged his crop) have been resolved.

3 GEORGIA

The BTC Project in Georgia, inaugurated in October 2005, 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.

This mission represents the fifth IEC visit fully associated with BTC Operations [Although this is the sixth 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., biorestoration) 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).

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 AGT Region whose operational activities cover Azerbaijan, Georgia and Turkey. Environmental, health & safety groups are organized under the AGTR Safety and Operational Risk function.

The single point of accountability for environmental management in Georgia is the Georgia Exports Compliance & Environmental Team Leader, who reports to the Regulatory Compliance & Environmental Director in Baku, Azerbaijan. The Team Leader in Georgia is supported by support staff of nine specialists covering: emissions and discharge management; ecological management and EIPs; ESMS implementation and compliance; and waste management. The social team continues to be organized 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, two of which are dedicated to the BTC/SCP route. Health Advisor (occupational/medical health) reports to Health Director in Baku and Health and Safety and Emergency Response (HS&ER) teams report to Midstream H & S Director in Baku. All of the teams in Georgia are comprised by nationals.

3.1.2 Management of Change - Observations

In 2011, BTC issued one Class I and one Class III MOC relevant to ESAP aspects in Georgia. The Class I MOC relates to the removal of the requirement for analyzing coliform from the retention ponds. Originally, sewage effluent from STPs had to be discharged to the retention ponds and coliform bacteria were one of the retention pond discharge monitoring

parameters. Currently, the STPs discharge directly to the reed beds for additional treatment without utilization of the retention ponds and there is no reason to monitor coliform bacteria from the retention ponds. The Class III MOC relates to the establishment of NO_X offset programs.

3.1.3 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. H&S statistics are not segregated for the BTC component of BP's operations in Georgia, but the data available for 2011 for all of BP Georgia are that only one lost time incident (LTI) occurred with more than three million man-hours worked. BP Georgia has focused on identifying near-misses to better characterize where H&S stewardship needs to be especially implemented. One area of concern is driving safety, in particular with accidents due to third-party vehicle violations. Defensive driving is now being emphasized.

Moreover, Q1 and Q2 of 2012 health and safety statistics were provided by the Project to IEC review. A totality of 25 accidents were recorded by BP, six were real accidents and 19 near miss accidents. Among the accidents, it is possible to observe two equipment damages, one injury, one vehicle accident, and two material releases.

During the September 2011 field visit, potable water quality was flagged as an issue to be further investigated, as internal lab testing had found excursions of total bacteria and E. coli in a few instances, the latter related to flooding at PSG2 Camp. Subsequent testing in 2012, confirmed by an external laboratory, has demonstrated full compliance with the requirements for potable water.

3.2 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 they could be reutilized by the South Caucasus Pipeline Expansion (SCPX) Project. The current status of the temporary construction facilities, based on the information provided by BTC, is as follows:

- *PSG1 Camp* – still in place as permanent facility;
- *PSG2 Camp* – still in place and servicing Operations (will be reinstated when PSG2 Accommodation Addition is constructed and operational);
- *Rustavi (Gatchiani)* Pipeyard – still in use as logistics base and pipe storage yard (will be reinstated when all material is moved to PSG1 Warehouse end of 2013); planned to be turned over to landowners in 2014;

As indicated above, Operations is in the process of planning or has started construction of additional infrastructure. Specifically, at PSG1 the Accommodation Expansion includes the development of additional accommodations, warehouses, new access road, and helipad with initial construction expected to start before the end of 2012 with planned completion in 2014. At PSG2 works are in progress for the Accommodation Addition project (including new STP and potable water treatment package), with a planned completion for June 2014.

3.3 WASTE MANAGEMENT

3.3.1 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. Since May 2009, 2,306 m^3 of compacted waste have been sent to the landfill. During 2011, the landfill received 640 m^3 of waste with a BTC contribution of 247 m^3. The landfill is developed progressively: four cells are planned to be constructed in the future and operated consequently. 50% of the first cell has been filled, and the Project has started the arrangement to start filling the second part of the cell. At the time of the visit, 1050 m^3 of clay had been imported and applied over the slopes and bottom of the second half of the first cell and compacted using a 13t compactor. A contractor has been hired to install additional monitoring wells, in particular some new wells between the Project landfill and the adjacent new municipal landfill to be able to determine the source of any groundwater impacts that might be encountered.

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 is now in place and fully operating since January 2012. The Gardabani Municipal Landfill has not been abandoned, so it remains to be seen if the new landfill becomes a successful alternative to the existing facility.

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 2011 field visit. The resulting crushed bulbs are then disposed in the BP non hazardous landfill. Mercury is collected and can be exported with the other hazardous waste for which there is no disposal solution in Georgia.

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. In the CWAA barrels of pigging waxes, cans of solidified paints, and dewatered oily soils are stored. In addition, different barrels of solidified DRA are stored at the CWAA, but tests need to be performed to determine if this material should be considered as a hazardous waste. Since the 2011 site visit, an acceptable local recycling solution was found for 46 m^3 of used batteries.

It is understood that the Project will start the construction of a new waste compactor in October 2012.

3.3.2 Wastewater Treatment – Observations

Wastewater treatment infrastructure continues to improve. As of July 2012, the PSG1 rotating biological contactor (RBC) WWTP (installed in 2010) has been bypassed due to

damage at the discharge pipe. Fortunately, it has been possible to maintain sewage treatment by using the old construction-phase Tetem Unit that accepts wastewater from both the PSG1 Camp and PSG1. 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 only pending improvement is the replacement of the sewage treatment plants (STP) at the EDDF and the installation of the reed bed.

