
**BAKU-TBILISI-CEYHAN (BTC)
Pipeline Project**

**Report of the Post-
Financial Close
Independent
Environmental
Consultant (IEC)
Eleventh Site Visit,
June 2009**

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**REPORT OF THE POST-FINANCIAL CLOSE
INDEPENDENT ENVIRONMENTAL CONSULTANT (IEC)
BAKU-TBILISI-CEYHAN (BTC) PIPELINE PROJECT
ELEVENTH SITE VISIT, JUNE 2009**

EXECUTIVE SUMMARY

This report presents the results of the eleventh post-financial visit of the Independent Environmental Consultant (IEC) to Azerbaijan, Georgia and Turkey, between June 23 – July 1, 2009 to monitor compliance with BTC Project Environmental and Social (E&S) commitments. The IEC team conducted the visit as two teams; one focused on Project activities in Turkey and the other in Azerbaijan and Georgia.

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

This report identifies the miscellaneous non-compliances as encountered in the field, but also focuses on the commitments made by BTC in the September 2007 meeting held at D'Appolonia's office in Genoa, Italy upon which the Schedule 20 document signed by BTC was based and which also formed the basis for the issuance of Schedule 21 - IEC Completion Environmental Compliance Certificate, which was signed by the IEC team. The commitments made by BTC associated with the Schedule 21 represent follow-up activities intended to close construction-related issues that by their nature extended into the Operations phase of the BTC Project.

Now that nearly two years have passed since the signing of Schedule 21, IEC considers that it is now appropriate to review its closure status. This Executive Summary therefore focuses on these issues that required closure as part of the Schedule 21 commitments on a country-by-country basis.

Azerbaijan

The Schedule 21 commitments for Azerbaijan cover four categories that all represent activities that could not be completed prior to the close of construction:

- *Exit of temporary facilities* – the condition of construction camps, temporary pipe storage facilities, etc representing sites where CCIC and SPJV had turned over property to landowners without fully reinstating the property except to the owner satisfaction;
- *Stack emissions monitoring* – demonstration that correct sampling ports are going to be installed in time for the first round of stack emissions monitoring within 1 year of start-up;
- *Right-of-way (ROW) Access Strategy* – this can be summarized in terms of BTC's commitment not to drive along the ROW, except in emergencies and for road works required by the Export Pipelines Protection Department (EPPD) of the Azeri Government and for the development of an Access Management Strategy in association with EPPD to eventually eliminate their need to drive along the ROW;

- *Iris Acutiloba* – this can be summarized as a commitment to continue to evaluate the fate of this red-listed plant species in the Gobustan Desert portion of the ROW.

The issue of temporary facilities is now considered closed. The last temporary facility (Mugan Camp) was reinstated and turned over to the landowner on October 23, 2008.

Stack emissions monitoring is an issue yet to be closed. Monitoring is now conducted on a routine basis, including at the diesel generators, where the commitment was to relocate the monitoring ports. In actuality, it proved impractical to relocate the ports as planned, but additional studies have shown that the existing ports can still be used and monitoring has been conducted on this basis. IEC has requested that BTC prepare an MOC with relevant support material, to justify that it was acceptable not to move the monitoring ports. Also related to stack emissions monitoring, the emissions from the MOL generators continue to be non-compliant for NO_x, also with slight exceedance for particulate matter. This has been an ongoing issue as discussed in the June 2008 trip report. It is still expected that an MOC justifying a higher limit for NO_x emissions will be prepared.

EPPD continues to use the ROW for their security patrols and this Schedule 21 Completion Certificates is therefore not closed. The Project has honored its ESAP commitment for “*No routine vehicle access on the ROW,*” but it has not been practical to restrict EPPD access. The Project developed a strategy to minimize impacts to the right-of-way based on an environmental and social impact assessment (ESIA) addendum that was approved by the IEC in September 2007 and by the Azerbaijan Ministry of the Environment and Natural Resources (MENR) in February 2008. This would have allowed for the biorestitution of the access track to commence by 1 January 2009. This last commitment was not achieved and EPPD still routinely drives along portions of the ROW. The Project prepared an MOC in December 2008 that commits the Project to continue to work with EPPD to find solutions such as it will not be necessary for them to drive along the ROW with no time restraint. It also stopped the lease the Project had with landowners at the end of 2008. Current observed EPPD usage of the ROW is 28% in terms of total kilometers potentially impacting 388 private parcels (8% of landowners). During this trip, the Project was able to demonstrate their continuing efforts to find alternative solutions for EPPD, including funding a trip for EPPD staff to view demonstrations of UAV technology. Actual implementation of a UAV solution is pending the possibility that a factory to manufacture this equipment could be constructed in Azerbaijan and therefore only a long term solution of the issue is expected.

The situation regarding the *Iris Acutiloba* is not resolved. Best estimates of the survival of this red listed species are worse than estimates from a year ago (~13% survival for all translocated plants vs. ~19% reported in June 2008). Actual long-term survival is still not fully defined and additional monitoring is planned, but there appears to be a strong likelihood that at the end it will be shown that the Project had a strongly negative impact on this plant. IEC recommends that the Project start planning offset measures.

Georgia

The Schedule 21 commitments for Georgia cover three categories:

- *Non-Hazardous Waste Disposal* – The main commitments were for BTC to discontinue the use of the Iagljuda municipal disposal site by the end of June 2008 and commence operation of a new landfill by end of December 2008, if permitted by the Georgian government. The additional significant commitment was to develop an offset for the non-compliant waste disposal;

- *Stack emissions monitoring* – demonstration that correct sampling ports are going to be installed at the oil water bath heater (WBH) and diesel generator stacks;
- *Closure of damaged archaeological sites* – at the time Schedule 21 was prepared, the Project had negotiated an agreement with the Georgia National Museum (GNM) for Archaeological Sites Damage Resolution involving the excavation of two sites damaged during construction and providing support to the GNM for the curation and display of artifacts, capacity building, and publication of findings.

The issue of non-hazardous waste disposal is considered closed. The use of the Iagljuga municipal facility was discontinued prior the end of June 2008. The construction of a BP Georgia EU-compliant non-hazardous waste landfill is complete and waste disposal started in May 2009. The offset associated with improper waste disposal has been selected to be assistance in the development of Georgia's first EU-compliant non-hazardous waste disposal facility for the Cities of Rustavi and Gardabani that is expected to include the closure of the existing Gardabani dump. BP Georgia's support has been the preparation of the design of the facility, the landfill site selection studies, and preparation of an EIA including a public information and consultation process according to national, BP and EU requirements.

Stack emissions monitoring is an issue essentially identical to Azerbaijan and is also yet to be closed. Monitoring is now conducted on a routine basis, including at the WBH and the diesel generators, where the commitment was to relocate the monitoring ports. In actuality, it proved impractical to relocate the diesel monitoring ports as planned, but additional studies have shown that the existing ports can still be used and monitoring has been conducted on this basis. It is anticipated that a single MOC covering the diesel generator stacks for both Azerbaijan and Georgia will be sufficient to remove the non-compliance with the Schedule 21 commitments. Georgia also has non-compliant NO_x emissions from the MOL generators, slightly higher than what was recorded in Azerbaijan. It is still expected that an MOC justifying a higher limit for NO_x emissions will be prepared that covers both Azerbaijan and Georgia.

The Schedule 21 commitment for ongoing archaeological studies in Georgia is considered closed. The last field efforts associated with the construction phase (Damaged Sites Agreement) were completed for the two sites (Bedeni burial and Darakow settlement) in 2008. The Darakow settlement site has been nominated to be an Archaeological Protective Zone by the GNM. In addition to this effort, BTC/SCP archaeological collections are properly stored and high-quality exhibits are being constructed at two regional museums being renovated with BP Georgia support at Akhaltsikhe and Tsalka. BP Georgia has supported capacity building at the GNM and the entire archaeological program also benefits from the overall collaboration with the Smithsonian Institution being managed for both Azerbaijan and Georgia by BP Communication and External Affairs (CEA) in Baku.

Turkey

The Schedule 21 commitments for Turkey covered five categories. One was closed at the time of the preparation of Schedule 21 and four remained for subsequent follow-up:

- *Punch List Items* – This commitment involved construction-related activities along the ROW not completely closed and complicated due to pending conclusion of the warranty period and transition to BIL operation. Compliance is based on completion of activities from Residual Actions list provided by BTC on September 1, 2007;

- *ROW Maintenance* – This commitment was for BTC to provide an action plan/memorandum to specify a date for mobilization of ROW maintenance contractor and then monitor progress;
- *Reinstatement of NGPL* – The commitment was for BTC to submit a final closure report, demonstrate closure of all outstanding NGPL complaints and conduct a walk through to identify punchlist items; and
- *Access Roads* – BTC committed to producing a concrete, implementable strategy for access road closure identifying those which are being left (stating reasons and E&S implications).

Punch List Items: According to BTC, only one punch list item considered to be environmental remains and 16 of RoW issues remain (uncertain as to how many are environmental). IEC requests additional clarification on this RoW item and the remaining off RoW items prior to assignment of closure.

RoW Maintenance: IEC notes that the Project has made significant progress in this issue and that BIL has assumed ongoing maintenance responsibilities for operations.

Reinstatement of the NGPL: IEC closed this issue in June 2008.

Access Roads: IEC recommended that BTC/BIL prepare an Operational Access Road Strategy and Plan that is a transitional document specifying how roads opened by the project in the construction phase will either be closed and reinstated, or left open as for Operations use, or at the request of the landowner. A Level 1 non-compliance has been raised as a result (see Section 2.8.3).

Subsequent sections of this report provide the following:

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

1 INTRODUCTION

D'Appolonia S.p.A.(D'Appolonia), located in Genoa, Italy, has served since the first field trip in February 2004 as the post-financial close Independent Environmental Consultant (IEC)¹ to the Lender Groups for the Baku-Tbilisi-Ceyhan (BTC) Pipeline Project (BTC Project).² The BTC Project is owned by BTC, a company formed by a consortium of the Main Export Pipeline Participants (MEPs)³. The BTC Project is constructed through Azerbaijan, Georgia and Turkey and the first shipment of oil from the BTC pipeline took place at the Ceyhan Terminal in Turkey on June 5, 2006, after which the transition to Operations was completed. The BTC pipeline currently carries Azeri-Chirag-Gunashli (ACG) oil and Shah Deniz condensate from Azerbaijan and a change from previous reporting is that the BTC Pipeline also transports some crude oil from the North Caspian, specifically from the Tengiz field in Kazakhstan, which began entering BTC in October 2008. Transportation of Kazakh oil via BTC continues in accordance with the Transportation Agreement between BTC Co and Tengizchevroil – the operator of the Tengiz field.

The overall role of D'Appolonia within the BTC Project is to assess and report to the Lender Group on the compliance with the environmental and social provisions contained within the project Environmental and Social Action Plan (ESAP) and associated Management Plans and with HSE management systems. This report summarizes the results of D'Appolonia's eleventh field visit held between June 23 – July 1, 2009 for the BTC Project.

This IEC trip represents the third annual verification of BTC Operations focusing on the operations team and ongoing operations activities and represents a continuation of a monitoring process initiated during the construction phase. The reference documents for the Operations audits are the Operations ESAP and the relevant management plans. In addition to this aspect of the field visit, the IEC has also focused on commitments made by BTC as part of the terms of the Schedule 21 Completion Certificate signed by the IEC On October 8, 2007. As it was not realistic or practical to fully close all of the construction-related issues in a dynamic process prior to the issuance of Schedule 21, the IEC accepted that certain items not be closed as long as they have well-defined closure plans with associated closure schedules as agreed and defined in a meeting held in the D'Appolonia office in Genoa, Italy on September 20, 2007. Now that nearly two years have passed since the signing of

¹ IEC Team members: Roberto Carpaneto (Supervisor), Giovanni Battista De Franchi (Team Coordinator), Marcello Iocca (Team Member), Stefano Robaudo (Team Member), Miles Scott-Brown (Team Member), William J. Johnson (Team Member).

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

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

Schedule 21, IEC considers that it is now appropriate to review its closure status and this audit has focused on the Schedule 21 commitments on a country-by-country basis.

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

The IEC team conducted the visit as two teams; one focused on Project activities in Turkey and the other in Azerbaijan and Georgia. Subsequent sections of this report provide the following:

- Section 2 presents the review of the Project in Azerbaijan;
- Section 3 presents the review of the Project in Georgia;
- Section 4 presents the review of the Project in Turkey;
- Appendix A presents the trip itinerary.

Appendix B presents lists of non-compliances with the ESAP, with relevant observations and recommendations.

2 AZERBAIJAN

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

BP/AIOC First Oil in Azerbaijan was celebrated on May 25, 2005. The entire BTC pipeline became operational on June 5, 2006 with the first shipment from Ceyhan, Turkey. At the time of this visit, the BTC pipeline throughput was approximately 960,000 bpd. Since shipments began up to the beginning of May 2009, 760 tankers have been loaded at Ceyhan representing a total of about 600 million barrels (about 80 million tons) of crude oil transported via BTC and sent to world markets.

BTC is prepared to increase its capacity for throughput to 1.2 mmbd with the injection of drag reducing agent (DRA). The injection of DRA was originally scheduled for December 2008, but as the pipeline is still within its design capacity its use has not been required and it is expected that DRA will not be used before about December 2009.

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

2.1 ENVIRONMENTAL AND SOCIAL MANAGEMENT ORGANIZATION AND RESOURCES

2.1.1 Resources and Organization - Observations

The responsibilities for the BTC pipeline are covered by the Azerbaijan Export Pipelines Environment Team, which also has responsibilities for the SCP and Western Route Export Pipeline. The most significant aspect of this organization has been the complete transition from expat to national staff. Within the environmental organization there is a permanent staff of eight with two additional environmental advisors being recruited. The Health and Safety and Social organizations were already completely nationalized at the time of the June 2008 audit. All of these organizations work within the framework of their ISO 14001 certification, awarded in May 2008.

2.1.2 Management of Change (MOC) - Observations

Since the June 2008 IEC trip, BTC has issued two new MOC for Azerbaijan, one covering the topic of ROW Access and the other regarding sewage treatment. The original MOC for ROW access was issued in September 2007 as a Class III change, but needed to be re-issued because the Long Term Access Strategy as associated with the issuance of the Schedule 21 Completion Certificate was for EPPD to cease regular driving by the end of 2008 and biorestitution of the access track was to commence by 1 January 2009. As this was not achievable a new MOC was issued on December 16. This new MOC is classified as a Class I change, although BTC commits to treat it as if it were a Class III change. This MOC terminates BTC's leases along the 6 meter wide strip used for access by EPPD and does not define a timeframe for biorestitution to begin. Additional information regarding this MOC is provided in Section 2.5.

The second environmental MOC was issued on May 22, 2009 as a Class III change and basically indicates that the Project will use a municipal treatment system only if there is an emergency such that municipal facilities are only used under emergency conditions when the Project treatment plants are non-functional. This MOC is acceptable to the IEC with the note that if it is ever necessary to use a non-compliant municipal facility for the disposal of raw sewage, it will be non-compliant with respect to ESAP commitments.

2.2 CAMPS, INFRASTRUCTURE AND SERVICES

The last camp not fully reinstated and returned to the landowner at the time of the June 2008 site visit was Mugan Camp. This former construction camp was reinstated and the turnover to the landowner was completed on October 23, 2008. The exit of temporary facilities in terms of the condition of construction camps, temporary pipe storage facilities, etc. representing sites where construction contractors CCIC and SPJV had turned over property to landowners without fully reinstating the property except to the owner satisfaction, was a Schedule 21 commitment. Although Mugan Camp was not visited during this trip, photographs of this facility after reinstatement were reviewed and the reinstatement appears to have been successful. It is noted, however, that as part of the reinstatement of this camp, hazardous waste including contaminated soil was disposed at the non-compliant Hajigabul Municipal Landfill. This was identified as a Level II Corrective Action by the BTC/SCP Environmental Team and it is therefore not necessary for IEC to assign an additional non-compliance. In any case the site is now reinstated and IEC considers this Schedule 21 commitment issue to be closed.

