

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

FOURTH SITE VISIT, FEBRUARY 2005

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EXECUTIVE SUMMARY

This report presents the results of the fourth post-financial close field visit in Azerbaijan, Turkey and Georgia of the Independent Environmental Consultant (IEC), between February 8 – 18, 2005 to monitor compliance with BTC Project Environmental and Social (E&S) commitments. The IEC team conducted the visit as two teams; one team toured Turkey while the other visited Georgia and Azerbaijan.

During the visit, IEC had the opportunity to meet with the three BTC in-country organizations (Azerbaijan, Turkey, Georgia), BOTAŞ and the EPC Contractors, reviewing documentation and interviewing personnel in charge of implementing E&S commitments and monitoring construction activities. The IEC visited several construction sites including activities along the ROW and several Above Ground Installations (AGIs). The visit was not as complete as conducted for previous missions because of the inaccessibility of large portions of the pipeline right-of-way (ROW) due to winter conditions. Lot A in Turkey was not visited and the western half of the ROW in Georgia were not visited because of weather.

Organization and Staffing: In Azerbaijan and Georgia, the Environmental and Social (E&S) organizations reflect the fact that most of the current field work is associated with the construction of the South Caucasus Pipeline (SCP) project. In these countries, there have been staffing changes to reflect the need to work on both the BTC and SCP projects, but BTC continues to assume much of the responsibility for the management of field issues and progress has been made primarily because of BTC teams' initiatives.

In Turkey, there has been a significant change in the organization of Lot A. Following the termination of the TPN contract in January 2005, all staff are now BOTAŞ personnel. Some former TPN staff in key positions have been retained, despite the number of layoffs following integration. It is too early to tell whether the new organization in Lot A will be successful; however, preliminary indications from the site staff are positive. This will be verified by IEC during the next visit. In Lot B there has been a decrease in environmental and social management personnel, as a result of ongoing managerial difficulties between the EPC Contractor and BOTAŞ. While it can be understood that a slowdown in work activities in the winter months can lead to some staff reductions, this in itself cannot explain the considerable loss of environmental and community relations expertise and the seemingly lack of

management commitment to these functions by both the Lot B EPC Contractor and BOTAS.

Management of Change: In Azerbaijan and Georgia BTC has undertaken some significant management of change initiatives to change the standards defined in the ESAP for sewage treatment, air emissions and waste management. The overall rationale for these proposed changes relates in the inability or inappropriateness of achieving EU standards for operations of the size associated with construction camps. BTC has presented some arguments to justify these changes to Project standards, but has not produced sufficient documentation to appropriately support the MOC process. The only case where an MOC process has been implemented formally is in Georgia and in this case the documentation to support the decision to reduce effluent discharge standards is deficient, even if BTC can present compelling arguments for the change. In this case, IEC considers that the operation of wastewater treatment plants (WWTPs) that do not at least comply with World Bank standards represents a breach of Project commitments, even if an MOC has been implemented. IEC recommends that in cases where the Management of Change process represents a change to Project commitments defined in the ESAP or in the ESIA, the Project should consider that such changes could be assigned as Class III. In any case, BTC needs to carefully document the technical basis for making changes to ESAP commitments before implementing a MOC process.

Third Party Concrete and Aggregate Suppliers: Third party sources of supplies, in particular aggregate and cement/concrete have been evaluated by the BTC Core Management Team (CMT) in all three countries. Borrow pits and aggregate/concrete suppliers have been identified in terms of those which require project intervention and plans are being established to achieve ESAP commitments with these facilities in what appears to be an appropriate manner. This is an improvement over the situation encountered in previous missions, although in some cases the proposed Project intervention is too little and too late, especially with respect to batch plants whose use will be effectively complete with the beginning of the Operations phase of the Project.

Potable water: Past problems with the treatment of potable water have been resolved in Georgia and Azerbaijan. Sustainability studies for water wells are now complete across the BTC Project and demonstrate that local groundwater resources are not being impacted. Acceptable potable water testing and organization of test results have been achieved across the Project in Georgia and Azerbaijan. In Turkey it was again noted that water quality testing is still done inconsistently by the different Contractors and not always for the same parameters. In Lot B H&S staff was found to be not clear on the responsibility and priority of potable water testing at camps in Lot B. The fact that there is lack of clarity within the H&S department over this issue at this stage of the Project is a concern.

Waste Management: This issue continues to be one of the most important environmental challenges in Georgia and Azerbaijan. Although waste segregation and

waste tracking procedures continue to improve, the solutions for final disposal are not fully implemented yet and therefore not satisfactory.

In Georgia the Project is also evaluating the possibility to export hazardous waste to an EU compliant facility. The plan to construct a hazardous landfill is being re-evaluated, in view of the small quantities of hazardous waste anticipated (BTC is seeking to recycle used oil, which is a major source of hazardous waste, by re-injecting it into the Western Route or BTC line). With respect to non-hazardous domestic waste, the Project is disposing some waste (the remaining portion which cannot be recycled) in a manner which was defined as not acceptable in the ESAP, at the Iagljudja municipal dump site. IEC believes that, although this situation represents a breach of the commitments, there are probably no significant impacts to any receptors in the area. The IEC has reviewed in detail the proposed Conditioning Plan of this facility. The latest revision of the Plan reviewed by IEC incorporates recommendations from the October 2004 mission and it is anticipated that this Plan, when fully implemented, should be, according to IEC opinion, sufficient to offset the current unacceptable non-hazardous domestic waste disposal practice. In the mean time, the incinerator located in the Central Waste Accumulation Area (CWAA) at PSG1, is still unable to comply with EU standards, therefore, the project continues to dispose of non-hazardous domestic waste at the Iagljudja municipal dump site.

In Azerbaijan, hazardous waste continues to be stored, pending the use of the EU-compliant Serenja hazardous waste landfill. Non-hazardous waste continues to be incinerated at the Kurdamir Central Waste Accumulation Area (CWAA), but emissions are non-compliant with Project commitments. A proposed MOC to modify the Project emissions standards is in the process of being prepared. Plans are well developed for the construction of a dedicated non-hazardous waste landfill by the BP Azerbaijan Business Unit (AZBU), but this facility will not be available in time to be a disposal solution for BTC waste during the construction phase.

Solid waste management practices across all Contractor operations in Turkey continue to be conducted in an acceptable manner across all Project facilities, based on the limited portions of the Project that could be visited during this mission.

Wastewater Treatment: In all three countries, efforts have been made to improve the performance of wastewater treatment plants (WWTPs). Although progress has been achieved, problems still remain and persistent non-compliant discharges are still occurring. In Azerbaijan and Georgia, the Project has concluded that the standards defined for effluent discharge in the ESAP were not appropriately defined and have initiated MOC processes to define standards considered to be more representative to the size of the WWTP. The situation in each country can be summarized as follows:

Azerbaijan: The situation with respect to WWTPs in Azerbaijan is similar to that which was encountered during the October 2004 IEC mission. There is a general non-compliance for total coliforms, phosphorous and nitrogen, with some small excursions for Total Suspended Solids (TSS) at Yevlakh Camp.

Discharges from the Kurdamir and Yevlakh WWTPs continue to go to non-compliant municipal sewers, a practice which should be terminated.

Georgia: The situation with respect to WWTPs in Georgia also appears to be similar to what was encountered during the October 2004 IEC mission, but a comparison is difficult because the Project made the decision to reduce the number of parameters tested beginning in October 2004. The associated MOC process to justify this reduction in the standards for reporting was approved in January 2005. Given that the Project has not provided the necessary technical justification to eliminate specific discharge parameters that are in the ESAP, in particular coliforms, the IEC does not consider that the reduction of test requirements for discharge parameters before a completion of the MOC process to be a technicality. A non-compliance has occurred. BTC needs to provide sufficient technical justification to change ESAP standards, not only to justify why EU standards are not appropriate, but also to demonstrate why a decision was made to reduce testing requirements below WB/IFC guidelines for effluent discharges. In spite of this finding of non-compliance, the IEC recognizes that the Project has placed considerable resources to manage effluent discharges in a manner that has been generally appropriate for small communities as represented by construction camps.

Turkey: Wastewater management continues to be an issue of concern for both BTC and BOTAS, although some improvements have been made towards compliance with Project discharge limits. Non-compliance problems continue, especially in Lot A and at the Pump Stations, and are exacerbated by cold weather conditions in the winter months. Insufficient testing continues in Lot B to monitor compliance.

Pollution Prevention: The overall progress achieved by Project in terms of construction and repairs to needed infrastructure (spill control systems, OWSs, etc.) is such that ESAP goals for the most part have been achieved in all three countries. The main ongoing need for pollution prevention is the maintenance of the infrastructure, in particular OWSs, which require frequent cleaning. The situation in each country can be summarized as follows:

Azerbaijan: The remaining infrastructure for pollution control that had been initiated at the time of the October IEC mission is now constructed. In particular, the area designated for the storage of radioactive sources is substantially improved. One issue that has not been resolved is the occurrence of persistent small non-compliances with respect to generator noise at Kurdamir and Tovuz Camps.

Georgia: During this mission, the IEC was able to visit only the Marneuli Camp and PSG-2 in Georgia. The pollution prevention infrastructure is generally in place in the Marneuli and PSG-2 camps. Persistent problems with pollution prevention systems and housekeeping were again encountered at the

PSG2 construction site, in particular as associated with a subcontractor, Geotek. The persistent non-compliant conditions at this location, even though the overall environmental impact is small, still represents a non-compliant condition with respect to the ESAP commitments.

Turkey: The issue previously raised in July and October 2004 over inadequate storage of concrete batch plant washwater at PT1 and PT3 has reportedly been addressed. The few fuel storage areas visited were found to be generally adequately managed and no significant issues were observed in terms of management of oil/water separators and spill pollution prevention measures.

Hydrotesting: The Project is faced with different conditions and has progressed differently in the three countries:

Azerbaijan: Hydrotesting is well advanced in Azerbaijan. 6 out of 11 main pipe sections have been tested. Cleaning and gauging operations have been carried out at 32 out of 42 locations. The Project has constructed two large lined ponds for containment/evaporation at KP 244 and KP 411 to make sure that there is no direct discharge of the main hydrotest water to the environment. Clean and gauge water, which did not contain biocides or oxygen scavengers, has been discharged. Water quality testing was not conducted for these relatively small discharges to land and the Project is conducting follow-up soil measurements to verify that the discharges have not increased the iron content of the soil. The IEC recommends that discharge standards defined by World Bank/IFC Guidelines be followed for the clean and gauge water. BTC is testing and monitoring the water quality in the ponds; should the Project decide to discharge hydrotest water from these evaporation ponds it will also be necessary to verify that the biocide and oxygen scavenger levels are within accepted limits.

Georgia: The Project has the Plans, Procedures and Method Statements in place to conduct hydrotesting, but the actual testing has been postponed until weather conditions are more favorable.

Turkey: Hydrotesting reportedly continues in all three Lots prior to confirmation of the Hydrostatic Test Water Management Plans by IEC. However, the Project is taking positive action to standardize hydrotest environmental management plans, based on a number of selected environmental and social compliance criteria, and to standardize field monitoring and supervision of compliance with Project environmental and social commitments. This will be likely useful in Lots A and B where hydrotest is still in its early phases. There are persistent concerns about the sequencing of hydrotest activities in Lots A and B in relation to reinstatement. Based on site interviews, it appears that “most” hydrotesting in both Lots will be done prior to Phase 2 (top soil spreading) reinstatement under a “permit to work” system. The efficiency of this process is questionable, considering the

delays to date in reinstatement progress in both Lots and also the oversight difficulties and constraints of working under such “a permit to work” systems. IEC notes the previous problems and stop orders that were issued under a similar permit system for both Lots A and B.

Safety: The IEC continues to acknowledge the effort made by the BTC H&S organization to achieve high safety standards during Project development. The most important finding from past missions has been the amount of open trench. Given that the placement of pipe is nearing completion, the amount of open trench is no longer a significant issue. Where observed in Azerbaijan and Georgia, the trench protection measures adopted for the BTC pipeline are now being adopted for the SCP. In Turkey open trench protocols are in place across all Lots, although backfilling was almost completed at the time of the visit. IEC acknowledges the response of the Project to implement open trench protocols in all three Lots and the fixed installations. Also an effort has been reported to educate communities about the hazards of open trench. This vigilance should be maintained through to the conclusion of the construction activities.

During the winter months, working conditions can become difficult in the portions of the pipeline route at the higher elevations. In most cases the Project has taken adequate measures for winterization (winter clothing and adequate equipment), but inadequate infrastructure and a lack of experience with working in extreme cold did cause significant problems at the Akhaltsikhe Camp in Georgia. Once the problems were identified, BTC reacted quickly to provide a safe working environment and improve workers’ training for cold weather work. In Lot B in Turkey, however, although hot drinks are provided in the field, workers are still not provided with hot food. This situation was reported in winter 2003-2004 and is considered not acceptable.

A current concern is the reduction of H&S personnel observed in Turkey, particularly in Lot B. There is a need for the Project to ensure that there is an adequate presence of safety inspectors in the field concomitant with the extent of work activities in all three Lots. Planning for increased number of H&S personnel should begin now in order to be prepared for the anticipated increase in construction activities and number of workers in the coming spring.

Reinstatement: It was not practical to extensively observe reinstatement along much of the pipeline ROW due to snow conditions. Nevertheless, where observed in the field, good practices have been observed. The overall reinstatement of Lot C in Turkey is exemplary. In Azerbaijan, the 12-m BTC corridor has been final graded with the placement of topsoil over 436 km with bioremediation completed for 299 km. In Georgia interim reinstatement of the 12-m wide ROW corridor totals 162.3 km. Similar to observations made during previous visits, different practices and conditions were observed across the three countries, but topsoil management, with a few exceptions, is generally good. River crossings also appear to be well reinstated where

they could be observed in the three countries. Significant differences are found, however, in terms of the amount of progress that is being achieved.

Azerbaijan: The pipeline is nearly complete and biorestitution has been achieved for close to 300 km. Where observed in the field, reinstatement has been of good quality. Vehicular damage has taken place to some areas with final reinstatement and the Project is taking measures to prevent damage from third-party and Project vehicles. Plans have been created to systematically close borrow pits that have been used for either extraction or spoil disposal by the Project.

Georgia: Mountainous conditions make reinstatement in Georgia a more challenging process than in Azerbaijan, but the Project is performing in accordance with ESAP commitments. Interim reinstatement of the 12-m wide ROW corridor totals 162.3 km. The Project has benefited from a topsoil audit and has implemented recommendations that have allowed them to achieve compliance with ESAP standards. Significant progress was observed with respect to the most difficult reinstatement issue, the disposal of excess rock and subsoil. Plans are in place and are being implemented to dispose of this excess material within ESAP commitments.

Turkey: At the time of the visit, reinstatement in Lot C was almost complete. IEC observed a continued high quality standard of reinstatement practices and implementation in Lot C and consistent management commitment to achieve the objectives stated in the ESAP. A high level of attention to detail was noted to recontouring and landscape restoration. As a result of this work, BOTAŞ, PLL and BTC personnel in Lot C have gained reinstatement experience.

As of February 2005, adequate reinstatement plans, compliant with ESAP commitments and presenting details on how reinstatement will be done, including personnel, machinery, and a schedule, still do not exist for Lots A and B, and reinstatement activities are not progressing. As indicated above, there also remains a lack of clarity regarding the timing of the hydrotest schedule in relation to reinstatement activities for both Lots A and B. In October 2004, a non-compliance condition was assigned because there was little evidence in Lots A and B that installation of adequate temporary erosion control measures had been initiated. According to field environmental staff, limited winterization and temporary erosion control measures have been implemented during the winter. An audit performed by the Project acknowledged the implementation of some protection measures and did not report critical conditions; however, it reported a concern that erosion may occur during the spring melt at critical locations in both Lots.

There is still no change in the status of the NGPL reinstatement implementation, particularly outside of the BTC corridor. The Project needs to

clearly demonstrate how the two phase approach to reinstatement of the NGPL will be completed.

Archaeology: The basic observations regarding the cultural heritage programs in the three countries remain the same. The different programs continue to be consistent with Project commitments. Construction teams have demonstrated a willingness to work with the archaeological teams to assure the protection of cultural heritage, including giving the archaeologists reasonable schedules for excavation and working within ROW width reductions or constructing route deviations to avoid important archaeological discoveries. As previously noted, the responsibility for compiling, interpreting, preserving and presenting the findings will rest with the three host governments. The BTC Project has a substantial investment into cultural heritage management and a commitment to manage this investment according to international standards. This commitment requires that the Project work with Government authorities and in some cases participate in a capacity building role. Peer reviews have been conducted in all three countries. These reviews have helped define procedures to improve quality at both Project and Government levels and emphasize that the Project will need to take care to focus on post-field work activities, in particular data interpretation, museum curation and reporting. These are activities that will continue into the Operations Phase of the Project.

Ecological Management and Environmental Investment Programs: The implementation of the different environmental investment programs continues to be challenging for the Project. Aspects of these programs where the Project has direct control, such as rare plant species conservation in Georgia, or ecological monitoring in both Georgia and Azerbaijan, can demonstrate progress. Where the Project has had to interact with authorities, both in Azerbaijan and Georgia, difficulties are encountered between the two parties and progress is slowed or stalled. In Turkey, once again with the exception of Lot C, the Project has made little overall progress in reinstatement of Environmental Sensitive Areas (ESAs), although IEC recognizes that winter weather and an ongoing ESA review have likely exacerbated these delays. The IEC has concerns on management of ESAs and on potential ecological impacts due to delays in reinstatement for most ESAs in Lots A and B. A detailed, quantitative field survey should be implemented as soon as possible by BTC and BOTAŞ to address this concern.

A review of the Environmental Investment Programmes implementation by two external consultants has been initiated.

1 INTRODUCTION

D'Appolonia S.p.A.(D'Appolonia), located in Genoa, Italy, has been appointed as the post-financial close Independent Environmental Consultant (IEC)¹ to the Lender Groups for the Baku-Tbilisi-Ceyhan (BTC) Pipeline Project (BTC Project)² and the Azeri, Chirag and deepwater Gunashli (ACG) Phase 1 Project (Phase 1 Project)³. The BTC Project is currently under development and will be owned by BTC, a company formed by a consortium of the Main Export Pipeline Participants (MEPs)⁴. Construction of the BTC Project is underway in Azerbaijan, Georgia and Turkey. The ACG Contract Area is being developed by Participating Production Sharing Agreement (PSA) Contracting Parties.⁵

The overall role of D'Appolonia within the BTC and ACG Projects is to assess and report to the Lender Group on the compliance with the environmental and social provisions contained within the respective project Environmental and Social Action Plans (ESAPs), the associated Contractor Control Plans (CCPs), and BTC/ACG Management Plans and with HSE management systems. This report summarizes the

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

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

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

results of D'Appolonia's fourth field visit held between February 8 – 17, 2005 for the BTC Project.

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

- Random checking of individual non-compliances identified by BTC/BOTAS or individual Contractors and reviewing the mechanisms followed by the responsible organizations to identify, address, correct and follow up non-compliant situations, as well as the documentation demonstrating the implementation of appropriate procedures.
- In-depth review of symptomatic non-compliances, which may indicate a deficiency in the process of compliance management and identifying mechanisms and the procedures the BTC Project proposes to follow to make sure that similar situations will not occur again.
- Follow-up to non-compliant conditions identified during the previous missions, as practical. It should be noted that not all of the locations where non-compliant situations were originally encountered could be visited during this mission, so it is not always practical to close the issues previously identified, even if the Project has performed the required actions.

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.

The IEC team conducted the visit as two teams. Two members of the team toured Turkey while another two visited Georgia and Azerbaijan.

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.

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 will be subsequently followed by the South Caucasus Pipeline (SCP), which will transport 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 was visited as part of auditing of the ACG Phase 1 Project.

The BTC Project in Azerbaijan uses two prime Contractors, Consolidated Contractors International Company (CCIC) responsible for pipeline construction and valves and Spie-Capag Petrofac Joint Venture (SPJV), responsible for the main AGIs.

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

- Construction camps (for CCIC: Mugan near KP 20, discontinued; Kurdamir near KP 130, occupied; Yevlakh near KP 240, occupied; Tovuz near KP 380, occupied. For SPJV: Kurdamir for IPA1 near KP 126; PSA2 camp near KP 244.)
- Dump Yards for pipe (Umbaki near KP 0; Mugan near KP 65; Kurdamir near KP 129; Yevlakh near KP 235; Ganja on the north east edge of the town of Ganja; Agstafa next to the town of Agstafa near KP 400; Beyuk Kassik next to the Georgia border near KP 440).

This mission included a visit to the areas of active construction, including the microtunnel construction being initiated for the Kura West crossing at KP 411 and the construction of erosion and sediment control structures at the Hasan Su crossing at KP 398, as well as a tour of some areas of the ROW where reinstatement has already taken place. During the course of the visit, representatives of BTC, CCIC and SPJV were interviewed. SPJV construction activities at PSA2 were also visited during this trip.

2.1 CONSTRUCTION STATUS

Current (February 14, 2004) construction progress is as follows:

- *Facilities* –Construction of Pump Station PSA1 at Sangachal Terminal is essentially complete; the construction status of PSA2 was reported to be approximately 97%. The progress of the Intermediate Pigging station IPA1 was reported to be approximately 99%.
- *Pipeline* – Overall construction progress of the pipeline is reported to be 95.8%. Pipeline construction is essentially complete to the Georgian border (443 km), except for the 2 km associated with the Kura West River crossing. The 12-m BTC corridor has been final graded with the placement of topsoil over 436 km with biorestorement completed for 299 km. Hydrotesting has been completed in the segment from Sangachal to KP 280.2. Most of the river crossings have also been hydrotested.

At the time of the D'Appolonia visit, only one major river crossing had yet to be complete, the Kura West (KP 411.1), where microtunneling had just been started. During the visit, the reinstatement of the Hasan Su crossing at KP 398 was reviewed in the field. At this location three excess spoil disposal locations were also visited.

2.2 ENVIRONMENTAL AND SOCIAL MANAGEMENT ORGANIZATION AND RESOURCES

2.2.1 Resources and Organization - Observations

The following discussion summarizes information obtained regarding the environmental management organizations of BTC and CCIC. SPJV organization was not specifically reviewed during this trip. BTC continues to assume more and more responsibilities for correcting non-compliant conditions and assuring environmental compliance for ongoing activities.