Reports results from the independent laboratory CITO2 Ltd, with additional control provided by Azecolab in Baku, Azerbaijan, have been used to verify effluent's compliance. 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 continues 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 POLLUTION PREVENTION

3.4.1 Observations

An upgrade program was completed for the main oil-water separators (OWS) for the main pump stations in Q3 2010, but additional upgrades are planned to be completed by the end of 2012 and include:

- General maintenance and modification of OWSs at PSG1 and PSG2 (construction will commence after arrival of pipe materials – planned completion August-September 2012.);
- The installation of a new standpipe for overflow to reduce contamination of retention pond at PSG1 (MOC is approved, materials is arrived, scope of work is sent to the contractor selected);
- The installation of a diversion pipes with valves from low risk bounded areas to drainage channels at PSG1 (MOC approved);
- The installation of elevated manhole tops at PSG1 (completed prior the 2012 site visit).

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 ponds are 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. Currently, all the civil works at retention ponds are completed, except that the online analyzers for pH, oil in water and temperature have to be repaired.

The BTC Environmental Team continues to conduct noise monitoring. The 2011 BTC Annual Environmental and Social Report presents daytime monitoring results that are general compliant with the 55 dB (A) standard, except at the PSG2 Camp location where there was a 5.8 dB(A) exceedance attributed to external noise sources. The most recent

monitoring results from July 2011 at PSG2 Camp demonstrate nighttime noise levels originating from PSG2 are within the nighttime standard of 45 dB(A).

Since the July 2011 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 2011. The results are reported in the 2011 BTC Annual Environmental and Social Report. Monitoring of the Crude Topping Units (CTU) at PSG 1 and PSG 2 is no longer conducted as they have been decommissioned and their removal is expected to be completed before the end of 2012.

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 (SO_2) and particulate matter (PM) concentrations were below the limits specified for these plants in the ESAP. Moreover, the stack emissions test results from the MOL Turbines at PSG1 and PSG2 showed (as reported also in the 2011 BTC Annual Environmental and Social Report) a general exceedance with respect to the 75 mg/m^3 NO_x concentration limit specified in the ESAP. The monitoring results were obtained with the MOL Turbines operating at 89% of load. BTC, as it was in the previous site visits, 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 related to reduce atmospheric emissions 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 NO_x offset program in Georgia has been initiated and two out of three projects are completed:

- 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. Phase 1 (documentation review and preparation, permits, planning) completed in mid July 2012. Expected construction and installation from 4Q 2012;
- 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 – installation completed on June 21st; 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 – installation completed on June 21st.

The IEC is impressed by the effectiveness of the two offset programs completed, and looks forward to seeing the same positive results from the Borjomi Micro Hydro Power Plant program.

3.5 ROW MANAGEMENT

3.5.1 ROW Reinstatement - Observations

During the 2012 site visit, the ROW was not included as part of the visit but it will be part of the 2013 IEC audit. Based on the annual review of vegetative cover along the ROW undertaken by Dzelkva Ltd., where the Normalized Difference Vegetation Index (NDVI) data analysis shows that vegetation cover status is fairly good (in the order of 85-100%) at

majority of the ROW sections. Approximately 85% of the ROW where NDVI data was acquired in 2011 is compliant with the reinstatement target of achieving 70% ratio between vegetation cover within and off the ROW. The most difficult areas comprise four habitats (alpine grassland, riparian forest, subalpine and xeric grasslands), where the target reinstatement has not been reached with vegetation cover ratios of 60%, 43%, 25% and 19%, respectively.

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 developed an offset program to compensate for the loss of forest habitat in consultation designated as the Bakhmaro Resort Zone Forest Recovery and Reforestation Program. Grant allocation for this programme to the Government of Georgia was made by the Project in Feb 2011, while the programme is due for completion by end of 2013 according to the timeline to the Annex 1 of the Agreement on "Bakhmaro resort zone forest recovery and reforestation program and eco-awards program" between the Government of Georgia and BTC Co and SCP Co.

Biorestoration of the pipeline is continuing with respect to the re-planting of high conservation value species. The goal of the rare plant species program is to re-establish a minimum of 75% of the original populations of 11 translocated species. This program has had mixed success. No individuals of *Gentiana angulosa* (two populations) and *Orchis coriophora* were recorded on the reintroduction sites for the evaluations from 2009 - 2011 At present, a separate project involving propagation of the Gentian and Fritillary *(Fritillaria lutea)* from seeds is ongoing aiming at compensation for these populations at the reintroduction sites.

Another component of biorestoration that continues to be monitored along the ROW is invasive species. Several species have been identified, but only one, the Common Ragweed *Ambrosia artemisiifolia*, represents the greatest risk and has been the focus of attention**.** The main concern is its particularly large production of highly allergenic pollen that causes rhinitis and severe asthma in over 20% of the human population of affected areas. Furthermore, ragweed is presently the worst weed of major crops in several European countries. The current program has been based on mechanical removal and in 2011, a strategy was developed to undertake the cutting at the time of flowering (mid-August). Results are showing success, although the species is stubborn. BP is considering the development of a manual for mechanical control interventions against ragweed and other exotic invasive species using a brush cutter.