2.3 WASTE MANAGEMENT

2.3.1 Non-Hazardous and Hazardous Waste – Observations

At the time of the June 2008 visit, a new EU-compliant non-hazardous waste landfill started in September 2006 had been constructed and a QA review by Enviro Consulting completed. Contractual issues with the local operator Tehlukeli Tullantilar MMC (TT MMC) prevented it from being available for use. These contractual issues were resolved and the facility became operational in December 2008. Concurrent with the startup of this facility, the second dedicated non-compliant BP waste cell with a 48,000 m³ capacity at Sumgayit was closed with a clay cap and a gas collection system installed. This is a major achievement for the Project. Another measure of progress in the management of non-hazardous waste has

been the identification of new recyclers for paper and plastic. A new paper recycling plant in Azerbaijan is expected to begin operations by the end of 2009.

Hazardous waste management has not changed since the June 2008 visit and waste continues to be consolidated and stored at the BP-owned Hazardous Waste Management Facility (HWMF) in Serenja. Wastes are also consolidated at the Central Waste Accumulation Area (CWAA) at the Sangachal Terminal. All of these facilities are now ISO 14001 certified. TT MMC is developing a hazardous waste disposal cell for their own purposes, which will be evaluated as a possible BP disposal cell, although it is unlikely that this cell will be used due to a lack of clarity over waste acceptance criteria that could lead to potential long-term environmental liabilities. BP is currently identifying hazardous waste management solutions on the basis of a PSCM – SIWM (Procurement Supply Chain Management – Semi-Integrated Waste Management) procurement process. New contracts are expected to be in place by the start of 2010 such that acceptable solutions are found for problematic waste streams, including oily waste and medical waste. BP plans on evaluating the SIWM opportunities before committing to any potential future hazardous waste landfill.

2.3.2 Wastewater Management - Observations

At the time of the IEC mission to Azerbaijan in June 2008, sewage effluent from PSA-2 and IPA1 was being trucked to the Mingechevir Municipal Plant, although the Project was about to switch to new Rotating Biological Contactor (RBC) type sewage treatment units being constructed at PSA2 and IPA1. Because the use of non-compliant municipal facilities had existed for years, because the construction of compliant treatment plants was far behind what was previously presented to the IEC, and also because efforts to actually improve the performance of the Mingechevir facility were considered minimal by IEC, this situation was assigned a Level II non-compliance.

The use of the Mingechevir facility stopped on June 20, 2008. Current conditions are that the new RBC treatment units at PSA2 and PSA2 camp are operational and effluent from these plants is compliant with ESAP commitments. The remaining plant at IPA1 is constructed pending completion of a discharge line to reedbeds and full commissioning is expected by the end of September 2009. Wastewater from IPA1 is trucked to PSA2 camp for treatment, such that non-compliant effluent discharges have been eliminated. The BTC Environment Team has identified some minor excursions in terms of total coliform bacteria at the time of startup in July 2008 and again in June 2009 at the PSA2 RBC unit, for which Level I Corrective Action Requests (CARs) were assigned. IEC considers the CARs to be an adequate assignment of non-compliance and the Level II non-compliance to be rescinded.

Sludge from the sewage treatment continues to be disposed at the Sahil Municipal Treatment Facility. Disposal of sewage sludge at a municipal facility is not a non-compliance with ESAP commitments, but is also not considered to be best practice, because beneficial applications do exist for this material, including as fertilizer, fuel for incineration (after dewatering), gasification for gas recovery, or composting.

2.3.3 Wastewater Management – Recommendations

1. BTC should consider developing an alternative disposal technology for the sewage treatment sludge such that this material has a beneficial application.

2.4 POLLUTION PREVENTION

2.4.1 Observations

As previously noted in reports since June 2006, one issue common to both Georgia and Azerbaijan is the effectiveness of main oil-water separators designed to clean up surface water from the pump stations and IPA1. As previously noted, the situation is not a non-compliance with ESAP commitments, but their performance could potentially be compromised under emergency loadings. The improvements at IPA1 have already been completed and similar works are expected to be completed at PSA2 before the end of the year. An additional issue associated with improvements to the main oil-water separators is the lining of the retention ponds. The PSA2 retention pond is the only pond with a complete concrete liner in Azerbaijan and Georgia and the concern is that the lack of a liner could be a contaminant pathway where groundwater is shallow and without concrete it is very difficult to clean out bottom sludge. Again, this situation is not a non-compliance, but could be a problem if there were a real emergency. Current plans are to line IPA1 before the end of the year.

The BTC Environmental Team continues to conduct noise monitoring. In October 2008 the noise from security generator at block valve AB-13 exceeded the night time standard of 45 dBA at the nearest residence located 120 m south of the facility. This prompted the issuance of a Level I CAR to identify a solution for reducing noise, which was designed and implemented. IEC recognizes the efforts of the Environmental Team and does not see the need to assign an additional non-compliance.

Stack emissions testing has continued at the MOL turbines at PSA2 with the last tests conducted at two of the turbines in May 2009. Emissions testing was also conducted at the diesel generator stacks at both PSA2 and IPA1 in October 2008. All required stack emissions monitoring has been carried out with the exception of the PSA2 water bath heater which has not been operational. A Schedule 21 commitment was that correct sampling ports at the diesel generator stacks would be installed in time for the first round of stack emissions monitoring within one year of start-up. This commitment has not been fulfilled. The generator stack monitoring ports are not ideally located (they are close to elbows in the ducting), but it has proved practical to obtain acceptable information from the existing ports and there are no plans to relocate the ports. In any case, additional studies have shown that it is not practical to relocate the sampling ports, because of other technical issues.

Ongoing stack emissions testing at the MOL turbines continues to indicate non-compliance with respect to the ESAP NO_x emissions standard. Carbon monoxide (CO) is above Azerbaijan national limits, but the ESAP does not define a limit for CO. The interpretation is that the Host Government Agreement (HGA) that defines the ESAP as the applicable standard for the BTC Project overrides any national standard and CO is therefore not an issue. Particulate matter (PM) was found to be slightly above the ESAP limit (6.2 mg/Nm³ when the limit is 5 mg/Nm³). At the time of the June 2008 site visit, technical problems had prevented an interpretation of the SO₂ emissions from the MOL turbines, but this problem has been resolved and the results indicate that SO₂ emissions are compliant with the ESAP standard. As discussed in the June 2008 trip report, the difficulty with the NO_x emissions is partially related to not yet operating the turbines at full capacity and also because the ESAP requirements for turbine emissions are based on those in the EU Large Combustion Plant Directive. This specifies standards for gas turbines above 50MW thermal power operating

above 70% load. As the BTC turbines are about 28 MW thermal the EU standard is overly conservative. BTC continues to plan an MOC to justify a less conservative standard.

BTC has assigned a new Level I non-compliance as a Corrective Action Report (CAR) for the current situation. IEC also will continue to assign a non-compliance for the stack emissions monitoring *Level I Non-Compliance, Emissions Management Plan - BTC Operations – Azerbaijan & Georgia (Commitment ID 1024)*.

It is recognized that it is unlikely that air emissions represent a significant adverse environmental impact, as ambient air monitoring does not show any anomalies for NO_x. Nevertheless, ambient air measurements have been shown to be problematic for SO₂. BTC undertook investigations to identify the source of the anomalous SO₂ and concluded that there were some external sources such as diesel generators, areas with truck traffic, etc., as well as some technical problems associated with the actual monitoring. These difficulties appear to have been resolved and the latest two rounds of ambient air measurements show full compliance with ESAP standards.

2.4.2 Pollution Prevention – Recommendations

2. Prepare an MOC that justifies not relocating the sampling ports on the diesel generator stacks.
3. Should BTC choose to modify the emissions standards with an MOC process, the IEC expects that the change would be a Level 3 and that there would be substantial documentations as to the appropriateness of the change (repeat recommendation).

2.5 ROW MANAGEMENT

2.5.1 Observations

Biorestitution monitoring has been conducted by BTC for the past three years in terms of percentage cover values and two years of species-diversity data, collected from 55 transects located along the length of the ROW (in areas with natural vegetation, not being farmed). Vegetation cover data indicates that over a third of transects have equal or greater vegetation cover than adjacent, undisturbed areas and half of the transects have vegetation cover that is less than 10% lower than undisturbed areas. On average, all of the habitats have an increasing trend in vegetation cover. In spite of this general continuous progress, there are still some large differences between habitats in the rate and scale of increase and species-commonality between the ROW and adjacent, undisturbed areas is still low (typically about 30%) and there has been only a small increase in the commonality recorded between 2007 and 2009. Also, the vegetation recovery in the Gobustan region is severely limited, where natural conditions are difficult and where erosion, vehicle traffic, and cattle have had a negative impact. As a general impression, the IEC did not discern any big differences from what was observed in 2008 in the Gobustan Desert area. Severe erosion was observed at the Djeyrankechmez River crossing at KP 9, but this is a situation recognized by the Project and remedial works were being planned. The Project actively monitors for the occurrence of erosion and has programs in place to manage this erosion. Seed gathering in the Gobustan Desert area was ongoing at the time of the IEC visit, confirming BTC's ongoing efforts towards the biorestitution of this critical area. The one risk to the reinstatement/maintenance program over which the Azerbaijan Export Pipelines Environment Team continues to have limited influence is vehicular traffic.

Vehicular traffic continues to take place along a significant portion of the ROW, and has caused damage in critical areas, including the sensitive Gobustan Desert area. This traffic relates primarily to requirements the Export Pipelines Protection Department (EPPD) of the Azeri Government, which requires that the ROW be accessible for security patrols. Significant progress has been achieved in defining actual EPPD usage of the ROW, now calculated to be 28% in terms of total kilometers based on actually walking the entire ROW. This driving affects 388 private parcels driven (8% of landowners) along the ROW.

As discussed in Section 2.1.2, the new MOC related to access strategy from December 2008 terminates BTC's leases along the 6 meter wide strip used for access by EPPD and does not define a timeframe for biorestitution to begin. The current MoC is assigned Change Class I on the basis that it *"includes changes to the facilities, access roads or other locational changes within the corridor width /area described and studied in the ESIA or Source Documents."* On the basis of this interpretation, BTC would not need to submit this document for IEC review, but IEC interprets this description of a Change Class I as being intended to apply to minor changes within the Project footprint during the construction phase. The IEC does not agree with the reclassification of this MOC to be a Class I rather than a Class III, as this issue is a significant break with the ESAP that formed a commitment by BP reflected in Schedule 21. It also does not appear appropriate from our point of view that BTC terminated its leases along the 6-meter wide strip, as we would have expected that something created/caused/related to the Project should be compensated by the Project, but we leave this issue to the RAP group to determine if this action is a significant breach of a commitment to the local landowners. In spite of these differences of opinion, IEC recognizes that BP has continued efforts to minimize EPPD's impact to the ROW and that BTC has fulfilled their commitment not to use the ROW for routine activities and continues to use horse patrols. BTC has actively engaged EPPD in terms of working to develop alternative solutions to vehicular access, including arranging a trip for EPPD personnel to observe the latest technology for unmanned aerial (UAV) observation. Actual implementation of a UAV solution is pending the possibility that a factory to manufacture this equipment could be constructed in Azerbaijan.

2.5.2 Recommendations

1. Continue to offer EPPD field personnel training in terms of their awareness of environmental sensitivities and continue to negotiate a surveillance solution such that the biorestitution of the ROW can be completed (ongoing recommendation).
2. Given that there is no clear likelihood that EPPD will entirely cease accessing the ROW in the near future, continue to monitor EPPD usage in detail. If it can be shown that EPPD access is decreasing, or at least not increasing, this could help demonstrate a certain degree of compliance with ESAP commitments.
3. When developing an appropriate solution for erosion and sediment control at the Djeyrankechmez River crossing at KP 9, take into account that the Government's construction of a new bridge to access the Gobustan Park has altered the riverbed.

2.6 ECOLOGICAL MANAGEMENT

2.6.1 Observations

Regarding ecological management, there is only one issue remaining from the construction phase included as a Schedule 21 commitment, which is the management of the red-listed plant *Iris Acutiloba*. Detailed field survey was carried out in March–April 2009, consistent with the Schedule 21 Completion Certificate requirement of undertaking a comprehensive survey to prove or disprove the initial observations from May 2007 that species survival has been poor.

The situation regarding the *Iris Acutiloba* is not resolved, as the best estimate from the new data is that the survival of this red listed species is worse estimated a year ago (~13% survival for all translocated plants vs. ~19% reported in June 2008). Actual long-term survival is still not fully defined and additional monitoring is planned, but there appears to be a strong likelihood that at the end it will be shown that the Project had a strongly negative impact on this plant.

2.6.2 Recommendations

1. BTC should continue annual monitoring of Irises in Gobustan and now plan an offset to compensate for the disturbance to this red-listed species with respect to ESAP commitments.

2.7 CULTURAL HERITAGE MANAGEMENT

The cultural heritage program for the BTC project currently relates to the management of the material encountered during construction, as well as management of situations that could occur along the pipeline route in the future. Operations has not faced any issues related to damage to cultural heritage due to new construction or third-party damage to identified sites and the main activities have been associated with the management of archaeological materials identified during the construction phase of the BTC and SCP Projects. This effort is undertaken by BP Communication and External Affairs (CEA) out of Baku for both Azerbaijan and Georgia. Because the activities associated with the construction phase are nearing completion, this IEC trip focused on Construction Phase 5 – curation of finds, analysis, display of finds and publication of information as verification that the overall program has been undertaken consistent with ESAP commitments. In addition to conducting interviews with Project and CEA staff associated with cultural heritage management, the IEC also toured the archaeological exhibition in the Caspian Energy Centre (open to the public in April 2009); visited the Azerbaijan Institute of Archaeology and Ethnography (AIAE) to review curation of samples and conduct an interview with an archaeologist who worked on the Project; and also visited the Gobustan State Historical-Artist Preserve (GSHAP) and conducted an interview with the Director. The basic goal of these special trips and interviews was to verify the curation of the archaeological materials excavated along the pipeline corridor and also to evaluate the results of the capacity-building efforts to the local institutions being undertaken by BP.

2.7.1 Observations

As noted in the June 2008 trip report, a major development took place on March 17, 2008, when BP on behalf of both the BTC and SCP projects signed a grant agreement with the Smithsonian Institution. The program had two main goals - public outreach and capacity building, targeted for the GSHAP, the AIAE and the Georgian National Museum. The total value of this program is just over \$1 million and its duration is two years. The IEC has found that this money has been well-spent.

- Phase 5 technical analysis and reporting of the BTC/SCP artifacts is nearly complete. The archaeological exhibition in the Caspian Energy Centre is of excellent quality. Final curation of the archaeological material not on display is being well managed at the AIAE;
- 41 archaeological reports about the many archaeological/historical sites discovered during construction of the BTC/SCP pipelines in Azerbaijan were completed during the year in collaboration with the AIAE. These reports are now part of BP GIS system and later this year will be available to the public via a website. The draft website looks very good;
- a book entitled “Ancient Heritage in the Pipelines Corridor” is in draft form, but looks to be a significant contribution. One uncertainty is whether or not there will be any contribution from the portion of the BTC Project in Turkey.

All of the above project activities have been previously recommended by the IEC.

Support being provided to Gobustan State Historical-Artistic Preserve (GSHAP) also appears to be successful. BP developed a GIS system for mapping the more than 6,000 examples of rock art and numerous other archaeological sites within the Preserve. The Director and her staff have received training from Smithsonian Institute in Washington and the Government is now investing considerable resources to this World Heritage site.

