

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

FIFTH SITE VISIT, JUNE 2005

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EXECUTIVE SUMMARY

This report presents the results of the fifth post-financial close field visit in Azerbaijan, Turkey and Georgia of the Independent Environmental Consultant (IEC), between June 13 and 25, 2005 to monitor compliance with BTC Project Environmental and Social (E&S) commitments. The IEC team conducted the visit as two teams; one focused on Project activities in Turkey and the other in Georgia and Azerbaijan.

During the visit, the 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 Right-of-Way (ROW) and several Above Ground Installations (AGIs). Considering that the overall BTC Project is now well advanced (First Oil in Azerbaijan was celebrated on May 25, 2005), much of the visit was focused on the review of reinstatement activities along the ROW in all countries.

Organization and Staffing: In Azerbaijan and Georgia, the E&S organizations continue to reflect the fact that most of the current field work is associated with the construction of the South Caucasus Pipeline (SCP) project. At this point, it is difficult to distinguish activities that relate only to the BTC 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 the BTC teams' initiatives. Over the past quarter, Contractor E&S staff in both Azerbaijan and Georgia have substantially diminished and BTC has needed to assume even more responsibility than before.

In Turkey, since the time of the last visit in February 2005, there have been a number of significant changes in the organization of the EPC contractors in both Lot A and B, and for the Pump Stations. 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. It is acknowledged that BTC has consolidated its assurance role achieving a high level of competency between national and expatriate staff. Significant positive changes in the attitude and function of

environmental and social organizations in Lots A and B were noted. BOTAŞ and BTC should continue to make sure that sufficient resources are allocated to both Lots to meet the needs of completing reinstatement by the end of this year and to prepare for land exit.

Management of Change: In Azerbaijan and Georgia, BTC has implemented the significant management of change initiatives identified in the fourth IEC mission report to change the standards defined in the ESAP for sewage treatment, air emissions and waste management. The basis for these changes was reviewed by the IEC prior to this mission and the changes were considered acceptable by the IEC. It must be also recognized that BTC has placed significant effort in providing reasonable justification to change these fundamental standards. Beginning with this mission, the Project will be reviewed in the context of these newly adopted standards.

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. As noted during previous missions, Project intervention has been, to date, too little and too late, especially at batch plants with respect to implementing basic pollution prevention measures and worker health and safety measures. In Turkey, improvement in the environmental and social assessment procedures for the use of quarries and borrow pits in Lots A and B are noted, but consistency between all three Lots has still not been achieved.

Potable water: Past problems with the treatment of potable water have been resolved in Georgia and Azerbaijan. In Turkey, in response to a repeated Level II non-compliance regarding poor QA/QC control and limited procedures developed by the Project for potable water testing, the Project has taken some actions regarding potable water testing at camps.

Waste Management: This issue continues to be one of the most important environmental challenges in Georgia and Azerbaijan, but the strategy defined conceptually at the time of the fourth IEC mission are now beginning to be implemented. In Georgia, the Project has reached an agreement with the relevant Georgian governmental bodies to begin to implement a number of steps towards the reconditioning of the Iagljudja municipal disposal facility and this activity has started. Plans are continuing for the construction of an EU-compliant non-hazardous waste landfill in Georgia, although this facility will not be completed in time to accept waste generated by the BTC Project. The possibility to export hazardous waste to an EU compliant facility is still being evaluated in parallel with the development of a hazardous waste landfill. One of these two options will be adopted, depending on the results of additional studies and government input. A permit for the disposal of waste oil into the Western Route is expected to be obtained in the near future.

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). Stack emissions results are now expected consistent with Project standards, although results are pending for the stack emissions testing that was conducted about two weeks before this IEC mission. Plans to construct a dedicated non-hazardous waste landfill by the BP Azerbaijan Business Unit (AZBU) continue to proceed, 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, although some improvements are recommended in terms of defining recyclable waste and limiting landfilling practices. Operations in Turkey have the advantage over Azerbaijan and Georgia that in-country EU-compliant disposal facilities are available for use and BTC has not had to develop plans for landfill construction. Significant concerns about the inert material dumpsites at Pump Station 3 (PT3), located in Environmentally Sensitive Area (ESA) 19, have been raised by the IEC since 2004, due to lack of practical action by the Project to resolve this issue in a timely manner. Immediate mitigation is required at these sites, in compliance with ESAP commitments. Another concern is raised due to the conditions observed at the Narlik inert material disposal site, used by the CMT contractor to dispose of large quantities of inert construction waste. The site is a municipal dump, located on a public road and highly visible, and is uncontrolled with access open to third parties. During the site visit, some mixing of other waste streams was also observed although it could not be definitely attributed to BTC.

Wastewater Treatment: In all three countries, the performance of wastewater treatment plants (WWTPs) is close to what is achievable given the type of portable plants being used. In Azerbaijan and Georgia, the recently enacted MOC process has reduced some effluent standards. This change has reduced the degree of non-compliance with certain parameters, but some plants do not meet the newly-defined standard for coliform discharge. In Azerbaijan, the reoccupation of the Mugan camp has involved normal startup problems with the WWTP, but the available test data indicate that the WWTP is rapidly improving in the direction of compliance. In Turkey, disposal of non-compliant treated sewage has been a persistent problem at the Pump Stations and in Lot A. The recent installation of a topsoil pile irrigation system appears to be a promising solution.

Pollution Prevention: The infrastructure for pollution prevention has been constructed in all three countries and at this point the success of the pollution control systems depends on maintenance, which appears to be generally well done. The situation in each country can be summarized as follows:

Azerbaijan: Construction progress is greatest in Azerbaijan and the camps at Kurdamir and Yevlakh have been demobilized. The old Mugan camp is in the

process of being reoccupied, primarily for the SCP. This has required reconstruction of the pollution control systems, which was taking place at the time of the visit. The one issue that continues to not be resolved is the occurrence of persistent non-compliances with respect to generator noise. The available data indicate that the placement of the generators at Mugan camp will likely cause non-compliant noise levels without special mitigation measures and nighttime noise levels at Tovuz Camp are as high as about 15 dB above allowable levels.

Georgia: The Project has adopted a pollution prevention plan to systematically identify potential impacts from construction activities and implement avoidance and mitigation measures that 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 are 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.

Turkey: Compliance of fixed facilities in regard to pollution prevention was reviewed and found to be generally acceptable. The fuel storage areas visited were found to be adequately maintained, with proper containment and spill response kits. Environmental registers are consistently maintained by all Lots, CMT and Pump Stations.

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

Azerbaijan: Hydrotesting of the BTC pipeline is complete in Azerbaijan. Chemically contaminated bulk water from the main pipe hydrotests has been disposed at two lined evaporation ponds at KP 244 and KP 411 except for one section where biocides and oxygen scavengers were not used. Soil measurements do not indicate that clean and gauge discharge water had significant contamination. An MOC has been developed to discharge the hydrotest water from the evaporation ponds once tests demonstrate that the biocide and oxygen scavengers have degraded to acceptable levels. Although it is recognized that there is no reason to suspect the presence of contaminants beyond those tested, the IEC considers that it would have been preferable to test the clean and gauge water for the discharge standards defined by World Bank/IFC Guidelines. It is recommended that the full World Bank/IFC Guidelines parameters be tested prior to discharging of water from the evaporation ponds.

Georgia: Hydrotesting activities have been initiated, but much of the testing still remains to be completed. Initial problems associated with the discharge of hydrotest waters before laboratory test results are available are being

overcome, but the Project should continue to dedicate the proper resources to ensure that non-compliant discharges do not reoccur in the future. A visit was made to the location of the clean and gauge hydrotesting being conducted with a discharge point at KP 138. At this location, several deficiencies were noted. IEC recommends that the standards established in the Hydrotest Management Plan, which defines methods and procedures to conduct the activities in an environmentally and socially responsible manner, are properly implemented.

Turkey: The Project has taken positive action to standardize hydrotest environmental management plans and monitoring of abstraction and discharge points in compliance with Project environmental and social commitments. IEC was provided with hydrotest information packages for all three Lots. Adequate implementation was observed in the field, although observations of non-compliant conditions at one test site in Lot B confirm that BTC should conduct an independent assessment of hydrostatic test environmental protection procedures and verify the completeness of these information packages. The implementation of a Permit to Work system and register in Lot B to ensure safe operation of reinstatement activities over tested pipe was noted and the positive efforts of the Project in this regard are acknowledged.

Safety: The IEC continues to acknowledge the effort made by the BTC health and safety (H&S) organization to achieve high safety standards during Project development. Now that most of the pipe is in the ground, most of the issues for community safety with the BTC Project are effectively resolved. In Turkey, it is critical that BTC ensures that H&S standards and a level of vigilance are maintained across all three Lots and the fixed facilities at this time when demobilization activities are beginning to occur.

Reinstatement: Much of the focus of the IEC's fifth mission was turned towards the monitoring of proper reinstatement along the BTC pipeline ROW. In general, reinstatement was found to be of high quality with only a few exceptions. For example, although in Azerbaijan the reinstatement of the 12-m BTC corridor is complete, final results will be appreciated only when the entire BTC/SCP corridor has been reinstated. In Georgia, difficulties were encountered with respect to erosion and sediment control due to insufficient winterization efforts at various locations within Spread 2, near the border of Turkey. Similar to observations made during the IEC's previous site 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 in the ground and Phase 2 reinstatement has been achieved for the entire BTC pipeline and for approximately 50 km of the entire BTC/SCP ROW. Final biorestitution will start upon completion of the SCP. Where observed in the field, reinstatement has been of good quality. The

Project will need to provide the proper resources and attention when reinstating the large trenches at the Kura West crossing; some requirements for improving drainage controls at an unnamed stream at KP 396 near the Hasan Su crossing were noted. The Project is in the process of preparing inventories and closure plans for borrow pits. It is recognized that current borrow pit activities most likely relate to the SCP, but two borrow pits were encountered during the site visit that apparently had not been inventoried; the Project will have to ensure that appropriate procedures are followed for borrow pit closure. Bentonite disposal sites were reviewed in the field and found to be appropriately reinstated.

Georgia: All but approximately 65 km of the BTC pipeline in Georgia has been at least partially reinstated. Repairs are being made to resolve the erosion that took place at various locations in Spread 2. Mountainous conditions make reinstatement in Georgia a more challenging process than in Azerbaijan and the variability of interim reinstatement quality in the mountainous portions of Georgia reflects the difficulties encountered. Interim reinstatement of the 12-m wide ROW corridor totals approximately 185 km, but there is considerable variability in terms of actual reinstatement progress, especially within Spread 2. Within the western portion of Spread 2 (KP 216 to 249), some portions are properly restored to Phase 2 (top soil in place), but others are restored only to Phase 1 (backfill – no top soil) and others have limited corridor (Phase 1 or Phase 2) or are fully occupied by topsoil. In the central part of Spread 2 (KP 200 to 216) the most obvious erosion and sediment control problems associated with the lack of winterization can be observed. In the eastern part of Spread 2 (KP 181 to 200), which was formerly part of Spread 1, winterization was sufficiently conducted, but presence of numerous access roads represent a future challenge for reinstatement. Spread 1 exhibits generally good reinstatement. The Project should ensure proper restoration of the borrow pits at KP 153 and 162 upon completion of construction.

Turkey: Reinstatement planning and implementation continues to be a major concern of IEC, and the fifth visit was focused on assessing as much as possible of the ROW across all three Lots in Turkey. IEC observed a significant improvement in the management commitment in both Lots A and B towards implementing reinstatement of the pipeline ROW. Reinstatement crews are now in place in both Lots and visible reinstatement progress was noted, particularly in agricultural areas. Reinstatement activities observed in the field are generally satisfactory in terms of quality and attention to details. Suitable deployment of rip-rap across the Project as an effective means of excess rock disposal was also noted. Biorestitution has been initiated in Lot C and is scheduled to be completed in September 2005. Particularly in some high elevation areas in Lot B with fragile and thin topsoil, topsoil has been stored for more than two years and, from a visual assessment, its fertility appears to be reduced. Fertility conditions should be assessed by the Project.

Reinstatement of steep slopes, especially in Lot B, will be technically challenging and will also require high attention to worker safety. Access roads appear to be adequately registered and managed, but in Lot B a significant increase of access roads in high elevation areas (KP 458 to 449) was observed; this results in a visible increase in the Project footprint to be mitigated. A decision on the selection of the preferred contractor to conduct the reinstatement works of NGPL is still pending; however, the IEC notes this commitment and intends to follow-up on the execution of reinstatement of the NGPL during the next visit.

Archaeology: The cultural heritage field programs directly associated with the BTC Project are now essentially complete in all three countries. As previously noted, the responsibility for compiling, interpreting, preserving and presenting the findings will rest with the three host governments, but the BTC Project has a substantial investment into cultural heritage management and a commitment to manage this investment according to international standards. In the case of Azerbaijan and Georgia, it is recommended that the BTC and SCP findings be presented together in cooperation with the two Governments. The overall process for interpretation, curation and reporting should be defined in terms of a Plan that can be taken over by Operations personnel. It is strongly recommended that the same individuals responsible for the gathering of data in the field be the ones who also participate in the interpretation and reporting of the data gathered. In both countries, the BTC/SCP excavations represent the largest archaeological field programs ever undertaken in either country, and the Project should ensure that these discoveries are appropriately analyzed and the data are made available to both researchers and the general public. In Turkey, the Project conducted salvage excavations at several sites located within the limits of BTC route between March 2003 and August 2004. All of the salvage excavations were executed under the control of the ministry representatives and local Museum Directorates. It is observed that the cultural heritage management program conducted in Turkey appears to have been adequately conducted and up to best international practice. BTC is also working on peer-reviewed scientific publications for the most important sites studied by the Project.

Ecological Management:

Azerbaijan: Now that the BTC pipeline is completely installed in Azerbaijan, remaining ecological monitoring is incorporated within the SCP Project and it is not practical to distinguish efforts associated only with the BTC Pipeline. Information to evaluate the activities associated with the SCP Project was not provided for IEC review and is not included in this monitoring report.

Georgia: Upon the request and recommendation of the IEC, an ecologist was included as part of the IEC team during the visit in Georgia. Her presence gave the opportunity for an independent and direct evaluation of the status of the Ecological Management Plan, in addition to information provided by BTC. The scope of the IEC activity was to review the results and recommendations

made from the 2004 biodiversity monitoring, to gain an in-field perspective of the monitoring goals, the overall design, and the implementation of the monitoring program, to review how BTC has implemented various ecology-related Project commitments, and to gain an update of the status of the Offset Mitigation Programme (and the Environmental Investment Programme [EIP]). Although the overall Biodiversity Monitoring Programme provides a good starting point to envision monitoring activities, the IEC believes that several clarifications are necessary to improve the presentation, applicability, and usefulness of the results as presented in both the faunal and floral annual monitoring reports. In addition, although pre-clearance faunal surveys were conducted, it appears that some recommendations were not translated into actual mitigation measures considered during pipeline construction.

In *Turkey* BTC informed the IEC of a number of actions taken by the Project regarding reinstatement of ESAs, including: a Seed Stock and Nursery Assessment; development of 'Bridging' document created to update the specific method statements (SARMS); ecology consultant's advices on a translocation (of target species) and ecological monitoring strategies; specific monitoring activity carried out and a management of change process in the Posof ESA to determine whether early access for some repair works was achievable before the end of the seasonal constraint. Some positive developments were noted such as the implementation of ESA monitoring programs in Lots A and B and the establishment of a template to ensure consistency in SARMS across all the ESAs in Turkey. However, the IEC notes that although progress in planning for the ESAs has progressed somewhat since February, little real progress on the ground is observable with the exception of Lot C.

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

¹ IEC Team members: Roberto Carpaneto (Team Leader), Paolo Lombardo (Team Coordinator), Miles Scott-Brown (Team Member), William J. Johnson (Team Member), Lori Anna Conzo (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.

Management Plans and with HSE management systems. This report summarizes the results of D'Appolonia's fifth field visit held between June 13 - 25, 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 (BOTAŞ) 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/BOTAŞ and the individual Contractors to non-compliant situations based on the following:

- Random checking of individual non-compliances identified by BTC/BOTAŞ 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 is visited as part of auditing of the ACG Phase 1 Project and was not visited during this mission.

First Oil in Azerbaijan was celebrated on May 25, 2005. The entire BTC pipeline in Azerbaijan is in the ground. At the time of this IEC mission, oil was flowing as far as PSA-2 and plans were being made to carry the oil to PSG-1 in Georgia by about the middle of July, which would effectively complete the BTC Project in Azerbaijan, except for the remaining reinstatement and additional ongoing cultural heritage, ecological and community programs.

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 65, currently being reactivated primarily for the SCP; Kurdamir near KP 130, discontinued; Yevlakh near KP 240, discontinued; Tovuz near KP 380, occupied. For SPJV: Kurdamir for IPA1 near KP 126, being transferred to Operations; PSA2 camp near KP 244, still fully occupied and being shared by Construction and Operations teams).
- Dump Yards for pipe, which include (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) are no longer being used for the BTC Project and will be decommissioned after completion of the SCP.

This mission focused on a review of the reinstatement of the pipeline from the beginning of the BTC pipeline at Sangachal Terminal to the border with Georgia. Mugan Camp was visited to review the procedures being implemented to reinstate

the previously abandoned pollution prevention systems and Kurdamir Camp was visited to tour the still-operational Central Waste Management Area (CWAA) and also to understand the process of decommissioning the rest of the facility back to the landowner.

2.1 CONSTRUCTION STATUS

Current (June 15, 2005) construction progress is as follows:

- *Facilities* –Construction of Pump Stations PSA1 at Sangachal Terminal and PSA2 are complete; Intermediate Pigging station IPA1 is also complete.
- *Pipeline* – Pipeline construction is complete to the Georgian border (443 km). The 12-m BTC corridor has been final graded with the placement of topsoil over 436 km with biorestitution completed for 299 km. Hydrotesting is completed and the pipeline was turned over to Operations on June 15.

All major river crossings were complete at the time of the mission. During the visit, the reinstatements of the crossings at Kurudera (KP 422), Kura West, (KP 411) Hasan Su (KP 398), Tovus Chai (KP 377), Zayamchay (KP 357), and Djeyrankechmez River (KP 9) were reviewed in the field. Numerous borrow pits along the ROW 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 (pipeline contractor). SPJV (facilities contractor) 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 staffing has stabilized to primarily reflect the ongoing nature of the SCP Project. Since the 4th IEC mission in February, one Environmental Field Supervisor left the Project and the Archaeological Supervisor resigned. A senior archeologist has been recruited and is expected to start shortly. Nearly all of the experienced construction staff members are still working and attrition associated with the completion of the construction has not started.

BTC Core Management Team

Plans for transitioning into Operations are under development. A dedicated team is working on the identification of the specific responsibilities that will remain with the BTC Operations team (Exports Performance Unit), as well as those that will belong to the Business Unit in Azerbaijan. In addition, the team has identified a few trial topics to work with the BTC construction country teams (Azerbaijan, Georgia, Turkey) to specify, in a comprehensive manner, the details of the hand-over procedure. This process is an on-going process and IEC looks forward to review the outcomes of these activities during the next mission.

CCIC

CCIC has effectively begun to demobilize their E&S staff. Two CCIC Environmental Engineers and the Biorestitution Specialist were released from the project and replaced by single senior environmental engineer. Staffing is not considered adequate to cover all of the E&S requirements of the Project. The current E&S staffing at CCIC has forced BTC to assume the leadership for many of the remaining environmental tasks remaining for the construction phase, including final biorestitution.

SPJV

SPJV demobilized their Environmental Engineer before delivery final reinstatement commitments. Given the status of the construction of the AGIs in Azerbaijan, the E&S responsibilities for SPJV are essentially complete and remaining activities are being turned over to BTC Operations.

2.2.2 Resources and Organization - Recommendations

1. BTC needs to continue to focus on the staffing requirements necessary to achieve a smooth transition from Construction to Operations and reserve the appropriate resources to this task.
2. The attrition of the Contractor staffs has started. IEC acknowledges that in most of the cases BTC has been able to fill the gaps. Nevertheless, taking also into consideration that at some point there will likely be an attrition of qualified staff from BTC as well, IEC recommends that BTC 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 was identified in the 4th IEC mission report and is still 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 biorestorement instead – Pending.

This proposed change was resubmitted to CCIC on December 23, but still has not responded. In addition, an MOC for the discharge of specific hydrotest water was approved as noted below:

- DR-PL-00195, Change Type 2, Class I – discharge the hydrotest water into the northern side sedimentation pond at Kura West to reduce the amount of time required to discharge the floodplains in order to commence tie in and machine operations – Approved May 12

In addition to this MOC, an MOC document has been prepared for the discharge of hydrotest water currently being stored at evaporation ponds at KP 244 and KP 411. It is apparent that evaporation will not be a final solution. The new MOC proposes to discharge the water from the pond at KP 244 into the Karabakh canal after appropriate testing. Water from the pond at KP 411 will be discharged as a surface water body yet to be determined. From the standpoint of the ESAP it could be feasible to discharge the hydrotest water once effluent discharge parameters are met. Discharge is still pending MENR approval.

The more significant MOC procedures relate to changes to ESAP standards for effluent from the sewage treatments and air emissions from the waste incinerator. These changes have been classified as Class III changes. Accordingly, the basis for these changes was reviewed by the IEC prior to this mission and it must be recognized that BTC has placed significant effort in providing reasonable justification to change these fundamental standards. Beginning with this mission, the Project will be reviewed in the context of the newly adopted standards. Although the MOCs have been signed by the Project staff and implemented in the field, they are still considered not to be final until they are approved by MENR.