3.5.2 Off-ROW Reinstatement – Observations

A component of the biorestoration process has been the planting of trees and shrubs. Monitoring that took place in 2011-2012 shows generally low survival rates for trees and shrubs planted at PSG-1 and PSG-2, due primarily to poor maintenance and some vandalism. Plantings at the Secondary Containment Facility (SCF) and Emergency Drain Down Facility (EDDF) sites have had mixed success, while planted saplings along the Kodiana Access Road have shown generally good success. Approximately 800 individuals of coniferous and deciduous species were planted at selected locations in spring 2012 and more plantings are planned.

3.6 ECOLOGICAL MANAGEMENT

The first round of monitoring under the revised Biodiversity Monitoring Program for 2011 – 2015 was undertaken in 2011. This program was also submitted to the Georgia Ministry of

Environment (MoE) at the end of July 2011 and the Project considers that the MoE has provided a de facto acceptance. Where environmental impacts have occurred along and near the Pipeline ROW, these impacts are interpreted to have originated from causes unrelated to the pipeline itself (e.g., tree felling; grazing and trampling of vegetation by cattle).

Brandt's hamster (*Mesocricetus brandti*), a species where pipeline construction may have had an impact, continues to decline, but unusually cold springs over the past few years may be the main reason. The current plan is to continue to monitor this species. Another fauna that might have been impacted by the pipeline is the forest bats' species. The species diversity and population numbers in most of monitoring plots continue to show variable negative trends in different areas. Possible reasons could be related to unfavorable weather, heavy anthropogenic impact, tree felling, and lack of feeding grounds. A small-scale trial project for installation of 50 artificial roosts for bats is ongoing (started in year 2007) and it is showing positive results: approximately 30-33% of the artificial bat boxes become colonized as indicated in the available literature. Although there were some signs of otter during the last (2009) monitoring event, in 2011 there were no signs of otter presence at any of the survey sites. The main reason of the absence of this specie appears to be the habitat degradation and destruction of old river channels and drainage ditches unrelated to the Project, but monitoring is continuing.

3.7 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:

- 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.

3.7.1 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. 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; 6 recorded from August 2010 through July 2011; and 23 recorded from August 2011 to July 2012 (20 rejected claims and 3 accepted claims related to flooding, false documentations provided by the Project, and damage to villager's properties).

3.8 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.

3.8.1 Observations

In Georgia, the Cultural Heritage Team is part of the Social Responsibility team within the External Affairs department and is responsible for implementing the Ops Cultural Heritage Management Plan (CHMP) and Cultural Heritage Procedure. The team includes a Cultural Heritage Advisor (CHA) and Cultural Heritage Monitors (CHMs).

A disappointment with respect to the BTC cultural heritage program was that the Akhaltsikhe museum displaying artifacts from the BTC/SCP excavations has been dismantled. It is understood that BP Georgia is not the custodian of the artifacts encountered along the pipeline, but losing the museum is a significant setback to the original goals of the archaeological program envisioned during the construction phase.

The cultural heritage findings made along the pipelines are provided 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. An IEC finding from the September 2011 field visit was that detailed site reports were available online for Turkey and Azerbaijan, but for Georgia the web page had the note "Site reports will be available online shortly." Over the past year this situation has not changed and the Georgian site reports, which have been prepared, are still not online.

New archaeological work was reported in terms of the monitoring of ground disturbance activities associated with the monitoring of new camp construction at PSG2, known to be a sensitive are for cultural heritage, and a new warehouse and access road construction at PSG1. Significant cultural heritage has not yet been encountered in these areas.

Another responsibility for cultural heritage management is to make sure that the sites identified along the pipeline route are protected. As the South Caucasus Pipeline Expansion (SCPX) Project will follow about 56 kilometers of the BTC route and include an expansion of the PSG1 footprint to accommodate a new compressor station (CSG1), it is expected that some of the known archeological sites along the BTC Pipeline will again be impacted, as they were with the construction of the SCP. Accordingly, the BP Georgia archaeologists are now focused on developing procedures to appropriately manage the known sites well in advance of construction and reconnaissance surveys in new areas have already been conducted.

3.8.1 Cultural Heritage – Recommendations

1. 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.
2. Increase communication exchange and interaction between the offices in Baku and in Tbilisi
3. Endeavor to find a means to allow for the BTC/SCP artifacts to be appreciated by the general public in a museum environment.

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 BOTAŞ 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. BOTAŞ assumed responsibility for the operation of the pipeline until Provisional Acceptance (PAC) on 28th July 2006. From 29th July 2006 onwards, BOTAŞ International Ltd (BIL), the Designated Operator of the BTC pipeline in Turkey, assumed responsibility with BTC continuing to maintain an overall assurance role.

The July 2012 audit in Turkey consisted of a site visit to selected sections of the pipeline right-of-way (ROW), site visits to Pump Stations PT2, PT3, and PT4 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.

Since the September 2011 site visit, the Project has confirmed that in Turkey it has reached the stage where the construction-related issues are essentially complete. The shift to the appropriate routine pipeline operations and maintenance phase was completed in 2011 and currently the Project is fully within the operations and maintenance phase.

