



Environmental & Social Monitoring Report (January to December 2013)

Project Number: 44914

PAK: Patrind Hydropower Project

Prepared by Star Hydro Power Limited

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Asian Development Bank



STAR HYDROPOWER LIMITED

147 MW PATRIND HYDRO POWER PROJECT ENVIRONMENTAL & SOCIAL ANNUAL MONITORING REPORT 2013



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A COMPANY OF KOREA WATER RESOURCES CORPORATION

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List of Acronyms & Abbreviation

ADB	Asian Development Bank
AJK-EPA	Azad Jammu & Kashmir Environmental Protection Agency
AMR	Annual Monitoring Report
KPK	Khyber Pakhtunkhwa
CDP	Community Development Plan
EH&S	Environmental Health & Safety
EPCC	Engineering Procurement Contracts Contractor
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
GRC	Grievance Redress Committee
IEE	Initial Environmental Examination
IDB	Islamic Development Bank
IFC	International Finance Corporation
ILO	International Labor Organization
KEXIM	Export Import Bank of Korea
MCM	Municipal Corporation Muzaffarabad
NEQS	National Environmental Quality Standards
NCR	Non Conformity Report
NTP	Notice To Proceed
OE	Owner Engineer
PAPs	Project Affected Persons
PS	Performance Standard
RAP	Resettlement Action Plan
SHPL	Star Hydropower Limited

Executive Summary

This Annual Monitoring Report describes the health, safety, environmental and social activities and events that occurred during the reporting period and mitigation measures undertaken in compliance with ADB's safeguard policy, IFC performance standards, EPC Contract, and the EMP provisions during the construction phase from January to December 2013 of the Patrind Hydropower Project.

During the year the pace of work was expedited after issuing of NTP at the end of the December 2012. In this reporting period, the mitigation measures and monitoring program were generally carried out satisfactorily. Attention has been paid on promoting safety culture on site to establish zero accident environments, improvement in health facilities, staff and workers capacity building, enhancing environmental and social performance.

Preventive and remedial actions were undertaken with regard to the HSE incidents. Sites HSE internal inspection has remained an ongoing activity. External monitoring has periodically been carried out by Client, Lenders and their technical advisors and frequently by Owner Engineer.

The requirements related to labor's contract, permits and other conditions remained constant and no changes were made. Formal and informal meetings and discussions with communities and other stakeholders were undertaken to improve the project's implementation.

Introduction

Background

The Patrind Hydropower Project is run of river project located on the boundary of Khyber-Pakhtunkhwa and Azad Jammu & Kashmir. The purpose of the Project is to provide zero-emissions renewable electricity to the grid and also provide local and global environmental benefits as well as strong local socioeconomic benefits. The Project has the total capacity of 147 MW. The project is being financed by multilaterals like IFC, ADB, IDB and KEXIM.

Objectives

The purpose of Annual Monitoring Report is to describe EPC contractor's compliance with the environmental and social performance requirements of IFC/ADB (including implementation of the Environmental Management Plan) and to assess any corrective actions implemented/proposed. This includes;

- Description of all significant health, safety, environmental and social activities and events that occurred during the reporting period
- Provision of additional information about activities (i.e., status of permits or other approvals, ongoing public consultation etc.)
- Quantitative performance monitoring data summaries in comparison to appropriate ADB and IFC policies, guidelines and national requirements
- An explanation of any cases of non-compliance with lender's guidelines or applicable regulatory limits that have occurred, identifying the cause and the corresponding corrective measures planned or underway to prevent future occurrences
- Resettlement Action Plan activities and progress on the implementation of project within the Sustainable Development Strategy Framework

A. Project Name and Summary Information

i. Project/Business Name

Patrind Hydropower Project

ii. Status of Construction

The Notice to Proceed (NTP) for main works was issued by the Company to EPC Contractor on December 26, 2012. However the preliminary works under Preliminary Contract were initiated in October 2010 and were dovetailed in to the main contract. As of December 2013 the physical progress achieved is 30.14%.

iii. Location of project

Village Patrind, District Muzaffarabad, Azad Jammu and Kashmir

iv. Nature

Run of river Hydropower Project

v. Scale/size

147 MW

vi. Date of construction/operation commencement

Preliminary works commencement: September 2011

Main works start after issuance of NTP: December 2012

B. Relevant Environmental Permits or Compliance Certificates

a) Summary of permit conditions and media covered

As per NOC Issued by AJK-EPA, SHPL/EPC is bound to:

Condition	Status of compliance
Ensure compliance to NEQS and undertake mitigation measures suggested in the EIA report & EMP. Constitute Environmental/Post EIA Monitoring Committee and submit monitoring reports on quarterly basis and provide the copy of this approval and EIA report to the contractor for information and compliance activities.	Environmental Monitoring Unit has been established and mobilized on site after the issuance of Notice to Proceed to the EPC Contractor. Quarterly E&S monitoring report has been submitted to EPA AJ&K
Compensate PAPs for loss of agricultural land, crops, property, and usage right etc. in accordance with the rates that agreed upon and adopt appropriate mechanism for RAP grievance redress. Employ local peoples for all unskilled jobs and implement CDP sooner than later. Ensure all public utilities such as water supply pipes, power phone line be not disturbed by the execution of the project.	Owners are compensated for the loss of agricultural land, trees and property as per the market rates/replacement cost. For unskilled jobs local are being employed and for skilled jobs they are being hired on priority basis as per the requirement and the qualification. Care is being taken not to disturb any of the public utilities.
Ensure occupational and community health and safety by back by a comprehensive emergency response plan. Adopt controlled techniques in accordance with Pakistan explosive act and also make sure the safety & security of wild animals and their habitats at the project site and in its environs with the prior consultation and adhering to the guidelines of forestry and wild life departments strictly.	Being complied in letter and spirit.
For compliance of regulation 13, 14, 17 & 18 of IEE/EIA regulations 2000 which enunciate the conditions for approval. Confirmation of compliance, entry, inspection and monitoring of the proposed project. The site to install the asphalt plant and other machinery would be selected in consultation with the agency (AJK-EPA). The findings of quality analysis on regular basis should positively be shared. Also, the spoil	Being complied in letter and spirit. Selection of batching plant and dumping locations have been finalized in consultation with EPA-AJ&K.

Condition	Status of compliance
should be dumped at pre identified location.	
Communicate any change in the approved project to AJK_EPA and that would be commenced after obtaining the approval. The approval shall stand null and void if the conditions mentioned herein before are not fully complied with. It does not absolve the proponent of the duty to obtain any other approval or clearance that maybe required and can be withdrawn at any time with any prior notice if deem necessary in the public interest.	Shall be done if required.

Most of the conditions are common in both approvals with exception of following issued by EPA KPK:

Condition	Status of compliance
Water in the pond created by construction of Patrind weir should be maintained at EI765m.amsl.Safety zone/adequate engineering measures should be provided to overcome fears of the residents regarding effects of pond to their houses. The level difference of 2 meter from765m.amsl to 767m will act safety zone so the owner of the land and housing structures falling within the zone should be compensated as per laid down procedure of compensation of the government.	The Company has fulfilled the condition in letter and spirit as the operation level of the Project is at 765 masl. The Company acquired the land at the level of 767 masl as per the condition of the EPA. The additional 2 meters shall act as safety zone and the owners were compensated as per the procedure.
The project management should contribute towards the repair of the road to be used during construction and operation activities of the project. The trees supposed to be submerged should be counted in the presence of all stake holders i.e. owners land collectors /patwari representing revenue department representative of EPA and forest/agriculture department. After the	The owners have been compensated for the trees supposed to be acquired due to the land acquisition. The trees were counted in the presence of all stake holders i.e. owners land collectors /patwari representing revenue department representative of EPA and

Condition	Status of compliance
determination of exact number type and ownership of the trees be finalized and paid as per laid down procedure of the government	forest/agriculture department. The roads near the project area are being maintained by the EPC contractor.
Minimum flow of 2 cumecs in the downstream of weir in Kunhar River should be kept and provision for 10% extra of this amount of water for emergency in downstream should also be kept in plan. No extension would be permitted in the future in existing hydropower project without prior approval of the EPA /government of Khyber Pakhtunkhwa	Shall be applicable during the operation phase of the Project.
Separate NOC is required for batching/crushing plant.	NOC has been obtained from EPA KP for installation of batching plant near the weir site.

b) Relevant Government Agencies

As the project is located on the boundary of Khyber Pakhtunkhwa and Azad Jammu & Kashmir, Star Hydro Power Limited (the “Company”) had to seek approval of Environmental Impact Assessment (EIA) from following two Environmental Protection Agencies (EPAs).

I. EPA Azad Jammu and Kashmir

II. EPA Khyber Pakhtunkhwa

c) Issuance dates and duration of validity

NOC Issuing Authority	Issuance Date	Duration of Validity
EPA-AJK	10-08-2010	3 years
EPA-KPK	14-04-2011	Project construction phase

d)Renewal Requirements

As per AJK-EPA review of IEE and EIA Regulations, 2009 “Once the Environmental Approval is accorded in favor of proponent, shall be valid for the period of 3-years from the date of issue. Whereas; if construction is commenced during the initial validity period, the approval shall stand extended "automatically" for a further period of 3-years from the date of expiry of initially issued Approval”

C. Incidents of Violations or Non-Compliance

During the year the pace of work was expedited after issuing of NTP at the end of the December 2012. Regular and frequent site visits by SHPL, O.E & EPCC’s HSE staff were undertaken to monitor the compliance status of IFC performance standards, ADB’s environmental and social safeguard policies, environmental conditions of EPA’s and other regulations. Daily, weekly and monthly non compliances with recommended standards and regulations were recorded and reported accordingly.

Following are common non-compliances those have been observed by the OE and EPCC has been instructed to adopt all the recommended procedures in this regard.

Sr .	Recorded Dates/ Location	Nature of non-compliance	Corrective Action	Non Compliance with	Media or Community Reaction
1	11 th Jan 2013 Lowe Site	02 labors were working at the edge of slope near the surge slope area without body harness.	Labors were strictly advised to use body harness while working on height of 2 meters and above having fall hazards. In the weekly meeting the construction team was informed for this unsafe act and unsafe working condition.	EMP/ IFC EH&S Standards	None
2	14 th Jan 2013 Lower Site	At the junction of Adit Tunnel & HRT near power house area 03 workers observed extracting hard concrete with iron bar without any safety gears (gloves).	Labour was instructed to use safety gloves. It was communicated to EPCC not to allow the workers to work without safety gears.	-Do-	-Do-
3	18 th Jan 2013 Weir Site.	At the inlet of the diversion tunnel a labour standing on single steel bar of the side wall of diversion	Work was stopped, and the labor was brought down from the side wall, warning notice was given to	-Do-	-Do-

Sr	Recorded Dates/ Location	Nature of non-compliance	Corrective Action	Non Compliance with	Media or Community Reaction
		tunnel.	the worker for dangerous activity. Construction team took the notice; it was made clear to all of the labours to use the body harness.		
4	28 th Jan 2013 Lower site	Fuel storage area was found contaminated by deposit of the fallen fuel due to unsafe way of extracting fuel from the storage tanks.	EPCC HSE team was told to clean the area. It was instructed to use safe method to extract the fuel from storage tanks.	EMP/IFC PS-3	-Do-
5	11 th Feb 2013 Lower Site	Dumper truck driver reversing dumper truck without helper and side mirror.	EPC HSE team stopped the dumper truck and inquired about helper & side mirror. Construction team was instructed to install the side mirror as soon as possible and helper should be available all the time during work.	HSE Policy/EMP	-Do-
6	14 th Feb 2013 Weir Site	In the diversion tunnel electric cables were found to lying on the wet and muddy ground in an unsafe manner.	Electrician was told to hang the electric wires with the walls of diversion tunnel. During weekly meeting with the construction team it was suggested to post the proper wiring at the diversion tunnel to avoid of any accident.	IFC E&HS standards	-Do-
7	16 th Feb 2013 Lower Site	Excavated material was being dumped on unapproved site on edges of surge shaft access road.	Construction manager and his team were informed to ensure dumping on approved sites.	EMP	-Do-
8	26 th Feb 2013 HRT (Lower site)	Compressed air pipe was found repaired posing a threat to workers.	Notice sent to sub-contractor for immediate replacement.(C-1)	IFC EHS Standards.	-None-
9	4 th March 2013 Weir Site	One of the sub-contractors was not following the standard procedure for waste disposal and creating environmental pollution in project and adjacent area.	A letter sent to Project Manager of sub-contractor for proper disposal.	IFC PS-3/EMP	-Do-