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 newly-occupied Mugan Camp and 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. The Project was not able to implement sufficiently H&S and E&S project standards at the third-party operated batching plant near PSA-2, as a service provider and not a subcontractor operated this facility and there was no contractual mechanism to require full HSES compliance. However, the project did work closely with the service provider and the SPJV to influence HSES practice at the site, including providing training to staff in HSES issues.

2.3.2 CCIC - Observations

As noted above, CCIC has four work camps located along the pipeline route, Mugan (KP 20 – being reoccupied, primarily for SCP construction), Kurdamir (KP 130 – unoccupied and being decommissioned, except for the Central Waste Management Area), Yevlakh (KP 240 – unoccupied and being decommissioned), and Tovuz (KP 380). During this field trip, Mugan and Kurdamir Camps were visited.

Kurdamir Camp has been decommissioned with certain utilities left in place at the request of the landowner. This decommissioning has excluded the CWAA. Although the condition of the land and utilities was accepted by the landowner, a May 2005 BTC inspection identified numerous non-compliances with ESAP commitments not to hand over property until the site is clean and safe for reoccupancy. The site is still pending additional cleanup before BTC approves the decommissioning. Although this site is a former brownfield site with previous industrial occupancy, including its use as a camp for the Western Route, BTC's requirements have been punch listed and a close-out audit will be carried out prior to final turnover of this site to the landowner. IEC acknowledges the effort made by BTC to ensure the proper restoration of this and notes that CCIC will need to be careful to make sure that ESAP commitments are followed, regardless of what the landowner will accept as a cleanup standard.

Mugan site is being occupied by a small temporary workforce and it is intended to be used by more personnel depending on SCP construction needs. This site was effectively being abandoned from the BTC Project before the pollution control systems developed at the other camps had been implemented. Accordingly, these systems need to be constructed at this camp and this activity was taking place at the time of the visit.

A chronic problem that does not appear to have ever been the focus of attention by Project environmental staff is with respect to noise pollution. The generator at Kurdamir was a chronic problem and the ultimate solution to this problem has been the closure of the camp.

Tovuz Camp continues to routinely produce noise levels that exceed ESAP nighttime standards by as much as 15 dB. A blockwork wall was under construction at the time of the IEC mission and the effectiveness of the barrier at reducing ambient noise has yet to be established.

The generators at Mugan Camp have just been re-installed, but at the same location as the first occupancy, which is the side of the camp closest to residences and measurements indicate an exceedance of nighttime noise standards at the location of the nearest residential dwellings. Efforts are being made to increase the effectiveness of the blockwork wall enclosing the generator compound at the edge of Mugan Camp in reducing the ambient noise transmitted to sensitive receptors to within acceptable levels, but it is not clear if this effort will be successful. It is understood that neighbors have not complained but, but again, appears to IEC that 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 potable water quality data were reviewed. The data show compliance with requirements and no observations are raised by IEC.

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. It is understood that operational improvements are needed before the facility is acceptable to AZBU.

AZBU also has plans to construct an EU-compliant non-hazardous waste landfill. Meanwhile, an unoccupied landfill cell at the Sumgayit facility is being conditioned by AZBU as a temporary waste solution until the new landfill is completed. Neither of these facilities is considered to be a solution for the BTC waste stream, and the Kurdamir incinerator is planned to be the final solution for non-hazardous BTC waste. The newly-enacted Class III MOC related to a change in the standards for particulate emissions is expected to demonstrate that the Kurdamir can be operated within reasonable standards. The IEC has reviewed the concept behind the relaxation of the emission standard for particulates and has found the change to be acceptable. The overall appearance of the incinerator was observed in the field, including ash quality, and the incinerator appears to finally have reached its operating standard. Accordingly, with the assumption that the stack emissions

testing conducted about two weeks before the current IEC mission will provide positive results, the Level II non-compliance identified previously identified is considered rescinded.

The storage of hazardous waste is still 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 expected that Government permission will be obtained for the injection of waste oil into the Western Route Pipeline. As previously noted by the IEC, this is an acceptable solution from an environmental point of view and will free up a significant amount of space in the Temirmash Waste Storage Area.

The BTC/SPJV H&S departments have re-evaluated the issue of worker exposure from the incinerator droplets and have analyzed the droplets and the results indicate that the droplets are non-hazardous. They have revised the risk exposure scenarios for the workers and concluded that the risk is minimal. Nevertheless, workers in the immediate vicinity of the incinerator will be given respiratory protection and increased medical surveillance. A potential problem noted in the field is that the office space for the CWAA workers is immediately below the incinerator stack, such that workers working without PPE could be directly exposed to the stack emissions. IEC recommends that the H&S staff review the current arrangement and eventually decide for a more convenient location for the office within the CWAA, but as far as practical from the incinerator stack,

2.4.2 Non-Hazardous and Hazardous Waste - Recommendations

1. Move the CWAA office module to another part of the CWAA such that the workers do not have to be immediately next to the incinerator stack. .

2.4.3 Wastewater Management - Observations

The CCIC Wastewater Treatment Plants (WWTPs) at Yevlakh and Kurdamir camps have been decommissioned and some of these units have been moved to Mugan Camp. This conclusion automatically solves the past problems of discharges to inadequate municipal facilities at these two locations. As noted in Section 2.2.3, the Project has undertaken a Class III MOC to relax some of the effluent standards for the WWTPs. The justification for these changes has been reviewed by the IEC and the changes are considered acceptable.

The one parameter where the Project will need to pay the greatest attention is coliforms. Where discharge is to an irrigation system, a revised standard of 1000

MPN/100 ml for faecal coliforms has been adopted consistent with WHO criteria. Accepting 1000 as a reasonable standard, IEC observes that the Project frequently exceeds the new standard where water may enter an irrigation system, specifically at Mughan Camp. The overall situation is one where improvement in the operation and maintenance of the STPs is still needed to achieve the revised standards for faecal coliforms (*Level I Non-Compliance, CCP Waste Management Plan, Commitment ID: 553*).

BTC hydrotesting is complete. Soil testing for iron was conducted at the sites of cleaning and gauging operations with no significant contamination identified. It should be noted, however, that none of these discharges were tested according to IFC/WB/EU standards as for any discharge of water (e.g. standards for discharge irrigation water) and the only test parameters were iron, TSS and pH. As noted in Section 2.2.3, an MOC to allow for the discharge of the hydrotest water from the large lined ponds constructed at KP 244 (discharge proposed for the Karabakh Canal) and KP 411 (discharge at a location to be defined) has been proposed and is pending approval from MENR.

SPJV

Recent test results from the WWTP at PSA2 were not provided by SPJV. Based on past test results, with no other information, the previous non-compliance identified by IEC during previous mission can only be confirmed (*Level I Non-Compliance, CCP Waste Management Plan, Commitment ID: 553*).

2.4.4 Wastewater Management – Recommendations

1. Consider adopting a single standard for effluent discharge, consistent with what has been adopted for discharge to irrigation waters. The Project should not be comfortable that they are performing acceptably just because they are discharging into a “fish protection” environment where there may not be a requirement for testing (specifically coliforms). The goal still needs to be to minimize pollution to the maximum degree practical...
2. Test water from the evaporation ponds with the full IFC/WB suite of parameters before discharge. Consider testing clean and gauge water from the SCP for the full suite of IFC/WB parameters as retrofit for not conducting these tests for BTC.
3. Eliminate the practice to discharge to a municipal sewer system (Tovuz), which is known not to be working in accordance with Project requirements.

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, except where these facilities are now under construction at Mugan Camp. It is expected that the good practices followed at the other camps will be applied at Tovuz Camp.

As noted in Section 2.3.2, the one remaining pollution prevention issue both Tovuz and Mugan Camps 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 12-m BTC corridor has been final graded (Phase 1 reinstatement) with the placement of topsoil over 441.1 km (Phase 2 reinstatement) with biorestore completed for 440.4 km. (Phase 3 reinstatement). Overall reinstatement of the BTC pipeline has been good in general. Specific observations were made over the course of the IEC visit that correspond to the different areas visited.

- Sangachal Terminal to Mud Volcano Ridge (KP 27) – erosion and sediment control measures have proven effective in protecting the ROW over the winter months; revegetation along the ROW is sporadic. Where the surface has been tilled such that linear ridges have remained, moisture has been trapped in the furrows and some vegetation has started. This area will need additional seeding. Currently some supplies of seed have been collected and stored at Mugan Camp. It is understood that a dedicated person (botanist) is going to join the BTC team and he will be in charge of biorestore. The current situation with respect to the storage of seed is not entirely satisfactory. The quantities of the seeds appear to be limited; the germination ratio is limited (on the order of 40 percent) and the storage facility and method need improvements. IEC welcomes the appointment of the new botanist and recommends that BTC support his work with the appropriate resources in view of the need of:
 - A new campaign for seed collection;
 - The requalification and upgrade of the seed storage facility;
 - The management of the germination tests;
 - The seeding along the ROW.

- Middle section of pipeline ROW (KP 125 taken as typical) – BTC pipeline corridor depicts good vegetative recovery. The overall result, however will only be appreciated when SCP construction is completed such that final restoration of the entire ROW (BTC and SCP corridors) is finished.
- Central – Western portion (KP 300-KP 400) - BTC pipeline depicts good vegetative recovery. Good reclamation was observed at bentonite (waste from horizontal drilling) disposal sites (where bentonite was mixed with natural soils and placed back on the ground surface). Care will need to be taken to achieve appropriate borrow pit closure and the occupancy of some borrow pits by birds (e.g., KP 338.3) will need to be addressed by ecologists. Some borrow pits (e.g., KP 334, KP 361.5, KP 364.5) observed in the field were not identified on the SCP Project list and need to be investigated to determine their provenance, if EBAs have been properly developed and to assess reinstatement requirements, as appropriate. Stabilization and drainage control structures are required at the bank of an unnamed stream at KP 396 where some erosion issues were observed along the BTC corridor.
- Western portion of pipeline ROW (KP 400+) – generally depicts good reinstatement. Approximately 50 km of the SCP pipe corridor has also been reinstated so it is possible to observe the reinstatement of the entire 44 m corridor, with the exception of the central SCP access track, which has yet to be reinstated. Many small irrigation channels cross this section of the ROW and care will need to be taken to protect these structures. The greatest single concern for reinstatement along the entire ROW is the recovery of the large trenches associated with the Kura West Micro-tunnel.

The actual effectiveness of the bio restoration procedures will need to be reviewed after the entire BTC/SCP ROW is reinstated final.

2.6.2 Recommendations

1. Efficiently repair and maintain erosion and sediment control measure at those locations that were damaged during the recent rainy season (e.g. KP 396).
2. Seeding will be required for certain areas along the ROW, most notably in the Gobustan Desert area.
3. Additional seeds are needed and it is recommended that the collection of seeds start immediately – now it is the right season.
4. Germination tests should also start immediately, as well - now is the right season.

5. Be prepared with the right quantity and quality of seeds by the next seeding season (Nov 05 – Jan 06) and manage the storage facility properly to ensure good final results. For example, consider the use of smaller seed bags than are currently being used.

2.7 ECOLOGICAL MANAGEMENT

2.7.1 Observations

Now that the BTC pipeline is completely installed in Azerbaijan, remaining ecological monitoring is incorporated within the SCP Project and it is not practical to distinguish efforts associated only with the BTC Pipeline. Information to evaluate the activities associated with the SCP Project was not provided for IEC review and is not within the scope of this monitoring report. The overall success of the BTC Project in terms of its hopefully lack of ecological impact will not be determined until the final reinstatement of the dual ROW for both pipeline projects is complete.

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.

The field portion of the BTC archaeological program is complete and the ongoing archaeological fieldwork is being conducted in association with the SCP project.

As noted in Section 2.2.1, the Senior Archaeologist has resigned and is being replaced with another qualified archaeologist. When the new manager arrives, there will again be 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.

At this point in time, it is important to make 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. At this point in time the BTC and SCP projects need to collaborate to prepare a post-construction program that will cover the topics of interpretation, curation and reporting of the overall findings. It should be recognized that there will be different audiences for both local and international levels. It should be recognized that documenting the findings within regional context for an international audience is not a trivial effort and will require about two years to complete (estimated 2007). The Project may wish to undertake in collaboration with the AIA some additional studies of other known sites such that the BTC/SCP findings could be placed within better context.
3. The same individuals that have been involved with the field phase of the archaeology should be the same individuals involved with the interpretation and report preparation.

2.9 HEALTH AND SAFETY

2.9.1 Observations

The BTC organization continues to place emphasis on properly managing the safety performance of the different parties involved during the Project development. A comprehensive Health and Safety (H&S) Management system is in place and dedicated H&S Plans and Manuals have been developed; however most of the activities now in the field are related to SCP Project and are not within the scope of this monitoring report.

2.10 ENVIRONMENTAL INVESTMENT PROGRAMME

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

The 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 continues to be effectively stalled pending the establishment agreements with MENR. The results of the independent audit of the EIP have been submitted with three basic findings: the contracting process is too complicated and needs to be simplified; more efforts need to be taken to involve the responsible Ministries; and not enough staff has been involved from the BTC side. It is understood that BTC is working to follow these recommendations. One mechanism being explored to initiate one component of the EIP (Gazelle conservation) has been the possibility of incorporating the work proposed for the Azerbaijan Society of Zoologists into a proposal prepared by the Succow Foundation for the Ag Gol National Park.

BTC continues to implement 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. Recent activities have included signing a grant with a local NGO Hayat to implement a community based environmental awareness and improvement program. Environmental training

materials have been submitted to BTC and have been received with a request for funding. A drawing exhibition for children of Supplementary Boarding School No.7 in Surakhani has been sponsored. The exhibition was dedicated to International Biodiversity Day and aimed at raising awareness on biodiversity conservation and its significance for future generations.

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 fifth mission the visit was conducted along the entire ROW. Akhaltsikhe camp was also visited.

3.1 CONSTRUCTION STATUS

The BTC Project uses a single EPC Contractor, Spie-Capag Petrofac Joint Venture (SPJV), for both pipeline and AGI construction. Current (June 11, 2005) construction progress is as follows:

- *Facilities* – Pump Station PSG1 is reported to have an overall completion of 99%; PSG2 is reported to be close to a 99% overall completion.
- *Pipeline* – Overall pipeline construction is close to 87% complete. In terms of stringing, welding, trenching and lowering, the pipe is 100% complete. Partial reinstatement is complete except for about 65 km. The remaining work items for the pipeline consist mainly of completing the installation of the fiber optic cable (approximately 111 km remaining), block valve installation (84% complete) and nearly all of the caliper pigging has yet to be completed. The pipeline section

from the border with Azerbaijan to PSG-1 has already been turned over to Operations. The section from PSG-1 to PSG-2 is nearly ready to be turned over.

All major river crossings are complete.

3.2 ENVIRONMENTAL AND SOCIAL MANAGEMENT ORGANIZATION AND RESOURCES

3.2.1 Resources and Organization - Observations

BTC

BTC continues to assume more of the responsibilities for correcting non-compliant conditions and assuring environmental compliance for ongoing activities in support of SPJV. As a result, BTC has increased staffing with the mobilization of biorestitution and erosion/sediment control specialists. One person has been assigned to manage the conditioning of the Iagljaja municipal disposal facility on a full time basis and a hydrotest specialist has also been retained. Some staff continues to be transitioned into Operations.

SPJV

SPJV remains understaffed for the remaining field efforts. The demobilization of Punj Lloyd has left some gaps in the E&S infrastructure that BTC has had to fill, especially with respect to reinstatement, biorestitution and erosion/sediment control. The current E&S staffing at SPJV has forced BTC to assume the leadership for many of the remaining environmental tasks remaining for the construction phase, including final biorestitution.

A portion of the pipeline construction corridor (about 20 kilometers negative from KP 196) will be handed over from Spread 1 to Spread 2. It is important that all E&S information relevant to this section (e.g. EBAs, original topographic features, social issues, etc.) will be passed properly to Spread 2 and that the coming E&S organization is made fully aware of the E&S characteristics of this section especially with respect to reinstatement.

3.2.2 Resources and Organization - Recommendations

1. IEC renews our recommendation regarding the 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.
2. BTC and SPJV will need to work closely together to assure that management of social issues is not adversely affected by construction demobilization (repeat recommendation).

3. For the pipeline section passing from the responsibility of Spread 1 to Spread 2 make sure that all relevant E&S information will be available to the new crew.

3.2.3 Management of Change - Observations

With the BTC pipeline installation nearly complete, the minor Class I changes related to pipeline construction are associated primarily with the SCP project. One exception relates to modifications to the Kura West erosion and sediment control procedures:

- AGT002-2004-PM-DCN-00053 Rev U-02, Class II - Installation of river training works as part of the final reinstatement of the Kura West River after the installation of the BTC and SCP Pipelines. The review of aerial photography since 2001 has revealed a pattern of riverbed migration that could impact the two pipelines if the river is not constrained at the crossing location; approved May 16, 2005.

Other 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 the Capital Improvement Works identified in the Landfill Conditioning Plan – LCP - for the Iagljudja municipal disposal site), approved by BTC on January 21, 2005, but considered, at that time, pending as Class III change requiring Lender review.

These are the same two MOC documents reviewed at the time of the February 2005 IEC mission. Since that mission, AGT002-2004-PM-DCN-00046 has been reclassified as a Class III change covering both Azerbaijan and Georgia. As both of these MOC documents have been classified as Class III, the basis for the changes has been reviewed by the IEC prior to this mission. In both cases it must be recognized that BTC has placed significant effort in providing reasonable justification for the proposed changes. At the time of the February 2005 IEC mission, the IEC indicated that the relaxation of standards prior to providing appropriate justification constituted a Level II non-compliance. The appropriate documentation for this significant change has now been provided and this procedural Level II is considered to be rescinded.

The problem of waste disposal was identified as a serious situation in the IEC February mission report, again because non-hazardous domestic waste (i.e. non-reusable-recyclable) was being disposed at a non-compliant municipal dump site

prior to the approval of the MOC and prior to the beginning of any implementation of the Landfill Conditioning Plan proposed in the MOC document to mitigate this practice. The current situation is further discussed in Section 3.4.

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 survey 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 during the 4th mission in a tabulated form defining the location of third-party concrete batch plants and borrow pits with proposed mitigation measures. The Level II non-compliance assigned during the 3rd IEC mission for the issue of third-party aggregate was considered rescinded at the time of the 4th IEC mission, with the note that "*the IEC will need to observe that the closure activities do take place according to plans*". Part of the scope of this 5th IEC mission was therefore to review the status of these third party batch plants.

Two batch plants are working such that by far the majority of their production is dedicated to Project, one operated for PSG-2 construction by Geotek and the other operated for PSG-1 production by a firm called DTS. The two facilities provide concrete under a purchase order issued by SPJV. It is the IEC opinion that, under ESAP requirements, and based on the relevance of the production of these two facilities for the Project, SPJV should share responsibility for the performance of the two plants and BTC should be responsible of the quality assurance coverage. The basic observation applicable to both of these facilities is that the CMT confirmed that the Project should be responsible for assuring that these facilities are influenced to operate in accordance with the Project standards, but Project intervention appears to have been negligible. These plants are not being operated within Project standards and ESAP principles are not being followed, particularly in terms of appropriate training of personnel "*...(including subcontractors and suppliers) ...ensure competence and safe performance of duty, appropriate to the work being performed..*" (commitment M11 – HSE Project Plan) and in particular in the control

for pollution prevention. The conditions observed in the field are apparently representative of the operating conditions of these plants since their inception.

As noted in the 3rd IEC mission report, if a supplier of concrete provides a significant amount of its supply of concrete to the Project, it is not relevant whether or not the business will be in existence after the Project is completed or whether the business was in existence before the Project. The Project should work to prevent pollution that could be caused by the improper control of cement truck wash water, nuisance dust, an unsafe work environment because of lack of PPE, training, environmental protection awareness, etc. The Project has already committed to the following in the CCP for Procurement and Supply: “...*The Contractor will submit to BTC Co an environmental statement giving details of the proposed sourcing and transport of the materials and the environmental impact involved, e.g., proper methods for dust control and management of concrete wash water...*”. The Project has not been able to demonstrate that the facility has properly managed, controlled and operated in compliance with many ESAP requirements (*Level II Non-Compliance, CCP Procurement and Supply, Commitment ID N34-P35, Commitment M11 – HSE Plan Section 7.4*). According to information gathered in the field, the BTC-CMT staff is committed to solve this issue even if the response is late. The development of an action mitigation plan specifically to address the issue of the batch plants with significant Project production across the three countries is a positive step taken by the Project and IEC looks forward to observing the first results in the field during upcoming missions.

SPJV

The IEC visited the Camp and Mechanical Yard at Akhaltsikhe during this mission. The overall impression from this visit is that the camp is well managed and could serve as a reference for construction camps of its type. Waste management and especially segregation at the source (in the kitchens) and at the temporary accumulation area is well conducted with appropriate handling procedures in place. The hazardous waste storage area at the Mechanical Yard is particularly well managed and organized. Pollution prevention systems have been in place for some time and are well maintained. In addition to the field review of Akhaltsikhe camp, documents were reviewed to determine the appropriateness of other camp activities and associated infrastructure:

- *Water supplies:* Available test data indicate that potable water meeting WHO standards continues to be supplied to the camps. Bacteriological test records provided for all of the camps indicate that water quality has met WHO standards over the past few months.
- *Project footprint:* Borrow pit closure will depend primarily on completion of the SCP. Specific plans have not been prepared for their closure, but they have been reviewed and listed. Final decisions are still pending for their closure. Two pre-existing borrow pits at KP 162 and KP 153 were visited, both used for BTC and

SCP project needs. The IEC considers that they represent a significant footprint for which the Project is responsible and they both will need reinstatement at the end of construction.

