

**REPORT OF THE POST-FINANCIAL CLOSE
INDEPENDENT ENVIRONMENTAL CONSULTANT (IEC)
BAKU-TBILISI-CEYHAN (BTC) PIPELINE PROJECT**

EIGHTH SITE VISIT, OCTOBER 2006

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EXECUTIVE SUMMARY

This report presents the results of the eighth post-financial close field visit of the Independent Environmental Consultant (IEC) held in October 15 – 20, 2006 for the BTC Project. The activity involved two IEC teams: two team members visited Georgia while, as directed by the Lenders, another two performed a desk review (not included in the summary) of updated information provided by the Project pertaining to ongoing environmental and social performance relevant to Turkey. Azerbaijan was not part of this mission.

During the visit, the IEC had the opportunity to meet with the Georgia in-country organization and the Engineering, Procurement and Construction (EPC) Contractor in Georgia, reviewing documentation and interviewing personnel in charge of implementing E&S commitments and monitoring construction activities.

Now that the SCP is complete, reinstatement for the entire BTC/SCP corridor is nearly finished and was scheduled to be 100% complete within a few days of the end of the visit. Therefore, most of the time spent by the IEC team in the field was dedicated to a visit along the ROW including a fly-over from the Azerbaijan border (PSG-1) westward to about KP 210. The primary scope of the survey was to observe final reinstatement across the combined BTC/SCP corridor. During the visit specific spot checks on the ground were conducted, especially in the highlands where active reinstatement was ongoing during the previous IEC visit in June. The Central Waste Management Area (CWAA) at PSG-1, the Borjomi oil spill area, the Kodiana Drain Down Tank and the Kodiana security base were also visited.

As general consideration, IEC acknowledges the effort made by all teams during the last four months and recognizes the good standard of the reinstatement achieved by the Project in Georgia. Where final reinstatement has been implemented, the work appears to be completed properly with most of the sections now covered by vegetation. Re-contouring of the land surface has been generally consistent with pre-construction contours, with gabion installations, river protection, and erosion control measures almost completed on both spreads. Vegetation is growing along the ROW and, for many of the sections, the BTC/SCP corridor is now difficult to discern.

Organization and Staffing: the resources and the personnel dedicated to the management of the E&S system appear sufficient with some of the key individuals

responsible for management of environmental and social programs having transitioned to Operations. Now that construction activities are almost completed SPJV is being demobilized. Although a SPJV Project Environmental Manager and a Pipeline Environmental Manager continue to oversee activities, BTC is effectively responsible for monitoring and controlling the activities of local contractors. BTC H&S advisors have been appointed to supervise the local contractors involved in the ongoing Projects, specifically the Kodiana projects and the decommissioning of the remaining off-ROW facilities. Since BTC has assumed the management of the Central Waste Accumulation Area (CWAA) at PSG-1 the situation of the facility is implemented and improvements are ongoing. An integrated Construction – Operations team has been appointed to deal with social aspects while for certain projects components, such as cultural heritage management, support is still being provided from the project's central organization in the BP Azerbaijan Business Unit.

Management of Change: the MOC relevant to the Iagljudja municipal disposal facility was considered not acceptable by the IEC as the proposed changes were not considered an environmental improvement to the Iagljudja dump site. Project is currently investigating potential options for leachate run-off control and treatment at this site and, once available, results of the study will be suggested to the Authorities. During the visit IEC was informed that, as an offset for the current use of the Iagluja dump site for disposal of the non-recyclable/reusable portion of the BTC non-hazardous wastes, BP has committed to allocate up to \$5m to help support the integrated waste management strategy of the GoG and BP and this strategy will be coordinated by EBRD. In particular the BP contribution will be used for a pilot project at the new landfill (BP will construct its own cell) to be constructed near Iagluja, east of Tbilisi. However the final level of BP involvement will depend on agreements currently under discussion between GoG, BP and EBRD. The medical & biological waste accumulated during the pipeline system construction, has not been disposed of yet. A Class III MOC was recently submitted to IEC for comments, proposing disposal of these wastes via the Tbilisi hospital incinerator but further investigation made by BP made this option unfeasible. IEC requested the submission of a new MOC for review and comment once the final approach will be identified by BTC. A third MOC concerning the disposal of Project and Operations treated sewage sludge into the Gardabani Sewage Treatment Plant was also submitted to IEC. BP will assist with the provision of new equipment associated with certain H&S upgrades for the treatment plant and will also provide resources or technical assistance to assist in the improvement in HSE culture.

Construction Camps, Infrastructure and Services: at this point in time, since most of the facilities are no longer operational, the IEC visit focused on reinstatement of some of the facilities previously used by the Project. During this field trip, two batch plants, one at Kodiana and another that formerly serviced PSG-2, and the Atskuri gravel pit were visited. The Borjomi Oil Spill Response Base under construction by the contractor CBM was also visited. The previous non-compliance relevant to the low levels of coliforms in potable water at PSG-2 camp at the time of the June 2006 IEC

mission is considered rescinded since corrective actions have been taken and the available recent test data demonstrate full compliance with WHO potable water standards.

Waste Management: as noted from previous visits, the critical issue continues to be the final disposal of the domestic waste, which appears to still be uncertain. The current plan for non-hazardous domestic waste management is to continue using the Iagljudja dump site (which does not comply with the project standard for waste disposal) until development of an EU-compliant cell and/or landfill is constructed. With respect to hazardous waste, the plan is to export remaining waste (part of the waste oil was recycled by re-injection in the Western Route pipeline) mainly generated during construction to a country with EU-compliant facilities. . Dedicated consultants have been commissioned to manage the issue and provide assistance in the approvals process. Since international shipments of wastes is not envisioned by the ESAP and would be considered to be a planned Class III change under the terms of the ESAP, BTC is required to fully assess the export program and prepare and submit MOC documentation to the IEC for review. The Central Waste Accumulation Area (CWAA) at PSG-1 was visited during this mission. The enhancement works implemented since IEC's last visit were ongoing and the overall condition of this facility was found to be improved since June 2006.

Pollution Prevention: IEC acknowledges the effort made by all teams during the last four months and recognizes the good standard of the reinstatement achieved by the Project along the RoW including erosion and sediment control measures. Minor non-compliant conditions were observed at the fueling area at the Atskuri gravel pit (deficient pollution prevention controls, inadequate secondary containment areas, absence of oil spill kits). Stack emission monitoring has not been started at PSG-1 and PSG-2 yet; the Emissions Management Plan for Operations calls for stack emissions testing to be conducted on an annual basis during Operations, a situation reportedly to have been achieved in May 2006 only. According to the information provided, the first stack emissions' monitoring is planned within the end of 2006. With reference to ambient air monitoring, results from the August-September 2005 campaign demonstrated compliance with relevant EU ambient air quality standards. According to the information provided during this site visit, a second monitoring campaign has been completed in August 2006, although results are not yet available.

Reinstatement: now that the SCP is complete and reinstatement for the entire BTC/SCP corridor will be completed within a few days of the end of the visit, much of the focus of this mission was directed towards the monitoring of reinstatement across the combined BTC/SCP corridor. During the visit specific spot checks on the ground were conducted, especially in the highlands where active reinstatement was ongoing during the June visit. As a general observation, IEC acknowledges the effort made by all teams during the last four months and recognizes the good standard of the reinstatement and re-contouring achieved by the Project. A large section of the ROW depicts good vegetative regrowth and the BTC/SCP pipeline corridor is almost

indistinguishable from natural ground. During past IEC visits, one of the main concerns in Georgia was the reinstatement of the off-ROW project footprints. As a general comment, most of the facilities have been adequately reinstated. However, although IEC acknowledges the significant effort made by the Project, in certain cases the reinstatement of off-ROW facilities was prevented by landowner requests, for some of the borrow pits and rock disposal sites. The footprint at these sites will likely remain associated with the Project development.

Archaeology: now that the construction is almost completed, the BTC Cultural Heritage Field Team (CHFT) has assumed responsibility for cultural heritage issues for the BTC Project to close out remaining construction-related work and to work with BTC Operations to continue the management of cultural heritage sites. Ongoing negotiations with the Centre for Archaeological Studies (CAS), the Georgian government's cultural properties review and compliance agency, relate to potentially significant features located along the project access roads, specifically along the Bedeni Plateau and the Borjomi District. Based on the information provided, IEC recommends finalizing closure of the sites where damage has been claimed by CAS by integrating potential compensation measures to an effective capacity-building role with CAS to assure the appropriate management and presentation of the major findings associated with construction.

Ecological Management: In Georgia, ecological monitoring programs are underway. Issues previously identified by the IEC with respect to this monitoring are being resolved by the Project. During the current visit the IEC acquired the results of the second annual biodiversity monitoring report (2005) for both faunal and floral components. Objectives, justifications for all indices, site selection, sampling protocols and methods recommended by IEC were provided for the floral monitoring, however the equivalent information for the faunal monitoring was missing.

1 INTRODUCTION

D'Appolonia S.p.A.(D'Appolonia), located in Genoa, Italy, has been appointed 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 and the Azeri, Chirag and deepwater Gunashli (ACG) Phase 1 Project (Phase 1 Project)³. The BTC Project is essentially complete and is owned and operated by BTC, a company formed by a consortium of the Main Export Pipeline Participants (MEPs)⁴. Construction of the BTC Project is underway in Azerbaijan, Georgia and Turkey. The ACG Contract Area is being developed by Participating Production Sharing Agreement (PSA) Contracting Parties.⁵

The overall role of D'Appolonia within the BTC and ACG Projects is to assess and report to the Lender Group on the compliance with the environmental and social provisions contained within the respective project Environmental and Social Action Plans (ESAPs), the associated Contractor Control Plans (CCPs), and BTC/ACG Management Plans and with HSE management systems. This report summarizes the results of D'Appolonia's eighth field visit held in October 15 – 20, 2006 for the BTC

¹ IEC Team members: Roberto Carpaneto (Team Leader), Paolo Lombardo (Team Coordinator), Miles Scott-Brown (Team Member), William J. Johnson (Team Member), Giovanni B. De Franchi (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 The Lender Group for the Phase 1 Project (Phase 1 Finance Parties) means IFC and EBRD.

⁴ Also termed the "BTC Sponsors" includes Amerada Hess Corporation, BP International Limited, BP Corporation North America, Inc. ConocoPhillips, ENI International, B.V., INPEX Corporation, ITOCHU Corporation, SOCAR, Statoil ASA, TOTAL, S.A., Türkiye Petrolleri A.O. and Union Oil Company of California.

⁵ The parties to the PSA at the date of the CTA, also termed the "PSA Parties" includes Amoco Caspian Sea Petroleum Limited, Amerada Hess (ACG) Limited, BP Exploration (Caspian Sea) Limited ("BP Exploration"), Devon Energy Caspian Corporation, Exxon Azerbaijan Limited, INPEX South West Caspian Sea, Limited, ITOCHU Oil Exploration ("Azerbaijan") Inc., Statoil Aspheron a.s., Türkiye Petrolleri A.O. ("TPAO") and Unocal Khazar, Ltd.

Project. The activity involved two IEC teams: two team members visited Georgia while another two performed a desk review of updated information provided by the Project pertaining to ongoing environmental and social performance relevant to Turkey. Azerbaijan was not part of this mission.

The primary objective of D'Appolonia's with respect to the BTC Project has been to verify the implementation of BTC Project commitments at the end of the construction phase. These commitments are established in the Environmental & Social Action Plan (ESAP), final at the time of financial closure (February 2004), and supporting documents developed to assure implementation of the ESAP including Contractor Implementation Plans and Procedures (CIPPs) and associated Method Statements and Procedures. D'Appolonia's review has included the environmental and social (E&S) and health and safety (H&S) management activities of BTC, and the individual Engineering, Procurement and Construction (EPC) Contractors. Emphasis has been placed on evaluating compliance primarily on the reactions of the BTC and the individual Contractors to non-compliant situations based on the following:

- Random checking of individual non-compliances identified by BTC or individual Contractors and reviewing the mechanisms followed by the responsible organizations to identify, address, correct and follow up non-compliant situations, as well as the documentation demonstrating the implementation of appropriate procedures.
- In-depth review of symptomatic non-compliances, which may indicate a deficiency in the process of compliance management and identifying mechanisms and the procedures the BTC Project, proposes to follow to make sure that similar situations will not occur again.
- Follow-up to non-compliant conditions identified during the previous missions, as practical. It should be noted that not all of the locations where non-compliant situations were originally encountered were visited during this mission. For the locations not included in the survey, a technical review of the documents provided by the Project was performed.