Sr .	Recorded Dates/ Location	Nature of non-compliance	Corrective Action	Non Compliance with	Media or Community Reaction
10	11 th March 2013 Lower Site	It was observed that excavator operator was dumping the excavated material in the non-designated area. Workers were burning waste material instead of using the provided trench.	Letter was issued to the sub-contractor that spoil should be dumped only on designated site and trenches should be used for the waste material.	EMP	-Do-
11	27 th March 2013 Weir Site.	During the inspection of heavy machinery it was noticed that many drivers and operators having invalid driving licenses.	All the drivers and operators were informed to submit their valid driving licenses along with the original ID card.	HSE Procedures	-Do-
12 .	21 April 2013 Weir Site	Charging car helper was found connecting a high voltage cable in the electric panel	He was instructed verbally that he is not authorized personnel to touch with the high voltage cables. Warning letter was also issued to him.	HSE Procedures	-Do-
13 .	14 May 2013/ Powerhouse Site	It was observed that the washroom near the adit tunnel do not have septic tank and soakage pit according to the environmental requirements.	Site Manager was informed regarding the issue and remedial corrective actions recommended. A letter was also sent to the PM Kyung Dong. Furthermore, an NCR has also been issued.	EMP/IFC PS-3/ E&HS Standards	-Do-
14 .	01 June 2013/ Powerhouse Site	Despite Provision of body harness and relevant training, worker was found at height without using body harness.	A warning letter was issued to the worker for his unsafe act. Letter was also forwarded to the Manager QA/QC.	HSE Procedures	-Do-
15 .	07 June 2013/ Weir Site.	Two workers were crossing river at a time through cable trolley in unsafe manner.	Only one person is allowed to use cable trolley at a time. Letter was sent to the Sungbo (Sub-contractor) management vide No. Patrind-HSE-052 dated 08/06/13.	HSE Procedures	-Do-
16 .	11 June 2013/ Weir Site	Helper was operating dump truck without authorization.	Warning letter was issued to both helper and site supervisor.		-Do-

Sr .	Recorded Dates/ Location	Nature of non-compliance	Corrective Action	Non Compliance with	Media or Community Reaction
17 .	12 June 2013/ Powerhouse Site	Wheel loader with high volume of exhaust gases affecting the atmosphere inside the tunnel.	Site supervisor were informed for the maintenance of wheel loader. Warning letter and subsequently an NCR was also issued for the maintenance of wheel loader and the filter of wheel loader was changed.	EMP/IFC PS-3	None
18 .	12 June 2013/ Powerhouse Site	Contaminated water from the adit tunnel was over flowing in sedimentation tanks towards the river. Also ventilator performance has been observed beyond the required standards.	NCR Patrind HSE-002 dated June 13, 2013 issued to Sub Contractor. Immediate partial compliance has been made.	EMP & EPC Contract	None
19 .	19 June 2013/ Powerhouse Site	A dump truck helper was found working on site without induction training.	Warning letter was issued and was sent out from the site area. Dump truck was also not allowed to work without helper. Warning letter was also sent to the Site Manager Kyungdong (Sub Contractor)	Project HSE Procedures	None
20 .	25 June 2013/ Powerhouse Site	Sub-Contractor vehicle carrying fuel moved on unstable section of road leading to surge shaft slopes. Whereas, vehicle movement in said area was prohibited.	Verbal warning was given to the vehicle driver and was also communicated to all the employees in the daily tool box meeting not to use the surge shaft access road until it is rehabilitated.	Site Safety Plan	None

Received from OE					EPCC's Response		
Sr. No	Type	Date	OE's Reference	Subject	Date	EPCC's Reference	Subject
1.	Letter	19-1-2013	LET/PES.ST-EPCC/03	Method Statement for HRT Excavation	11-2-2013	Patrind 13-036	Method statement for HRT excavation (revision No.1)
2.	Letter	19-1-2013	LET/PES.ST-EPCC/03	MS for Headrace Tunnel (HRT) Excavation	11-2-2013	Patrind 13-036	Method statement for HRT excavation (revision No.1)
3.	Letter	26-1-2013	LET/PES.ST-EPCC/04	Health and safety facilities	26-1-2013	Patrind 13-021	facilities for health and safety
4.	Letter	29-1-2013	LET/PES.ST-EPCC/005	MS for Weir and sand trap basin earthworks	25-2-2013	Patrind 13-044	Method Statement for weir and sand trap excavation (revision No.1)
5.	Site Note	19-2-2013	19	Health and safety concerns for personnel working on powerhouse and surge shaft area	22-2-2013	Patrind 13-043	response to further subcontract work and non-compliance with HSE regulations
6.	Letter	19-2-2013	LET/PES.ST-EPCC/10	Subcontract works and non-compliance with HSE regulations	22-2-2013	Patrind 13-043	response to further subcontract work and non-compliance with HSE regulations
7.	Letter	22-2-2013	LET/PES.ST-EPCC/15	Method statement upstream and downstream cofferdam	1-4-2013	Patrind 13-079	Response on the comments of method statement upstream and downstream cofferdams
8.	Site Note	3-3-2013	20	Dumping of material on slopes- HSE Considerations	Excavated material has not yet been removed from a specific portion of slopes due to the construction team concerns regarding slope stability. However, OE is not convinced and has repeatedly asking for the removal of the debris and a subsequent NCR has also been issued on same subject matter		
9.	Letter	3-3-2013	LET/PES.ST-EPCC/20	Method Statement for Diversion Tunnel Gate Installation work	7-3-2013	Patrind 13-054	Method statement for diversion gate installation work (Rev.1)
10.	Letter	4-3-2013	LET/PES.ST-EPCC/22	Comments on EPC Environmental Quarterly Report (December 2012)	Recommendations were included in first quarter report of 2013		
11.	Letter	25-3-2013	LET/PES.ST-EPCC/28	Provision of Health facilities	1-4-2013	Patrind 13-083	response on the comments of health facilities
12.	NCR	27-3-2013	3	Noise, Fumes and security Guards issue	16-5-2013	Patrind 13-131	Corrective action response to NCR 3 Closed on May 2013
13.	Letter	31-3-2013	LET/PES.ST-EPCC/35	Method Statement for test blast plan	18-11-2013	Patrind 13-440	Test blasting plan
14.	Letter	1-4-2013	LET/PES.ST-EPCC/37	Provision of Health facilities	Due to low number of labor at night time EPCC didn't hire medical staff for night shift. Later on in August 2013, full time male nurses were hired for night shift on both sites		
15.	Letter	2-5-2013	LET/PES.ST-EPCC/047	Schedule for social uplift program	7-5-2013	Patrind 13-115	response on the schedule for the social uplift program
16.	Letter	4-5-2013	LET/PES.ST-	Comments on EPCC Environmental and	Recommendations were included in second quarter report of 2013		

Received from OE					EPCC's Response		
Sr. No	Type	Date	OE's Reference	Subject	Date	EPCC's Reference	Subject
			EPCC/048	Social Monitoring Report (First Quarter 2013)			
17.	NCR	7-6-2013	7	HRT Air Quality	4-9-2013	Patrind 13-296	NCR 007 HRT Air Quality Closed on Dec 2013
18.	Letter	8-6-2013	LET/PES.ST-EPCC/63	May Blast schedule, noise and vibration measurements.	17-6-2013	Patrind 13-166	submission of headrace tunnel noise, vibration and gas test record
19.	Site Note	13-6-2013	22	Safe access to sand trap slopes on the left bank of weir site	17-6-2013	Patrind 13-167	Response on safe access to the sand trap slopes
20.	Site Note	13-6-2013	31		28-11-2013	Patrind 13-480	Shotcrete machine incident
21.	Letter	22-6-2013	LET/PES.ST-EPCC/071	Explosives storage and transportation concerns	31-8-2013	Patrind 13-275	Explosive storage and transportation concerns
22.	NCR	25-6-2013	9	dumping on slopes	10-7-2013	Patrind 13-205	As mentioned above in Sr. NO 8
23.	Letter	7-7-2013	LET/PES.ST-EPCC/081	Fire incident at weir site	3-9-2013	Patrind 13-292	Fire incident at weir site
24.	Letter	12-7-2013	LET/PES.ST-EPCC/85	Dumping of excavated material on surge shaft access road slopes	As mentioned above in Sr. NO 8		
25.	Letter	16-7-2013	LET/PES.ST-EPCC/092	Site Housekeeping	4-9-2013	Patrind 13-294	Site Housekeeping
26.	Letter	16-7-2013	LET/PES.ST-EPCC/091	Labor Conditions during Ramadan	3-9-2013	Patrind 13-293	Labor Conditions during Ramadan
27.	Letter	16-7-2013	LET/PES.ST-EPCC/087	Dumping of excavated material to the left of access bridge	3-9-2013	Patrind 13-283	Dumping of excavated materials to the left of the access bridge
28.	Letter	16-7-2013	LET/PES.ST-EPCC/89	NCR 007 follow up letter	16-8-2013	Patrind 13-258	NCR:007 Follow up letter (HRT Air Quality)
29.	Letter	16-7-2013	LET/PES.ST-EPCC/088	Explosives Store (follow up letter)	31-8-2013	Patrind 13-275	Explosive storage and transportation concerns
30.	Letter	17-7-2013	LET/PES.ST-EPCC/095	Water Supply on power house site	31-08-2013	Patrind 13- 278	Water Supply on Power House Site
31.	NCR	17-7-2013	10	Material dumped in gully area	2-9-2013	Patrind 13-280	Adhoc Dumping of material in gully area Closed on November 2013

Received from OE					EPCC's Response		
Sr. No	Type	Date	OE's Reference	Subject	Date	EPCC's Reference	Subject
32.	NCR	24-7-2013	12	dumping of material in water	29-8-2013	Patrind 13-277	Response to NCR 12 & Site Status Closed on December 2013
33.	Letter	25-7-2013	LET/PES.ST-EPCC/105	Continuing landslides at the surge shaft area	NCR 10 with regard to subject issue were closed whereas 09 is open as mentioned in Sr. No 08		
34.	NCR	25-7-2013	14	Swimming bathing and fishing in river Kunhar	31-8-2013	Patrind 13-276	Corrective Action Response to NCR 14 Closed on September 2013
35.	Letter	3-8-2013	LET/PES.ST-EPCC/117	Unsafe Practices on Site	3-9-2013	Patrind 13-295	Unsafe Practices on site
36.	Letter	3-8-2013	LET/PES.ST-EPCC/116	Weir Site Noise and vibration measurements	1-10-2013	Patrind 13-371	Weir Site noise and vibration measurement
37.	Letter	3-8-2013	LET/PES.ST-EPCC/115	Explosive Store on the powerhouse site	16-9-2013	Patrind 13-314	Explosive storage and transportation concerns
38.	Letter	5-8-2013	LET/PES.ST-EPCC/118	Non submission of important documents	30-9-2013	Patrind 13-369	Submission of QA/QC Procedures
39.	Letter	7-8-2013	LET/PES.ST-EPCC/125	Miscellaneous site issues	26-9-2013	Patrind 13-351	Project Night Shift Work Plan
40.	Letter	20-8-2013	LET/PES.ST-EPCC/132	NCR 007 Air Quality	4-9-2013	Patrind 13-296	NCR007 (HRT Air Quality)
41.	Letter	24-8-2013	LET/PES.ST-EPCC/137	Site Working hours	26-9-2013	Patrind 13-351	Project Night Shift Work Plan
42.	Letter	30-8-2013	LET/PES.ST-EPCC/144	use of bikes on the project	4-9-2013	Patrind 13-297	Use of motor bikes on the project
43.	Letter	1-9-2013	LET/PES.ST-EPCC/148	Response to EPCC's Letter regarding water supply on the power house site	10-9-2013	Patrind 13-312	Water Supply on Power House Site
44.	Letter	15-9-2013	LET/PES.ST-EPCC/160	Site Working at night shift	26-9-2013	Patrind 13-351	Project Night Shift Work Plan
45.	Site Note	28-9-2013	29	Steel Sheet installation in front of Ventilator fan	10-1-2014	Patrind 14-018	Steel Sheet Installation in front of ventilator fan
46.	Letter	21-10-2013	LET/PES.ST-EPCC/188	Night Shift Work	25-10-2013	Patrind 13-406	Night Shift Work
47.	NCR	9-11-2013	15	Site Illumination for night shift works	16-11-2013	Patrind 13-442	NCR 15 Site illumination plan/arrangements