Based on an interview with one of the field archaeologists from the AIAE who worked at the BTC/SCP sites, capacity building has also been effective at that organization. The archaeologist expressed his satisfaction with the overall collaboration with BP, especially with respect to capacity building, where he stated that teaching the AIAE archaeologists how to conduct excavations with modern methods of digging, record-keeping, and management of artifacts was a major accomplishment of the BTC/SCP Projects.

2.8 ENVIRONMENTAL INVESTMENT PROGRAMME

During the mission, the IEC did not conduct a detailed review of the Environmental Investment Programme (EIP) in Azerbaijan and the EIP has been reviewed on the basis of limited information provided by BTC.

The EIP is continuing on the basis of a community driven small grants program. As noted in the June 2008 trip report, the original Phase 1 projects were abandoned lacking regulatory support. The ongoing projects do not require the same level of regulatory support and do not present a significant financial risk, but should result in real and measurable benefits to the environment and the potentially affected communities.

One project completed since the June 2008 IEC trip and turned over to the Ministry of Environment and Natural Resources (MENR) has been the Tugai Forest Rehabilitation project. This was a joint project involving BP Group, the BP Azerbaijan Business Unit and the BTC/SCP projects. Started in 2002, this project focused on the threatened Tugai forest habitat aiming to enhance its protection. Accomplishments of this project have included the

fencing of a 16 hectare plot; planting of 40,000 seedlings of Tugai-specific trees and shrubs; setting up an irrigation system; protecting 150 ha of forest land from cattle; supporting the restoration of 30 ha of empty forest area; conducting public awareness campaigns, developing an environmental “corner” in Girli village; and establishing an Environmental Centre in the Agstafa Lyceum where 150 pine trees were also planted.

Another significant completion in 2008 was the Green Pack project, an educational tool including an awareness campaign on best practices in municipal/agricultural waste management; water utilization; creation and maintenance of municipal waste landfills; creation of pilot organic waste utilization facilities; cleaning of river-beds and channels, coasts; tree planting; and publishing a brochure on local biodiversity. This tool has been acquired by 890 secondary schools and eight schools of higher education, as well as 57 other training centers.

Other projects recently completed include:

- an environmental attitude survey in the Guba, Ganja and Sheki areas, a photo exhibition, and a biological diversity training course for young people conducted with the Public Association of Youth Development; and
- two books published by the Azerbaijan Zoologists Society – “Biodiversity of desert and semidesert plants of Azerbaijan” and “Artiodactyla fauna in Azerbaijan”.

The previously reported Support to Energy and Environmental Initiatives (Energy Bus) project is now complete in Azerbaijan and has moved to Georgia where it contributes to the EIP in that country.

A new EIP project has started since the June 2008 IEC trip entitled Ecostyle-Azerbaijan, which has started provision of rare and endangered plants’ seeds (2008) and expects to submit seed samples to scientific organizations to publish a brochure in 2009.

3 GEORGIA

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

The entire BTC pipeline became operational on June 5, 2006 with the first shipment from Ceyhan, Turkey. At the time of this visit, the BTC pipeline throughput was approximately 960,000 bpd. Since shipments began up to the beginning of May 2009, 760 tankers have been loaded at Ceyhan representing a total of about 600 million barrels (about 80 million tons) of crude oil transported via BTC and sent to world markets. Georgia began receiving the benefits of off take gas from the SCP Project in January 2007.

BTC is prepared to increase its capacity for throughput to 1.2 mmbd with the injection of drag reducing agent (DRA). The injection of DRA was originally scheduled for December 2008, but as the pipeline is still within its design capacity its use has not been required and it is expected that DRA will not be used before about December 2009.

This mission represents the second IEC visit fully associated with BTC Operations [Although this is the third Operations audit, the first Operations audit was combined with the last Construction audit]. Nevertheless, many of the aspects of Operations still relate to completion of the pipeline (e.g. bioremediation) and programs started during construction and which have follow-up during Operations (e.g., erosion and sediment control monitoring along the ROW; ecological monitoring; cultural heritage), as well as topics common to either construction or Operations (waste management, wastewater treatment, and emissions monitoring). Georgia is also the only country traversed by the BTC Pipeline where there is still ongoing active construction as represented by the Kodiana Projects. Three topics specific to Georgia that were issues for the preparation of the Schedule 21 Completion Certificate and reviewed during this trip cover the categories of non-hazardous waste disposal, stack emissions monitoring, and closure of damaged archaeological sites.

During this eleventh mission, focus has been made on evaluating the status of these Schedule 21 Completion Certificate commitments. In addition, emphasis has been placed on a review of the general cultural heritage programs being undertaken by BP Georgia in association with BP Communication and External Affairs (CEA) out of Baku. This involved trips to the Georgia National Museum (GNM) in Tbilisi and a regional museum under GNM management in Akhaltsikhe. A visit was also made to the Kodiana Projects area and spot checks on the ground were conducted to review the reinstatement of the pipeline from this area (~KP 187) to PSG2 (KP 88). A visit was also made to the new EU-compliant landfill being operated by BP Georgia.

3.1 ENVIRONMENTAL AND SOCIAL MANAGEMENT ORGANIZATION AND RESOURCES

3.1.1 Resources and Organization - Observations

The single point of accountability for environmental management in Georgia is the Georgia Asset Environmental Manager, who is supported by teams covering emissions management; ecological management and EIPs; ESMS implementation and compliance; waste management; remediation management; and Projects. The Projects team covers the Kodiana Projects and remaining 'legacy' projects and is managed by a Project Environmental Supervisor, who is supported by a dedicated senior environmental advisor for the Kodiana Projects. The most significant aspect of this organization has been the transition from expat to national staff. Within the environmental organization all positions are filled and occupied by Georgians, with eight assigned to Operations and two to Projects. PSG1 and PSG2 staffs are also entirely represented by Georgian nationals. In all of BP Georgia, there are only seven expats expected to be present by the end of 2009, down from 11 in 2008 and 28 in 2007. The resources and the personnel dedicated to the management of the E&S system appear sufficient.

3.1.2 Management of Change - Observations

Since the June 2008 IEC trip, BTC has issued two new MoCs for Georgia, both identified as Class II changes. The first MoC is the extension of the use of the Akhaltsikhe Construction Camp until 2011 when a new camp is planned to be constructed at Area 80 that is part of the SCP Project. The second MoC is the upgrading and continued use of a portion of the ROW in the Kodiana area (~3.5 km) as access to the new Security Base. This contradicts ESAP commitments, but the work was at the request of the Government of Georgia and approved by the Ministry of the Environment. In the field, it is clear that the use of the ROW prevented an expansion of the already large footprint of the Kodiana Projects.

3.2 CAMPS, INFRASTRUCTURE AND SERVICES

The review of 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, with the exception of the Kodiana Projects, most of the facilities originally part of the BTC Project are no longer operational, and the IEC visit evaluated reinstatement of some of these facilities.

3.2.1 Observations

Most of the temporary facilities associated with construction described in previous IEC reports are now closed, reinstated to the satisfaction of the landowners and relinquished to the landowners, unless their use has been required by Operations. The current status of the temporary facilities during construction is as follows.

- *PSG1 Camp* – still in place and has changed status to a permanent facility to accommodate the construction of an Oil Spill Response base for the eastern most section of the BTC pipeline. In addition, a logistics base is being constructed on the PSG1 camp space. The current is for this camp to be replaced in 2009 by a permanent camp structure to accommodate Operations, Oil Spill Response, and Logistics base requirements. The lease is extended until 2012;
- *Marneuli Camp* – reinstated except for about 10% of area (currently used for the storage of surplus shipping containers);
- *PSG2 Camp* – still in place and servicing Operations – will be used to support the BTC expansion project this year. Longer term plans for the site are to eliminate the accommodation requirement by building a larger permanent camp near PSG2 and this is being planned for 2009/2010. Ultimately the PSG2 construction camp will be demobilized and the foot print reinstated except for the land needed for the permanent water well located at the camp and required to service PSG2 facilities;
- *Akhalsikhe Camp* – still in place and providing accommodation services to Area 80 and the western section of the pipeline corridor. Plans are in place to construct a permanent camp in 2009 at Area 80 and allow for the Akhalsikhe camp to be demobilized, the land reinstated and handed back to the landowners. The Contractor's lease has been extended until 2010;
- *Rustavi (Gatchibani) Pipeyard* – still in use as a temporary Oil Spill Response base, Logistics base and pipe storage yard. The Oil Spill and Logistics equipment and personnel will be moved to PSG1 OSB and Logistics base when complete. Meanwhile, pipe will continue to be stored at the Rustavi pipe yard, but options are being reviewed such that the pipe could be moved to PSG1 at some point in the future;
- *Andezit Pipeyard / Bakuriani Mechanical Yard* – continued use in association with Kodiana Projects; the BTC lease expires December 31, 2009.

During this visit, a third-party operating gravel pit being used by the Project at Khrtsisi supplying aggregate for the Kodiana Projects was visited and improvements to the operation of this facility provided by the Project were observed, such as PPE and management of sedimentation pond for washwater runoff. The Project was also able to demonstrate that it had audited this facility in the past and found operations to be generally acceptable.

The IEC also visited borrow pits that were used during construction, but whose use has continued into Operations, such as at KP 153, which has now been reinstated. In total, nine borrow pits have been used for the Kodiana Projects and seven have been reinstated and/or closed while two are still being used. Those closed but not reinstated are considered to be active commercial facilities. Eleven spoil disposal sites have been acquired so far for the Kodiana Projects, of which six have been reinstated or are nearly reinstated pending final topsoil placement and five are still in use.

3.3 WASTE MANAGEMENT

3.3.1 Non-Hazardous and Hazardous Waste – Observations

Non Hazardous Waste

The issue of solid waste disposal has been one of the most significant difficulties for the BTC Project in Georgia since the beginning of construction. The result of the June 2007 IEC visit culminated in assigning a Level III non-compliance for the ongoing disposal of domestic waste at the non-compliant Iagljudja disposal facility. As part of the Completion Certificate process, BTC committed to cease the use of this facility by the end of June 2008 and to develop an offset program for their history of non-compliant domestic waste disposal.

IEC is pleased to finally be able to announce that the use of the Iagljudja municipal facility was discontinued prior the end of June 2008; the construction of a 2.6 ha BP Georgia EU-compliant non-hazardous waste landfill is complete and waste disposal started in May 2009. The offset associated with improper waste disposal has been selected to be assistance in the development of Georgia's first EU-compliant non-hazardous waste disposal facility for the Cities of Rustavi and Gardabani that is expected to include the closure of the existing Gardabani dump. BP Georgia's support has been the preparation of the design of the facility, the landfill site selection studies, and preparation of an EIA including a public information and consultation process according to national, BP and EU requirements. This facility will be larger than the BP landfill and will cover 7.4 ha. In addition to this effort, BP Georgia is also about to turn over to the Ministry of the Environment the improvements constructed at the Iagljudja dump site as compensation that have been made over the course of several years and previously reported by the IEC.

The new EU-compliant landfill is expected to have an annual input of approximately 500 tons of waste per year. With an overall capacity of 27,500 m³, the estimated lifetime is about 40 years. Plans are to develop the landfill progressively with four cells, constructed individually over the lifetime of the facility. The new landfill has been designed with a compacted clay liner over approximately five meters of natural clay. Information was provided to support that the liner system has a permeability that is sufficiently low to be compliant with EU standards and the water table is several meters below the base of the landfill. In the field operations were observed to be good, but it was noted that the monitoring wells had been damaged and that with their positioning at the corners of the facility the possibility exists to miss the detection of leachate, assuming groundwater flow is downhill/downgradient of the current waste cell.

Hazardous Waste

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

During the mission the CWAA was not visited, but BTC presented information to indicate that they are continuing to improve this facility. In previous reports, the IEC had recommended placing a roof over the hazardous liquid storage platform and this has been constructed. Another new aspect to the management of hazardous waste has been the construction of a pilot project for the bioremediation of hydrocarbon-contaminated soil. The recycling of plastic waste is still an ongoing process.

Wastewater Treatment

Wastewater treatment has improved over the past year. A new wastewater treatment plant at PSG-2 Camp is operational with rotating biological contactor (RBC) unit that uses the older treatment plant for pre-treatment. Four more RBC units are planned for PSG1, PSG2 Tsalka, and PSG1 Camp, all but PSG1 to be completed in 2009. The plan is when the PSG2 Camp unit is decommissioned in 2010 it will be sent to PSG1. IEC was not provided effluent test data for 2009 to confirm if current improvements are actually reflected by improved effluent discharge quality.

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

3.3.2 Non-Hazardous and Hazardous Waste - Recommendations

1. Repair damage to existing monitoring wells at the new EU-compliant landfill and consider one additional monitoring well downgradient from the middle of the facility.
2. Since there is no weigh station at the new landfill, consider tracking the number of bales of waste accepted (to be compared to what was shipped) as in a chain-of-custody procedure
3. BTC should consider developing an alternative disposal technology for the sewage treatment sludge such that this material has a beneficial application.

3.4 POLLUTION PREVENTION

3.4.1 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 3.5. Furthermore, as most of the camps are decommissioned, the pollution prevention systems at these locations were not a focus of this IEC mission.

As previously noted in previous IEC trip reports, one issue common to both Georgia and Azerbaijan is the effectiveness of the main oil-water separators designed to clean up surface water from the pump stations. As previously noted, the situation is not a non-compliance with ESAP commitments, but their performance could potentially be compromised under emergency loadings. A schedule for constructing the improvements to the OWS system has been established such that the improvements will be completed by the end of 2009. It is understood that the improvements will include the lining of the retention ponds at PSG1 and PSG2. Again, this situation is not a non-compliance, but could be a problem if there were a real emergency.

Stack emissions testing has continued at the MOL turbines at PSG1 and PSG2 with the last tests conducted in December 2008. Tests were ongoing at PSG1 at the time of the visit. Emissions testing was also conducted at the diesel generator stacks at both PSG1 and PSG2 at the same time as the testing of the MOL turbines. All required stack emissions monitoring

has been carried out with the exception of the PSG1 water bath heater (WBH) under maintenance and testing has not been conducted at the crude topping unit (CTU). The CTU was originally planned not to be used, but a decision has been made to use the CTU through 2011 to produce diesel fuel. It is expected that the use of diesel will be discontinued in the favor of gas at the end of 2011. A Schedule 21 commitment was that correct sampling ports at the diesel generator stacks and the WBHs would be installed. This commitment has not been fulfilled. The WBH ports were modified, but the generator stack monitoring ports have not been changed. These ports are not ideally located (they are close to elbows in the ducting), but it has proved practical to obtain acceptable information from the existing ports and there are no plans to relocate the ports. In any case, additional studies have shown that it is not practical to relocate the sampling ports, because of other technical issues.

Ongoing stack emissions testing at the MOL turbines continues to indicate non-compliance with respect to the ESAP NO_x emissions standard. As discussed in the June 2008 trip report, the difficulty with the NO_x emissions is partially related to not yet operating the turbines at full capacity and also because the ESAP requirements for turbine emissions are based on those in the EU Large Combustion Plant Directive. This specifies standards for gas turbines above 50MW thermal power operating above 70% load. As the BTC turbines are about 28 MW thermal the EU standard is overly conservative. BTC continues to plan an MOC to justify a less conservative standard.

IEC will continue to assign non-compliance for the stack emissions monitoring - *Level I Non-Compliance, Emissions Management Plan - BTC Operations – Azerbaijan & Georgia (Commitment ID 1024)*. This non-compliance reflects the non-compliance of the MOL Turbines for NO_x and also because the CTU monitoring has not taken place.

It is recognized that it is unlikely that air emissions represent a significant adverse environmental impact, as ambient air monitoring does not show any anomalies for NO_x. Nevertheless, ambient air measurements have been shown to be problematic for SO₂. BTC undertook investigations to identify the source of the anomalous SO₂ and concluded that there were some external sources such as diesel generators, areas with truck traffic, etc., as well as some technical problems associated with the actual monitoring. The contractor conducting the ambient air monitoring has been replaced, site-specific meteorological data has been obtained such that the positions where testing is conducted can better reflect actual predominant wind direction, and new measurements obtained. The previous difficulties appear to have been resolved and the latest rounds of ambient air measurements show compliance with ESAP standards.