Except for the information provided for Turkey, 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.

Subsequent sections of this report provide the following:

- Section 2 presents the review of the Project in Georgia.
- Section 3 presents the review of the Project in Turkey.
- Appendix A presents the trip itinerary.

- Appendix B presents lists of non-compliances with the ESAP (limited to Georgia), with relevant observations and recommendations.
- Appendix C presents the list of documents requested by IEC on 14 September 2006 for the desk review of information update relevant to Turkey.

2 GEORGIA

The BTC Project in Georgia encompasses 249 km of pipeline extending from Azerbaijan-Georgia border in the Gardabani District and finishing in the Akhaltsikhe District at the Turkish border. The corridor followed by the pipeline is close to the existing Western Route Export Pipeline (WREP) for a short distance from the Georgia – Azerbaijan border until the BTC pipeline deviates towards Turkey at KP 19. The BTC pipeline also shares the same corridor with the SCP pipeline, which is a subsequent separate related project that has begun construction and will transport 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.

In addition to the permanent facilities, the pipeline is associated with several temporary facilities, which include:

- Temporary construction camps (Marneuli at KP 53, no longer in operation; Tsalka at KP 123, currently decommissioned with full reinstatement planned after winter). The camps at PSG-1 and PSG-2 and Akhaltsikhe have been turned over to Operations.
- Temporary pipe yards for pipe (Gatchiani; Marneuli; Tetrtskaro; Tsalka 2; Andeziti and Akhaltsikhe); these pipe yards are no longer in operation and reinstatement has been completed or is ongoing.

During this eighth mission, a helicopter fly-over along most of the pipeline ROW from PSG-1 westward to about KP 210 was conducted. Furthermore, spot checks on the ground were conducted to review the reinstatement of the pipeline from about KP 220 to KP 10. Some of the off-ROW (construction camps, pipe and mechanical yards, access roads, borrow pits, batching plants, and rock disposal sites) were also visited to verify the reinstatement status. The Central Waste Management Area (CWAA) at PSG-1, the Borjomi oil spill area and the Kodiana security base were also visited.

2.1 CONSTRUCTION STATUS

The BTC Project uses a single EPC Contractor, Spie-Capag Petrofac Joint Venture (SPJV), for both pipeline and AGI construction. Current (October 2006) construction progress is as follows:

- *Facilities* – Pump Stations PSG-1 and PSG-2 are both operational with most of the construction/commissioning certificates finalized.

- *Pipeline* – the BTC pipeline is operational and reinstatement of the entire BTC/SCP corridor was reported to be almost completed on both spreads, including gabion installations, river protection, rock disposal activities and erosion control measures. Oil flow at the time of the visit was about 3600m³/hr (540mbd).

2.1.1 Resources and Organization - Observations

BTC

During the visit IEC reviewed the information provided regarding the organization and staffing of the environmental, health, safety and social teams currently in charge. The resources and the personnel dedicated to the management of the E&S system appear sufficient with some of the key individuals responsible for management of environmental and social programs during construction having transitioned to Operations.

Now that construction activities are almost completed and SPJV is being demobilized, BTC is effectively responsible for monitoring and controlling the remaining activities performed by local contractors. BTC HSE advisors have been appointed to supervise the local contractors involved in the ongoing Projects, specifically the Kodiana projects (see Section 2.6) and the decommissioning of the remaining off-ROW facilities.

To deal with social aspects, an integrated Construction – Operations team has been appointed while for certain projects components, such as cultural heritage management, support is still being provided from the project's central organization in the BP Azerbaijan Business Unit.

SPJV

At the time of the visit SPJV was being demobilized with their remaining activities focused mainly on final ROW and off-ROW reinstatement. Based on the IEC's field observations, although significantly reduced, the remaining environmental staff for completion of the construction phase is experienced and final reinstatement will be completed soon. A Project Environmental Manager and a Pipeline Environmental Manager continue to oversee activities, including the management of two environmental reinstatement groups.

2.1.2 Resources and Organization - Recommendations

1. BTC needs to continue to maintain appropriate resources to manage the SPJV ongoing demobilization.

2. IEC stresses the importance to continue monitoring, particularly with respect to fulfillment of ESAP commitments for ROW and off-ROW reinstatement, maintenance, and bio restoration.

2.1.3 Non-Conformance Records (NCR) Register

The NCR Register was provided by the Project during the October 2006 visit. Based on the information provided, the following issues appear to be open with contractors at the time of the visit:

- AGT002-2006-QA-NCR-00047 issued to SPJV concerning final reinstatement at KP 178;
- AGT002-2055-QA-CAR-00001 issued to Geo-Engineering, concerning environmental and safety measures implementation at Atskuri BWP exploitation area and along the access road;
- AGT002-2006-QA-CAR-00057 issued to SPIE PETROFAC concerning damage to berms, jute matting and harrowing on the ROW;
- AGT002-2006-QA-CAR-00058 issued to SPIE PETROFAC concerning inadequate reinstated road drainage at KP176+819;
- AGT002-2006-QA-CAR-00059 issued to SPIE PETROFAC concerning a small stream bank collapse due to poor compaction and lack of erosion control measures.

According to the information provided to the IEC, all these issues are expected to be closed as soon as practical during the next few weeks.

2.1.4 Management of Change - Observations

The most significant Management of Change (MOC) associated with the BTC Project in Georgia are:

- AGT002-2004-PM-DCN-00045, Revision U-05, *Modifications to Scope of Work for Iagljudja Landfill Capital Improvements Works.*
- AGT002-2003-OP-DCN-00006, June 2006, *Disposal of Project and Operations medical and biological waste.*
- AGT002-2003-OP-DCN-00007, June 2006, *Disposal of Project and Operations treated sewage sludge into Gardabani sewage treatment works.*

These MOCs and the relevant IEC review are discussed in Section 2.3.

2.2 CONSTRUCTION CAMPS, INFRASTRUCTURE AND SERVICES

The review of construction camps, infrastructure and services focuses on construction operations that potentially have an impact to surrounding infrastructure, natural resources, and community and household assets, including land, roads, borrow pits and irrigation systems. At this point in time, since most of the facilities are no longer operational, the IEC visit focused on reinstatement of some of these facilities.

2.2.1 Observations

BTC

Since IEC's third mission in October 2004, BTC's Core Management Team (CMT) has dedicated specific resources to the survey of third-party sources of supplies, in particular aggregate and cement/concrete. During this field trip, two batch plants, one at Kodiana and another that formerly serviced PSG-2 and the Atskuri gravel pit were visited.

The PSG-2 batch plant has been completely decommissioned and the area is now completely reinstated to its original conditions.

The new Kodiana batch plant, managed by Nola and currently not yet operational, is located within the area of a pre-existing Project facility (including a laydown area and a fuel storage area). The new plant will be used to provide concrete for the Kodiana Projects. At the time of the visit construction works were still ongoing at the site where the batch plant will operate with a few workers and a couple of loaders involved in the operations.

The Atskuri gravel pit, managed by a sub-contractor of GeoEngineering and used to provide aggregate for the Kodiana Projects, was visited by IEC. As an overall impression, the site complies with ESAP commitments: a flood embankment to avoid pollution of the watercourse was present and no direct river extraction was observed. PPE were properly used and basic safety procedures were implemented at site. Although it was reported that equipment refueling operations are now conducted by direct downloading from a road tanker, few minor non-compliant conditions were observed at the fueling area: deficient pollution prevention controls, inadequate secondary containment areas, absence of oil spill kits.

Although these issues are expected to have limited material impact from an environmental point of view, they represent a non-compliance with respect to ESAP commitments and are a concern as they may indicate inadequate or insufficient implementation of the ESAP commitments by subcontractors, as well as insufficient monitoring and management of subcontractors (*Level I Non-Compliance, CCP Procurement and Supply, Commitment ID: H1, H23 (J10)*).

At the time of the June 2006 mission, IEC visited the Vale II aggregate supply site used by SPJV for the supply of cobbles to construct gabions at river and stream crossings. Several situations not consistent with Project environmental and social commitments were encountered during the site visit and a Level II Non-Compliance was assigned. The IEC recommendation was to discontinue the use of non-compliant third-party aggregate suppliers or intervene such that their activities can be brought into compliance. In response to this previous non-compliance, according to the information provided, the use of this supplier was discontinued in June 2006 and rock and aggregate has been mainly supplied by the existing privately run Kashuri aggregate site starting July 2006. A site-specific environmental and social assessment was conducted by BTC in May 2006 to check site operations. Social issues, surface water and drainage, flora, fauna and ecology aspects were investigated during the survey. The supplier was considered a suitable source of aggregate for BTC activities and a number of mitigation measures were proposed in the report. Therefore, based on the information provided, the previous non-compliance is considered rescinded.

At the time of the June 2006 IEC mission a non-compliance was observed with reference to potable water at PSG-2 camp where low levels of coliforms (1-3 MPN total coliforms/100 ml) were persistently detected at kitchen and office taps. Based on the information provided, corrective actions have been taken and the recent test results made available seem to demonstrate the problem is resolved. The previous non-compliance is therefore considered rescinded. For the other camps and facilities, available test data demonstrate compliance with WHO potable water standards.

SPJV

The IEC did not focus this visit on the condition of the camps, as they will be closed and reinstated as appropriate. Nevertheless, from the information and the review of the documentation provided, it is understood that the Tsalka camp is currently under decommissioning while PSG-1, PSG-2, and the Akhaltsikhe camps have been turned over to Operations.

With specific reference to the Akhaltsikhe camp, an MOC procedure was developed by the Project to demonstrate that HSE issues associated with the takeover have been considered and corrective action planned in accordance to BTC requirements. Although a large part of the facility will be demobilized and decommissioned, the camp will remain open until end 2008 to provide accommodation for operators, commissioning crews, as well as serve as a water supply and sewage disposal facility for Area 80 (related to SCP pipeline system).

Borjomi Oil Spill Response Base

The Borjomi Oil Spill Response Base under construction by the contractor CMB was visited. CMB and BTC safety officers are reported to be permanently present at the

site. At the time of the survey PPE was properly used and only minor observations, mainly relevant to safety and environmental aspects, were made.

Akhalsikhe Mechanical Yard

During this mission the Akhalsikhe Mechanical Yard was visited, where satisfactory conditions were already observed during the June 2006 mission. The area has been decommissioned to the satisfaction of the landowner, with no obvious environmental hazard present at site. Some empty fuel tanks, concrete pads and bunded areas previously used for hazardous storage material are still in place.

2.2.2 Recommendations

1. The non-compliant conditions observed at the Atskuri gravel pit fueling area managed by a sub-contractor of GeoEngineering should be corrected and resolved by providing the necessary measures to manage the area (fit for purpose secondary containment for storage of fuel and oily drums, fire extinguishers and oil spill kits, etc) according to ESAP requirements.
2. IEC also recommends strengthening and increase the frequency of monitoring, as needed, for those subcontractors which are not found fully compliant with project requirements

2.3 WASTE MANAGEMENT

2.3.1 Non-Hazardous and Hazardous Waste – Observations

Non Hazardous Waste

During the mission the Central Waste Accumulation Area (CWAA) at PSG-1 was visited and the data and information provided were reviewed. Most of the activities (including collection, segregation, transport, temporary storage) relevant to non-hazardous waste management continue to be properly implemented by the project: proper monthly waste reports, waste logs, and results of periodical inspections checklists and internal audits were provided during the visit.

As noted from previous visits, the critical issue continues to be the final disposal of the remaining domestic waste, which appears to still be uncertain. The current plan for non-hazardous domestic waste management is to continue using the Iagljudja dump site until development of an EU-compliant cell and/or landfill is constructed.