Received from OE					EPCC's Response		
Sr. No	Type	Date	OE's Reference	Subject	Date	EPCC's Reference	Subject
							Closed on December 2013
48.	NCR	12-11-2013	16	Explosives storage	18-11-2013	Patrind 13-443	NCR 16 Corrective action report Closed on December 2013
49.	Letter	19-11-2013	LET/PES.ST-EPCC/217	NCR 016- Unsafe Storage of Explosives	8-11-13	Patrind 13-452	Closed on December 2013
50.	Letter	19-11-2013	LET/PES.ST-EPCC/214	Site illumination Arrangements	30-12-2013	Patrind 13-552	NCR 015-Site illumination plan/arrangements
51.	Letter	19-11-2013	LET/PES.ST-EPCC/213	Wearing of PPEs amongst subcontractor staff	25-11-2013	Patrind 13-463	Wearing of PPEs amongst subcontractor staff
52.	Letter	19-11-2013	LET/PES.ST-EPCC/212	OE Comments on the October monthly progress report and the quarterly environmental and social monitoring report (3rd Quarter)	24-11-2013	Patrind 13-461	OE Comments on the October monthly progress and the quarterly environmental and social monitoring report (3rd quarter 2013)
53.	Letter	20-11-2013	219	Explosive store layout	9-1-2014	Patrind- 14-015	Explosive store layout
54.	Site Note	24-11-2013	32	HSE Issues	7-2-2014	Patrind- 14-086	HSE Issues (Site note 32)-corrective action report
55.	Site Note	27-11-2013	33	Electrical Installations weir site	30-11-2013	Patrind 13-45	Corrective action report (electrical installations, weir site)
56.	Site Note	27-11-2013	34	Storage of explosives and detonators weir site	30-11-2013	Patrind 13-484	Corrective action report (Storage of Explosives and detonators, weir Site)
57.	Site Note	6-12-2013	35	Excavator Incident Weir Site	7-12-2013	Patrind 13-503	Excavator Incident weir site
58.	Letter	15-12-2013	240	Reports for Shotcrete and excavator machine incidents	1-4-2014	Patrind 13- 480 Patrind 14- 503 Patrind 14- 226	Resubmission of reports for the excavator & Shotcrete machine incident
59.	NCR	21-12-2013	17	Conditions of explosive storage (in continuation of their 219)	21-11-2013	Patrind 13-452	NCR 017-Corrective action report Closed on December 2013
60.	Letter	29-12-2013	259	Closing of NCR-012	Response not required as it mentions closing of NCR		

Unsafe Act & Unsafe Condition:

As most of the accidents are the results of unsafe acts and unsafe conditions. To sensitize all staff/workers, UA/UC Observation Card System has been introduced. UA/UC cards have been placed to get information and feedback regarding HSE. Best observer is awarded a prize to encourage and promote safety culture at project sites.

During second and third quarter only a few observations were received through different staff/workers which were subsequently addressed by EPC HSE Department.



Sr.	Date/Time & Location	Observation	Corrective Action	Action Party	Closing Date
1.	14/05/2013 15:00 Access Bridge/ Power House	Two Kyung Dong's excavator operators were observed walking on side barrier/ parapet wall of Access Bridge freely, right at the mid length. They were stopped to do so but not followed instructions.	Warning letters to be issued to the company who is their employer	HSE Dept.	20/05/2013
2.	28/05/2013 08:40 Weir Access Road	Two Kyung Dong workers crossed the river through cable trolley at a time. Whereas only one person is allowed to cross at a time.	Only one person should be allowed to sit on cable trolley. HSE staff to issue warning letter to Kyung Dong about the situation.	HSE Dept.	05/06/2013
3.	23/05/2013 13:30 Powerhouse Site	There was no safety person present in night time.	EPC HSE department needs strengthening of the HSE staff. New staff has been hired as per the recommendation.	HSE Dept.	27/05/2013
4.	05/05/2013 10:45 HRT	There should be an authorized person at the HRT entrance who should record the name and detail of each and every person entering into the HRT. It would be helpful in case of emergency and would help to avoid any terrorist act.	One man should be placed to record the data of the people entering inside the tunnel only permitted people should be allowed to enter inside the tunnel	Kyung Dong	14/05/2013
5.	03/05/2013 13:00 Surge Access Road	Geo-membrane (Blue Sheet) has been placed the slopes are to protect the seepage. The same is now out of place or de-shaped. In rains the rock surface can slide further.	Sheet needs a repair/replacement	Kyung Dong	13/05/2013
6.	08/06/2013	The sign board fixed at Adit Tunnel face "Status of Tunnel Visitors" to check out accurate numbers of internal workers/ visitors in an emergency is empty. No worker/ visitor name plate at show in this sign board	New cards must be placed. If cards need repairmen they must be repaired. Colors must be placed to get rid of any accident.	Kyung Dong	10 June, 2013
7.	12/06/2013	It is repeatedly observed that site supervision/ Site Engineers do not follow the rules and regulations regarding safety at site.	All the workers on site (EPCC and its sub-contractors) have to follow rules and regulations without discrimination of seniority. EPC HSE staff should take actions against violators.	HSE (Weir Site Staff)	19 June, 2013

8.	25/08/2013	Dust has been observed at surge shaft access road due to heavy equipment movement. This kind of dust can cause lungs disorder, dust allergy and asthma.	Water sprinkling on daily basis was ensured. Additional sprinkler has also been made available on site.	EPCC & Kyung Dong	10/09/2013
9.	30/07/2013	It has been observed that Kyung Dong (sub-contractor) crawler operators who are busy in drilling at power house are not using safety mask. The dust spread over in the result on drilling is very harmful for health and especially for lungs.	Warning letters were issued to the employees who did not wear proper PPEs.	EPCC & Kyung Dong	31/07/2013
10.	04/11/2013	During the removal of excavated material if it is necessary to go inside the tunnel then 3m mask should be mandatory and movement of heavy machinery should be checked before entering the tunnel	All the worker were informed to use 3m mask inside tunnel during all the activities inside tunnel, one more ventilator has also been placed to improve the air quality	EPCC & Kyung Dong	7/11/2013
11.	07/11/2013	During morning tool box talk time, it was observed that some people are not in proper PPEs, all persons should be in proper PPEs in the morning exercise / tool box talk.	According to risk assessment, level of risk is very low during the exercise so the helmets are not required but the jackets and shoes should be worn.	HSE Daewoo E&C	8/11/2013

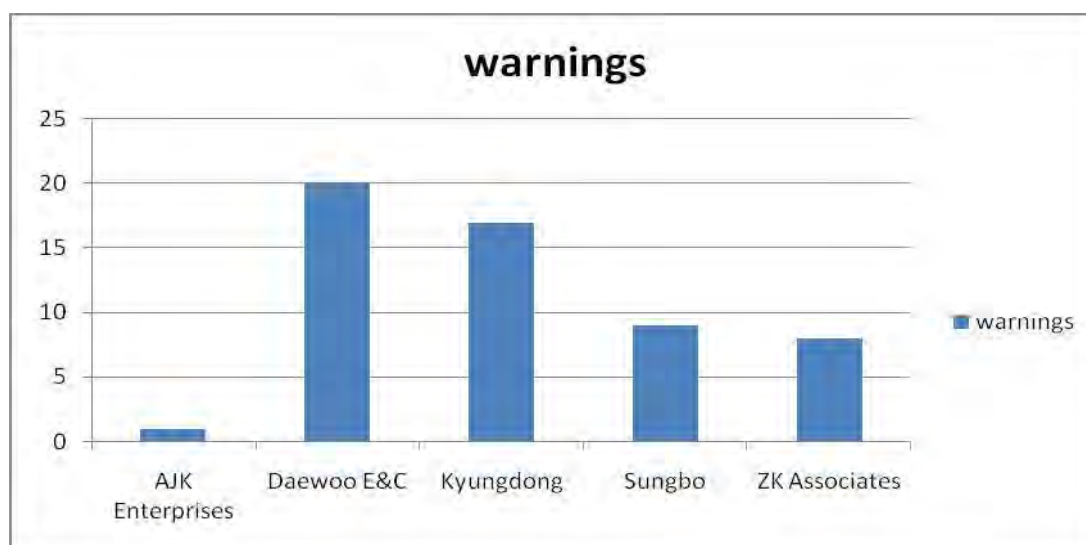
Warning Letters for Non-Compliances:

Warning letters were issued for incident of violations and non-compliances with HSE procedures and EMP observed/ noted by EPC HSE team. It is a standard procedure that after issuing three warning letters to an employee, he cannot be able to continue the job. Sample warning letter is attached as **Annex-C-1**.

Sr. No	Issued to	Job Title	Date	Location/Company
1.	Atif Mughal	Dump Truck Helper	19/06/2013	Power House Site
2.	Naiz Ali	Truck Helper	11/06/2013	Weir Site
3.	Naseeb Khan	Truck Helper	11/06/2013	Weir Site
4.	M. Fareed	Mason	06/06/2013	Weir Site
5.	Wakeel Shah	Labor	01/06/2013	Power House Site
6.	Atta Ur Rehman	Loader Helper	03/06/2013	Weir Site
7.	Abdul Sattaar	TM Driver	01/06/2013	Power House Site
8.	Naiz Ali	Truck Helper	29/05/2013	Weir Site
9.	Zafar Iqbal Khan	Dumper Operator	23/05/2013	Weir Site
10.	Muhammad Rasool	Mixer Helper	22/05/2013	Weir Site
11.	Muhammad Khursheed	Labor	14/05/2013	Weir Site
12.	Shafqat Hussain	Excavator Operator	10/05/2013	Weir Site
13.	Azam Khan	Excavator Operator	28/04/2013	Weir Site
14.	Naseeb Khan	Dumper Helper	27/04/2013	Weir Site
15.	Muhammad Shakeel	Jumbo Operator	21/04/2013	Weir Site
16.	Saeed Ahmed	Charging Car Helper	21/04/2013	Weir Site
17.	Nazim Hussain	Cargo Crane Operator	10/04/2013	Weir Site
18.	Azair Abbasi	Excavator Operator	04/05/2013	Weir Site
19.	Abdul Sattar	TM Driver	01/06/2013	Power House Site
20.	Maroof Khan	Labor	21/05/2013	Power House Site
21.	Iqbal Ahmed Gillani	Dump Truck Driver	31/05/2013	Power House Site
22.	Sajjad Shah	Labor	28/06/2013	Power House Site
23.	Peer Afzal	Wheel Loader Operator	18/05/2013	Power House Site