4.1 ENVIRONMENTAL AND SOCIAL MANAGEMENT ORGANIZATION AND RESOURCES

4.1.1 Observations

Environmental and social management and resources are now well defined and a stable part of operations. The overall management framework between BTC and BIL has not significantly changed since the last IEC visit in September 2011. A gap identified in previous reports was with respect to the BIL Public and Community Relations (PCR) Team, where there was insufficient coverage of staff at pump stations. Although BIL does not have fully completed PCR coverage on a back-to-back rotational basis for PT1, this facility is covered by frequent visits such that coverage is not a major issue. The one management gap identified in 2011 was with respect 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 until 2011 subcontracted the oil spill response services to a specialist response organization, SESMEKE (a Seacor Environmental Services and MEKE Marine Environmental Services joint venture). At the time of the IEC visit in September 2011, BIL had made the decision not to extend the contract with SESMEKE and to train their own personnel in oil spill response management such that they could manage oil spill response activities in-house. As it was not obvious that BIL had the necessary skills to undertake emergency oil spill response, BTC took steps to ensure the adequacy and continuity of oil spill response capability in Turkey by contracting its contractor in Georgia Seacor which resumed SESMEKE staff to respond to operations related Tier 2 spills, and to be on standby on site in Turkey when BTC carries out any project activities such as pipeline repair. In the meantime, BTC also worked with Seacor to maintain the SESMEKE oil spill response services in Turkey through a long term contract between BTC and Seacor. Currently the Project has reached a compromised solution where:

- BTC maintains contract with SEACOR;
- BIL provides management, OSR logistic, equipment, personnel, and intervention readiness; and
- SEACOR ensures personnel and assistance.

The situation has improved, but more work is needed. Consistent with 2011 IEC recommendation, Polaris conducted an independent audit in April 2012 and found that there exists an appropriate, though reduced, response capability for the pipeline and the Ceyhan terminal operations. One of the main recommendations from the Polaris report is that BIL personnel need additional training. At the time of the Audit BTC and BIL were working on a protocol on management of OSR Contractor and handover of OSR equipment from BIL to OSR Contractor.

4.1.2 E&S Management Organization and Resources - Recommendations

1. Following the Polaris recommendations, BIL should strengthen its efforts for training and preparedness against possible oil spills.
2. The BIL E&S team is fully operational but it is still present a key vacancy: one environmental inspector position at CMT is still open. Although IEC understands BIL's efforts in hiring prepared personnel since the 2011 site visit in order to fill nearly all the vacant positions. It is recommended that BIL continues its efforts in order to fill the last vacancy.
3. 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. IEC recommends that adequate PCR staff resources be maintained and the last vacant position filled in a short time frame.
4. Another Polaris audit is strongly recommended in the near future to verify progress against their previous recommendations from their April 2012 audit.

4.2 ENVIRONMENTAL TRACKING AND PERFORMANCE

4.2.1 Observations

BIL received ISO 14001 certification in 2008 by the British Standards Institution – BSI and received a successful re-certification audit in May 2011. One of the recommendations from the last BSI audit was that BIL internally conduct an integrated audit for ISO 14001 and ISO

9001 that was conducted in May 2012. At the same time, BIL decided to integrate the process with an audit for OHSAS 18001. Currently, BIL updates the E&S aspects/impacts register with the internal communication with site management, as well as updating the legal and compliance register. As a good point for the Project, an Incident Register is also being maintained consistent with ISO 14001 even if not required. The next external re-certification audit by BSI is scheduled for fall 2012 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. BIL's ultimate target is to obtain an Integrated Management System certification.

BTC also audits BIL and undertakes annual facility and RoW compliance reviews and ad-hoc site visits to all facilities and RoW, including a pre-audit visit in advance of IEC. During these visits non-compliances and recommendations resulting in corrective actions are identified and logged in the Operations Environmental Action Tracking Database. Approximately 95% of the environmental non-compliances and 84% of the recommendations identified by BTC have been closed out by BIL.

The Environmental Compliance Observation (ECO) system is fully operating and the BIL Information Management System (BIMS) ECO-CARD action tracking system continues to be active, in use, and available to the entire personnel of the Project. Visitors should be also informed about the system; instructions on using the ECO-CARD system were not part of the visitors' site induction.

4.2.2 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 facilitate the visitor's awareness about the system, especially during the site induction.

4.3 WORKER CAMPS, INFRASTRUCTURE AND SERVICES

4.3.1 Worker Camps

In July 2010, IEC was informed that a MOC regarding the ongoing operation of worker 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 site rental agreements into land acquisitions. BTC has made funds available for this purpose. As of July 2012, the Project is in the process of passing from the rental of sites to land acquisition.

Moreover, in June 2012, an MOC was raised for extending the usage of Facilities Camp. As far as the Project changed its status in Operations, the temporary above ground installation ("AGI") camp facilities (at PT1, PT2, PT3, PT4, IPT1 and CMT) are used to accommodate staff to support the operation of the BTC Facilities.

4.4 WASTE MANAGEMENT

4.4.1 Non-Hazardous and Hazardous Waste – Observations

In July 2012, IEC visited the Central Waste Accumulation Areas (CWAAs) at PT3, PT2, and CMT. Several observations are noted as part of our site visits and from general discussions on waste management issues.

The CMT Operations CWAA has been fully operational since 2010, but development of similar facilities at the other pump stations has been much slower. 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 (tender ongoing and expected to be completed in Q4 2012 with a possibility to be delayed to 2013 if weather conditions may not allow construction during winter). Actions are expected for the other PTs. A general time prioritization was provided during the site visits: construction of the new CWAA will start at PT3 and, depending on Project development strategies, it could probably be followed by those at PT4 and PT2. As IEC observed in 2010 and in 2011, although BTC believes that there are no immediate compliance issues with the current state of the temporary CWAAs located in the old construction camps, improvements need to be identified and prioritized based on their current condition.