With reference to the Iagljudja municipal disposal facility, although the MOC AGT002-2004-PM-DCN-00045, Revision U-05, *Modifications to Scope of Work for Iagljudja Landfill Capital Improvements Works* was considered not acceptable by the IEC as the proposed changes were not considered an environmental improvement to the Iagljudja dump site (see IEC Seventh Report, June 2006 – Section 3.3.1 for

details). This facility continues to expand and is used by the Municipality, other 3rd parties as well as the Project. The Project is still investigating potential options for leachate run-off control and treatment at this dump site. A group of international advisors was commissioned by BTC to review the situation and, once available (results should be available early next year), results and recommended options on site management, water treatment and monitoring will be suggested/recommended to the Authorities, but no material actions by BPI in the field are envisaged other than the study.

To provide a sustainable solution for the disposal of domestic waste in Georgia, based on the information provided by BTC and Government of Georgia (GoG) representatives, EBRD will be involved in the project of the new landfills; as part of its planned support to municipal waste management infrastructure development, which has already included the funding construction of a new landfill in Batumi, EBRD together with the GoG, is reportedly considering four new waste related projects in the Tbilisi area. Two are new landfills proposed to the east and west of the city and two projects may involve the closure of the existing Iagluja and at Gldani dump sites.

During this visit IEC was informed that, as an offset for the current use of the Iagluja dump site, BP has committed to allocate up to \$5m to help support the integrated waste management strategy of BP and the GoG describe above. In particular as a pilot to the new landfill BP will construct its own cell and help fund the new landfill east of Tbilisi near to Iagluja. Preliminary site selection and conceptual design are ongoing. The final level of BP funding will depend on agreements currently under discussion between GoG, BP and EBRD. According to the information provided, as a general agreement, BP will provide financial support for the project while EBRD will manage the administrative process supporting the GoG in landfill development and in the stake holders' engagement process.

Similar to the situation reported in June 2006, IEC believes this situation represents a potential Level III Non-Compliance (*CCP Waste Management Plan, Commitment ID: J1, J16, J18 (N15)*), especially now that the original Conditioning Plan will not be completed as originally stated. The IEC, taking into consideration the limited material impact of the current situation, defers assigning this non compliance, pending a firm commitment by BTC as to how they intend to proceed during operations. Once again, IEC recommends the development and the implementation of a final plan to provide a sustainable solution for the disposal of domestic waste in Georgia.

Hazardous Waste

Although the Project had achieved a significant breakthrough by starting to re-inject spent oil into the Western Route pipeline, the process was interrupted by GoG who claims that oil is being neutralized and, therefore, a new permit is required. The approximately 300 m³ of used oil have been reduced to 160 m³ following water

removal: 90 m³ has been injected into the Western Route, 70 m³ have been filtered and are currently stored at CWAA awaiting an agreement from GoG to re-commence re-injection.

The current plan is to export the remaining waste to a country with EU-compliant facilities. Specialized international companies have been commissioned to manage the issue and provide assistance in the approvals process, respectively. Since international shipments of wastes is not recommended by the ESAP (*CCP Waste Management Plan, Commitment ID: J37 (add)*), a dedicated MOC will be required.

The CWAA at PSG-1 was visited during this mission. The overall condition of this facility was found to have improved since June 2006:

- The central storage platform is now paved by a concrete platform, bunded, and it was reported that roofing will be provided in December 2006.
- Segregation and housekeeping were improved: specific containers for different hazardous waste types were observed with proper labels and safety data sheets well displayed.
- Most of deteriorated drums present during the June 2006 visit have been removed and labeling is now extensive.
- The oil storage area has been cleaned and concrete repair is ongoing.
- Medical waste is now properly stored in containers provided with labels and adequate ventilation was implemented for the containers used to store waste paints.
- Overall site safety has been improved.

The designed and planned improvements are ongoing with proper resources and budgets reported to be available. Access roads, extended roofing, sorting and processing areas will be constructed in the next few months. Permanent management is now based on site and a comprehensive health and safety training program will be developed in the near future including training sections and safety auditing.

At the time of the June 2006 IEC mission a Level II non-compliance was assigned due to the poor housekeeping, waste segregation and temporary waste storage conditions observed at the CWAA. Although at the time of this visit the facility was not yet fully compliant with ESAP requirements for waste storage and pollution prevention, IEC recognizes the effort made by the Project and the previous non-compliance is considered rescinded, assuming that all the planned improvements will be implemented.

2.3.2 Non-Hazardous and Hazardous Waste - Recommendations

1. BTC should develop a specific non-hazardous waste disposal plan, providing a commitment and a timeline for the final disposal solution of the domestic waste in Georgia (repeated recommendation).
2. Assuming that the plan is to export remaining hazardous waste to a country with EU-compliant facilities, a dedicated MOC will be required.
3. BTC should implement the long-term improvements identified at the CWAA at PSG-1 as soon as possible.

2.3.3 Management of Change - Observations

With reference to the MOC relevant to the medical & biological waste disposal via the Tbilisi hospital incinerator (AGT002-2003-OP-DCN-00006, June 2006), IEC considered not acceptable the proposed MOC recommending BTC to perform a comprehensive audit/site visit of the facility to identify possible/feasible mitigation measures and to develop and agree with the contractor a plan to demonstrate that contractor has the “...*capacity and willingness to meet Operator waste management requirements, including, where appropriate, agreeing to improvement actions that demonstrate a commitment to continual improvements.*”, as required by ESAP (Chapter 3.7 – WMP – Azerbaijan, Georgia).

A joint team of BTC HSE representatives, Hospital’s Chief Maintenance and HSE Officers undertook a site audit/visit of the facility to identify existing HSE risks and to define corrective mitigation measures to be implemented. For BTC to proceed with the use of the Tbilisi Hospital incinerator, the facility was required to possess a number of GoG permits or approvals identified by BTC legal advisors. Due to hospital management concern on applying for the required permits, BTC recognized “...*that contingency plans are required and the MOC may need to be revised...*”. Meanwhile, two alternative approaches for waste disposal were identified by BTC:

- A preferred approach that involves supporting the Tbilisi Hospital with proper resources and capabilities to obtain the necessary permits (2-3 months). Should the necessary permits be obtained, a specific plan for the implementation of the measures to mitigate HSE risks identified during the site audit/visit will be required.
- An alternative approach including an export plan to dispose of historical BTC medical waste stockpiles (approximately 1.5 to 2.0 tons). Following the removal of the project legacy waste through export, BTC would use the incinerator of the Georgian Institute for infectious diseases in Tbilisi, which holds a valid permit to receive the small future volumes of medical waste arising from BTC operations. Prior to use of this facility a detailed site assessments and a HSE improvements

plan in line with BTC ESAP Operator waste management requirements will be undertaken.

As pointed out in the IEC response to the present MOC, it is apparent that at this point in time there are no other practical disposal options available to the Project other than the use of a non-EU compliant incinerator.

However, once the preferred and the alternative approach are defined, a new MOC for comments should be submitted to IEC.

With reference to the issue relevant to the disposal of Project and Operations treated sewage sludge into the Gardabani Sewage Treatment Plant (AGT002-2003-OP-DCN-00007), only BP-approved third party qualified contractors can be used to be consistent with ESAP requirements. A first audit/visit to the facility was performed by the BP HSE organization and preliminary HSE mitigation actions were found to be necessary to upgrade the site to be consistent with BTC waste contractor requirements. IEC initially considered this MOC to be acceptable, as long as it was linked with the execution of a specific audit/site visit to finalize a list of mitigation actions in agreement with the contractor and to demonstrate the willingness of the Project and Contractor to operate in the direction and “spirit” of ESAP requirements.

Consistent with the IEC request, BTC did conduct a formal site audit in October where a number of findings were identified and corrective actions discussed and agreed with the facility site management. BP will assist with the provision of new equipment associated with certain H&S upgrades and will also provide resources or technical assistance to assist in the improvement in HSE culture.

Based on the review of the documentation provided, and as already pointed out in the comments to the preliminary MOC version, IEC considers that *“the mitigation actions proposed as well as any additional action potentially identified and agreed with the contractor, should be committed by BTC for the implementation of the change, to meet the commitment stated in the Chapter 3.7 (third party contractors) of the Operations WMP”*.

Based on the *“audit findings and corrective actions agreed with site management”* provided, BP is committed to provide funding to support site H&S improvements including a number of equipment as well as resources or technical assistance to ensure an improvement in the site HSE culture.

2.3.4 Management of Change - Recommendations

1. With reference to the medical and biological waste disposal via the Tbilisi hospital incinerator, the IEC recommends the submission of a new MOC to IEC for review once the final option is defined.

2. With reference to the disposal of Project and Operations treated sewage sludge at the Gardabani Sewage Treatment Plant, the IEC recommends the preparation of detailed documentation to demonstrate BTC involvement in the sewage treatment upgrade process.
3. In cases where the MOC process represents a change to Project commitments defined in the ESAP or in the ESIA, consider that such changes could be assigned as Class III with a requirement for Lender Group notification prior to the change.

2.4 POLLUTION PREVENTION

2.4.1 Observations

As the BTC pipeline is now operational, pollution prevention issues relate primarily to erosion and sediment control along the pipeline ROW and these are discussed in Section 2.5. Furthermore, as most of the camps are being decommissioned, the pollution prevention systems at these locations were not a focus of this IEC mission. Nevertheless, a spot check was conducted at the Akhaltsikhe Mechanical Yard where acceptable conditions were encountered. The only minor exception was that encountered at the Atskuri gravel pit, as previously noted in Section 2.2.1.

Stack emission monitoring has not been initiated at PSG-1 and PSG-2. The Emissions Management Plan for Operations calls for stack emissions testing to be conducted on an annual basis during Operations (Operations began in May 2006). According to the information provided, the first stack emissions' monitoring is planned within the end of 2006. Ambient air monitoring has been initiated in August-September 2005 with the first of several periodic samplings. The results of this first campaign, already reported during the IEC June 06 visit, showed values less than 75% of the EU ambient air quality standards for all the monitored parameters at all of the sampling locations. According to the information provided during this site visit, a second monitoring campaign is ongoing with the first round completed in August, although results are not yet available. Additional monitoring, initially planned for October, has been delayed due to problems associated with the diffusion tubes used for the sampling.

2.5 ROW MANAGEMENT

2.5.1 ROW Reinstatement - Observations

Now that the SCP is complete, reinstatement for the entire BTC/SCP corridor is nearly finished and was scheduled to be 100% complete within a few days of the end of the IEC visit. Therefore, most of the time spent by the IEC team in the field was dedicated to the visit along the ROW including a fly-over exercise from the Azerbaijan border (PSG-1) westward to about KP 210. The primary scope of the survey was to observe final reinstatement across the combined BTC/SCP corridor.

During the visit specific spot checks on the ground were conducted, especially in the highlands where active reinstatement was undergoing during the June visit by IEC.

As a general observation, IEC acknowledges the effort made by all teams during the last four months and recognizes the good standard of the reinstatement achieved by the Project. Based on our observations, where final reinstatement has been implemented, the work appears to be completed properly with most of the sections now covered by vegetation. Re-contouring of the land surface has been generally consistent with pre-construction contours, with gabion installations, river protection, and erosion control measures almost completed on both spreads. Vegetation is growing along the ROW and, for many of the sections, the BTC/SCP corridor is difficult to discern. Stone picking was underway during the visit along critical portions of the pipeline route (KP 92; KP 82).

The IEC recognizes that the Project has implemented a Landscape Monitoring Program. The scope of this program is to measure the success of the reinstatement and biorestitution and to identify the need for the implementation of corrective actions where results are found to be unsatisfactory. A number of pre-defined vantage points have been selected and photographs taken at different time intervals. The vantage points are representative of the pipeline ROW and cover areas of potential environmental/social concern, as well as areas where the reinstatement needs to be carefully monitored from the standpoint of stability and erosion/sediment transport concerns. By looking at photographs from exactly the same location over time, it is possible to identify where vegetation is properly growing, as well as where problems may be appearing. The Project has also developed a procedure for the quantitative measurement of vegetative recovery by using a quadrant sighting frame and vertical photography to map sampling plots and make an estimation of the ground cover within the quadrant that can then be compared with the interpretation from photographs. According to the information provided, the effectiveness of ground cover and natural regeneration was evaluated on the basis of a survey of the ROW undertaken one year after reinstatement between KP 0 and KP 62. Results from the survey indicate that at least 65% of the investigated area met the expected vegetation cover targets and no further monitoring will be required. Only 2 areas were identified for further monitoring and possible re-vegetation will be required next season.