3.4.2 Pollution Prevention – Recommendations

1. Prepare an MOC that justifies not relocating the sampling ports on the diesel generator stacks.
2. Should BTC choose to modify the emissions standards with an MOC process, the IEC expects that the change would be a Level 3 and that there would be substantial documentations as to the appropriateness of the change.

3.5 ROW MANAGEMENT

3.5.1 ROW Reinstatement - Observations

Limited time spent by the IEC team in the field to review ROW reinstatement between the area of the Kodiana Projects (~KP 187) and PSG2 (KP 88). A fundamental observation is that the erosion and sediment control efforts appear to have been generally successful over the past winter season. Erosion events were not observed by the IEC and not reported by BTC, even at locations where the vegetative cover is still not fully developed. Vegetation continues to advance since the June 2008 visit, but there are still areas that have not fully revegetated. Nevertheless, the Project has entered into a reinstatement phase that is better represented by maintenance than reinstatement. For example, the steep slopes at KP 166 continue to show improvement, but conditions within the ROW still have not reached the degree of vegetation observed outside the ROW and final reinstatement will be achieved as long as erosion is controlled.

Biorestitution of the pipeline is continuing with respect to the re-planting of high conservation value species. At the time of the June 2008 visit fourteen rare species that were originally translocated from the pipeline to the Bakuriani Alpine Botanical Garden (BABG) and the Tbilisi Department of Plant Conservation (TDPC) were being re-planted along the pipeline route. The success of this planting is still being assessed and no results were available at the time of the IEC visit. In May 2009, re-planting has continued with a total of 928 plants reintroduced to suitable habitats in the Kodiana Project area, encompassing primarily marsh orchid, but also including squills, snowdrops, and a single individual of bog orchid. The success of this program will be assessed by IEC in upcoming site visits.

Another component of the biorestitution process has been the planting of trees and shrubs, which took place in 2007 along forested portions bordering the ROW consistent with the planting scheme outlined in the Pipeline Reinstatement Specification-Georgia. A total of 175,000 saplings selected from 40 species of trees and shrubs were planted during this initial phase of biorestitution. Based on observations from the summer of 2008, this program has not been successful. The survival of trees and shrubs has been very low and far below the established performance target of 75% survival.

Another component of biorestitution that continues to be monitored along the ROW is invasive species. Survey of invasive/alien species along the BTC/SCP pipeline ROW between KP 90 and KP 226 revealed the presence of nine populations of invasive Common Ragweed (*Ambrosia artemisiifolia*). In 2007, a potentially invasive plant Reed Canary-grass *Diglyphis arundinacea* had been recorded at a test plot near Lake Alygyol (KP 127 – KP 128). The Reed Canary-grass has disappeared, probably due to rising wetland water level, but ragweed is still a concern. Mechanical removal of ragweed was conducted in the summer of 2008 and is planned to again start up in July 2009. The Project is also planning a pilot study using two herbicides (glyphosate and the grass tolerant clopyralid) with a cutting regime (using a brush cutter) for ragweed control and two application dates are planned to be carried out in 2009.

3.5.2 ROW Reinstatement - Recommendations

1. Develop a program to compensate for the loss of trees and shrubs. Unless the problems with planting the nursery-raised trees and shrubs are not fully determined, it is not necessarily appropriate to re-plant again, but developing new nurseries for future

application could be appropriate or some other program developed as an addition to the current forest eco-compensation program.

3.5.3 Off-ROW Reinstatement – Observations

As previously noted in the June 2008 trip report and summarized in Section 3.2, all construction phase camps, pipe yards and mechanical yards have been reinstated with the exception of two sites (Rustavi and Andeziti) that are still being used by BTC to support ongoing activities and the old camps have been restored except for approximately 10% of the Marneuli site where containers are still stored.

The reinstatement of pipeline construction phase borrow pits is complete, except for borrow pits that were used for operations at KP 107, KP 153 and KP 162, which except for KP 162 are now reinstated, as this borrow pit is now operated commercially. The disposal of excess rock and spoil from pipeline construction was complete at the time of the June 2007 IEC visit, but additional areas were required for Kodiana Projects construction. Their status is described in Section 3.2. Where visited in the field, the reinstatement of the spoil disposal sites has been completed acceptably.

With respect to access roads, BTC reports that the completion of construction of 27 permanent access roads and repairs to 22 community roads is now complete. As noted in Section 3.1.2, one of the access roads utilizes a portion of the ROW in the Kodiana area (~3.5 km) as access to the new Security Base and was the subject of a Class II MOC.

3.6 KODIANA PROJECTS IN THE BORJOMI AREA

3.6.1 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 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. At the time of the October 2006 IEC mission, the construction for all of the Kodiana Projects was scheduled to be complete by October 2007. As of June 2009, the completion of all projects is now expected to be in 2010.

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

- *Secondary Containment Sites*: all five of the secondary containment sites were under construction at the time of the IEC visit – the completion of all but the Tori Secondary Containment is expected by Q3 2009;
- *Emergency Drain Down Facility (EDDF)/G18*: construction is complete and handover is expected for July 2009 with installation of final control software;
- *Temporary Bypass Road (KP 181-184)*: This is now a permanent road consistent with the Class II MOC described in Section 3.1.2;
- *Security Base*: construction complete and turned over to Government of Georgia - State Special Pipeline Patrol Division (SPPD).

Part of the reason for the slippage in schedule for the Kodiana Projects was that a number of BTC's contractors experienced financial and operational difficulties in 2008, which along with the impact of the political unrest forced contractor evacuation and cut off access to Kodiana at the height of the construction season in August. In particular, the contractor on four of the five secondary containment sites was unable to continue construction claiming financial failure and has been replaced by a another local civil contractor working at the Tori site, who is now providing support to complete the remaining work. BTC recognizes the need to assist the new contractor in terms of equipment and technical support to make sure that the work is conducted within reasonable schedule and ESAP commitments. Additional support from BTC (mobile environmental crew and extra environmental resources) has been provided to supplement Contractors' environmental teams with the goal of improving performance and lowering the number of non-compliances. Where observed in the field at the beginning of the construction of the Tori Secondary Containment, appropriate erosion and sediment control systems were in place.

3.7 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 did not specifically review the ecological management programs in the field, but was provided with the 2008 biodiversity monitoring reports for both floral and faunal components.

3.7.1 Biodiversity Monitoring

Faunal Monitoring

Amphibian Monitoring

Reproductive Syrian spadefoot toads (*Pelodytes syriacus* [IUCN Near Threatened and Georgia Red List]) have not been identified at the monitoring sites at KP 11 and KP 40 since 2005, although they have been identified northwest of the intersection of the pipeline and Mariin Canal, near Rustavi City. Supported by a separate hydrological study of the test ponds in 2008, the reason that they have not appeared at the monitoring sites is interpreted to be disappearance of breeding ponds in some areas due to evaporation and their emergence elsewhere in this arid zone, anthropogenic pressure (e.g. removal of ponds, intensive irrigation), and introduction of predatory fish species into breeding ponds. The hydrological study concluded that fluctuation in water level at KP11 irrigation channel cannot be attributable to pipeline project activities (either current or past). Plans are to continue monitoring this red-listed species. The Caucasian mud-diver (*Pelodytes caucasicus*) was removed from the faunal monitoring scope based on the four-year monitoring results, which demonstrated that any negative impact to affected subpopulation of this species caused by pipeline construction activities had been successfully mitigated. IEC expects that BTC will produce an MOC to justify this change.

Reptile Monitoring

Two species of concern were included for monitoring in 2008 – the European marsh turtle (*Emys orbicularis*), and the Caspian terrapin (*Mauremis caspica*). Another target species - snake-eyed lizard (*Ophisops elegans*) was removed from the faunal component of the biodiversity monitoring program as no clear trend in the abundance of the lizards was identified throughout the study area in 2003-2007. No significant differences in lizard abundance were recorded between the monitoring and control sites in any year and BTC concluded that there was no evidence of significant negative influence on the population of the snake-eyed lizard in the vicinity of the ROW related to pipeline project activities. IEC expects that BTC will produce an MOC to justify this change.

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). The abundance of these turtles recorded in 2008 shows increase in comparison to 2007 though it did not reach the levels observed in 2004-2006. Monitoring is planned to be continued in 2009.

Avian Monitoring

The project’s avian monitoring efforts continue to be extensive including the monitoring of wintering waterfowl, resident waterfowl, nesting populations, breeding pairs, and the Caucasian black grouse (*Tetrao mlokosiewiczi* [IUCN Data Deficient]). Similar to the results from the 2007 monitoring program, the end result of this monitoring and analysis at the end of 2008 continues to be somewhat ambiguous, but in most cases populations are either stable or increasing.

With respect to the Caucasian black grouse, evidence of black grouse presence was available on the northern slope of Kodiana and at Zekari Pass, whereas evidence was not encountered in 2007 in these areas. Conversely, evidence for this species was not encountered at Tskhratskaro Pass, nor at Mt. Tavkvetili. At this point there is no reason to believe that

pipeline activities have had a significant negative impact to any of the species, but additional monitoring is planned.

Mammalian Monitoring

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. The 2007 Annual Report described the continued decline of the bat population. The 2008 survey findings indicate that bat diversity and abundance have improved in comparison to 2007 almost everywhere excluding the surroundings of Mt. Kharmanjuki (KP 180-181) where only a single vagrant individual (*Pipistrellus pipistrellus*) was recorded. Although species diversity started to increase or even reached its 2004-2005 level at majority of the sites, the diversity remains low. Accordingly, a small-scale trial project for installation of artificial roosts for bats was undertaken in Oct-Nov 2008. Prospective annual monitoring of the artificial bat shelters in May-July 2009 is planned to verify presence of bats and/or colonization process of the shelters. Contrary to 2007 expectations, Brandt's hamster population has continued to decrease. The 5-year-long observations have shown that within the zone of the pipeline influence there are only 2 sites where hamster occurrence is stable. This population decline appears to be most likely due to bad weather, as it does not seem likely that the pipeline would have contributed to the decline observed in 2008. Nevertheless, additional monitoring is planned for this species. In 2008 signs of otter presence were recorded at two out of four monitoring sites, with the overall observation that the otter population along the Potskhovi River appears to be declining. Again, the Annual Report recommends additional monitoring with which the IEC concurs.

Aquatic Monitoring

Dragonflies and damselflies (two suborders within the order Odonata) continue to exclusively being used as indicator taxa. The numbers of dragonflies and damselflies have declined drastically as determined from the 2008 monitoring, but the dramatic declines are interpreted to be a result of exceptionally cold weather or other natural reasons rather than the operations of the pipeline, based on the observation that diversity declined at both the monitoring and control sites. The Annual Report recommends continuing with monitoring with which the IEC concurs.

Regarding the ichthyology component, BTC provided a separate report entitled Biodiversity Monitoring Programme – Ichthyological Component, dated 2008. The watercourses crossed by BTC and SCP pipeline were assessed for in-stream water quality, macro-invertebrate communities and habitat. The monitoring was conducted during June-July of 2008 by joint team of LSG Applied Technologies (LTD) and Institute of Zoology, Tbilisi. River quality has proved to be variable with time: the Dviri River changed from Poor to Fair, whereas for the Mtkvari River the shift was from Poor to Slightly Fair; the Gumbati River water quality changed for the better (from Slightly Significant to Fair), but the organic pollution level increased. Overall site assessment ratings for the Mtkvari, Dviri and Potskhovi crossings changed from Marginal to Good, whereas for the Geti crossing it changed from Acceptable to Good, so in general some improvement is being documented.

Benthic Index of Biotic Integrity analyses were started in 2008 and Fish Index of Biotic Integrity were started on a test basis. It is expected that the next round of assessments using these assessment methods will allow for a clearer picture of the environmental trends and status of the various watercourses studied.

As noted in the June 2008 trip report, the IEC encourages these studies, but notes that in the case of fish species it will probably be impractical to identify pipeline impact at this point in time. Provided that there are no abnormal incidents (e.g. oil spills), it is not expected that the pipeline will have any impact on fish populations, but the quantitative and qualitative data gathered over the 2007-2010 period should establish a baseline for future potential industrial footprint/s (if any).

Floral Monitoring

Based on IEC review of the Annual Biodiversity Monitoring Program – Floral Component for 2008 prepared by Dzelkva specialists and international experts, the floral biodiversity monitoring continues to represent a significant achievement of the Project. The overall goal of the Floral Component is to identify and quantify any off-ROW floral impacts of pipeline construction and operation, and recommend any remedial mitigation measures if required. Comprehensive quantitative and qualitative data has been collected in 144 permanent plots, of which 59 were established to monitor forest communities, 36 for wetlands, 32 for meadows, 2 for scrub and 15 for populations of species of high conservation value. In addition to above activities, a walkover survey was conducted along the ROW to identify the presence of populations of invasive/alien species which might expose threat to local biodiversity. As invasive species have tended to appear where vegetation was stripped along the ROW and the AGIs, the results of the biodiversity monitoring for invasive species is therefore discussed under the biorecovery program (Section 3.5.1).

In 2008, negative changes in some parameters of target plant populations continued to be recorded, where the distress to these plants appears to be caused by an intensification of grazing especially in the area of the Kodiana pass (KP 190 – 192). For example, all individuals of the high conservation species *Traunsteinera sphaerica* (*Traunsteinera*) were damaged/eaten by cattle in plot P12 at KP 192. The 2008 year survey also revealed the absence of a single individual of Marsh Orchid from the floristic composition of a plot near KP 197 and 13 individuals of Gentian from plots along the Tskhratskharo descent (KP 176 - 177). Despite the high conservation status, the Annual Report indicates that Marsh Orchid and Gentian are common plants that are susceptible to considerable inter-annual fluctuations in population numbers and their absence is not caused by the BTC/SCP pipeline operation but is rather the result of natural dynamics of populations of herbaceous plants. Potentially more serious problems continue to be observed in the forest test plots, and tree felling in woodlands adjacent to the ROW is still a major threat to the integrity of forest ecosystems. According to field data collected in 2008, the highest anthropogenic pressure occurs in the riparian forests at the Algeti River crossing (KP 53 – 54) and the Tsikhisjvari-Tiseli area (KP 187 – 204) due to logging of large trees. The IEC team also observed induced access logging along the new access road to the Tori Secondary Containment site, but was informed that the logging was being conducted with permits obtained from the Forestry Department of the Ministry of Environment and Natural Resources.

A positive note to the biodiversity monitoring is that the control plots for scrub plants and meadows have not experienced measurable changes and do not appear to have been impacted by construction activities. It should be noted that where significant impacts are occurring, they do not appear to be related to pipeline activities.

Recommendations within the 2008 Annual Report are identical to the recommendations from 2007 and include: with respect to forest land, re-create forest habitats similar to those lost in 2005 as a part of Forest Ecocompensation Programme; with respect to meadows, grow 100

individuals of Fritillary (*Fritillaria ophioglossifolia*) and reintroduce them in their original habitat on the shoulder of Mt. Tavkvetili; collect 80,000 cuttings in areas covered with dense Rhododendron thickets and transplant them directly onto the ROW during the re-instatement in the area of on the shoulder of Mt. Tavkvetili; and conduct brief hydrological studies of wetland ecosystems and fluctuations of hydrological regimes at specified sites located near Lake Bedeni, KP 100 – 101; Lake Alygyol, S of village Santa, KP 127 – 128; and SW of village Khando, KP 149 – 150. The IEC concurs with these recommendations.