BTC

BTC has continued to add additional senior staff, mostly to be able to manage the SCP. A senior Environmental Field Officer (EFO) was reinstated to his original position as Project Archaeologist and an additional expat archaeologist was added, making for a total of five expat archaeologists including the manager. A Field Environmental Coordinator who had previously left BTC has returned to fill the gap. An E&S administrative assistant has been added. Efforts have been made to recruit two EFOs for the past several months. One has recently been hired and the other is still pending.

CCIC

CCIC staffing has essentially remained at the same level as observed in October, except that the bioremediation specialist has recently departed. Staffing is not adequate to cover all of the E&S requirements of the Project and for this reason CCIC and BTC personnel have continued to work as a single field team. In spite of staffing limitations, CCIC continues to demonstrate a willingness to provide the necessary construction support to the improvements initiated by BTC.

SPJV

Based on documents provided by BTC, SPJV staffing has essentially remained stable. There was some concern when their Senior Environmental Engineer left the Project in November, but in December SPJV provided a senior environmental specialist to close out the few remaining environmental issues associated with the facilities that are now essentially constructed.

2.2.2 Resources and Organization - Recommendations

1. At this point in time, BTC needs to focus on the staffing requirements necessary to achieve a smooth transition from Construction to Operations. As the transition period approaches, there will likely be an attrition of qualified staff from both BTC and Contractor staffs. BTC needs to anticipate this situation and react accordingly.

2.2.3 Management of Change (MOC) - Observations

With the BTC pipeline installation nearly complete, the Class I changes involving minor reroutes are associated with the SCP project. One MOC procedure associated with the BTC Project is currently pending:

- DR-GE-00164, Change Type 2, Class I – deviate from planting in areas of erosion class 4, 5 or 6 as per planting procedure for an arid environment. The Contractor proposes not to plant in these areas, but to rely on seeding for bioremediation instead – Pending.

This proposed change was resubmitted to CCIC on December 23 and it is expected that a final decision will be made before planting season.

The more significant MOC procedures have not yet been formally drafted. They are expected to relate to changes to ESAP standards for effluent from the sewage treatments and air emissions from the waste incinerator.

The WWTPs in Azerbaijan are not compliant with ESAP standards that were adopted from EU standards intended to be applied to communities with populations greater

than 2,000 people. BTC is drafting a MOC document to justify the application of EU Directive 91/271/EC in accordance with those practices generally adopted throughout Europe. In particular, BTC will look to provide definition to the term “appropriate treatment” in the context of a pipeline construction project. According to information provided by BTC, the MOC document will account for the size of the units, sensitivity of receiving waters and detail typical discharge consents for similar units operated in the EU. It should be noted that in the Contractor Control Plan for Waste Management there is a statement that the application of the standards in EU Directive 91/271/EC are for sensitive areas. The MOC document will effectively be a relaxation of effluent discharge standards similar to that implemented in Georgia, as discussed in Section 3.2.3.

Although it may be appropriate to relax some of the EU-based standards, the ESAP also refers World Bank/IFC guidelines, which are also specific for several parameters including coliforms. The Project proposes to eliminate testing for coliforms. There may be arguments for eliminating a World Bank/IFC guideline test parameter, but the justification included in the MOC should be comprehensive and the arguments fully developed such that they can support an external review. IEC will continue to review this issue during the next visit.

The Project incinerator at Kurdamir Camp is not compliant with ESAP stack emissions standards, especially for particulates. At the time of writing of the ESAP it was intended that the Project operate an incinerator in accordance with EU Directives 89/369/EEC and 94/67/EEC that contained provisions for small-scale incinerators. During transition to the construction phase of the project these directives were superseded by EU Directive 2000/76/EC and the provisions removed.

While working towards attainment of the current EU emission standards BTC concluded that the incinerator will not be able to meet the stated limit for particulates without the addition of significant upgrades to the incinerator. Nevertheless, it is BTC’s intent to demonstrate that under normal operating conditions the incinerator meets the World Bank Group (WBG) standard for emission of particulates to air and that particulate emissions of this magnitude will have no significant environmental impact.

IEC recommends that similar to making changes to the quantitative standards for sewage effluent, the documentation in support of this type of change, under preparation according to information provided by BTC staff, should be comprehensive and account for World Bank/IFC guidelines, as well as EU standards.

2.2.4 Management of Changes – Recommendations

1. IEC recommends carefully assigning the Class Change; changes constituting a change to specific quantitative ESAP standards are considered by the IEC to constitute a Class III change and should be managed according to ESAP procedures (Lenders and IEC notification prior implementation).

2.3 CONSTRUCTION CAMPS, INFRASTRUCTURE AND SERVICES

The review of construction camps, infrastructure and services focuses on construction operations that potentially have an impact to surrounding infrastructure, natural resources, and community and household assets, including land, roads, and irrigation systems. In addition, the review of this topic includes camp water supplies and general aspects of camp management. During this visit the PSA2 construction site and the Kurdamir Camp were toured.

2.3.1 BTC - Observations

Since IEC's third mission in October, BTC Core Management Team (CMT) has dedicated considerable resources to the identification of third-party sources of supplies, in particular aggregate and cement/concrete. On the basis of this survey, BTC has identified suppliers of concrete; borrow pits used as a source of construction aggregate; and third-party borrow pits used for trench backfill or for the disposal of excess spoil that merit Project intervention. The results of this survey were presented to the IEC in a tabulated form defining borrow pits with proposed mitigation measures. One third-party concrete batch plant was also identified approximately 3 km from PSA2 adjacent to a railway outside of Yevlakh where its production was close to 100% of Project use and where deficient conditions were identified from both environmental and health and safety standpoints. It should also be noted that there is a potential for having a residual project impact likely to be contaminated ground if this plant is not adequately managed.

The information provided indicates that the Project has developed procedures consistent with ESAP commitments, although it must be recognized that the proposed actions relative to the batch plants may be late, as it is anticipated that the Project's requirements for concrete will be shortly coming to an end. During this mission it was not practical for the IEC to review the details of the proposed mitigations in the field. IEC will review the proposed actions and the Project's implementation of this planning in the field during upcoming missions.

2.3.2 CCIC - Observations

As noted above, CCIC has four work camps located along the pipeline route, Mughan (KP 20 - discontinued), Kurdamir (KP 130), Yevlakh (KP 240), and Tovuz (KP 380). At the time of the visit, only the Kurdamir Camp was visited. The population of this camp is smaller than encountered in October 2004 (~100 occupants, whereas about 160 lived in the camp in October). Issues previously identified with respect to potable water are now considered closed as CCIC maintains a good electronic database such that water quality can be readily confirmed. Issues with disruptions to irrigation channels, access roads and road crossings, reported in BTC monthly reports, are now basically associated with the SCP. The construction of pollution prevention infrastructure at Kurdamir Camp is now complete and the effort expended to improve these systems must be recognized. In particular, the improvements to the

radioactive source storage area and the placing of a roof over the waste segregation area at the Central Waste Accumulation Area (CWAA) have reduced the potential for pollution and increased safety.

One area where improvement still needs to be made is with respect to noise pollution. The generators at Kurdamir and Tovuz Camps routinely produce noise levels that slightly exceed ESAP nighttime standards. It is understood that neighbors have not complained; however noise abatement has not been a high priority for the E&S teams (*Level II Non-Compliance, CCP Pollution Prevention Plan, Commitment ID: 1101, 1102, 1103*).

2.3.3 SPJV - Observations

During the visit, the construction site at PSA2 was visited. Construction is nearly complete and the overall impression is that housekeeping is good and that the working environment is safe. During the October 2004 IEC mission, a serious problem assigned a Level III non-compliance was encountered with respect to the quality of potable water being provided to the workers at PSA2, which proved to be a more systemic problem throughout the SPJV organization. This situation has been corrected and SPJV was able to provide documentation regarding the improvements of water quality throughout their entire organization. The Level III is considered rescinded.

2.3.4 Recommendations

1. Implement the findings of the CMT evaluation of third-party suppliers. In particular, work with the owners to improve deficiencies as appropriate. For example, verify that the identified concrete batch plant operators operate with appropriate controls to their wash waters and operate within Project health and safety standards. Where borrow pits have been identified as meriting reinstatement, make sure appropriate plans are in place and that they are implemented.
2. Specifically at the third-party concrete batch plant near PSA2 do the following at a minimum: line the concrete washings pit; provide containment for on-site chemicals; provide spill kits; train staff in pollution prevention measures; improve the safety environment (see recommendations in Section 2.10.2).

2.4 WASTE MANAGEMENT

2.4.1 Non-Hazardous and Hazardous Waste – Observations

CCIC has contracted AMSCO for waste management. Both hazardous and non-hazardous wastes from the entire Project in Azerbaijan are collected by AMSCO and brought to Kurdamir Camp Central Waste Accumulation Area (CWAA). AMSCO

also transports recyclable and some hazardous waste that could not be incinerated to their own waste management facility (Temirmash Waste Storage Area) located in Baku. Non-incinerable hazardous waste is currently stored at the CWAA or at the Temirmash facility until the newly constructed Sumqayit Hazardous Waste Landfill at the National Waste Management Site, designed to be compliant with EU regulations, constructed by the Azerbaijan Government using funding provided by the World Bank, and operated by a government owned company, can become available to the Project in Azerbaijan.

However, the ACG Project hired a specialized consultant to undertake an assessment of the National Waste Management Site, with a view to disposing of hazardous waste produced by the ACG Project. As indicated by the ACG consultant, the Hazardous Waste Landfill and the associated infrastructure have been built in accordance with the latest EU design standards utilizing the latest techniques and materials, but concerns have been raised in terms of operational experience and qualification of management and operating personnel. Therefore the consultant recommended that the site not be used by AZBU until it is ensured that site operations are properly conducted by a qualified staff.

At the time of the October 2004 mission, improvement had been identified with respect to the waste management program being implemented by BTC, CCIC and SPJV. Non-hazardous waste was no longer being disposed in a non-compliant municipal dump during incinerator downtime; improvements had been made to the tracking and labeling of different waste streams; recycling was being implemented where practical and improvements could be observed in terms of the operation of the incinerator at Kurdamir Camp. The main deficiency was encountered in terms of incinerator operation, in particular with respect for particulate emissions and a concern was raised with respect to the impact of the fallout of fine droplets from the incinerator stack on worker health.

The situation encountered in February 2005 is essentially similar to that encountered in October 2004. The trend to continue to improve operations was observed in terms of additional improvements in the process of waste segregation. This was evidenced at the waste segregation area for the incinerator at the Kurdamir CWAA, as only minor amounts of misclassified waste that needed to be separated out before incineration were observed. In addition, improvements were observed in the tracking and labeling of waste, especially hazardous waste. Scrubber liquor from the incinerator is now being properly treated and disposed. The covering of the waste segregation area with a roof at the CWAA has reduced the potential for generation of contaminated storm water, but has also reduced the moisture content of the waste being burned in the incinerator, thus improving combustion.

In spite of these improvements, the overall operation of the incinerator is still non-compliant and the continuous emissions monitor (CEM) still does not function properly. Where reliable data have been obtained, the problem of particulates is confirmed to represent a non-compliant condition and BTC has effectively concluded

that it will not be practical to achieve the ESAP standard for particulate emissions. Therefore, the non-compliance identified previously must still be assigned: *Level II Non-Compliance, CCP Waste Management Plan, Commitment ID: 244, 245, 246, 1051, 1110.*

It is understood that the ESAP standards based on EU compliance for incinerators substantially larger than Kurdamir may be questionable. During the October 2004 mission, this situation was recognized and it was anticipated that a Change Management process would be implemented. This MOC process has been initiated, but is not complete. As noted in the October 2004 mission report, if a Change Management process is followed, it will represent a change to an ESAP commitment and the technical justification for the change should be clearly defined in the supporting documentation, including a proper assessment of the expected short-term and long-term impacts on occupational health (the camp workers and the incinerator operators), public health and environmental receptors. This type of information is not available and an appropriate presentation is still expected.

The storage of hazardous waste is beginning to become an issue in the sense that storage areas are becoming crowded. BTC has indicated that the storage capacity at the Temirmash facility in Baku is approaching saturation point. To alleviate the storage burden at this facility additional storage capacity will either be built at the Temirmash Waste Storage Area or some hazardous waste streams will be transferred to the AZBU Serenja Hazardous Waste Management Facility for storage until the EU-compliant hazardous waste landfill or some other acceptable solution for final disposal is available. It is understood that the Project is considering the injection of waste oil into the Western Route Pipeline. This is an acceptable solution from an environmental point of view. Removal of the used oil currently being stored would also free up a significant amount of space in the Temirmash Waste Storage Area

The BTC/SPJV H&S departments have evaluated the issue of worker exposure from the incinerator droplets and concluded that there is no significant hazard, but the workers will be given respiratory protection and increased medical surveillance. This appears to be a reasonable conclusion from the risk analysis. Nevertheless, the IEC does not believe that the risk analysis was sufficiently comprehensive. Although the title of the risk assessment was *Incinerator Condensate Fall-out OH&S Risk Assessment* the actual exposure analysis was based on a dispersion model considering inhalation of the resulting ambient air. The result of the study, related to inhalation, shows that exposure levels are acceptable; however, the hazard identified in the field by IEC was not ambient air, but water droplets. Liquid droplets might have a composition similar to scrubber liquor, which has been tested to be a hazardous waste. This scenario has not been addressed yet.

Recently BTC announced that a sample of condensate was retrieved from the flue stack drain valve and this is being analyzed for the same range of parameters to determine if the condensate has the same chemical properties as the untreated scrubber effluent. Results are pending.

2.4.2 Non-Hazardous and Hazardous Waste - Recommendations

1. Workers operating the incinerator at Kurdamir should be provided with appropriate protection. At the time of the visit, some had respiratory protection while others did not. It is likely that the overall recommendation from the risk analysis, that the workers should have respiratory protection and medical surveillance, is sufficient, but the IEC recommends that the risk analysis be reviewed and that the dermal contact pathway also be considered.
2. The Project has not demonstrated ability to continuously monitor emissions. At this point in time the Project should consider alternate means to demonstrate the lack of environmental impact, which could be based on the scheduled stack emissions testing program and existing dispersion modeling results with ground-truthing through the addition of ambient air testing to the monitoring program.
3. If the Project continues with the MOC for a change to emissions standards, make sure that the rationale is fully documented and that the class change is carefully evaluated.

2.4.3 Wastewater Management - Observations

The CCIC Wastewater Treatment Plants (WWTPs) at Tovuz, Yevlakh and Kurdamir camps have probably reached as high a level of efficiency as they are likely to reach. BTC, CCIC, and SPJV have dedicated considerable effort and resources to improve the operation of the WWTPs across the Project. In spite of this effort, total coliforms, phosphorous and nitrogen are several times their allowable ESAP standards from most tests at all camps and there are occasionally some small excursions for Total Suspended Solids (TSS) at Yevlakh Camp. Discharges from the Kurdamir and Yevlakh WWTPs continue to go to non-compliant municipal sewers, a practice which should be terminated, although it is understood discharge consents dictate that wastewater be released to the municipal sewer. The overall situation is considered a Level I non-compliance (*Level I Non-Compliance, CCP Waste Management Plan, Commitment ID: 552 and 554*).

As noted in Section 2.2.3, ESAP standards were adopted from EU standards intended to be applied to urban wastewater treatment plants with a load demand greater than 2,000 population equivalents. BTC is drafting a MOC document that would more accurately reflect the application of the EU standards in member states for treated effluent discharge for units of a similar capacity. As already noted, the ESAP also refers World Bank/IFC guidelines, which are also specific including for coliforms. There may be arguments for eliminating a test parameter from World Bank/IFC guidelines, but the justification included in the MOC should be comprehensive and the arguments fully developed such that they can support an external review.

Hydrotesting is well advanced in Azerbaijan and has been conducted within the main BTC pipeline in the segment from Sangachal to KP 280.2 and at several river

crossings. Six out of 11 main pipe sections have been tested. Cleaning and gauging operations have been carried out at 32 out of 42 locations. As noted in the October 2004 IEC report, BTC has assumed that the clean and gauge hydrotest water was clean because no additives were used. The used water was discharged to land following filtration through straw bales to remove sedimentation and rust. According to the Plan (Hydrostatic Test Water Management Plan – Doc. N. BTC001-B110-EV-PLN-00009-E-C01) the water should have been tested for iron prior to extraction and subsequently tested for a list of parameters as provided in Table 5.6 of the Hydrostatic Test Water Management Plan. As this was not done, a Level II non-compliance was assigned in the October 2004 IEC mission report. The Project has responded by conducting soils testing for iron in the discharge areas and plans on continuing this testing. Test results to date do not show measurable impact to soil and show that it is reasonable to assume that the discharge water met the requirements of the Water Management Plan. In summary the management of the water was not compliant with the commitment, but the test results have shown that impact was not caused. The retrofit analysis was a contingency; for future operations the Project has committed to perform both analysis of the discharged water as well as analysis of the potentially impacted soil. Should contamination be found, the site will be reclaimed.

For the main hydrotest sections, a large lined pond for containment/evaporation has been constructed at KP 244 and a second pond is being constructed at KP 411 to make sure that there is no direct discharge of the main hydrotest water to the environment. Biocide and oxygen scavengers are being used for the main testing. Although most of the hydrotest water is passed from section to section with no discharge, some test water has been discharged to the evaporation ponds. One of these ponds at KP 244 was visited during this mission. Test results from this water indicate that the oxygen scavenger concentration reduces quickly and the biocide is undergoing a biodegradation consistent with product specifications. The evaporation ponds are fenced and community consultation has taken place regarding the risks, but there remains a concern that third parties can access the site. The Project is considering releasing this water if test results indicate the water is safe, subject to agreement from the Regulatory Authorities.

SPJV

Recent test results from the WWTP at PSA2 were not provided by SPJV. Based on past test results, it is anticipated that STP performance is no better than what is being achieved by CCIC. With no other information, the previous non-compliance has not been modified (*Level I Non-Compliance, CCP Waste Management Plan, Commitment ID: 553*).

2.4.4 Wastewater Management – Recommendations

1. The IEC recommends that hydrotest discharge standards defined by World Bank/IFC Guidelines be followed for the clean and gauge water. If verification exit testing is conducted to demonstrate that water discharge quality standards are being met, there will be no need to conduct follow-up soil testing. Should the Project decide to discharge hydrotest water from the evaporation ponds it will also be necessary verify that the biocide and oxygen scavenger levels are within accepted limits.
2. If an MOC process is followed to reduce effluent discharge standards, the rationale will need to be comprehensive and also account for World Bank/IFC standards. Ensure that the MOC documentation includes site-specific information that demonstrates a lack of significant environmental impact and that none of the locations are sensitive receptors. Where discharge may take place in agricultural areas, demonstrate that the discharges comply with EU standards for irrigation water.
3. Eliminate the practice to discharge to a municipal sewer system.

2.5 POLLUTION PREVENTION

2.5.1 Observations

At this stage of the BTC Project, pollution preventions systems are for the most part fully implemented. Kurdamir camp was visited during this trip; it is this camp that had the least effective systems during the February 2004 IEC mission. A tour of this camp therefore represents the progress BTC and CCIC have made in improving the pollution prevention infrastructure and procedures.

CCIC has been able to maintain the gravel surface across the site observed to have been placed prior to the October 2004 IEC mission. This has allowed for the maintenance of good housekeeping practices. OWS systems are now fully installed and functional. Containment systems around fuel storage areas, vehicle fueling areas, vehicle washing areas and waste handling areas have been constructed. Other improvements facilitating good pollution prevention include the construction of a roof for the waste accumulation/segregation area. The radioactive source storage area has now been repaired and a gravel access has been constructed to improve access.

As noted in Section 2.3.2, the one remaining pollution prevention issue at Kurdamir Camp is noise. Generator noise is exceeded during nighttime hours. This non-compliance is identified in Section 2.3.2.

2.6 ROW MANAGEMENT

2.6.1 Observations

The amount of open trench is effectively no longer a significant issue in Azerbaijan given that pipeline construction is nearly complete. Information current as of January 22 indicated that 1.7 km of trench was “open”. This amount of open trench represents, of course, compliance with Project standards and the amount of open trench will effectively disappear by the time this report is issued.

The 12-m BTC corridor has been final graded with the placement of topsoil over 436 km with biorestitution completed for 299 km. The actual effectiveness of the biorestitution procedures will need to be reviewed when vegetation begins to grow after winter is over. Although conditions were not ideal, where observed in the field, the ROW appears to have been well reinstated and it is expected that vegetation will grow. Where entire BTC/SCP ROW could be observed, the interim reinstatement appears to be well done. A concern identified by BTC, but not observed by the IEC, is damage to the reinstated portion of the BTC ROW by vehicular traffic, including Project vehicles.

During this visit, the microtunneling crossing of the Kura West crossing (KP 411) was visited and the environmental controls for mud management and erosion and sediment control appear to be well managed. At the Hasansu crossing (KP 398) – erosion protection measures are extensive, but the areas where excess spoil has been placed will be very vulnerable to erosion. This area will need to be monitored carefully and provisions taken to add or maintain erosion controls until vegetation is firmly established and the desired erosion class obtained. At the Karasu crossing (KP 320.5), fill has been placed above the level of the wetlands and will be also be susceptible to erosion. Wetlands are present at this area and care will need to be carefully monitored and the final restoration will need to reinstate original wetland conditions.

A recommendation from the October 2004 mission was that the CCIC environmental staff should be involved in the decision process to maintain access roads and should develop a tracking system that allows for the systematic monitoring of their status, maintenance and reinstatement, as needed. The recommendation was also made that this type of tracking should also be applied to borrow pits associated with pipeline construction. The IEC was provided with evidence that there is a good tracking of borrow pits and plans are now in place for their reinstatement as appropriate. BTC also reports that they have assumed greater responsibility for the tracking of access roads and their status is now recorded in the Project GIS system.

2.6.2 Recommendations

1. The Project will need to systematically identify those areas that have the greatest susceptibility to erosion such that Operations staff can dedicate sufficient resources to monitor and quickly respond to problems in these areas.