Hazardous wastes are transported by a licensed company and disposed of at the Project-approved Izaydaş facility. 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 portions of the Best Practicable Environmental Option (BPEO) study for the review of solid waste management expected to end by Q3 2010 are complete, but the review is still ongoing. The evaluation of the Antakya landfill is complete and the facility is being used. The evaluation of licensed hazardous waste incineration facilities (especially cement plants) is complete, as is the evaluation of licensed medical waste sterilization units. Remaining BPEO studies yet to be completed are for optimizing hazardous waste disposal and for the identifying sustainable options for the recycling and re-use of wastes. With regards to hazardous wastes, a final report with test results from collected data is expected to be completed by Q3 2012.

At the time of the 2012 field visit, hazardous and non-hazardous materials left from the construction phase, including unused hazardous chemicals and construction material from Botaş, are still present at PT2 and PT3 and stored into one hangar at the PT3 workers camp. BIL was supposed to segregate/dispose/recycle this material by the end of October 2011, but it is possible to observe materials still stored within PT2 and PT3 workers' camps. As it is possible to understand from the site visit, materials have been managed at PT4, partially managed at PT3, and not managed at PT2. During the site visit, BIL advised all of the construction phase hazardous wastes of PT1 were sent to disposal

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 2011, 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 Izaydaş (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.

4.4.2 Chemical Storage Facilities at Fixed Facilities

During the July 2012 visit, the IEC observed that chemical storage areas at CMT, PT2, PT1 and PT3 are in use and operational. At PT2, it was possible to observe chemical materials

not stored within proper containment, but the situation was well known to the Project and plans were in place to deal with the problem as soon as possible.

4.4.3 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 Operations CWAA at CMT is currently operational while the process for constructing new permanent CWAAs at the other fixed facilities is progressing slowly. Currently the PT1 CWAA is in tender process only. IEC recommends that BIL/BTC speed up the process for the construction of the new CWAAs to replace 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 2013 audit.
3. The construction materials and wastes legacy is not yet resolved. IEC recommends speeding up the process and to make final decision regarding the disposal/reuse/recycling of the all material/waste from construction still present at different camp sites.

4.4.4 Chemical Storage Facilities at Fixed Facilities – Recommendations

1. IEC recommends that the Project provide proper containment measures at the Chemical Storage Facility at PT2 as soon as possible.

4.4.5 Wastewater Management – Observations

Our basic observation from September 2011 is still the same in July 2012: the wide review of all WWT systems that started in 2007 is now almost complete, but still ongoing. The actual implementation of these necessary improvements is still progressing slowly, as only some of the upgrades have been completed so far. Upgrading consists of a combination of building new WWTPs or enhancing existing ones, improving the existing 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)

As the WWTPs at IPT 1, PT 1 and PT 3 were already replaced by the time of the September 2011 field visit, the only remaining construction-phase facilities still in operation are those at PT2 and PT4. These plants are planned for improvement, rather than replacement, with a new enhancement project expected to be complete by the end of 2012. Improvements relate to the following: new access and installation of a new submersible mixer pump in the buffer tank mixing systems, new buffer tank feed pumps, primary settlement tanks, RBC interconnecting piping, biological treatment, final settlement tanks, chlorine dosing and sampling points and sand filters. Some additional improvements for the new WWTPs at PT1 and PT3 related to the grit separator are expected to be completed by the end of 2012.

A general problem with the WWTPs at all of the PTs over the past year and earlier has been the presence of coliform bacteria or an exceedance of chlorine. Nevertheless, it should be noted that non-compliant wastewater is not discharged to the environment, but is sent to a stormwater pond (SWP). As chlorination is not always effective in killing coliform bacteria, at one location (IPT1) an ultraviolet (UV) treatment step has been added, which is effective, except when there is a power outage. Plans to have more reliable power at IPT1 are

expected to resolve the treatment problems there. As previously suggested by IEC, on-site monitoring kits were purchased for all facilities for pH, turbidity, dissolved oxygen and residual chlorine and relevant trainings were provided to BIL staff. When there are known treatment difficulties, it is necessary to have close to real-time data to avoid non-compliant effluent discharges.

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

As of July 2012 visit, improvements at the different SWP and PWHP are expected to be completed by the end of 2012. The bypasses for PTSWPs are planned to be completed by the end of 2012. Installation of submersible pumps at the pond's lowest point at PT1 and PT3, to fully empty the pond when the SWP analysis results meet the project effluent limits, is in the scope of work for 2012. WWTP bypasses at CMT, PT2 and PT4 are in the scope of work for 2012. 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 a SWP; valves between the PWHP and the SWP will be installed in 2012 to avoid SWP contamination in case of oil spill or PWHP non-compliance in general. Direct discharge line and valve for PWHPs are being considered to enable PWHP to be by-passed when effluent is compliant. At the CMT SWP, similar to the SWPs at PTs, a submersible pump inside the lowest point of the SWP is in the 2012 scope of work. Moreover, at the CMT SWP and PWHP safety barriers around the perimeter of the SWP final effluent pipes will be equipped, by the end of 2012, 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.

The leak from the bottom of the PWHP at PT3, which was already identified in 2011, is not fixed yet. BIL intends to fix the leakage prior the end of the summer 2012. If the Project won't be able to fix it, the plan is to expand groundwater monitoring until the problem is fixed increasing the frequency and number of samples.

4.4.6 Oily Water Separator Performance – Observations

Project expects to finish the OWS improvements by the end of 2012. The following improvements are being undertaken:

- OWSs at all Pump Stations (the completed one at PT2 was visited) 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. At the time of 2012 site visit, no improvements for the CMT OWSs had been scheduled.