Sr. No	Issued to	Job Title	Date	Location/Company
24.	Adnan Najeeb Ullah	Lathe Machine Helper	15/05/2013	Power House Site
25.	Mr. Shin	Tunnel Foreman	03/04/2013	Weir Site
26.	Muhammad Irshad	Chain Excavator Helper	7/7/2013	Kyung Dong
27.	Haq Nawaz	TM Operator	10/7/2013	Daewoo
28.	Muhammad Junaid	Labor	16/7/2013	Kyung Dong
29.	Imtiaz Khan	Labor	28/7/2013	Daewoo
30.	Zameer Hussain	Labor	28/7/2013	Daewoo
31.	Tanveer Ahmed Mughal	Labor	28/7/2013	Daewoo
32.	Muhammad Khursheed	Labor	28/7/2013	Daewoo
33.	Tahir Waheed	Workshop Supervisor	31/7/2013	Daewoo
34.	Raja Akhtar Nawaz	Wheel Loader Operator	20/8/2013	Kyung Dong
35.	Ahmed Ashwaq	Surveyor Assistant	22/8/2013	EJ Tech
36.	Faisal Abbasi	Excavator Helper	22/8/2013	Kyung Dong
37.	Zeeshan Qadeer	Engineer	23/8/2013	PES
38.	Zubair Ahmed	Site Inspector	23/8/2013	PES
39.	Tanveer Ahmed	Excavator Operator	23/8/2013	Kyung Dong
40.	Naeem Qureshi	S. Electrician	3/9/2013	Daewoo
41.	Sohail Ahmed	Assistant Camp Worker	3/9/2013	Daewoo
42.	Muhammad Usman	Supervisor	4/9/2013	AJK Enterprises
43.	Murad Khan	Nozzle Man	20/9/2013	ZK Associates
44.	Zaffarullah Khan	Loader Helper	20/9/2013	ZK Associates
45.	Muhammad Sadique	Wheel Loader Operator	20/9/2013	ZK Associates
46.	Muhammad Irfan	Nozzle Man	20/9/2013	ZK Associates
47.	Syed Fahad	Cable Trolley Operator	20/9/2013	ZK Associates
48.	Rustam	Dump Truck Helper	23/9/2013	Daewoo E&C
49.	Abdul Rehman	Batching Plant Operator	4/10/2013	Daewoo E&C
50.	Abdul Waheed	Painter	5/10/2013	Naveed Brothers
51.	Shan Zada	Dump Truck Driver	9/10/2013	Daewoo E&C
52.	Rashid	Civil Surveyor	12/10/2013	Daewoo E&C

Sr. No	Issued to	Job Title	Date	Location/Company
53.	M. Hanif	Welder	09/10/2013	Daewoo E&C
54.	Khuram	Batching Plant Helper	09/10/2013	Daewoo E&C
55.	Ibrar Hussain	Electrician	6/10/2013	Kyung Dong
56.	M. Saqlain	W/L Operator	11/10/2013	Kyung Dong
57.	M. Hanif	Excavator Operator	04/10/2013	Kyung Dong
58.	Waheedullah	Excavator Helper	17/11/2013	Kyung Dong
59.	M. Farooq	TM Operator	29/11/2013	Daewoo E&C
60.	Hameedullah	Excavator Operator	17/11/2013	Kyung Dong
61.	Ahsan Deen	Excavator Helper	13/11/2013	ZK Associates
62.	Naqash	Lab Assistant	22/11/2013	Daewoo E&C
63.	Bilal	Helper	22/11/2013	Daewoo E&C
64.	Muhammad Adnan Tariq	Lab Assistant	25/11/2013	Daewoo E&C
65.	Noman Rehman	Excavator Helper	26/12/2013	ZK-Associates
66.	Waseem Abbasi	Rental Excavator Operator	02/12/2013	Daewoo
67.	Mr. Jung Gyu Yong	Sand trap Site Supervisor	02/12/2013	Sungbo C&E
68.	Bilal Ahmed	Excavator Operator	06/12/2013	Construction
69.	Shoaib Fiaz	Generator Operator	17/12/2013	Sungbo
70.	Muhammad Nadeem	Generator Operator	17/12/2013	Sungbo



D. Incidents of Environmental and Safety Accidents

a.Environmental Accidents and Mitigation

- No environmental incident during quarter has been observed. Fuel storage areas are maintained appropriately and risks of contamination have been mitigated. Irregularities in waste segregation were observed; however, overall waste collection mechanism has been improved.
- OE raised concerns over consolidated waste management plans for the project related activities. In this regard, EPCC signed MOU with Municipal Corporation Muzaffarabad to dispose the projects waste in their disposal site which is an EPA approved and regularly monitored site. Besides that EPCC's HSE staff is continuously working on improvement of waste management system of the project.
- Portable washrooms for the sites (tunnel, powerhouse, batching plant and workshop area) have been purchased and will be functional very soon. These washrooms will be placed on locations that are easily accessible to the workers.
- The excavated material is being disposed to the designated sites and also being utilized the same for the temporary repair of the roads.
- Fuel handling has been improved to avoid any contamination. Regular service of vehicles and heavy equipment at mechanical workshop is being undertaken.



Direct fueling (diesel) through fuel tank to avoid contamination and spillage (Lower Site)



Fuel pump installed (upper & lower site)



Oil barrels placed in fenced area (Upper & lower Site)



Hazardous material and oil waste storage cordoned off, containers are labeled and dated

- Gaseous concentration (CO, H₂S, LEL, and O₂) in adit and headrace tunnel is being monitored on daily bases using gas detector since March 2013. Monitoring of CO₂, N₂O, NO₂ and dust has also been undertaken in compliance with EPC Contract.
- To enhance the performance of ventilator the corrective actions recommended by OE have been undertaken by the EPCC.
- Main septic tank for camp office and accommodation is being continuously monitored to take preventive measures before outflow.



b. Health and Safety Accidents and Mitigation

Health safety and environment remained an integral part on EPCC's checklist during the year. No reportable health incident happened during the quarter except an unfortunate fatality occurred during the first quarter of this year on 9th February 2013 due to unsafe condition and unsafe act on part of batching plant crew, after which EPCC rearranged its HSE protocols and procedures. Summary of the fatality report is annexed as (**Annex-D3**). Incidents recording extend to all workers/staff working for sub-contractors and on rented vehicles/machinery. EPCC/sub-contractors is bound to report all incident/accidents related to work at the Project site. The summary of accidents/incidents during the year 2013 is annexed as (**Annex-D4**). To manage and mitigate health and safety incidents following RPN (Risk Priority Number) calculator is being introduced to assess the severity and likelihood of risk of accidents/incidents.

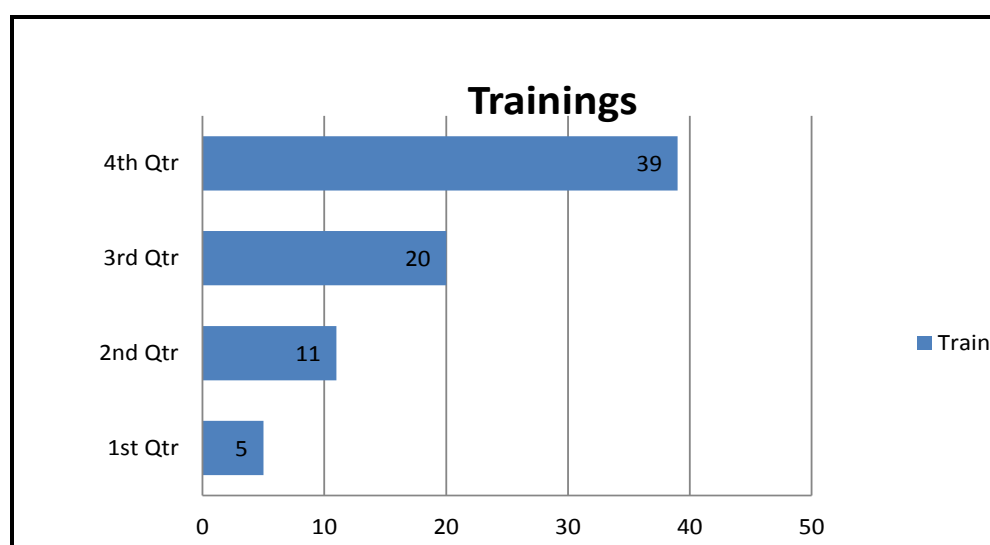
Risk Priority Number

Risk Priority Number (Calculator)						
		Likelihood/ Probability				
Likelihood/ Probability		Very Low 1	Low 2	Medium 3	High 4	Very High 5
Severity	Severity					
	Very Low 1	1	2	3	4	5
	Low 2	2	4	6	8	10
	Medium 3	3	6	9	12	15
	High 4	4	8	12	16	20
	Very High 5	5	10	15	20	25
		Tolerable 1-5	Low Risk 6-10	Medium Risk 11-15	High Risk 16-25	

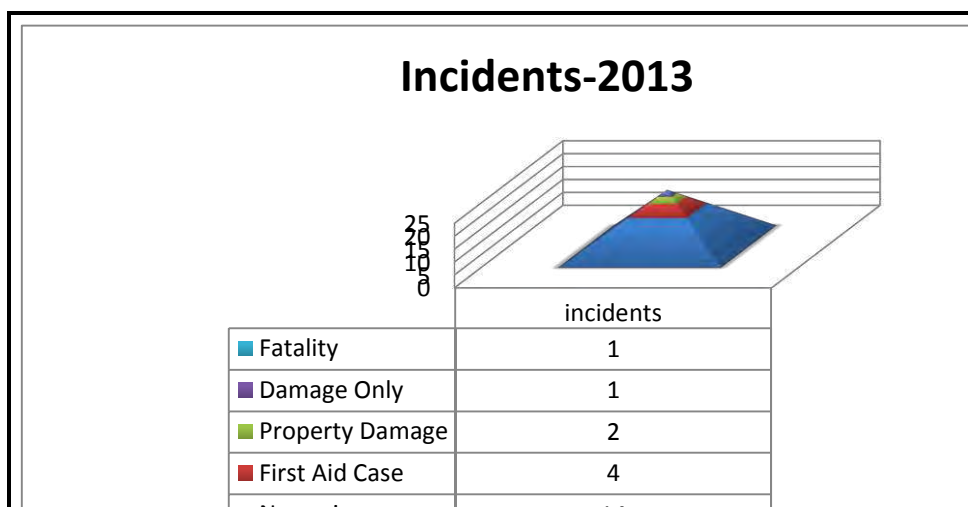
Following were some of the prominent activities conducted during the year 2013.

- New safety board's installation
- Regular trainings of staff and labor
- Waste management system plan design initiative
- Addition in first aid boxes provision on site
- Complete supervision during installation of batching plant to avoid any incident
- Procurement of portable washrooms and security check posts
- Replacement of telephone sets in tunnel of longer range
- Convex mirrors sound and light detector procurement
- Intensive trainings and tool box talks were conducted with staff and labor and daily monitoring and supervision of construction work is done by HSE staff at all times.
- Incidents recording extend to all workers/staff working for subcontractors and on rented vehicles/machinery. Summary of incidents reported during the year are annexed as **(Annex-D4)**.
- Continuously corrective actions were recommended for further compliance by project staff and workers.
- First aid boxes were placed on site after instruction by OE.

Graph of Trainings



Incidents Status



Safety Milestone

First safety milestone was achieved in November 2013 when one million safe man hours were completed. About 1.2 Million Safe Man Hours have been completed till 31st December 2013 without any Loss Time Injury (LTI) / fatality.

External Monitoring /Inspection

Sites HSE internal inspection has remained an ongoing activity. External monitoring has periodically been carried out by PPC, AJK-EPA, Client, Lenders and their technical advisors and frequently by Owner Engineer (PES). Consistent improvement has been made on recommendations made by aforementioned external monitoring teams with regard to site HSE conditions. OE has been very actively involved in efforts for improving HSE system on site and regularly recommends to EPCC HSE team about measures and remedies required to be done on site. Sample list of comments by OE and the action taken by EPCC in response to those recommendations is attached as **(Annex-D5)**

During month of March an audit was conducted by Daewoo Head office team **(Annex- D6)** HSE management system developed as follow up of recommendations made by audit team. Detailed monitoring visit by MM and ADB environmental and social monitoring teams have been carried out in the months of September. Furthermore, a post EIA monitoring visit was undertaken by AJK

EPA team who was completely satisfied with ongoing implementation status of EMP and compliance with environmental approval.