In addition to the work conducted under the biodiversity monitoring program, a three year scope for high mountain wetland communities' botanical inventory/eco-compensation study was agreed with Georgian government in May 2007. Field studies of ten wetland sites on Javakheti Upland (South Georgia) directed towards identification of high conservation value wetland ecosystems as potential protected areas were carried out in June-September 2008 as documented in the report Botanical Survey of South Georgian Wetlands prepared by Dzelkva Ltd. In total, 198 plant taxa were recorded in 107 sample plots at target wetland ecosystems. Although no red-listed species was encountered, a *Myosotis nemorosa* species was recorded for the first time in Georgia and another *Myosotis* species is currently being examined for the possibility that it could represent a completely new species. It is also possible that a new species of moss from genus *Dichodontium* (*Dicranaceae*) was found. In total, 26 different plant communities were distinguished in wetland habitats and four sites are proposed for designation of protection status. This program appears to be well-implemented.

3.7.2 Recommendation

1. Implement the eco-compensation recommendations contained in the Annual Reports, in particular for the replanting of Fritillary for meadows; planting of Rhododendron directly onto the ROW during the re-instatement in the area of the shoulder of Mt. Tavkvetili; and conduct brief hydrological studies of wetland ecosystems and fluctuations of hydrological regimes at specified sites located near Lake Bedeni, KP 100 – 101; Lake Alygyol, S of village Santa, KP 127 – 128; and SW of village Khando, KP 149 – 150.

3.8 OFFSET MITIGATION AND ENVIRONMENTAL INVESTMENT PROGRAMS

During the mission, the IEC was updated on the status of the Offset Mitigation Measures and the Environmental Investment Programme (EIP) in Georgia. Implementation of the EIP projects committed in 2006/2007 has continued into the Operations phase, except where modifications were made on the basis of a Level II cross-country MOC where the EIP programs were modified in May 2007. In Georgia, the most significant change was the elimination of the Sustainable Forest Pilot Project, with a re-allocation of funds to support further stages of projects undertaken under other key priority themes. The EIP programs still ongoing in 2009 have the following titles:

- *Caucasian Black Grouse (CBG) Research, Monitoring and Conservation Management* – implemented by Georgian Centre for the Conservation of Wildlife. The project was completed at the end of 2008 and it had the goal to initiate and promote implementation of the Caucasian Grouse National Action Plan developed during Phase 1 of the project to ensure the bird population is stable in Georgia and does not decline;

- *Small Grants Programme for NGO Capacity Building – Phase II* – this program was implemented by Save the Children in partnership with NACRES along the ROW. First round grants were disbursed to a total of 14 national NGOs from Kvemo Kartli and Samtskhe-Javakheti regions. All grantees promoted community participation in solving essential environmental issues. The project was completed in December 2008;
- *Management Planning for Ktsia Tabatskuri Managed Reserve* – implemented by The World Conservation Union (IUCN). This is jointly funded by both EIP funds and separate offset funds, with the goals of developing a management plan for Ktsia-Tabatskuri Managed Reserve that is endorsed by all stakeholders and enhancing capacity at site and national levels to implement this management plan. A draft Management Plan was submitted to the stakeholders (in particular to the MoE) for their review, comments and approval. On May 1, 2009 BTC received approval of this Plan by the MoE with a request for funds for its implementation. The first Quarterly Report for this project is anticipated by end of August 2009.

A significant accomplishment in terms of offset mitigation reported by both BTC and the MoE during this IEC trip is an understanding regarding the scope of the Forest Eco-Compensation Program. This has been a significant unresolved issue since the beginning of the construction phase of the BTC Project and an important component of the environmental offset associated with the BTC Project. IEC was informed that a Memorandum of Understanding is expected to be finalized in July 2009.

BP Georgia also reported a new environmental investment program entitled “Eco-Awards” that is independent of the legacy construction EIP, for which there are no new initiatives. The “Eco-Awards” program started in February 2009 as a social investment project with an environmental component to promote and reward active involvement of local NGOs in solving local environmental issues in a practical way by encouraging stakeholder engagement and partnerships between central and regional NGOs, community based organizations, government and businesses. The program is administered by Eurasia Partnership Foundation (EPF), a local foundation working in Georgia since 1994.

3.9 COMMUNITY LIAISON

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

- Providing communities affected by the Project with regular information on the progress of construction (still ongoing in Kodiana area) and the implications for these communities and also informing the BTC Project of any community related issues that may impact on construction;
- Monitor the impact of Operations via direct observation and feedback from communities;
- Grievance management and managing disputes between the BTC Project and communities;
- Oil Spill Response Awareness for communities;

- Assisting with the implementation of community safety, health and investment programs.

The BP Georgia Social team is organized within the External Affairs Organization of BP Georgia. Within this organization there is an individual responsible for “Social Responsibility” covering the three topics of cultural heritage, community investment, and social. The social team leader is based in Tbilisi and is supported by four community liaison officers (CLOs), two of which are responsible for the BTC/SCP pipeline corridor and two more CLOs cover the Western Route Export Pipeline (WREP). CLOs are substituted as and when necessary to cover areas of increased activity or concern.

3.9.1 Observations

The IEC reviews the social programs undertaken in association with the BTC Project primarily from the standpoint of verifying that an organization is in place and is functioning such that it is clear that Project-related environmental issues affecting local communities are appropriately managed. The SRAP Panel is the primary independent auditor of social performance for the BTC Project and the IEC reviews do not cover the breadth of topics covered by the SRAP Panel.

Based on a review of documentation provided by the Project, the environment for community liaisons in Georgia is much improved since the time of the construction of the BTC pipeline and most complaints are associated with land issues. Nevertheless, the BTC project is still associated with construction of the Kodiana Projects and the exit and entrance of different contractors for this construction poses challenges to the CLOs to educate the new contractors on the development of their Social Management Plans and making sure they implement a social code of contact and understand their social responsibilities. This effort also requires an increased interfacing with the affected local communities. The Social Team is also responsible for social awareness training for the Operations staff.

Complaints continue to be being logged, tracked and closed out effectively in Georgia using the web-based tracking system established in November 2006. The number of complaints continues to decrease: a total of 46 in 2008 and 20 recorded through June 2009. The effectiveness of the Social Team is exemplified by the construction and operation of the new non-hazardous landfill near Rustavi, where the Contractor was required to develop and adhere to a Social Management Plan and employ locals in the construction. No social issues or complaints from local communities have been received in association with the construction or operation of this facility.

3.10 CULTURAL HERITAGE MANAGEMENT

The cultural heritage program for the BTC project currently relates to the management of the material encountered during construction, as well as management of situations that could occur along the pipeline route in the future. Operations has not faced any issues related to damage to cultural heritage due to new construction or third-party damage to identified sites and the main activities have been associated with the management of archaeological materials identified during the construction phase of the BTC and SCP Projects. This effort has been supported by BP Communication and External Affairs (CEA) out of Baku, who in turn is collaborating with the Smithsonian Institute for both Azerbaijan and Georgia. Because the activities associated with the construction phase are nearing completion, this IEC trip focused on Construction Phase 5 – curation of finds, analysis, display of finds and

publication of information as verification that the overall program has been undertaken consistent with ESAP commitments.

In Georgia, an additional issue associated with the construction phase was compensation for damage to two archaeological sites under a “Damaged Sites Agreement” signed by BTC/SCP and the Georgia National Museum (GNM), the organization that has had responsibility for cultural heritage in Georgia since the enactment of the new *Georgian Law on Cultural Heritage* (June, 2007). The closure of this Agreement was one of the commitments associated with Schedule 21 and the entire commitment involved not just the excavation of two sites damaged during construction, but also providing support to the GNM for the curation and display of artifacts, capacity building, and publication of findings.

In addition to conducting interviews with Project and CEA staff associated with cultural heritage management, the IEC also visited the Georgia National Museum and interviewed the Director of that institution. In addition, a trip was made to visit the new museum being constructed to display BTC/SCP artifacts in Akhaltsikhe to review curation of samples and conduct an interview with an archaeologist who worked on the Project. The basic goal of these special trips and interviews was to verify the curation of the archaeological materials excavated along the pipeline corridor and also to evaluate the results of the capacity-building efforts to the local institutions being undertaken by BP.

3.10.1 Observations

The BP-GEO is responsible ongoing field activities such as the excavation of the two sites under the “Damaged Sites Agreement” and ongoing archaeological monitoring and mitigations associated with the Kodiana Projects working with the GNM. The requirements of the Damaged Sites Agreement are basically that two damaged sites along the ROW be excavated because of their high risk for additional damage due to their exposure and the compensatory funding for damages should also be directed toward capacity building of GNM staff, improving laboratory/storage facilities, and publication of major and important researches. This scope overlaps with the role of the Communication and External Affairs (C&EA) organization in Baku, whose responsibilities extend to both Georgia and Azerbaijan for Phase 5 – curation of finds, analysis, display of finds, and publication of information associated with the construction phase.

The Schedule 21 commitment for ongoing archaeological studies in Georgia is considered closed. The last field efforts associated with the construction phase (archaeology claims agreement) were completed for the two sites (Bedeni burial and Darakow settlement) in 2008. The Darakow settlement site has been nominated to be an Archaeological Protective Zone by the GNM. In terms of capacity building, BP Georgia has funded and participated in the development of a new archaeological laboratory at the main GNM organization in Tbilisi. Interviews with the Director of the GNM and one of the archaeologists responsible for construction-phase excavation confirm that one of the biggest benefits to them from the BTC/SCP projects was in terms of the capacity building of Georgia’s archaeological infrastructure and staff.

Part of the Damaged Site Agreement has included bringing in international specialists for lectures and training and this has taken place on the basis of workshops for the following topics: Archaeological Sites and their Geologic Settings; Landscapes and the Ecological Settings of Archaeological Sites; Reconstructing Past Environments; Methods of Archaeological Survey and Testing; The Site Survey Form; Using Global Positioning Systems (GPS); and Geographic Information Systems (GIS).

In terms of display, the archaeological exhibition being prepared at the Akhaltsikhe Museum is expected to be of excellent quality. The planned opening date is July 2, 2009. A similar facility is being planned for Tsalka and is expected to be opened to the public in 2010. Where observed at the new Akhaltsikhe Museum, the curation (storage/preservation) being undertaken is good. The excavated material is shelved in a dedicated room with climate control.

Capacity building has also been associated with the collaborative work being done with the Smithsonian Institution and four Georgian specialists have received training in cultural heritage management and collections care in the different museums and laboratories of the Smithsonian Institution in Washington DC. The public outreach component of the program with the Smithsonian Institution will be implemented via a number of activities. These include:

- publication of a book entitled “Ancient Heritage in the Pipelines Corridor.” A draft version of this book has been reviewed and it looks good;
- creation of a BTC/SCP cultural heritage website as means for public outreach. This website is expected to describe the BTC/SCP Cultural Heritage Program and introduce the archaeological sites and artifacts discovered in the three countries along the BTC/SCP pipelines in an interactive way that will be publicly accessible. This web page is nearly ready to be launched.

All of the above programs have been previously recommended by the IEC.

As mentioned in the June 2008 trip report, in addition to the above activities, significant effort has been expended to train Operations personnel in the procedures that need to be followed to protect cultural heritage along the ROW. This has involved the integration of archaeological site information within the Project GIS and defining procedures to manage cultural sites. Part of the ISO 14001 certification process has been to emphasize awareness of cultural heritage sensitivities among the pipeline technicians such that the potential for damage to archaeological sites during erosion control works, pipeline repair, etc. is minimized. Cultural heritage information is also being incorporated within the Oil Spill Response Plan (OSRP) and part of the training given to archaeologists has been cleaning up oil-contaminated artifacts and the new archaeological laboratory has conducted research on procedures to be implemented in the case of an oil spill.

3.11 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 June 29, following a request by MoE to BTC. This was the seventh meeting held between the IEC and the MoE/GIOC, and MoE/GIOC was able to voice their concern and priorities about several environmental and social issues associated with the BTC project.

- Reinstatement, including: soil reinstatement; erosion control; landscape monitoring; the Biorestitution Specification Plan and Method Statements; monitoring the results of nurseries; rare floral species management; and monitoring of invasive species;
- Biodiversity Monitoring Program (Biodiversity Monitoring Report – Floral and Faunal Component - 2008);

- Forestry - Eco-compensation Programme, where substantial progress was reported in terms of defining the extent of this program on the basis of discussions with BP Georgia;
- Environmental Management Plans for Operations, specifically the Ecological Management and Monitoring Plan;
- Environmental Investment Plan (EIP), including the following topics: Caucasian Black Grouse; Brown bear; management planning for the Ktsia-Tabatskuri Managed Reserve; Sustainable Forest Management Pilot Project, the Borjomi-Kharagauli National Park/Support Zone; Enhancement of Environmental Education Project; Environmentally Sound Livestock Farming Project; and the Management of Small Grants Programme;
- Compensation damage for Ichthyofauna;
- BTC Oil Spill Response Plan Approval Conditions; and
- Waste management, where the MoE indicated their approval of the final solution being developed for BP Georgia's non-hazardous waste and their support in developing an EU-compliant landfill for Rustavi City.

Both the MoE and BP Georgia indicated that they felt communications had improved over the past year.

4 TURKEY

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

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

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

The June 2009 audit in Turkey consisted of a site visit of selected sections of the pipeline right-of-way (RoW), site visits to Pump Stations PT2 and PT3, and a visit to the Ceyhan Terminal. The field visits were complemented by a review of documentation pertaining to project environmental, social and health and safety management as provided to IEC by BIL and BTC.

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

4.1 PROJECT STATUS

BTC provided the following summary of project status, relative to IEC's scope of work, as of June 2009.

- Provisional acceptance was signed on 29th July 2006. BIL is the Designated Operator of the BTC pipeline in Turkey, with BTC assuming an assurance role. The warranty period terminated on 29 July 2007;
- according to BTC, the outstanding items to be completed include 19 warranty items (1 environmental) and 16 off RoW items; and
- BTCX 1.2 will employ a chemical drag reducing agent (DRA) to increase pipeline capacity to 1.2 MM bpd. In Turkey, five injection points will be used; one at each of the four pump stations (PT1-PT4) and one at BVT 50. 1.2 Expansion was completed in Q1 2009 with the exception of minor modifications planned for completion by Q4 2009.

4.2 ENVIRONMENTAL AND SOCIAL MANAGEMENT ORGANIZATION AND RESOURCES

4.2.1 Observations

In Turkey, a turnkey contract was signed between BTC and BOTAŞ who subsequently awarded EPC contractors the construction work in each of the three Lots, the Pump Stations, and at the CMT. BTC maintains an assurance role over both BOTAŞ and the EPC contractors through to final acceptance by BIL.

BTC also maintains an assurance role over BIL in fulfillment of Operations ESAP commitments in Turkey.

BTC

As of June 2009, the BTC E&S assurance during operations occurs through three organizations; Operations Support and Assurance; Projects and Communications and External Affairs:

- Environmental assurance is part of the Operations Support & Assurance Organization. From the Ankara office, this includes an environment manager, one pipeline environmental coordinator, facilities environmental coordinator. Field support at the pump stations, CMT and pipeline reports through the Operations Assurance Manager. This includes 2 HS Advisors who cover the Pump Stations and CMT, 7 site engineers (one for each pump station on a back to back rotation) cover the Pump Stations, 2 site engineers and a terminal operations manager at CMT;
- the Corporate Social Responsibility (CSR) group is part of the Communications and External Affairs Organization and includes a corporate social responsibility manager, a social coordinator, Community Investment Programme coordinator; and
- the Projects Organization has assigned the HS Team Leader as the HSES manager to cover E&S issues..

BIL

As of June 2009, the BIL Health Safety and Environment organization has a Health, Safety and Environment Director reporting to the BIL President, through three managers – Health and Safety, Environment and Emergency Response. The Health and Safety Manager position is currently vacant.

Environment Department

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

- an environmental supervisor (vacant), and two environmental engineers at the CMT;
- an environmental supervisor, and eight pipeline HSE engineers (positions filled since June 2008);
- an environmental supervisor (Environmental Management System - EMS), an EMS engineer and a compliance engineer; and
- two consultancy companies; Springtime Consultancy (ISO 14001) and Dokay (environmental monitoring).