The following sections briefly described the situations encountered during the ROW visit.

KP 222 – KP 206. For most of this section full BTC/SCP corridor reinstatement is completed with seeding planned to be performed within the next few days. At the Kura West crossing (KP 222), the pier construction to prevent erosion at the river level was completed and good reinstatement observed. At Block Valve 22 (KP 206) erosion control measures appear to be well designed with gabions and terracing used to provide stability. Jute matting has been extensively installed and re-vegetation is underway.

KP 176 – KP 166. IEC acknowledged the efforts of SPJV to complete reinstatement of this area prior to the coming winter season. Considerable effort has been expended since the situation encountered in June, both with respect to ROW and access road reinstatement that represented a significant challenge in this area. Different erosion control and slope stabilization measures were implemented on this steep slope area with massive use of gabions, excess rock (KP 166 and KP 176), and jute matting. Construction appears to have been well implemented and re-vegetation is underway for the portions seeded last year.

KP 138. The entire BTC/SCP pipeline corridor depicts good vegetative re-growth, although it has not yet fully returned to natural conditions.

KP 92. This section of the ROW has reached final reinstatement with natural re-vegetation underway. Slopes are well reinstated and tree planting was ongoing at the time of the visit, although a higher rock content in the soil cover than before construction was observed.

KP 29. At the Kura East River crossing the site ROW is fully reinstated with a significant section of the pipeline corridor showing good vegetative re-growth.

KP 11. The reinstatement at this location is considered satisfactory with the pipeline corridor nearly indistinguishable from the natural terrain.

2.5.2 Off-ROW Reinstatement – Observations

During past IEC visits, one of the main concerns in Georgia was the reinstatement of the off-ROW project footprints, in particular the camps, pipe yards, borrow pits and access roads. During the October 2006 visit, the IEC reviewed the data relevant to reinstatement progress provided by the Project, supplemented by observations in the field and acknowledges the significant work done since the June visit. A good reinstatement standard was observed for those facilities which have been fully reinstated.

According to the information provided during the visit, around 73% of the off-ROW facilities (access roads, borrow pits, rock disposal sites, camps, and pipe yards), have been reinstated. A final off-ROW facilities punch list in support of reinstatement has been developed by the Project and information current as of October 2006 indicated the following reinstatement situation:

- Access roads: a total of 75 Km (43 roads) were created/widened by the Project, of which 20 of them will continue to be used during operations to access block valves and the Security Base. Approximately 47 km are reported to have been already reinstated with about 8 km still remaining.
- Borrow pits: a total of 36 (four new and 32 pre-existing) were used by the Project, of which 16 have been reinstated. For the remaining 20 the impacts

generated by the project are considered minimal compared with their original size and nine of them will be used as excess rock disposal sites.

- Rock disposal sites: four disposal options were utilized to dispose about 900,000 m³ of surplus rocks: 38% of the surplus rocks were reused along the ROW (erosion control, gabions, berms, and intimate backfill), 22% were used for extending landscape features (rocky mounds, hillside contour blending, etc.), 10% were transferred to private crushers, and 30% disposed off-ROW. With specific reference to the last option, of the 26 potential disposal sites initially investigated 16 were finally used by the Project (13 are reported to have been completely reinstated while for the remaining three activities are nearly completed).
- Other facilities: 22 facilities including camps, pipe and mechanical yards, batching plants were used by the Project (a total of about 70 Ha). Seven (20.6 Ha) of them have been transferred to Operations/other Projects/Land Owners (Kodiana) with relevant MOC activities ongoing. Of the 15 remaining, ten (29.6 Ha) are reported to have been completely reinstated while reinstatement activities are ongoing at the five remaining sites (19.8 Ha).

During this visit, several reinstated facilities were visited along the ROW and the following observations were made:

- The permanent rock disposal at KP 171, used to dispose around 7,200 m³ of blasted rocks, appears to be adequately reinstated and recontoured with vegetation starting to grow back (since the site was not directly visited, the observation refers to the pictures provided by the Project and to observations made during the helicopter fly-over exercise).
- The Tabatskuri borrow pit located at KP 162 (borrow pit location within the Tabatskuri Managed Reserve) was not completely reinstated although works are reported to satisfy the original landowner requirements. Because the borrow pit was not greatly enlarged by Project usage, reinstatement was limited to partial slope stabilization and recontouring. The access road used by the Project has been fully and adequately reinstated and good landscaping was observed.
- The Samsari borrow pit located at KP 153 was partially reinstated, although current landscaping is reported to be conducted according to the instructions provided by the borrow pit license holder and the reinstatement has been limited to partial slope stabilization and recontouring. The newly created access road to the top of the volcano at KP153 that is linked to the Tsalka-Tabatskuri Road and extensively used by the Project has been fully and adequately reinstated.
- Rock disposal at KP 148, used to dispose about 8,400 m³ of blasted rock, appears to be adequately reinstated and well landscaped. Good recontouring and slope stabilization works with installation of jute matting were noted and extensive use

of topsoil was observed. The pipeline corridor was also recently reinstated and revegetation has not yet started.

- Rock disposal at KP 144, used to dispose about 9,700 m³ of excess rock appears to be adequately reinstated and well landscaped. Furthermore, the nearby pipeline corridor was also recently reinstated with vegetation starting to grow back (since the site was not directly visited, the observation refers to the pictures provided by the Project and to observations made during the helicopter fly-over exercise).
- The Darakov rock disposal at KP 132 has been reinstated to the satisfaction of the landowner who wants to continue site exploitation. The site was an existing large alluvial field featuring deep erosional ravines already considerably exploited and used by the Project to dispose 3,000 m³ of blasted rock. Reinstatement has been limited to slope stabilization and partial recontouring.
- The rock disposal at KP 121, used to dispose around 35,000 m³ of excess rock, appears to be adequately reinstated and well landscaped. Rocks have been recently covered with topsoil and revegetation has not yet started. Good recontouring was observed.
- The Tsalka pipe yard at KP 110 was properly reinstated with vegetation starting to grow back.
- The Ivanovka rock disposal site close to PSG-2 at KP 92 was an intensely used borrow pit. The site was first used as borrow pit during construction and then to dispose approximately 130,000 m³ of excess rock from the Project. Recontouring and partial slope stabilization were ongoing at the time of the visit and seeding of the top part of the slope is planned to be completed within the next few days. The site will be partially reinstated and left in a condition as required by the owner.
- The PSG-2 Batching Plant at KP 83 and the Tetriskaro Pipe Yard at KP 79 have been decommissioned to the satisfaction of the landowner. Both sites have been properly reinstated to their original conditions with some pre-existing concrete structures still on site.

As a general comment, most of the facilities have been adequately reinstated. A large section of the ROW depicts good vegetative regrowth and the BTC/SCP pipeline corridor is almost indistinguishable from natural ground.

Although IEC acknowledges the significant effort made by the Project to reinstate most of the borrow pits and excess material dump sites, and it is recognized that in certain cases the reinstatement was partial upon instructions of the landowner, for those sites a footprint will likely remain.

As already pointed out since the 3rd IEC site visit report (October 04), for borrow pits, quarries, and rock/spoil disposal sites the expectation has been that reinstatement will be completed by the Project. Where third-party sources have been used, and where the Project significantly increased the extraction of materials from borrow pits or quarries, the expectation consistent with the ESAP has been that reinstatement should have been such that the borrow pit was at least no worse than when first used, unless the owner documented that reinstatement was not desired. It is recognized that the *Contractor Control Plan, Reinstatement – Georgia* is not specific for existing borrow pit restoration, although this is clearly compatible with ESAP principles. Nevertheless, Commitment I16 in this Plan states: *“The contractor shall reinstate third-party land in accordance with any pre-entry agreement. If there is no pre-entry agreement, the contractor shall fully reinstate any land disturbance caused by construction or associated activities. The above principle includes, but is not limited to third party pipelines, irrigation systems, cables and services, railways and roads. Borrow pits are a form of “associated activity” and the IEC believes that it is reasonable to include borrow pits within this commitment, also taking into account that the Project in Georgia has an overall commitment to Improve on Current Best Industry Practice.*

Furthermore, the Contractor Control Plan, Reinstatement – Georgia (Appendix 4 - Table 2) states with respect to waste rock and disposal sites (standard procedures – practice is prohibited in sensitive areas): *“.....The waste material shall be compacted; the surface shall be landscaped to resemble local conditions and shall not extend more than 3 m in height above the natural contour; the slopes of the surface shall not exceed 60°. The site shall be covered with soil and an erosion mat and planted with either seeds or shrubs using native species”*. Commitment I50 part I (J11) - Contractor Control Plan, Reinstatement – Georgia states: *“Disposal sites for waste soil and rock: Potential disposal sites shall be identified and assessed by CONTRACTOR and a Waste Soil and Rock Disposal report submitted to COMPANY for approval. The report will contain technical and environmental assessments on all the sites considered and propose, with justification, those to be used. CONTRACTOR shall plan, develop, operate and re-instate those sites”*. Commitment I52 Part I (J31) Point 4 - Contractor Control Plan, Reinstatement – Georgia states: *“The site shall be designed, operated and closed so that over time the site will blend with the landscape and become, as far as practicable, imperceptible”*.

As a general observation, the issue of the borrow pits and rock disposal sites should have been treated with a different approach. A specific plan to provide a sustainable solution should have been developed for each site prior to site exploitation to prevent the present situation where Project related footprints will remain. The option for full reinstatement could have been agreed (BTC-Contractor-landowner) from the beginning of the project acquisition/exploitation process by a *“pre agreed standard”* or *“pre entry agreement”* as specified in the Contractor Control Plan Reinstatement – Georgia (Commitment I16).

2.5.3 ROW and Off-ROW Reinstatement - Recommendations

1. IEC recommends monitoring the conditions of both the ROW and off-ROW during the coming winter, particularly to assess the effectiveness of vegetative cover for restoration and of the erosion control measures implemented.

2.6 KODIANA PROJECTS IN THE BORJOMI AREA

2.6.1 Observations

The Borjomi Work Region extends from about KP 176 to KP 196. This area is one of the most significant parts of Georgia in terms of environmental, economic, cultural and aesthetic considerations. The area is part of the catchment of Borjomi Mineral Water, which is one of the most significant private developments in Georgia. Communities in this area are hopeful that tourism will be redeveloped and are concerned that the Project will adversely impact the landscape and their prospects for tourism.

The Kodiana area is where the Government of Georgia has requested that BTC implement special protective measures, including: temporary secondary containment, permanent secondary containment, a drain down tank, and construction of a security base for a patrolling security crew (the “Kodiana Project”). Critical issues will include landscape alteration and aesthetics, potential impacts from altering the local hydrology, construction impacts taking also into account the presence of an archaeological site at one location, potential social consequences (especially from the stationing of about 200 soldiers at the security base), management issues during operation (e.g. waste management, pollution prevention requirements), access control (especially the Tori site location), ecology, and identification of relevant mitigation measures.

The Project has committed to strictly following best practices with multiple lines of protection and redundancy in design and operations on the pipeline to achieve as close to “zero risk” of an oil spill or leak as practical. Construction for all of the Kodiana Projects is scheduled to be complete by October 2007, but there are still some challenges to meeting this schedule. One remaining issue still under discussion with the Georgian Government is the design criteria for the permanent secondary containment systems. The Government has requested that the facility designs be upgraded such that the pipeline rupture is assumed to take place during a 100-year flood, as opposed to the 30-year flood for which the containments are currently designed. The government request would require that the containments be significantly larger than their current design with correspondingly greater environmental, social, and aesthetic impact.