- *Third-Party Concrete*: see section 3.3.1 above.
- *General Camp Management*: The problems associated with housekeeping, and pollution prevention, previously found to be problems at the PSG2 construction site occupied by Geotek, have been resolved by demobilizing the subcontractor. SPJV and BTC have assumed responsibility for the pollution prevention control systems at PSG-2 and report that the previous long-standing problems have been resolved. The Level II non-compliance from the 4th IEC mission is considered rescinded based on information provided by the Project. As noted above, where visited (i.e., Akhaltsikhe Camp), general camp management was exemplary.
- *Excess Rock at PSG-2*: It is understood that the situation for the large quantity of excess rock at PSG-2 is still pending resolution. The Project approach for the in-situ reinstatement of surplus rock and soil has been submitted to MoE, but this approach has been rejected and discussions are still ongoing. The IEC has previously indicated that an in situ disposal solution would be consistent with ESAP commitments and the alternative solution to move the excess rock to another location should also consider the significant transportation effort and the relevant safety and environmental consequences. Regardless of the disposal solution adopted, IEC expects that comprehensive E&H documentation to support the final solution will be prepared.

3.3.2 Recommendations

1. Implement the findings of the evaluation of third-party suppliers. IEC recommends that the Project, in particular the BTC-CMT define a comprehensive strategy and plan to solve this issue. The strategy should specify which training should be considered at this stage of the construction in consideration of the future fate of the facilities, which measures should be adopted to improve the working conditions at these facilities, and which measures should be adopted to remediate the likely pollution caused by the poor practices observed by IEC in the field.
2. Where borrow pits have been identified as meriting reinstatement, make sure appropriate plans are in place and that they are implemented.
3. Work with the Georgian Government to solve the issue of the excess rock at PSG-2 considering all potential disadvantages if the large quantity of rock will have to be removed to another location.

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. As noted in the 4th IEC mission report, it is the final disposal of non-hazardous domestic waste (i.e. non-reusable/recyclable) and hazardous waste that has proven to be problematic for BTC and SPJV. In spite of past difficulties, it is believed that the Project is now on the correct path to develop appropriate disposal procedures:

The Landfill Conditioning Plan (LCP) developed for the Iagljuda municipal disposal facility has been reviewed by the IEC as part of the Class III MOC discussed in Section 3.2.3 and found to be acceptable. MoE's approval of the LCP and their consent for Capital Improvements Works were issued on May 20, 2005 and the consent from the Municipality of Tbilisi for implementing the LCP was issued on June 3. Although this facility was not visited, BTC provided tangible evidence that the LCP is being actively started and they have assigned an environmental engineer full-time to implement the Capital Improvement Works identified in this Plan.

In parallel with implementing the Iagljuda LCP, plans are being made to construct a new EU-compliant municipal landfill in Georgia, which will be available for both Project (during Operation) and non-Project use. This facility will not be available in time to manage the BTC waste streams generated during the construction phase, but BP should be commended for taking the initiative to construct this facility.

With respect to hazardous waste, it is recognized that SPJV continues to appropriately store this material and that there is no imminent risk of a public hazard from this activity, and there is no non-compliance to report. It is understood that the Project has not abandoned the possibility of constructing a hazardous waste landfill at the Sagarejo site, for which an EIA document has already been prepared, but that the possibility of exporting the waste to a safe external facility, probably in western Europe, will also be pursued in parallel. At some point in time a decision will be made to select one or the other of these options, based on a cost benefit analysis and Government input to the decision process. In addition, plans are also being formulated to inject waste oil into the Western Route as is also being planned for Azerbaijan and is already being done by the Phase 1 ACG Project.

At this point in time, the overall waste management procedures appear to have reached a sustainable strategy which appears to be appropriately managed. The Level III non-compliance from the 4th IEC mission is considered to be rescinded.

3.4.2 Non-Hazardous and Hazardous Waste - Recommendations

1. Once construction is complete, BTC should consider preparing a “Lessons Learned” paper on the subject of waste management in countries with inadequate local infrastructure for the benefit of future similar projects with particular emphasis on optimizing the contribution of contractors managing this issue.

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 a Project of this nature and with the types of treatment units that are being used. As noted in Section 2.2.3, the Project has undertaken a Class III MOC to relax some of the effluent standards for the WWTPs.

The justification for these changes has been reviewed by the IEC and the changes are considered reasonable and acceptable. The one parameter where the Project will need to pay the greatest attention is to coliforms. Where discharge is to an irrigation system, a standard of 1000 MPN/100 ml has been adopted consistent with WHO criteria. Accepting 1000 as a reasonable standard, the Project has reached general compliance with the new standards, except at PSG-2 office and Tsalka Camp. The situation at Tsalka Camp is not actually considered to be non-compliant because the discharge is in what is classified as a “fish protection” environment where the requirements for coliform testing are “functionality checks.” The overall situation is considered to be one where improvement and attention is still needed and is considered a Level I non-compliance (*Level I Non-Compliance, CCP Waste Management Plan, Commitment ID: 553*).

3.4.4 Wastewater Management – Recommendations

1. Consider adopting a single standard for effluent discharge, consistent with what has been adopted for discharge to irrigation waters. The goal still needs to be to minimize pollution to the maximum degree practical.
2. Consider additional control systems for the control of coliforms at PSG-2 office (repeated recommendation).

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.

Hydrotest

At the time of this visit, the most significant activity with the potential for environmental pollution was hydrotesting. Initial efforts to environmentally manage hydrotest waters were hampered by the inability of the testing laboratory to provide timely test results and discharges were made before the test results were available. The test results, when received, did not indicate that non-compliant discharges had taken place, but the procedure was not appropriate for preventing impact had there been problems with the quality of the discharge water. Subsequently, BTC has placed greater reliance on field parameters with confirmatory follow up provided by the laboratory at a later date and this process appears to be improved lately and should be properly implemented for the remaining hydrotested pipeline sections.

A visit was made to the location of the clean and gauge hydrotesting being conducted with a discharge point at KP 138. At this location, several deficiencies were noted:

- Water was observed to be discharged improperly.
- Water quality tests were not conducted prior to discharge.
- A filtration/sediment trap was not present.
- Discharged water caused the uncontrolled flooding of agricultural land where potatoes were being cultivated.

These procedures represent a disregard for the standards established in the Hydrotest Management Plan, which defines methods and procedures to conduct the activities in an environmentally and socially responsible manner. *Level II Non-Compliance, Hydrotest Management Plan, environmental and social commitments and procedures defined in Chapter 7.*

SPJV

As discussed in Section 3.3, pollution prevention systems at the camps and workplaces appear to be appropriately installed and maintained. One issue with respect to pollution prevention is the use of ethylene glycol (antifreeze) for cold weather hydrotesting. SPJV proposed the following MOC for this effort, which was rejected by BTC on December 8, 2004:

- BTC003-B020-PI-DVR-00210. Low Temperature Hydrotesting – proposal to perform hydrotesting below Project specification temperatures (i.e. below 5

degrees Celsius). The use of ethylene glycol is proposed for performing hydrotesting below 0 degrees Celsius.

In spite of the rejection, SPJV did use glycol as antifreeze additive for hydrotesting of valves at PSG2, but no method of disposal has yet been identified. About 600 liters of glycol and water mix are reported to be currently stored at this pump station.

Since the 4th IEC mission, one significant pollution incident was reported by BTC to the IEC where bentonite drilling mud was released to the Kura East River during drilling operations at the BTC Project's Horizontal Directional Drilling Site. The incident occurred during the early morning hours (approximately 1:30 am) of 28 April 2005. BTC immediately assembled a joint panel to investigate the facts, causes, and corrective actions related to the incident.

In summary, the panel concluded that an estimated volume of up to 150 m³ of drilling mud was released during the incident. The drilling contractor claims that the release of thick slurry contained within the recycling system pits was necessary to improve the drilling mud's fluidity (i.e., reduce its viscosity). Unfortunately, the mud was released to an inappropriate location (i.e., a pond located adjacent to the Kura riverbank). During the morning of the incident and days preceding it, water levels had risen and the pond's berms had been flooded and, hence, breached and compromised. As such, the riverside pond could not retain the mud to keep it from flowing into the river. It was determined that no significant environmental impact upon the quality of the receiving water occurred as a result of this incident, due to the already very high flows and turbidity levels at the time of the incident. Nevertheless, the panel concluded that the incident could and should have been prevented.

Corrective actions were identified and implemented to try to prevent a recurrence of this type of incident.

Based on Project documentation, appropriate actions were taken to notify the Georgian Government of the incident. The IEC does not consider it appropriate to assign a non-compliance to this event, as BTC has already assigned a Level III CAR to SPJV.

3.5.2 Recommendations

1. IEC recommends that hydrotest activities (including cleaning and gauging) be conducted according to plan with regard to E&S aspects
2. IEC recommends that special attention be given to planning ahead such that problems with hydrotesting that have occurred and are still occurring (e.g., KP 138) do not take place in other sections yet to be tested and particularly in sensitive areas (Borjomi).

3. IEC recommends strengthening the control and the monitoring of the hydrotest operation to ensure that conditions considered not appropriate are immediately corrected in the field and eventually stopped.

3.6 ROW MANAGEMENT

3.6.1 Observations

Most of the time spent by IEC team in the field was dedicated to the visit along the ROW. The pipeline route was visited from KP 0 to KP 249 with few interruptions. As a general statement, most of the ROW is still open because of SCP construction except for an initial portion of the ROW (about 50 kilometers) where both pipelines are in the ground and final reinstatement (in some cases including final biorestitution) of the entire 44 meters corridor has been achieved. The following section briefly described the situations encountered during the ROW visit.

KP 0 – KP 54 – Eastern Portion, Spread 1. This section, and especially the first 20 kilometers from the Georgian border, has achieved a remarkable result. Reinstatement is complete and the pipeline corridor (the entire 44 meters – SCP and BTC) is, in many sections, very well reinstated such that it is very difficult to recognize the presence of the ROW. In most portions of this section, farmers have started to use again the ROW for their agricultural needs and small as well as big irrigation channels crossing the pipelines have been observed to have been properly restored. Particularly attention has been placed in the reinstatement of the slope at KP 26 (fault crossing) where erosion and sediment control measures appear to be properly installed. The team visited the Algeti river crossing, fully reinstated and awaiting final biorestitution.

KP 120 – KP 176 Central Portion – Spread 1. The winterization measures adopted in this section were effective over the past winter. A few minor erosion problems were observed along the route, especially in the high elevation section of the route where the BTC corridor has reached Phase 1 or 2 reinstatement depending on location (backfilled with or without placement of topsoil). In the flat portion of the section (around KP 135) the reinstatement of the BTC corridor (SCP is still under construction) has achieved very good results, especially where natural revegetation has taken place and farmers have occasionally begun to use the BTC corridor.

The team visited two borrow pits at KP 162 and KP 153. Both have been used in the past and extensively used by both BTC and SCP projects. The IEC considers that they both represent significant footprints under the final responsibility of the Project and they both will need reinstatement at the end of construction activities.

KP 181 – KP 196 Central Portion -was under Spread 1 and will become under Spread 2 responsibility. In this section winterization measures have provided sufficient erosion protection, but temporary sediment and erosion control measures need maintenance before the upcoming rainy season, especially in the high altitude

sector where summer rainstorms can be very strong. A few sections of the BTC corridor have been reinstated to Phase 2 conditions and it is apparent that final reinstatement and biorestitution in particular cannot be take place this year, but will extend to the next season in 2006. In this section the access roads needed for BTC and SCP construction have had the greatest impact, because of the difficult accessibility along the route. Numerous long access roads have been and are being used by the Project vehicles. They represent a significant contribution to the footprint of the Project and they will need to be considered for final reinstatement according to commitments. SPJV/BTC should be prepared to dedicate a significant amount of resources to this particular task taking into account previous conditions as the standard for their final reinstatement.

KP 200 – KP 216 Central Portion – Spread 2. Winterization measures were not as successful or as well implemented as in other sections of the ROW. Erosion was observed at some locations along the ROW. Erosion and sediment control measures now need repair and maintenance and SPJV should increase the work force dedicated to this task prior the next rainy season. Most of the section, however, is still under SCP construction and final results of the reinstatement will be verified by IEC during upcoming missions.

KP 216 – KP 249 Western Portion – Spread 2. The variability of conditions is the main observation. Portions of the BTC corridor have been restored to Phase 2 conditions, while others are still only Phase 1, while still other parts have been left with a very narrow corridor for the BTC pipeline resulting in an open ROW wider than the expected 32 meters as committed for this phase of the sequence of BTC and SCP construction. Those portions having reached proper Phase 2 reinstatement are used by local farmers, but this situation is sporadic and sections are different from one location to another. The consequence of this situation is that several activities during future final reinstatement of the BTC corridor will have to be done when the pipeline is operating. Consequently, a working permit regime will be adopted that eventually will complicate and potentially delay the reinstatement and cause the local farmers to have to wait another season before they can actually access the ROW.

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, who has recently transmitted to the Project a list of comments. According to information gathered during the field visit, the negotiations and the discussions between the two parties are proceeding slowly.

3.6.2 Recommendations

1. SPJV needs to invest the proper resources (workers and equipment) for the repairs and maintenance of the erosion and sediment control measures after the past winter season.

2. BTC/SPJV should address the construction schedule in a way that the BTC corridor is reinstated to a Phase 2 condition as soon as practical to allow local farmers to use the corridor again for their agricultural needs.

3.7 BORJOMI AREA

3.7.1 Observations – The Kodiana Project

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 presented the status of the Kodiana Project as briefly discussed in the following paragraph.

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

The IEC understands that the issue is still under discussion with the Government of Georgia and, recognising the criticalities associated with this Project, looks forward to reviewing the E&S related analyses used to support the decision process.

3.8 ECOLOGICAL MANAGEMENT

3.8.1 Background

Upon the request and recommendation of the IEC, an ecologist was included as part of the IEC team during the visit in Georgia. Her presence gave the opportunity for an independent and direct evaluation of the status of the Ecological Management

Plan, in addition to information provided by BTC. The overall goals for the ecological component of the IEC's fifth mission included the following:

- review the results and recommendations made from the 2004 biodiversity monitoring,
- gain an in-field perspective of the monitoring goals, the overall design, and the implementation of the monitoring program,
- review how BTC has implemented various ecology-related Project commitments, and
- gain an update of the status of the Offset Mitigation Programme (and EIP).

BTC Ecological Management Plan Commitment F16/D6 defines the Project's responsibility to "...*Promote and undertake a wildlife monitoring programme in forest areas and wetlands to promote the conservation of endangered species...*". As reported in the IEC's report for the fourth mission and in compliance with Commitment F16/D6, a Biodiversity Monitoring Programme for Georgia consisting of floral and faunal monitoring components is being implemented by the Project.

As part of this program, the Project will conduct five years of annual monitoring, the first of which was conducted in spring 2004, with faunal and floral annual monitoring reports finalized and submitted to BTC in November 2004. The Biodiversity Monitoring Programme was developed jointly by BTC, the Government of Georgia, and a Georgian environmental consultancy firm (Dzelkva Ltd.). The implementation of the Programme (annual monitoring and report production) is carried out by Dzelkva Ltd. The Biodiversity Monitoring Programme has been approved by the Government in May 2004 following discussions with the Project and involving the governmental Environmental Advisors.

Briefly, the floral component of the Biodiversity Monitoring Programme focuses on three habitats (wetlands, forests, and high mountain meadows), as well as on individual rare species. For the faunal component, multi-taxa monitoring is conducted with emphasis on IUCN and Georgia Red-listed species that occur in the vicinity of the ROW (as determined by the ESIA and as confirmed by the pre-clearance surveys). Note that the comments and observations made in this section are mainly focused on the 2004 faunal and floral annual reports. Recommendations are made to improve the quality of future annual reports produced under the Biodiversity Monitoring Programme.

3.8.2 Observations

The IEC visited several sites that were included in the 2004 biodiversity monitoring plan, including: spadefoot toad/marsh turtle/Caspian terrapin monitoring sites (KP 11/KP 40), the 'newly created' Caucasian mud diver ponds (on the road connecting

Tsikhisjvari and KP 190 at Mt. Kodiana), black grouse habitat (Mount Kodiana [KP 189-190] and Mount Tavkvetili [KP 153-156]), avian and wetland monitoring sites (e.g., Nariani-Ktsia wetland complex, Santa wetland, Tavkvetili wetland, 'Khando' wetland, Lake Tabatskuri, Lake Aligel, and Tsalka Reservoir), and the Bakuriani Botanical Garden (as part of the Project's Rare Species Management and Offset Mitigation program). Through these site visits and through direct conversations with the Project's consultants, specific information was gained about the design, strategy, and approach to biodiversity monitoring in the vicinity of the ROW.

Although the Biodiversity Monitoring Programme provides a good starting point to envision monitoring activities and is in compliance with ESAP requirements, the IEC believes that several aspects of the overall design need to be clarified as part of the implementation of the annual monitoring plans. In particular, the annual monitoring plans should clarify if the monitoring approach is based on inferential statistics or some other type of semi-quantitative method. Objectives should be consistent with the actual outcomes of the monitoring data given the sampling and statistical design. For example, plots were established for both floral and faunal monitoring after construction activities had started; therefore, it was not possible to apply a BACI (before/after/control/impact) design, which would have been one of the best ways to statistically determine the impact of ROW construction. Given the type and limitations of the pre-construction data, a robust sampling design would be required to adequately characterize the range of natural variability (spatial and temporal) in measured biological indicators.

The faunal and floral annual monitoring reports could also be improved in terms of the presentation and applicability of the results. Specifically, the overall intent of the faunal monitoring, and, in some cases, the floral monitoring, with respect to the collection of baseline data should be better defined. In some sections, the goal appears to be the actual collection of baseline data, whereas in other sections annual data are being compared to baseline data. Baseline data (as acquired during the ESIA, pre-clearance surveys, and additional pre-construction faunal surveys) largely consisted of a qualitative assessment of a limited number of faunal and floral parameters along the ROW. For example, for the Syrian spadefoot toad (*Pelobates syriacus*) [IUCN Near Threatened and Georgia Red List], faunal surveys consisted of a description of the potential toad habitat. Although some numerical data were collected for other species (e.g., brown bear, bat surveys, vegetation percent cover), more specific ecological parameters, such as density estimates, reproductive success, mortality and survival rates, recruitment, etc. were outside the scope of these surveys.

It is also crucial that recommendations made in the annual reports are in line and up-to-date with actual ROW management activities. Some recommendations that were made in the text were not consistent with actual plans for ROW reinstatement (e.g., wetland recommendations).

Lastly, additional information and figures would help clarify the text, and should be specific to the various study units (e.g., figures presenting the design for individual species versus forests/meadows/shrub versus wetland in the floral monitoring).

Faunal Monitoring

The objectives of the plan as described in the text are broad and will be difficult to achieve given the current monitoring design. The number of treatment and control sites is considered limited, and spatial and temporal pseudo-replication is evident (e.g., spadefoot toad, avian monitoring). Non-independence is also noted between experimental and control plots, especially for the avian monitoring section, and no clear biological criteria are provided in the report to justify the selection of experimental or control sites. Although the selected sites may have the potential to allow the Project to observe general inter-annual avian abundance patterns in the region, these sites should not be referred to as ‘experiment’ and ‘control’.

The statistical tests alluded to in the text should be more clearly presented and checked for appropriateness given the limitations in the monitoring approach. It is not clear how these tests were applied, and on which variables they were based. Basic information such as means, variances, t statistics, F statistics, and confidence intervals should be presented, when applied.

Diversity indices were used to make comparisons between sites. For example, the Simpson’s index for avian monitoring and the Shannon-Weaver index for aquatic monitoring) were used to provide insight on the ‘impact’ of the ROW. Relying on diversity indices alone, without knowing the expected diversity at a particular site (i.e., given the lack of baseline data of this type), may not be the best approach as they are often difficult to interpret. A change in species composition would not necessarily be detected using only a diversity index.

As currently designed, it may be difficult to reach accurate conclusions regarding the potential ‘impact’ (or lack of impact) of construction activities given the limitations of the environmental data collected, the baseline data, the number of replicates and the weaknesses in the statistical design. Given the limited set of data and the number of ecological parameters, interannual population variability will likely not be accounted for (e.g., avian monitoring). A reevaluation of the type of results that can be obtained during the annual monitoring is recommended, consistent with the current approach and the actual data available.

For the aquatic monitoring section, two suborders within the order Odonata (dragonflies and damselflies) were being used as indicator taxa. The ability to infer overall biodiversity from a single indicator taxon is questionable, and the use of more than one taxon is highly encouraged. Although dragonflies have shown some potential as biological indicators, the monitoring reports should avoid stating that ‘*Dragonfly guilds are an ideal indicator of species diversity for aquatic and coastal communities*’ (page 88), without providing an explanation of what exactly these

species are ‘indicating’ about the response of other taxa to the impact of the ROW. The use of multiple indicator taxa is common practice and provides a broader ability to detect impacts across habitat types and taxa with differing sensitivities to environmental stressors.

In the conclusion and recommendation section of the 2004 report, some statements should be avoided unless they can be statistically defended; e.g., “*It can be stated that there is no direct negative impact...*” (page 94/migratory birds), “*There is no direct evidence of significant negative impacts...*” (page 94/waterbird communities), “*...the colony was not substantially disturbed...*” (page 94/nesting birds)...”*no significant differences..*” (page 95/Caucasian black grouse). Other types of conclusions that can better reflect the real effort of the monitoring would provide a more accurate account of monitoring results.