During third quarter ADB's monitoring team visited sites (24/09/2013-27/09/2013) thoroughly they focused mainly the social issues and suggested improvements. Qualitative and quantitative monitoring of water sources situated around HRT corridor has been recommended by visiting team.

Following are measures suggested by ADB team;

- a) SHPL to continue to meet and consult with the affected communities on their concerns and assess and prioritize activities. SHPL need to immediately look at the displaced households' concern on their access to the spring water due to the following reasons: (i) this is their only source of clean water used for drinking and cleaning, (ii) the major burden of fetching water for household use is with the women and girls, (iii) lack of clean water will affect the people's hygiene and health.
- b) The project has not prepared yet the income restoration program based on the socioeconomic survey results and progress has not been observed on the initial list of programs indicated. It is recommended that SHPL will need to revisit this commitment and ensure that programs will be designed based on the needs of the APs. Moreover, to further help design the income restoration program, including identifying livelihood activities for the affected people is necessary, ADB recommended that SHPL take into consideration results of the interim audit of land acquisition and compensation and resettlement activities to be done by the Refuge External Monitor. The audit is expected to be carried out in December 2013. In designing the income restoration program, SHPL is also encouraged to include women during the consultation and design of the program.
- c) It is appreciated that the concerns of the labor strikers on wages and overtime pay has been resolved through a dialogue between the workers, the EPC and the subcontractor. It is also noted that a grievance redress committee (GRC) has been established to help mitigate concerns of the workers. ADB also provided additional measures on monitoring of EPC and subcontractor compliance with labor standards and provision of mandated benefits. SHPL agreed to the following (i) SHPL/EPC/Subcontractors to provide/cover social/accident

insurance of workers (ii) SHPL/EPC/Subcontractors to orient workers on their labor rights as well as on the availability of a GRC to air any labor concerns or issues and oversee EPC/Subcontractors activities; (iii) continue to systematically monitor and report on compliance to the four core labor standards: (1) freedom of association; (2) child labor; (3) forced labor; and (4) discrimination and (iv) SHPL directly or through EPC to continue conducting dialogues with various NGOs and include concerns raised by these NGOs, as well as measures/actions taken by SHPL/EPC to address their concerns in the next monitoring reports.

d) Measurement of waste water generated in HRT.

External Monitoring



Internal Inspections

To mitigate safety incidents, machinery, equipment and electrical appliances are being inspected to ensure fitness through color coding system. According to the nature of work being carried out on construction sites, inspections have continuously been carried out during the reporting period to reduce the risk of accidents and impacts on environment as well as on the health of labor working on sites and for proper maintenance of machineries and other equipment. Inside HRT, Proper Gas

and dust inspections are being carried out on regular basis before and after blasting activity for inspection of the magnitude of hazardous gases and ensuring the air quality inside tunnel.

List of inspections is annexed as **(Annex-D7)** Following inspections have been consistently undertaken during the year;

- Heavy equipment inspection **(Annex-D8)**
- Batching Plant Inspection **(Annex-D9)**
- Site Overall Inspection
- Fire Extinguisher Inspection **(Annex-D10)**
- Health and Hygiene Inspection
- Dust Inspection
- Gaseous concentration Inspection



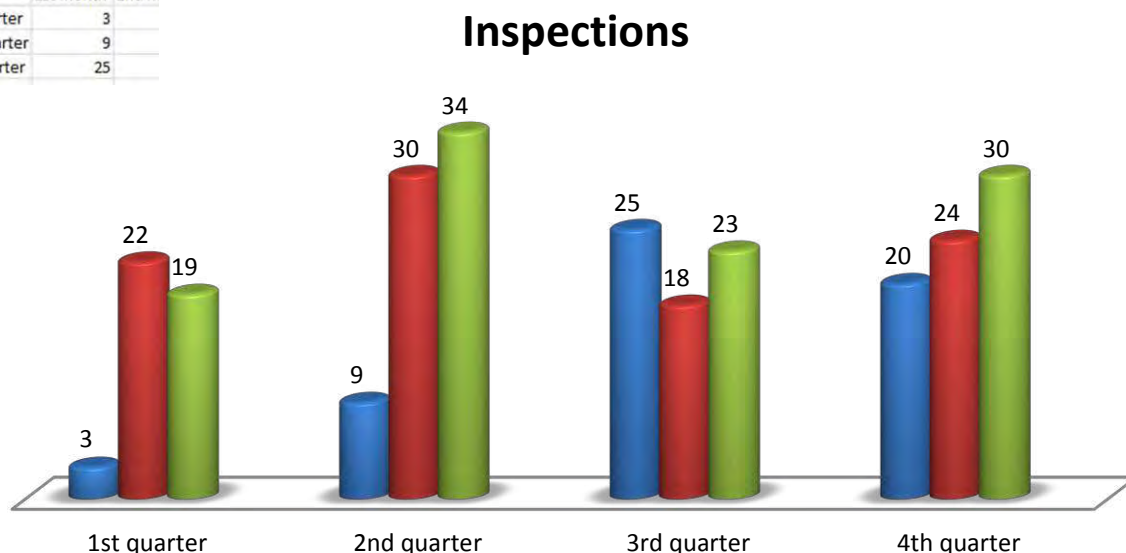
HSE Engineers while inspecting Heavy Equipments

Inside HRT, proper gas and dust inspections are being carried out by EPCC and OE on regular basis before and after blasting activity for inspection of the magnitude of hazardous gases and ensuring the air quality inside tunnel.



Inspections

	1st month	2nd m
1st quarter	3	
2nd quarter	9	
3rd quarter	25	



E. Labor Relations and Conditions

i. Nature of labor dispute or grievance

During last week of March 2013 subcontractor Kyung Dong's labor at power house site went on strike demanding raise in overtime / weekend work payment. Subcontractor resolved the issue amicably while fulfilling demands at reasonable level. Hence, strike ended and labor resumed their respective jobs. On July 07th 2013 at weir site a group of labor (14) went on strike that lasted approximately 7 hrs and work was resumed after intervention of project management and local authorities. During the second quarter no incident of labor dispute or grievance was observed, recorded and reported. During the third quarter no incident of labor dispute was observed, recorded and reported.

However, on July 07, 2013 at weir site a group of labor (14) went on strike that lasted approximately 7 hrs. Issues raised by protesters were as follows;

1. Additional payment on working Sundays,
2. Reduction in working hours during Ramzan and;
3. Increase in wages

From June 2013 working hours were reduced as per demand and no deduction was done in daily wages. Work was resumed on same date at 1400 after intervention of Project management. Detailed report is annexed as (**Annex E-1**)

During the fourth quarter no incident of labor dispute was observed, recorded and reported.

ii. Legal Requirements, Permit Conditions and Renewal Requirements

During year, the requirements related to labor's contracts, permits and other conditions remained constant and no changes were made. The daily wage was increased from Rs.465/= to Rs.537/ (Local market rate is approx.Rs.400/= per day). The EPCC and its sub-contractors are paying according to the labor law. Daily additional 2 hours are being paid as normal hourly rate. But monthly 32 hours are fully paid without work. Also, company is paying (normal hourly rate x 2) for work on national holidays. Rest of the requirements related to labor's contracts, permits and other conditions remained constant and no change was observed.

- Total working hours per month (30 days) =308 including weekend paid 32 hours without work.
- National holidays =Normal rate x 2
- Daily prayer (1 hr) and Friday Prayer (3hrs) are fully paid.
- Major subcontractor Kyung Dong's previous daily rate was Rs.465/-and over time was 77.5/- per hour, now daily rate is Rs.537/- and overtime is Rs.76.7/- per hr

iii. Authorities in charge of investigation/recording

In case of any labor incident, Site Construction Manager and HSE staff responsible to record, investigate and address it appropriately.

To address any dispute or work related complaint received from staff /workers. An internal Grievance Redress Committee (GRC) has also been established with following composition:

- | | | |
|------|------------------|-----------|
| i. | Planning Manager | (Korean) |
| ii. | Admin Manager | (Local) |
| iii. | HSE Manager | (Local) |

Committee is mandated to investigate the matter in an unbiased manner and resolve it amicably so that the concerned party or individual may be satisfied and a friendly / peaceful environment is reinstated at project site.

iv. Media or community reactions (if any)

No reaction was observed from media or the community.

v. Corrective actions, deadlines, identification of responsible parties

OE, EPCC HSE team and Company's HSE department continuously indicate corrective actions for further compliance by construction team.

vi. Labor relations and living conditions for construction labor force

Initially 120 staff/workers were accommodated in the base camp at powerhouse site and 150 staff & labor have been provided accommodation at weir site. Later; private houses were hired due to increase in man power. To manage these accommodations community liaison officer / coordinator have been employed from local area. All staff/workers before induction have been educated to respect local norms and never involve in any conflict with locals.

The EPC contractor:

- Made all reasonable precautions to maintain the health and safety of the Personnel. First aid facilities are available at all times at the sites and at any accommodation.
- HSE Department is responsible for maintaining safety and protection against accidents.
- Maintained records and make reports concerning health, safety and welfare of labour staff.



For site workers at HRT rest room established and clean water provided

CONTRACTUAL TERMS/ CONDITIONS	STATUS OF COMPLIANCE DURING 2013
ENGAGEMENT OF STAFF AND LABOUR	
Except as otherwise stated in the Project Requirements, the Contractor shall make arrangements for the engagement of all staff and labour, <u>local (People living in project vicinity)</u> or otherwise, and for their payment, housing, feeding and transport.	EPC contractor has made all necessary arrangements for the engagement of all staff and labour and payment for their wages/ salaries, housing, feeding and transport. However, the local staff/workers do not need housing in the project base camp.

The Contractor and its subcontractor(s) shall prefer, to the extent practicable and reasonable, to hire unskilled staff and labour, and skilled staff and labour with appropriate qualifications and experience, who are residents of AJ&K or KP especially who are the affected of the Project.	More than 150 of unskilled jobs have been provided to nearby communities (Alda, Thori, Patrind, Tarchela, Sarati, and other adjacent localities). Also preference has been given to local people who qualify for skilled positions.
The Contractor shall, and shall ensure that its subcontractors shall, fulfil and observe the Environmental and Social Requirements in relation to the engagement of staff and labour.	EPC Contractor has established a proper mechanism of daily and weekly reporting and consistent monitoring of HSE and related social issues. On the basis of recommendations, corrective measures are being taken accordingly.

RATES OF WAGES AND CONDITIONS OF LABOUR

The Contractor shall pay rates of wages, and observe conditions of labour, which are not lower than those established for the trade or industry where the work is carried out or as prescribed under the Laws of the Country. If no established rates or conditions are applicable, the Contractor shall pay rates of wages and observe conditions which are not lower than the general level of wages and conditions observed locally by employers whose trade or industry is similar to that of the Contractor.	<p>The pay rates of wages are comparatively better than the local prevailing rates. Temporary skilled workers = Rs. 700-800 .Temporary unskilled workers= Rs. 500-550 whereas in local market it ranges from 600-700 and 400-450 respectively.</p> <p>Minimum salary as per local labor law was 7,000 per month till 30th June 2013 which has been increased up to 9,000/- per month. While in the project the minimum salary for the permanent worker is 13,000/- .</p>
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PERSONS IN THE SERVICE OF OTHERS

The Contractor shall not recruit, or attempt to recruit, staff and labour from amongst the Employer's Personnel.	Full compliance of the condition was observed during entire quarter.
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LABOUR LAWS

The Contractor shall comply with all the relevant labour Laws applicable to then Contractor's Personnel, including Laws relating to their employment, health, safety, welfare, immigration and emigration, and shall allow them all their legal rights.	All regulations are in implementation. Local labor laws were devised in light of International Human Rights & Core Labour Standards; therefore, compliance with local standards is same with international laws /standards. Furthermore, Pakistan has ratified ILO's conventions on core labour standards.
The Contractor shall require its employees to obey all applicable Laws, including those concerning safety at work.	Site HSE status has been improved due to regular instructions and corrective measures.
Abolition of child labor	To ensure the abolition of child labour the Computerized National Identity Card (CNIC) has been made mandatory for induction which is only

	provided by the GOP after the age of 18.
Elimination of all forms of forced or compulsory labor	Compliant boxes are placed on each site. Furthermore, during site inspections by SHPL, OE and EPCC's HSE staff, it is strictly checked that no forced labour has been undertaken on any site in any form.
Elimination of discrimination in respect of employment and occupation	No discrimination exists as all persons have been provided equal opportunities irrespective of colour, race, origin and nationality. Only difference is the nature of job and relevant skills. However, no female is working as worker due to nature of job and local customs/norms.
Freedom of association and the effective recognition of the right to collective bargaining	No ban is imposed on workers with regard to freedom of association which is evident from the previous strikes for collective interests. However, formal labour union or association has yet not been established.