According to the information provided during the visit, the status of the Kodiana Projects construction works is as follows:

- Secondary Containment Sites: the concept and basis design have been completed and the approval process with GoG has been established with actions planned to be conducted through November 06; construction is scheduled to be performed during 2007;
- Emergency Drain Down Tank Facility: the construction permit was received early October and the contractor (Ergil Avraysia) is currently in pre-mobilization phase. Tree felling and basic site preparation activities are underway; foundation piling is planned to be completed prior to winter 2006 with facility construction scheduled to be completed by October 2007.
- Temporary Bypass Road (KP 181-184): construction is completed and the road is now open to the Project. Ongoing final off-road reinstatement and planting were observed during the visit.
- Security Base: design and construction are underway with Georgian contractors (GeoEngineering and Nola) on site; completion is forecasted for October 07.

During this mission, the IEC visit was limited to a survey of the area of the proposed drain down tank near KP 183 and at the Kodiana security base. Construction has not yet started at the Emergency Drain Down Tank. The area designated for the location of the steel drain down tank has been identified and marked and some tree felling and foundation piling are expected in October prior to starting winterization measures. Two soldiers were stationed at the site and a check point was observed along the site access road.

The Security Base is managed by BP with GeoEngineering-Nola JV in charge of construction. At the time of the visit construction activities were ongoing, mainly for backfilling and winterization before the winter shut down of the site. During the survey, IEC observed good and consistent use of PPE across the working sites and health and safety awareness with proper dissemination of safety principles, safety roles, and posters throughout the facility. Topsoil protections as well as soil erosion control measures were properly implemented within the site through a sedimentation pond for runoff water separation. The facility appeared to be properly operated with good housekeeping, hazardous waste segregation, and storage. The waste segregation and storage area is fenced, paved, covered, and equipped with a drainage system to collect potential spills or leakage to an oil water separator. Refueling operations are conducted by direct downloading from a tanker truck within a bunded and paved area connected to an oil water separator and oil spill kits were properly located nearby. Waste oil, oily water and sewage are periodically collected and disposed offsite by a subcontractor.

2.6.2 Recommendations

1. IEC acknowledges the benefit of using local contractors, but cautions that special care (coaching) from BTC will be required to assure that ESAP commitments are followed, as local contractors will be unfamiliar with Project

requirements. If necessary, the monitoring of subcontractors should be strengthened for the most critical project phases.

2.7 ECOLOGICAL MANAGEMENT

BTC Ecological Management Plan Commitment F16/D6 defines the Project's responsibility to "...*Promote and undertake a wildlife monitoring programme in forest areas and wetlands to promote the conservation of endangered species...*" The Project has fulfilled commitment F16/D6 through the development and implementation of a Biodiversity Monitoring Programme approved by the Government of Georgia in May 2004.

The Biodiversity Monitoring Programme consists of five years of monitoring selected floral and faunal species of concern, the first of which was conducted in 2004. The floral component of the Biodiversity Monitoring Programme focuses on four habitats (wetlands, forests, high mountain meadows, and *Rhododendron* scrub), as well as on individual species of high conservation value. For the faunal component, multi-taxa monitoring is conducted with emphasis on IUCN and Georgia Red-listed species that occur in the vicinity of the ROW (as determined by the ESIA and as confirmed by the pre-clearance surveys).

During the current visit to Georgia, the IEC acquired the results for the second annual biodiversity monitoring (2005) programme (flora and fauna monitoring reports). The results of the IEC's review are presented in this section.

Furthermore, as indicated in Section 2.9, during a meeting with governmental officials the IEC also acquired a list of 'Outstanding issues' prepared by the Ministry of Environment and Natural Resources of Georgia (MoE) regarding natural resource issues of concern related to project activities.

2.7.1 Biodiversity Monitoring

One of the primary observations made by the IEC as part of the review of the 2004 annual biodiversity monitoring report was that realistic objectives were not defined given the limited baseline data and the design of the monitoring program, which does not lend itself to inferential statistics. In the recommendations section of the IEC's report for the fifth mission, it was stated that a distinction should be made between the overarching 'goal' of the monitoring program and the specific objectives needed to track monitoring progress over time. IEC acknowledges the progress made on this issue: in the 2005 annual biodiversity monitoring report for both faunal and floral components, the overarching goals are clearly stated in the beginning of the documents and clearly stated objectives are provided.

The IEC had also recommended that the Project prepare a separate document that includes justifications for all indices, site selection, sampling protocols, and statistical tests (specific to the populations in question); citations for methods; all

available baseline data in a concise format so that an independent reviewer will be able to verify the results; separate figures that clearly show the monitoring design at the different sites; and, clear explanations of why a particular method was chosen (supported with citations, when necessary). The annual reports were to provide justification if there were deviations from these methods, and each annual report was to provide a reference to this separate document. The 2005 floral monitoring report provides this information in Appendix 1, while the equivalent of such for the faunal monitoring is missing.

Faunal Monitoring

With the exception of the snake-eyed lizard and the wintering waterfowl monitoring, the stated objectives for each taxon appear to be consistent with the sampling and statistical design, but the objectives for the bat monitoring are not stated. The objectives for the Caspian terrapin and European marsh turtles should be slightly altered to state that turtle ‘abundance’ is being compared from to year to year, and not ‘densities’ (which is a measurement of individuals/area).

As part of the **amphibian monitoring**, reproductive Syrian spadefoot toads (*Pelodytes syriacus* [IUCN Near Threatened and Georgia Red List]) were identified at one of the monitoring sites (KP 11) in 2005, but no individuals were located at the KP 40 monitoring site, and tadpoles were not located at either of these sites, although this may be due to seasonal fluctuations in the hydrological regime (results are consistent with the “control” sites which are sites considered to be located outside the potential impact zone of construction/operations activities); the swampy channel at KP 11 also appears to be used for irrigation purposes (observation made as part of the IEC’s fifth visit). The 2005 annual report presents a discussion on the natural seasonal hydrological variability of these sites. However further information provided by BTC relevant to the 2006 survey, indicate that tadpoles were again recorded at KP40.

Regarding the Caucasian mud-diver (*Pelodytes caucasicus* [IUCN Data Deficient/Georgia Red List]), tadpoles had been identified at some of the pools that had been unintentionally created during pipeline construction activities. As thoroughly discussed in the IEC’s report for the fifth mission, these pools were being considered as compensatory for a stream between KP 187 through 189, found to be supporting mud-diver habitats, but destroyed during construction activities. The project had committed to create one additional pond to mitigate for the lost stream in addition to the unintentionally created ones; the 2005 annual monitoring report follows up on this stating that two ponds were excavated in December 2005. Future monitoring will determine if mud-divers are using the two newly created ponds as breeding habitat.

Regarding the series of pools that had been unintentionally created via pipeline construction and are now being considered as mitigation measures, the IEC has recommended to assess their stability and to evaluate if these habitats can be considered ‘compensatory’. It was also recommended that erosion control measures be adopted, if necessary. There is no indication in the 2005 annual report if any action has been taken in this respect.

Three species of concern were included in the **reptile monitoring** – the snake-eyed lizard (*Ophsops elegans*), the European marsh turtle (*Emys orbicularis*), and the Caspian terrapin (*Mauremis caspica*). The IEC considers that the objectives given for the snake-eyed lizard should be modified, as it appears unfeasible to “...verify that the population dynamics are not affected by pipeline construction activities” given the nature of the monitoring effort (two 1-day sampling events, a total of 17 individuals identified in the monitoring transects in two years [2004, 2005]). Based on presence/absence of data, it could be possible to determine if lizards show similar numbers to pre-construction data within the monitoring transects and the IEC recommends limiting the objectives to this scope. As previously noted by IEC, pre-construction surveys were neither comprehensive nor statistically robust and therefore defensible estimates of population size cannot be derived from this study.

Monitoring of the European marsh turtle and the Caspian terrapin took place in two monitoring locations and two “control” sites, one of the monitoring locations being the stream at KP 11 (also used for monitoring of the spadefoot toad). Turtle and terrapin numbers did not differ significantly between monitoring and “control” sites or to the 2004 monitoring data. The swampy channel at KP 11 was dried up and no individuals were located in this area (neither had there been any spadefoot toads located). As mentioned, this channel is likely used for irrigation purposes, and the dry conditions are therefore most likely not related to construction activities. Nevertheless, the 2005 annual report proposes to investigate further to understand if construction activities were indeed not responsible for the current conditions of the channel, investigate the channel’s hydroperiods, and develop mitigation measures, if necessary. The IEC supports these recommendations.

The project’s **avian monitoring** efforts were extensive and included the monitoring of wintering waterfowl, resident waterfowl, nesting populations, breeding pairs, and the Caucasian black grouse (*Tetrao mlokosiewiczzi* [IUCN Data Deficient]). The study objectives were well-stated and consistent with the study design with the exception of those for the wintering waterfowl. The study design for the winter waterfowl may allow detection of broad trends at the chosen monitoring and “control” sites, but this design will not necessarily allow a determination as to whether pipeline construction or operation activities affect abundance and diversity. The study design will provide some indication of abundance and diversity in the area over time, which provides some indication of the viability of this habitat to continue to support wintering waterfowl given past construction and ongoing pipeline operations.

For all of the avian monitoring components, there is little explanation of methods/protocols used or their justification. The IEC previously recommended that where diversity indices are used, findings should be substantiated with: a) a comparison of number of individuals between sites, and b) similarity indices (e.g., Jaccard Index [C_J] or Sorensen's [or Bray-Curtis] [C_S]), which would allow detection of changes in taxonomic composition at monitored sites relative to reference sites, something diversity indices cannot provide. Although similarity indices were not used in the 2005 avian monitoring, the report does compare abundance (numbers) of waterfowl between monitoring and control sites and to 2004 data.

Although the 2005 monitoring effort found some decrease in waterfowl numbers (e.g., a number of resident waterfowl species and the target species chosen to monitor nesting birds), there were also indications of a substantial increase in other species (i.e., a number of wintering waterfowl species and the target species chosen to measure breeding success). Although some indications of the presence of the black grouse were found (i.e., feathers, feces) on Mt. Tavkvetili where construction activities had been conducted nearby the previous year, it is difficult to draw conclusions.

A number of bat species, Brandt's hamster (*Mesocricetus brandti*), and the common otter (*Lutra lutra* [IUCN Near Threatened]) were included for the **mammalian monitoring** effort. Survey objectives were consistent with the study design. The monitoring effort found a decrease in the abundance and diversity of the bats at the monitoring sites when compared to previous year. Indications of Brandt's hamster also declined with respect to 2004. Some indications of the presence of the common otter were found whereas none were found the previous year. The 2005 annual monitoring report does acknowledge pipeline construction activities as a potential cause for the observed decrease in numbers (mainly for bat species). Although further monitoring is recommended in the report, no mitigation measures are discussed if numbers continue to decline in future years.

Regarding the project's **aquatic monitoring** design, dragonflies and damselflies (two suborders within the order Odonata) are exclusively being used as indicator taxa. IEC's previous recommendation was to adopt a more sophisticated approach using at the least multiple taxa, and including some measure of overall benthic macroinvertebrate richness. Results show that species diversity and abundance varied between monitoring and "control" sites providing no clear trends in either direction.

The **ichthyology component** was not concluded in the 2005 annual biodiversity monitoring, nor was it included in the 2004 monitoring although this was stated as an objective in the overall biodiversity monitoring programme document.

Floral Monitoring

Based on IEC review, the 2005 floral biodiversity monitoring as well as the presentation of results represent a significant achievement of the Project. The report clearly presents the methods/protocols and their justification both in Appendix 1 and throughout the text. The overall goal and more specific objectives are well-defined and are clearly achievable given the sampling design.

The study mainly uses the paired t-test and regression analysis to compare selected indices (i.e., Reciprocal of Simpson's Dominance [RSD], Evenness, Floristic Quality Index, Vitality and Fertility index) and parameters (i.e., species richness, the number of individuals/flowering stems) in sampling plots in several plant communities over time. As previously mentioned, monitoring was conducted in forests, meadows, wetlands, and *Rhododendron* scrub communities and of individual species of high conservation value. The monitoring report provides a detailed explanation of how each of these indices and parameters compare to 2004 data. Given the short time span of collected data (2 years), no outstanding differences could be reported at this time given naturally occurring interannual variation.