2.7 ECOLOGICAL MANAGEMENT

2.7.1 Observations

The ecological programs for the BTC pipeline project are complete from the standpoint of pre-construction clearance and this type of survey is now conducted for the SCP project. Data are compiled within the Project GIS system so that relevant data can be located at one location, consistent with an IEC recommendation. Monitoring of translocated species including *Iris Acutiloba* and spur-thighed tortoises (*Testudo graeca*) continues to take place at the Mardakan arboretum and at other locations away from the pipeline ROW. In November an NGO group invited by the Project visited the Mardakan arboretum and reached the conclusion that the survival rate of the *Iris* was poor. This group also indicated that the archaeological site at KP 438 would be a likely habitat of the spur-thighed tortoises, but none were identified in this area. The IEC was not provided with any information to verify whether the claims made were valid or not.

2.8 CULTURAL HERITAGE MANAGEMENT

2.8.1 Observations

Cultural heritage management is predominantly the responsibility of BTC. The governing procedures are defined in the ESAP, Appendix D as *Archaeological Late Finds Protocol*. Each Contractor has also developed *Cultural Heritage Protection Procedures* that define their obligations to report chance finds to BTC. Prior to construction, the ROW was surveyed and more than 150 potentially significant archaeological sites were identified, of which only four were found not practical to avoid. Excavations at all four of these sites are now complete (Phase III complete) and ongoing work is associated with chance finds (Phase IV).

Field archaeology is conducted by the Azerbaijan Institute of Archaeology (AIA) with supervision provided by international experts under contract to BTC. Work has included monitoring of topsoil stripping and excavation work, as well as excavation of the sites identified prior to construction and chance finds. CCIC has identified several chance finds consistent with their obligations and have stopped work on several occasions. An example of this was observed during the October 2004 mission at KP 241, where large ceramic containers buried more than 0.5 m below the ground surface were intersected by trenching activities. This location was observed during this mission to be the site of a planned excavation as part of the SCP project.

The field portion of the BTC archaeological program is essentially complete, except for a site near Kura West (KP 411) that will need to be completed within a tight timeframe. Most of the ongoing archaeological fieldwork is being conducted in association with the SCP project.

As noted in Section 2.2.1, staffing for the archaeological program has improved with the reassignment of a senior environmental monitor to manage the archaeological program. There are currently a total of five expat archaeologists including the archaeological manager. These individuals work with the archaeologists from the Azerbaijan Institute of Archaeology (AIA) during the field excavations and have also strived to work with the AIA for the aspects of the program related to interpretation, curation and reporting.

As noted in the October 2004 mission report, BTC contracted a peer review of the archaeological program by Oxford Archaeology in June 2004 and presented in a report to BTC dated October 8, 2004. This report documents the generally good performance of BTC in implementing the Cultural Heritage program. Suggestions for improvement relate mainly to defining consistent and sufficiently detailed protocols for excavation of each site and making sure that there is the appropriate follow-up in terms of interpreting, curating and reporting the finds. The Project Heritage Group is actively working to follow the recommendations outlined by Oxford Archaeology. Current activities associated with the BTC project are primarily in association with curation, capacity building with the AIA through a curation training program, and monitoring of Goranboy Museum construction, sponsored by BTC.

2.8.2 Recommendations

1. As noted in previous mission reports, BTC will need to take care, together with AIA, that the analysis and reporting are consistent with international standards. The efforts being made by BTC to enhance the capacity of AIA are appropriate measures being taken and need to be continued. This is a repeated recommendation and consistent with the main recommendations provided by Oxford Archaeology. These activities will carry over into Operations.
2. The highest priority for post-excavation activities should be to consolidate the archaeological record and systematize maintenance of the artifact collection and field records. Each site/excavation should have a demonstrable collection of records that can then form the basis for defining a plan for reporting. During the upcoming visits, the IEC plans to document the progress associated with curation, interpretation and reporting.

2.9 COMMUNITY LIAISON

Community Liaison Management and public relations processes are responsible for communicating BTC Project information to the general public and the community in

areas along the pipeline route, as well as receive and transmit community information to the BTC Project. The overall objective for the community liaison and community relations teams 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 work and the implications for these communities.
- Informing the BTC Project of any community related issues that may impact on construction.
- Monitoring implementation of mitigation measures and the impact of construction via direct monitoring and feedback.
- Managing disputes between the BTC Project and communities.
- Assisting with the implementation of community safety, health and investment programs.
- Recruiting workers from affected communities.

Community liaison is managed by a team of dedicated Community Liaison Officers (CLOs) who report to both BTC and the Contractors.

2.9.1 Observations

At the request of the Lender Group, the IEC was asked to visit the village of Girakh Kesaman, as the President of EBRD had received a letter of complaint from a citizen of this village. It was contended that 24 houses were significantly damaged from heavy project truck traffic along an access road passing through the town and that they are in risk of collapse. CCIC was reported by this villager to have provided only limited compensation for seven houses. The village is located along the Kura River between about KP 405 and 410 in the Agstafa region of Azerbaijan. The IEC visited the site on February 15. Villagers were not interviewed, but the houses along the access road reported to be affected were looked at in the context of their village setting and if there was any apparent structural damage to buildings near the main road.

Observations/information collected by IEC include:

- Complaints have been properly registered by the Project.
- The Director of the Architectural Department of the University of Baku has been appointed to assess the validity of the complaints.

- Three out of 26 cases have been considered by the Director as possibly caused by the movement of heavy machinery along the adjacent road.
- Seven families have been compensated by CCIC.
- The condition of the site is similar to other locations where houses are close to the road used by the Project.
- The houses do not seem to have specific characteristics that would make them different from the houses observed with similar conditions.
- Damages to house walls and fence walls were observed. The IEC did not investigate if they correspond to the families that have received compensation.
- IEC has observed similar conditions at other locations not affected by the Project activities.

Based on these field observations, IEC confirms that the procedure for the management of complaints has been applied by the Project's social staff. The IEC did not investigate the validity of the remaining complaints and/or the appropriateness of the delivered compensation. The basic conclusion is that the situation in Girakh Kesaman has been recognized by the Project and procedures have been in place to manage the complaints according to the ESAP.

2.10 HEALTH AND SAFETY

2.10.1 Observations

BTC

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

CCIC/SPJV

A major step forward towards reducing health risks was achieved at PSA-2 with the provision of high-quality potable water to the workers. The repairs to the radioactive source storage area at Kurdamir Camp also represent an improvement to worker

safety. A health issue still recommended for additional follow up is worker exposure to droplets from the incinerator stack at Kurdamir Camp, as discussed in Section 2.4.1.

2.10.2 Recommendation

1. Implement health and safety improvements at the third-party batch plant near PSA2. Specifically, PPE needs to be provided to site personnel; first aid kits need to be made available at site and first aid training provided; HSE training needs to be provided to site personnel.

2.11 ENVIRONMENTAL INVESTMENT PROGRAMME

During the mission, the IEC was briefly updated on the status of the Environmental Investment Programme (EIP) in Azerbaijan. No detailed review has been conducted on the seven priority themes identified in the ESAP and the EIP has been reviewed on the basis of information provided by BTC.

The program is broken into Phase I and Phase II projects. The Phase I projects have been the subject of discussions the Ministry of Ecology and Natural Resources (MENR) of Azerbaijan such that the overall effort can be achieved as a partnership achieve the EIP goals. Six Phase I projects have been selected as being technically compliant with the goals of the EIP Program (including alignment with international and national biodiversity conventions). These projects are listed below.

- NABU: Kura-Araz Lakes System - Conservation of Wetlands Biodiversity in Azerbaijan
- United Nations Development Programme (UNDP): Desert Conservation Demonstration Project
- Azerbaijan Society of Geographers: Desertification Prevention Project
- Azerbaijan Society of Zoologists: Conservation Management of Persian Gazelle Subgutturosa
- Azerbaijan Society for the Protection of Animals (AzSPA): Humane Environmental Education of Children and Youth
- ECOS - Biodiversity Conservation Awareness Raising Project

The Phase 1 program has been on hold, pending a more favorable climate for implementation and the results of the recently conducted independent review of the EIP Program. Despite some challenges, the Kura-Araz Lakes project has been refined in collaboration with an advisor to the MENR. The project area is a proposed RAMSAR site and a national priority for conservation. BTC therefore intends to

continue working closely with the advisor and implement this EIP project in the near future.

BTC has also been implementing Phase 2 (community driven small grants program), which does not require the same level of regulatory support, does not present a significant financial risk, but should result in real and measurable benefits to the environment and the potentially affected communities.

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 has begun construction and will transport gas from the Shah Deniz field to the Georgian/Turkish border. The BTC Project includes several permanent Above Ground Installations (AGIs) including two pump stations, PSG1 located at KP 3.8 and PSG2 located at KP 88 with associated temporary construction work camps (Jandara at PSG1 and Tetrtskaro at PSG2), as well as necessary block and check valves.

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

- Temporary construction camps (Marneuli at KP 53; Tsalka at KP 123; Akhaltsikhe at KP 228; all of which are occupied. Operations staff has started to arrive at these camps.
- Temporary pipe yards for pipe (Gatchiani; Marneuli; Tetrtskaro; Tsalka 2; Andeziti and Akhaltsikhe).

During this fourth mission the visit was conducted with only one field day between Marneuli Camp and KP 90, including PSG-2, due to snow conditions.

3.1 CONSTRUCTION STATUS

The BTC Project uses a single EPC Contractor, Spie-Capag Petrofac Joint Venture (SPJV), for both pipeline and AGI construction. Pipeline construction for a second spread is being conducted by Punj Lloyd Ltd (PL) as a subcontractor to SPJV. Spread 2 covers KP 196 to KP249. PL is scheduled to demobilize at the end of February 2005. Current (February 10, 2005) construction progress is as follows:

- *Facilities* – Pump Station PSG1 is reported to have an overall completion of 94%; PSG2 is reported to be at a 90% overall completion.
- *Pipeline* – Pipeline construction is nearly complete. Trenching is within approximately 2 km of completion, pipe in ground within 3 km and backfilling within approximately 8 km of completion. Interim reinstatement of the 12-m wide ROW corridor totals 162.3 km. Overall construction of the valve station program is 75.5%.

In the Borjomi Special Work Section from KP 176 to KP 196 pipeline construction is complete, including the trenchless crossings in the area of the Kodiana Pass.

All crossings are complete except where horizontal directional drilling (HDD) is being undertaken at the Mtkvari (Kura) East River crossing near Rustavi (KP 29) and where a dual lay BTC/SCP open trench crossing of the Mtkvari (Kura) West River crossing at KP 225 is taking place with progress reported at 65%.

3.2 ENVIRONMENTAL AND SOCIAL MANAGEMENT ORGANIZATION AND RESOURCES

3.2.1 Resources and Organization - Observations

BTC

In terms of the BTC Project, staffing has been complete for some time. Additional changes to staffing primarily reflect the requirements of the SCP project and the beginnings of the transition to Operations. BTC continues to assume many of the responsibilities for correcting non-compliant conditions and assuring environmental compliance for ongoing activities in support of SPJV.

SPJV

SPJV environmental staffing has essentially remained at the same level as observed during the past two missions and is still not adequate to undertake all of the required social and environmental activities required by the Project. Accordingly, the weaknesses in terms of staffing and resources continue to be covered by a closer working relationship with BTC, such that the field teams work as one team.

SPJV has demobilized the facilities Community Relations Manager and some of their CLOs from Facilities. Any gap in liaison at facilities is being filled by BTC facilities CLOs. The SPJV Pipeline Community Relations Manager has taken on management of facilities. BTC field social managers are providing day to day support in terms of management of SPJV CLOs.

3.2.2 Resources and Organization - Recommendations

2. Care will need to be taken to ensure a smooth transition to Operations. It is recommended that as many as practical Construction E&S staff be retained for Operations to ensure a continuity of performance.
3. BTC and SPJV will need to work closely together to assure that management of social issues is not adversely affected by construction demobilization.

3.2.3 Management of Change - Observations

With the BTC pipeline installation nearly complete, the Class I changes involving minor reroutes are associated with the SCP project. The MOC procedures associated with the BTC Project involve changes to ESAP commitments, as follows:

- AGT002-2004-PM-DCN-00046, Class II – relaxation of the Project standards for waste water discharge parameters, approved January 11, 2005.
- AGT002-2004-PM-DCN-00045, Class III, the Project seeks to stop the usage of the non-compliant incinerator and use the Iagljudja waste disposal site as the sole final disposal solution for Project generated non-hazardous, non-recyclable/re-useable waste (a significant component to the MOC is implementation of a Landfill Conditioning Plan – CP - for the Iagljudja municipal disposal site), approved by BTC on January 21, 2005, but considered pending as Class III changes require Lender approval.

With reference to the approved relaxation of Project standards for wastewater discharge parameters, the IEC considers that modifying a specific ESAP quantitative effluent standard should constitute a Class III change. According to the information made available to IEC at the time of the visit, BTC justifies the relaxation of effluent discharge standards on the basis that the ESAP applies EU standards that are not relevant to small communities of the size of construction camps and the permanent Project facilities. Although this may be the case, following the approval of the MOC, IEC notes that the Project has adopted standards that are even less stringent and detailed than applicable World Bank/IFC guidelines (specifically, the elimination of testing for coliforms). One of the justifications provided by the Project for eliminating selected parameters is stated as follows: “...Parameters that are not likely to occur in the sampled wastewater and have not been found to exist in the wastewater in three rounds of independent sampling, will not be monitored or reported against in future”. This is an inaccurate statement. The Project has consistently found coliforms in excess of pre-MOC ESAP standards that follow the coliform limits defined in the World Bank/IFC guidelines. The IEC believes that additional justification needs to be provided before less stringent effluent standards are adopted or test parameters are eliminated and also notes that the Project adopted, without justification and against the existing commitments, the relaxed standards in practice three months before the MOC documentation was complete. This constitutes a non-compliance that could constitute, during that period, a Level III non-compliance because it represents a deliberate disregard of ESAP standards. The recent issuance of the MOC interrupted this condition, but IEC believes that the supporting technical justification for this change is still insufficient and represents a non-compliant condition - *Level II Non-Compliance, CCP Waste Management Plan, Commitment ID: J16, J20 (S7)*.

The problem of waste disposal is also a breach of ESAP commitments; non-hazardous domestic waste (i.e. non-reusable-recyclable) is currently being disposed

at a non-compliant municipal dump site prior to the approval of the MOC and prior to a significant implementation of the Conditioning Plan proposed in the MOC document to mitigate this practice. This situation is further discussed in Section 3.4.

3.2.4 Management of Change – Recommendations

1. The general comment provided in the third mission report - *IEC recommends supporting the MOC process according to the ESAP principles and requirements in terms of supporting E&S documentation in the decision process* – is still valid. Specifically, BTC needs to provide substantiation for the relaxation of effluent discharge standards or adopt standards that can be readily defended as appropriate.
2. In cases where the Management of Change process represents a change to Project commitments defined in the ESAP or in the ESIA, such changes should be assigned as Class III with a requirement for Lender Group notification prior to the implementation of the change (repeated recommendation).

3.3 CONSTRUCTION CAMPS, INFRASTRUCTURE AND SERVICES

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

3.3.1 Observations

BTC

Since IEC's third mission in October 2004, BTC Core Management Team (CMT) has dedicated considerable resources to the identification of third-party sources of supplies, in particular aggregate and cement/concrete. On the basis of this survey, BTC has identified suppliers of concrete; borrow pits used as a source of construction aggregate; and third-party borrow pits used for trench backfill or for the disposal of excess spoil that merit Project intervention. The results of this survey were presented to the IEC in a tabulated form defining the location of third-party concrete batch plants and borrow pits with proposed mitigation measures. In the case of the borrow pits, those requiring reinstatement have now been identified and planning has started for their closure. The Level II assigned to third-party aggregate is considered rescinded, but the IEC will need to observe that the closure activities do take place according to plans.

The information provided indicates that the Project has developed procedures consistent with ESAP commitments as outlined in the third IEC mission report, although it must be recognized that the proposed actions relative to the batch plants

are late, as it is anticipated that the Project's requirements for concrete will be shortly coming to an end. During this mission it was not practical for the IEC to review the details of the proposed mitigations in the field. IEC will review the proposed actions and the Project's implementation of this planning in the field during upcoming missions.

SPJV

The IEC did not have the opportunity to extensively review construction camps and infrastructure during this visit. Nevertheless the IEC was provided documentation to indicate that a number of situations previously identified as non-compliant have been corrected.

- *Water supplies:* Available test data indicate that potable water meeting WHO standards is being supplied to the camps. Test records provided for all of the camps indicate that water quality meets WHO standards, except for occasional small excursions of sulfate, nitrate and residual chlorine that are not considered to represent a significant health risk, considering that bottled water is used in kitchens and is the primary source of drinking water.
- *Project footprint:* The Project footprint is essentially complete in terms of land take and the issue remaining is reinstatement. In the case of new borrow pits, quarries, or rock/spoil disposal sites the expectation is that reinstatement will be completed by the Project. In cooperation with the CMT, closure plans are being prepared. As noted above, IEC will review the proposed actions and the Project's implementation of this planning in the field during upcoming missions. At the time of the third IEC mission in October, unauthorized disposal of spoil from PSG2 in a borrow pit was taking place at approximately KP 90. The use of this location for the disposal of spoil has been subsequently reevaluated by BTC and the conclusion reached that its use is acceptable because it allows for the reclamation of land that was previously affected by quarrying, but where reinstatement did not take place. The IEC visited this location and concurs that its use should be acceptable, as long as the areas where spoil is being deposited is fully reinstated with the placement of topsoil consistent with the ESAP. The IEC has been informed that the pile of waste rock from PSG2 will be reinstated in place, but the reinstatement details have not been finalized.
- *Third-Party Concrete:* Both PSG1 and PSG2 have required the acquisition of large quantities of concrete. As noted above, batch plants where the Project has represented a significant percentage of their production have been identified and improvements to their operations along ESAP standards are being developed. It is understood that the Project is beginning to implement the plans to intervene with batch plant operations in that workers are now being provided with PPE and being given training. It was not practical to visit third-party batch plants during this mission. During the next mission, the IEC will request that batch plants be visited to verify that the Project has initiated appropriate improvements.

- *Third-Party Aggregate:* Both PSG1 and PSG2 have required the acquisition of large quantities of aggregate. The Project has identified the sources of aggregate and none were found to be extracted in an environmentally unacceptable manner. The Project has developed plans to remediate third-party aggregate sources when their use has ended and where appropriate, given considerations of ownership, licenses for extraction and future viability of the extraction. Accordingly, the previous non-compliance is considered closed. The IEC will verify that appropriate actions have been taken during upcoming missions.
- *General Camp Management:* The problems associated with housekeeping, and pollution prevention, previously found to be problems at the PSG2 construction site, have not improved and at this point represent a failure of the E&S management system. This was apparent during the visit of the yard of the subcontractor Geotek, which represents a failure of SPJV to control this subcontractor and BTC for not providing the necessary management. This situation does not represent a major adverse environmental impact, but is an important non-compliance because it represents a repeat situation (*Level II Non-Compliance, CCP Pollution Prevention Plan, Commitment ID: H42*). PSG2 Camp was visited and found to be in general compliance with ESAP requirements. Construction of the improvements to the pollution prevention infrastructure at PSG2 Camp was observed to be complete.

3.3.2 Recommendations

1. Implement the findings of the evaluation of third-party suppliers. In particular, work with the owners to improve deficiencies as appropriate. For example, verify that the identified concrete batch plant operators operate with appropriate controls to their wash waters and operate within acceptable health and safety standards. Where borrow pits have been identified as meriting reinstatement, make sure appropriate plans are in place and that they are implemented.
2. Finalize and implement a reinstatement plan to manage the large amount of waste rock and soil accumulating at PSG2.
3. Resolve the housekeeping problems and associated pollution prevention issues at PSG2 construction site.

3.4 WASTE MANAGEMENT

3.4.1 Non-Hazardous and Hazardous Waste – Observations

The processes of waste segregation, handling, recycling and temporary storage are being well managed in Georgia and IEC acknowledges the high standards observed during the visit to Project sites. A different situation is encountered for the final disposal of non-hazardous domestic waste (i.e. non-reusable/recyclable) and

hazardous waste, which has proven to be problematic for BTC and SPJV. The Project is evaluating the possibility to export hazardous waste to an EU compliant facility. The plan to construct a hazardous landfill is being re-evaluated, in view of the small quantities of hazardous waste anticipated (BTC is seeking to recycle used oil, which is a major source of hazardous waste, by re-injecting it into the western route or BTC line). In the mean time, the incinerator located in the Central Waste Accumulation Area (CWAA) at PSG1, is still unable to comply with EU standards. Therefore, the project continues to dispose of non-hazardous domestic waste at the Iagljudja municipal dump site. The conditioning of this facility and the future construction of a new EU-compliant municipal landfill in Georgia are proposed as an offset for this activity. The proposed plans need to be understood in the context of how the waste management situation has evolved in Georgia.

For hazardous waste, the original basic plan defined in the Waste Management CCP was to follow three possible solutions: “*..Transfer to a third party for re-use or Incineration in accordance with the Directive 1994/67/EC on hazardous waste incinerators or Burial in a landfill designed and operated according to Landfill Directive (1999/31/EEC).*” The actual process has evolved over the four IEC missions (from previous IEC reports) as follows:

February - March 04: A solution for the disposal of hazardous waste is “*...still under consideration by SPJV and BTC, including the development of a new BP hazardous waste facility at Sagarejo, compliant with EU standards.*”

July 04: “*...disposal options are still under consideration by SPJV and BTC, including the development of a new BP hazardous waste facility at Sagarejo, to be compliant with EU standards.*”

October 04: “*...Hazardous waste is being stored at PSG1 CWAA until BP finalizes the construction of a hazardous waste landfill. During the mission the IEC was briefed by a representative of AZBU, who is responsible for the development of this facility. A site has been selected at Sagarejo, Georgia and the ESIA for this facility is complete for submission and public consultation. BP will select the preferred third party and fund the construction. The facility will be operated by a third party.*”

February 05: “*... BTC is also exploring the possibility to export the hazardous waste to an EU compliant landfill*” An alternative solution for the disposal of spent oil is to inject it into the Western Route and/or BTC Pipeline. Although this activity has not started, it is understood that the concept has been accepted by the Western Route management and is currently undergoing a change management.

It is recognized that SPJV is appropriately storing hazardous waste and that there is no imminent risk of a public hazard from this activity and there is no non-compliance to report. Nevertheless, it should be recognized that the international shipping of

hazardous waste is a complicated process involving inter-government agreements under the Basel Convention.

There appears to be a disconnect between the two positions presented by AZBU to the IEC during the two parallel monitoring visits. This is a situation that will continue to be monitored by the IEC.