WORKING HOURS

No work shall be carried out on the Site on locally recognised days of rest, or outside normal working hours, unless: (a) Otherwise stated in the Contract, (b) the Employer gives consent, which shall not be unreasonably withheld, or (c) The work is unavoidable, or necessary for the protection of life or property or for the safety of the Works, in which case the Contractor shall immediately advise the Employer.	Work has been carried out on weekends but only with the consent of concerned staff/labor.
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FACILITIES FOR STAFF AND LABOUR

Except as otherwise stated in the Project Requirements, the Contractor shall provide and maintain all necessary accommodation and welfare facilities for the Contractor's Personnel. The Contractor shall also provide facilities for the Employer's Personnel as stated in Project Requirements.	Recommended facilities have been provided.
The Contractor shall not permit any of the Contractor's Personnel to maintain any temporary or permanent living quarters within the structures forming part of the Permanent Works.	Nobody has been permitted during reporting period.

Facilitations during year 2013



vii. Compliance status based on applicable national and international laws/ regulation on labor including ILO core labor standards

Provision 6.7 Health and Safety of EPC Construction Contract that states that, The EPC contractor shall made all reasonable precautions to maintain the health and safety of the Personnel.

- First aid facilities are available at all times at the sites and at any accommodation.
- HSE Department is responsible for maintaining safety and protection against accidents.
- Maintained records and make reports concerning health, safety and welfare of labor staff.

As per conditions stipulated in the project construction contract between Client and EPC contractor those have been made in light of National and International laws and standards, implementation during the year has been observed accordingly:

viii. Medical facilities provided to Staff and Labor

Proper medical facilitations have been arranged for staff and workers by EPCC. Two medical rooms have been established in February 2013 on upper and lower sites. Two ambulances have been rented from Pakistan Red Crescent Society to be prepared for emergency situations. Availability of first aid boxes has also been ensured at all sites. Doctor has been hired at project site to help prevent injuries to the work force. Number of staff and workers visited medical facilities and were treated by project doctors/Nurses. A MOU was signed with Muzaffarabad General Hospital for special medical services if required. On both sites night shift medical staff has been placed to ensure all time availability of health facility. Annual medical screening tests including Hepatitis B&C, LFT, RFT, Blood Glucose and Blood CP, Dengue and Typhoid etc. have been undertaken as per Company's procedures. 265 employees from Daewoo and its main subcontractors were examined for said tests.

Medical Facilitations



ix. Implementation of local labor standard

- Standards for labor health and safety are executed according to EPC Construction Contract.
- EPC has made all necessary arrangements for payment, housing & feeding.
- The living conditions are up to merit with all necessities.
- Standards consistent with IFC's EHS General Guidelines.
- Prefer to hire unskilled /skilled staff and labor from AJ&K or KP

x. Local Employment Status:

As per the EPC contract, EPCC is bound to employ unskilled labour from local areas/ adjacent villages and for skilled jobs preference has to be given to locals. Similarly, the supply of material and hiring of houses and vehicles has been one of the expectations from local community. Aforementioned commitments and expectations have been fulfilled as per the requirement.

Employment opportunities have been disclosed to the local communities through different sources/avenues such as newspapers advertisement, public notice on prominent locations and through community coordinators and local Project staff. Preference has been given to the locals subject to availability of skilled and unskilled human resources.

Locals Employment Status

LOCAL EMPLOYMENT STATUS														
■ Staff Employment														
As of 30-Dec-2013														
Head	Total	AJ&K						RPK						Others
		Thori	Altha	Patind & Tarchilla	Shocan	Others	Sub-Total	Sarati	Boi	Dalola	Others	Sub-Total		
Daewoo	Total	282	31	-	14	1	115	162	3	21	18	23	65	35
	Manager	4	-	-	-	-	1	1	-	-	-	-	-	3
	Staff	44	-	-	1	-	20	21	-	3	2	8	13	30
	Labour	234	31	-	13	1	95	140	3	18	16	15	52	42
Kyungdong	Total	94	3	8	4	-	51	66	-	-	10	13	23	5
	Manager	2	-	-	-	-	-	-	-	-	-	-	-	2
	Staff	16	-	2	-	-	8	10	-	-	1	3	4	9
	Labour	76	3	6	4	-	43	56	-	-	9	10	19	1
Sungdo	Total	147	-	-	34	8	41	83	-	5	25	27	58	6
	Manager	1	-	-	-	-	-	-	-	-	-	-	-	-
	Staff	18	-	-	1	-	6	7	-	-	2	4	6	5
	Labour	128	-	-	33	8	35	76	-	5	24	23	53	1
Total	Total	523	34	8	52	9	208	311	3	26	54	63	145	66
	Manager	7	-	-	-	-	1	1	-	-	-	1	1	5
	Staff	78	-	2	2	-	34	38	-	3	5	16	23	17
	Labour	438	34	6	50	9	173	272	3	23	49	47	122	64

xi. Project procedures for hiring; and acquisition of goods and services

Procedures for hiring have been adopted as per Company's policy and also in compliance with EPC Contract. While, procurement of goods and services by EPC contractor is being carried out under Quality Assurance and Quality Control plan which has been submitted to OE.

F. Environmental and Social Capacity

i. Staff capacities in environmental and social management (as relevant)

Frequent training programs, tool box meetings and talks have been conducted to enhance staff's capacity on essential aspects of environmental and social management.

ii. Degree of awareness of; (i) Environmental Management, (ii) Health and Safety

An orientation to environmental management, health and safety during construction work is part of induction form of all the staff and workers hired. Special training programs are arranged for the Daewoo E&C and Sub Con. staff and workers at environmental & social issues. Furthermore, daily HSE monitoring, toolbox meeting programs and other related activities have raised the awareness level among all staff and workers.

iii.HSE Weekly Meetings

As per HSE Plan, weekly internal meetings and meetings with site construction teams have regularly been conducted on both sites. Some unsafe acts/ unsafe conditions were reported at project site and the issues were highlighted in meeting agenda. All area in-charges were advised to deliver tool box talks on regular basis especially on Unsafe Acts/ Unsafe Conditions as 90% of accidents are the results of unsafe acts and unsafe conditions. These topics have been discussed at site through tool box talks (**Annexure F1**) to create awareness and understandings to the site related hazards.

Issues related to housekeeping at site and labor camp were also discussed. Waste disposal, housekeeping and compliance with HSE standards were the main issues during the meetings and same were highlighted in Agenda items of meetings.

Weekly Meetings



iv.Environmental laws and regulations

EIA study of the project was completed in light of following laws and regulations. EMP as part of EIA is in implementation under the same laws and regulations:

- Pakistan Environmental Protection Act 1997
- National Environmental Quality Standards (NEQS)
- AJK Environmental Protection Act 2000
- Land Acquisition Act 1894
- Draft National Resettlement Policy 2002
- NWFP Forest Ordinance 2002
- Sarhad National Conservation Strategy 1992
- ADB Safeguard Policy Statement 2009
- IFC Handbook (Resettlement Action Plan)

v. Training /Campaign/Awareness Raising Programs

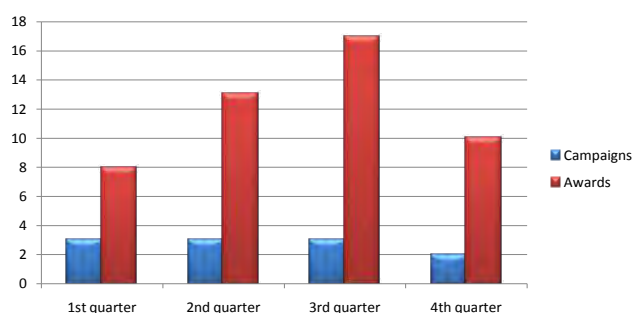
To aware workers and community, sign boards have been placed on appropriate locations. Furthermore dissemination of brochures carrying information regarding environmental and social aspect also increased the level of staff/worker understanding. Safety campaign as part of monthly HSE Plan has been conducted. To promote safety culture on sites safety award was introduced. Detail of safety awards given during the year are annexed as **(Annexure F2)**

Best manager, labor and engineer certificates are issued during safety campaigns. Sample certificate is annexed as **(Annexure F3)**. These trainings are conducted in the light of standards guidelines and procedures developed by Daewoo E&C for its project while working across the globe. However, site specific modifications have been made in manual. List of trainings is annexed as **(Annex F4)**

HSE Trainings



Safety Campaigns and Monthly Awards



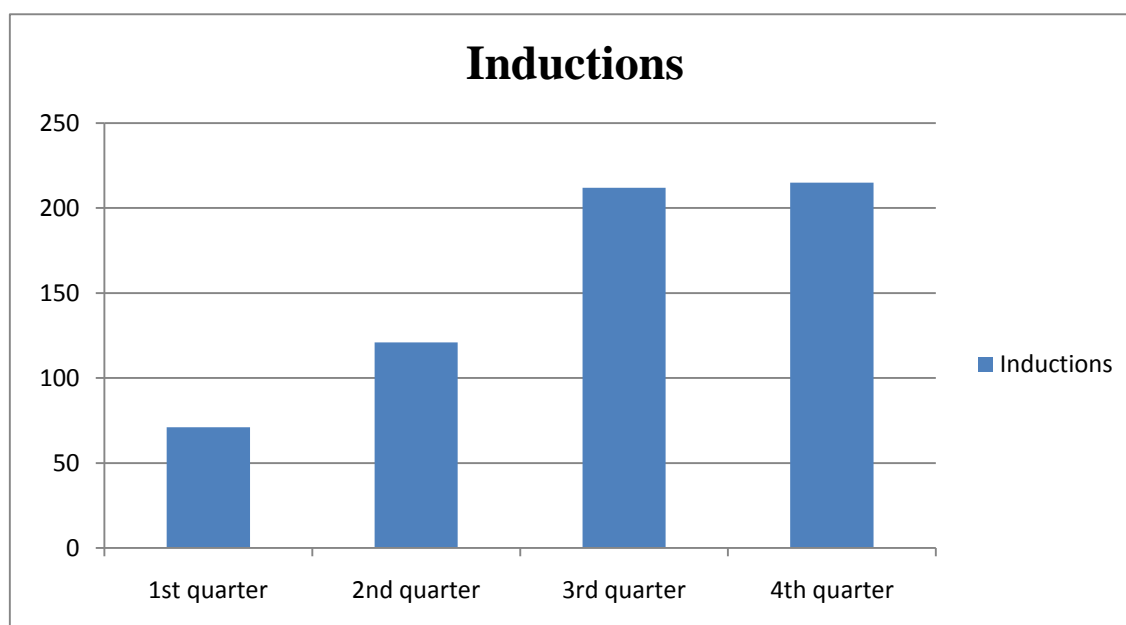
vi. Induction Training

Staff and workers before starting their respective jobs have been given induction training as per “Induction Performa” recommended in EMP document. However, OE pointed out presence of untrained employees on the project, who were removed from site for induction by HSE Department. Besides aforementioned training programs for new workers safety induction training has been an ongoing activity. The table below gives a brief record of total inductions;

Inductions Status

Sr. No	Inductions	No	Employees inducted	No
1	Weir site	167	Weir Site	484
2	Power house site	452	Lower site	1097
3	Total	619	Total	1551