As mentioned in the IEC’s report for the fourth mission, the annual results from the spring 2004 faunal monitoring reported that habitat for the Syrian spadefoot toad and Caucasian mud-diver (*Pelodytes caucasicus* [IUCN Data Deficient/Georgia Red List]) were impacted during construction activities and in need of biorestitution/offset mitigation. It had been observed during the 2004 faunal monitoring that spadefoot toad breeding habitats, a pond at KP 40 and a swampy channel at KP 11, were dried out, possibly as a result of nearby construction activities and a stream supporting Caucasian mud-diver habitat (KP 187 through 189) was destroyed during construction activities.

The IEC observed that the swampy channel (KP 11) was still dry, although this is likely a natural, transient state of the canal, not related to pipeline construction. The breeding pond at KP 40 is now filled with water. Several ponds that had been reportedly created by Project activities along a nearby dirt road are now being considered as ‘compensatory’ for the destroyed stream between KP 187 through 189 that was found to be supporting mud-diver habitats; for example, one of these ponds (visited by the IEC) was created after the Project’s installation of a culvert that routes some stormwater under a dirt road (road connecting Tsikhisjvari and KP 190 to Mount Kodiana). It is unclear if these ponds can be considered a sufficient mitigation measure for the original habitat that was lost. However, the IEC has been informed that BTC has committed to the creation of a further, permanent pond.

The ichthyological component of the Biodiversity Monitoring Programme was not delivered with the 2004 annual results report.

Floral Monitoring

The floral monitoring plots were established after construction, and it appears that pre-construction baseline data are not available. Additional explanation in the monitoring reports would help to clarify the difference between ‘baseline characterization’ and ‘follow-up monitoring’. Additionally, if the objective of the 2004 ‘monitoring’ is to collect baseline information (i.e., on rare plants, forests,

meadows, shrub, and wetland), 2005 (and not 2004) should be considered the first year of the actual ‘monitoring’.

Although it is not clear in the annual monitoring report if sampling plots were systematically or randomly selected, during the site visit the IEC was informed that plots were systematically placed in habitats of low impact. This implies that inferential statistics are therefore not applicable given the non-random placement. Given this design, making comparisons between plots and extrapolating the results from a given set of plots to areas that were not sampled are not possible. The IEC recommends that the monitoring reports specify that plots established at fixed distances along the pipeline will be used to obtain data of plant composition over time within that plot only.

As previously mentioned, several wetlands were visited as part of IEC site activities. Both Nariani and Ktsia wetlands appear to be largely modified due to anthropogenic activities, namely the development of several irrigation channels that traverse the wetland, hay farming, and cattle and sheep grazing. The ROW does not pass directly through these wetlands, and the original hydrology of these wetlands was likely modified well before nearby construction activities were initiated. Nevertheless, the Project has committed to conduct ROW biorestitution in these areas. It is noted that biorestitution is particularly warranted in the Nariani portion of the wetland complex where the ROW passes immediately adjacent to the wetland.

The Tavkvetili (near KP 160) and Khando wetlands (KP 149) comprise a unique habitat located in the sub-alpine meadows. A small fragment of the Tavkvetili wetland site was impacted due to pipeline construction activities and the ROW traverses the Khando wetland site. A culvert was installed in the Khando site to maintain flow between the two sections. The 2004 floral monitoring annual report explains that the pipeline ROW will “*act as a permanent physical barrier to surface runoff and shallow soil water input into the wetland*” (page 24). Recommendations in the annual report had been made based on this perception. During the fifth IEC mission however it was confirmed that reinstatement of impacted wetlands is covered under the Biorestitution Plan, and the ROW will not present a ‘permanent physical barrier’.

Pre-clearance Surveys

The IEC reviewed SPJV pre-clearance surveys for the ROW in the vicinity of spadefoot toad and Caucasian mud-diver breeding habitats (KP 28 through 52, KP 176 through 190, respectively). No mention is made of either of these two sensitive species, and, furthermore, no amphibians or reptiles appear to have been included in these surveys. Nevertheless, the Project did conduct additional pre-clearance faunal surveys in which habitats for these species were highlighted along the ROW and construction-related mitigation measures were recommended, although, as mentioned previously, more specific ecological data such as density and recruitment were not collected.

Although pre-clearance faunal surveys were conducted, it appears that recommendations from these surveys were not always translated into actual mitigation measures that were considered during pipeline construction (*Level II Non-Compliance, Ecological Management Plan, Commitment F6*). The IEC notes that there is a lack of information on the following topics:

- The potential direct impact of pipeline construction on the seasonal hydrological regime at the KP 40 breeding pond;
- The potential indirect impact on the spadefoot toad population within this breeding pond; and
- The potential cumulative impact on the greater regional viability of this species given the severely fragmented population in Georgia.

The Project has reported that the above-mentioned potential direct impacts are being evaluated. Although suspected in the spring 2004 annual faunal monitoring report, it has not been determined if ROW construction is actually responsible for the alteration (i.e., water loss) of the spadefoot toad breeding sites at KP 40, but preventative measures do not appear to have been followed at this site. It remains to be seen if recolonization of the pond by spadefoot toads will reach the naturally occurring densities of other ponds in the region.

3.8.3 Recommendations

General

1. For both the floral and faunal monitoring, more specific objectives should be defined for each of the monitoring components (i.e., for each taxon and each vegetation community). Objectives should be consistent with limited baseline data and the design of the monitoring program, which does not lend itself to inferential statistics. A distinction should be made between the overarching ‘goal’ of the monitoring program and the specific objectives needed to track monitoring progress over time. The overall goal and the specific objectives should be listed in each annual report.
2. During the IEC site visit, the Project had made the suggestion to prepare a separate document that could provide further information to help fill the gaps in the annual monitoring reports. The IEC supports this idea, and recommends that in this separate document the following information is provided: justifications for all indices, site selection, sampling protocols, and statistical tests; citations for methods; all available baseline data in a concise format so that an independent reviewer will be able to verify the results; and separate figures that clearly show the monitoring design at the different sites.

Justifications (for indices, sampling protocols, statistical tests) should be specific to the population in question. Clear explanations of why a particular method was chosen (supported with citations, when necessary) are

recommended. In the annual reports, deviations from these methods should be discussed (and justified) as necessary. Each annual report should provide a reference to this separate document.

3. In order to make relevant recommendations, the Project's consultants carrying out the monitoring activities should be kept apprised of actual ROW management and reinstatement/biore restoration plans.

Faunal Monitoring

1. A reevaluation of the statistical approach is recommended.
2. Statistical figures (means, variances, t statistics, F statistics, confidence intervals, categorical variables for ANOVA) should be presented in the text.
3. All metadata should be concisely provided in each annual report so that an independent reviewer may better evaluate the results, e.g., how samples were collected, specific methods, times of day, indications of effort involved.
4. Control sites need to be increased and better explained (and justified) in the text to demonstrate independence from experimental plots. Increased information on the biology of the species in question will contribute to this end. For areas where independence between control and experimental plots is difficult to obtain (e.g., snake-eyed lizard), monitoring individuals along a transect from the pipeline ROW using a regression analysis may be preferable, assuming that environmental variation is minimal. If the Project is interested in observing temporal changes in species abundance in multiple sites on a regional scale, and not necessarily comparing experiment to control sites, this should be explained in the text and the objectives of the monitoring should be modified accordingly.
5. Increase the number of replicates (where possible).
6. Where diversity indices are used, it is highly encouraged to substantiate findings with: a) a comparison of number of individuals between sites, and b) similarity indices (e.g., Jaccard Index [C_J] or Sorenson's [or Bray-Curtis] [C_S]), which would allow detection of changes in taxonomic composition at monitored sites relative to reference sites, something diversity indices cannot provide.
7. The design of the avian and aquatic monitoring programs should be re-considered for future monitoring on the basis of the results of 2004 program.
8. It is recommended that the Project include multiple taxa in the aquatic monitoring program, and include some measure of overall benthic macroinvertebrate richness. A multimetric (e.g, Index of Biotic Integrity [IBI])

or multivariate (e.g., River Invertebrate Predication and Classification System [RIVPACS] or Australian River Assessment Scheme [AusRivAS]) approach would be the preferred options, although these would require a fairly substantial development phase. The IEC does not recommend the use of one indicator taxa for the aquatic monitoring. The Project may want to consider combining ichthyology and macroinvertebrate monitoring into one, more comprehensive monitoring program.

9. Consultation with an aquatic monitoring specialist, an avian monitoring specialist, as well as a statistician is highly recommended.
10. Regarding the new mud-diver breeding pools identified along the road connecting Tsikhisjvari and KP 190 to Mount Kodiana:
 - a. This habitat should be mapped with respect to connectivity to existing waterways (streams) to assess its stability and to evaluate if this habitat can be considered ‘compensatory’;
 - b. Given the precarious location, erosion control measures should be adopted;
 - c. If the pools do not sustain future breeding, then other mitigation measures should be considered; and
 - d. One additional pool should be created (the Project is in the process of planning this action).
11. Regarding the spadefoot toad habitat at KP 40 and KP 11:
 - a. Determine the natural seasonal hydrologic variability (hydroperiods) in KP 40;
 - b. Continue monitoring efforts to determine if spadefoot toads are recolonizing these water bodies;
 - c. For the breeding pond at KP 40, determine if spadefoot toad recolonization numbers are similar to numbers of individuals found in other ponds in the region; and
 - d. Ensure that the KP 40 breeding pond is adequately restored.

Floral Monitoring

1. Biorestitution of wetland sites should ensure the rehabilitation of the original hydrological regime and proper regrowth of native vegetation. Special attention should be paid to Tavkvetili and Khando high mountain wetlands, and the culvert should be removed from the Khando site.

2. As biorestitution activities proceed, an evaluation should be conducted to determine if additional mitigation actions are necessary. Evaluation of proper mitigation and biorestitution of these areas should take into account the cumulative impacts of other anthropogenic disturbance factors such as grazing and hay farming.

3.9 OFFSET MITIGATION AND ENVIRONMENTAL INVESTMENT PROGRAMMES

During the mission, the IEC was updated on the status of the Offset Mitigation Measures and the Environmental Investment Programme (EIP) in Georgia. The two external consultants (recommended by Conservation International [CI]) have completed their review of the EIP. The review appears to have been extensive. Some of the main comments that came out of the evaluation for Georgia include the following:

- Use of the Request for Proposal (RFP) rather than non-RFP process;
- Continue funding black grouse and brown bear projects;
- Adjust focus of the black grouse and brown bear projects to better address direct threats; and
- Consider follow-up project to implement management plans.

During this mission the IEC focused their attention on projects included under the Offset Mitigation Programme, which, unlike the projects included under the EIP, are not considered ‘additionalities’, but are instead obligatory compensation measures under IFC’s OP 4.04 ‘Natural Habitats’. These projects include:

- *Rare Floral Species Programme*: Translocation of species of interest (rare, endemic, etc.) off the ROW to botanical gardens; botanical gardening monitoring during ROW construction; post-reinstatement translocation of plants to ROW.
- *Environmentally Sound Livestock Farming*: Adoption of environmentally sustainable livestock management practices in 24 villages in the vicinity of Borjomi Kharagauli National Park.
- *Forest Eco-compensation Programme*: Creation of similar forest habitat that was affected by the pipeline construction.
- *Management Planning for Ktsia Tabatskuri Managed Reserve*: Development of a management plan of this sensitive high mountain area.

Of these programs, the Forest Eco-compensation and the Management Planning for Ktsia Tabatskuri Managed Reserve are largely behind schedule. The recent appointment of the new Minister of Environment, the subsequent change of the Head of Forest Department, and other factors have delayed negotiations between the Project and the Government needed to move these programs forward. The IEC recognizes the Project persistence in trying to implement the offset mitigation programs in line with the commitments as defined in the ESAP.

3.10 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.

3.10.1 Observations

At this stage of the BTC Project, nearly all of the archaeological effort is associated with the SPC Project. Nevertheless, part of this effort is associated with excavations that are fundamentally compensation for sites traversed by the BTC pipeline where discoveries made during SCP construction identified features that may have been impacted by the BTC Project. At the time of the visit there were three sites where excavations were being undertaken in part to compensate for damage that could possibly have been caused by the BTC Project. It should be noted that the BTC Project did not encounter significant cultural remains at these locations, but additional excavation was authorized for the Government archaeologists working on the SCP on the possibility that there could have been damaged. The three sites where such excavations were occurring at the time of the visit were:

- KP 202+900 is the location of a site where the installation of a trench breaker expansion for the BTC pipe encountered cultural remains and CAS has requested that additional excavation be conducted in this area. Initial salvage/data recovery has determined this is a Kura Araxis Period settlement and cemetery site; with the ROW intersecting an edge of the site.
- KP 80+700 is a Hellenistic period site where excavations have just started. At this location the SCP is backfilled, but features found during SCP installation indicate that the site had been impacted by BTC construction. At this location SCP did a minor reroute. The actual extent of the excavations being undertaken by CAS will depend on the significance of what they encounter.

- KP 77+600 is a site on a steep slope where CAS found evidence of an archaeological site at the time of BTC construction, but did not consider the site to be sufficiently significant to warrant special excavations. This opinion changed when burials were encountered during SCP construction and limited excavations indicate the site is multicomponent (Bronze, Hellenistic, and Medieval Period) settlement. CAS has requested that they be allowed to conduct additional investigations. The area of greatest interest is apparently beneath a pile of excess rock spoil.

In addition to these sites, similar work may be required at three other sites already identified.

An initiative started by the BTC/SCP Projects is the conservation of one the Phase III sites, Tadzrizi Monastery, of the Ministry of Culture, Department for Protection of Monuments in Georgia (Monuments Department). This work is being monitored and administered by the CHFT and represents a good will community/public relations effort by BTC/SCP, rather than mitigation for adverse project impacts.

A concern previously expressed by the IEC is that construction outside of the ROW (borrow pits; access roads) has not been treated with the same degree of study and treatment with respect to cultural heritage as the main pipeline ROW. BTC archaeologists have not always been called to screen off-ROW construction sites.

Technical reports of the BTC archaeological excavations reviewed by IEC consist largely of a photo journal of artifact recovery and features excavated. These reports need to be the technical foundation for organized analysis and interpretation, which has not yet taken place. High-quality comprehensive technical reports still need to be prepared.

3.10.2 Recommendations

1. Identify if there has been any impact to cultural heritage sites in areas of soil disturbance outside of the ROW (access roads; borrow pits) and provide mitigation as appropriate and allow for possible compensatory excavations.
2. 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. These activities will carry over into Operations. 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.
3. At this point in time the BTC and SCP projects need to collaborate to prepare a post-construction program that will cover the topics of interpretation, curation and reporting of the overall findings. It should be recognized that there will be different audiences for both local and international levels and that documenting

the findings within regional context for an international audience is not a trivial effort and could easily require about two years to complete (estimated 2007). The Project may wish to undertake in collaboration with the CAS some additional studies of other known sites such that the BTC/SCP findings could be placed within better context and/or contribute to improvements with respect to curation of artifacts at museums, conduct training seminars for CAS and Monuments Department staff, prepare special exhibitions of findings, etc.

4. Work to make sure that the people involved with the field work are the same as those that are involved with the interpretation and reporting.

3.11 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. 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.

3.11.1 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, the maintenance of access roads and the use of borrow pits.

3.12 HEALTH AND SAFETY

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. However, most of the activities in the field are relevant to SCP (not included in the IEC scope of work) and IEC review, in the field, was limited to sporadic minor observations while visiting the ROW.

3.13 MEETING WITH GOVERNMENTAL OFFICIALS

A meeting was held between the IEC and representatives from the Georgian Ministry of Environmental Protection and National Resources (MoE) and the Georgian International Oil Corporation (GIOC). This was the first meeting held between the IEC and the MOE/GIOC, and MoE/GIOC was able to voice their concern and priorities about several environmental issues along, and in the vicinity of, the RoW. The IEC was pleased to have the opportunity to interact directly with these two important groups. The MoE/GIOC was well aware of the IEC's role in the Project and was familiar with the how IEC missions are conducted and the latest topics that were raised in the IEC's fourth mission report.

The IEC made it clear that topics are discussed in their reports only when directly observed in the field. The MoE/GIOC stated that they have a continuous monitoring presence along the ROW and, therefore, would like to continue meeting with the IEC during their visits. The IEC also expresses its appreciation about this approach.

The main topics that were raised by the MoE/GIOC during the meeting are presented below:

- Conditions of OSRP approval
- Security issues
- Waste Management
- Reinstatement/Biorestitution
- Forestry Eco-compensation Offset Mitigation Program
- Invasion of the bark beetle along the ROW
- Environmental Management Plans for the Operations Stage
- Emissions and discharge limits
- Groundwater Monitoring

Although some of these topics are not in the scope of work for the IEC (i.e., OSRP, security) or will be part of future monitoring activities (Operations EMPs), the IEC recognizes the importance of these issues. The IEC intends to investigate the relevant topics within their scope of work during its sixth mission in Fall 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 planned BOTAŞ Gas Pipeline is parallel to the BTC pipeline at the Georgian border, but diverges until it terminates in Horasan.

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 BOTAŞ, which is now directly in charge of construction.
Spreads: 3, plus one mini-spread
Block valves: 15
Major crossings: 3 rivers, 6 roads, 3 railways
Pigging station IPT2
Camps: 3, main at Kars at KP 115, 2 spread camps at Hanak (closed) and Koprulukoy (closed).

Lot B: KP 278 – 744

Contractor: Gunsyl-Haustadt & Timmerman-Max Streicher-Alarko JV (STA)
Spreads: 3
Block valves: 24
Major crossings: 9 rivers, 13 roads, 3 railways
Camps: 1 main (Kova at KP 527 in Spread 1), 4 spread camps (Iliça – decommissioned - and Çardıkaya 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 (Azizli at KP 1037), 3 spread camps (Andirin, Yesilkent, Orensehir, all three are being decommissioned).

Pump Stations

Contractor: TEPE – contracted terminated by BOTAŞ in April 2005, which is now directly in charge of construction.

Pump station PT1 at KP 21.3

PT2 at KP 278

PT3 at KP 442 and

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 June 2005 visit concentrated on reviewing progress of reinstatement of the pipeline ROW across the three Lots in Turkey. Particular focus was directed to Lots A and B, where winter conditions in February 2005 did not permit access. A review of environmental and ESAP compliance was also completed at the CMT, PT3, and PT1.

IEC also visited a new permanent facility, the Intermediate Pigging station IPT2, which is being constructed by a BOTAŞ contractor, Fernas, and is under responsibility of Lot A management.

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

4.1 CONSTRUCTION STATUS

Work continues in the three Lots and the fixed facilities in anticipation of delivery of first oil later this year. BTC provided the following information on construction status for the week ending 19 June 2005:

- Overall progress is 96.36% and construction progress is 93.33%;
- Total of 593 km of hydrotest completed to date (55%);
- Total FOC installation reached 93%; and
- 1 km of backfilling outstanding.

Lot A

- Total workforce of 666 (construction workforce: 585);
- Construction progress - 91.83%;
- Open trench remaining - 1.96 km;
- Phase 1 reinstatement – 23%, Phase 2 – 17%;
- Hydrotest – 14 sections out of 32 (128 km, 46% in total) completed; and
- Six Block Valves (BV's) are tied in to the mainline.

Lot B

- Total workforce of 729 (construction workforce: 607);
- Construction progress - 92.05%;
- Phase 1 reinstatement – 46%, Phase 2 – 36%
- Hydrotest - 8 sections out of 32 (164 km) completed;
- Remedial work on ovalities and dents completed in 25 sections; and
- 13 Block Valves out of 24 tied in to the mainline to date.

Lot C

- Total workforce of 449 (construction workforce: 378);
- Construction progress - 96.40%;
- Reinstatement: Phase 1 and 2 – 100%, Phase 3 – 25%;
- Hydrotest - 23 sections out of 24 (301 km, 91% in total) completed; and
- 11 BV's out of 13 tied in to the mainline to date. 7 of the installed BV's are available to Siemens and 4 to ABB.

Pump Stations

- Total workforce of 2146 (construction workforce: 1595); and
- Construction progress - 87.71%.

CMT

- Total workforce of 569 (construction workforce: 375);
- Construction progress: Onshore - 99.80%; Offshore - 99.79%.

IPT2

- Civil works continues, with commencement of civil excavations and pouring of lean concrete for foundation footings; and
- Underground piping positioned for Launcher / Receivers.

4.2 ENVIRONMENTAL AND SOCIAL MANAGEMENT ORGANIZATION AND RESOURCES

4.2.1 Resources and Organization – Observations

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

Since the time of the last IEC visit in February 2005, there have been a number of significant changes in the organization of the EPC contractors in both Lots A and B, and for the Pump Stations.

BTC

There have been minor changes in the BTC License to Operate (LTO) organization since the February 2005 visit. An LTO Advisor for Lot C has moved to Lot B. A Lot B LTO Advisor has returned to Ankara and travels to Lot C on a rotational basis.

The Lot A and Lot B reinstatement specialists will be reviewing final completion of reinstatement and bioremediation activities in Lot C.

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. It is acknowledged that BTC has consolidated its assurance role achieving a high level of competency between national and expatriate staff.

BOTAŞ

An Environmental Manager and a Community Relations Manager oversee activities of the BOTAŞ site teams from Ankara. Five Environmental Supervisors (one for

each Lot, one for the Pump Stations and one for CMT) report to the BOTAŞ Environmental Manager and to each BOTAŞ Site Manager. An adequate number of environmental field personnel are present in each Lot and fixed facility.

Community Relation Supervisors are in place in each Lot and for the Pump Stations, with functional reporting to the Community Relations Manager in Ankara.

A Turkish consultant firm, CINAR, continues to provide third party monitoring and technical support in environmental management, reinstatement and ecological issues.

CMT

TEKFEN maintains one Environmental Manager at the CMT and BOTAŞ one Environmental Supervisor.