4.4.7 Wastewater Management – Recommendations

1. A quick coliform analysis kit should be purchased for each WWTP facility.
2. A complete revision of the chlorination procedure at all WWTPs is recommended. It is also suggested the study of new possible solutions, e.g. UV lamps as the Project is already using at IPT1 and, more successfully, in Georgia.
3. 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 (repeat recommendation).
4. 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 slowly. 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 (repeat recommendation).

4.5 POLLUTION PREVENTION AND ENVIRONMENTAL MONITORING

4.5.1 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 management of contaminated soils is the same as what was reported in 2011 and is not repeated here.

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.

The Project's strategy regarding oil spill response is described in Section 4.1.1. Based on the audit undertaken by Polaris in April 2012, personnel training needs to have a high priority and IEC recommends in Section 4.1.2 that Polaris return to verify progress.

With reference to the ongoing Operations phase, DOKAY & Çınar continue 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

Ambient air quality monitoring is undertaken only at the CMT and takes place at eight locations four times a year. NO_x, SO_2, and BTEX parameters are monitored. Although some BTEX excursions were recorded in 2010 and 2011 ambient air quality has never been an issue. All of the readings have been less than 1.0 µg/m3, which is actually the same as reported for Azerbaijan and Georgia. In any case, Project standards (which are the same as USEPA standards) have not been exceeded and the two monitoring events in 2012 also confirm air quality better than both Project and national standards.

Stack emissions results from a total of 38 stacks monitored in 2011 show compliance at all facilities except for the IPT1 site wax handling water heater soot and for SO_2 at the PT1

water heater 1. The maintenance of those pieces of equipment was performed by the BIL maintenance department following notification of the non-compliant monitoring result and the success will .need to be verified during the next round of monitoring.

During 2011 site visit, BTC reported that BIL had submitted an application to the Ministry of Environment and Urbanization (MoEU) for the new regulatory system to combine all types of emission permits in a single authorization. The MoEU granted a temporary permit to authorize emissions at CMT, but the final authorization had not yet been issued at the time of this visit.

Noise

Noise continues to be a non-issue. 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. Ambient noise monitoring at community receptors is not undertaken as modeling has demonstrated that there is no need (the nearest receptor from any facility is 1.5 km).

Groundwater Monitoring

Groundwater monitoring planned since 2008 has finally been implemented. The goal of this monitoring is to monitor the groundwater level at the wells, the potential for groundwater contamination from BTC facilities operations, and saline intrusion at the CMT. The monitoring was conducted by BIL in cooperation with CINAR. According to the Quality Plan for Ground Water Quality Monitoring, the sampling campaign was conducted in 2011 and carried out at the CMT and Pump Stations (PT1, PT2, PT3, and PT4). The parameters analyzed in samples taken were: pH, Turbidity, EC/Salinity/TDS, Dissolved Oxygen, Total Coliforms, Ammonia, Nitrate, Nitrite, TOC, and TPH. In addition the Arsenic analysis was conducted at the station wells, PT2 and PT3. Additionally, quarterly analyzed parameters of samples taken from the well at PT4 are: Dissolved Oxygen, EC/Salinity/TDS, pH, Turbidity, and TOC. As stated within the Groundwater Quality and Level Monitoring Report for 2011, all parameters analyzed were generally below the Project's limits. Some exceedances happened at PT2 (turbidity), and at PT4 (bacterial growth: this value was checked again in May 2012 – IEC waits for results).

Treatment of Slops at the CMT

The lack of a slops treatment facility at the CMT is the most significant non-compliance identified during the September 2011 IEC mission. The issue is not yet resolved. BTC/BIL was required by the MoEU to present a work plan prior February 2012, but instead asked for other 45 days in order to present a comprehensive work plan. The MoEU defined May 2012 as last deadline which was again missed by BTC/BIL. Currently, a tendering process is underway and construction might start in November 2012. The Government could issue another fine to BIL/BTC or could even enforce a shutdown of the CMT, although this is not considered a credible scenario.

As a consequence of the action taken by the MoEU to fine BIL and the lack of action taken by the Project, the non-compliance with a Government requirement is a non-compliance with ESAP commitments and therefore a Level 2 non-compliance is not rescinded for this issue. It is considered a serious non-compliance, because the lack of resolution (previously identified in IEC reports) gives the MoE the possibility (albeit highly unlikely) of shutting down the CMT, which would obviously be a serious consequence to the Project. Should the situation not be resolved by the next IEC visit it will need to be increased to a Level III.

4.6 ROW MANAGEMENT, EROSION CONTROL, REINSTATEMENT AND BIORESTORATION

4.6.1 Erosion Control, Reinstatement and Biorestoration - Observations

As stated in previous IEC reports, the 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. BTC and BIL continue to work together on the ROW maintenance and the management system appears to be coordinated satisfactorily. Other activities include the patrolling of the ROW, a process which has not changed over the past year and the compilation of data on the basis of a GIS system, another process that has not recently changed. Maintenance is the main activity and by the end of 2012 two minor geohazards and 18 river crossings are expected to be repaired. The main maintenance issues relate to slope failures.

Although significant effort has been expended, the Project has not been able to control slope movements at KP1007 and KP383 and plans are being made to reroute the pipeline at these sections. Construction could start as early as Q4 2012. Another problematic area has been at BVT 50, where flood control structures are needed. These have been designed and construction is expected to be completed by the end of 2012.