Induction Trainings

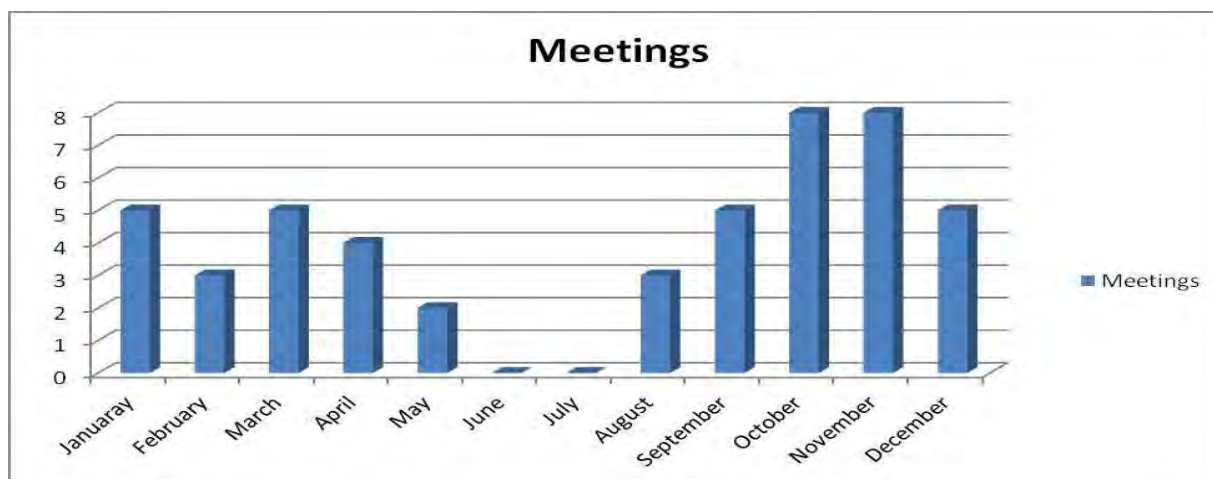


vii. Tool Box Meetings and Talks (Daily on both Sites)

This is a consistent activity undertaken by EPCC before the start of every construction shift and is part of clause 3.5 (Safety Campaign) of EPCC’s daily procedures. Activity reports are being received

from construction teams including subcontractors. It has been the part of every working day on both sites till date. A series of daily “Tool Box Talk” during morning exercise regarding HSE has been started focusing on different HSE topics.

Tool Box Meetings & Talks



viii.Awareness Raising Material/Campaign:

Sign boards have been placed by EPCC on appropriate locations for awareness of the workers and community. In addition brochures regarding information of environmental and social aspect have also been disseminated to increase the level of staff/worker understanding. Safety campaign as part of EPCC’s monthly HSE Plan has been conducted during quarter.





ix. Daily Education/Training on site

During frequent site visits, on spot education/training is an ongoing activity that certainly enhance and promote safety culture on sites. Moreover, during inspection of equipment and color coding activities, workers and relevant staff has also been educated appropriately.

On-site Education/Trainings



x. Needs assessment of environmental and social management capacity

Continuous capacity building initiatives including more specific trainings on environment and social management are required for staff and labor. HSE department of EPC contractor has remained engaged in delivering orientation sessions, awareness raising and capacity building sessions on environment and social management and also identified training needs of the staff and labor. As a result of training needs assessment and to enhance the capacities of the staff and labor before start of each month trainings and other capacity building activities are being incorporated in Monthly HSE Plan.

G. Stakeholder Consultation/CSR Activities

1.Details of consultations, if any, with local communities, nongovernmental organizations, civil society groups, and other stakeholders, including affected people:

To initiate and sustain constructive external relationships with project stakeholders' particularly with civil society organizations, consultation is an important tool to enhance the social performance of the project. Infrequent consultations and meetings have been made with all stakeholders including local community and civil society groups during reporting period to improve the project's implementation. Some professional services offered by local stakeholders are;

- i.Spray and Fumigation activity by NGO Press for Peace
- ii.Flora and Fauna Study by NGO Edinburgh DIRECTAID
- iii.HSE sign boards preparation and printing activity by Add City (Owner from Patrind village)
- iv.Two Ambulances have been hired from Pakistan Red Crescent Society

Following organizations have been consulted to improve company's CSR activities;

Organization Name	Location	Purpose/ issues discussed	SHPL Response/Actions to address Issues
1-Sahara Welfare Organization	Dalola- (Upper Site KPK Part)	<ul style="list-style-type: none"> ▪To promote Environmental and Safety Awareness among locals and school children. ▪To inform the local community about socioeconomic benefits of the project at local and national level. ▪To involve them in project development activities ▪To create a sense of project ownership as stakeholders ▪Local Action committee demanded to involve local 	<ul style="list-style-type: none"> ▪Sessions on road safety and environmental awareness were planned and organized in adjacent schools ▪During consultations and meetings and also through community coordinators , project socioeconomic benefits were communicated to locals ▪On engagement of local contractors, the Company addressed this by
2-Rural Development Foundation	Sarati- (Upper Site KPK Part)		
3-TanzeemUIAwan	Daedal Mera- (Upper Site KPK Part)		
4-Kunhar Welfare Organization	Patrind- (Upper Site AJK Part)		
5-Press for peace	Muzaffarabad- (Lower Site AJK)		
6-Local Action Committee	Thuri/Lower		

	Chatter Muzaffarabad- (Lower Site AJK)	contractors should be given preference while sub-contracting construction works.	prioritizing locals for sub-contracting works. ▪Through employment and other social uplift measures sense of ownership will be created among locals.
7-Pakistan Red Crescent Society	Muzaffarabad- (Lower Site AJK)		
8-Edinburgh DIRECTAID	Muzaffarabad- (Lower Site AJK)		

Spray and Fumigation activity has been conducted by local NGO **Press for Peace** and will be conducted frequently in future by same organization. No concern from community with regard to health was raised. However the activity was undertaken as part of EPCC's (Daewoo E&C) procedures for its projects across the globe.

HSE sign board preparation and printing activity is being undertaken by venders (Add City) resident of Patrind village who are affiliated with **Kunhar Welfare Organization**. Under ILO funding, Patrind village based Kunhar welfare organization established multipurpose technical institute "Add City" to provide wood work, welding, plumbing and printing trainings to unskilled locals from Patrind village. Add City owner Mr. Khurshid is president of Kunhar welfare Organization and he himself and rest of his partners are PAPs who are linked with same organization. Therefore, all printing works were allocated to/procured from same organization.

Two Ambulances have been hired from **Pakistan Red Crescent Society** regional office in Muzaffarabad AJK.

- Formal and informal meetings and discussions with communities and other stakeholders is a consistent activity which is undertaken to improve the Project's implementation. Coordination meetings were conducted during the quarter with the government departments. Meetings and discussions were held with local community of adjacent villages including (Sarati, Patrind, Alda, Thuri and Tarcheela), their representative forum (local action committee) and government departments (Environment Protection Agency, district administration and development authority. Issues with regard to employment, hiring of services, social uplift plan and site security have generally been discussed with aforementioned stakeholders. Hiring of services including supply

of construction material and local manpower, initiating some interventions under social uplift plan such as rehabilitation of access roads and provision of water supplies were undertaken during the quarter. Besides Social uplift plan various activities as per demand of locals have also been undertaken to facilitate them such as subletting works, supply of construction material. However, no written or formal agreement was made with them for these initiatives.

Community & Stakeholder Consultations



Members of Local Action Committee have been visiting project office and were dealt amicably and adequately with regard to their concerns and demands. Their concerns and demands about agreements (related with employment, social uplift plan, hiring of houses and services such as heavy equipment, supply of construction material and subletting of construction works) are being fulfilled as per project requirement and availability. They are being informed for job opportunity and hiring of services and works to be subcontracted

- District Administration, Police Department, Electricity Department, Hydro Electric Board and Private Power Cell are other key departments those have also been in close contact to address and facilitate the project implementation issues. These departments have been approached to resolve the issues such as land demarcation, unjustified strikes of locals, security issues and to fulfill some regulatory requirements as and when needed.

- Although, Community Complaint BOX (CCB) is placed on both the sites, but mostly direct mode of communication has been observed by the local residents instead of using CCB. Most common grievance /complaints were related with local employment, more compensation for land acquisition. They are being informed for job opportunity and had subsequently been provided jobs preferably. For prompt compensation relevant governmental authorities had been approached by the company. Most common complaints received during the year are;
 - i. Seeking Employment
 - ii. Initiation of social uplift plan
 - iii. Hiring of houses and services such as material supply, renting vehicle and machineries
 - iv. Subletting of construction works
 - v. More compensation for land acquisition
 - vi. Community coordinators were employed from local community by EPCC for consultations and to facilitate company in addressing conflicts if any social issue that may emerge with locals
 - vii. More inductions in staff and labor have been made from the adjacent villages.

Below mentioned community coordinators have been employed from the local community by EPCC to coordinate and facilitate in addressing the community issues if any:

- 1.Mr Mubarak Awan from Thuri village Lower Chattar (for Lower Site)**
- 2.Mr Fayyaz Ahmed Qureshi from Patrind village (for Upper site)**
- 3.Mr.Bashir Ahmed from Boi Village (for Upper site)**

Complaints by Community

Nature of Complaints	Action Taken
Two complaints were received about structural damage during blasting	Pre blasting survey carried out in all adjacent villages of upper site including Patrind, Tarchela and Sarati. Team carrying survey was composed of AJK EPA, Public Works Department, Sub Contractor, EPC and SPC representatives. Survey was completed in the first week of March 2013. Whereas at lower site in village Alrah houses survey has been started on 28 th March 2013
Mr. Abdul Qayyum R/O Alrah village complained that his house was damaged due to blasting activity	Post blasting survey by HSE team carried out. House of complainant was examined. Minor cracks in the washroom wall were found but not due to blasting activity as it was pre earthquake 2005 construction. However, as preventive measure, HSE Team received list of material from house owner Mr. Qayyum to reconstruct the entire wall. On intervention of HSE Team all requisite material including labor charges were subsequently provided by subcontractor Kyung Dong before start of new blasting on same site.
A complaint was launched by Mr. Abdul Qayyum R/O Alrah village before MM E&S monitoring team for installation of fence around his house adjacent to powerhouse site to secure his domestic privacy	In response to the complaint the house of said person was completely fenced by EPCC on SHPL's direction. Follow up report was included in third quarter report.
A complaint was received from residents of Tarcheela village claimed structural damage of houses and community mosque	EPCC conducted a detailed survey of houses and mosque to find out factual status against application for compensation.
Seeking Employment	Skilled /unskilled persons from local community have been employed by PEC during reporting period. Local employment status is also attached in report.

2.Details of community programs involving civil society/NGOs in implementation

EPCC planned to conduct educational/recreational activities for adjacent schools. In this HSE Clinic and ambulances available on sites may be used to facilitate local communities on both sites in case of any emergency. Details of these trainings are given in table below;

Trainings to Local Schools

Sr. No	Training Name	Date	Trainer	Location	Attendees	Trainees (focused)
1.	Road Safety Awareness	6-9-13	S. Tariq Hussain	First Step School Lower Chatter Thuri	51	School Children's
2.	Road Safety Awareness	20-9-13	S. Tariq Hussain	Govt. Primary School Lower Chatter	35	School Children's
3.	Visit of School Children in HSE Office	9-10-13	S. Tariq Hussain	HSE Training Hall Camp Office	35	School Children's
4.	Visit of School Children in HSE Office	29-10-13	S. Tariq Hussain	HSE Training Hall Camp Office	45	School Children's



Prayer/ Safety Campaign

This ceremony of prayer and safety campaign on the weir site was held August 30, 2013 and subsequently on 3rd October 2013 at Power House site to strengthen good relations with all segments of society including religious and political leadership and especially with local community. Prominent state level religious scholars, Minister Works Go AJK and community representatives and local police officers attended the ceremony.