With respect to non-hazardous domestic waste, the situation is more problematic because it is not practical to store putrescible waste for long periods of time. The basic options for non-hazardous waste disposal as identified in the Waste Management CCP were as follows: *“Transfer to a third party for recycling or re-use or A special case of this is to spread it on land for agricultural purposes. The waste, the land, and the spreading operation will be in accordance with EC Directive 1986/278/EEC or Incineration in accordance with the Directive 89/369/EEC on municipal wastes or Burial in a landfill designed and operated according Landfill Directive (1999/31/EEC).”* The actual process (from previous IEC reports) has evolved over the four IEC missions as follows:

February-March 04: *“Incineration of non-hazardous waste is taking place at the CWAA at PSG1, but is not working effectively”.*

July 04: *“Ineffective incineration is continuing at CWAA at PSG1, but is being supplemented by incineration at the third-party Sarini Facility (non-compliant and without MOE permit)”.*

October 04: *“Ineffective incineration is continuing at CWAA at PSG1. The Sarini Facility has been abandoned and the interim solution is to dispose of the non-hazardous waste at the Iagljudja municipal dump”* (conditioning plan for Iagljudja site offered as offset).

February 05: The concept of incineration at CWAA at PSG1 has been abandoned and disposal is continuing at the Iagljudja municipal dump. The MOC document for this Class III change from the Waste Management Plan approved January 20, 2005 outlines that although several attempts have been made, this incinerator unit, since its arrival in Georgia in October 2003, is still unable to comply with the EU standards and that the best solution is to dispose of the non-hazardous waste at the Iagljudja municipal site with a conditioning program. The Conditioning Plan for the Iagljudja municipal site is considered to be final for review and some limited field activities have started. Subsequent to the MOC for conditioning the Iagljudja facility, the BP made the decision to initiate the process for the construction of a new municipal EU-compliant landfill in Georgia. The details of this new construction have yet to be defined, but it will certainly not be complete until the BTC Project is complete.

The IEC recommends BP for taking the initiative to construct a municipal EU-compliant landfill in Georgia. This new facility would be a significant benefit to Georgia, but, in any case, will not solve the immediate problems of non-hazardous domestic waste disposal for the construction phase of the BTC Project.

With respect to BTC, the Project is disposing some non-hazardous waste (the remaining portion which cannot be recycled) in a manner which was defined as not acceptable in the ESAP (among the others: no leachate control, no vector control, open burning, limited or absent access control) and this has intentionally re-occurred since several months. IEC believes that, although this situation represents a breach of the commitments, there are probably no significant impacts to any receptors in the area; however this situation represents a Level III Non-Compliance (CCP Waste Management Plan, Commitment ID: J1, J16, J18 (N15)).

The IEC has reviewed in detail the proposed Conditioning Plan. The latest revision of the Plan reviewed by IEC incorporates recommendations from the October 2004 mission and it is anticipated that this Plan, when fully implemented, should be, according to IEC opinion, sufficient to offset the current unacceptable non-hazardous domestic waste disposal practice. The implementation of the Conditioning Plan will also help improve the waste management infrastructure of Georgia, but until it is implemented the Level III non-compliance cannot be rescinded, even if IEC understands the difficulties that the Project is currently experiencing in developing appropriate solutions with competent Authorities. In addition the abandonment of the incinerator means that the previous Level II for poor incinerator operations can be rescinded because it is no longer applicable, but it does not help in mitigating the non-compliant situation for inadequate non-hazardous domestic waste management (the portion which cannot be re-used or recycled).

3.4.2 Non-Hazardous and Hazardous Waste - Recommendations

1. Implement as soon as possible the full Conditioning Plan for the Iagljuga municipal facility that is used and will continue to be used by BTC. The possible EU-compliant municipal landfill will not be ready for the BTC project, but would represent an important benefit for Georgia.

3.4.3 Wastewater Management - Observations

The issue of the operation of WWTPs is discussed in terms of the MOC process in Section 3.2.3. In general, the Project appears to have developed and operated the WWTPs at all of the camps within the limits that can be reasonably expected for the types of treatment units being used. In spite of this effort, the WWTPs are not in full compliance with all the parameters given in the Project Waste Management CCP and will probably never be in compliance, in particular for coliforms. As discussed in Section 3.2.3, the Project has modified the specific quantitative ESAP standards and now the WWTPs are in this respect in compliance with the new relaxed standards; it

is IEC's position that additional justification needs to be provided before the original ESAP standards can be modified to the degree that they have been modified. It is understood that additional justification will be provided and it is expected that this documentation will also present site-specific information to demonstrate that the effluent discharges are not producing significant adverse environmental impact. The Level I non-compliance assigned in October 2004 can be considered to be replaced by the Level II assigned in Section 3.2.3. This Level II non-compliance was assigned in Section 3.2.3 because the issue is primarily one of procedural justification, rather than actual WWTP operation.

3.4.4 Wastewater Management – Recommendations

1. Consider additional control systems for the control of coliforms (repeated recommendation).
2. Ensure that the MOC documentation includes site-specific information that demonstrates a lack of significant environmental impact and that none of the locations are sensitive receptors. Where discharge may take place in agricultural areas, demonstrate that the discharges comply with EU standards for irrigation water.

3.5 POLLUTION PREVENTION

3.5.1 Observations

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

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

BTC is still waiting for Governmental review and approval of (1) BTC proposed secondary containment systems aimed at surface water protection in the Borjomi zone; (2) surface and ground water monitoring programme; and (3) Operations phase environmental management and monitoring plans. SPJV abandoned plans for hydrotesting in December due to inclement weather and a lack of completion of critical components. Preparations for hydrotesting are essentially complete. A training program for the environmental monitoring of the hydrotest activities has

been completed. The Hydrotest Management Plan is complete and reviewed by IEC with comments sent to BTC. The IEC has received responses to our comments from BTC. The IEC expects to review the field implementation of the Plan after hydrotesting starts during upcoming missions.

SPJV

It was not practical to visit most of the SPJV facilities as this mission included only one field day, because of adverse weather conditions. As discussed in Section 3.3.1, the pollution control systems at PSG2 Camp were found to be appropriately installed and operated. Conversely, the PSG2 construction yard still has the same problems previously identified with the subcontractor Geotek in the October 2004 mission and a Level II non-compliance was assigned in Section 3.3.1 for this situation.

3.5.2 Recommendations

1. Complete the program of upgrading pollution prevention systems, with particular attention to PSG2 (repeated recommendation)

3.6 ROW MANAGEMENT

3.6.1 Observations

The amount of open trench is effectively no longer a significant issue in Georgia given that pipeline construction is nearly complete. Information current as of January 22 indicated that 11.0 km of trench was “open” (6.4 km in Spread 1 and 4.6 km in Spread 2). These numbers represent compliance with Project standards and the amount of open trench will effectively disappear in the near future. It is understood that there is a company in the field dedicated to the installation and maintenance of protective fencing. Where observed in the field, fencing was generally present except in a few places and a few examples were observed where maintenance of the fencing was needed. Nevertheless, the overall level of effort dedicated to the safety of communities near the open trenches appears to be appropriate. The previously issued Level II non-compliance is closed.

During this mission it was not practical to observe ROW reinstatement and it is expected that the overall success of the reinstatement can be evaluated during the next missions when vegetation will have had a chance to grow and much of the SCP construction is complete. Information was provided to the IEC to indicate that topsoil management is compliant with ESAP commitments. At the time of the October 2004 IEC mission, BTC had received a draft report that recommended improvements to the management of topsoil piles along the ROW. It is understood that the detailed recommendations in this report have been followed and the Level I non-compliance identified during the October 2004 mission with respect to the height of topsoil piles has been addressed pending verification during the next mission.

SPJV has completed the preparation of the Biorestitution Specification Plan and the Biorestitution Method Statement after negotiations with BTC. These documents were submitted to MoE in December 2004, but a response has not been received. During the October 2004 mission, the IEC requested that the number of tree species in the SPJV nurseries be reviewed in the context of whether they are sufficiently representative of the native species that they intend to merge with. A response to this request is still pending.

At the time of the October 2004 mission, SPJV had prepared a draft Method Statement – Spoil and Rock Disposal to define procedures to resolve the problem of the removal of excess rock blasted from both the BTC and SCP trenches. This document was not sufficient and ready to be implemented as it provided only conceptual solutions. Since that time BTC and SPJV have dedicated considerable resources to identify environmentally-sound solutions for rock disposal. The final disposal plan is still not finalized, but the strategy and most of the details are defined. Emphasis has been placed on providing rock to a third-party rock crusher and buying the crushed rock back, as well as identifying old borrow pits where their filling and reclamation would represent a net environmental benefit. Boulders are also used to separate roadways from the pipeline ROW, which is also a good application of the excess rock. The overall result is that the Project has a sound approach for the management of excess rock, notwithstanding that SPJV demobilized one of their rock crushers. Where observed along the ROW between Marneuli Camp and KP 90, much of the excess rock has already been removed.

One of the borrow pits being used for rock disposal is at KP 90 where SPJV had previously disposed of rock without an appropriate permit and authorization from BTC, resulting in a repeated CAR. As noted in Section 3.3.1, this area has been reevaluated and considered appropriate for the disposal of rock spoil because the site is occupied by abandoned quarry pits, whose filling would represent an improvement to existing condition. The IEC visited this location and concurs that the site appears to be appropriate for rock disposal and the only cautionary note is that the location will need to be reinstated with topsoil and vegetation to be consistent with the commitments defined in the ESAP.

Overall, the IEC recognizes that considerable effort has been taken to resolve the issue of excess spoil along the ROW and that the problem is being well managed.

3.6.2 Recommendations

1. Care should be taken to appropriately reinstate the sites for rock disposal. Where excess rock is going to be disposed in borrow pits, the end result needs to be a full reinstatement of the land, including the placement of topsoil and vegetation to be compliant with ESAP commitments.
2. The number of tree species in the SPJV nurseries should be reviewed in the context of whether they are sufficiently representative of the native species they

intend to merge with. This should be a component of finalizing the Biorestitution Specifications Plan (repeated recommendation).

3.7 BORJOMI AREA

3.7.1 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 Project has committed to strictly following best practices with multiple lines of protection and redundancy in design and operations to achieve as close to “zero risk” of an oil spill or leak as practical. The IEC noted in the October 2004 mission report the field implementation of physical pipeline protection measures, which are extraordinary when compared to conventional pipeline construction. During this visit, the IEC was informed that consideration was being made to use large storage tanks for containment of the contents of pipeline segments should the pipeline be breached. Although the concept of “zero risk” appears desirable, the consequences of such construction would need to be specifically assessed, taking into account potential benefits as well as likely additional environmental (e.g. landscape impact), safety (additional potential leakage sources) as well as security (new targets) criticalities.

The Borjomi area was not visited during this mission, but it is understood that pipeline installation in this area is complete. The BTC pipeline route has been partially reinstated except for the stretch between KP 193 and KP 196. Remaining work for the BTC pipeline is associated only with the installation of the cathodic protection system and hydrotesting. Evidence was provided with photographs and also with what could be observed during the October 2004 mission that winterization procedures were undertaken in an appropriate manner. The success of the winterization process will be evaluated during the next IEC mission.

The program of surface and groundwater monitoring for the Borjomi area is currently under discussion with the MoE. It is understood that the IEC will be provided a copy of this plan as soon as it is finalized.

3.8 ECOLOGICAL MANAGEMENT

3.8.1 Observations

The ecological programs, specifically the Biodiversity Monitoring Programme and Rare Floral Species Programme, being implemented by the Project have been reviewed on the basis of information and reports provided by BTC. At the time of the mission comprehensive annual reports were available for both the flora and fauna components. Pre-and post-construction ecological surveys continue to be completed in accordance with the Project requirements.

As part of the Biodiversity Monitoring Programme, 150 monitoring plots have been established along the RoW to collect comprehensive information for floral monitoring. . Out of a total of 150 monitoring plots, 135 were established to assess floristic composition and structure of different vegetation units (e.g. forest, meadow, scrub, wetland) and 15 were established to monitor populations of high conservation value species i.e. 6 species of floral interest.. One of the species of Orchid (*Orchis coriophora*) was not found in the area adjacent to the ROW on the Bedeni plateau, which led to its exclusion from the list of species to be monitored. All plots were visited twice during the flowering period and fructification phase and no signs of impact related to pipeline construction were observed within the plots. Some of the species, however, were damaged by a fox or rodent and sheep apparently ate some individual plants.

The activities of the faunal component of the Biodiversity Monitoring Programme are identified in the October 2004 mission report. Within the activities associated with faunal monitoring the Annual Report for the Biodiversity Monitoring – Faunal Component, prepared by Dzelkva, Ltd., October 2004 states that pipeline construction did not substantially affect population number for majority of the target populations. Nevertheless, follow-up monitoring was recommended by the Project ecological consultants to confirm this conclusion.

The same Annual Report highlights that one adverse effect of pipeline construction has been the destruction of an important breeding habitat of Syrian spadefoot toad, the loss of several small breeding sites of the Caucasian mud-diver, some (probably reversible) decline in a size of a habitat of aquatic turtles, probably temporary displacement of Caucasian Black Grouses within the habitat located near Mt. Kodiana, some decline of the density of Brandt's hamster and forest bat species and displacement of one out of the four identified habitats of common otter.

As noted in the Annual Report prepared by Dzelkva, Ltd., destruction of the habitat of Syrian spadefoot toad will require artificial reconstruction of the breeding site. The same action will be needed for the breeding site of Caucasian mud-diver. With respect to the other indications of species decline, it is anticipated that recovery / recolonization will take place over a number of years after pipeline construction is completed. Consistent with the Biodiversity Monitoring Programme (April 2004),

the Project has committed that the situation will continue to be monitored to 2009. This subsequent monitoring is expected to identify which populations require artificial reconstruction of their habitats.

3.8.2 Recommendations

1. Now that the ecological surveys have identified some habitat loss due to pipeline construction, the Project will need to make sure that the ecologists have the resources to construct new habitats as appropriate and monitor the impacted species

3.9 CULTURAL HERITAGE MANAGEMENT

Cultural heritage management is predominantly the responsibility of BTC. The governing procedures are defined in the ESAP, Appendix D as *Archaeological Late Finds Protocol*. The definition of significance and actual excavation of sites is the responsibility of the Centre for Archaeological Studies (CAS), the Georgian government's cultural properties review and compliance agency, as specified in the *Georgian Law on Cultural Protection*. SPJV is responsible for reporting chance finds and stopping work until the BTC Cultural Heritage Field Team (CHFT) can evaluate the situation in association with CAS and provide appropriate guidance.

Cultural heritage was an important factor in defining the current ROW as part of the EIA process and numerous reroutes resulted from consideration of archaeology and historic monuments. The result of the Phase I studies identified about 45 potential archaeological sites within or near the pipeline ROW. Of these sites, 15 were identified as requiring more detailed Phase II investigations. Of these sites, eight were identified as being of high priority at locations where it was not practical to reroute the pipeline and Phase III excavations were undertaken. These investigations are now complete and Phase III reporting is complete. BTC has recently taken on additional staff to assist CAS in bringing field work, laboratory studies, and technical reporting more in line with the best practices and standards accepted by the international scientific community.

The delivery phase heritage database currently includes 270 entries, 10 more than identified in the October 2004 IEC mission. They are summarized as follows.

Category	Count
Significant sites/features requiring intensive salvage/data recovery excavations	42
Significant or potentially significant sites/features avoided via reroute/ROW reconfiguration/special construction techniques	8
Sites/features of limited significance that have been the subject of limited excavations and/or detailed documentation (includes seven features associated with CHPD Phase III work and 11 features associated with CAS Phase II and Phase III work)	38
Sites/features evaluated through expert consultation or construction monitoring as not significant or non-cultural	39
Sites identified and avoided during surveys primarily associated with access roads and borrow pits (safe distance)	89
Potentially significant sites/features immediately adjacent to project areas and viewed as at risk (some have been damaged by construction, specifically with respect to Access Road improvement)	42
Modern cemetery	1
Outstanding consultation	11
Total	270

In total, large-scale salvage excavations have been undertaken at fourteen settlement sites and ten cemeteries or clusters of burial mounds during the construction phase of the project. Sites range in date from the Neolithic Period to the Medieval Period.

Current activity has related to the management of late finds. The BTC CHFT conducts “look ahead” surveys and monitors clearing, soil stripping, grading, trenching and other construction activities. They are also responsible for writing daily and weekly reports, identifying non-compliances, updating databases and coordinating with CAS and BTC and SPJV management.

3.9.1 Observations

Over the past three months the Project has financed excavations at eight ROW/AGI locations. Most of these sites are on the SCP side of the ROW and in several cases are compensatory excavations due to damage caused when the BTC pipeline was installed. This damage has not been specifically identified to the IEC and the details will be reviewed during upcoming IEC missions. Currently within the BTC Project there is only one active excavation taking place at KP 249. At this location monitoring of the ROW resulted in the identification of ceramic and stone scatter. Current excavations have revealed deeply buried and stratified cultural layers

associated with Medieval period ceramics underlain by an Early Bronze Age human burial.

In addition to fieldwork, several special projects have been initiated that focus on capacity building for CAS as well as heritage team personnel. With respect to improving technical reporting to international standards, additional Management Summaries have been drafted by different Heads of Expedition and are under CHFT review. CAS has been provided with detailed technical report outlines to encourage interpretations following research themes that are site specific with the goal of improving the content of reports for dissemination to an international audience. The CHFT has also been working with CAS to develop interdisciplinary approaches in laboratory analyses, and have received positive response from CAS to the proposal of contracting a consultant to complete a baseline study for the CAS and Georgian State Museum curation facilities. A Scope of Work and Cost Proposal from one such consultant has been reviewed and returned with comments. BTC Cultural Heritage Field Officers are developing “Contextual Studies” based on their areas of expertise to develop regional temporal frameworks for archaeological sites in the vicinity of the BTC pipeline to be used for crosschecking CAS reports, as well as for publication. The CMT in Baku has developed two posters for public dissemination of archaeological works funded by the Project. Additional posters are planned by the CHFT.

One of the main findings, confirmed by the CHFT, is the improved relationship developed with CAS. The CHFT reports that CAS has been mobilizing in a timely fashion and they have made an effort to work within construction schedules/constraints. Recently the focus of the archaeological program has shifted to lab analyses and improved standardized report production. The capacity-building efforts undertaken by BTC have helped to foster this improved relationship. Nevertheless, the Project needs to make sure that disputes associated with compensation for damage to sites are promptly resolved with CAS.

CAS is not the only Georgian government agency with jurisdiction for cultural heritage. The other government agency is the Ministry of Culture, Department for Protection of Monuments in Georgia (Monuments Department). This regulatory body has recommended additional site protection measures including conservation and restoration work for properties and reroutes on portions of the ROW. A decision to move forward with the conservation of one Monuments Phase III sites, Tadzrizi Monastery, is still pending. This work would be monitored and administered by the CHFT but not funded by it, as this work would be more community/public relations than mitigation for adverse project impacts.

The CHFT continues to have the responsibility of assessing anthrax risk as part of the Protocol for Late Finds of Anthrax Contamination when bones are found during construction activities. Their training for this responsibility is insufficient.

Consistent with previous IEC recommendations, BTC contracted for a peer review of the cultural heritage program being conducted in Georgia by Oxford Archaeology. A preliminary summary of the audit dated February 8, 2005 was provided to the IEC. The results of this audit confirm the general good quality of the cultural heritage management program. It also points out that additional work is required to assure that interpretation, curation and reporting are consistent with international standards. In particular, BTC needs to work with the National Museum and the appropriate ministries to make sure that the Project artifacts are properly stored and curated in a museum. Recommendations are also provided for BTC to improve specific aspects of the capacity building effort with CAS.

3.9.2 Recommendations

1. As noted both previous mission reports, BTC will need to take care, together with CAS, that the analysis and reporting are consistent with international standards. The efforts being made by BTC to enhance the capacity of CAS are appropriate measures being taken and need to be continued. This is a repeat recommendation and consistent with the main recommendations provided by Oxford Archaeology.
2. If the CHFT is to have responsibility for evaluating possible anthrax sites, they will need to have appropriate training and PPE.
3. The Project needs to make sure that disputes associated with compensation for damage to sites are promptly resolved with CAS

3.10 COMMUNITY LIAISON

The Community Liaison Teams of BTC and the SPJV are responsible for communicating BTC Project information to the general public and, specifically, the community in areas along the pipeline route, as well as receive and transmit community information to 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 work and the implications for these communities.
- Informing the BTC Project of any community related issues that may impact on construction.
- Monitoring implementation of mitigation measures and the impact of construction via direct monitoring and feedback.
- Managing disputes between the BTC Project and communities.

- Assisting with the implementation of community safety, health and investment programs.
- Recruiting workers from affected communities.

The BTC social programs are managed by a Social Programs Manager supported by two field social coordinators, one for each Spread, who in turn are supported by seven CLOs. SPJV employs a Community Relations Manager, a Community Relations Coordinator, and a Sociologist who in turn are supported by six CLOs with several assistants. The Punj Lloyd (PL) E&S organization is integrated within SPJV for Spread 2.

3.10.1 Observations

The IEC had limited time to review the activities of the social teams in Georgia. Based on a review of documentation provided by the Project, the environment for community liaisons in Georgia continues to be difficult, although with the passage of most of the construction activities, the current difficulties are associated mainly with the SCP. Most construction related grievances continue to be related to disruption to irrigation channels and the maintenance of access roads. BTC is implementing a program of road repairs. As noted in Section 3.2.1, SPJV has demobilized the Community Relations Manager and a number of CLOs from facilities, which has added significant responsibilities to the SPJV Pipeline Community Relations Manager.

3.10.2 Recommendations

1. Social commitments will need to be smoothly managed and transitioned over to BTC as SPJV demobilizes social staff.

3.11 HEALTH AND SAFETY

3.11.1 Observations

BTC

There is an extensive effort made by BTC organization to properly manage the safety performance of the different parties involved during the Project development. A comprehensive Health and Safety (H&S) Management system is in place. As noted during our previous missions, the IEC believes that it is extremely important that Managers and Supervisors be recognized for efforts made to provide a safe working environment.

The most significant safety issue in Georgia has proved to be working in cold weather. During the winter months, working conditions can become difficult in the portions of the pipeline route at the higher elevations. In most cases the Project has

taken adequate measures for winterization, but inadequate infrastructure and a lack of experience with working in extreme cold did cause problems at the Akhaltsikhe Camp in Georgia. Once the problems were identified, BTC reacted quickly to provide a safe working environment and improve workers' training for cold weather work.