Public and Community Relations (PCR) Team

As of June 2009, a Public and Community Relations (PCR) chief reports to the Human Resource (HR) Director and leads the PCR team. The PCR chief oversees a PCR Supervisor, a PCR Supervisor (Land) and 10 PCR experts (PCRE) (two PCRE for Area 1: km 0-164 and PT-1, two PCRE for Area 2: km 164-373, PT2 and PT3, one PCRE for km 373-575 and PT4, two PCRE for Area 4 (km 575-767), one PCRE for Area 5 (km 767-1004) and two PCRE for Area 6: km 1004 -1076, including the CMT).

In June 2008, IEC observed that the BIL PCR organization had adequate coverage geographically in the field, but no back-to-back capacity at PT3 and IPT1 so that staff effectively only worked 2 weeks per month. As a result, a *Level 1 non-compliance, Social Management Plan, Turkey (Commitment ID CH7 S2)* was assigned. As of June 2009, IEC notes that BIL has taken significant steps to increase PCR capacity in the field. Coverage is now fully complete on a back-to-back rotation basis, with the exception of Area 3 (IPT1 and PT3) that is covered by the PCR Supervisor.

Pipeline Technical Management

As of June 2009, the BIL Technical Management Team consists of a Pipeline Technical Manager, a RoW Chief and Reinstatement Supervisor, Transport Supervisor, six RoW patrol teams for five pipeline zones and a RoW Maintenance and Geohazard Repair Contractor. In order to reduce illegal taps in Zone 5, a separate RoW patrol team will monitor the last 73 km of the pipeline in Turkey, visiting all locations every 3 days.

In addition to the RoW team, there is a GIS Engineer and three GIS staff.

4.2.2 E&S Management Organization and Resources - Recommendations

2. The BIL E&S team is fully operational but still is limited by a number of key vacancies. In particular, the environmental supervisor position at the CMT remains open since June 2008 and the Health and Safety Manager position has been recently vacated. IEC notes that the Environmental Manager is currently covering for these two positions and recommends that BIL take immediate steps to fill them, particularly the Environmental Supervisor at the CMT.
3. IEC observes that BIL has taken steps to provide full time PCR coverage in the field, with the exception of Area 3 (IPT1 & PT3) that is being covered by the PCR supervisor. As a result, IEC maintains the Level 1 non-compliance assigned relative to commitments made in the Social Management Plan, Turkey. Back to back coverage of PCR personnel in Area 3 (IPT1 & PT3) should be provided as soon as possible.

4.3 ENVIRONMENTAL TRACKING AND PERFORMANCE

4.3.1 Observations

BIL received ISO 14001 certification in May 2008 and continues to implement procedures in the BIL Information Management System (BIMS) for tracking of environmental performance. In June 2009, BTC informed IEC of the following:

- BTC and BIL conduct joint annual compliance audits. BTC undertakes regular site visits to all facilities, including a pre-audit visit in advance of IEC. During the visits non-compliances and recommendations resulting in corrective actions are identified and logged in an environmental action-tracking database. IEC was informed that this is mostly done by BTC;
- the aim for 2009 is for the BIL EMS Supervisor to visit all fixed facilities and carry out an awareness program with BIL HSE and Environmental Engineers in order to maintain and manage the environmental action-tracking database (includes all internally raised BTC, BIL and ISO 14001 external audits results). The objective of this exercise is to provide objective evidence that Operations are in compliance with the requirements of ESAP environmental management plans and procedures;
- in addition to the environmental action-tracking database, BIL also uses the STOP/SOC cards action tracker that is accessible on BIMS; and
- BIL is currently undertaking another tender for an environmental monitoring contractor. A decision should be made by mid-2009.

4.3.2 Environmental Aspects and Impacts Register – Recommendations

4. IEC noted a significant improvement in the management of environmental data associated with BIL operations. IEC requests additional clarification from BIL as to how corrective actions raised by BTC through the action logger are being addressed in the BIMS.

4.4 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.

The June 2009 audit did not involve any detailed visits of construction camps. Hanak Camp was viewed from outside the fence and a brief walk around was made at the PT2 and PT3 construction camps.

4.4.1 Construction Camps – Current Conditions

In June 2009, IEC reviewed a copy of the Lot A Close Out Report (BOT-REP-ENM-PLA-005) and notes the following observations:

- Koprakoy Camp has been fully reinstated and handed back to the landowner. Previous concerns about contaminated soil and waste have been addressed. Contaminated soil has been removed to the Kars Camp Hazardous Waste Accumulation Area and then to Izaydas for disposal in November 2006; and
- according to the report Kars Camp and Hanak Camp have been handed over to Kars and Ardahan Governorships and are transferred out of the LSTKA responsibility.

In June 2009, IEC observed that the accommodation quarters from the Hanak Camp have been removed, but there is still equipment outstanding on site.

IEC reviewed a copy of the Lot B Close Out Report (STA – REP – ENM – PLB – 200) and notes the following observations:

- reinstatement at the Illica Camp have been completed to the satisfaction of the landowner and the site is being used as a hotel;
- contaminated soil at the Cadirkaya Camp had been removed to the Kova Camp and then to Izaydas for disposal. IEC visited this camp in June 2009 and notes no concerns about reinstatement. The site remains fenced at the request of the landowner;
- contaminated soil at the Sivritepe Camp had been removed to the Kova Camp and then to Izaydas for disposal;
- contaminated soil at the Koyunkaya Camp was removed to the Kova Camp and then to Izaydas for disposal;
- contaminated soil at the Kova Camp was sent to Izaydas for disposal.

IEC reviewed the Lot C Camp Sites and Pipe Stockyards closeout report (PLL-REP-ENS-PLC-215) and had the following observations:

- Azizli Camp site was reinstated at the end of September 2007 with additional reinstatement requested by BTC by December 2007;
- Andirin Camp and pipe stockyard was fully reinstated (no date provided in report). IEC visited this camp site in June 2009 and noted no concerns;
- Yesilkent Camp was fully reinstated in December 2006; and
- Orensehir Camp site was fully reinstated (no date provided in report).

4.4.2 Construction Camps – Recommendations

5. IEC raised concerns in June 2007 and 2008 about camp due diligence and reinstatement and the final status of construction camps across the Project. Based on review of material provided in the June 2009 visit, IEC is satisfied that reinstatement of construction camps has been completed according to EIA and ESAP standards, with the exception of Kars and Hanak Camps (see below). IEC requests that BTC provide a sign-off to these camp closure reports with their verification that all previously identified concerns have been addressed closed in relation to relevant ESAP commitments.
6. An MOC regarding the ongoing operation of construction camps at fixed facilities, until at least 2011, has been approved, and IEC notes that BTC has spent additional funds for camp maintenance. As noted in the June 2008 report, IEC requested that BTC consider the following:
 - plans and procedures for compliance to project standards with respect to operation of camp potable water supplies and WWTPs (CMT currently only in operation). CWAAAs are being addressed as part of project enhancements;
 - control of erosion and implementation of reinstatement plans for construction camps at pump stations and the CMT as part of the MOC for continued use;
 - establishment of formal decommissioning plans, including a final date and a due diligence procedure for site closure. IEC response – no information provided; and

- by the time of the next operations audit in June 2010, IEC requests that BTC provide additional indication as to whether the construction camps will be closed and reinstated by 2011, or that an additional modification to the MOC will be required.
- 3. In June 2008, IEC noted that although, Kars Camp has been transferred from the Project to the Governorship of Kars and Hanak Camp to the Governorship of Ardahan, there may have been non-Project use after conclusion of BTC usage. IEC raised concerns about discrepancies regarding damage, soil pollution, wastewater, chemical waste, and trash. After the June 2009 visit, IEC continues to request further clarification and due diligence regarding the final status of these two camps.

4.4.3 Aggregate and Excess Material Management - Observations

In June 2009, IEC again visited a number of borrow pits and quarry sites and noted the following:

- Gulluce Quarry – near KP457+500 – some rill erosion previously noted in 2008. BTC remediation contractor installed jute mat after the June 2008 visit; and
- Yeniyol Dump site (KP 484) – in June 2008, IEC was informed that the area behind the school and Jandarma station was reinstated, although the contractor (STA) denied any project use. In June 2009, IEC visited the site and was informed that BOTAS brought in additional soil and then fertilized and seeded the site. BOTAS has now signed off on the site. IEC observed little improvement in reinstatement from 2008.

IEC also visited two excess material dumpsites at PT3 (DS1, DS4).

- DS1: revegetation has progressed since 2008 but further monitoring is required to assess reinstatement success, given that this site is within ESA 19. The access road to the site remains open and issues over access are in discussion with stakeholders but not resolved; and
- DS4: well revegetated and successfully reinstated; no issues.

4.4.4 Aggregate and Excess Material Management - Recommendations

7. Monitoring of reinstatement success should continue at the PT3 dumpsites, in particular DS1, taking into consideration that the sites are located in or next to an environmentally sensitive area (ESA 19), as designated in the Environmental Impact Assessment. IEC was informed by BTC that the DS1 access road will be reinstated by the RoW remediation work contractor by autumn 2009.
8. Since BOTAS has now signed off on the Yeniyol Dump site, the Project should make a final decision on whether reinstatement is considered to be successful at this location, in consideration of ESAP commitments. IEC awaits additional information and clarification in this regard.

4.5 WASTE MANAGEMENT

4.5.1 Non-Hazardous and Hazardous Waste – Observations

In June 2009, IEC re-visited the newly constructed operations CWAA at the CMT and construction-phase CWAA's at the CMT, PT3 and PT2. The following observations were noted as part of site visits:

- the new Operations CWAA, located approximately 200-250 m from the BIL administrative complex was completed in March 2008, and contains a variety of state-of-the-art waste disposal equipment. During the June 2008 visit, IEC was informed that permitting would be completed by September 2008. As of June 2009, this has not been accomplished and the site yet remains out of operation; and
- construction of permanent CWAA's at each Pump Station in Turkey has not progressed since the June 2008 audit and no date for final implementation is currently known. BTC informed IEC that a decision regarding the scope of work for construction of permanent CWAA's, enhancement of the existing CWAA at IPT1 and closure of punch list items for the CMT CWAA will be made by Q3 2009.
- IEC reviewed the waste log register provided by BIL during the June 2009 visit. The information is well referenced and provides detailed information on waste description, class of waste, volume, transport, disposal, destination and manifest receipt. IEC notes that there are a number of entries where the receipt notification has not been received, including some hazardous wastes going to Izaydas, - records of oil filters, contaminated material, medical waste and paint going back to 2007 (PT1). Although IEC was informed that follow-up does take place in the case of non-receipt of shipping manifests, confirmation that this is done on a regular and routine basis is required, particularly in those cases going back several years.

At PT3, IEC reviewed waste management of the construction camp CWAA and had the following observations:

- waste handling procedures at the facility continue to be excellent;
 - domestic waste goes to Izaydas twice a month and hazardous waste twice per year;
 - some waste barrels (e.g. DRA) were not labeled;
 - some waste (including paints and chemicals) from the construction phase was still being stored at the PT3 CWAA; and
 - there was still scrap and other waste from construction being stored at the PT3 camp, although it was well organized.
- At PT2, IEC reviewed waste management of the construction camp CWAA and had the following observations:
- waste handling procedures at the facility continue to be well conducted;
 - construction waste from the June 2008 flood was still being stored on site and IEC was informed this was due to a pending insurance claim; and
 - some housekeeping issues were noted – some doors were locked, others not.

IEC was informed that the Regional Development Initiative (RDI) project to upgrade the Antakya Municipality sanitary landfill, in compliance with EU standards, was recently completed, but that further compliance assessment and review by both BIL and BTC was needed.

4.5.2 Chemical Storage Facilities at Fixed Facilities

At CMT, PT2, PT1 and PT3 IEC observed that chemical storage areas at fixed facilities are nearing completion. IEC was informed that a number of punch list items are pending with BIL and BTC regarding final completion and operation of these facilities.

4.5.3 Final disposal of Protegol Spill material, Kars Camp

As of June 2009 IEC was informed by BTC that an additional review and audit of the disposal site for the Protegol spill material from Kars Camp is pending.

4.5.4 Non-Hazardous and Hazardous Waste – Recommendations

9. IEC remains concerned that the permanent CWAA facility at CMT is not yet operational despite being fully completed in March 2008. In June 2008, IEC was informed that this site was to be operational by September 2008; in June 2009, no progress in this regard is evident. IEC recommends that BTC and BIL finalize any outstanding punch list items affecting final completion. BIL should also provide reasons as to why operation permits have not been obtained.
10. Despite observations of good operating standards at construction camp CWAA's during audits, IEC notes that little progress has been made to finalize the construction and implementation of permanent CWAA's at fixed facilities. IEC understands that a decision regarding these facilities will be made in 3Q 2009 and awaits further information in this regard.
11. IEC notes that chemical storage areas at fixed facilities are nearing completion, but that outstanding punch list items remain unresolved. IEC hopes that these punch list items can be quickly resolved and that these facilities become operational as soon as possible. In addition to environmental considerations, a health and safety review should also be undertaken to evaluate fire and worker safety considerations.
12. IEC observed that wastes originating from the construction phase or waste construction materials are still being stored on-site at construction camps and that BIL has not taken action to remove these wastes, as they originate from BOTAS. IEC also observed waste stored at PT2 that is over one year old, despite a pending insurance claim. IEC recommends that the project take actions to catalogue and remove this waste to a proper disposal site, rather than leaving it onsite the construction camp CWAA's at fixed facilities.
13. During the June 2008 audit, IEC visited the Protegol disposal site near Kars Camp. The site was not visited in June 2009.

4.5.5 Wastewater Management – Observations

As of June 2009, IEC observes that WWTP discharges across the project remain consistently non-compliant. According to the BTC Annual Report a total of 44/72 WWTP samples taken

in 2008 were non-compliant. According to 2009 monitoring data provided to IEC, with the exception of CMT, non-compliance of WWTP performance has been reported at all pump stations, for a number of parameters, including oil and grease, BOD, COD, TSS and coliforms. As reported previously, non-compliant discharges are not released to the environment but rather trucked to Project approved Municipal WWTP's. In June 2009, IEC stated while this is technically not a non-compliance with the Operations ESAP, it is inconsistent with Commitment ID CH4E53 of the Environmental Emission Management Plan (EEMP) ESAP that specifies operational commitments to WWTP performance as follows: *The sewage treatment plant will treat all black and gray water arising on the AGI. The plant will be a self-contained activated sludge package unit and will discharge via the storm water pond. Treated effluent will meet the requirements of World Bank guidelines and Turkish regulations.*

4.5.6 Oily Water Separator Performance - Observations

In June 2009, IEC received a copy of a third party review of OWS performance across all fixed facilities in Turkey that BTC completed in September 2008. The report identified two general kinds of problems:

- those relating to operational parameters of the OWS under normal conditions; and
- problems relating to maintenance.

Enhancements to OWS performance were recommended including installation of level sensors/viewers, alarms, sludge traps, automatic skimmers and thermometers. In addition, a maintenance plan and program were recommended, including specific recommendations for each OWS at fixed facilities.

4.5.7 Wastewater Management – Recommendations

14. IEC notes that Project WWTP discharges to storm water ponds (treatment performance) are consistently non-compliant and that BTC has an intention to implement WWTP enhancements to ensure full legal compliance of WWTPs at fixed facilities subject to confirmation based on an on-going feasibility analysis. IEC welcomes this initiative to address a long-standing problem and requests that the feasibility analysis underway include an implementation plan and budget and a definite date for construction and operation.

15. BTC has undertaken a third-party review of OWS performance across the project that indicated a variety of considerations, including new performance enhancements and improved maintenance. In some cases, some of the OWS could not be located (e.g. PT1). IEC recommends that BTC develop an implementation plan to address these issues particularly those relating to consistency of maintenance operations across all fixed facilities.