The 2005 annual floral monitoring report noted the spread of the potentially invasive reed canary-grass (*Diglyphis arundinacea*) in the Santa wetland, although this was attributed to a newly conducted road which enhanced access to grazers. Logging was also noted in the Tsikhisjvari-Sakire area (KP 187-197).

The floral monitoring report also discusses several monitoring plots that had been lost due to construction activity (e.g., beech forest, crook stem birch forest, *Rhododendron* scrub, and some patches of wetland). In response to this, the report recommends a series of sensible compensation measures to be implemented by the Project. The IEC supports these recommendations.

The report also discusses a number of impacts to the hydrology and species composition of several wetlands along the ROW. In the IEC's report for the fifth mission, it was recommended that biorestitution of wetland sites should ensure the rehabilitation of the original hydrological regime and proper regrowth of native vegetation. It was also mentioned that special attention should be paid to Tavkvetili and Khando high mountain wetlands, and the culvert should be removed from the Khando site. Given the comprehensive analysis and review conducted during the 2005 floral monitoring event, the IEC supports the recommendation made by the Project to instead conduct an offset mitigation to investigate a comprehensive botanical inventory and assessment of high mountain wetland communities in the vicinity of the pipeline.

2.7.2 Recommendations

Faunal Monitoring

1. As recommended in the IEC's report for the fifth mission, the newly created mud-diver habitat should be assessed to evaluate stability and to evaluate if this habitat can be considered 'compensatory'.
2. As was done for the floral monitoring and as was recommended in the IEC's report for the fifth mission, a separate document (or appendix) should be developed for the faunal monitoring which clearly states sampling methods and protocols, provides justification for methods and indices, provides citations, and includes tables that allow for independent verification of statistical results; i.e., for an ANOVA include means, variances, sample sizes, degrees of freedom, sums of squares, F statistics, p-values.
3. Provide further explanation of methods/protocols used with a justification for the avian monitoring components (to be included in separate document/appendix).
4. Modify objectives of reptile monitoring to match sampling design or vice versa and provide a justification for this methodology.
5. Objectives stated to measure 'density indices' should be changed to measure 'abundance'.
6. "Control" sites are established for all taxa except for the mud-diver; recommend developing control sites for this species as well.
7. Recommend keeping the number of test sites comparable to the number of control sites (e.g., Brandt's Hamster) for future monitoring events.
8. For the aquatic monitoring provide citation demonstrating that odonates are capable of indicating the responses of other aquatic taxa.
9. Recommend using camera traps to capture more definitive evidence of the presence of the common otter.
10. Although one of the stated goals of the faunal monitoring is to propose mitigation measures where necessary, none are stated in the 2005 annual report. Recommend proposing mitigation measures for the spadefoot toad, Caucasian mud-diver, Brandt's hamster, and bats if numbers appear to be declining in 2006 based on presence/absence data.
11. Provide explanation for the omission of the ichthyology component from both the 2004 and 2005 monitoring events.

Floral Monitoring

12. As part of the offset mitigation to conduct a comprehensive botanical inventory of high mountain wetland communities, the IEC recommends that results from this three-year study be published in a peer-reviewed journal to strengthen the body of literature available in this unique region.
13. It is also recommended that an assessment to understand if pipeline construction facilitated the encroachment of the reed canary-grass in the Santa wetland be conducted.
14. The Project should also consider conducting an assessment/monitoring of invasive species along the ROW, as necessary.

2.8 CULTURAL HERITAGE MANAGEMENT

Cultural heritage management is predominantly the responsibility of BTC. The governing procedures are defined in the ESAP, Appendix D as *Archaeological Late Finds Protocol*. The definition of significance and actual excavation of sites is the responsibility of the Centre for Archaeological Studies (CAS), the Georgian government's cultural properties review and compliance agency, as specified in the *Georgian Law on Cultural Protection*. Up until early 2006, SPJV was responsible for reporting chance finds and stopping work until the BTC Cultural Heritage Field Team (CHFT) could evaluate the situation in association with CAS and provide appropriate guidance. The BTC CHFT has now assumed responsibility for cultural heritage issues for the BTC Project and closing out remaining construction-related work and working with BTC Operations to continue the management of cultural heritage sites.

2.8.1 Observations

The CHFT has continued negotiations with CAS for compensation for damages associated with off-ROW archaeological sites that should have been managed by SPJV as identified in the October 2005 IEC mission report. Specifically, the ongoing negotiations relate to potentially significant features located along the project access roads, specifically the main arteries connecting (1) Tetrtskaro and Tsalka along Bedeni Plateau (Site IV-154) and (2) Tsalka and Tabatskuri/Bakuriani Areas of the Borjomi District (Sites IV-179, IV-180, IV-244, 245, IV-246). The impacts to these sites occurred immediately after construction started (July and September 2003). As previously reported by the IEC in October 2005, the BTC September Qualitative Report for Georgia stated the following – “CAS is threatening legal action because the project has failed to address site damage on temporary use areas in accordance with heritage regulatory frameworks. This is a contractual obligation of SPJV; however it has not been met to date.” On this basis, the IEC assigned a Level II Non-Compliance in October 2005. BTC reacted by taking over responsibility for

cultural heritage issues from SPJV in early 2006. As final compensation and/or definition of any additional work still needs to be finalized with CAS, these sites were the subject of an IEC request to BTC for additional information in September 2006. The following summarizes the status of these sites:

- *Site IV-154 along the access road between Tetrtskaro and Tsalka* – this site has been subject to what is probably the most severe damage of the sites for which claims are being made by CAS. At this location SPJV widened an existing road that already crossed a kurgan (Bronze Age burial mound). Nevertheless, the road appears to have affected the stones covering the burial and not the burial itself.
- *Site IV-179 in the Borjomi District* – this site is where the Tsalka – Tabatskuri access road passes within about 10 meters of a ~12th century single knave church. SPJV was instructed by BTC to construct concrete barriers to protect this monument, but protective measures were never constructed. Nevertheless, surveys conducted by BTC after completion of construction in December 2005 did not identify any damage to this structure that could be related to the passage of construction vehicles.
- *Site IV-180 in the Borjomi District* – this site is where the Tsalka – Tabatskuri access road passes next to what may be an unexcavated kurgan. The feature is a slight mound of stone with grass cover about 15 meters in diameter and shows very little, if any, project-related damage related to grading from July 2003.
- *Site IV – 244 in the Borjomi District* – this site is where the Tsalka – Tabatskuri access road passes next to a substantial probable burial mound consisting of a stone pile with a clearly defined central depression within a larger sub-circular stone pile forming an outer ring around the central mound. Minor damage may have occurred to extreme outer edge of outer ring during road widening/upgrading activities but no apparent damage since last monitored July 2003 based on 2006 observations by BTC.
- *Site IV – 245 in the Borjomi District* – this site is where the Tsalka – Tabatskuri access road passes next to a possible stone mound with a sunken central depression, only slightly distinguishable from surrounding landscape. Based on observations by the BTC CHMT in 2006, this feature does not appear to have been significantly impacted by access road construction.
- *Site IV – 246 in the Borjomi District* – this site is where the Tsalka – Tabatskuri access road passes near a possible burial location. Coordinates reported for this site are 200 m from the access road and evidence of impact of the access road to a heritage feature in this area were not observed based on site visits conducted by BTC in 2006

The most recent activity initiated by BTC in September 2006 has been submitting a “Post Construction Claims Worksheet” to CAS to quantify their damage claims at

these sites. The need and amount/nature of compensation will be reviewed after CAS quantifies the basis for their claims.

It should be noted that SPJV did involve CAS with clearing sites, although their requests for clearance were frequently not done on a timely basis. Nevertheless, BTC appears to have been informed regarding the correspondence between SPJV and CAS and BTC did conduct follow-up surveys to identify other areas of potential concern along the access roads and borrow pits and also made sure that SPJV did not cause additional damage to the sites identified in 2003. After reviewing the available documentation, it appears unlikely that the damage by SPJV from 2003 has been serious.

2.8.2 Recommendations

1. Finalize closure of the sites where damage has been claimed by CAS. If compensation is offered, it is recommended that the compensation be associated with improving the capability of CAS to curate, interpret, and report the findings from the main archaeological sites identified during construction, rather than initiating new excavations at the sites potentially impacted by access road construction.
2. Continue to work in a capacity-building role with CAS to assure the appropriate management and presentation of the major findings associated with construction.

2.9 MEETING WITH GOVERNMENTAL OFFICIALS

A meeting was held between the IEC and representatives from the Georgian Ministry of Environmental Protection and National Resources (MoE) and the Georgian International Oil Corporation (GIOC) on October 19, following a request by MoE to BTC. This was the fourth meeting held between the IEC and the MoE/GIOC, and MoE/GIOC was able to discuss their main current priorities regarding the environmental and social issues associated with the BTC project. The main topics discussed during this meeting included:

- Conditions for the approval of the OSRP
- Reinstatement
- Biodiversity Monitoring Program (Biodiversity Monitoring Report – Floral and Faunal Component - 2005)
- Waste Management Plan
- Forestry – Eco-compensation Programme

- Environment Management Plans for Operations Stage
- Environmental Investment Plan (EIP)
- Compensation for Damage to Ichthyofauna (Fish)

3 TURKEY

The BTC Project in Turkey encompasses 1,074 km (according to as-built information) 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, Kahramanmaraş, 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 (which connects to the South Caucasus Pipeline (SCP) in Azerbaijan and Georgia), now under construction, diverges from the BTC pipeline at the Georgian border, and follows an alternative route until it terminates in Horasan.

During the construction phase, the BTC Project in Turkey has been broken down into three Lots from the Georgian border to Ceyhan: Lot A (278.0 km), Lot B (465.4 km) and Lot C (332.8 km). Each Lot has effectively operated as a separate construction project undertaken by an EPC Contractor as indicated below:

Lot A: KP 0 – 278

Contractor: TEPE – Nacap JV (TPN) – contract terminated in January 2005 by BOTAŞ, which, since then, has been directly in charge of construction.

Spreads: 3, plus one mini-spread

Block valves: 15

Major crossings: 3 rivers, 6 roads, 3 railways

Camps: 3, main at Kars at KP 115 (no longer in use), 2 spread camps at Hanak (transferred to the BOTAŞ Gas Pipeline project) and Köprüköy (decommissioned and reinstated).

Lot B: KP 278 – 744

Contractor: Gunsyl-Haustadt & Timmerman-Max Streicher-Alarko JV (STA)

Spreads: 3

Block valves: 24

Major crossings: 9 rivers, 13 roads, 3 railways

Camps: 1 main (Kova at KP 527 in Spread 1 – still in use), 4 spread camps: Iliça – (decommissioned) and Çardikaya in Spread 1 (decommissioned); Koyunkaya and Sivritepe in Spread 2 (decommissioned).

Lot C: KP 744 – 1076

Contractor: Punj Lloyd - Limak JV (PLL)

Spreads: 2 + 34" spread

Block valves: 13
Major crossings: 10 rivers, 6 roads, 1 railway
Camps: 1 main (Azizli at KP 1037), 3 spread camps (Andirin, Yesilkent, Orensehir, decommissioned).

Pump Stations

Contractor: TEPE – contract terminated in April 2005; since then BOTAŞ in charge of construction.

Four Pump Stations: PT1 at KP 21.3

PT2 at KP 278

PT3 at KP 442 and

PT4 at KP 744

Two Intermediate Pigging Stations: IPT1 at KP 944

IPT2

The BTC pipeline terminates at the Ceyhan Marine Terminal (CMT), which includes 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 (Contractor TEKFEN).

Since no field visit and interviews were conducted in October 2006, this section summarizes a review of documentation pertaining to environmental, social and health and safety management as provided to IEC by BTC. Specific information requests made by IEC to the Project are provided in each section of the report. A complete list of documents requested by IEC is provided in Appendix C.

The documentation review does not allow closure of any open issues presented in the June 2006 report, although it provides an update on actions taken by BTC on those issues. The IEC intends to monitor their status during the next field visit.