BTC has identified third party sources of concrete where the Project has identified the need to train batch plant operators and provide them with appropriate PPE. The IEC was informed that PPE and appropriate training are now being provided to these third-party workers.

3.11.2 Recommendations

1. Continue to verify that the workers associated with the third party aggregate and concrete used for the construction of the pump stations are properly trained and provided with PPE.
2. Continue to emphasize training and protection associated with working in cold weather.

3.12 ENVIRONMENTAL INVESTMENT PROGRAMME

During the mission, the IEC asked for a brief update on the status of the Environmental Investment Programme (EIP) in Georgia. No detailed review has been conducted on the priority themes identified in the ESAP. Similar to the ecological management plan being implemented by the Project, the EIP has been reviewed on the basis of information and reports provided by BTC.

Based on an information update provided by BTC, the following status can be reported:

No	EIP	Title of Project	Status of Project Implementation
1	Rare Faunal Species Conservation Management	Caucasian Black Grouse Research, Monitoring and Conservation Management in Georgia	On schedule - Implementation started in January 2004 - The Lead Implementing Organization is the Georgian Center for the Conservation of Wildlife (GCCW) partnering with the World Pheasant Association (WPA) and the University of Idaho (USA) and BirdLife International.
2	Rare Faunal Species Conservation Management	Brown Bear Conservation in Georgia	On schedule - Implementation started in June 2004 – with NACRES (Noah's Ark Centre for Recovery of Endangered Species as the Implementing Organization

No	EIP	Title of Project	Status of Project Implementation
3	Public Awareness and Environmental Education	Management of Small Grants for NGO Capacity Building along the BTC/SCP Pipeline Routes	On schedule – initiated in September 2004 with Save the Children as the Implementing Organization
4	Borjomi-Kharagauli National Park Support Zone	Enhancement of Environmental Education in Schools	Initiated in October 2004 with CARE as the Implementing Organization
5	Borjomi-Kharagauli National Park Support Zone	Environmentally Sound Livestock farming	Initiated in January 2005 with CARE as the Implementing Organization
6	Sustainable Forest Management Pilot Project	To be defined with the help of forestry consultant (INDUFOR, Finland) currently developing refined ToR/RFP	This project is to be implemented in conjunction with the relevant authorities of the Georgian government. INDUFOR developed a project framework proposal for internal review. The framework proposal is to be discussed with the relevant authorities of the Georgian government, since the intention is, if possible, to implement this project in correlation with other ongoing/planned forest related initiatives.
7	Ktsia-Tabatskuri Managed Reserve Management Planning		Progress has been stalled because the MoE has not responded to a Memorandum of Understanding. BTC has decided to pursue the RFP option in order to take this issue forward. Development of RFP is underway.

As noted in the above table, progress for two components (see Items 6 and 7) of the EIP has been minimal because of difficulties among the parties in reaching agreements to proceed.

An external review of implementation of the EIP is being undertaken. Conservation International (CI) has assisted in the identification of two independent consultants to complete the study. The preparatory stage has been completed with development of the methodology and document review. Consultations have been undertaken with international stakeholders. In-country consultations were undertaken during January 2005.

4 TURKEY

The BTC Project in Turkey encompasses 1,076 km of pipeline extending from the Georgia - Turkey border in the Posof District (Turkgozu border gate) to the marine terminal being constructed at Ceyhan on the Mediterranean Sea. From the Georgian border, the pipeline 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 recently completed (2001) East Anatolian Natural Gas Pipeline (NGPL) for about 30% of its length (approximately 330 km), between the cities of Erzurum and Sivas (Lot B).

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

Lot A: KP 0 – 278

Contractor: TEPE – Nacap JV (TPN) – contract terminated in January 2005 by BOTAS
Spreads: 3, plus one mini-spread
Block valves: 15
Major crossings: 3 rivers, 6 roads, 3 railways
Camps: 3, main at Kars at KP 115, 2 spread camps at Hanak (closed) and Koprukoy (closed).

Lot B: KP 278 – 744

Contractor: Gunsayil-Haustadt & Timmerman-Max Streicher-Alarko JV (STA)
Spreads: 3
Block valves: 24
Major crossings: 9 rivers, 13 roads, 3 railways
Camps: 1 main (Kova at KP 527 in Spread 1), 4 spread camps (Iliça – decommissioned - and Çardikaya in Spread 1; Koyunkaya and Sivritepe in Spread 2).

Lot C: KP 744 – 1076

Contractor: Punj Lloyd - Limak JV (PLL)
Spreads: 2 + 34" spread
Block valves: 13
Major crossings: 10 rivers, 6 roads, 1 railway
Camps: 1 main camp (Azizli at KP 1037), 3 spread camps at Andirin (closed), Yesilkent (closed), and Orensehir (decommissioned).

Pump Stations

Contractor: TEPE - now integrated with BOTAŞ team
Pump station PT1 at KP 21.3
Pigging station IPT2 at KP 108
Pump station PT2 at KP 278
Pump station PT3 at KP 442
Pump station PT4 at KP 744
Pigging station IPT1 at KP 944

The BTC pipeline terminates at the Ceyhan Marine Terminal (CMT), which includes 2.6 km long jetty and offshore loading facility, seven one-million barrel storage tanks, a central control building, housing compounds and administration, and a fiscal metering system (Contractor TEKFEN).

The February 2005 visit concentrated on reviewing progress in accessible areas of the Project in Turkey, notably Lot C, a limited portion of Lot B and Pump Stations IPT1 and PT2. Due to winter weather conditions, that restricted access to the ROW and also made for unsafe road travel, it was not possible to visit Lot A, the northern section of Lot C, and most of Lot B (particularly the high elevation areas). It was also not possible to visit Pump Stations PT3, PT4 and PT1. Consequently, the focus of the February 2005 visit was directed more towards interviews of Project personnel and the review of relevant documentation, rather than assessing first hand the progress of construction in the field.

A detailed itinerary of the February 2005 visit is provided in Appendix A.

4.1 CONSTRUCTION STATUS

Work continues on the construction of the pipeline and fixed facilities in preparation for line fill scheduled for July 2005. As of February 2005, the following information on construction status was provided to IEC by the Project.

Overall Project – 93%.

Facilities

Detailed information was provided on the progress of construction at PT2 and IPT1.

PT 2: Total – 68.8%. Access road and station excavation – 100%, lean concrete – 99.97%, structural concrete – 97.9%, underground piping – 66.7%, tank welding – 57.92%, installation of pipes – 14.4%, cabling – 1.8%.

IPT2: Total – 58.04%. Civil and Buildings – 70.8%, Mechanical – 43.0%, Electrical – 65.4%.

Terminal - 98% complete

Pipeline

Lot A: 278 km total - clearing and grading – 278 km, stringing – 277 km, welding – 275 km, trenching – 248 km, lowering – 231 km, backfilling – 217 km, reinstatement (Phase 2) – 25.8 km. Total open trench – 30 km.

Lot B: 465.3 km total - clearing and grading – 465.3 km, stringing – 465.3 km, welding – 465.1 km, trenching – 465.0 km, lowering – 465.0 km, backfilling – 455.25 km, reinstatement (Phase 2) – 80 km. Total open trench – 9.75 km.

Lot C: 333 km - clearing and grading – 333 km, stringing – 333 km, welding – 332 km (99%), trenching – 332.3 km, lowering – 332.3 km, backfilling – 332.1 km, reinstatement (Phase 2) – 328.6 km, hydrotesting 108.0 km. Total open trench – 0 km. The contractor is focusing on installation of Block Valves and only working in the 34” section. The 42” section has been shut down for the winter.

Total Phase 2 reinstatement and open trench in Turkey as of 15 February 2005 – 434.4 km and 23.75 km, respectively. The Project reports reinstatement as a phased activity, as follows:

- Phase 1: initial reinstatement (including sub-soil reinstatement, final grading to contour; temporary erosion control);
- Phase 2: intermediate reinstatement (including permanent erosion control and top soil spreading);
- Phase 3: final reinstatement (including biorestitution, e.g. planting and direct seeding).

4.2 ENVIRONMENTAL AND SOCIAL MANAGEMENT ORGANIZATION AND RESOURCES

4.2.1 Resources and Organization – Observations

In Turkey, a lump sum turnkey contract was signed between BTC and BOTAŞ who subsequently awarded to EPC contractors the construction work in each of the three Lots, the Pump Stations, and at Ceyhan Marine Terminal. BTC maintains an assurance role over both BOTAŞ and the EPC contractors.

Since the time of last visit in October 2004, there have been changes in the organization of the EPC contractors in both Lot A and B and for the Pump Stations.

BTC

There has been no change in the BTC License to Operate (LTO) organization since the time of the October 2004 visit. As noted since March 2004, the BTC assurance organization, through their programs of auditing, inspection and monitoring, continues to focus on formal compliance of documents and activities completed by BOTAŞ, supplemented by field monitoring of the commitments by the LTO Advisors.

The E&S advisor and reinstatement specialist in Lot C has not been replaced. BTC has informed the IEC that they are not intending to replace this position, but that experienced personnel will be brought in from other areas of the Project to provide E&S assurance, particularly on punch listing activities and acceptance of reinstatement works.

BOTAŞ

A new Environmental Manager has been appointed since the October 2004 visit. The Reinstatement Coordinator (and former Acting Environmental Manager) was still in place at the time of the visit. The Community Relations Manager has not changed.

BOTAŞ site teams are in place. Five Environmental Supervisors (one for each Lot, one for the Pump Stations and one for CMT) report to the BOTAŞ Site Managers. A Lead Environmental Monitor supports the Environmental Supervisors and an adequate number of field personnel is present in each Lot and fixed facility. Community Relation Supervisors are in place in each Lot. A Turkish consultant firm, CINAR, continues to provide third party monitoring and technical support in environmental management and ecological issues.

TEPE/BOTAŞ – Facilities

There has been an integration of TEPE and BOTAŞ personnel at the Pump Stations. There are 10 environmental personnel from TEPE (including the Environmental Manager), two at each of the five stations. The Environmental Manager is stationed at PT2. She reports to the Station Manager of PT2 and to the BOTAŞ Environmental Manager in Ankara.

There has been no significant change in the organization of Community Relations (CR) personnel at the Pump Stations. In addition to the Community Relations Manager, a Deputy Community Relations Manager is stationed at PT-2.

BOTAŞ has one Environmental/CR Monitor for PT1 and PT2 and one Environmental/CR Monitor for PT3, PT4 and IPT1.

IEC noted the continued cooperative and positive work relationship following the integration of TEPE and BOTAŞ Pump Station personnel.

BOTAŞ – Lot A

Due to winter weather conditions, Lot A was not visited during this mission and the IEC and Lot A Environmental personnel met at PT-2. No meeting was held with the Community Relations personnel.

There has been a significant change in the organization of Lot A. Following the termination of the TPN contract in January 2005, all staff are now BOTAŞ personnel. Some former TPN staff in key positions have been retained. There are now a total of 12 environmental staff, including an Environmental Manager. The former TPN environmental manager has been retained by BOTAŞ on a contract basis as a Reinstatement Expert. Despite the number of layoffs following integration, there has been no reported decrease in capacity of the environmental personnel. However, it is early to tell whether the new organization in Lot A will be successful.

CINAR remains in an advisory and consultative role on environmental related matters.

As reported by IEC in previous site visits, the mobilization of Emergency Response Teams remains an ongoing issue, as confirmed by Lot A environmental personnel.

It was also reported that there are four CR staff in Lot A. The former BOTAŞ Community Relations Manager resigned and was replaced by his deputy. The former TPN team was retained within the new organization.

The BTC LTO organization for Lot A is unchanged.

STA – Lot B

In October 2004, IEC reported that STA E&S (and H&S) organizations were integrated with BOTAŞ. This was considered significant in that the various management functions of environment, community relations, health and safety and reinstatement were combined between STA and BOTAŞ personnel, reporting through a STA H&S and Community Liaison coordinator and a STA Completion Works manager directly to the STA Project manager and BOTAŞ Site manager.

At the time of the February 2005 visit, this integration had dissolved. STA and BOTAŞ are again working independently of each other and this also applies to the Environment, CR and H&S Departments.

There has been a reduction in the number of environmental personnel, reported at 40 persons in October 2004. Both the STA Environmental Manager and his deputy have recently resigned, as well as the senior ecologist. STA currently has three

junior environmental staff (one engineer, one soil expert and one environmental expert).

The STA reinstatement specialist has also left the Project, and there is currently one STA reinstatement crew in Lot B. STA reported to IEC that four reinstatement crews and two additional river stabilization and riprap crews will be deployed by mid-March 2005.

The BOTAŞ Environmental Supervisor has also recently resigned. BOTAŞ reported that they now have one new Environmental Supervisor, three environmental monitors and two soil experts on site in Lot B. CINAR continues to supply three additional environmental staff (soil expert, ecologist and environmental specialist). The contractor FERNAS, which was involved in ROW activities, is no longer working in Lot B.

The BTC LTO organization for Lot B is unchanged.

There have been similar reductions in the capacity of the Community Relations team. CR personnel are now limited to four people (2 STA and 2 BOTAŞ).

STA management has committed to recruit additional E&S staff, including reinstatement specialists, by spring 2005. Specifically for CR team, there is a plan to increase the number of STA CLOs to 6 (from the current 2).

IEC notes a decrease in the environmental management and CR capacity of personnel in Lot B, as a result of ongoing managerial difficulties between STA and BOTAŞ. While it can be understood that a slowdown in work activities in the winter months can lead to some staff reductions, this in itself cannot explain the considerable loss of environmental and CR expertise and the apparent lack of management commitment to these functions by both the EPC Contractor and BOTAŞ. The ongoing failure to address delays in reinstatement and fulfilling outstanding compensation payments are an indication that the commitment to resolve ongoing environmental and social compliance issues in Lot B remains deficient. Lack of action to resolve these issues remains a major concern to IEC (*Level II Non-Compliance, Environmental Management Plan - Turkey, Commitment ID: APC1E34, APC1E36*).

PLL – Lot C

As of February 2005, seven PLL environmental personnel are present in Lot C. There is now one ecologist remaining, reduced from three present in October 2004. One environmental engineer and one archaeologist have left the Project.

With the exception of one archaeologist, BOTAŞ environmental personnel have not changed in Lot C.

Two PLL CLO's have left the project and only the CR Manager remains. There is no change in BOTAŞ CR personnel (two persons). It was reported that CR staff numbers should increase in the spring to deal with land exit and social closure issues.

There is no change in the BTC LTO organization for Lot C and the lack of a BTC E&S Advisor for Lot C persists.

4.2.2 Resources and Organization – Recommendations

1. The LTO organization for Lot B should be strengthened.
2. BTC should ensure that the lack of the BTC E&S Advisor (reinstatement specialist) for Lot C does not impact on efficiency of the assurance role, especially in terms of provisional acceptance of reinstatement and biorestation works.
3. EPC contractors and BOTAŞ must ensure that adequate staffing levels in all three Lots will be re-attained in time for mobilization in the spring months and to fulfill ESAP commitments, particularly in terms of reinstatement, ecological protection, community complaints management, social closure and land exit, health and safety protection.
4. Lot A environmental personnel should actively engage the Construction Department in the planning and execution of reinstatement works in time for the spring months.
5. The lack of BOTAŞ/EPC Contractor senior reinstatement, environmental expertise and CR personnel in Lot B should be immediately remedied.
6. BOTAŞ should also ensure that suitable reinstatement and biorestation resources are maintained in Lot C through to acceptance by BTC.
7. BOTAŞ and PLL should make sure that adequate CR personnel will be available in the spring months to deal with issues of social closure and land exit in Lot C.
8. BOTAŞ should ensure an adequate reinstatement expertise at the corporate level that will be required to effectively deal with reinstatement commitments of the NGPL and both the provisional and final acceptance of reinstatement and biorestation works.
9. Transition plans should be initiated as soon as practical by BTC in cooperation with BOTAŞ to ensure ongoing completion of ESAP commitments from construction through to operations.

4.2.3 Non-Conformance Records (NCR) Register

The latest NCR Register was provided by the Project during the February visit. The following is a summary of the total number of NCRs issued by BOTAŞ and BTC.

Facility	Total NCR		Open NCR	
	BOTAŞ	BTC	BOTAŞ	BTC
Lot A	74	6	18	0
Lot B	81	98	7	21
Lot C	40	12	2	0
PT1	14	4	1	0
PT2	28	NR	0	NR
PT3	17	NR	1	NR
PT4	25	16	0	0
IPT1	4	NR	0	NR
CMT	12	NR	0	NR

NR – No records taken – data supplied by BOTAŞ as of 10 February 2005

Lots A and B continue to have the highest number of open NCRs. A total of 18 NCRs are open (BOTAŞ to EPC Contractor) in Lot A and 21 NCRs (BTC to EPC Contractor) in Lot B. These numbers are considered to be significant, compared to previous visits, and should be carefully monitored by BTC.

4.3 CONSTRUCTION CAMPS, INFRASTRUCTURE AND SERVICES

The review of construction camps, infrastructure and services focuses on construction operations that potentially have an impact to surrounding infrastructure, natural resources, and community and household assets, including land, roads, and irrigation systems. In addition, the review of this topic includes camp potable water supplies and general aspects of camp management. Due to the winter season, field visits to the camps were limited during the February 2005 visit.

4.3.1 Construction Camps - Observations

Visits to the following facilities and construction camps in Turkey were made:

- IPT1 camp
- PT2 camp

The following observations have been made from the visits to these camps and from interviews with Lots:

- Lot C: The only camp operational is Azizli. Orensehir has been decommissioned and will be reinstated. Andirin and Yesilkent are currently shut down, but should reopen after winter;
- Lot B: Ilica camp has been reportedly decommissioned.
- Lot A: Hanak and Koprucuk Camps have been closed and, at the time of the visit, it was unclear if they will be reopened after winter; and,
- Camps visited at IPT1 and PT2 were found to be adequately managed. Housekeeping appears to be sufficient.

With respect to water supplies, potable water testing results were collected from all the camps. In Turkey potable water is required to be treated to comply with WHO Guidelines and Turkish Standard TS266 *Water Intended for Human Consumption*. As already discussed in the October 2004 visit report, despite some efforts of BOTAS at central level to adopt consistent procedures, it was again noted that water quality testing is still done inconsistently by the different Contractors and not always for the same parameters. The frequency of sampling was also found to be still inconsistent throughout the camps. Additionally, there are still no indications of sample protocols and laboratory analytical procedures and QA/QC procedures in the data provided. It is unclear if there is an adequate follow up on the concerns and the recommendations made by the consultant who developed a comprehensive assessment of potable water baseline quality before and after treatment in 2004. The inconsistency in testing procedures as reported previously since March 2004 appears to be a persisting data management issue, largely due to poor QA/QC control and limited procedures developed by the Project (*repeated Level II Non-Compliance, BOTAS Environmental and Social Management Plans, Commitment ID: CH9E3, CH4E41*). Concerns over lack of responsibility for potable water sampling and consideration of potential health risk are raised (see also Section 4.10.1).

4.3.2 Construction Camps - Recommendations

1. The issue of consistent potable water quality sampling procedures and reporting across the three Lots and pump stations in Turkey identified during the IEC visits in March, June-July and October 2004 remains to be resolved. BTC and BOTAŞ should urgently work with the EPC contractors to develop established and consistent lists of potable water parameters, sampling protocols, including sampling frequencies, analytical procedures and parameters to be measured. BTC should also ensure that the H&S teams carefully and timely evaluate potable water data and that adequate control is implemented to rule out any health risk for camp and worker communities. BTC should also assure that testing laboratories and procedures are adequate and that an independent third-party evaluation is conducted to assess if chemical and microbiological results are reliable.
2. The Project should ensure that decommissioning plans are put in place for the abandonment of all temporary facilities such as camps. Due diligence evaluations should be carried out to ensure that there are no outstanding environmental liabilities once reinstatement has been completed and the land turned back to the respective owner in pre-existing conditions. In case that pollution is found, is the Project is responsible for adequate clean-up.

4.3.3 Aggregate and Excess Material Management - Observations

Following the October 2004 visit, IEC acknowledges that the Project has made a concerted effort to effectively document and manage aggregate use while ensuring that adequate environmental and social assessments are completed prior to extraction. Aggregate registers (including quarries and borrow pits) are now in place in all three Lots, Pump Stations and the CMT. BTC is currently undertaking a survey of aggregate sources in Azerbaijan, Georgia and Turkey. Additionally, an allotment of US\$1 million has been reportedly allocated to the Environmental and Social Budget for aggregate restoration across the Project.

Lot A

IEC assigned a repeated Level II non-compliance in October 2004 over the significant number and unregulated use of borrow pits in Lot A. While it was not possible to confirm directly in the field during the February 2005 visit, IEC was informed by Lot A Environmental personnel that aggregate management has improved in Lot A. Daily meetings are reportedly held, involving the environmental management team to make sure requests for quarry use are regulated and conform to Project commitments. Lot A personnel reported that environmental and social assessments of quarries and borrow pits are now consistently performed prior to aggregate extraction.

IEC reviewed the Quarry and Borrow Pit register for Lot A. A total of 29 quarries and 17 borrow pits were noted in the register. In addition, Quarry Environmental

Audit checklists were reviewed and found to be adequate and complete in regard to permit information, description of quarry usage and site viability after the Project.

Lot A environmental personnel confirmed that the figure of 109 open borrow pits reported to IEC in July 2004 and October 2004 was erroneous. According to the Project, the Quarry register should now represent the true number of borrow pits used in Lot A.

The Quarry and Borrow Pit register, however, contains no specific information on reinstatement, nor are specific reinstatement plans available, although the Project has confirmed that the E&S Assessments commit to reinstatement in accordance with Project commitments and requirements.

IEC was also informed that excess rock is an emerging issue for Lot A. It was reported that there are over 60 km where excess rock requires disposal. An excess rock disposal strategy has yet to be developed. This issue needs to be properly addressed, since it may have implications on the extent of Project footprint. As the main contractor in Lot A, BOTAŞ is now responsible for adequate disposal of this excess rock in accordance to Project commitments. Page 53 of the CCP Waste Management Turkey states that *“Inert waste shall be re-used for project construction to the fullest extent practicable; for example, for erosion protection measures, road construction, site fill material. If necessary it shall be pre-treated; for example, excavated rock should be crushed and used as padding and back-fill”*. Furthermore, Commitment ID APC2E51 of the CCP Waste Management Turkey states that *“the creation of surplus excavated material shall be minimised as far as practicable, for example by use of rock-trenching machines. All material that is excavated shall be re-used to the maximum extent practicable. Contractor shall produce a waste minimisation statement justifying the extent to which surplus material will be minimised and reused”*.