4.6 POLLUTION PREVENTION AND ENVIRONMENTAL MONITORING

4.6.1 Observations

Since June 2006, the Project has adopted a pollution prevention plan aimed at systematically identifying potential impacts from operations activities and implementing avoidance and

mitigation measures to minimize potential adverse effects on the environment. The mitigation measures are aimed at preventing oil/chemicals spills and their management, monitoring air emissions, managing waste production and disposal, and protecting surface water and groundwater.

An Environmental Action Tracker is in place that includes the records of environmental incidents and spills incurred, including their location, size information, and clean-up actions undertaken, the Preventive and Corrective Action Requests (PCAR), Audit/inspection actions, MoCs and a list of enhancement actions.

With reference to the ongoing Operations phase, BIL has initiated an environmental monitoring program and has contracted DOKAY to conduct all environmental monitoring activities at pipeline facilities as dictated by the Operations ESAP Environmental Emissions Monitoring Plan (EEMP) and Ecological Monitoring and Management Plan (EMMP).

Air Quality Monitoring

As of June 2009, IEC notes the following:

- as reported in the BTC Annual Report, ambient air quality monitoring at the CMT was undertaken on 4 occasions in 2008. The annual average SO₂ and NO₂ values measured in 2008 are within both the BTC Project Standard and the limit value set forth in the Turkish Regulation. The reported results were generally lower than or close to the annual average values recorded during baselines studies and 2007, with the exception of CMT8 that reported higher concentrations of SO₂ in Spring 2008 and NO₂ in Summer and Fall 2008. Data provided to IEC for January 2009 showed no exceedances; additional data beyond that time was not available;
- annual average values of benzene reported at the CMT in 2008 comply with the BTC Project Standard and the limit value set forth in the Turkish Regulations;
- average reported values of BTEX were higher in 2008 than in 2007 and are thought to be due to emissions from the BOTAS terminal loading facility;
- according to a report prepared by SRK Danismanlik for BTC that reviewed proposed changes to the ambient air monitoring program at the CMT. There are unusually high measurements which may be due to short-term air pollution incidences. Highest BTEX concentrations are observed at CMT-3, CMT-4 and CMT-9. These high BTEX concentrations may be happening more frequently than one thinks;
- flue gas emissions originating from the gas fired reciprocating engines, water heaters, diesel fired generators were reported in compliance at all PTs, CMT and IPT1. Only the emergency generator at IPT2 was found to be non-compliant (during May and August 2008);
- a legal issue relating to the height of water heater and generator stacks was reported during the June 2008 IEC visit. In June 2009, IEC was informed that funding to increase stack heights has been secured and that BIL Engineering was proceeding with design for a planned implementation by July 2009;
- BIL reported that stack sampling ports will be installed at camp facilities and that this is currently under tender; and

- BIL also reported that recommendations will be implemented to prevent uncontrolled VOC emissions during ship loading through the installation of a continuous emissions monitor. IEC was informed that BTC will conduct a short-term emissions analysis and will confirm if the Continuous Emissions Monitoring system is required based on mass flow rate criteria given in the Turkish Air Quality Regulations. In addition to this action, a VOC speciation analysis will be carried out in order to determine the limits which apply to EGF.

Noise

- IEC was informed that noise monitoring for environmental and HSE purposes has been conducted, a contractor has been hired, initial data has been collected and the report in English is not yet available.

Groundwater Monitoring

- in June 2008, IEC was informed that BIL was planning to monitor groundwater at the CMT by September 2008. According to the BTC Annual Report a full groundwater and surface water monitoring program is under development and will commence in 2009;
- IEC reviewed the BIL Groundwater Operational Monitoring Strategy document (Draft, September 2008) with an intended purpose to establish the process and responsibilities to monitor the operational impacts of groundwater abstraction from the BTC P/L Turkey wells at PT1, IPT2 (to be drilled in 2009), PT2, PT3, PT4 and CMT, as well as monitoring an unlikely contamination on the groundwater by BTC facilities including IPT1; and
- BIL indicated a quality plan has been prepared for groundwater quality monitoring and that it will start by July 2009.

MoC for Treatment of Slops at the CMT

In 2007, IEC approved an MoC in which BTC proposed to build a reception facility at the CMT for the treatment of slops from tankers and the consequent discharge to sea of the treated effluent. BTC initiated design work on this facility. Since that time, BTC is now reconsidering as to whether such a treatment facility is necessary, given that of the over 700 vessels loaded at the CMT, none has yet requested to discharge slops.

BTC has informed IEC that development work has halted on this facility and that a number of options are being considered *including construction of a smaller facility, outsourcing to a contractor that specializes in floating reception facilities, and using a barge to transport wastes to the nearby BOTAS terminal or some other suitable facility.*

Once BTC has evaluated these options, a further MoC will be issued regarding an additional change to procedure.

4.6.2 Pollution Prevention and Environmental Monitoring – Recommendations

16. IEC notes that steps have been taken to deal with the legal issues regarding water heater and generator stacks at IPTs and CMT and notes that BIL has committed to target implementation by 3Q 2009. IEC has noted previously that this issue is not relevant to ESAP compliance, but rather legal compliance with Turkish regulations and requests that this issue be dealt with promptly as it was raised in the June 2008 audit visit.

17. IEC notes that BTEX in air is measured as a parameter at the CMT, but that there are no project standards, international standards or limits imposed by Turkish regulations. Higher annual BTEX levels compared to 2007 annual average values at CMT are reported by BTC in the annual report, but IEC can only find that there is a project standard for Benzene levels ($5 \mu\text{g}/\text{m}^3$). Furthermore, BTEX should be reported as ppb, not $\mu\text{g}/\text{m}^3$. IEC requests that the project clarify how BTEX levels are measured in accordance to a project specific standard and the relevance of these measurements, given no standard currently exists. BTC informed IEC that there are several international health guidelines/standards for BTEX compounds and that a comparison with these standards will be considered.
18. IEC was informed that as per the “Noise Regulation” of Ministry of Labor and Social Security, occupational noise monitoring is required and being performed by BIL site HSE and H&S engineers. This information was not available during the 2009 visit and will be reviewed as part of the 2010 audit visit.
19. IEC also requests that BTC/BIL provide additional information regarding VOC monitoring at the CMT and how VOC emissions will be compliant with project standards.
20. IEC is pleased to note that the project intends to address both monitoring of groundwater and surface water quality, as stated by July 2009. However, the information provided during the June 2009 audit is not sufficient to address questions such as; at which facilities will groundwater monitoring be conducted, how groundwater characterization of each site will be undertaken, what new monitoring wells will be installed in addition to existing water wells, what parameters will be sampled, the sampling frequency and reporting procedures, etc. IEC requests that BTC clarify groundwater monitoring procedures for each specific facility and that these procedures are consistent with BP standards at other fixed facilities similar to those of the BTC project.
21. IEC notes BTC’s request to change the MoC at the CMT regarding a reception facility for the treatment of slops and awaits additional information in this regard, when available.

4.7 BVT 30 INCIDENT

On the night of August 6, 2008 an explosion and subsequent fire resulted in release of crude oil at BVT30. The fire burned for about 107 hours and was finally extinguished on 11th of August, 2008. The initial response and cleanup were terminated as of 31st August, 2008. BTC estimates that about 5000 m³ of crude burned during the fire and 940 m³ were spilled.

IEC reviewed three documents associated with the incident – an initial evaluation completed by Dokay following the incident, and draft reports for a Phase 1 and Phase 2 evaluation completed by Golder Associates in August 2008 and April 2009 respectively.

IEC also visited the BVT site during the 2009 visit and has the following observations:

- an estimated 1200 m³ of contaminated material is on site. It has been relocated to a new site about 50 m to the northeast. The material has been segregated into three piles (high/moderate and low hydrocarbon contamination). It has been placed on a clay/geotextile/nylon liner and is considered to be secure;
- the site otherwise looks clean and free of visual evidence of hydrocarbons;

- the Golder Associates Phase II report indicates the following:
 - free phase contamination has mostly accumulated in the unsaturated soil at a depth not exceeding 2m. The free phase has not moved very far horizontally (15-20 m) from the incident area,
 - dissolved phase hydrocarbons are in evidence in all down-gradient monitoring wells, The extent to which impact groundwater has traveled is unknown, and
 - no incident related impact on Llgar creek is evident;
- BTC is currently evaluating treatment options for the contaminated material and a decision shall be reached by end of July 2009; and
- there are no outstanding landowner complaints arising from the incident.

4.7.1 BVT 30 Incident – Recommendations

22. BTC has taken a proactive approach to limit the environmental consequences of the BVT 30 incident since it occurred. This includes a combination of approaches including a) immediate delineation and removal of contaminated material b) ongoing delineation studies and monitoring c) safe containment of contaminated material d) resolving all landowner issues relating to the incident. Phase 1 and Phase 2 studies have been completed. BTC is now focusing on two initiatives a) treatment of contaminated material currently stored on site and b) ongoing monitoring to determine the extent of in-situ contamination and consideration of remedial options. It is recommended that BTC prepare a remediation and monitoring strategy to inform the Lenders as to how any residual liabilities resulting from the incident will be mitigated.

4.8 ROW MANAGEMENT, EROSION CONTROL, REINSTATEMENT AND BIORESTORATION

4.8.1 Erosion Control, Reinstatement and Biorestoration - Observations

Reinstatement Progress and RoW Maintenance

IEC notes that significant progress has been made by BIL to address outstanding RoW maintenance issues raised in previous IEC visits. In particular, IEC observed that portions of the RoW affected by critical erosive or landslide phenomena are now under control and that the most serious RoW terrain stability problems have been addressed.

Some erosion control, reinstatement and biorestoration issues, such as maintenance of permanent erosion control measures and measurement of revegetation success, still remain.

In terms of risk prevention, geohazard critical areas are being monitored and environmental engineering works have been performed, to reduce the erosion/landslide risk and improve stability of steep slopes.

Additionally, the BTC satellite imagery analysis tool is being used for biorestoration issues (vegetation) and erosion risk control and the findings of the analyses are taken on board by BIL. Further studies will include remote sensing geo-hazard monitoring. BIL is taking over the BTC remote sensing methodology to be integrated into a GIS system for monitoring purposes.

BIL RoW Patrolling

Routine RoW patrolling activities are undertaken by BIL covering the entire pipeline corridor every 14 days; in 2009, RoW patrolling started on May 25th. BIL RoW Patrol Teams have been trained to recognize potential problems, record them and direct findings to supervisors.

Operational guidelines to establish RoW maintenance and reinstatement responsibilities have been provided to Patrolling Teams. RoW patrolling activities are planned in terms of methodology, organization and logistics. To this end, BIL issued the following documents on March 18 2009:

- “Right of Way Patrolling Working Instruction” (Document No: BIL-WIN-PLT-GEN-001 Rev. 000); and
- “Right of Way Maintenance and Reinstatement Working Instruction” (Document No: BIL-WIN-PLT-GEN-002 Rev. 000).

RoW Patrol Teams also monitor and follow up post maintenance groups’ repairs. A unified BIL RoW Register database, encompassing the previous BTC Register, has been produced.

IEC notes that in spite of the significant improvement in the management of environmental data associated with BIL operations, the RoW Register file provided to IEC as part of the June 2009 visit was still not current regarding a number of parameters. Although, the 2009 data sets have not been recorded, which is understandable given that patrolling began in late May, numerous corrective actions annotated in 2006 are still open without any explanation, or without any anticipated closure deadline set.

In 2008 BIL carried out the field check of 91 areas of Prompt Intervention Locations subject to erosion and biorestitution risk previously identified by BTC by means of remote sensing tools⁴.

On the basis of the field assessment results, 24 of these 91 points were prioritized for intervention. Repair works for 10 were completed in 2008, while remaining 14 sites are closely monitored (intervention made only if required).

Geohazard Strategy

The Geohazard Strategy Document identifies High Risk sites for prioritized site-specific action/monitoring.

During 2008, BIL repaired or maintained more than 300 locations. In 2009, the number of major geohazard locations identified for intervention and repair is 36, 29 of which are classified High Risk.

In 2009, geohazard repair and RoW maintenance work will be sub-contracted. BIL has prepared a tender package based on the findings gathered from the RoW patrolling activities, Jandarma reports, environmental department reports and river geohazard and satellite imagery studies from BTC. Once the tender has been completed, the 2009 geohazard campaign is supposed to start by July 2009.

⁴ Refer to BIL document “Erosion and Biorestitution Risk on the BTC Turkish Pipeline – Field Observation and Study Results of 91 “Prompt Intervention” Locations”

The BIL Geohazard Monitoring Strategy (Document No: BIL-STG-PLT-GEN-001 Rev. 000) is aimed to ensure BTC pipeline physical integrity and adequate pipeline operation safety and to provide the input data for the GIS based RoW monitoring management system.

A GIS geotechnical database will provide additional input data for the geohazard risk assessment and the GIS based monitoring.

Geohazard risk assessment includes Seismic Monitoring of active faults (potentially linked to any earthquakes recorded in historical time). The 42 faults initially identified, reduced to five. IEC has been informed that active faults monitoring system on the five active faults should be activated. As of June 2009, a non-specific fault control program has been established.

4.8.2 Erosion Control, Reinstatement and Biorestoration – Recommendations

1. In June 2009, IEC notes much progress has been made toward establishing an effective RoW management system since the last audit, in particular regarding development of an integrated operational methodology for RoW problem identification and solution. Major erosion and landslides, reinstatement and biorestoration issues were effectively addressed in the last 12 months. Considering that the post-construction RoW reinstatement has progressively achieved, the 2009/2010 activities on the RoW will mainly focus on maintenance aspects. However, further steps are required in order to fully achieve the objectives set out in the ESAP Commitments Register.
2. As the RoW Register is intended to provide the most comprehensive and effective RoW management tool, it is recommended that environmental data entry into the BIMS are regularly recorded to ensure that monitoring data is updated on a current and consistent basis.
3. Several tools to ensure adequate RoW maintenance and safe pipeline operations have been implemented or are presently under development. In 2009, the RoW maintenance management system is mainly based on the Patrol Teams reporting activities for the short term and routine monitoring purposes, on the remote sensing/satellite imagery analysis for a RoW trend analysis monitoring purposes, while geohazard analysis approach provides the areas of intervention assessment and ranking. The reinstatement/maintenance teams carry out the actual remedial works. IEC noted that in spite of the multiple tool approach, a unified and integrated management system has not been developed yet.
4. IEC suggests that it would be useful to develop a fully integrated RoW maintenance management system that makes full use of available resources and available data. This would allow the implementation of effective operating procedures for an action management system that goes beyond the problem identification, to provide a coordinated action response, specifying needed timeline and resources, in particular those cases where RoW maintenance and reinstatement works are contracted to external company. The coordinated management system could take the form of an integrated web based database or other management tool, remotely accessible and easy to update and consult.
5. Monitoring system of the five identified active fault zones has yet to be implemented. Fencing of the RoW - fault zone crossing has been completed, but the monitoring strategy/scope of work for the potentially high risk active faulting areas has not been defined. IEC recommends BIL to further develop an active fault zone monitoring strategy that also includes site specific geological studies.

4.8.3 Access Roads - Observations

In 2007, a Level II non-compliance (*Reinstatement CCP, Commitment ID: 2*) was raised in regards to final reinstatement of project access roads. In response, BTC provided the Report BTC-REP-ESM-GEN-003 - Created Access Roads, Stockyards, Borrow Pits and Quarries dated 17.12.2007.

In 2008, IEC recognized the improvements resulted from the corrective actions undertaken. In 2008, IEC also recommended BIL and BTC to prepare an Operational Access Road Strategy and Plan to coordinate procedures as to how access roads are to be used during the operations phase, and as a first step toward a final access roads reinstatement and closure strategy. As of June 2009, the Operational Access Road Strategy and Plan is still not available.