There is one CLO remaining at the CMT from TEKFEN and one CR Supervisor from BOTAŞ.

Pump Stations

Since April 2005, BOTAŞ has assumed the EPC role at the Pump Stations and there has been a complete integration of TEPE and BOTAŞ personnel. Former TEPE personnel are now contracted to BOTAŞ through a third party service provider, BILEN.

The former TEPE Environmental Manager has left the Project. There are now a total of five environmental personnel at the Pump Stations. A Lead Environmental Monitor oversees one Environmental Monitor/Engineer at each of IPT1, PT1, PT2 and PT4. The Lead Environmental Monitor also is responsible for PT3.

The Community Liaison Manager is currently based in Ankara, but continues to oversee one Community Liaison Officer at each of the five Pump Stations.

BOTAŞ – Lot A

The consolidation of Environmental and Social (E&S) personnel continues, following the termination of the TPN contract in January 2005. There are currently a total of 11 environmental staff in Lot A, including a new Environmental Supervisor, four environmental monitors, one Reinstatement Engineer, one Archaeological Monitor, two Ecologists, a Waste Management technician and a Pollution Prevention technician. The former TPN Reinstatement Expert has left the Project. IEC found the environmental personnel in Lot A to be well motivated, organized and capable. Despite the difficulties experienced by the former Joint Venture and the termination of the contract, there is a significant continuity in the national staff, which is a positive factor towards effective capacity building.

An Environmental Monitor at IPT2 recently resigned, but during the visit the IEC was informed by BOTAŞ that a replacement has been selected.

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

In addition to environmental personnel, there are three specialized reinstatement crews in Lot A. A BOTAŞ reinstatement crew is working from KP 278-108. Two Turkish subcontractors (Kumtas and Tekmas) are in the process of mobilization and initiation of reinstatement works. Kumtas is mobilizing to work from KP 108-22 and Tekmas is assigned to reinstate from KP 22 to the Georgian Border.

Four CR staff are working in Lot A, including one CR Manager, two CR Supervisors and one Landowner Notification Agent.

The BTC LTO organization for Lot A remains unchanged.

As a general observation, the IEC noted a positive change in attitude and cooperation between BOTAŞ and BTC since last visit.

STA – Lot B

In February 2005, IEC reported a concern over the lack of integration of BOTAŞ and STA E&S personnel and a notable reduction in both capacity and numbers. The situation was noticeably different in June 2005. An improvement was noted in both the management commitment to E&S responsibilities and in the integration between BTC, BOTAŞ and STA staff.

STA recently appointed a new Environmental Manager for Lot B, reporting to the STA Project Manager. Two Ecologists, four Soil Experts, four Reinstatement Foremen, two Environmental Inspectors support him.

In addition, there are six reinstatement subcontractors working in Lot B (two in Spread 1, one in Spread 2, one in both Spreads and two working specifically in rip-rap placement).

BOTAŞ has one Environmental Supervisor, two environmental monitors, one Archaeologist, one Field Reinstatement Supervisor and one Reinstatement Engineer. CINAR provides additional environmental staff (two soil experts, ecologist and environmental specialist).

Together, BOTAŞ and STA have six CR personnel in Lot B. STA has one Community Liaison Manager and two CLOs, while BOTAŞ has one Lead CR Supervisor and two CR supervisors. Vehicles are not reported to be a problem; every CR person has access to transport.

In February 2005, IEC assigned a Level II Non-Compliance (*Environmental Management Plan - Turkey, Commitment ID: APCIE34, APCIE36*) over the lack of action of BOTAŞ and STA to provide a sufficient environmental and social capacity to meet ESAP commitments. This was based on an ongoing failure to address previous delays in reinstatement and fulfilling outstanding compensation payments. IEC notes an improved management response on behalf of BOTAŞ and STA to address this problem and close the Level II Non-Compliance.

PLL – Lot C

The maintenance of good level of organization and integration among the teams in Lot C was observed, with limited turnover in key positions and with positive attitude and coherency in team function.

According to the Lot C organization chart, PLL has one QHSE Manager, an Environmental Manager, a Biorestitution Expert, a Biorestitution Engineer, and an Ecologist. It was also reported that there are two reinstatement crews with total 30 workers. BOTAŞ has one Environmental Supervisor and one Environmental Monitor.

There are four CR staff in the Lot C. This includes a Community Liaison Manager and CLO from PLL, a CR Supervisor from BOTAŞ, supported by a BTC LTO.

4.2.2 Resources and Organization – Recommendations

1. IEC notes the significant positive changes in the attitude and function of environmental and social organizations in Lots A and B. BOTAŞ and BTC should continue to make sure that sufficient resources are allocated in both Lots to meet the needs of completing reinstatement by the end of this year and preparing for land exit.
2. BTC should undertake an evaluation to assess reinstatement capacity (both machinery, resources and supervisory competency) in both Lots A and B, given the progress completed to date this year.
3. IEC notes the commitment of BTC to deploy the reinstatement coordinators from Lot A and B to Lot C to complete an independent evaluation of reinstatement works. It is recommended that this deployment is implemented as soon as practical before provisional acceptance.
4. BTC and BOTAŞ should ensure that the different reinstatement subcontractors, involved in Lot A and B, meet an adequate level of quality regarding reinstatement works consistent with the EIA and ESAP.

5. BTC and BOTAŞ should make sure that adequate CR personnel will be available to deal with issues of social closure and land exit across all three Lots and Pump Stations in Turkey.
6. Although a transition management strategy is being developed by BTC and was discussed during the visit, IEC repeats the recommendation that the practical implementation of the transition plans and familiarization of BTC and BOTAŞ International Ltd (BIL) operations personnel along the ROW should be initiated as soon as possible to ensure ongoing completion of ESAP commitments from construction through to operations. This is particularly relevant to biorestitution completion in the three Lots.

4.2.3 Non-Conformance Records (NCR) Register

The latest NCR Register was provided by the Project during the June 2005 visit.

The following is a summary of the total number of NCRs issued by BOTAŞ and BTC since the initiation of the Project.

IEC notes that the number of open NCRs (BOTAŞ) has decreased significantly in both Lots A and B since the February 2005 visit. However 25 NCRs still remain open from BTC in Lot B relating to:

- Improper extraction of aggregate;
- Improper environmental protection measures for hydrotest abstraction and discharge;
- Improper segregation of topsoil and subsoil during reinstatement; and
- Improper river bank stabilization and protection.

Facility	Total NCR		Open NCR	
	BOTAŞ	BTC	BOTAŞ	BTC
Lot A	74	6	6	0
Lot B	93	118	10	25
Lot C	45	13	0	0
PT1	15	5	0	1
PT2	28	NR	0	NR
PT3	17	NR	1	NR
PT4	25	16	0	0
IPT1	4	NR	0	NR
IPT2	NR	NR	NR	NR
CMT	12	NR	0	NR

NR – No records taken – data supplied by BOTAŞ as of 15 June 2005

BTC and BOTAŞ should work together to resolve these discrepancies in the number of open NCRs in Lot B and ensure that they are closed as soon as possible.

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.

4.3.1 Construction Camps - Observations

Site visits of the following facilities and construction camps in Turkey were made:

- PT3
- PT1

- IPT2
- Kova Camp (Lot B)

The following observations are made from the visits to these camps and from interviews with environmental personnel in each of the three Lots:

- Lot C: The only camp operational is Azizli; it is planned that it will be partially decommissioned as some offices will likely be required. It is reported that reinstatement of the other three camps will commence as follows:
 - Andirin – July 2005
 - Yesilkent – mid-July 2005
 - Orensehir – underway;
- Lot B: Ilica camp has been reportedly decommissioned;
- Lot A and the Pump Stations – these camps are now managed by BOTAŞ and will continue to be used by construction personnel until mechanical completion and reinstatement are concluded. Decommissioning plans are still to be finalized. Most of the demobilization activities are conducted at Kars Camp. The construction yard was observed to be poorly maintained and some garbage and hydrocarbon stained soil were noted; and
- IPT2 - There are approximately 60 workers on site during working hours, considered to be part of Lot A under BOTAŞ. There is no accommodation on site, but basic facilities for waste and sewage management are present.

4.3.2 Potable Water Testing at Camps

In February 2005, IEC raised a repeat Level II non-compliance with BOTAŞ Environmental and Social Management Plan (Commitment ID: CH9E3, CH4E41), over a failure of poor QA/QC control and limited procedures developed by the Project for potable water testing.

In response to the above, IEC was informed that the Project had taken some actions regarding potable water testing at camps including the following:

- Laboratory audits have been undertaken by ÇINAR staff at Erzurum and Adana Hıfzıssiha Water Quality Laboratory; Sivas Provincial Control Laboratory; Çukurova University Environmental Engineering Department Water Quality Laboratory; Sivas Public Health laboratory. According to the audit findings, the Erzurum and Adana Hıfzıssiha Laboratories need some improvements related to the preparation and application of SOPs and establishment of a Quality Management System. Sivas Provincial Control

Laboratory and Çukurova University Environmental Engineering laboratory had positive reviews;

- An analysis was conducted to improve consistency of suite of chemical parameters among the different facilities and organizations. Since beginning of June, there appears to be an improvement, although sampling procedure and quality control are still unclear and require a verification from BTC;
- Reverse osmosis treatment was introduced at Kars Camp to improve potable water quality and minimize any potential human health risks.

4.3.3 CMT – Temporary Harbor

IEC visited the temporary harbor at the CMT and was informed that removal and reinstatement of temporary harbor is still not decided. There is a possibility that the temporary harbor may not be removed. As with all temporary facilities, the Project should apply ESAP commitments for the minimization of footprint.

4.3.4 Intermediate Pigging Station IPT2

IEC was informed that the decision of starting with the construction of a new above ground installation, the Intermediate Pigging Station IPT2, was taken after a Management of Change (MOC) process was implemented consistent with the ESAP. The Project has classified this change as Class II because the new facility is outside the Specified Route Corridor (100 m) but within the Preferred Route Corridor (500 m) and because the Project considered the area non-environmentally and socially sensitive. An environmental assessment report prepared by CINAR for BOTAŞ (Rev. 0 issued in February 2004) was made available. The report indicates that the IPT2 site has a high water table, but quantitative data are not provided. Also the report does not include the assessment of the social component. Although the pre-construction survey conducted in 2003 found no evidence of archeological features, a chance archaeological find was recently made during clearing and grading activities. It is finally noted that the MOC documentation, particularly the environmental-related documentation, is not clearly identifiable in the Engineering Design Change register provided, and it was also not readily available in Lot A.

4.3.5 Construction Camps and Infrastructure - Recommendations

1. The Project should ensure that due diligence evaluations are carried out at all decommissioned camps and facilities (including all pipe dump yards and construction yards used by the Project) to confirm that there are no outstanding environmental liabilities associated with improper waste disposal procedures or spills, and that, once reinstatement has concluded, the land is turned back to the respective owner in pre-existing and environmentally safe conditions. Adequate due diligence protocols should be developed by BTC, including collection of

quantitative data to demonstrate the absence of any potential contamination. In case that pollution is found, it is responsibility of the Project that adequate clean-up is defined and implemented.

2. Although the IEC notes the efforts of the Project to improve the quality and consistency of potable water testing across all Lots and fixed facilities in Turkey, it is recommended that BTC undertakes an independent evaluation of quality control and quality assurance procedures for potable water sampling and testing, including laboratory assessments.
3. The Project should clarify its position on the future of the temporary harbor at the CMT. The minimization of Project footprint should be a guiding consideration for its removal. Any other decision will require a full environmental and safety assessment considering potential changes to marine traffic patterns, potential water and sediment contamination issues, underwater noise and vibration disturbances, and other relevant issues.
4. The Project should provide full documentation that a Class II MOC was proposed and approved by BTC for the IPT2 site, including documentation that proper environmental and social assessments were undertaken, and adequate environmental and archaeological monitoring activities were implemented during land clearing.

4.3.6 Aggregate and Excess Material Management - Observations

IEC acknowledges the progress made by the Project to adequately document and manage aggregate use, while ensuring that 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 has also completed a survey of aggregate sources in Azerbaijan, Georgia and Turkey. Specific findings of BTC to each Lot are made below in conjunction with observations made by IEC directly in the field and during June 2005 interviews with environmental personnel.

In February 2005, it was reported that an allotment of US\$1 million has been reportedly allocated to the Environmental and Social Budget for aggregate restoration across the three countries. No update on the status of this fund was made available during the June 2005 visit.

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. It was not possible to confirm directly in the field during the February 2005 visit that the situation had improved, but IEC was informed at the time that aggregate management had significantly improved in Lot A.

In their February-June 2005 review of aggregate use across Turkey, BTC reported that E&S management at sites is now being undertaken in line with the requirements of the ESAP and the Aggregates CCP.⁶ BTC also confirmed an IEC finding that reinstatement has not yet been undertaken for any of the aggregate extraction sites where it is required. BTC also confirmed that river flood plain extraction sites have been used in Lot A.

In June 2005, IEC reviewed the most recent Quarry and Borrow Pit register provided for Lot A. A total of 30 quarries and 22 borrow pits were noted in the register. Quarry Environmental Audit checklists were also reviewed again and found to be adequate and complete in regard to permit information, description of quarry usage and site viability after the Project. In accordance with the BTC “traffic light” criteria for aggregate usage, three quarry sites and the Incendere River extraction site (KP 3+500) were identified as red (“Project impact high: site should be subject to Project attention”) and six borrow pits and one batch plant site were identified as yellow (“Project impact medium: site should be considered for as candidate for Project attention”).

During June 2005 visit, Lot A environmental personnel reported that six new borrow pits had been opened by the Project. Phase 2 reinstatement has been completed at a borrow pit at KP 142 (Hasbey village) and Phase 1 reinstatement has been completed at Incendere River extraction site with Phase 2 reinstatement pending.

According to the Quarry Register reinstatement is planned for the six aforementioned borrow pit locations.

In February 2005, IEC also observed that excess rock was an emerging issue for Lot A and that an excess rock disposal strategy had yet to be developed. During the June 2005 visit, IEC was provided with a preliminary Excess Rock Disposal Strategy that proposes two priorities for the disposal of excess rock:

- **Priority 1** – Reuse/Recycle of Excess Material and Rock for the following uses:
 - Fill for side-cuts during Phase I Reinstatement;
 - Phase II Reinstatement ROW stabilization and erosion control measures;
 - Fill for reinstatement of borrow pits used during pipeline construction;
 - Upgrade of existing village access roads; and
 - Provide fill for general village use.

⁶ BTC, E&S Report (rev 00) – 3rd Party Facilities, 1st Draft February 7th, 2005

- **Priority 2** – Disposal of Excess Material and Rock including the following disposal options include:
 - Disposal of material at approved Highway Department quarries and borrow pits in accordance with agreed protocol; and
 - Disposal of material at approved local municipal quarries and borrow pits in accordance with agreed protocol.

Lot B

The February- June 2005 BTC review of quarries and borrow pits in Lot B concluded that *E&S management of sites is variable, with deterioration observed in recent months. New sites have recently been opened (May 2005) and not recorded in Quarry register (for example in the Karstic area). Evidence of this is recorded in the NCRs: NCR-BTC-CLG-PLB-320 and NCR-BTC-CLG-PLB-328.*

IEC examined the Quarry Register and found that it is divided into two parts: existing quarries and aggregate supplies. The aggregate supplies register identifies what quantities of aggregate have been extracted in Lot B, but does not specifically indicate the source as being a quarry or a borrow pit, as it is done for Lot A. Three red sites and four yellow sites are identified. There is no information provided on their reinstatement.

General excess rock burial procedures are identified in the Lot B reinstatement plan, but a specific excess rock strategy has not yet been developed.

Lot C

IEC reviewed the Quarry and Borrow Pit Register for Lot C and found it to be well prepared. 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.

The Quarry and Borrow pit register however requires further clarification to the final status of some borrow pits. For example a borrow pit at KP 927, considered to be non-viable and where 20,000 m³ of material was removed, is not required to have a reinstatement plan and is to be “partially reinstated”. Similarly, a site at KP 918, also considered to be non-viable, was no reinstated due to “use by DSI”.

Lot C personnel reported that all borrow pits are reinstated and one remains to be bio-restored. IEC visited a reinstated borrow pit at KP 947 and found it to be adequately reinstated.

The February- June 2005 BTC review of borrow pits and quarry usage in Lot C found that *documentation is compliant with project requirements, however terminology of reporting is not standardized with ESAP requirements.* A follow-up

field visit concluded that *E&S Management of Quarries/Borrow Pits and Batch Plants is observed to be good.*

Pump Stations

Each Pump Station has a Quarry Register which includes information on aggregate sources used by the Project. The Quarry Registers were reviewed and found to be consistent with Project standards. The Project has committed to reinstate all new aggregate sources opened by the Project, including the PT4 stabilized aggregate quarry, in accordance with Project commitments and requirements.

In October 2004, IEC recommended the Project to develop a reinstatement plan for the PT3 inert subsoil disposal sites, recognizing the sensitivity of ESA 19 and ensuring compliance with specific commitments made in both the Ecological Management and Reinstatement Plans for Turkey. In February 2005, IEC assigned a repeat Level II non-compliance because, despite some progress in regard to planning, expeditious corrective action and site specific attention had not been implemented in the field (*Level II non-compliance CCP Ecological Management, Commitment ID: S692; CH15E27*).

In June 2005, IEC received the restoration method statements prepared by CINAR for the inert material disposal sites (dump site areas) at PT1, PT2 and PT3. The following observations are noted:

- The CINAR documents are adequate, but lack schedules and resources required for completion;
- The CINAR documents lack details regarding public consultation of the final end land use of the dumpsite locations.

The proposed option for the three PT3 dump sites (DS1, DS4 and DS5) is to achieve contouring, landscaping and biorestitution of each of the three discrete areas of stored subsoil. The CINAR report acknowledges that this is particularly significant in DS1 and DS4, *“where approximately a third of the area taken up by these storage sites lies within the 500 meter corridor of ESA 19. DS1 is also affecting the first 300 meters of the ESA, which was observed to be the habitat for two endemic species of plant”*.

As pointed out by the CINAR report, the requirements of the BTC Project EIA Report for spoil and waste disposal sites in the Reinstatement Plan (EIA appendix C2, section 11.3), are as follows:

- *“Contractor shall close, cap, and landscape all (except as otherwise agreed with BOTAŞ) waste disposal sites by the completion of the Contract. Sites shall be dealt with in accordance with the relevant project requirements. Contractor shall develop site-specific plans that are to be approved by BOTAŞ.*

Biorestitution, where appropriate shall be carried out in accordance with requirements defined in Section 20 and BOTAŞ approved Special Area Reinstatement Method Statements.

- *Spoil and waste disposal sites will be avoided in ecologically sensitive areas. Should this become unavoidable, prior approval of BOTAŞ is required. The Contractor shall prepare all necessary procedures and plans to achieve such approval and obtain permits as required by any affected authority.*
- *The waste material shall be compacted to a minimum of 75% of the Proctor value; the surface shall be landscaped to resemble local conditions and shall not extend more than 2m in height above the natural contour; the slopes of the surface shall not exceed 60°. The site shall be covered with soil and an erosion mat and planted with either seeds or shrubs using native species.”*

IEC visited the three dump sites at PT3 (DS1, DS4 and DS5) and has the following observations:

DS1

- DS1, the largest site, is located about 1.5 km northwest of PT3. According to CINAR, it contains a volume of 271,182 m³ of material. Temporary terraces have been put in place, but the landscape plan calls for their removal. One consideration for final use is to attempt to accommodate community requests in the form of a recreational area, whilst meeting the requirements of the Landscape Plan (Doc Ref: BOT-PLN-ENM-GEN-025) but a decision is still pending.

DS4

- According to CINAR, the DS4 site is located about 2 km northwest of PT3 and contains 82,226 m³ of spoil material. There is a small stream flowing through the site; and significant erosion was noted. IEC was informed that the mean depth of spoil is approximately 3.8 m. Site drainage will be restored with rip-rap.

DS5

- DS5 is a large site located behind the Cement Batch Plant at PT3. It is an uncontrolled dumpsite, although the Project reported that dumping ceased in 2003. Significant erosion and transport of material down slope, impacting the surface of the land, were noted. The site is located approximately 1.5 km south of the nearest village (Baskoy). There are concerns about the stability of the site and the possibility of failure, causing a significant impact on the surrounding areas and on community and third party safety. According to CINAR, there is 37,632 m³ of material stored at this site.

The IEC notes the following:

- the EIA states a 2 m maximum height above the natural contour is to be allowed. The Project is proposing to allow for a maximum height of spoil more than 2 m at the dump sites;
- As indicated by the CINAR report, DS1 and DS4 are within the 500 meter corridor of ESA 19, and DS1 is also impacting approximately 300 meters of the ESA;
- DS5 has the steepest slope angle and could be at risk of slope failure.

IEC also visited the dumpsite location at PT1. While smaller in size than PT3 and not located in an ESA, the site nonetheless will require a significant landscaping effort.

4.3.7 Recommendations

1. IEC notes the improvement in the environmental and social assessment procedures for the use of quarries and borrow pits in Lots A and B, but observes that consistency between all three Lots has still not been achieved. The Project should review the registers in all three Lots and achieve consistency and compliance with ESAP commitments.
2. The final status and disposition of quarries and borrow pits in Lot A still is not clear. BTC should confirm the exact amount of borrow pits in Lot A in accordance with the “traffic light” criteria and fully define the “yellow” status of borrow pits as to their reinstatement needs. The Quarry register should be updated to reflect these changes.
3. BTC should finalize and endorse the Excess Material and Rock Disposal Strategy for Lot A.
4. Similarly, the final reinstatement status of borrow pits is still not clear in Lot B. As mentioned previously in October 2004, there is no mention of reinstatement status of borrow pits and quarries in the Lot B register, although the traffic light status is indicated. The Quarry and Borrow Pit register should be immediately updated to reflect these changes. Again, the reinstatement of all borrow pits assigned a “yellow status” should be confirmed.
5. IEC is particularly concerned that as late as May 2005, an NCR was registered in Lot B for opening of an unauthorized and unregistered borrow pit in the karstic area. BTC, BOTAŞ and STA should work together to ensure that no further unauthorized borrow pits are opened.