Lot B

IEC examined the quarry register and noted that information on environmental and social assessment is included. This was also verified in two examples of documentation provided on quarry assessments. IEC, however, could find no evidence in the quarry register that reinstatement of these sites is to be undertaken. This will be verified during the next site visit.

No information is available on whether an excess rock strategy exists for Lot B, particularly for the karstic area. In light of the above comments, IEC also recommends that a rock minimization and disposal strategy and implementation plan also be developed for Lot B. This should also incorporate disposal of excess rock from the NGPL, where applicable to Project commitments.

Lot C

IEC reviewed the Quarry and Borrow pit register for Lot C and found it to be well prepared. It was noted that 19 of the 20 borrow pits used in Lot C were deemed to be non-viable according to Project standards, and therefore to be reinstated.

Based on the status of borrow pit reinstatement made available to IEC, 15 borrow pits are reportedly reinstated, two are reported as partially reinstated, one under reinstatement. According to Lot C staff, only three borrow pits remain to be reinstated in the Andirin section. IEC visited a closed borrow pit at KP 1003 and found it to be well reinstated.

Pump Stations

Each Pump Station has a borrow pit register which includes information on borrow/aggregate sources used by the Project. The Quarry registers were reviewed and found to be consistent with Project standards. As documented in the October 2004 report, TEPE/BOTAŞ has confirmed that it will reinstate all new borrow pits opened by the Project in accordance with Project commitments and requirements.

In October 2004, IEC recommended the Project to develop a reinstatement plan for inert material disposal sites at PT3, recognizing the sensitivity of ESA 19 and ensuring compliance with specific commitments made in both the Ecological Management and Reinstatement Plans for Turkey. IEC was informed that Plans and Method Statements are being developed by TEPE/BOTAŞ and that there is a commitment for reinstatement and landscaping of excess subsoil dump sites at PT3. A "Landscape Plan for Subsoil Storage Areas at PT3" was finalized by BOTAŞ, in collaboration with BTC, and indicates that reinstatement will be conducted in 2005. However, a Level II non-compliance is not rescinded, despite some progress is being made in terms of planning, until corrective action will be implemented in the field (*Level II non-compliance CCP Ecological Management, Commitment ID: S692; CH15E27*).

4.3.4 Recommendations

1. No information is included within the Quarry registers regarding reinstatement, nor were any reinstatement plans provided. It is a commitment of the project that *reinstatement of any quarries specific to the BTC Project will be carried out to the satisfaction of the respective landowners and local authorities (CCP Aggregates: Commitment ID CH4E120)*. The Project should develop reinstatement plans for all quarries and borrow pits opened by the Project. Quarry registers should include reference to reinstatement plans and progress.

2. The disposal of excess rock on the pipeline ROW is an emerging issue for Lots A and B. Excess rock disposal strategies need to be developed as soon as possible, incorporating lessons learned from Lot C and Georgia.
3. The reinstatement plans for the subsoil disposal sites at PT3 should be finalized as soon as possible for implementation in the summer of 2005. The Project should ensure that reinstatement of the disturbed area for excess subsoil disposal at PT3 will be done in accordance with Project commitments for ESAs and that adequate monitoring will be in place to document that any impact is adequately mitigated. The reinstatement plan should also be compliant with specific commitments made in both the Ecological Management and Reinstatement Plans for Turkey.

4.4 WASTE MANAGEMENT

4.4.1 Non-Hazardous and Hazardous Waste – Observations

Solid waste management practices across all Contractor operations in Turkey continue to be standardized across all Project facilities. Waste is routinely collected in Central Waste Accumulation Areas (CWAAs) and segregated into recyclable and non-recyclable components. Non-recyclable domestic and hazardous wastes are shipped to Izaydas treatment facilities.

Waste registers are standardized and adequately maintained, and manifest procedures for waste tracking are in place.

During the visit, a limited number of CWAAs was visited.

The CWAA at IPT1 was found to be clean and well managed. Waste was properly segregated, including medical waste. MSDS are available and workers have appropriate PPE. No evidences of spills were noted on the frozen ground surface. Both plastic and paper waste storage areas were completely full and awaiting removal from site. Removal had been delayed due to difficult access as a result of snow conditions.

Waste at the CWAA of PT2 was properly segregated and reasonably contained and stored. The area was well maintained. MSDS are available and workers have appropriate PPE. No evidences of spills were noted on the frozen ground surface.

Some concerns was raised by BTC and BOTAŞ staff pertaining to collection of waste on the ROW in Lot B and Lot A. However, Lot A environmental staff reported that waste collection has in fact improved. Construction crews are responsible for waste collection on the ROW and transfer to the CWAA.

Lot B was still experiencing some ongoing problems with waste management on the ROW, but actions were reportedly being taken. Waste management training meetings have been implemented.

4.4.2 Non-Hazardous and Hazardous Waste - Recommendations

1. BTC should ensure that waste collection on the ROW is consistently and adequately performed in Lot A and B.

4.4.3 Wastewater Management - Observations

Wastewater management continues to be an issue of concern for both BTC and BOTAS, although some improvements have been made towards compliance with Project discharge limits. Non-compliance problems continue and are exacerbated by cold weather conditions in the winter months.

At the time of the visit, the following observations were noted.

TEPE/BOTAS (Pump Stations)

The wastewater registers compiled by TEPE appear to be consistent, updated and well organized.

Sewage at IPT-1 is directed to a septic tank and trucked daily to Osmaniye wastewater treatment plant. An estimated volume of 20 m³/day is generated.

The WWTP at PT2 was reported to be compliant, but non-compliant values for pH, BOD, TSS, and residual chlorine were found in the relevant register for the month of January. Coliforms, and oil and grease were problematic in the past but these difficulties appear to have been rectified. Four RBC units are now operational (one added in August 2004) to cope with the increased number of people in camp that numbers 700 during daytime. The theoretical capacity of the WWTP is 1000 people equivalent, but effective capacity is estimated to be now 500 people equivalent. The location is adequately heated and temperature inside the facility is maintained near 10 °C.

Based on the registers provided for the other WWTPs in January 2005, it is noted that the PT1 WWTP presents fluctuations in the effluent quality, which are non-compliant, although not in all samples, for BOD, COD, TSS, and oil and grease. At PT3, effluents were reported to be non-compliant for BOD, residual chlorine, oil and grease, and total coliforms in some samples. At PT4, effluents were reported to be non-compliant for COD, TSS, residual chlorine, and oil and grease in some samples. A Level II Non-Compliance (*CCP Pollution Prevention, Commitment ID: CH7E13, APC4E39*) is raised due to the persisting inefficient and non-compliant conditions reported for all WWTPs at the Pump Stations.

Recognizing the need to ensure compliance of effluent discharge, a pilot test for a soil drip irrigation system with treated wastewater has started at PT1. Test results are still not available, but there is the intention to implement this system at other locations, if successful.

BOTAŞ - Lot A

Non-compliance with Project wastewater standards reportedly continues at Kars Camp. Coliform levels have been problematic and plans are to install an additional contact tank to increase chlorine contact time.

The WWTP at Hanak Camp has been decommissioned with the camp. It never was in compliance.

Wastewater data provided by the Project for Lot A is not current and does not contain any values on oil and grease. It is therefore not possible to fully evaluate performance of the WWTPs in Lot A. As noted in October 2004, the current situation remains to be a sustained Level II Non-Compliance (*CCP Pollution Prevention, Commitment ID: APC4E39*). Based on the ESAP, a repeated Level II non-compliance could be elevated to Level III, if an immediate action is not taken by the Project to bring the WWTPs into compliance.

STA - Lot B

The WWTP discharges at the four camps in Lot B (Kova, Koyunkaya, Cardikaya and Sivritepe) are in compliance with Project standards, although the parameters tested are still only four (BOD, SS, chlorine and total coliforms). Data continues to be unavailable for regulated parameters, including pH, COD, and oil and grease, although this issue was highlighted several times by the IEC. A Level II Non-Compliance (*CCP Pollution Prevention, Commitment ID: APC4E39*) is raised, because of the persistent failure to monitor compliance for regulated parameters.

PLL - Lot C

The only camp still operational in Lot C is Azizli. Previous problems of WWTP non-compliance appear to have been rectified and data provided for end of January 2005 shows that the WWTP is again operating in accordance to Project standards.

4.4.4 Wastewater Management – Recommendations

1. BTC should ensure that municipal wastewater treatment plants are compliant with Project standards. Disposal of inadequately treated wastewater to non-compliant municipal plants does not comply with Project commitments.

2. Disposal of non-compliant treated sewage continues to be a non-compliance problem in Lot A and Pump Stations. This appears to be a consistent and unresolved problem that continues since October 2004. The Project should implement immediate actions and place a stop order on all further discharge of non-compliant WWTPs, until compliance is achieved in line with Project standards.
3. There is an inconsistency in the reporting of a full set of wastewater parameters including pH, COD and oil and grease at Lots A and B. This is particularly significant, since it has been raised several times by IEC. The Project should take immediate action to ensure that analysis of wastewater samples and inclusion of the full set of regulated parameters is consistent throughout all facilities in Turkey.

4.5 POLLUTION PREVENTION

4.5.1 Observations

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

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

During the visit, compliance of fixed facilities in regard to pollution prevention was reviewed, although limited field verification was possible due to the limited number of facilities visited. The fuel storage areas visited at IPT1 and PT2 were found to be generally well-managed and no significant issues were observed in terms of management of oil/water separators and spill pollution prevention measures.

The issue previously raised by IEC in July and October 2004 over inadequate storage of concrete batch plant washwater at PT1 and PT3 has reportedly been addressed, as indicated by BOTAŞ in response to a BTC query. The stored wastewater at PT1 was tested in terms of chemical characteristics, confirming high pH and moderate concentrations of chromium and oil and grease. The washwater was accepted for disposal at the KASKI WWTP at Kayseri. This practice was considered to be in compliance with Project standards because of the significant flow treatment capacity

of the Kayseri plant, thereby neutralizing the high pH and reducing each parameter to trace levels in its effluent.

If concrete batch plant operations resume at pump stations, the Project has committed that wash water pits will be lined.

4.6 ROW MANAGEMENT, EROSION CONTROL AND REINSTATEMENT

4.6.1 Erosion Control and Reinstatement - Observations

Reinstatement Planning and Progress

Reinstatement planning and implementation has been a major focus of IEC during past visits. Due to winter weather conditions, which did not permit ready access to the ROW in Lots A and B, the assessment of reinstatement progress in the field during the February 2005 was limited only to areas of Lot C.

Interviews with Lot A and B personnel provided an update on the progress of reinstatement planning and implementation since the October 2004 visit.

In accordance with the Contractor Control Plan Reinstatement – Turkey, each EPC contractor is responsible to provide specific reinstatement plans for each Lot and fixed facility encompassing the following responsibilities (Commitment APC2E7):

“The contractor will be responsible for:

- *Implementation of all reinstatement works in accordance with the requirements of this Plan, contractors project specific plans and procedures, commitments stated in the EIA and to the satisfaction of on-site BOTAŞ Environmental Inspectors;*
- *The provision of an experienced project manager supported by project personnel who can demonstrate full knowledge of reinstatement and the contents of this Reinstatement Plan;*
- *Further development of this Reinstatement Plan as it pertains to the contractor’s scope of work;*
- *Development and implementation of site-specific method statements;*
- *Development and implementation of site-specific method statements for the reinstatement of all Special Areas;*
- *Performance of all appropriate pre-construction surveys to facilitate the development of site-specific reinstatement method statements for all Special Areas;*

- *Consultation with local experts, specialist organizations and government authorities in order to ensure the reinstatement works are appropriate to the local, site-specific conditions;*
- *Consultation (in association with BOTAS) with each landowner regarding specific reinstatement requirements and fulfillment of these requirements to the satisfaction of the landowner;*
- *Ensuring compliance of contractor appointed sub-contractors; and*
- *All training needs of contractor Staff in relation to this Reinstatement Plan.”*

Lot A

In October 2004 IEC assigned a Level II non-compliance in Lot A for the failure to produce a formal specific reinstatement plan incorporating personnel, machinery needs and realistic completion dates. As of February 2005, an adequate reinstatement plan, compliant to ESAP commitments and presenting details on how reinstatement will be done, including personnel, machinery, and a schedule, still does not exist for Lot A (*repeated Level II Non-Compliance - CCP Reinstatement, Commitment ID: APC2E7*).

Lot A Environmental personnel reported that about 52 km of Phase 1 reinstatement and 26 km of Phase 2 reinstatement is complete. This is less than the anticipated target of 84 km Phase 2 reinstatement prior to the winter season that Lot A had committed to in October 2004.

There remains a lack of clarity regarding the timing of the hydrotest schedule in relation to reinstatement activities for both Lots A and B. According to BOTAS, 75-80% of Phase 2 reinstatement will be completed after hydrotesting under Permit to Work conditions, which is a deviation from the planned normal sequence (hydrotesting to commence after Phase 2 reinstatement). The IEC raises the concern that this will likely require additional time to meet permit requirements and should involve a higher standard of scrutiny in the field. Given the reported previous inability of comply with similar permit conditions in both Lots, this is a risky condition which may lead to further delays in reinstatement.

Limited progress has also been reported in reinstatement of ESAs in Lot A. In ESA 1 (Posof area), only initial reinstatement has been completed.

There are growing concerns for the delays occurred to return agricultural land on a timely basis. IEC was informed that local communities have requested the Project to reinstate their agricultural lands prior to mid-May on the Pasinler Plain. If reinstatement is late, numerous complaints may be raised against BOTAS for damages to land and irrigation channels.

In October 2004, a Level II Non-compliance was assigned because there was little evidence in Lot A that installation of adequate temporary erosion control measures had been initiated. According to Lot A environmental staff, limited winterization and temporary erosion control measures have been implemented during the winter. A specific “winterization audit” was conducted by CINAR for BOTAŞ. The audit acknowledged the implementation of some protection measures and did not report critical conditions; however, it reported a concern that erosion may occur during the spring melt, since the auditors could not access all segments of Lot A. CINAR recommended that the implementation of erosion prevention measures be given priority before the spring months. The Level II non-compliance cannot be rescinded (*Level II Non-Compliance, CCP Reinstatement Plan, Commitment ID: 151, APC2E26, APC2E28, APC2E29, APC2E65*) and ROW conditions will be verified in the field during the next visit.

Lot B

In October 2004, IEC assigned a Level II non-compliance in Lot B for the failure to produce a formal specific reinstatement plan incorporating personnel, machinery needs and realistic completion dates. As of February 2005, an adequate reinstatement plan, compliant with ESAP commitments and presenting details on how reinstatement will be done, including personnel, machinery, and a schedule, still does not exist for Lot B (*repeated Level II Non-Compliance - CCP Reinstatement, Commitment ID: APC2E1, APC2E7*).

As of February 2005, there were no reinstatement activities on-going in Lot B, although it is IEC’s opinion that Phase 1 reinstatement could have continued in lowland areas during the winter months. STA Management has reported that they plan to start again reinstatement in mid-March 2005, with four crews, plus two crews for river stabilization and riprap.

CINAR completed a winterization survey of Lot B, but only could survey one half of the ROW due to difficult weather conditions that impeded access. Their report concluded the following:

- In agricultural areas, the main problems noted were improperly constructed drainages, damaged irrigation channels and ditches. This could not only cause problems to landowners in the spring, but could impede further construction activities by causing muddy conditions on the ROW;
- Flume pipes and vehicle crossing structures have not been removed from river crossings. This could cause problems due to increased runoff in the spring months; and,
- Non-implementation of temporary erosion control measures on steep slopes could lead to increased sedimentation and also affect pipe integrity.

CINAR commented that the lack of temporary erosion control measures on the ROW during the spring of 2004 did not cause significant erosion problems and state that many of these same reasons could also apply to the spring of 2005. Lot B staff also raised this point with IEC during the site interviews. However, CINAR also commented on the need for additional field surveys in the spring of 2005 to assess ROW conditions and the need for additional temporary erosion control measures. CINAR identified the slopes between KPs 347+700-348+400, 351-368, 372-393 and 522-542 as in critical need for temporary erosion control measures.

Concerns about the lack of winterization measures on the ROW in Lot B, particularly at high elevations and on steep slopes, were raised in the IEC October 2004 report. The Level II non-compliance, assigned in October 2004, cannot be rescinded (*Level II Non-Compliance, CCP Reinstatement Plan, Commitment ID: 151, APC2E26, APC2E28, APC2E29, APC2E65*) and ROW conditions will be verified in the field during the next visit.

Lot C

At the time of the visit, reinstatement in Lot C was almost complete (98.87%). Four out of five pipe storage areas (PSAs) have been restored and the Andirin pipe storage area will be restored after winter. Most of the borrow pits have been restored. Biorestitution activities are ongoing with about 40% progress reportedly completed, although not accepted by BOTAŞ. Good progress has been made in developing biorestitution procedures and obtaining required resources.

IEC observed a continued high quality standard of reinstatement practices and implementation in Lot C and consistent management commitment to achieve the objectives stated in the ESAP. A high level of attention to detail was noted to recontouring and landscape restoration. As a result of this work, BOTAŞ, PLL and BTC personnel in Lot C have gained reinstatement experience.

Several locations were visited and the following was observed:

- KP1009: Reinstatement and biorestitution are complete in this section. Some slope stabilization has been done through terracing and recontouring, installation of underground drainage pipes, riprap, diversion channels and water breakers. Good use of jute matting and the placement pocket terraces for shrubs and tree planting was noted;
- Agricultural land at KP1029, between KP1009 and KP1003, between KP991 and KP985: excellent recontouring and landscaping were noted. Agricultural activities have resumed in some areas. Good recontouring of a side cut was observed at KP1006, as well as at around KP986 where excess rock has been adequately reused for recontouring and slope stabilization;

- KP1003: Borrow pit adequately reinstated close to the Kesis river crossing, where stabilization of bank and steep slope (35°) was noted. Jute matting, retaining walls, riprap, water breakers appear to have been adequately installed. Biorestoration was complete;
- KP993: Reinstatement of steep slopes on either side of the road and installation of hard structures such as retaining walls and water breakers appear to be adequately implemented; and,
- KP985: Good placement of jute mapping and installation of permanent erosion control measures was observed on a steep slope.

Maintenance crews with skilled workers are in place to repair reinstatement features, such as terraces, and improve erosion control on slopes as needed.

Reinstatement of the NGPL

In October 2004, IEC assigned a repeated Level II non-compliance for the failure of the EPC contractor and BOTAS to initiate reinstatement of the NGPL. As of February 2005, IEC notes that there is no change in the status of reinstatement implementation of the NGPL outside of the BTC corridor, and the Level II non-compliance cannot be rescinded (*Level II Non-Compliance, CCP Reinstatement Turkey, Commitment ID: CH15E5, APC2E15, APC2E16, APC2E17, APC2E18*). This is the third time that IEC has raised a Level II non-compliance for a complete failure to show progress towards meeting the Project commitment to adequately reinstate the NGPL. Based on the ESAP, a repeated Level II non-compliance could be elevated to Level III, if urgent corrective actions by senior BTC and BOTAS management are not taken.

There is a specific and precise commitment of the CCP Reinstatement Plan Turkey towards timely reinstatement of the NGPL as follows: *“It is a BTC Project requirement that the BTC Pipeline will not inherit reputation and soil erosion problems caused by poor reinstatement of the NGP. In order to achieve this, a two-phased approach to reinstatement in the vicinity of the NGP will be adopted. The first phase will involve the NGP construction contractor undertaking remedial reinstatement measures prior to BTC construction to resolve existing problems related to poor reinstatement of the NGP. The second phase will require the BTC Project construction contractor to undertake any additional mitigation measures necessary to ensure the integrity of the BTC corridor in areas impacted, or potentially impacted, by the presence and/or proximity of the NGP Pipeline. This second phase will require the BTC construction contractor to implement reinstatement measures across the two parallel (i.e., NGP and BTC) corridors in areas as defined in this Section (e.g., hill slopes, river crossings, etc.)”* While IEC was informed that contractual issues remain to be resolved, it is apparent that the Project took no physical action outside of the BTC corridor on the two-phase

approach mentioned above. The Project needs to clearly demonstrate how the two phase approach to reinstatement of the NGPL will be completed.

4.6.2 Erosion Control and Reinstatement – Recommendations

1. There is a need to maintain continuity and management direction through to the termination of construction in Lot C. It is also recommended that the reinstatement expertise gained in Lot C is used for strengthening Lot A and B organizations.
2. The Project should ensure that adequate maintenance and cleaning procedures are implemented in all Lots to ensure the ongoing integrity of reinstatement and permanent erosion control structures. These maintenance practices should be continued through to the termination of construction activities and into the operations phase.
3. Sign-off and punch list procedures need to be developed for Lot C in order to establish protocols for provisional and final acceptance of reinstatement works. It is also recommended that BTC undertakes an early field evaluation of the success of reinstatement efforts, prior to provisional acceptance activities. This could include joint BTC-BOTAŞ expert walkovers of the ROW and identification of erosion-prone locations and other critical points along the ROW. The lessons learned from this process could be applied to the other two Lots.
4. A detailed and practical reinstatement plan (including a revised schedule and resource commitments) for Lot A is to be prepared and endorsed by BOTAŞ and BTC no later than spring of 2005.
5. There is a lack of reinstatement expertise in both BOTAŞ and the EPC contractor in Lot B and needs to be addressed as soon as possible prior to the spring.
6. A detailed and practical reinstatement plan (including a revised schedule and resource commitments) still is not available for Lot B. This plan is to be prepared and endorsed by BOTAŞ and BTC no later than spring of 2005.
7. As noted by CINAR, there remains an ongoing and immediate need to install temporary erosion control measures in high elevation areas and on steep slopes in Lot B. IEC concurs that additional surveys be taken in the spring months to determine the need for installation of temporary erosion control measures in critical areas in both Lot A and B.
8. IEC urges the Project give attention to implementing Phase 1 reinstatement activities in lowland areas in both Lot A and B, prior to snow melt, to ensure that reinstatement progress is not further delayed.