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

3.1 CONSTRUCTION AND OPERATIONAL STATUS

No update.

3.2 ENVIRONMENTAL AND SOCIAL MANAGEMENT ORGANIZATION AND RESOURCES

As part of the October 2006 review, IEC requested the following information from the Project:

- Description of the BIL E&S team and H&S team organization; and

- Update on organization and structure BOTAS and BTC environmental and social teams relative to the transition to BIL.

3.2.1 Observations

BTC

IEC observes no changes in the BTC License to Operate (LTO) organization since the June 2006 visit, with the exception of two additional field advisor positions (reportedly unstaffed), being created for operations. The BTC Environmental and Social (E&S) organization in Turkey is still structured in three groups, coordinated by the E&S Manager, consisting of:

- Construction E&S: consisting of two E&S Senior Advisors and two E&S Advisors;
- Transitional E&S: in charge of the transition to operations activities including E&S, the Regional Sustainable Development Program (e.g., social investments, environmental investments), Communications, and External Monitoring and Evaluation;
- Operation E&S, currently staffed by two specialists, with two open positions for field advisors.

BOTAŞ

No information was provided on the status and organization of the BOTAŞ environmental and community relations team.

BIL

The HSE organizational chart provided to IEC shows that BIL environmental team is overseen by their environmental manager and is broken into three areas:

- The pipeline supervisor oversees eight pipeline HSE engineers, assigned to the four pumping stations;
- The environmental supervisor (based at Ceyhan HQ) takes care of ISO 14001 implementation, and oversees an environmental officer and permits expert;
- The CMT environmental supervisor (based at Ceyhan HQ) is responsible for the CMT and oversees three environmental engineers.

The information provided to IEC relative to the transition of E&S management function from BOTAŞ to BIL is limited to organizational charts. As indicated in the June 2006 report, IEC has recommended that BIL assign staff to work with BTC and

BOTAŞ during the transition from construction to operations so that critical knowledge about the environmental and social conditions related to the pipeline ROW can be shared.

IEC has also received an organizational chart indicating that BIL has staffed their Public and Community Relations team. The team is overseen by the community relations chief who oversees a community relations supervisor (both are directly responsible for the CMT). Reporting to the chief and supervisor are six community relations specialists, each responsible for a pump station or the CMT. The function of these specialists relative to the ongoing land exit process in Turkey is not known.

BOTAŞ Contractors

No information was provided by the Project.

3.2.2 Non-Conformance Records (NCR) Register

No update.

3.3 CONSTRUCTION CAMPS, INFRASTRUCTURE AND SERVICES

The review of construction camps, infrastructure and services focuses on construction operations that potentially have an impact to surrounding infrastructure, natural resources, and community and household assets, including land, roads, and irrigation systems. In addition, the review of this topic includes camp potable water supplies and general aspects of camp management.

As part of the October 2006 review, IEC requested the following information from the Project:

- Status at each construction camp across the three lots (including at PTs), including decommissioning status and reinstatement progress, changes made and actions taken since the IEC visit in June 2006, additional actions to be taken and schedule to complete (provide photographs as available)

Prior to the previous June 2006 site visit, IEC was informed that CINAR was planning to complete due diligence surveys on Lot A for Koprükoy Camp (Lot A) and Sivritepe, Koyunkaya, Cadirkaya Camps (Lot B) in July 2006. Documents pertaining to these due diligence surveys were not included as supporting material.

The only information provided to IEC pertaining to camps is based on BTC's *Construction Camp Status Report* of October 2006. This report is provided as a summary table, and appears to be primarily based on the CINAR report of September 29, 2006 (not included as supporting documentation).

3.3.1 Construction Camps

Construction camps appear to be still used across the Project (specifically the Azizli camp and the camps at each of the Pump Station locations). The Contractor Control Plan, Construction Impacts – Turkey defines the temporary nature of campsites. Commitment R19 states that “*camps will consist of pre-fabricated modules that will be brought in by trailer. They will remain in place for 6 to 9 months and then be disassembled and removed.*” As reported by the Project, a decision still needs to be made with respect to the decommissioning and reinstatement of the remaining camps, especially at the Pump Stations and for the Kars, Hanak, Kova, and Yesilkent camps.

The following items reflect the IEC observations based on the BTC camp report provided in October 2006. They therefore do not reflect potential actions taken subsequently by the Project:

- Hanak: As this camp has been reportedly transferred to BOTAS Petroleum Pipeline Corporation, BTC informed IEC that in accordance with the LSTKA signed with BOTAS Petroleum Pipeline Corporation all residual environmental and social liability pertaining to past, present and future operations of the camp remains with BOTAS Petroleum Pipeline Corporation.
- Kars: BTC has reported that reinstatement and due diligence process is still to begin at this camp. A due diligence should be undertaken to assure that no residual environmental, health, safety and social liability rests with the Project. This is particularly relevant given the location of this camp within an urban setting;
- Koprakoy: Although this site has been returned to the previous owner, the implementation of recommendations pertaining to soil contamination and inadequate waste management, as reported by BTC in the *Construction Camp Status Report* of October 2006, should be verified by the Project;
- Çadırkaya: In June 2006, a Level II Non Compliance was assigned to the decommissioned site resulting from open sumps and tanks on the site (a fence was in place, but gates were open). As of August 31, 2006, BOTAŞ reported that the EPC contractor has removed all safety hazards. However, as reported by BTC in the *Construction Camp Status Report* of October 2006, public hazards still remained as of September 2006. BTC has commented that the site entrance is now secure; however they have also recommended that all safety hazards (including a recently reported open manhole) be removed in case the fencing or gates once again become compromised. Potential contamination and litter issues should also be addressed. It is recognized that the inadequacy of decommissioning has been identified by the Project, however IEC remains concerned about the apparent lack of concerted action on behalf of the Project to

rectify non-compliant conditions at the camp that have been evident since November 2005;

- Kova: This camp should be visited and a due diligence report provided;
- Koyunkaya: In the report of the IEC June 2006 visit, issues relating to adequacy of the reinstatement were noted. The Project should attend to these issues, including additional concerns (i.e., hydrocarbon contamination of soil at the fueling station area, presence of abandoned waste) identified in the CINAR due diligence surveys of 4-8 July 2006 and 29 September 2006 (as summarized in the *BTC Construction Camp Status Report* of October 2006).
- Sivritepe: In the June 2006 IEC report, several issues were noted and apparently have not been rectified. The BTC Lot B Camp Assurance Report provided a punch list of open issues (i.e., hydrocarbon contamination as reported by BTC from the CINAR 29 September 2006 report). The resolution of this punch list item will be monitored during the next IEC site visit;
- Orensehir: In the report of the June 2006 IEC visit, some issues were noted (i.e., wastes scattered on site and subsidence at WWTP). Confirmation that they have been fully addressed by the Project was not provided. Since land occupancy has been reported as back to previous land use, residual liability risk should be adequately evaluated. Testing for hydrocarbon in soil and for coliforms in well water was reportedly incomplete as of October 2006;
- Yesilkent: In the report of the June 2006 IEC visit, a Level II Non Compliance was assigned resulting from open water-filled pits and trenches on the site (a fence was in place, but gates were open) and sewage sludge found in the WWTP area. Reports indicate that, as of October 2006, safety issues are still pending. IEC recommends that the Project urgently address all the above outstanding issues. Of particular concern are the community health and safety issues. As reported by BTC, inadequate fencing allowing third party access continue to pose a risk to community safety, as of October 2006. It is recognized that the inadequacy of reinstatement has been identified by the Project; the resolution of this punch list item will be monitored during our next site;
- Andirin: BTC reported that, as of October 2006, they have yet to receive a final due diligence report and/or Camp Decommissioning Checklist documenting proper due diligence;
- Azizli (Kosreli): The BTC Construction Camp Status Report of October 2006 indicates that the camp was only partially reinstated; removal of structures and above/below-ground installations was still required. Grading, topsoil spreading required and reinstatement was still to be finalized. The due diligence process was still to begin, and, therefore, soil contamination testing and spill cleanup, as

needed, were still to be conducted. Groundwater well testing for coliforms was still to be conducted;

- Pump Station Camps: Project decommissioning and reinstatement commitments are yet to be upheld.

Based on the information received from BTC as of October 2006, issues still remain pertaining to camp clean up, reinstatement and community safety at decommissioned camp sites across the Project in Turkey. Some of these concerns have been raised more than one year ago (i.e., Çadırkaya, Yesilkent). Final agreed-to camp punchlists are still subject to final agreement between BOTAŞ and BTC. IEC intends to review the state of compliance of Project commitments for decommissioned camps during the next site visit.

IEC also recommends that BOTAŞ include the reinstatement of access roads to camp locations, as part of the final camp reinstatement punchlist. No detailed information on the state of access roads was provided by BTC in the *Construction Camp Status Report* of October 2006. BTC should include this in their list of oversight commitments regarding the reinstatement of Project access roads.

3.3.2 Aggregate and Excess Material Management

No update.

3.4 WASTE MANAGEMENT

As part of the October 2006 review, IEC requested the following information from the Project:

- Status of design and construction of permanent CWAA at CMT and actions to be taken to improve the design of the CWAA's at the PTs

3.4.1 Non-Hazardous and Hazardous Waste

In June 2006, IEC visited the construction-phase CWAA's at the CMT, PT2 and PT4 and noted two non-compliances. A Level II Non Compliance, (*CCP Waste Management, Commitments ID: APC3E34, APC3E45, APC3E46, APC3E55*) was issued for the CWAA at CMT and a Level I Non Compliance (*CCP Waste Management, Commitments ID: APC3E48*) was issued for CWAA at PT2.

Observations and recommendations pertaining to the proposed CWAA at the CMT have been recorded in two letters (July and October 2006) from BTC to BOTAŞ.

During the June 2006 visit, IEC was informed that BIL are investigating the potential to use regional landfills for non-hazardous Project waste generated during the operations phase, rather than continue the use of Izaydas as a final disposal location.

3.4.2 CMT Narlik Inert Material Disposal Site

As part of the October 2006 review, IEC requested the following information from the Project:

- Action plan to close the Narlik NCR

In October 2005, IEC raised a repeat Level II non-compliance because of the possible uncontrolled dumping of Project waste at the Narlik Inert Material Disposal site (*Level II non-compliance CCP Waste Management Turkey, APC1E69, APC3E41*). The repeat Level II non-compliance was raised due to a failure of the project to confirm that only inert waste materials were disposed at the Narlik site.

In June 2006, IEC visited the Narlik site to find out that it had been fenced by the Kurtkulagi municipality which plans to use the site to construct a senior citizens facility.

In October 2006 IEC received version 7 of the Environmental Assessment Report for Inert Materials Storage at the Narlik site. The report was revised in July 2006. IEC concerns are the following:

- The revised report does not contain any confirmation, as requested in October 2005 and again in June 2006, that only inert waste materials from CMT construction were disposed at the Narlik site;
- The waste log provided at the end of the document accounts for waste leaving the CMT. This does not constitute an “inert material transfer log” for Narlik or provide a complete picture of what was received at the Narlik site, since this was an uncontrolled dump site.
- There are apparent discrepancies between the CMT waste register and waste volumes presented in the report.

The updated documents provided by the Project still do not adequately address concerns about potential liability at the Narlik site. IEC will monitor final site status during the next site visit.

A specific discussion with municipal authorities to confirm that they fully understand potential liability issues associated with the intended final use of the Narlik site, is recommended.

3.4.3 Wastewater Management

As part of the October 2006 review, IEC requested the following information from the Project:

- Wastewater effluent analyses from the active WWTPs and Oil/Water Separators (June, July, August and September tests) at permanent facilities

Stations

IEC reviewed the WWTP effluent registers (August and September 2006 – most sampling points are not reported for June/July) for each of the four permanent stations and the CMT and have the following observations.