During the 2009 field visit, IEC observed that most of the pending access road issues have been resolved and most access roads used during construction have been properly reinstated. Outstanding issues remain because of a lack of clarity with respect to villager requests of not closing certain access roads so that they can be used for private purposes.

BTC informed IEC that out of the among 20 open access road issues, 16 were now closed.

In June 2009, BTC provided IEC with an Access Roads Register as Report BTC-REP-ESM-GEN-003. According to the Access Roads Register, there are 87 newly built access roads, plus 682 that were upgraded and 28 accidentally opened. Reinstatement works were carried out for closing the new built and accidentally opened roads in Lot A, Lot B and Lot C. Where local villagers asked BTC/BIL to keep open some of the new built access roads for private or public use, reinstatement works were not carried out (Lot A and Lot B). In June 2009, IEC observed the following in the field:

- KP 189 access road (created to recover machinery) was narrowed and then the access closed. Reinstatement works completed; and
- Dump Site DS1 (PT3), a new built access road is still in use by a local landowner that uses it as a shortcut to access his own land.

IEC was informed that BIL is going to develop a GIS based access road database, integrating a GIS system, vector maps and the patrolling vehicles satellite tracking system, to properly manage access needs to pipeline route and access roads register. This system has yet to be developed.

4.8.4 Access Roads – Recommendations

1. IEC recognizes the successful efforts of BTC and BIL to deal with access road reinstatement and closure, arising from the construction phase. However, IEC recommends that the coordinated transition from the BTC access road register to BIL access road register for operations is finally achieved and the outstanding punch list closed.
2. IEC recommends that an access roads closure report be developed in conjunction with the reinstatement contractor to document the closure and reinstatement of access roads.
3. IEC recommends that BTC and BIL prepare an Operational Access Road Strategy and Plan. The Plan should consider also the BTC/BIL exit strategy for villagers, landowners and local authorities that request that some of new built or accidentally opened access

roads remain open. In particular, the exit strategy should take into consideration the liability aspects connected to this issue.

4. The previous Level II non-compliance (*Reinstatement CCP, Commitment ID: 2*) regarding the final reinstatement of project access roads is rescinded. IEC will review the status of operational access roads as part of the 2010 audit.
5. IEC recommends that GIS based access road database is designed to interact with the general GIS web based RoW Management System.

4.9 ECOLOGICAL MANAGEMENT

4.9.1 Observations

In general, IEC notes that initial biorestation efforts along the RoW in Turkey seem to be satisfactorily. Poor topsoil settling and radication, as well as irregular or absent vegetation cover still are present in critical steep slopes RoW areas (KP 992; KP 167; KP 450; KP 457; KP 484).

IEC noted that in one case (KP 484), pine trees were planted within the RoW buffer zones. The RoW Biorestation monitoring field program is being implemented by BIL's Environmental Services Contractor (Dokay). In second half of 2009, the Ecological Monitoring (incl. Species Diversity) will be carried out.

BTC remote sensing analysis integrated with the BIL 2008 field check of the 91 identified areas of Prompt Intervention Locations has provided an effective monitoring system tool for controlling erosion and biorestation and re-vegetation dynamics. The regular use of an integrated remote sensing tool for biorestation/vegetation and geohazard monitoring purposes should be developed (please refer also to section 4.8.2).

4.9.2 Recommendations

IEC recommends that BIL intensify restoration and re-vegetation efforts in those habitats where natural conditions make the re-growth very slow.

4.10 COMMUNITY LIAISON

4.10.1 Observations

In 2008, IEC noted that a lack of resources and vehicles for PCR staff restricted their effectiveness to effectively operate in more remote areas. A Level 1 non-compliance was assessed for the failure of the BIL organization to adequately address these known resource shortages. In 2009, IEC observed that the PCR teams have improved their operational capabilities.

The BIL PCR department now includes 2 PCREs for 5 of the 6 pipeline areas provided with their own vehicles, mobile phones, computers, gps tools and cameras. BIL PCREs receive comprehensive training and some receive ISO 14001 and ISO 9001 training. However, full-time PCRE presence is not provided in Area 3 (PT3, PK 373-575); no back to back shift rotation available.

Significant improvement in engagement with communities and other stakeholders is noted for 2009. A Single BTC/BIL complaints register has been created. BIL has established a complaints management tracker, which is an improved version of the Compliance Register Module used during the construction phase and has started recording complaints and taking actions accordingly.

For complaint management purposes, BTC contracted a group of independent experts (2 reinstatement, 2 social experts) jointly with BIL PCREs to complete a review in Turkey in August-September 2008 outstanding complaints raised after land exit process which took place in 2006 and 2007. BTC has provided an Action Plan and budget to resolve these outstanding issues. As of June 2009, Sivas and Erzincan Provinces based complaints has been closed.

A Reinstatement Complaints Register and single Complaint Register was provided to IEC. Most of the complaints included in the Reinstatement Complaints Register refer to removal of stone from the RoW and sometimes was related to grading phenomena.

BTC/BIL Summer 2009 priorities include:

- BTC and BIL PCREs will consult with newly elected mayors and muhtars of villages along the RoW;
- Management of Third party violations identified by RoW maintenance team;
- Effective management of sub-contractor employees (after new tendering processes)- MoL engagement;
- Gap assessment and data collection for Emergency Response Planning (updating protocols with local authorities for ERP and registration of available equipments etc);
- Coordination of relations between PCREs and CIP&RDI partners; create synergies between social assurance and social investment programs. This will become particularly important after the conclusion of the last SRAP audit; and
- Effective delivery of 2009 CIP&RDI projects to ensure smooth exit from the regions by end 2011.

4.10.2 Recommendations

1. In order to provide a full-time coverage and response to local communities and issues, BIL should fill the vacant PCRE position in Area 3.
2. In conjunction with the Lenders, BTC and BIL should identify procedures as to how livelihood assessment and other social evaluation procedures as currently undertaken by SRAP shall be carried out in future IEC audits.

4.11 ENVIRONMENTAL INVESTMENT PROGRAM (EIP)

According the BTC the EIP in Turkey aims to contribute and improve to the sustainability of the business and biophysical environment within which BTC operates. Six EIP projects were completed in 2008. All ten EIP projects initiated in the construction phase are now complete and four of eight operations phase projects have been completed. A total of \$5.4 million has been expended since EIP initiation in 2003. In addition to these project initiatives, the EIP has also implemented a NGO Capacity Development Program.

As of June 2009, IEC was informed of the following key EIP initiatives:

- Conservation of endangered plants along the BTC pipeline – the project targets for offset habitat creation for BTC impacted plant species;
- Eastern Mediterranean Marine Wildlife Rehabilitation Centre – the project targets to rehabilitate oiled wildlife in Iskenderun Bay;
- Small investments fund – provides funds for local conservation efforts and engagement of local stakeholders along the BTC pipeline;
- Eksisu Marshes – wetland conservation;
- Conservation investment priority analysis for the central and southern BTC region;
- Implementation of the Yumurtalik Lagoons Management Plan;
- Kackar Mountains forest conservation and sustainable rural development project – a continuation of the Lesser Caucasus forest gap analysis which has received matching funds of \$1.8 million from the EU; and
- Biogas/fertilizer generation in the Geben-Kahramanmaras region.

A total investment of \$800,000 is planned for the EIP in 2009.

4.12 CULTURAL HERITAGE MANAGEMENT

In June 2009, IEC was informed that the second phase of cultural publications has been halted due to a lawsuit on publication copyright.

New members of the BIL environmental and RoW maintenance team have been given training on Cultural Heritage Management Plan commitments.

4.13 HEALTH AND SAFETY

4.13.1 Observations

In past audit reports, IEC has commented on aspects of health and safety during the construction phase, particularly as they related to concerns about community safety issues. Now that the Project has moved to the operational phase, there is much less work-related activity, although travel still represents the highest safety risk.

In particular, the increased number of personnel hired for working on the RoW patrolling and maintenance activities and outsourced maintenance and reinstatement activities require that full HSE awareness training is provided to all personnel.

In 2008, two major accidents were reported. One is the explosion and fire at the Block Valve 30 where no injuries have been reported. The other concerns a motor vehicle accident where third party fatalities and the injury of BIL employee occurred.

Project safety statistics for 2008 are reported in the 2008 BTC Annual Report for both construction⁵ and operations phases. Three fatalities and 1 DAFWC (Day Away from Work Case), were reported in 2008 for the operation phase. BIL and BP/BIL data comparison of

⁵ Construction phase concerns the construction activities as part of the DRA Project BTC initiated in 2008.

H&S performance statistics (Leading indicators and Lagging Indicators) between year 2007, when no fatalities or DAFWC were reported, and 2008 show an increased number of fatalities, DAFWCs, medical treatment and First Aid cases.

During the June 2009 visit, no data relevant to the first quarter of 2009 were made available to IEC.

With reference to monitoring H&S standards in workplaces (please refer also to section 2.6), IEC considers that major pollutant monitoring system to be addressed at CMT⁶ and fixed facilities, where risks warrant. Monitoring activities should, at a minimum, include noise, VOCs/BTEX.

4.13.2 Recommendations

1. IEC recommends that BTC and BIL work together to ensure that an adequate safety oversight, supervision and training be provided to all employees and to third party personnel for both fixed facility and pipeline operations.
2. IEC recommends that adequate and regular workplace monitoring systems be implemented for major pollutants at fixed facilities where relevant, including noise, VOCs and BTEX. Additionally, IEC requests clarification from BTC/BIL as to how the project is undertaking measures to protect workers and those using accommodation areas at the CMT and fixed facilities.

4.14 RESOLUTION OF SCHEDULE 21 COMMITMENTS

4.14.1 Observations

The Schedule 21 commitments for Turkey covered five categories. One was closed at the time of the preparation of Schedule 21 and four remained for subsequent follow-up:

- *Punch List Items* – This commitment involved construction-related activities along the RoW not completely closed and complicated due to pending conclusion of the warranty period and transition to BIL operation. Compliance is based on completion of activities from Residual Actions list provided by BTC on September 1, 2007;
- *RoW Maintenance* – This commitment was for BTC to provide an action plan/memorandum to specify a date for mobilization of RoW maintenance contractor and then monitor progress;
- *Reinstatement of NGPL* – The commitment was for BTC to submit a final closure report, demonstrate closure of all outstanding NGPL complaints and conduct a walk through to identify punchlist items; and
- *Access Roads* – BTC committed to producing a concrete, implementable strategy for access road closure identifying those which are being left (stating reasons and E&S implications).

⁶ According to SRK Danismanlik, CMT-9 and CMT-6 are considered work places

The June 2009 report has provided an updated on these items and IEC can report on their status as follows:

Punch List Items: According to BTC, only one punch list item considered to be environmental remains and 16 of RoW issues remain (uncertain as to how many are environmental). IEC requests additional clarification on this RoW item and the remaining off RoW items prior to assignment of closure.

RoW Maintenance: IEC notes that the Project has made significant progress in this issue and that BIL has assumed ongoing maintenance responsibilities for operations.

Reinstatement of the NGPL: IEC closed this issue in June 2008.

Access Roads: IEC recommended that BTC/BIL prepare an Operational Access Road Strategy and Plan that is a transitional document specifying how roads opened by the project in the construction phase will either be closed and reinstated, or left open as for Operations use, or at the request of the landowner. A Level 1 non-compliance has been raised as a result (see Section 2.8.3).

APPENDIX A
TRIP SUMMARY- 11TH IEC MISSION BY D'APPOLONIA FOR THE BTC
PIPELINE PROJECT – JUNE 2009

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TRIP SUMMARY- 11THTH IEC MISSION BY D'APPOLONIA FOR THE BTC PIPELINE PROJECT – JUNE 2009

For this mission, two members of the team toured Turkey while another two visited Azerbaijan and Georgia. The trip summaries of the two groups are presented separately.

Azerbaijan/Georgia Team

June 23 – Azerbaijan. Team starts kick-off meetings with AZ staff.

June 24 – Azerbaijan. Visit to Gobustan area in morning and in the afternoon visited the Sangachal Terminal to see the new museum displays and then visited the Gobustan State Historical-Artist Preserve.

June 25 – Azerbaijan. Team splits up with one team member visiting the new Sumgayit Landfill with the other visiting the Azerbaijan Institute of Archaeology and Ethnography. Closeout meeting provided to BTC in afternoon.

June 26 – Georgia. Travel to Tbilisi and attend kick-off meeting by BTC at AGT offices; continue Project briefings and also visit Georgia National Museum.

June 27 – Georgia. Travel to Bakuriani and visit Kodiana Special Projects sites area. Spend night at Bakuriani.

June 28 – Georgia. One team member travels to visit the new Akhaltsikhe Museum display of BTC/SCP archaeological findings while the other travels along the ROW to PSG2. In the afternoon, team reunites to visit the new EU-compliant landfill near Rustavi and then returns to Tbilisi.

June 29 – Georgia. In the morning the team prepares for the closeout meeting. The BTC closeout for Georgia is held in the afternoon, after which the team attends a meeting with representatives from the Georgian Ministry of Environmental Protection and National Resources (MoE)

June 30 – Team departs.

Turkey Team

June 23 – Team arrives in Ankara by air.

June 24 – Meetings in Ankara, team departs to Adana in the evening

June 25 – Meetings with BIL HSE and PCR staff. Visit the CMT and operations facility. Overnight in Adana

June 26 – Travel Lot C – visit KPs 1007, 992, BVT50, 990, 982, BVT 49, 941 and 931. Overnight in Adana

June 27 – Fly Adana to Ankara and Ankara to Kars. Drive Kars to Ardahan – drive up the Russian Road, KPs 61, 59+400, 58, 56+059, 1.5, 3+679, 12+929, 11+679, Posof River Crossing, KP17, KP20. Overnight at PT1.

June 28 – Hanak Camp, KPs 165, 167, 171+428/ESA 8, 169, 190, 210, 246+557, Site visit to PT2. KP 219, Overnight in Erzerum.

June 29 – ESA 13, KP 375+615, Cadirkaya Camp, 410, 449, 450+943, DS1. Site Visit to PT3. Overnight at PT3.

June 30 – Access Road KP 457+700, KP 454+495, 457+442, Gulluce Borrow Pit, Yeniyol Dump Site, KP 484, BVT 30. Drive to Erzincan, fly to Ankara. Close-out meeting in Ankara.

July 1 – Turkey team leaves Ankara by air

APPENDIX B

TABLE B-1: NON-COMPLIANCES WITH ESAP

APPENDIX B

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

Section Ref.	Observation	Non-Compliance	Level	Comments / Recommendations
2.3.2	Ongoing use of the Mingechevir (and previously the Sahil) non-compliant facilities for the disposal of sewage.	Operations ESAP, Commitment ID J24	Closed	
2.4.1	Stack emissions for NO _x non-compliant with ESAP	Emissions Management Plan - BTC Operations – Azerbaijan & Georgia (Commitment ID 1024)	I	Stack emissions testing is ongoing, but an MOC is needed to close out the Schedule 21 commitment for modifying the sampling ports for the diesel generator stacks and an MOC is needed to justify NO _x levels.

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

Section Ref.	Observation	Non-Compliance	Level	Comments / Recommendations
3.4.1	Stack emissions for NO _x non-compliant with ESAP commitments	Emissions Management Plan - BTC Operations – Azerbaijan & Georgia (Commitment ID 1024)	I	Same as for Azerbaijan and emissions testing still needs to be done for the CTU.

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

Section Ref.	Observation	Non-Compliance	Level	Comments / Recommendations
4.2.2	Failure to implement an adequate PCR program during the Operations Phase	Social Management Plan, Commitment ID CH7 S2	I	IEC observes that BIL has taken steps to provide full time PCR coverage in the field, with the exception of Area 3 (IPT1&PT3) that is being covered by the PCR supervisor. As a result, IEC maintains the Level 1 non-compliance assigned relative to commitments made in the Social Management Plan, Turkey. Back to back coverage of PCR personnel in Area 3 should be provided as soon as possible