6. BTC should clarify the status of two “partially restored” non-viable borrow pits in the Lot C register located at KP 918 and KP 927.
7. Considering the amount of excess rock present in Lot B, particularly in the karstic area, 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.
8. IEC has raised significant concerns about the inert material dumpsites at PT3 that are located in ESA 19. A repeat Level II non-compliance was assigned in February 2005, due to lack of action by the Project to resolve this issue in a timely manner. DS5 appears to be the most critical in terms of safety and slope stability, whereas DS1 and DS4 are critical since they are within the ESA 19 corridor, which is the habitat for two endemic species of plants. Immediate mitigation is required at these sites, in compliance with ESAP commitments. IEC recommends that BTC open and manage an MOC process, to be classified as per ESAP definition, taking into consideration the following:
 - The most significant EIA criterion is the minimization of construction footprint. In accordance with this criterion, uncontrolled dump sites should never have been created by the Project. The proposed solutions may involve significant conversion of natural habitats and should be carefully assessed.
 - Another relevant criterion of the EIA is that a 2 m maximum height for the dump above the natural contour is to be allowed.
 - The current proposed approach by BTC is to adopt a different criterion for footprints, consisting in avoiding to take “additional” footprint (i.e., not a footprint minimization approach), allowing for final heights of the dumps after the restoration higher than 2 meters.
 - The Project should ensure that there is full disclosure of the above and participation of locally affected communities in any final decision regarding the three dump sites. All consultation should be adequately documented.

The Project should mitigate the impacts of these sites prior to the coming winter and BTC should fully assess all the potential residual ecological impacts after landscaping, as well as monitor the ecological components at the two dump sites in the ESA corridor. IEC will review progress of this effort during the October 2005 visit.

4.4 WASTE MANAGEMENT

4.4.1 Non-Hazardous and Hazardous Waste – Observations

Consistent solid waste management practices at all Contractor operations continue to be observed across the Project in Turkey. 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.

In June 2005, findings pertaining to solid waste management were as follows:

- The CWAA at the CMT was found to be poorly maintained. Domestic garbage is dumped into a unit and poor housekeeping procedures were noted. The sump was full of contaminated liquids that should be removed for proper disposal;
- The CWAA at Sivritepe Camp was clean and well organized, although some maintenance should be done at the sump pit;
- The CWAA at PT4 was well organized, although some housekeeping was needed in the waste segregation area. The hazardous waste storage area was full and staff reported that shipment to Izaydas is pending;
- The CWAA at PT3 was relatively clean. Drains were clogged and lime was in the process of being added. Fire extinguishers, although present, did not have any labels indicating when they were last checked;
- The CWAA at Kars Camp was clean and well organized. Garbage from IPT2 is also sent to Kars Camp for disposal; and
- The CWAA at PT1 was clean and well organized.

Waste recycling is adequately implemented in all Lots and at Pump Stations. However, during the visit, some concerns were raised since it appears that some waste streams which are potentially recyclable, such as used tea waste, PPE and coveralls, are sent to Izaydas for disposal.

Some minor problems with waste on the ROW were noted in June 2005 e.g. ESA1 and in the karstic area in Lot B (KP 613). Final cleanup had not been completed in these areas and the Project is committed to collect all garbage left along the ROW and in the surrounding areas.

4.4.2 CMT Narlik Inert Material Disposal Site – Observations

The Narlik inert material disposal site, used by the CMT contractor to dispose of inert construction waste, is a municipal dump, located on a public road and highly visible. The site is uncontrolled and access is open to third parties. CMT personnel reported that they have a permit to dump from the Municipality of Kurtkulagi, however it is unclear if the dump site is adequately licensed by the environmental authorities. Examination of the CMT Waste Register shows that excess concrete, concrete waste and sand blast grit have been routinely disposed in the Narlik dump site. The reported volumes of these wastes are significant (approximately 540,000 kg). However, during the site visit, some mixing of other waste was also observed. According to the CCP Waste Management Turkey, *any inert waste that cannot be re-used shall be landfilled in accordance with the relevant requirements for Inert Landfills in the Landfill Directive 1999/31/EEC and Turkish regulatory / Local requirements (p. 54)*. Also mixing of inert waste with other non-hazardous or hazardous waste is a potential significant non-compliance, although the observed mixing cannot clearly be attributed to the Project. Because of the uncontrolled dumping of Project waste, a Level II non-compliance is raised (*Level II non-compliance CCP Waste Management Turkey, APC1E69, APC3E41*).

4.4.3 Non-Hazardous and Hazardous Waste - Recommendations

1. IEC considers the Level II non-compliance of the Narlik inert waste dump to be a serious issue and a violation of the “Duty of Care” principle of the Waste Management Plan, Turkey. BTC should immediately assess the permit status of the Narlik inert waste dump and undertake an evaluation of waste disposal procedures. BTC should conduct a site investigation and assessment aiming at assessing mitigation/restoration options and potential environmental liability.
2. Routine maintenance should be performed at all Project CWAAAs to ensure that drains and sumps are performing adequately. Housekeeping procedures should be routinely implemented to ensure that waste containment is adequate and does not pose a safety hazard. Worker sanitary and shower facilities should be maintained in good operating conditions. A specific audit should be conducted by BTC to identify issues of potential concern and review the maintenance and housekeeping procedures in all sites.
3. Fire extinguishers at all locations should be routinely checked by BTC Health and Safety and adequately tagged.
4. The Project should ensure that waste collection on the ROW is consistently removed when Phase 1 reinstatement is initiated.
5. BTC should conduct a specialist audit of all the waste management options implemented by BOTAS and its contractors, with the aim at verifying that recycling and reusing are optimized.

4.4.4 Wastewater Management - Observations

The Project continues to devote considerable attention to compliance of waste water treatment plants (WWTPs) with Project discharge limits. While problems continue with some WWTPs, particularly RBC systems, other low-cost, “low-tech” solutions, such as the topsoil irrigation piles, are being implemented as an additional treatment to comply with standards.

The following observations on wastewater management were made during the June 2005 visit.

CMT

Wastewater treatment plant at the CMT is not operating in optimal function; in April and May 2005 there have been persisting problems with BOD exceedances of the relevant Project specification, which appear to have been corrected in the second half of May 2005. Discharge of the WWTP is directed to a small creek outside of the plant site boundary.

A new domestic WWTP for operations was under installation during the visit.

Pump Stations

Sewage discharge at PT1 is non-compliant with BOD, COD and Total Coliform discharge limits. The wastewater register reports a mechanical problem with the WWTP and that sewage has been directed to the Erzincan WWTP every 2 days (20 m³). IEC was informed that treated effluent discharge to the topsoil irrigation pile had commenced the day prior to the June site visit. The topsoil pile irrigation system appears to be adequate. Specialist soil moisture sampling equipment had recently been imported from the United States by BOTAŞ for sampling effluent in the pile and analytical results were not yet available.

Sewage from the Hanak Camp, now under the responsibility of PT1 staff, is transported to the Pump Station for treatment.

Sewage at IPT1 is directed to a septic tank and trucked daily to Osmaniye wastewater treatment plant. An estimated volume of 60 m³/day is generated.

The wastewater register for PT2 reports that the WWTP is in compliance with all Project parameters and that discharge is occurring to the Çöender River.

The situation for wastewater discharge at PT3 was not completely clear. BOTAŞ staff reported that treated wastewater was still being discharged to an infiltration pit, but meanwhile a simple topsoil pile irrigation system was being implemented. The topsoil pile irrigation system at PT3 was newly installed (18.06.2005) and commenced operating at full capacity, days after the visit; in case of emergency sewage will be trucked to the Erzincan WWTP. Analysis of the wastewater register

showed that the WWTP at PT3 remains in non-compliant conditions for BOD and total chlorine, while problems with exceedance of COD and TSS limits have also occurred.

At PT4, the WWTP is currently under modification to add an additional settlement tank. Sewage is being trucked to the Kayseri WWTP. Analysis of the wastewater register shows non-compliance conditions with BOD, TSS, Oil and Grease, and Total Coliform limits.

In February 2005, IEC raised a Level II Non-Compliance (*CCP Pollution Prevention, Commitment ID: CH7E13, APC4E39*) due to the continuing inefficient and non-compliant conditions reported for all WWTPs at the Pump Stations. IEC notes the commitment of the BOTAS to improve performance of the Pump Station WWTPs and also for the development of the topsoil pile irrigation systems to provide additional treatment and meet Project specifications, but the Level II non-compliance is to be maintained until compliant analytical results, demonstrating the effectiveness of the topsoil irrigation piles, have been validated by BTC and are available.

BOTAS - Lot A

At the time of the visit, the Kars Camp WWTP was under maintenance to replace metal plates with fiberglass plates. IEC was informed that non-compliant treated effluent discharges to Kars municipal WWTP stopped in early June. All treated effluent discharges are now going to a topsoil pile irrigation system recently implemented. IEC observed the topsoil irrigation system and noted good design and operation in effect. However, no results of the effectiveness of the system are yet available.

IEC was provided with wastewater analytical data for Lot A. The information provided contained one entry that was unnamed, presumably for Kars Camp. The register showed the Kars WWTP not to be in compliance with Project standards with several fluctuating conditions for some parameters.

Sewage at IPT2 is trucked to the Kars Camp for treatment in the camp WWTP.

In February 2005, IEC assigned a repeat Level II Non-Compliance for performance of WWTPs in Lot A (*CCP Pollution Prevention, Commitment ID: APC4E39*). IEC notes the establishment of the topsoil irrigation pile system at Kars Camp as a potentially effective means of complying with Project wastewater standards; however, compliant analytical results, demonstrating the effectiveness of the topsoil irrigation piles, should be submitted by BOTAS and validated by BTC in order for the non-compliance condition to be rescinded. The Level II non-compliance remains in effect.

STA - Lot B

IEC was provided with wastewater data for three camps in Lot B (Kova, Cadirkaya and Sivritepe). Analysis of the data shows that all three WWTPs are in compliance with Project standards, although the parameters tested are still incomplete. In addition to BOD, SS, chlorine and total coliforms, other parameters including pH and COD have been tested since the time of the IEC February 2005 visit, but oil and grease data continue to be unavailable. Although some improvement has resulted, the former Level II Non-Compliance (*CCP Pollution Prevention, Commitment ID: APC4E39*) cannot be fully rescinded and it is downgraded to a Level I Non-Compliance, because of the persisting impossibility to monitor compliance for the complete list of regulated parameters.

PLL - Lot C

The only camp still operational in Lot C is Azizli. Previous problems of WWTP non-compliance with regard to coliform levels appear to have been rectified in May 2005 and data provided for the first week of June 2005 shows that the WWTP is operating in accordance to Project standards. However, oil and grease data are unavailable. A Level I Non-Compliance (*CCP Pollution Prevention, Commitment ID: APC4E39*) is raised because of the impossibility to monitor compliance for the complete list of regulated parameters.

4.4.5 Wastewater Management – Recommendations

1. During the final phase of construction and pending transfer to operations, BTC should ensure that the CMT WWTP continues to comply with Project standards for wastewater discharge, particularly BOD.
2. Disposal of non-compliant treated sewage has been a persistent problem at the Pump Stations and in Lot A. The recent installation of a topsoil pile irrigation system appears to be a promising solution, but further assessment of its effectiveness in order to close the Level II non-compliance at these locations is needed. It is important that BTC validates the analytical results for all the treated effluents. IEC intends to review results of the topsoil pile irrigation system during the October 2005 visit.
3. While there have been improvements, an inconsistency in the reporting of a full set of wastewater parameters, including oil and grease, remains in Lot B and C. This is particularly significant, since it has been raised as a Project wide issue in Turkey several times by IEC. The Project should take immediate action to ensure that analysis of wastewater samples, with 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. The fuel storage areas visited (Lot B and Pump Stations) were found to be adequately maintained, with proper containment and spill response kits.

Noise registers are consistently maintained by all Lots, CMT and Pump Stations.

IEC previously closed a non-compliance raised in July and October 2004 over inadequate storage of concrete batch plant wash water at PT1 and PT3. During the June 2005, an impermeable liner was noted in the concrete batch water pit at PT3.

4.5.2 Recommendations

1. BTC should verify and ensure the proper placement and integrity of the lined pits at concrete batch plants operating at PT1 and PT3.
2. In view of the operations phase, BTC should compile in a consistent and technically sound manner all information available on location of Project water wells, local groundwater depth, flow and baseline quality at all permanent facilities (Pump Stations, CMT, IPTs). Specific data and assessments should be developed and made available prior to the operations phase, allowing to define baseline hydrochemical conditions, and to clearly understand the hydrogeological settings, distinguishing between the shallowest ground water bodies and the other existing resources used by the local communities.

4.6 ROW MANAGEMENT, EROSION CONTROL AND REINSTATEMENT

4.6.1 Erosion Control, Reinstatement and Biorestoration - Observations

Reinstatement Planning and Progress

Reinstatement planning and implementation continues to be a major concern of IEC and the June 2005 visit focused on assessing as much as possible of the ROW across all three Lots in Turkey.

IEC has noted that 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. In February 2005, a repeat Level II non-compliance was assigned in both Lot A and B for the failure to produce a formal specific reinstatement plan incorporating personnel, machinery needs and realistic completion dates. In June 2005, IEC observed a significant improvement in the management commitment in both Lot A and B towards implementing reinstatement of the pipeline ROW. Reinstatement crews are now in place in both Lots and visible reinstatement progress was noted, particularly in agricultural areas.

Lot A

Management commitment and implementation of reinstatement activities are important findings in Lot A. The following observations were made:

- Six reinstatement crews are currently working or soon will be mobilized in the field;
- A Reinstatement Plan has been prepared for Lot A. Review of the document showed it to be complete and containing detailed information on required machinery, resources and schedules. In addition, a number of appendices are also included providing reinstatement guidelines and specific KP requirements for placement of slope breakers and other erosion control measures;
- Adequate reinstatement and winterization punch-lists have been prepared; and
- Method statements, specifically for steep slopes e.g. KP 17, are being developed in collaboration between BTC and BOTAŞ.

Lot A Environmental personnel reported that about 63 km (23%) of Phase 1 reinstatement and 47 km (17%) of Phase 2 reinstatement is complete. The breakdown of completed reinstatement activities is as follows:

- Phase 1 KP 278+167 – 222+125; 46+000 – 48+450; 10+250 – 15+320
- Phase 2 KP 278+167 – 231+000; 46+000 – 48+450

A number of locations were visited in the field and the following noted:

- Good reinstatement of agricultural land was noted in the Pasinler Plain (e.g., KP 278). This is a positive finding and an issue important to local communities;
- Good installation of rip-rap was observed at some locations (e.g., KP 223).

In the Posof area, some good ROW stabilization and rough clean up on some steep slopes (e.g., KP 3+500) and on side cuts (e.g., KP 2+200 – 2+800) were observed.

Segregation of topsoil and subsoil was seen to be adequately maintained after winter and rainy season.

In February 2005, IEC raised concerns with completion of reinstatement activities under Permit to Work conditions over a tested line. During the June 2005 interviews, IEC was informed that reinstatement procedures are being implemented under the Permit to Work system over a tested line which include the following:

- Method statements;
- Training;
- Completion of Permit to Work forms; and
- Development of a computerized Permit to Work register.

Specific procedures for working over a tested line include:

- Centerline must clearly be marked;
- Low ground pressure equipment less than 30 tonnes must be used; and
- Excavators and other equipments must cross the ROW at designated crossing areas, constructed with mats or additional soil cover.

IEC noted reinstatement activities under the Permit to Work system at KP 59-61 and found that the system was adequately implemented and relevant permits were available on site.

In February 2005, IEC assigned a repeat Level II non-compliance over the failure to install winterization and temporary erosion control measures during the winter months (*Level II Non-Compliance, CCP Reinstatement Plan, Commitment ID: 151, APC2E26, APC2E28, APC2E29, APC2E65*). In June 2005, IEC was informed that the entire ROW is being evaluated for erosion problems during the 2004-2005 winter

and an adequate punch-list was made available. The following was reported by the Project:

- There were no pipeline washouts over winter;
- Limited erosion occurred on steep slopes due to runoff during the spring;
- Poorest performance was noted on shallow slopes where trench subsidence occurred; and
- Repairs are planned and will be undertaken on an emergency or routine basis.

Based on the foregoing response, IEC considers the Level II non-compliance as now closed.

Lot B

In February 2005, IEC assigned a repeated 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 (*repeated Level II Non-Compliance - CCP Reinstatement, Commitment ID: APC2E1, APC2E7*). Additional concerns were raised about the delays in reinstatement in high elevation areas and the failure to implement temporary erosion control measures (*Level II Non-Compliance, CCP Reinstatement Plan, Commitment ID: 151, APC2E26, APC2E28, APC2E29, APC2E65*).

In June 2005, IEC found that reinstatement planning, organization and implementation have significantly improved in Lot B. During interviews, staff reported reinstatement progress as follows: Phase 1 (recontouring) – 214 km (46%), Phase 2 (topsoil spreading) – 169 km (36%).

A reinstatement plan has since been prepared for Lot B. Review of the Plan shows it to contain adequate information on required resources and machinery and a schedule of completion is provided. IEC considers the Level II non-compliance regarding lack of a reinstatement plan to be closed.

IEC was informed that six subcontractors are currently employed to complete reinstatement activities in Lot B.

During the field visit, the following observations were noted:

- Good reinstatement was noted in agricultural land e.g. KP 743, KP 731, KP 726, KP 709, KP 432, KP 427. To date, most reinstatement activities in Lot B have focused on agricultural land. This is a positive finding in that land can be returned to agricultural use this year;

- Reinstatement has begun on steep slopes. e.g. KP 737 and KP 458; however significant work remains to be done in high elevation areas; and
- Backfilling had concluded in the karstic area, but reinstatement activities were still pending at the time of the visit.

Adequate reinstatement of steep slopes in Lot B, particularly those in high elevation areas, will be technically challenging and difficult to meet Project specifications and comply with the commitment of returning the land to the pre-construction conditions.

Particularly in some high elevation areas with fragile and thin topsoil, the IEC expressed its concern that topsoil has been stored for more than 2 years and, from a visual assessment, its fertility appears to be significantly reduced. Fertility conditions have not been assessed by the Project as yet (*Level II Non-Compliance - CCP Reinstatement, Commitment ID: CH6E6, CH15E3, CH15E7, CH15E10, APC2E143, 410*).

Excess rock is a significant concern in Lot B, particularly in the ROW karstic area. As already mentioned, there is no a final specific excess rock strategy for Lot B, but general procedures are presented in the reinstatement plan.

Reinstatement of the NGPL

IEC has expressed previous concerns over delays in the reinstatement of the NGPL and have assigned a repeated Level II non-compliance (*Level II Non-Compliance, CCP Reinstatement Turkey, Commitment ID: CH15E5, APC2E15, APC2E16, APC2E17, APC2E18*). During the June 2005 visit, IEC was informed that a decision on the selection of the preferred contractor to conduct the reinstatement works is pending. Although the non-compliance cannot be rescinded, IEC notes this commitment and intends to follow-up on the execution of reinstatement of the NGPL during the October 2005 visit.

Lot C

During the June 2005 visit, Lot C personnel reported that Phase 1 and Phase 2 reinstatement was complete.

- About 25% (18.5 out of 75 km total) of Phase 3 reinstatement has been concluded to date and Lot C staff plans to complete the remainder beginning in September 2005;
- Four pipe yards out of five were restored;
- Three of four camps are closed. The Project has committed to reinstate all;

- All borrow pits, but one due to subsequent use by DSI, have been reinstated – two are planned for biorestitution; and,
- Two maintenance crews consisting of 30 workers in total are currently working on the ROW.

Reinstatement activities observed in the field are generally satisfactory in terms of quality and attention to details. Specifically the following was observed:

- The archaeological site, named as Roman Bath at KP 945, has been completely backfilled, landscaping and recontouring are excellent, and the ROW is currently under cultivation;
- Good examples of erosion control measures such as the placement of jute matting, terracing, slope breakers were noted at difficult side cuts (e.g., KP 947);
- Good natural revegetation is occurring in several potentially difficult locations e.g. rocky slopes at KP 993 and 985;
- When completed, biorestitution was noted to be accurate and seemingly successful (e.g., KP 1067);
- Good examples of the implementation and maintenance of permanent erosion control measures were noted at steep slopes (e.g., KP 933); and
- Good reinstatement was noted in the northern sections of Lot C, including the rolling terrain areas (e.g., KP 810), and the use of commercial seed and slope breakers for drainage control was observed.

Biorestitution Planning and Progress

In April 2005, BTC undertook a nursery and seed stock analysis of biorestitution capacity across the three Lots and the CMT. The review considered an analysis of planning, implementation preparedness, implementation technique, implementation timing, resources, aftercare and monitoring phases. A summary of the findings of the report follows.

- *Nursery Assessment:* Planning has begun in all three Lots and at the CMT. Moderate risks were reported regarding implementation, resources, aftercare and monitoring at the CMT and Lot C. The performance of implementation techniques was considered good in Lot C. Significant risks in the implementation, timing, resources, aftercare and monitoring were identified in Lot B. Significant risks were identified in the timing and techniques for implementation of biorestitution in Lot A; all other risks were identified as moderate.