9. Concerns continue over the hydrotest and reinstatement schedules for Lot A and B and the stated intent to complete Phase 2 reinstatement under a Permit to Work system. This is not the normal sequence of activities, as planned. It is IEC's opinion that this situation is not viable with respect to the timing and scheduling of reinstatement works and that alternative solutions need to be found.
10. IEC is particularly concerned about the lack of a Project solution to the timely reinstatement of the NGPL. Since the completion of a survey of the NGPL in July 2004, the Project has taken no apparent action to resolve this impasse. IEC urges BTC and BOTAŞ management to resolve this issue and that the Project demonstrate a practical and effective approach to this ongoing problem, including clear assignment of responsibilities and the provision of realistic timelines for implementation.

4.6.3 River Crossings - Observations

IEC visited the Karasu River crossing at KP 411 in Lot B. The crossing is completed and bank stabilization has been installed with rip rap. The section between KP411 and KP410 ROW is backfilled. Phase 1 reinstatement is still required in this section. Due to winter conditions, IEC could not determine if reinstatement of this river crossing is acceptable and will revisit the site during the next visit.

Lot A personnel has reported that most of the river crossings have been backfilled and banks stabilized, or partially reinstated. Final reinstatement is planned for 2005.

4.6.4 River Crossings - Recommendations

1. All river crossings should be fitted with adequate bank stabilization measures prior to spring runoff.
2. Any river crossings, where flume pipes or bridges have not been removed, should be monitored to ensure their integrity during the spring runoff.

4.6.5 Open Trench – Observations

Open trench remains an important worker and community safety issue for the Project and protocols are in place across all Lots, although backfilling was almost completed at the time of the visit. IEC acknowledges the response of the Project to implement open trench protocols in all three Lots and the fixed installations. Also an effort has been reported to educate communities about the hazards of open trench.

Lot A

The Project has reported that there are 30 km of open trench remaining in Lot A.

Lot B

Open trench remains the responsibility of the Health and Safety department. Lot B H&S personnel now maintain an updated open trench risk assessment.

It was reported that, at the time of the visit, there was less than 10 km of open trench of which 3 km were classified as high risk since located near local communities, but reportedly fully barricaded.

Lot C

Although backfilling has been completed, there are locations, particularly where block valves are installed or at hydrotest locations, where open excavations are still present. An open trench register is maintained by the Health and Safety department and is reportedly updated on a daily basis.

4.6.6 Open Trench - Recommendations

1. High vigilance should be maintained during the spring months until all length of open trench and open excavations have been filled.

4.6.7 Access Roads - Observations

There is still a lack of clarity of the Project regarding the reinstatement of access roads. In accordance with ESAP commitments, all temporary access roads created by the Project shall be reinstated unless otherwise agreed with the local community, but subject to ecological sensitivity and importance.

The CCP Reinstatement Plan Turkey establishes clear commitments for reinstatement of Project access roads (Commitment ID: 2) including the following:

- *“Temporary roads will be removed when no longer needed and will be reinstated. All damage to existing roads will also be reinstated.*
- *Any additional routes will be selected to avoid ecologically sensitive areas, and to minimize erosion.*
- *The contractor will liaise with the appropriate regulatory authorities to gain approval to use, and regularly inspect, the road infrastructure.*
- *Culverts will be installed as necessary where access roads cross water courses.*
- *Temporary access roads will be kept free from deposits to prevent silt, oil or other materials from entering drains or watercourses.*

- *The contractor will remove all temporary roads or road enlargements, except where local communities or landowners request that a new road be left in place. BOTAŞ will advise the contractor regarding the views of regulators, environmental considerations and the concerns of stakeholders for those roads that are to be left in place.”*

It is stressed that the reinstatement commitments not only apply to all temporary access roads, but also to existing roads or paths that have been enlarged by the Project. The minimization of Project footprint is a major commitment of the ESAP.

4.6.8 Access Roads - Recommendations

1. IEC repeats the recommendation of October 2004 that the Project dedicate resources to develop a master access road reinstatement plan consistent for all three Lots. This should be available and endorsed by both BTC and BOTAŞ prior to demobilization of the EPC contractors.
2. For all temporary access roads or road enlargements, the plan should give priority to environmental protection over opening new access based on requests from local communities.

4.6.9 Hydrotesting – Observations

Hydrotesting reportedly continues in all three Lots prior to confirmation of the Hydrostatic Test Water Management Plans by IEC. However, the Project is taking positive action to standardize hydrotest environmental management plans, based on a number of selected environmental and social compliance criteria, and to standardize field monitoring and supervision of compliance with Project environmental and social commitments. This will be likely useful in Lots A and B where hydrotest is still in its early phases.

Some hydrotest information packages were made available for the three Lots. The following comments pertain to a review of that information and information provided to IEC during staff interviews.

Lot C

Lot C personnel reported on the following hydrostatic test activities:

- The Hydrostatic Test Water Environmental Management Plans– 34” and 42” Sections are now updated with a review of new water sources;
- There are a total of 24 test sections (12+12);
- A total five rivers (2 RVX-3 & 3 RVX-1) are used for 34” test section;

- A total of three (1 RVX-2 & 2 RVX-1) rivers are used for 42” test section;
- Environmental and social appraisals are done for each source. The intake rate is monitored so as not to exceed 10% of the river flow;
- Prior to discharge, hydrotest water is passed through a break tank, a filter and discharged into erosion control beds such as straw bales or canvas lined beds;
- Discharge water sampling is done for flow rate, iron content, DO, pH, TSS, total residual chlorine and oil & grease. Samples are tested in the field using portable photospectrometer equipment;
- Water is transferred to approved WWTPs if the discharge fails to meet the project discharge criteria; and
- A total 108.02 km or 32.50% of hydrostatic testing has been completed.

The hydrotest information packages for Lot C are adequately prepared, containing information on environmental and social aspects, meeting records, water analyses, discharge analyses and permit requirements.

Lot B

STA has recently terminated the contract with the hydrotest contractor in Lot B and at the time of the February 2005 visit the management was negotiating a new contract with another firm.

Only one pipe section of 25 km (Section 3 from KP 320+576 to KP 344+095) has been hydrotested. An execution plan has recently been submitted by STA to BOTAS, indicating that 5 crews will be mobilized in the field.

A Mainline Hydrostatic Package for the Hydrotest Section 3 was made available. Observations on the information package follow:

- The hydrotest information package is adequately organized;
- Social and environmental assessments were included;
- Public consultation meetings were held before hydrotesting was initiated but according to the records, meetings were only held with village muhtars. It could not be determined from the information package if consultation meetings were held after hydrotesting;
- Sampling was done before, during and after hydrotesting. Samples were analyzed by STA (flow, iron, DO and pH) with field kits (via spectrophotometry)

and at the CHCL laboratory in Erzurum (TSS and Oil and Grease). Reported discharges are within project limits;

- An incident report indicated a spill of discharge water containing high iron levels is included.

As mentioned in Section 4.6.1, IEC has persistent concerns about the sequencing of hydrotest activities in Lot B in relation to reinstatement. The BOTAŞ General Reinstatement Plan specifies the following in regard to the sequence of hydrotest activities: *“Hydrotesting activities must be performed after ‘engineered reinstatement’ such that the heavy equipment used to reinstate the ROW does not compromise the validity of the hydrotest. However, under certain circumstances and on a case-by-case basis, hydrotesting may be performed prior to reinstatement work, provided that such work:*

- *Is accompanied by a special “hot work permit” or “permit to work” and performed accordingly;*
- *Is strictly supervised to ensure permit compliance and protection of the pipeline and restored ROW; and*
- *Is undertaken using low ground pressure equipment and light vehicles.*
- *If the above conditions are not met, then the relevant section of the pipeline may be subject to additional hydrotesting requirements. Additionally, any breakdown in the permit system, that may reasonably be deemed to present a risk to the integrity of the tested pipeline, will require retesting and a new gauging/calliper survey”.*

Engineered reinstatement as defined above includes Phase 1 and Phase 2 reinstatement (including top soil spreading) prior to bioremediation activities (Phase 3 reinstatement). Based on site interviews, it appears that BOTAŞ Construction management envisions that “most” hydrotesting in Lot B will be done prior to Phase 2 reinstatement under a “permit to work” system. The efficiency of this process is questionable, considering the substantial delays to date in reinstatement progress in Lot B and also the oversight difficulties and constraints of working under such “a permit to work” systems. IEC notes the previous problems and stop orders that were issued under a similar permit system for both Lots A and B.

Lot A

Two hydrotest sections were completed in Lot A at the time of the visit – Section 25 and the first section of 46” from the Georgian border to km 3.5. Again hydrotesting is occurring in Lot A without formal confirmation of the relevant Hydrostatic Test Water Management Plan.

Lot A personnel indicated that they do have a hydrotest package in place. The hydrotest summary report for Section 25, dated 1 December 2004, was reviewed with the following comments:

- The report includes information on social and environmental sensitivities;
- Consultation was reportedly made with affected communities prior to hydrotesting. It is not known whether consultation was completed after hydrotesting;
- Proper permits were obtained;
- Extraction rates did not exceed 10% of flows;
- Testing of discharges was done according to Project standards; and
- Compliance with Project discharge standards was achieved with the exception of iron - maximum of 40.82 mg/L compared to Project standard of 3.5 mg/L.

The Project has subsequently reported to the IEC that iron concentrations were later brought into Project compliance for the following test (46”- Section 1) through the use of a 30 micron pump filter during discharge, which reduced iron concentrations to between 0.07 mg/l to 2.4 mg/l.

There are concerns similar to the ones indicated for Lot B in terms of scheduling of hydrotest and reinstatement activities in Lot A, where it was indicated that 75-80% of Phase 2 reinstatement will likely be completed under “permit to work” conditions.

4.6.10 Hydrotesting - Recommendations

1. A standardized approach to hydrotest environmental management plans should be finalized as soon as possible for all three Lots, according to the approach developed and proposed by BTC on main environmental and social compliance criteria. BTC should also develop and disseminate a standard format for hydrotest information packages to allow compliance verification in terms of environmental and social data collection.
2. Since hydrotest water is mostly tested in the field, some samples from the hydrotest sections in all three Lots should be duplicated and verified in an independent accredited laboratory to confirm the accuracy of field sampling results.

3. IEC is particularly concerned about recurrent comments in both Lot A and B, that most Phase 2 reinstatement will be completed under a “Permit to Work” system. STA, BOTAŞ and BTC should schedule reinstatement activities so that Phase 2 reinstatement can be completed prior to hydrotesting as much as possible, in compliance with Project commitments, and that only “under certain circumstances and on a case-by-case basis” hydrotesting is performed prior to reinstatement work.
4. BTC should ensure that public consultation is being completed before and after hydrotesting to address all public concerns and any potential complaints.
5. The Project needs to ensure that protocols regarding the exceedance of iron standards in Project discharges are in place for all Lots, even though discharge times are short and iron is not considered toxic at low exposure levels. Protocols may include treatment to lower iron levels in discharge waters to meet Project standards and increased sampling frequencies and locations downstream of the discharge to document, both spatially and temporally, that there are not measurable effects on water environment.

4.7 ECOLOGICAL MANAGEMENT

4.7.1 Observations

A total of 55 Environmental Sensitive Areas (ESAs) have been identified in Turkey from the EIA studies. ESAs were identified in two phases, which included a habitat survey in the 500 meter corridor. There are 12 ESAs in Lot A, 24 ESAs in Lot B and 19 ESAs in Lot C. As part of the pre-construction survey, detailed vegetation mapping studies were undertaken in the 28-meter ROW. Based on these additional detailed studies, Special Area Reinstatement Method Statements (SARMS) were developed by BOTAŞ and the EPC Contractors for each ESA, and Areas of Important Plants (AIPs) were identified.

Once again with the exception of Lot C, IEC notes that the Project has made little overall progress since October 2004 in reinstatement of ESAs. IEC recognizes that winter weather has likely exacerbated these delays. The March 2004 and June-July 2004 reports highlighted that the CCP Ecological Management Plan recommends that special measures to minimize potential adverse effects on species of ecological interest are to be formalized into working method statements, including the Special Area Reinstatement Method Statements (SARMS), applicable to ESAs, and to be adequately implemented.

A consistency review of the SARMS across the three Lots was recently conducted by BTC, identifying formal non-conformities and technical drawbacks or inconsistencies with Project documentation, including the Flora Handbook and the Biorestitution Guide, identification of target species, discussions of commercially bought seed mixes, adequate justification of plant translocations, lack of adequate or

precise schedules, lack of details on tree and shrub planting (also in forest habitats), and mitigation measures for target species.

Review of this information confirms IEC concerns on management of ESAs and on potential ecological impacts due to delays in reinstatement for most ESAs in Lots A and B (*Level II Non-Compliance, Reinstatement CCP, Commitment ID: APC2E26, 167, 359, 377*).

Lot C

Reinstatement activities at all 19 ESAs in Lot C are almost completed. Some areas have to be reinstated again due to excavations to correct problems with ovality of the pipeline. Lot C environmental staff reported on the following:

- No target species found in 4 ESAs (ESA 39, 45, 49 and 55);
- ESA reinstatement status:
 - Phase 1: All completed.
 - Phase 2: All completed, except for the Area of Important Plants (AIP) 46-B due to ovality problem. Topsoil is reportedly stored outside the ROW.
 - Phase 3 (biorestitution): All completed, except for ESA 42.

Lot B

ESA reinstatement has not proceeded at the time of the February 2005 visit. There are still only three ESAs reinstated in Lot B (13, 26 and 51), which has not changed from previous IEC visit in October 2004. At that time, BOTAŞ/STA committed to reinstate 12 ESAs by end of November 2004, a target that has not been met.

In October 2004, excellent native seed collection practices were noted in Lot B in Sivas, Koyunkaya, Kova and Çardikaya storage depots. However, the loss of the senior ecologist in charge of this program is considered as a setback to the planning and execution of biorestitution works for the summer of 2005.

Lot A

Based on the updated ESA register provided, engineered reinstatement has reportedly been completed in ESA 1. Backfilling has been completed and winterization works were implemented in ESA 2,3,4,6 and 10; and reinstatement is reported “90% complete” in ESA 11.

4.7.2 Recommendations

1. After the consistency review conducted, BTC and BOTAŞ should continue to focus on implementation of commitments in the ESAs and systematically monitor and ensure that the spirit of the EIA studies is fully applied in these areas, as well as in other sensitive locations (e.g., river crossings). IEC again recommends the development of a Turkey Project-wide monitoring plan for ESAs. A detailed, quantitative field survey should be implemented as soon as possible by BTC and BOTAŞ: 1) to address all concerns raised during the consistency review; 2) to provide evidences on ESA conditions after winter, in terms of sensitive habitats, NGPL issues, high elevation landscapes and river crossings; and 3) to identify remedial measures, as needed, to ensure mitigation of potential ecological impacts caused by any reinstatement and biorestation delays or any potentially inappropriate practices implemented.
2. High priority should be given towards the reinstatement and biorestation of ESAs in Lots A and B during the summer of 2005. The Project should ensure that sufficient resources are dedicated to reinstatement in ESAs and that effective monitoring programs are developed as described above.
3. The Project should ensure that ecological expertise and resources are given to continue the seed bank program developed in Lot B.

4.8 CULTURAL HERITAGE MANAGEMENT

Cultural heritage management is predominantly the responsibility of BOTAŞ. The governing procedures are defined in the ESAP, Appendix E as a *Procedure, Cultural Heritage Management Plan*. This document provides the basic procedures for all phases of the cultural heritage management process, including archaeological late finds protocols. The EPC Contractors also had responsibilities for archaeological monitoring during pre-construction survey work and developed their own Cultural Heritage Management Procedures. BOTAŞ has its own archaeological staff, but field work has been placed primarily with the Archaeological Environment Properties Research Centre at Gazi University. All excavations have been managed by the Archaeological Work Teams in association with the Ministry of Culture and Tourism, Directorate of Monuments and Museums (Museums Directorate), who has legal responsibility for excavation.

BTC has assumed a position of quality assurance with respect to archaeology. BTC is assisted by the British Institute of Archaeology at Ankara (BIA) a UK based charitable NGO to provide (on a voluntary basis) cultural heritage consultation. The services of Oxford Archaeology, the largest independent archaeological practice in the U.K., were also used for additional review services.

4.8.1 Observations

IEC did not visit any archeological sites during the February 2005 mission. However, relevant records were collected and reviewed. In addition, in January 2005 BTC and BOTAŞ agreed a strategy to issue the publication studies related with archaeological findings, to be prepared in accordance with Project commitments, into two groups:

- Four Monographs relevant to Yüceören, Büyükardıç, Tasmazor, and Saz Pegler important sites
- Five Publication Documents for Minnetpınarı, Tetikom, Akmezar-Çilhoroz-Güllüdere, Survey study, Chance-finds (Ziyaretsuyu, Kayranlık Gözü):

The production of the four monographs (bilingual) to international standards will be financed by BTC and should be submitted to BTC and BOTAŞ by Gazi University at the end of July 2005.

The five Publication Documents will also be produced to Project standards. They will not be forwarded for review by an international referee, but rather to a national referee. BTC will subsequently decide whether these publications need additional editing and further review.

4.9 COMMUNITY LIAISON

Community liaison and dialogue with affected stakeholders is a major concern of the Project. Processes are well established for communicating Project information to the general public and communities along the pipeline route, as well as to receive and transmit community concerns to the Project. The overall objective for the Community Liaison and Community Relations teams is to build a positive, non-dependent relationship between the Project and local communities. Specific responsibilities for Community Liaison include, but are not limited to:

- Providing Project affected communities with regular information on construction progress and its' implications for these communities;
- Informing the Project of any community related issues that may impact on construction progress;
- Monitoring implementation of mitigation measures and the impact of construction via direct monitoring and feedback;
- Resolving grievances and managing disputes between the Project and affected communities;

- Assisting with the implementation of community safety, health and investment programs, particularly in response to the recent concerns over open trench;
- Conducting community training programs in important issues such as transportation safety and third party access and safety along the pipeline ROW; and
- Recruiting workers from affected communities.

4.9.1 Observations

A team of Community Relations (CR) Supervisors from BOTAŞ and the five EPC contractors are responsible for community liaison activities. BOTAŞ provides two Lead Community Relations Supervisors (CRS) per Lot, one Supervisor in charge of both environmental and social issues for all stations, one monitor in charge of both environmental and social issues for PT1 and PT2 and one for PT3, PT4 and IPT1, and one CRS for CMT. BTC complies with its assurance role, providing two LTO officers per Lot that cooperate with BOTAŞ and Contractor staff on both environmental and social issues. The LTO officers are also in charge of pump stations and CMT, based on their location along the ROW.

Overall the response of CR teams to community concerns is adequate across all Lots, pump stations and at the CMT. However, in Lot B, persistent delays in resolving outstanding complaints and financial claims can negatively affect the overall success of the social management and community liaison program across the Project in Turkey.

The following observations are based on discussions held with Project personnel during the February 2005. It was not possible to meet with CR staff from Lot A.

Pump Stations

Following the integration of BOTAŞ and TEPE, there has been no change in the organization or delivery of Community Liaison programs at the pump stations. The TEPE Community Liaison Manager is supported by Community Liaison Officers for each of the five TEPE stations.

As a result of interviews with CR personnel at PT2, the following observations were noted:

- A total of 430 community meetings have been held since beginning of project. A number of community safety awareness meetings have also been completed, with an emphasis on traffic safety;

- As a result of integration and increased financial capacity, CR staff reported that complaints for payment of subcontractors, suppliers etc. has decreased as BOTAŞ reportedly had started to pay all outstanding debts;
- There have been a total of 169 complaints since the initiation of the Project, of which 16 are open (5 more than 30 days). It is expected that by the end of February 2005, most outstanding complaints will be closed;
- There has only been one complaint received about damage to land;
- Local employment has been very effective and 68% (January Monthly Report) of pump station construction workers is derived from local affected communities. The reason for the below target unskilled recruitment at local level has been the insufficient labor supply from the directly affected settlements;
- Local procurement is estimated to be approx. US\$ 25 million since beginning of the Project. In kind and in cash donations have been also given to local communities; and
- Staff training relating to social and community issues is consistently performed.

The CR Manager reported that she is planning actions for social closure in relations to land exit issues.

Lot A

IEC did not personally meet with CR personnel in Lot A and were informed of CR activities during interviews with Lot A environmental staff. Therefore, the reported status and progress will be verified in the field during the next visit. The following was reported:

- BOTAŞ is now apparently paying outstanding land related complaints. In October 2004, IEC reported delays in payments of financial claims relating to damages and subcontractor payment;
- BOTAŞ has also committed to pay all outstanding debts of TPN to their subcontractors;
- The former BOTAŞ Lead Community Relations Supervisor has moved to another position within BOTAŞ; the remaining four CR staff in Lot A include two Community Relations Supervisors, one formerly from TPN and the other from BOTAŞ.

Lot B

As mentioned previously, the CR team is limited to four people (2 STA and 2 BOTAŞ staff), which is a concern taking into consideration the length of the Lot and the ongoing issues relevant to the NGPL reinstatement. IEC has previously noted the inadequacy of CR function in Lot B and this has been further reduced since October 2004, although Lot B Community Relations staff has improved their capacity since the beginning of the Project.

A total of 524 community complaints have been received to date of which 66 are currently open, all for more than 30 days. Complaints have increased since the time of the October 2004 when a total of 366 community complaints were reported. Effective resolution of these open complaints requires a management commitment of the EPC contractor. Of these outstanding complaints most are related to payments (25%) or damages to land (17%), road (17%), irrigation channel (12%), houses (6%), property (5%) and crops (5%). Five (8%) open complaints are related to the lack of NGPL reinstatement.

The Lot B CR team has developed an action plan to close the complaints, with the exception of complaints relating payment issues, for which the CR team has reportedly no control. CR staff reported that closure of the non-payment related open complaints will not occur before April 2005, allegedly due to winter conditions that prevent closure.

IEC considers that the current situation in terms of open complaints is not acceptable and is to be reported as failure of Lot management to take adequate action in resolving these complaints in the shortest time possible (*Level II Non-Compliance, Community Liaison CCP, Commitment ID: APC1S7*). The action plan should be revised and closure obtained as early as possible.

The CR team appears to conduct adequate community consultation and awareness programs, despite the limited staff. Hydrotest, pre-reinstatement and feed-back meetings have been held and will be continued during spring time.

A total of 217 community goodwill requests have been fulfilled out of a total of 352 requests.