Pipeline third party crossing (telecommunication cables, power transmission lines, water pipes and aqueducts, irrigation channels, roads, railroads, etc.) continue to be an important issue for the ROW management as the number of crossing applications has progressively increased. As of September 2011 there were 164 crossings that required management. In July 2012 this number the number reported was 185 crossings, most of which have been completed.

4.6.2 Erosion Control, Reinstatement and Biorestoration – Recommendations

1. The reroutes of the pipeline at KP1007 and KP383 represent major construction works. IEC reminds BTC that there are specific MOC Class changes associated with rerouting that may require Lenders' notification.

4.6.3 Access Roads - Observations

All issues related to access roads were complete at the time of the September 2011 visit. Specifically during the July 2012 visit, BTC reports that the Access Roads Procedure preparation is still ongoing and close to being complete (Document No. BIL-PRO-PLT-GEN-00X Rev.000). Our long-standing recommendation to define an operational access road strategy has been removed as it is basically no longer relevant.

4.7 ECOLOGICAL MANAGEMENT

4.7.1 Observations

The last ecological survey for the entire pipeline route was completed in July 2012, but the report had not been completed for IEC review. The Ecological Monitoring Report for 2011 was completed in October 2011 and basically confirmed progress with respect to vegetation cover and diversity. The report notes that the main difficulties for full ecological recovery have been erosion, grazing and agricultural use. During this visit some of the problem areas were visited, such as observed on some steep slopes (e.g., KP 983), but these areas are well known to the Project and are managed within their routine maintenance programs.

The biannual marine ecology survey was conducted in July 2011. The survey study, comprising both marine biota and water quality (marine ecology) and marine sediments did not find negative impacts related to BTC activities, recognizing that the heavily industrialized Iskenderun Bay is a polluted region. Further details can be found in the BTC Project Environmental and Social Annual Report (Operations Phase) for 2011. The annual survey on Marine Sediment was conducted from July 16-18, 2012 and results are pending.

The fifth Coastal Process Survey was conducted in December 2011 with the report finalized in April 2012. The objective of these annual surveys is to evaluate if the BTC jetty has caused any changes to coastal dynamics impacting natural coastal development patterns in the vicinity. After five years of monitoring some changes have been measured, mainly in the immediate vicinity of the jetty. The impermeable section of the BTC jetty (causeway) extending 360 m into the sea blocks the NE transport of sediments resulting in a slight accumulation of sediment on the SW side of the jetty and erosion on the NE side, although this effect is minor and highly localized. The overall conclusion of the study is that the BTC Jetty does not significantly impact the natural coastal development pattern and the existing benthic and nektonic communities.

The annual marine turtle survey was conducted from June to September 2011. As in previous surveys, the survey was carried out at four beaches in the vicinity of CMT jetty. In 2011, a total of 145 Chelonia mydas (Green Turtle) nests and 3 Caretta caretta (Loggerhead Turtle) nest were observed in the study area. These numbers are similar to the findings from previous years. Marine turtle survey of the year 2012 was ongoing. As a corollary to the marine turtle monitoring, one of the 2011 EIP projects was the rehabilitation of a marine wildlife rehabilitation center on the southwestern coast of Turkey, where injured sea turtles are rehabilitated and returned to their habitats. The center is now a popular destination for volunteers seeking opportunities to help wildlife conservation and gain rehabilitation experience.

4.8 COMMUNITY LIAISON

4.8.1 Observations

Beginning 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. This is no longer considered an issue. As of July 2012, all vacancies in the PCR staff are filled with the exception of a PCRE position at PT1. IEC notes that there is no back-to-back coverage for PT1, but accepts that sufficient coverage at that location is available and that BIL is planning to fill that position in 2012.

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 4.6.1). In particular, BIL reports that regular awareness meetings are needed to make land users aware of land use restrictions on the ROW, in particular in the Southern Turkey area where agriculture is largely diffuse and land users frequently change. Information meetings on land use restrictions were held in 246 out of 398 villages (62%) in by July 2012, including 60 at Jandarma stations and 65 for public institutions.

Concerning local employment the situation is equal to 2011 site visit where BIL reported that KPI targets were not met for skilled and semi-skilled laborers mainly because a lack of trained personnel. In response of the 2011 IEC recommendations, during the 2012 visit BIL states that an action is ongoing. The requirements of local employment, local procurement

plan and KPIs will be applied both by BIL and its contractors as agreed in the EIA. Local procurement and employment related targets will be in the contracts with sub-contractors. All ESAP and BIL Social management plans will be updated and approved according to needs and recommendations. IEC noted the efforts done by BIL, and will examine the updated ESAP and BIL Social management plans as soon as these documents will be provided.

Concerning PCR activities, IEC is provided with the following additional information.

- BIL and BTC are providing awareness meeting along the pipeline schools. BIL, during the spring semester of 2012, provided information, training, and visual media to students and teachers. As of June 30, 2012, PCREs had organized 95 Community Awareness Meetings in schools training 10,102 students and 591 teachers. 44% of the schools along the pipeline were trained and the remaining will be trained during the fall semester 2012;
- BIL tracks complaints on the basis of a Complaints Management Tracker. As of June 2012, 75 complaints had been received (against 22 complaints recorded in 2011, 51 in 2010, 87 in 2009 and 531 in 2008). In July 2012, BIL reported that a total of 73 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 May 2012, BIL reported a total of 759 land use restriction violations (765 in 2011), 597 of which are closed (601 in 2011), 138 pending (101 in 2011) and 24 still open (63 in 2011). BIL reports that 30% of these violations are related with planting and another 30% are related to third party crossing project activities. Approximately 40% 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. As of July 2012 the plan is in place and fully operational.