- *Seed Stock Assessment:* The state of seed stocks across the Project was reported to be less a concern, but moderate risks still were reported as to success. No planning and seed stock assessment has been conducted for the CMT. Moderate risks were assigned for all other phases. Planning and implementation techniques were considered good in Lot C and moderate risks were assigned for all other phases. Seed stock preparation was considered good in Lot B, but moderate risks were identified for all other phases; significant risks were indicated in aftercare. Moderate risks were considered in all phases in Lot A.

IEC made the following assessment of biorestitution in the field during the June 2005 visit.

Lot C

Biorestitution has been initiated in Lot C and is scheduled to be completed in September 2005. Concerns exist about resources and capacity through to completion, taking into consideration the demobilization phase for several resources and staff of the EPC Contractor.

The offset planting program is in the planning stage.

Lot B

Biorestitution of non-agricultural land has for the most part not been initiated in Lot B. In the past, IEC has commented positively on the establishment of a seed bank in Lot B, but has also expressed ongoing concerns about available resources and capacity to ensure its successful implementation. Based on the progress of reinstatement to date and observations made in the field, biorestitution will likely not be completed in 2005.

Lot A

No seed bank has been established in Lot A; commercial seed has been purchased instead. Seed collection was only done and will be repeated within ESAs and this only applies to the so-called Areas of Important Plants (AIPs).

IEC observed that biorestitution planning has begun, but that most reinstatement focus is currently directed to Phase 1 and Phase 2 efforts.

Offset planning has begun in Lot A with the establishment of a small nursery at Ardahan operated by the Ardahan Environment Foundation, and which was visited by IEC. A total of 10,850 trees (*Pinus silvestris*) and 2,550 shrubs (*Betula pendula*) have been established at the nursery.

4.6.2 Erosion Control, Reinstatement and Biorestitution – Recommendations

1. IEC notes the significant improvement in the implementation of reinstatement measures in both Lots A and B. Reinstatement plans are now in place across the Project in Turkey. Given the late starting of these activities after winter, IEC recommends that sufficient resources and expertise be dedicated to reinstatement efforts so that all works can be finished by winter 2005-2006.
2. A number of contractors are being deployed to complete reinstatement activities in Lot A and B. BTC should verify and document that there is a level of consistency regarding the standard of reinstatement works between contractors to ensure compliance with ESAP commitments and Project standards.
3. The implementation of a reinstatement punch list and BTC staff initiative to walk the entire ROW to evaluate reinstatement progress and success in Lot A appear to be adequate and effective. BTC should ensure that similar measures are implemented in Lots B and C.
4. IEC noted the good effort in Lot B to initiate reinstatement works also at side and steep slopes, but recommends that BTC consistently and timely evaluate the adequacy of completion of erosion control measures to ensure proper function and slope protection, such as discussed for the slopes at KP 737 and 729.
5. The Project should continue to ensure that adequate maintenance of permanent erosion control structures is provided throughout all Lots. These maintenance practices should be continued through to the termination of construction activities and into the operations phase.
6. Reinstatement of steep slopes in Lot B will be technically challenging and will also require high attention to worker safety. A realistic assessment should be made by BTC as to whether reinstatement and biorestitution of high elevation areas can be completed by the end of this year. If not, plans should be put in place by the third quarter to ensure adequate winterization of completed reinstatement works.
7. BTC should implement a systematic assessment of topsoil fertility, particularly focused on problematic high elevation areas with fragile and thin topsoil in Lot B. A corrective action plan should be devised accordingly.
8. IEC notes that biorestitution planning has begun across the Project and that, only in Lot C, biorestitution activities are scheduled for realistic completion by the end of 2005. The Project should ensure that sufficient and specialized resources are made available for aftercare and monitoring activities, during and after biorestitution is conducted. Discussions should be held with Operations personnel to ensure that this activity is considered part of the transitions phase. Monitoring and follow-up are crucial activities to the success of biorestitution.

9. Sufficient resources and capacity must be dedicated through to biorestation completion in Lot A and B.
10. BTC should reassess the viability of nurseries and seed stock across the Project in the fall of 2005.

4.6.3 River Crossings - Observations

IEC visited a number of river crossings across all three Lots:

- Ceyhan River - KP 1037 appears to be adequately reinstated.
- Tatli River - KP 660: rip-rap was recently placed; final reinstatement was not completed including bank stabilization at the time of the visit.
- Aksu River Crossing - KP 436. Rip-rap appears to be well constructed and there is an additional commitment to extend it further upstream to protect a nearby residence. The entrance to a diversion irrigation canal appears also to be adequately rip-rapped.
- Karasu River – KP 412. Rip-rap is in place, but maintenance is still needed for the breakwater. The rip-rap will be extended along the bank to the bridge. There is still some Phase 2 work to be completed on both sides of the river crossing, but topsoil appears to still be available.
- Haciahamt River – KP 222. Rip-rap was being installed at the time of the visit. Good use of PPE was observed by the BOTAŞ crew. As per procedures, an environmental monitor was on site for BOTAŞ, with all the necessary papers, including the “permit to work”, punch list and list of activities to be conducted.
- Posof River – KP 16. The south bank still requires stabilization. Some erosion impact was observed on the north bank, resulting from the lack of stabilization before winter and from reported stockpiling of gravel by the Municipality. Erosion at the crossing is due to a combination of both factors. During the visit, a TEPE dump truck was observed getting gravel likely for PT1, indicating that the Project continues to use this site.
- Incendere River – KP 3.5. Flume pipes were observed still in place and bank stabilization is pending.

4.6.4 River Crossings - Recommendations

1. IEC noted suitable deployment of rip-rap across the Project as an effective means of excess rock disposal. River crossings should be consistently re-examined by BTC E&S assurance organization to ensure that adequate rip-rap is in place and that final reinstatement and biorestation measures are adequately completed.
2. The Project should develop specific monitoring procedures that could be adopted by Operations to evaluate the effectiveness of the completed river crossings after the coming winter.
3. IEC has consistently reported that the Project is obtaining gravel from a Municipal quarry at the Posof River crossing. The Project should evaluate the impact of this operation on crossing integrity and also re-assess whether reinstatement is needed according to Project usage and criteria. Technically adequate bank stabilization of the Posof River crossing is also required including proper placement of rip-rap and other erosion control measures.

4.6.5 Open Trench and Excavations – Observations

Backfilling has largely concluded across the Project and the concern of open trench pertains now more to open excavations associated with Block Valve installation, repairs, tie-ins and hydrotest locations. IEC acknowledges the continued diligence of the Project to maintain vigilance towards minimizing safety hazards associated with open excavations.

Lot A

The Lot A H&S Department continues to maintain the Open Excavation Register. There were no issues reported to IEC. Open excavations were generally found to be adequately fenced.

Lot B

Open trench remains the responsibility of the Health and Safety department. Lot B H&S personnel maintain a register of all open excavations. The Construction Department is responsible for deploying fences and signage. Open excavations were generally found to be adequately fenced.

Lot C

H&S continues to be responsible for the Open Excavation Register in Lot C. A total of 17 open excavations were reported, seven within 500 m of nearby communities and ten more than 500 m. As for the other Lots, open excavations were generally found to be adequately fenced.

4.6.6 Open Trench - Recommendations

1. The Project should continue to ensure that all subcontractors working in areas of open excavation maintain Project standards and criteria regarding fencing, signage and notification of nearby communities.

4.6.7 Access Roads - Observations

In June 2005, IEC observed that the Project has started to develop procedures for 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.”*

The following observations were made during the July 2005 visit:

- All three Lots have an access road register, although it is difficult to ascertain if the registers are complete. A concern was raised by IEC on the completeness and accuracy of the register for Lot B, particularly for high elevation areas;
- some access roads have been reportedly reinstated in Lot C and B; and

- in Lot B, there is a significant increase of access roads in high elevation areas (KP 458-449) that represents a visible increase in the Project footprint. This is a non-compliance with the spirit of the ESAP and the commitment to minimize construction footprint. Accesses, including road short-cuts, likely unauthorized and without a proper environmental and social assessment, were observed in areas potentially sensitive, such as in ESA 20, and high elevation areas with fragile and thin topsoil. No attempt to minimize erosion has been put in place (*Level II Non-Compliance, CCP Reinstatement, Commitment ID: 2*).

4.6.8 Access Roads - Recommendations

1. IEC repeats the recommendation of October 2004 and February 2005 that BTC dedicate specialized 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 contractor demobilization.
2. In Lot B, BTC should undertake an immediate evaluation of access roads, particularly in high elevation areas between KP 458 and KP 449 and in the ESA corridors, to ensure that they are properly assessed, compensated and documented in the access register and that special reinstatement needs are timely identified to mitigate potentially significant ecological and landscape impacts.

4.6.9 Hydrotesting – Observations

In February 2005, IEC observed that the Project was taking positive action to standardize hydrotest environmental management plans and monitoring of abstraction and discharge points in compliance with Project environmental and social commitments.

IEC was provided with hydrotest information packages for all three Lots. The following comments pertain to a review of that information and additional information provided to IEC during staff interviews.

Lot C

As already noted in February 2005, 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.

IEC visited a hydrotest water extraction point at KP 943, which will also be used for water discharge. Good work area preparation and use of equipment were noted, including the use of a submersible pump, fish screens and the presence of oil spill containment equipment. No visible turbidity impact was noted downstream of the extraction point.

Lot B

IEC visited several hydrotesting sites in Lot B and had the following observations:

- Two extraction/discharge points from the Kalkanci Reservoir at KP 541 and from Aksu River at at KP 422 were visited. The sites were well maintained and good deployment of oil spill booms and fish screens, containment of fuel storage areas and presence of drip trays were noted. The design of the receiving pits includes silt fencing as a pit liner and installation of silt fences for sediment control downstream of the pits;
- Discharge of high pressure water was observed at Hydrotest Section 5 which resulted in significant sediment suspension and highly turbid discharge water downstream. As observed for the two extraction/discharge points above, the discharge pit was lined with silt fence rather than impervious liner. Silt fences were inadequately deployed and were found to be collapsed. There was no environmental monitor on site during the discharge process. The design of the receiving pit and sediment control measures appears to be faulty (*Level II Non-Compliance, Environmental Management Plan for Hydrostatic Test, Lot B*).

In February 2005, IEC reviewed Mainline Hydrostatic Package for the Hydrotest Section 3 (KP 320+576 to KP 344+ 095) and noted the following:

- The hydrotest information package was 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 (flow, iron, DO and pH) with field kits (via spectrophotometry) and at the CHCL laboratory in Erzurum (TSS and Oil and Grease). Reported discharges were within project limits; and
- An incident report indicated a spill of discharge water containing high iron levels was included.

During the June 2005 interviews, IEC requested and received Hydrotest Information Packages for TS-1, TS-2 and TS-3. The information received was not completed and not of an equivalent standard that received in February 2005. It is possible that complete information packages were not provided because of the amount of information available. Based on the information provided, it is not possible to comment on the adequacy of Hydrotest Information Packages in Lot B as of June

2005. It is noted that preparation of adequate and complete hydrotest information packages is one important condition agreed with BTC as follow up of the IEC review of the relevant environmental management plans for hydrostatic test. Observations of non-compliant conditions at one test site confirm that BTC should conduct an independent assessment of hydrostatic test environmental protection procedures and verify the completeness of these information package.

As already mentioned, IEC notes the implementation of a Permit to Work system and register in Lot B to ensure safe operation of reinstatement activities over tested pipe. From observations in the field and random checks of documentation, IEC acknowledges the positive efforts of Lot B in this regard.

Lot A

IEC was updated on the status of hydrotesting in Lot A:

- There are 7 hydrotest sections in the 46” line, 5 are completed;
- There are 25 hydrotest sections in the 42” line; 10 are completed; and
- The hydrotest status and schedule provided indicate that hydrotesting should be completed by late August 2005.

The following process appears to be consistently followed:

- Environmental and social pre-assessments are conducted;
- Sampling and mitigation prior to extraction are conducted;
- Mitigation measures are put in place prior to discharge;
- Discharges are sampled and monitored, and,
- The relevant report for each section is prepared.

No hydrotest operations in Lot A were observed during the June 2005 visit. Information provided during interviews indicated that impervious liner is used at the discharge pits, and that discharges are mitigated using filters and flow dissipators.

4.6.10 Hydrotesting - Recommendations

1. A technical review of the design of discharge mitigation measures needs to be conducted by BTC in Lot B, to ensure that the design is suitable at all discharge points to minimize the opportunity for turbidity impacts and sedimentation downstream of the discharge.

2. An Environmental Monitor should be present at all times during discharge operations. Environmental training to operators, in particularly in Lot B, should be provided to ensure compliance with environmental standards.
3. Based on the individual non-compliance noted in June 2005 at Test Section 5 (KP 395) in Lot B, the Project should provide evidence that there have been no significant and persisting downstream impacts to communities, land and water resulting from the uncontrolled hydrotest discharge.
4. Sedimentation control measures should be adequately maintained during discharge, through the proper deployment and maintenance of silt fences and implementation of adequate flow dissipation as per the BTC Hydrotest plan.
5. BTC should verify and ensure that adequate public consultation is being completed before and after hydrotesting in both Lots A and Lot B to address all public concerns and any potential complaints.

4.7 ECOLOGICAL MANAGEMENT

4.7.1 Observations

A total of 55 Ecologically 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.

BTC informed IEC of a number of actions taken by the Project regarding reinstatement of ESAs:

- BTC conducted a ‘Seed Stock and Nursery Assessment’ on available seeds, trees and shrubs for each Project;
- ‘Bridging’ document is being created to update the SARMS documentation;
- Ecology consultants are to advise on a translocation (of target species) and ecological monitoring strategies;
- ESA 1: intensive monitoring activity was carried out by BTC and BOTAŞ experts to determine whether early access for some repair works was achievable in Mid June. Two MOC processes were started and BOTAŞ received the Project approval to commence work on site, since the ecological experts mobilized both by BTC and BOTAŞ concluded that the population in

the area is ‘low’ and nesting sites in the potential impact zone could not be confirmed during the surveys.

IEC has consistently expressed concerns regarding the capability of the Project to ensure adequate management and restoration of ESAs. A Level II non-compliance was raised in February 2005 (*Level II Non-Compliance, Reinstatement CCP, Commitment ID: APC2E26, 167, 359, 377*).

In June 2005, some positive developments were noted such as the implementation of ESA monitoring programs in Lots A and B and the establishment of a template to ensure consistency in SARMS across all ESAs in Turkey. However, IEC notes that although progress in planning for ESAs has progressed somewhat since February, little real progress on the ground still is observable with the exception of Lot C. The Level II Non-Compliance is therefore not rescinded. The following observations were made in the field and from staff interviews.

Lot C

- Total 19 ESA’s.
- No target species found in 4 ESA’s (ESA 39, 45, 49 and 55).
- Reinstatement status:
 - Phase 1+2: All completed.
 - Phase 3: ESA 48, 47, 46, 44, 43, 41 completed in November 2004.
- ESA Monitoring System in place.

IEC was informed that planning for offset planting has begun in Lot C. A site has been selected in the Kösreli section and planting will be initiated in September 2005.

Lot B

IEC was informed on the status of reinstatement activities in ESAs in Lot B:

- Little progress in reinstatement has been achieved since February 2005. ESA 13, 26 and 51 are still the only areas where reinstatement is complete.
- Reinstatement activities and topsoil spreading are ongoing in ESA 24, 31, 33 and 34.

In October 2004, excellent native seed collection practices were noted in Lot B in Sivas, Koyunkaya, Kova and Çardıkaya storage depots, but concerns are raised in terms of seed stock viability.

Lot A

IEC was provided with an update of reinstatement of ESAs in Lot A as of June 2005.

- ESA 1 – Construction is ongoing; rough cleanup has been completed. Monitoring should be done in July 2005 for bulbs. Seeding should be carried out on steep and side slopes during reinstatement. Reforestation should be done in the fall of 2005.
- ESA 2, 3, 4 – Hydrotesting ongoing. The areas are planned to be reinstated in July and seeding done on steep slopes.
- ESA 5 – Phase 1 reinstatement is ongoing. Monitoring should be done in July 2005 for translocated plants.
- ESA 6, 7, 8 and 50 – Construction is completed, but there are no activity ongoing. Seed collection should be completed in ESA 6 in July. Turf relocation should be completed in ESA 7 and seeding should be completed. Seed collection should be done in July in ESA 8 and reforestation should start in the fall.
- ESA 9 – Phase 1 reinstatement is ongoing.
- ESA 10, 11 - 5 – Phase 2 reinstatement is ongoing. Permanent slope breakers should be installed in ESA 10 and seeding should begin in July. In ESA 11, the wetland should be reseeded and reforestation should occur in the fall.

In regard to ESA 1, IEC received an update on special mitigation provisions in place to allow repair work while minimizing the potential impact to nesting Black Grouse. Black Grouse surveys were carried out by BTC and BOTAŞ; the experts consulted by BTC and BOTAŞ reported that the population in the vicinity of ESA1 is ‘low’ and that nesting sites in the potential impact zone could not be identified during the surveys. The Project then authorized repairs to proceed under two MOCs:

- MOC #1: Positive of KP13 (towards Posof) was adjudged to be within Scenario 1 and therefore requiring Management of Change documentation Class I to be compiled and issued by BOTAŞ.
- MOC #2: Negative of KP13 (towards the Georgian border) was adjudged to be within Scenario 2 based on Pre-cautionary principles, therefore requiring Management of Change documentation Class II to be compiled and issued by BOTAŞ.

As a result of the MOCs, the following special mitigation measures in order to proceed with the repair work before the end of the seasonal constraint period in the area were put in effect:

- To minimize the noise effect the construction activities are to be carried out between 10:00-15:30;
- Only designated personnel are allowed to access the construction areas;
- Only designated equipment is to be used;
- Tool-box talks are to be given to the designated personnel by the Lot A Ecologist every day before the activities start;
- Designated personnel movements are to be limited with the usage of only ROW borders;
- Equipment is to be turned off when not needed;
- Unneeded personnel and equipment shall leave the construction area once work is completed; and
- Reverse signals of the vehicles and equipments are to be turned off not to cause any additional noise impact.

IEC visited KP 11+600 and found that the personnel on site were sufficiently aware of these special mitigation measures.

4.7.2 Recommendations

1. With the exception of Lot C, biorestitution of ESAs has not significantly improved in Lots A and B. IEC again recommends the development of a Turkey Project-wide monitoring plan for ESAs by BTC. The Project should undertake a detailed, quantitative field survey of all ESAs during the summer of 2005 to realistically assess the success, timing and completion of biorestitution activities. As mentioned previously, the survey should also identify remedial measures, as needed, to ensure mitigation of potential ecological impacts caused by any reinstatement and biorestitution delays or any potentially inappropriate practices implemented.
2. IEC notes that there have been initial attempts to quantitatively assess viability of plant species in ESAs, e.g. for some ESAs in Lot B (ESA 31, 33 and 34). BTC needs to develop and take the lead in implementing a standardized approach for a quantitative assessment and biomonitoring of ESAs throughout the Lots. This is particularly true in regards to translocated species.

3. The Project should ensure that expertise, resources and capability are in place in all Lots through to final completion of biorestitution activities.

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 for assessments of field activities. 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 only visited one archaeological site during the June 2005 visit. At KP 943, the Roman Bath site in Lot C, backfilling activities had been fully completed and agricultural activities had resumed in the vicinity.

The Project conducted salvage excavations at several sites located within the limits of BTC route between March 2003 and August 2004. All of the salvage excavations were executed under the control of the ministry representatives and local Museum Directorates. The sites where the salvage excavations were conducted are the following:

- Ardahan: Archaeological site of Sazpegler
- Kars: Archaeological site of Selim-Hasbey
- Erzurum: Tetikom, Tasmazor, Güllüdere, Tümentepe, Büyükardıç, Mağaratepe archaeological sites
- Erzincan: Dumantepe, Çilhoroz, Akmezar archeological sites
- Sivas: Archaeological site of Ziyaret Suyu, Abdel locality

- K.Maraş: Archaeological site of Minnetpınarı, Roman Bath Area, Taşoluk Köyiçi
- Adana: Archaeological site of Gökdere-Yüceören, Sağırlar Tombs

40 chance finds were registered throughout the pipeline construction.

It is observed that the cultural heritage management program conducted by the Project appears to have been adequately conducted and up to best international practice. BTC is also working on peer-reviewed scientific publications for the most important sites studied by the Project.

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 two EPC contractors continue to be responsible for community liaison activities. Current organization of Project CR personnel has been discussed previously in Section 4.2.

Overall the response of CR teams to community concerns is adequate across all Lots, Pump Stations and at the CMT. The following observations were made during interviews and site visits in June 2005.

CMT

There are two CR staff at the CMT; one from TEKFEN and one from BOTAŞ. There were no open complaints at the time of the June visit. There are no complaints pertaining to employment issues.

Pump Stations

Following the termination of the TEPE contract at the Pump Stations, BOTAŞ has assumed responsibility for Community Relations. There has been good maintenance of CR personnel at all Pump Stations.

As a result of interviews with CR personnel at PT1, the following observations for all Pump Stations were noted:

- There have been a total of 206 complaints since the initiation of the Project, of which eight are open (one more than 30 days). Forty complaints have been received since the beginning of 2005;
- CR personnel reported that complaints are decreasing at the Pump Stations and that BOTAŞ has a commitment to close out all outstanding payments as soon as possible; and
- Local employment continues to be very effective and 66% of all unskilled workers are employed from the local level.

The CR Manager reported that a plan for land exit issues is being developed.