- PT1: Stormwater pond exceeds TSS and coliform thresholds.
- PT2: Stormwater pond exceeds coliform, oil/grease, and pH thresholds.
- PT3: Stormwater pond exceeds BOD, COD, coliform, oil/grease, and PH thresholds.
- PT4: Stormwater pond exceeds BOD, COD, and TSS thresholds.
- CMT: Stormwater pond exceeds BOD, COD, TSS, coliform, oil/grease, and PH thresholds.

The IEC notes that the Project has recognized these exceedances and that non-compliant sewage discharges are being transferred to municipal WWTPs for disposal.

Exceedances of several wastewater limits at all pump stations and the CMT WWTPs should be investigated and remedied as soon as possible and the Project should ensure that, in the short term, municipal WWTPs will no longer be used for sewage disposal.

The Waste Management CCP states that wastewater should be sampled once per month. BTC should ensure that lapses in monitoring (as occurred in June and July 2006) do not occur, especially for sampling points that were out of specification during previous monitoring efforts.

3.5 POLLUTION PREVENTION

As part of the October 2006 review, IEC requested the following information from the Project:

- Wastewater effluent analyses from the active WWTPs and Oil/Water Separators (June, July, August and September tests) at permanent facilities

3.5.1 Observations

The Project has adopted a pollution prevention plan aimed at systematically identifying potential impacts from construction activities and implementing avoidance and mitigation measures to minimize the likelihood, extent or duration of their occurrence, and any associated adverse effects. The mitigation measures include: spill prevention and management; management of existing contaminated sites; groundwater protection; surface water protection; ecological receptor protection; air quality protection and dust mitigation; noise control; soil erosion control and topsoil protection.

Various provisions apply directly to the protection of surface water and groundwater, including permanent fuel and chemical storage, hazardous materials storage, vehicle maintenance facilities, wastewater discharges, run-off controls, and disposal of trench water and groundwater.

The available analytical results for oil and grease at three of the CMT OWS were non compliant in April 2006, and are reported to comply with the Project standards in May 2006. IEC has reviewed the monitoring data for CMT OWS for June-September 2006. No monitoring was done for June and July. August and September results are in compliance with the exception of TSS for one OWS in August.

Based on the information provided in October 2006, the operating and compliant status of OWS's across the project is not fully known. This will be followed up during the next IEC site visit.

The Waste Management CCP states that waste water monitoring (including that from OWS) should be sampled once per month. BTC should ensure that lapses in monitoring (as occurred in June and July 2006) do not occur, especially for sampling points that were out of specification during previous monitoring efforts

BOTAŞ should improve the current testing procedure for residual hydrocarbons at the CMT jetty (currently based on a limit of 10 mg/l oil and grease) to comply with the BIL Environmental Emission Management Plan, which requires 5 ppm residual hydrocarbons in treated aqueous effluents from surface drainage of the loading deck (Commitment ID: CH9E10).

3.6 ROW MANAGEMENT, EROSION CONTROL, REINSTATEMENT AND BIORESTORATION

As part of the October 2006 review, IEC requested the following information from the Project:

- Status of pipeline ROW reinstatement, repairs carried out since IEC visit in June 2006 including actions to be taken and work schedule to complete;

- Status of pipeline ROW reinstatement, repairs carried out since IEC visit in June 2006 including actions to be taken and work schedule to complete Final agreed punch lists for all three lots (both on and off ROW; and
- NGPL reinstatement status, contractor details, work carried out to date and schedule for completion.

3.6.1 Reinstatement and Bio restoration

ROW Reinstatement

General observations on the success of reinstatement activities are as follows:

- Reinstatement is complete in all three Lots, and, based on the locations visited in June 2006, for the most part is considered to be well done with the exception of issues identified in Lot B. IEC has reviewed updated project documentation, including BTC Pipelines and Facilities punchlist status report of October 10, 2006. This report does not provide a sufficient level of detail to close the concerns listed in the IEC June 2006 report for Lot B. As of October 2006, final agreed to ROW punchlists are still subject to agreement between BOTAS and BTC;
- Ongoing monitoring will be essential to assess the effectiveness of vegetative cover restoration in the next growing season and identification of erosion-prone zones.

Reinstatement of the NGPL

In previous visits, IEC has expressed numerous concerns over persistent and unresolved delays in the reinstatement of the NGPL. In October 2005, IEC raised a repeat Level II non-compliance for an ongoing failure of the Project to conclude reinstatement of the NGPL as per ESAP commitments (*Level II Non-Compliance, CCP Reinstatement Turkey, Commitment ID: CH15E5, APC2E15, APC2E16, APC2E17, APC2E18*). In June 2006 the Level II Non-Compliance is rescinded, based on new commitments to act, indicated by both BTC and BOTAS.

IEC reviewed the document received and note that a detailed scope of work has been prepared to reinstate the NGPL ROW. No update was provided on contractor details, work carried out to date and a schedule for completion.

In addition to the above, BTC and BOTAS should also develop audit protocols and procedures to ensure that NGPL commitments are upheld and implemented.

Landscaping at Camp Locations

No update.

Temporary Harbor at the CMT

BTC provided IEC with the following information on the status of the Temporary Harbor.

“Tekfen has applied to Adana Governorship in order to use the jetty permanently and receive the project approval of the facility. They have submitted the drawings officially as well. The Governorship has sent the application letter to Adana Provincial Directorate of Public Works and Settlement for their view. The Directorate has replied back. The next stage is Adana Governorship to sign and forward the letter to Ministry of Public Works and Settlement in Ankara. The Ministry would distribute the application letter to various governmental bodies such as Ministry of Environment and Forestry, General Staff, etc. for their view and comments on the project. After receiving the comments if the Ministry of Public Works and Settlement would approve the application then they'd advice on the necessary additional permits to be obtained such as EIA; after Tekfen would apply for them”.

IEC will review the status of the Temporary Harbor during the next site visit.

3.6.2 Access Roads

As part of the October 2006 review, IEC requested the following information from the Project:

- Update on status of off-ROW reinstatement (project access roads, borrow pits etc), actions to be taken and schedule to complete.

In past visits, IEC has recommended that the Project establish clear commitments and procedures for the reinstatement of Project access roads as indicated in the ESAP. During the June 2006 visit, the IEC reviewed the access road registers provided by the Project, supplemented by observations in the field, to confirm the status of access road reinstatement across all three Lots.

The June 2006 IEC report, noted that the access road registers provided were deficient in regard to their reinstatement status. In some cases documents did not have a revision date to reflect that the information was current and to allow comparison to other documents. Finally, inconsistent reporting of completion dates and reconciliation with punchlists prevented IEC from determining how much progress had been made with the reinstatement process.

In October 2006 IEC received the Pipelines and Facilities punchlist status document (rev October 9, 2006). This document does not provide IEC with sufficient information to determine the current status of access road reinstatement. This will be monitored during the next site visit.

3.7 ECOLOGICAL MANAGEMENT

3.7.1 Observations

As part of the October 2006 review, IEC requested the following information from the Project:

- Status of the Biorestitution Monitoring Strategy and BOTAS/BIL endorsement

BTC informed IEC that field work and interpretation is ongoing in the following areas:

- Vegetation Cover Assessment
- Tree / Shrub Survival Assessment
- Species Diversity Assessment

BIL have accepted the BTC method approach to species diversity and cover factor assessments.

The status of this work will be monitored by IEC during the next site visit.

3.8 COMMUNITY LIAISON

As part of the October 2006 review, IEC requested the following information from the Project:

- Update on Land Exit and open complaints in the three lots

3.8.1 Observations

In June 2006, IEC observed that a team of Community Relations (CR) Supervisors from BOTAŞ and the two EPC contractors (Lot B and Lot C) were responsible for community liaison activities. As of October 2006, IEC has not received any new information regarding changes to the composition of the community liaison teams for BOTAŞ and the EPC contractors.

IEC has reviewed the BIL CR organizational chart that indicates that they will have a community relations chief, community relations supervisor, and two community relations specialists (PCRE) at the CMT. BIL will also have a community relations specialist (PCRE) assigned to each pump station. As mentioned in June 2006, the involvement of BIL in the land exit process is not known.

Community relations activities have now shifted toward concluding land exit procedures. Land exit is being concluded in conjunction with DSA. A summary of land exit status from the Oct 9, 2006 land exit report is provided below.

Lot A

As of October 9, 2006, 3135 parcels have been negotiated for land exit and 322 have been rejected. The majority of instances were related to land compensation issues (241) and reinstatement issues (74).

Lot B

As of October 9, 2006, 3086 parcels have been negotiated for land exit and 123 have been rejected. The majority of instances were related to unfulfilled commitments (85) and reinstatement issues (31).

Lot C

As of October 9, 2006, 1624 parcels have been negotiated for land exit and 2 have been rejected.

3.9 ENVIRONMENTAL INVESTMENT PROGRAM

No update.

3.10 CULTURAL HERITAGE MANAGEMENT

No update.

Appendix A
Trip Summary- 8th IEC Mission by D'Appolonia for the BTC Pipeline Project –
October 2006

October 16 – Georgia. Meetings held with BTC staff at the BTC offices in the morning to update on Project status; visit CWWA at PSG-1.

October 17 – Georgia. Fly-over along most of the ROW from the Azerbaijan border (PSG-1) westward to about KP 210 in the morning. Travel to Bakuriani and visit locations along the ROW, the Borjomi Oil Response Base, the Akhaltsikhe pipe yard, and the Atskuri gravel pit. The team spends the night in Bakuriani.

October 18 – Georgia. Tour the ROW from KP 200 to KP 80 with stops at the Kodiana Security Base, KP 176, KP 166, KP 153, KP 148, KP 143, KP 132, KP 121, KP 110, KP 92, KP 83, KP 79, and then continue to Tbilisi.

October 19 – Georgia. Present closeout meeting at BTC office in Tbilisi and then attend a meeting with MoE and GIOC.

October 20 – Georgia. IEC team departs from Tbilisi.

Appendix B
Non-Compliances with ESAP – Georgia

Section Ref.	Observation	Non-Compliance	Level	Comments / Recommendations
2.2.1	The IEC visited the Atskuri gravel pit, managed by a sub-contractor of GeoEngineering. Few non-compliant conditions were observed at the fueling area with absence of paved and banded areas, poor waste oil management practices, absence of oil spill kits, and limited or absent pollution prevention measures.	CCP Procurement and Supply, Commitment ID: H1, H23 (J10)	I	Strengthen the management of the subcontractors throughout proper auditing, training and continuous monitoring.
2.3.1	As already pointed out in the previous visits, the final disposal of the remaining domestic waste is still uncertain. The lagludja municipal disposal facility keeps on being used and continues to expand although the relevant MOC was rejected by the IEC.	CCP Waste Management Plan, Commitment ID: J1, J16, J18 (N15)	III (Potential)	IEC defers assigning this non compliance, pending a firm commitment by BTC as to how they intend to proceed during operations. Once again, IEC recommends the development and the implementation of a final plan to provide a sustainable solution for the disposal of domestic waste in Georgia.

Appendix C
List of Documents Requested by IEC on 14 September 2006
Desk Review of Information Update relevant to Turkey

1. Description of the BIL E&S team and H&S team organization
2. Update on organization and structure BOTAS and BTC environmental and social teams relative to the transition to BIL
3. Status of pipeline ROW reinstatement, repairs carried out since IEC visit in June 2006 including actions to be taken and work schedule to complete
4. Update on status of off-ROW reinstatement (project access roads, borrow pits etc), actions to be taken and schedule to complete
5. Final agreed punchlists for all three lots (both on and off ROW)
6. NGPL reinstatement status, contractor details, work carried out to date and schedule for completion
7. Status at each construction camp across the three lots (including at PTs), including decommissioning status and reinstatement progress, changes made and actions taken since the IEC visit in June 2006, additional actions to be taken and schedule to complete (provide photographs as available)
8. Status of design and construction of permanent CWAA at CMT and actions to be taken to improve the design of the CWAA's at the PTs
9. Wastewater effluent analyses from the active WWTPs and Oil/Water Separators (June, July, August and September tests) at permanent facilities
10. Update on CMT temporary harbor
11. Action plan to close the Narlik NCR
12. Status of the Biorestitution Monitoring Strategy and BOTAS/BIL endorsement
13. Update on Land Exit and open complaints in the three lots