During July 2012 visit, BIL reported that the priorities of the 2012 PCR program also include: control on the effective management of sub-contractor employees; planning of a second round of meetings to cover all affected villages along the ROW; training to all local stakeholders at least once; gap assessments and data collection for Voluntary Principal Implementation Planning; coordination of relations between PCREs and SDI partners; and creating synergies between social assurance and social projects.

4.9 ENVIRONMENTAL AND SOCIAL INVESTMENT PROGRAMMES

4.9.1 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, wildlife care and regulator awareness and experience.

During the Operations phase, the EIP has started 20 projects, out of which 15 were completed by mid-2012 and five of them are still ongoing. As of July 2012, BTC has invested $7 million since EIP initiation in 2003. The 2011 BTC Environmental and Social Annual Report summarizes the key EIP ongoing project achievements in 2011 and they are not repeated here.

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

BTC continues to implement Community Investment me (CIP) and Regional Development Initiative (RDI) programs as part of its commitment to enhance positive effects of business for project affected communities in Turkey. The most detailed information regarding the status of the CIP and RDI Programs is presented in the 2011 BTC Environmental and Social Annual Report and is not repeated here.

4.10 CULTURAL HERITAGE MANAGEMENT

Cultural heritage management requirements associated with the construction phase of the BTC Project are essentially complete, except for monitoring sites and being prepared to undertake a chance finds protocol should any activity uncover unexpected cultural remains. Current programs to address archaeological responsibilities are through training and competency reviews of roles in the organization, as well as regular audits. BIL has an archaeologist associated with the OSR team who will be responsible for monitoring and providing any necessary support on an as-needed basis.

4.11 HEALTH AND SAFETY

4.11.1 Observations

Health and Safety issues continue to be a major focus of the Project in Turkey. According to the Project safety statistics included in the 2011 BTC Annual Report (Operations Phase), the majority of targets and key performance indicators set at the beginning of 2011 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 2012 through July no fatalities or recordable injury have been recorded in Turkey. During this period, six near miss accidents were reported. Moreover, travel continues to represent an important personal safety risk. BIL reported that five minor vehicle accidents occurred in 2012; but up through July no Severe Vehicle Accidents (SVA) has occurred. 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. During the July 2012 site visit, BIL, in order to answer to the 2011 recommendation, informs IEC that starting from 2006, BIL was conducting regular ambient air monitoring at

CMT workplaces such as general facilities. In 2009, a review of ambient air monitoring program was conducted by BTC Co. contractor. The review recommended to remove those two monitoring locations from the program as there was no exceedance; thus BIL's monitoring program was updated reflecting recommended changes of the review.

4.11.2 Recommendations

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

APPENDIX A
TRIP SUMMARY- 14TH IEC MISSION BY D'APPOLONIA FOR THE BTC PIPELINE PROJECT – JULY 2012

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TRIP SUMMARY- 14TH IEC MISSION BY D'APPOLONIA FOR THE BTC PIPELINE PROJECT – JULY 2012

For this mission, a two people team toured Turkey, Azerbaijan and Georgia. In Turkey the team was composed by Marcello Iocca and Luca Marini. During the visit in Azerbaijan and Georgia, the team members were William J. Johnson and Luca Marini. The trip summaries are presented below.

July 8 – Team arrives in Adana by air.

July 9 – 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.

July 10 – Tour the ROW from CMT northward. Inspection of KPs 1026, 1020, 1007, BVT50, 983, 979, 941, and 931 – overnight at PT4.

July 11 – PT4 site visit – Tour the ROW from PT4 to Erzincan. Inspection of KPs 611, 558, BVT30, 520, and 484 – overnight in Erzincan.

July 12 – Drive from Erzincan to PT3 – receive briefings and tour PT3. Conduct closeout meeting at PT3 and then conduct ROW inspections at KPs 388, 383, 371, and 362. Overnight in Erzurum.

July 13 – Conduct ROW inspections at KPs 291 – arrive at PT2. Receive briefings and tour PT2. Conduct closeout meeting at PT2 and then depart Erzurum for Tbilisi via Istanbul.

July 14 – Arrive in Tbilisi and attend kick-off meetings at AGT offices. Overnight in Tbilisi.

July 15 – Site visit to PSG1 – Inspection of BP Landfill and Municipal Landfill at the city of Garbadani. Overnight in Tbilisi.

July 16 – Site visit to the School for Hearing Impaired Children and to the SOS Orphanage in Tbilisi - Conduct closeout in AGT office. Departure from Tbilisi to Baku - Overnight in Tbilisi.

July 17 – Kick off Meeting with AZ team at BP office in Baku. Overnight in Baku.

July 18 – Site visit to Gobustan – Inspection of KPs 7, 9, 12, 21. Overnight in Baku.

July 19 – Site visit to IPA1 and AB5. Overnight in Baku.

July 20 – Additional meetings with BTC staff and final discussions regarding trip findings. Cross country close out. Overnight in Baku.

July 21 – Depart Baku for home.

APPENDIX B

TABLE B-1: NON-COMPLIANCES WITH ESAP

APPENDIX B

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

Section Ref.	Observation	Non-Compliance	Level	Comments / Recommendations
4.5.1	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 MoEU has the power to shut down the CMT, even recognizing that this would be highly unlikely