Lot A

Following the termination of the TPN contract, there are now four CR personnel in Lot A. Two are originally from BOTAŞ, the other two from TPN. CR staff is well organized and appear to have adequate resources and capability to complete their required functions.

CR personnel reported that there are still 27 open complaints in total more than 30 days; most are related to damage to land. However, CR personnel are taking an

active role in working with two road construction crews to repair damages to roads caused by the Project.

IEC also noted that the Altash Bridge over the Kura River has reopened with the support of the Project.

Reinstatement meetings are also held in local communities to inform landowners about the land exit system and reinstatement progress.

Lot B

As reported earlier, BOTAŞ and STA together have six CR personnel in Lot B. Two more CR personnel have been recently hired. Lot B CR staff now appears to have sufficient resources and capacity to fulfill their functions.

The following observations are noted from interviews conducted in June 2005:

- A total of 189 community meetings have been held since initiation of the Project involving 2498 participants; and
- Some 111 hydrotest meetings have been held with local communities.

In February 2005, CR personnel indicated that a total of 524 community complaints had been received of which 66 remained open for more than 30 days. At the time, IEC assigned a Level II non-compliance over the failure of STA management to take adequate action in resolving these complaints in the shortest time possible (*Level II Non-Compliance, Community Liaison CCP, Commitment ID: APC1S7*).

During the June 2005 interviews, CR personnel reported that open complaints had risen to 91 in March-April 2005, dropping to 22 at the time of the IEC visit. Most of these open complaints related to damage to land, crops and roads.

Given that CR complaints have significantly dropped and CR personnel appear to have adequate resources to complete their functions, IEC considers this Level II non-compliance closed.

Lot C

CR personnel in Lot C are fully integrated between PLL, BOTAŞ and BTC and appear to be adequate in number.

The following observations were made based on information provided by Lot C CR personnel during the June 2005 interviews:

- A total of 790 community meetings have been held since the start of the Project; and

- There have been a total of 223 complaints since the initiation of the Project of which 10 remain open. Of these open complaints, damage to land (4) and roads (2) are most prevalent.

4.9.2 Recommendations

1. The Project should ensure that sufficient CR resources are available to complete their tasks and be able to follow the significant issues relevant to social closure, land exit and compensation for outstanding damages following mechanical completion.
2. IEC notes the increase in CR personnel in Lot B and the decrease in the number of open complaints. Taking into consideration the length of Lot B, the Project should continue to ensure that sufficient CR resources are mobilized through to mechanical completion and land exit.
3. The Project needs to continue to 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.

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 the three Lots and Pump Stations during the June 2005 visit.

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).

BOTAŞ

BOTAŞ did not provide an update on the number of H&S personnel as of June 2005. In February 2005, IEC noted a concern about decreases in the number of H&S personnel within BOTAŞ.

CMT

There was no safety review undertaken at the CMT in June 2005.

Pump Stations

Following the termination of the TEPE contract, the number of H&S personnel at the Pump Stations at the time of the June 2005 visit is as follows:

- PT1: one chief H&S engineer, one H&S engineer, one H&S training officer, three H&S officers, one transport officer;
- PT2: one chief H&S engineer, one H&S engineer, one H&S training officer, three H&S officers, one transport officer;
- PT3: one chief H&S engineer, one H&S engineer, one H&S training officer, three H&S officers, one transport officer;
- PT4: one chief H&S engineer, one H&S engineer, one H&S training officer, three H&S officers, one transport officer; and
- IPT1: one chief H&S Engineer, one H&S engineer, three H&S officers.

Lot A

Following the termination of the TPN contract in Lot A, the number of H&S personnel continues to decrease. IEC was informed that there are currently eight H&S staff in Lot A (one Lead H&S Engineer, one H&S Expert, one H&S Officer, three H&S Inspectors and two Road Safety Officers). It was reported that this number will likely decrease to three H&S staff by the end of June 2005. Overall, it was reported there is a significant issue for H&S personnel at the close of the Project as many experienced H&S officers are leaving the Project in search of other employment.

There is currently 650 staff in Lot A which, if the stated decrease of H&S personnel at the end of June will be confirmed, will cause a ratio of over 200 staff per H&S inspector, well over the Project standard of 35:1.

FERNAS has a limited number of H&S personnel at IPT2, but it was reported that they too are struggling to maintain H&S staff.

Road safety was cited as a major issue and concern in Lot A, particularly accidents involving third parties.

H&S personnel reported that they are also responsible for water testing which is done on a monthly basis.

Lot B

As of June 2005, STA has one H&S Manager, five H&S inspectors, one H&S trainer and one Road Safety expert. BOTAŞ has six H&S staff including one H&S engineer, two H&S Experts and three H&S Officers. In addition, STA subcontractors have six H&S Inspectors. STA and its subcontractors have eight vehicles available for H&S, BOTAŞ six. Radios are available in the vehicles.

There are currently 800 workers in Lot A, 370 of which are direct. H&S staff reported that resources and capability are adequate to maintain a safe workplace.

In February 2005, IEC assigned a Level II non-compliance because H&S staff were found to be not clear on the responsibility and priority of potable water testing at camps in Lot B (*Level II Non-Compliance, BOTAŞ Environmental and Social Management Plans, Commitment ID: CH9E3, CH4E41*). In June 2005, IEC was informed that the H&S department is now responsible for potable water quality monitoring. IEC examined the potable water records for the four camps and found that there is a consistency in parameters; samples are analyzed in Public Laboratories either in Sivas or Erzerum. New parameters have been added including: total coliforms, TOC, TDS, arsenic, salinity, turbidity, conductivity, total hardness, pH, nitrates and nitrites. IEC considers this Level II non-compliance to be closed.

IEC also raised a finding in February 2005 over the failure to provide hot food to workers on the ROW during the winter months. H&S staff reported that solving this issue was difficult due to large travel distances in Lot B, but that there is a commitment to improve the quantity and quality of food to workers away from camps.

Lot C

The H&S team in Lot C consists of seven staff – four PLL, two BOTAŞ and one BTC. There are currently 483 staff employed by PLL in Lot C.

There are only two active work fronts in Lot C. Each has a medical team.

Recommendations

1. BTC needs to ensure that health and safety standards and level of vigilance are maintained across all three Lots and the fixed facilities in Turkey at this time when demobilization activities are beginning to occur.
2. BTC and BOTAŞ need to immediately assess the number and capacity of H&S personnel in Lot A to provide an adequate level of safety consistent with Project standards, taking into consideration the expected ramp-up of construction activities in Summer.

3. A similar assessment of H&S capability should be made at the Pump Station locations, particularly in regard to the speed-up in construction activities and possible commencement of night shift work.
4. Road safety remains the primary H&S issue for the Project. Access along the pipeline ROW has been reduced and travel distances continue to be great as work activities are spread out across all three Lots. The Project should ensure that traffic safety awareness programs are maintained and extended to all subcontractors and main service providers used by the construction crews, assessing frequency and continuity of these services.

4.11 ENVIRONMENTAL INVESTMENT PROGRAMME

BTC provided an update to the EIP as of June 2005;

- All 10 EIP projects and expenditure of US\$3.3 million have been committed (Forest project awaiting signature);
- About 35% of grant budget disbursed;
- No major problems noted except a late start in forest project;
- One project complete (Monk Seal Project final report still to be submitted);
- Four more projects are to be completed by the end of 2005; and,
- The Construction Phase projects are to be completed by mid-2008.

IEC also reviewed a report prepared by BTC consultants on the EIP across all three countries. The report comments positively on the success of the EIP in Turkey, particularly in regard to raising public awareness, and notes the following recommendations:

- *The EIP is an additionality program which conserves biodiversity over and above the impact of any business activity. The concept of additionality is relatively new and not widely understood and the EIP will need to explain this more clearly.*
- *The EIP team should encourage and support its implementing partners to devote increased time and effort to obtaining the support of local government officials and local communities for implementing the species and habitat management plans.*
- *The EIP team should encourage implementing partners in future projects to address more directly in their management plans and project activities the main threats to biodiversity.*

- *The EIP team should encourage its implementing partners to identify and apply for funding from the European Union and other grant making bodies.*
- *The EIP should continue to be managed in-house.*
- *Each of the current EIP Project should continue to be funded under any future phase of the EIP.*
- *The EIP should be extended to last for the duration of the BTC/SCP pipeline projects.*

IEC recommends that BTC develop an action plan in response to the above BTC consultant recommendations and indicate what long-term plans are being considered for transition to the Operations Phase.

Appendix A
***Trip Summary- 5th IEC Mission by D'Appolonia for the BTC Pipeline Project –
June 2005***

For this mission, two members of the team toured Turkey while another three visited Georgia and Azerbaijan, with two alternating such that each country tour was attended by two team members. The trip summaries of the two groups are presented separately.

Georgia and Azerbaijan Team

June 14 – Azerbaijan. Team arrives in Baku in the late afternoon.

June 15 – Azerbaijan. Attend meetings in Baku with BTC and Core Management Team (CMT) personnel.

June 16 – Azerbaijan. Begin tour of ROW from close to Sangachal Terminal and proceed westward as far as Kurdamir Camp. Include tours of Mugan Camp and Kurdamir Camp.

June 17 – Azerbaijan. Continue tour of ROW from KP 335 to KP406.

June 18 – Azerbaijan. Completed tour of ROW from Georgia border back to KP 406. Travel to Ganja and return to Baku by train. Present closeout meeting to BTC and CMT staff on the train.

June 19 – Azerbaijan. Free day in Baku.

June 20 – Georgia. Travel from Baku to Tbilisi by air. Attend meetings with BTC staff. One IEC team member arrives in the afternoon, while another departs in the evening.

June 21 – Georgia. One team member tours the ROW west of Akhaltsikhe, while the other stays in Tbilisi and attends a meeting with BTC focused on Biodiversity Monitoring Plan, the EIP, and Offset Mitigation Projects.

June 22 – Georgia. One team member inspects the Akhaltsikhe Camp and visits the ROW East of Akhaltsikhe. The other team member travels from Tbilisi and the team reunites in the afternoon to visit ROW reinstatement, ecological sites along Kodiana pass, and the botanical gardens. The team spends the night in Bakuriani.

June 23 – Georgia. Both team members visit the ROW in the area of Bakuriani, inspect Kodiana Project areas, and visit wetland and biodiversity monitoring sites in the vicinity of Mt. Kodiana, Mt Tavkvetili, the Ktsia-Tabatskuri reserve area, as well as the Tsalka area before returning back to Tbilisi.

June 24 – Georgia. Both team members visit reinstatement and biodiversity monitoring sites in Eastern Georgia and inspect the ROW towards Central Georgia. The team meets representatives from the Georgian Ministry of Environmental Protection and National Resources (MoE) and the Georgian International Oil Corporation (GIOC) in Tbilisi.

June 25 – Georgia. Present closeout meeting at BTC office in Tbilisi.

June 26 – Depart Georgia early morning.

Turkey Team

June 13 – Arrive in Ankara

June 14 – BTC and BOTAS management and E&S meetings in Ankara. Fly to Adana.

June 15 – CMT interviews and site visit. Drive from CMT to Azizli Camp. Interviews Lot C, overnight in Lot C.

June 16 – Field visit to Lot C Spread 2, 42” section. Visit KP 947, 946, 943, 933 and 810. Overnight in Kayseri.

June 17 – Close-out meeting Lot C. Walk-around at PT4 Camp. Visit Lot B – Spread 2 – KP 743, 739, 737, 732, 729, river crossing. Walk-around at Sivritepe Camp. Overnight in Sivas.

June 18 – Field visit to Spread 2, Lot B – KP 660, karst area KP 613, Hydrotest at Kalcanci Reservoir, KP 541. Interviews of Lot B staff at Kova Camp, overnight in Kova.

June 19 – Visit to high elevation areas in Lot B KP 458-449, visit inert material disposal areas at PT3, site visit at PT3 Camp, Lot B KP 436, 433, 427 and 422, overnight at PT3.

June 20 – Interviews of PT3 staff, visit Spread 1, Lot B agricultural land at KP 419, 416, 412 – Karasu River crossing, 409, 395, 376, 330. Visit hydrotest discharge at TS-5. Close-out meeting for Lot B at Cadarkaya Camp. Visit ESA 13. Overnight in Erzerum.

June 21 – Visit Spread 2 and 3, Lot A – agricultural land at KP 276, 265, 252, 243, 237, BV 15 and Haciahamt River Crossing - KP 222. Overnight in Kars Camp.

June 22 – Interviews with Lot A personnel at Kars Camp. Walk-around at Kars Camp. Site visit to IPT2. Visit Ardahan Nursery. Visit Spread 2/3 of Lot A – KP 61-59, BVS 5 at KP 48. Overnight at PT2.

June 23 – Interviews at PT1. Walk-around at PT1 Camp and close-out meeting Pump Stations. Visit Spread 1 Lot A – KP 20, 17, 16 – Posof River Crossing, 13 – ESA 1, 11 + 600, 3 + 500, 2,2, 0 + 500, Georgian Border. Overnight in Kars Camp.

June 24 – Close-out meeting Lot A at Kars Camp. Fly to Ankara. Close-out preparation.

June 25 – Close out meeting Turkey (BTC and BOTAŞ management and E&S management).

June 26 – Depart Ankara early morning.

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

Section Ref.	Observation	Non-Compliance	Level	Comments / Recommendations
2.3.2	CCIC - A chronic problem that does not appear to have ever been the focus of attention by Project environmental staff is with respect to noise pollution. The generator at Kurdamir was a chronic problem. Tovuz Camp continues to routinely produce noise levels that exceed ESAP nighttime standards by as much as about 15 dB. The generators at Mugan Camp have just been installed, but at the side of the camp closest to residences and measurements indicate an exceedance of nighttime noise standards at the location of the nearest residential dwellings. It is understood that neighbors have not complained; but noise abatement has not been a high priority for the E&S teams	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
2.4.3	The one parameter where the Project will need to pay the greatest attention is coliforms. The Project frequently exceeds the new standard where water may enter an irrigation system, specifically at CCIC Mugan Camp. It is recognized that Mugan Camp is in a startup mode and discharge test results for coliforms are improving, but mature camps such as Tovuz also cannot meet this standard.	CCP Waste Management Plan, Commitment ID: 553	I	The Project needs to make additional efforts to reduce coliform discharge where non-compliant conditions exist.
2.4.3	Test results from the WWTP at PSA2 were not available from SPJV. Based on past test results it is anticipated that STP performance	CCP Waste Management Plan, Commitment ID: 553	I	

Section Ref.	Observation	Non-Compliance	Level	Comments / Recommendations
	is no better than what is being achieved by CCIC. With no other information, the previous non-compliance has not been modified			

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

Section Ref.	Observation	Non-Compliance	Level	Comments / Recommendations
3.3.1	Two batch plants are working such that by far the majority of their production is dedicated to Project (PSG-2 and PSG-1 construction). Although the CMT confirmed that the Project should be responsible for assuring that these facilities operate forward to Project standards, Project intervention appears to have been negligible. These plants are not being operated within Project standards and ESAP principles are not being followed, particularly in terms of appropriate training of personnel and in particular in the control for pollution prevention. The Project has not been able to demonstrate that the facility has properly managed, controlled and operated in compliance with many ESAP requirements.	CCP Procurement and Supply, Commitment ID N34-P35, Commitment M11 – HSE Plan Section 7.4	II	The Project should work to prevent pollution that could be caused by the improper control of cement truck wash water, nuisance dust, an unsafe work environment because of lack of PPE, training, environmental protection awareness, etc..
3.4.3	The one parameter where the Project will need to pay the greatest attention is to coliforms. The Project has reached general compliance with the new standards, except at PSG-2 office and Tsalka Camp.	CCP Waste Management Plan, Commitment ID: 553	I	The overall situation is considered to be one where improvement and attention is still needed.
3.5.1	A visit was made to the location of the clean and gauge hydrotesting being conducted with a discharge point at KP 138. At this location, several deficiencies were noted: water was observed to be discharged improperly; water quality tests were not conducted prior to discharge; a filtration/sediment trap was not present; discharged water caused the	Hydrotest Management Plan, Chapter 7.	II	Ensure compliance with standards established in the Hydrotest Management Plan, which defines methods and procedures to conduct the activities in an environmentally and socially responsible manner. Provide evidences that potential impacts at the site are either negligible or effectively mitigated.

Section Ref.	Observation	Non-Compliance	Level	Comments / Recommendations
3.8.1	<p>uncontrolled flooding of agricultural land where potatoes were being cultivated.</p> <p>The Project did conduct pre-clearance faunal surveys for the ROW in the vicinity of spadefoot toad breeding habitats (KP 28 through 52), in which habitats for this species were highlighted along the ROW and construction-related mitigation measures were recommended. Although pre-clearance faunal surveys were conducted, it appears that recommendations from these surveys were not translated into actual mitigation measures that were considered during pipeline construction, and the identified habitats appear to be modified after construction.</p>	Ecological Management Plan, Commitment F6	II	<p>The Project should:</p> <ul style="list-style-type: none"> • Determine the natural seasonal hydrologic variability (hydroperiods) in both of these water bodies; • Continue monitoring efforts to determine if spadefoot toads are recolonizing these water bodies; • For the breeding pond at KP 40, determine if spadefoot toad recolonization numbers are similar to numbers of individuals found in other ponds in the region; and • Ensure that the proper vegetation is restored at the KP 40 breeding pond.

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

Section Ref.	Observation	Non-Compliance	Level	Comments / Recommendations
4.3.6	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. A third one is a concern for potential erosion and slope failure risks.	CCP Ecological Management, Commitment ID: S692; CH15E27	II (Repeat)	The reinstatement plans for the subsoil disposal sites at PT3 were developed, but their implementation is urgent. 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.
4.4.2	Uncontrolled dumping of a variety of Project waste at the Narlik inert material disposal site for the Ceyhan Marine Terminal	CCP Waste Management Turkey, APC1E69, APC3E41	II	BTC should immediately assess the permit status of the Narlik inert waste dump and undertake an evaluation of waste disposal procedures. BTC should conduct a site investigation and assessment aiming at assessing mitigation/restoration options and potential environmental liability.
4.4.4	Persisting inefficient and non-compliant conditions reported for all WWTPs at the Pump Stations and Lot A	CCP Pollution Prevention, Commitment ID: CH7E13, APC4E39	II	IEC notes the commitment of the BOTAS to improve performance of the Pump Station WWTPs and also for the development of the topsoil pile irrigation systems to provide additional treatment and meet Project specifications. Level II non-compliance is to be maintained until compliant analytical results, demonstrating the effectiveness of the topsoil irrigation piles, have been

Section Ref.	Observation	Non-Compliance	Level	Comments / Recommendations
				validated by BTC and are available.
4.4.4	Persisting failure to monitor compliance of WWTPs in Lot B for regulated parameters	CCP Pollution Prevention, Commitment ID: APC4E39	I	Oil and grease data continue to be unavailable. The former Level II Non-Compliance cannot be fully rescinded and it is downgraded to a Level I Non-Compliance, because of the persisting impossibility to monitor compliance for the complete list of regulated parameters.
4.6.1	Particularly in some high elevation areas with fragile and thin topsoil, topsoil has been stored for more than 2 years and, from a visual assessment, its fertility appears to be significantly reduced. Fertility conditions have not been assessed by the Project	CCP Reinstatement, Commitment ID: CH6E6, CH15E3, CH15E7, CH15E10, APC2E143, 410	II	BTC should implement a systematic assessment of topsoil fertility, particularly focused on problematic high elevation areas with fragile and thin topsoil in Lot B. A corrective action plan should be devised accordingly
4.6.1	A Level II non-compliance for in-action on the NGPL was raised since July 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)	During the June 2005 visit, IEC was informed that a decision on the selection of the preferred contractor to conduct the reinstatement works is pending. Although the non-compliance cannot be rescinded, IEC notes this commitment and intends to follow-up on the execution of reinstatement of the NGPL during the next visit.
4.6.7	In Lot B, there is a significant increase of access roads in high elevation areas (KP 458-449) that represents a visible increase in the Project footprint. Accesses, including road short-cuts, likely unauthorized and without a proper environmental and social assessment, were observed in areas potentially sensitive, such as in ESA 20, and high elevation areas with fragile and thin topsoil. No attempt to minimize erosion has been put in place	CCP Reinstatement, Commitment ID: 2	II	BTC should undertake an immediate evaluation of access roads, particularly in high elevation areas between KP 458 and KP 449 and in the ESA corridors, to ensure that they are properly assessed, compensated and documented in the access register and that special reinstatement needs are timely identified to mitigate potentially significant ecological and landscape impacts.

Section Ref.	Observation	Non-Compliance	Level	Comments / Recommendations
4.6.9	Discharge of high pressure water was observed at Hydrotest Section 5 in Lot B, which resulted in significant sediment suspension and highly turbid discharge water downstream. The design of the receiving pit and sediment control measures appeared to be faulty	Environmental Management Plan for Hydrostatic Test, Lot B)	II	A technical review of the design of discharge mitigation measures needs to be conducted by BTC. Environmental Monitors should be present at all times during discharge operations. Environmental training to operators should be provided to ensure compliance with environmental standards. Sedimentation control measures should be adequately maintained during discharge. The Project should provide evidence that there have been no significant and persisting downstream impacts to communities, land and water resulting from the uncontrolled hydrotest discharge.
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 (Repeat)	In June 2005, some positive developments were noted such as the implementation of ESA monitoring programs in Lots A and B and the establishment of a template to ensure consistency in SARMS across all ESAs in Turkey. However, IEC notes that although progress in planning for ESAs has progressed somewhat since February, little real progress on the ground still is observable with the exception of Lot C. The Level II Non-Compliance is therefore not rescinded.