Lot C

As reported earlier, CR staff includes the PLL CR manager and two CR staff of BOTAŞ. IEC was informed that the number of CR staff should be increased in the spring months to deal with social closure and land exit issues, but the exact number of additional staff could not be confirmed.

The following observations were made based on information provided by Lot C CR personnel to the IEC;

- A total of 745 community meetings have been held since the start of the Project;
- There have been a total of 209 complaints since the initiation of the Project of which 19 are open more than 30 days. A total of 47% of these complaints related to road damages and similar complaints were received at NGO and government meetings in December 2004 in Adana. It was reported that there are community concerns that PLL is leaving and will not repair all outstanding road damages;
- CR staff reported that timely payment of all outstanding complaints by PLL is becoming an issue of concern;
- CR staff is doing consultation before and during hydrotesting and that no problems have reportedly arisen;
- As there have been reductions in staff, particularly of unskilled workers from local communities, some minor complaints over demobilization of workers have been received, but there are reportedly no major issues.

4.9.2 Recommendations

1. The Project should ensure that sufficient CR resources are available to complete their tasks and be able to follow issues relevant to social closure, land exit and compensation for outstanding damages following mechanical completion. This is particularly true for Lot C, where adequate resources should be maintained as social closure and land exit issues are immediately pending in the spring of 2005.
2. BOTAŞ should ensure that all outstanding payments to contractors and compensation issues in Lot A are resolved in a timely manner.
3. IEC has previously noted the importance of CR issues in Lot B, particularly relating to reinstatement sign-off, NGPL reinstatement, land exit and social closure. IEC notes that there have been additional reductions in CR staff since October 2004. The Project should take actions to strengthen the capacity of the BOTAŞ/STA CR department in Lot B to implement, supervise and ensure compliance with social commitments.
4. STA and BOTAŞ should work together to immediately resolve all outstanding payment issues in Lot B, and to involve the CR staff in their management. The action plan for open complaints should be revised and should also include payment-related complaints. Closure for open complaints for payments and damages should be obtained as early as possible.

5. The Project needs to consistently evaluate damages to infrastructure (especially, roads) resulting from project traffic and develop a consistent policy for compensation and rehabilitation throughout all Lots and fixed facility locations/access. The fact that 47% of all open complaints in Lot C at the close of construction relate to road damages is evidence of the importance of this issue.
6. The Project should timely consider involving site CR staff, as well as environmental staff, on the development of transition plans and for the preparation of the Operations plans. This should also involve Project corporate CR staff in Ankara.

4.10 HEALTH AND SAFETY

4.10.1 Observations

IEC observations on Health and Safety (H&S) issues are based on interviews with personnel of Lot C, Lot B and Pump Stations during the February 2005 visit. It was not possible to meet with H&S personnel from Lot A.

BTC

BTC H&S organization includes one H&S advisor per each Lot and one H&S advisor devoted to each of the four main Above Ground Installations (AGIs; the three pump stations and the CMT). Two BTC H&S coaches are reported to support BOTAS and the EPC contractors in staff training and procedural implementation.

BOTAS

Based on the latest organization charts provided by BOTAS, there is a total of 37 staff in the H&S department distributed as follows - six in Ankara including the H&S coordinator, seven in Lot A, six in Lot B, two in Lot C, four at the CMT and 12 at all AGIs. This is a decrease of 20 positions since October 2004 and this is a concern, taking into consideration the expected increase of needs during the coming spring.

Pump Stations

As a result of the integration of the TEPE and BOTAS H&S teams, the number of personnel has been reduced. As of February 2005, the situation is as follows:

- PT1: one H&S engineer, one H&S coordinator, eight H&S inspectors, one H&S trainer
- PT2: two H&S engineers, four H&S officers
- PT3: one Chief H&S engineer, one H&S engineer, seven H&S inspectors

- PT4: one H&S engineer, six H&S inspectors, one H&S trainer.

Although numbers of H&S personnel have been reduced at the Pump Stations, BTC has indicated that the H&S organization has been strengthened due to integration. BTC has also taken the decision to provide additional professional training.

No issues have been reported for winter clothing and PPE that has been recently upgraded.

Lot B

STA currently has one H&S Manager, two H&S senior inspectors, six H&S inspectors, one H&S trainer, 12 medical staff and four radio operators. BOTAŞ has three H&S staff including one H&S engineer and two H&S inspectors.

At the time of the visit, there were currently about 400 workers in the field and about 10 open work fronts every day. It was reported that H&S inspectors have mobile phones and radios, and they cover about three to four areas per day. There are three vehicles available for H&S needs at Kova and two each at Sivritepe and Koyunkaya. STA and BOTAŞ H&S field management consider that H&S inspector coverage is satisfactory.

No issues were reported on PPE, including winter clothing. However, although hot drinks are provided in the field, workers are still not provided with hot food. This situation was reported in the winter of 2003-2004 and is considered not acceptable.

H&S staff was found to be not clear on the responsibility and priority of potable water testing at camps in Lot B. Although testing is being done, it was not clear that Lot B H&S staff is taking full responsibility of sampling, analytical, verification and remedial treatment actions, as needed. The fact that there is lack of clarity within the H&S department over this issue at this stage of the Project is a concern and non-compliance issue (*Level II Non-Compliance, BOTAŞ Environmental and Social Management Plans, Commitment ID: CH9E3, CH4E41*).

Lot C

In Lot C, there is an integrated H&S team between BTC, BOTAŞ and PLL comprising seven staff.

There are no reported issues in Lot C with winter PPE, nor supplying food to workers.

Driving safety is a major focus of the H&S department and road reports are prepared daily.

4.10.2 Recommendations

1. There is a need for the Project to ensure that there is an adequate presence of safety inspectors in the field concomitant with the extent of work activities. Planning for increased number of H&S personnel should begin now in order to be prepared for the anticipated increase in construction activities and number of workers in the coming spring.
2. There is a pressing need to ensure adequate H&S supervision in the field, particularly Lot A and B. This must include the use of local subcontractors and adequacy of equipment and vehicles.
3. Hot food should be immediately provided to workers in the field in Lot B.
4. The fact that roles and responsibilities for potable water testing were found to be still unclear in Lot B is unacceptable at this late stage in the Project. BTC should ensure that this lack of understanding and commitment to consistent monitoring and assessment of potable water quality is immediately rectified.

4.11 ENVIRONMENTAL INVESTMENT PROGRAMME

An update on the status of the Environmental Investment Programme (EIP) was provided by BTC. A wetlands management plan has been initiated, based on the recommendations of CDAP and on consultation with national stakeholders, focusing on the following areas:

- Yurmutalik Lagoons, a wetland located about 30 km from the Ceyhan Terminal. A wetland management plan will be produced to support the approval of the lagoons obtaining RAMSAR status in 2005.
- Erzurum Marshes – a zoning study will be carried out to determine sensitivities within the marshes and advise local government on recommended protection status.

Twelve new potential Important Bird Areas (IBAs) have reportedly been identified in conjunction with Turkish birding clubs. With the support of this project, a booklet giving more detailed information on each IBA, together with outline maps, was launched in 2004 as part of the Turkish/German Twinning Project.

Eighteen new Important Plant Areas (IPAs) and 13 new potential sites have been identified. BTC is also working with the Turkish government in proposals aimed at local income generation from EIP programs.

The Forest Gap Analysis Project is also being undertaken to identify priority areas for protection in the Lesser Caucasus region. Twenty one candidate degraded areas were identified and prioritized through geographic information systems and remote sensing,

backed up by field surveys. Yanlizcan and Sarakarmis Forests have been identified as key areas for protection.

Two layers of monitoring were indicated in the Appendix D of ESAP for Project Environmental Investment Plan (PEIP): one for program implementation and one for technical implementation for each project. The external monitoring program was anticipated to be conducted by national and international NGOs. To fulfill this commitment, BTC has involved two external consultants currently completing a review of the EIP program implementation. It was indicated that a report is expected to be available by March 2005. A project implementation review will be carried out in spring 2005.

Appendix A
***Trip Summary- 4th IEC Mission by D'Appolonia for the BTC Pipeline Project –
February 2005***

For this mission, two members of the team toured Turkey while another two visited Georgia and Azerbaijan. The Turkey team also completed a visit to the ACG Phase 1 Project, as presented in a separate report. The trip summaries of the two groups are presented separately.

Georgia and Azerbaijan Team

February 9 – Georgia. Team arrives in Tbilisi in the late afternoon.

February 10 – Georgia. Attend meetings with BTC staff in the morning and with SPJV in the afternoon.

February 11 – Georgia. The planned field visits were cancelled because of snow. An informal meeting was held with BTC staff to review technical issues

February 12 – Georgia. A visit was made to Marneuli Camp and then the team toured the ROW from up to a borrow pit being used for rock disposal at approximately KP 90. The team then visited the PSG-2 construction site and PSG-2 Camp before returning to Tbilisi.

February 13 – Georgia. Attended additional meetings with BTC staff and presented a closeout meeting in the afternoon to BTC and SPJV staff.

February 14 – Azerbaijan. Travel by car from Tbilisi to the Azerbaijan border and meet with BTC staff and then travel to look at the microtunnel construction being initiated for the Kura West crossing at KP 411. The tour then continued to the Hasan Su crossing where erosion and sediment control structures were being constructed and spoil disposal sites had been developed. The group then traveled to Tovuz Camp for meetings with BTC and CCIC staff and then spent the night at the CCIC Guest House in Tovuz.

February 15 – Azerbaijan. Visit village of Girakh Kesaman where damage caused by Project traffic had been reported and return to Tovuz. Travel from Tovuz to PSA-2 with stops along the ROW to review reinstatement. Tour PSA-2 and then travel to Yevlakh Guesthouse.

February 16 – Azerbaijan. Travel from Yevlakh to Kurdamir Camp and tour camp, in particular progress being made at the Central Waste Accumulation Area (CWAA). Return to Baku with a stop at KP 211 to review SCP and BTC complete interim reinstatement.

February 17 – Azerbaijan. Prepared and presented closeout meeting for Azerbaijan. Informal discussions covering all three countries were held with the BTC Core Management Team in the afternoon, in lieu of a formal three-country presentation, as was done for previous IEC missions.

February 18 – Azerbaijan. Entire IEC team departs.

Turkey Team

February 8 - Arrive in Ankara.

February 9 – Meetings with BTC and BOTAŞ in Ankara. Fly to Adana in the afternoon. Stay in Adana.

February 10 – Travel to Lot C, interviews with Lot C personnel. Examine reinstatement and biorestitution along the ROW in Lot C, including KP 1003, 1006 and 1009. Return to Adana.

February 11 – Return to Lot C – Travel along the ROW in Lot C, visit KP 985, 986, 990, 993. Site visit to IPT1. Close out meeting in Lot C at Andirin Camp. Return to Adana.

February 12 – Travel to Erzerum and then to PT2. Interviews with Lot A personnel. Stay at PT2.

February 13 – Interviews with Pump Station personnel at PT2. Site walkaround at PT2. Travel to Kova Camp and stay at Kova camp.

February 14 – Interviews with Lot B personnel, travel to KP 410 Karasu River crossing. Return to Erzerum and fly to Ankara.

February 15 – Meetings and close out with BTC and BOTAŞ in Ankara. Fly to Baku in the evening to conduct the ACG Phase 1 second monitoring visit.

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

Section Ref.	Observation	Non-Compliance	Level	Comments / Recommendations
2.3.2	CCIC - Noise monitoring continues to be conducted periodically at some construction sites (mainly camps). The monitoring procedures are well established, but some measurements, such at the edge of Kurdamir and Tovuz Camps show small non-compliances with respect to allowable nighttime noise levels(ongoing for several IEC missions)	CCP Pollution Prevention Plan, Commitment ID: 1101, 1102, 1003	II	CCIC needs to identify solutions to reduce noise levels at the locations where persistent non-compliances have been identified or consider compensating the affected parties for the nuisance
2.4.1	Pollution prevention measures in the area of the incinerator have improved, however the overall situation is still non-compliant because of particulates, as well as monitoring.	CCP Waste Management Plan, Commitment ID: 244, 245, 246, 1051, 1110	II	Workers operating the incinerator at Kurdamir are exposed to condensation fallout from the stack. The Project health specialists need to immediately provide respiratory protection to the workers and re-evaluate the risk assessment previously conducted.
2.4.3	CCIC - Sewage effluent is still sent to municipal treatment plants at Kurdamir and Yevlakh.	CCP Waste Management Plan, Commitment ID: 552, 554	I	Because this is a finding over all of the missions, the non-compliance could be considered to be higher than a Level I. The reason it has been kept a Level I is because it is understood that at these locations it is not practical to have land discharge and that Project effluent is being treated within the capacity of the Project WWTP system.

Section Ref.	Observation	Non-Compliance	Level	Comments / Recommendations
2.4.3	SPJV - Test results from the WWTP at PSA2 were not available from SPJV. Based on past test results it is anticipated that STP performance is no better than what is being achieved by CCIC. With no other information, the previous non-compliance has not been modified	CCP Waste Management Plan, Commitment ID: 553	I	

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

Section Ref.	Observation	Non-Compliance	Level	Comments / Recommendations
3.2.3	The Project adopted, without justification and against the existing commitments, relaxed in practice effluent discharge standards three months before the MOC documentation was complete.	CCP Waste Management Plan, Commitment ID: J16, J20 (S7).	II	This is non-compliance that could constitute, during that period, a Level III non-compliance because it represents a deliberate disregard of ESAP standards. The recent issuance of the MOC interrupted this condition, but IEC believes that the supporting technical justification for this change is still insufficient and still represents a non-compliant condition.
3.3.1	Significant non-compliance was encountered with respect to the pollution prevention systems at PSG2. The problems associated with housekeeping, pollution prevention, and general waste management previously found to be problems at the PSG-2 construction site have not improved and at this point represent a failure of the E&S management system beginning with the subcontractor Geotek and also representing a failure of SPJV to control this subcontractor and BTC for not providing the necessary management.	CCP Pollution Prevention Plan, Commitment ID: H42	II	It is the fourth time that the same problems have been observed at PSG-2. This non-compliance could be considered as a Level III, except that the activities do not represent a high risk for significant environmental impact.
3.4.1	A non-compliant waste disposal site has been used without having conditioned the facility towards EU compliance.	CCP Waste Management Plan, Commitment ID: J1, J16, J18 (N15)	III	The current situation, even if limited actions of the conditioning plan have started, represents a Level III non-compliance because it is effectively no different from what was observed during the October 2004 IEC mission and because there is still some uncertainty as to whether an agreement will be established with the Georgian Government authorities that would permit the full implementation of the Conditioning Plan.

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

Section Ref.	Observation	Non-Compliance	Level	Comments / Recommendations
4.2.1	Significant decrease in the environmental management and CR capacity of personnel in Lot B, as a result of ongoing managerial difficulties between STA and BOTAŞ	CCP Environmental Management Plan, Commitment ID: APC1E34, APC1E36	II	The EPC contractor and BOTAŞ must ensure that adequate staffing levels will be re-attained in time for mobilization in the spring months and to fulfill ESAP commitments, particularly in terms of reinstatement, ecological protection, community complaints management, social closure and land exit, health and safety protection
4.3.1	Inconsistency in water quality testing procedures appears to be a persisting data management issue. Concerns over lack of responsibility for potable water sampling and consideration of potential health risk are raised	BOTAŞ Environmental and Social Management Plans, Commitment ID: CH9E3, CH4E41	II (Repeat)	BTC and BOTAŞ should work with the EPC contractors to develop established and consistent lists of potable water parameters, sampling protocols, including sampling frequencies, analytical procedures and parameters to be measured. BTC should also ensure that the H&S teams carefully and timely evaluate potable water data and that adequate control is implemented to rule out any health risk for camp and worker communities. BTC should also assure that testing laboratories and procedures are adequate and that an independent third-party evaluation is conducted to assess if chemical and microbiological results are reliable.
4.3.3	The two inert material disposal sites at PT3 are a concern because they are large quantities of excess subsoil located in an Environmentally Sensitive Area (ESA) 19 and their visual impact is significant	CCP Ecological Management, Commitment ID: S692; CH15E27	II (Repeat)	The reinstatement plans for the subsoil disposal sites at PT3 should be finalized as soon as possible for implementation in the summer of 2005. The Project should ensure that reinstatement of the disturbed area for excess subsoil disposal at PT3 will be done

Section Ref.	Observation	Non-Compliance	Level	Comments / Recommendations
				in accordance with Project commitments for ESAs and that adequate monitoring will be in place to document that any impact is adequately mitigated. The reinstatement plan should also be compliant with specific commitments made in both the Ecological Management and Reinstatement Plans for Turkey.
4.4.3	Persisting inefficient and non-compliant conditions reported for all WWTPs at the Pump Stations	CCP Pollution Prevention, Commitment ID: CH7E13, APC4E39	II	The Project should implement immediate actions and place a stop order on all further discharge of non-compliant WWTPs, until compliance is achieved in line with Project standards.
4.4.3	The Kars WWTP in Lot A continues to still be non-compliant with Project standards.	CCP Pollution Prevention, Commitment ID: APC4E39	II (repeat)	The Project should implement immediate actions and place a stop order on all further discharge of non-compliant WWTPs, until compliance is achieved in line with Project standards.
4.4.3	Persisting failure to monitor compliance of WWTPs in Lot B for regulated parameters	CCP Pollution Prevention, Commitment ID: APC4E39	II	The Project should take immediate action to ensure that analysis of wastewater samples and inclusion of the full set of regulated parameters is consistent throughout all facilities in Turkey.
4.6.1	Lot A has still not developed a formal written reinstatement plan incorporating personnel and machinery needs and realistic completion dates	CCP Reinstatement, Commitment ID: APC2E1, APC2E7	II (Repeat)	There is an urgent need for the Project to complete and adequate specific reinstatement plans for Lot A including realistic mobilization of resources and equipment and completion schedules. It is important that the criteria indicated by BTC for prioritization of reinstatement are fully included in the planning and sufficient documentation is developed by the parties to ensure that these criteria are met

Section Ref.	Observation	Non-Compliance	Level	Comments / Recommendations
4.6.1	Lot B has still not developed a formal written reinstatement plan incorporating personnel and machinery needs and realistic completion dates	CCP Reinstatement, Commitment ID: APC2E1, APC2E7	II (Repeat)	There is an urgent need for the Project to complete and adequate specific reinstatement plans for Lot B including realistic mobilization of resources and equipment and completion schedules. It is important that the criteria indicated by BTC for prioritization of reinstatement are fully included in the planning and sufficient documentation is developed by the parties to ensure that these criteria are met
4.6.1	Concerns about the lack of winterization measures on the ROW in Lot A were raised in the IEC October 2004 report. According to Lot A environmental staff, limited winterization and temporary erosion control measures have been implemented during the winter. A specific "winterization audit", conducted by CINAR for BOTAŞ, acknowledged the implementation of some protection measures and did not report critical conditions; however, it reported a concern that erosion may occur during the spring melt.	CCP Reinstatement Plan, Commitment ID: 151, APC2E26, APC2E28, APC2E29, APC2E65	II (Repeat)	The Level II non-compliance, assigned in October 2004, cannot be rescinded and ROW conditions will be verified in the field during the next visit.
4.6.1	In October 2004, a Level II Non-compliance was assigned because there was little evidence in Lot B that installation of adequate temporary erosion control measures had been initiated. A specific "winterization audit", conducted by CINAR for BOTAŞ, acknowledged the implementation of some protection measures and did not report	CCP Reinstatement, Commitment ID: 151, APC2E26, APC2E28, APC2E29, APC2E65)	II (Repeat)	The Level II non-compliance, assigned in October 2004, cannot be rescinded and ROW conditions will be verified in the field during the next visit.

Section Ref.	Observation	Non-Compliance	Level	Comments / Recommendations
	critical conditions; however, it reported a concern that erosion may occur during the spring melt.			
4.6.1	A Level II non-compliance for in-action on the NGPL was raised in July and October 2004 due to a persistent and unjustified uncertainty and controversy over reinstatement of the NGPL. Continued delays in defining a practical implementation program for the reinstatement of the NGPL ROW are not in compliance with ESAP commitments	CCP Reinstatement Turkey, Commitment ID: CH15E5, APC2E15, APC2E16, APC2E17, APC2E18	II (Repeat)	IEC is particularly concerned about the lack of a Project solution to the timely reinstatement of the NGPL. Since the completion of a survey of the NGPL in July 2004, the Project has taken no apparent action to resolve this impasse. BTC and BOTAŞ management should urgently resolve this issue and the Project should demonstrate a practical and effective approach to this ongoing problem, including clear assignment of responsibilities and the provision of realistic timelines for implementation
4.7.1	Concerns on management of ESAs and on potential ecological impacts due to persisting delays in reinstatement for most ESAs in Lots A and B	CCP Reinstatement, Commitment ID: APC2E26, 167, 359, 377	II	BTC and BOTAŞ should continue to focus on implementation of commitments in the ESAs and systematically monitor and ensure that the spirit of the EIA studies is fully applied in these areas, as well as in other sensitive locations (e.g., river crossings). IEC again recommends the development of a Turkey Project-wide monitoring plan for ESAs. High priority should be given towards the reinstatement and bio restoration of ESAs in Lots A and B during the summer of 2005
4.9.1	The current situation in terms of open complaints in Lot B is not acceptable and is to be reported as failure of Lot management to take adequate action in resolving these complaints in the shortest time possible	CCP Community Liaison, Commitment ID: APC1S7	II	STA and BOTAŞ should work together to immediately resolve all outstanding payment issues in Lot B, and to involve the CR staff in their management. The action plan for open complaints should be revised and should also include payment-related complaints. Closure for open complaints for payments and

Section Ref.	Observation	Non-Compliance	Level	Comments / Recommendations
4.10.1	H&S staff was found to be not clear on the responsibility and priority of potable water testing at camps in Lot B. Although testing is being done, it was not clear that Lot B H&S staff is taking full responsibility of sampling, analytical, verification and remedial treatment actions, as needed. Lack of clarity within the H&S department over this issue at this stage of the Project is a concern	BOTAŞ Environmental and Social Management Plans, Commitment ID: CH9E3, CH4E41.	II	damages should be obtained as early as possible The fact that roles and responsibilities for potable water testing were found to be still unclear in Lot B is unacceptable at this late stage in the Project. BTC should ensure that this lack of understanding and commitment to consistent monitoring and assessment of potable water quality is immediately rectified