Prayer & Safety Campaign



H. Issues, Status of Implementation of Mitigating Measures in the ESMP and Compliance

Consistent monitoring was done by OE and EPCC's HSE staff on both sites to monitor the compliance status of IFC performance standards, ADB's environmental and social safeguard policies, environmental conditions of EPA's and other regulations and more specifically environmental and social management plan implementation.

Non compliances with recommended standards and regulations were recorded and reported on daily, weekly and monthly. EMP Compliance status is annexed as **(Annex-H1)**

Environmental component	Standards (NEQS)	Compliance/Mitigation measure
Air Quality	EPA ambient air quality (EPAs standards for each Parameter)	<p>NEQS:</p> <p>Detecting seven hazardous gases in tunnel to ensure the Air Quality in Tunnel. i.e CO (50 PPM to 100PPM),CO₂,NO,NO₂,O₂,H₂s,LEL (Methane)</p> <ul style="list-style-type: none"> ▪To ensure dust suppression due to transportation activity, unpaved roads are being sprinkled with water at least twice a day. ▪The EPC is taking all necessary measures to limit pollution from dust and any wind-blown materials during construction. ▪Use of ventilator during work in HRT has been recommended essential. Respiratory protective masks have been issued to tunnel workers.
Water quality	WHO Guidelines (EPAs standards for each Parameter)	<ul style="list-style-type: none"> ▪Tests for drinking water quality have already been conducted during 3rd quarter2012; however, to assess the impacts on rivers, quality monitoring shall be carried out through any recognized company. Also qualitative and quantitative analysis of water sources around HRT shall be undertaken during next quarter. ▪Waste water from tunnel is treated as sedimentation tanks have been constructed on each site.
Noise levels /Vibration	<p>EPA ambient noise standards.</p> <p>Typically 8-12mm/s day time and 4mm/s night time is standard limit worldwide.</p>	<p>Noise:</p> <ol style="list-style-type: none"> Noise prone activities are avoided during night time. No open blasting occurs during quiet hours. Intensity of noise and has been monitored to compare it with established standards. Provision of necessary safety and personal protective equipment such as ear plugs etc are ensured during high noise activities like tunnel blasting. Excavators and all heavy machines are lubricated in a routine matter to minimize the noise and to increase the life of equipment <p>Vibration:</p> <ol style="list-style-type: none"> EPC is more concerned regarding factors of human comfort and structural damage and always try to comply with allowable vibration standards. Blasting checklist is used by HSE staff.

		(Record sheet is annexed ((Annex- H-2).-)
Soil quality	EPA quality standard (Different standards for each Parameter)	i. Tests to be conducted through private lab/company. ii. No environmental incident except small soil contamination has been observed.
Flora	Visual observations by relevant Forest professional during EIA study.	Study /monitoring for last month undertaken
Fauna	Observation by relevant wildlife & Fisheries professional during EIA study.	Study /monitoring for reporting period undertaken

i.Occupational health and safety

Health and safety of workers has been a prime consideration of project. In accordance with the safety standards all workers working at site are provided with the Personal Protective Equipment comprising of hard hats, safety shoes, jacket and sand dust masks depending upon the job specification to prevent injuries. Hygienic inspections have been made by medical staff. Numerous tool box talks have been held on issues related with occupational health and hygiene. As per usual morning physical exercise has also been undertaken regularly at both sites. The EPC prepared and Emergency Response Plan for any unforeseen incident. Emergency contacts and response procedures are placed at each site also in Urdu translation. All sub-Contractors have issued necessary PPEs to employees. Also, Company conducted various site inspections to ensure the implementation. Till to date compliance has been observed. Inspections of local staff, labor and Korean's staff mess hall were conducted in order to monitor the health and hygienic conditions. EPC Contractor has scheduled maximum blasting activities to occur during daylight hours as a safety precaution and as a courtesy to local residents. After fire incident at weir site on 6th July special firefighting arrangements have been made to mitigate risk of any future incident.



Fires fighting suites and blankets have been made available



In accordance with the safety standards, all workers working at site are provided with the Personal Protective equipment comprising of hard hats, safety shoes, jacket, and sand dust masks depending upon the job specification to prevent injuries.



Safety sign boards installed at different locations. Special measures for tunnel workers.



Numerous tool box talks have been held on issues related with occupational health and hygiene. Hygienic inspections have been made by medical staff. Spray and fumigation activity has been carried out to eliminate risk of diseases due to insects.

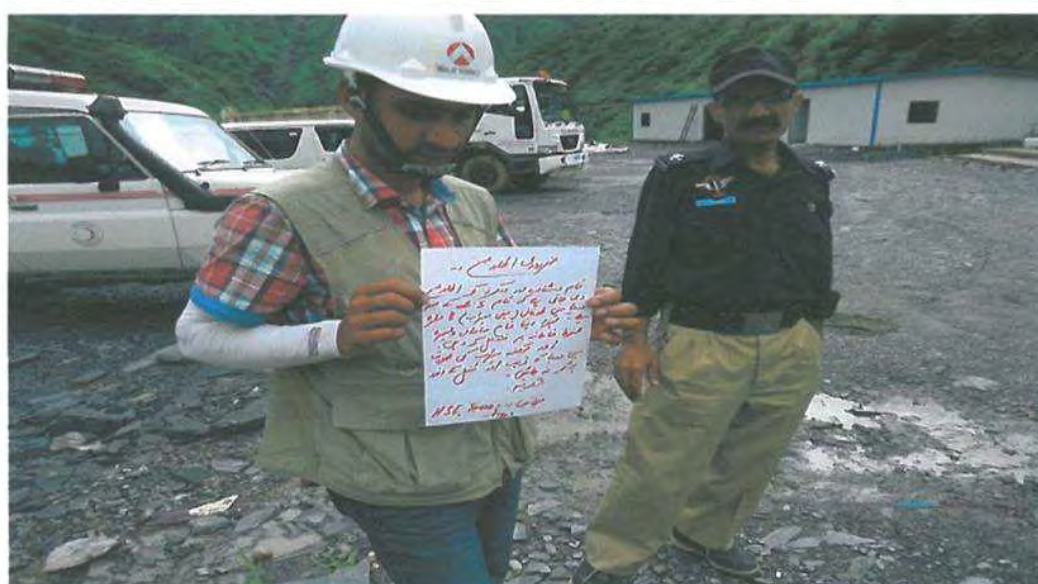
As per usual morning physical exercise has also been undertaken regularly at both sites.



The EPC Emergency Response Plan for any unforeseen incident exists. Emergency contacts and response procedures placed at each site also in Urdu translation.

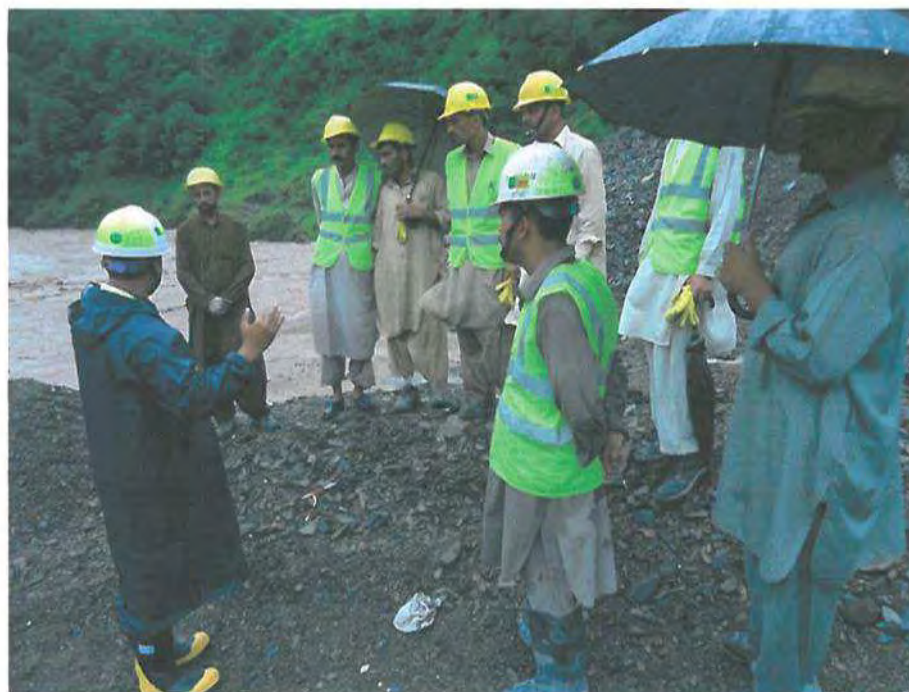
HSE Training (Emergency Response) on 14/08/2013

Project: Pakistan Patrind Hydropower Project.



HSE Training (Emergency Response) on 14/08/2013

Project: Pakistan Patrind Hydropower Project.



Emergency Response Drill

ii. Community Safety Health and Security

Following steps are taken for community health and safety assurance;

- Warning sign boards have been placed on both sites indicating construction hazards to protect community and their livestock. Also, project area is more appropriately fenced at upper site and partially at lower site
- Pre blasting survey of adjacent villages has been carried out to assess possible structural damages and to maintain controlled blasting Summary of Survey in annexed as **(Annex-19)**
- Medical facilities available at project sites may also be used for nearby community in case of emergency and as and when needed



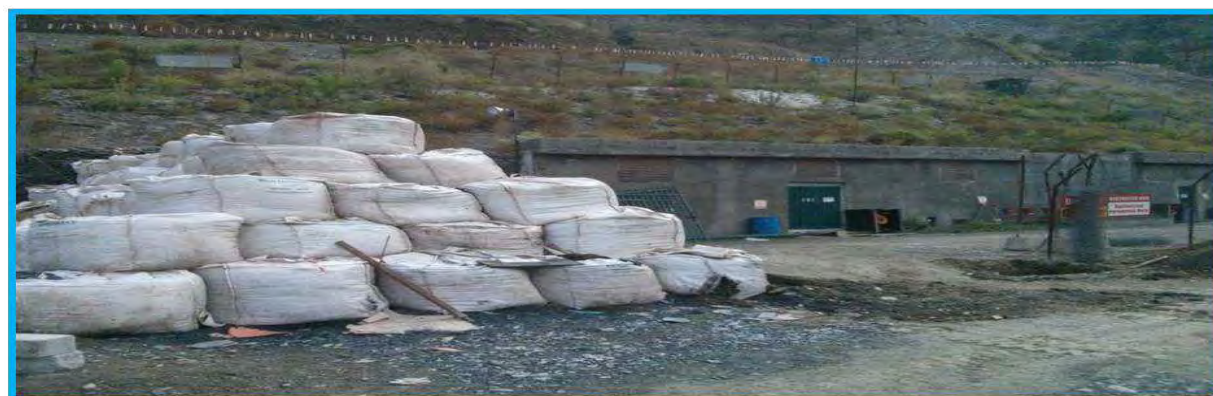
Child from adjacent community being treated at HSE Clinic

- The EPC staff conducted site health, safety and security monitoring on daily basis
- A strong liaison is established with concerned Government Departments for arranging site security arrangements
- Village services (e.g. access tracks, water supply pipelines, electricity supply lines) affected by construction sites or activities are protected, or temporarily or permanently relocated, to ensure that they continue to function in a similar manner
- A retired senior police officer has been hired on full time basis as Director Security to manage and improve site security system.
- Fencing work along Patrind and Tarcheela villages at weir site was completed in the month of April 2013. Necessary road safety & community awareness sign boards were installed to

mitigate possible hazards. The EPCC's staff conducted Site health, safety and security monitoring on daily basis

- Safety sign boards were installed for workers and community awareness
- Staff/workers were given awareness by HSE Department to adopt safe routes only

Pre-Blast Survey



Preventive measures have been undertaken to around explosive storage area as soft gabion wall has been developed to mitigate risk of destruction and hazard.

Blasting activities have been managed appropriately and in a safe and secure manner keeping in view the community concerns and standard procedures.



Noise and vibration measured regularly



Site illumination being monitored

iii.CO2 emissions by the Project

Following project activities are likely to produce CO₂ emissions, which were given due consideration and following mitigating measures were adopted to minimize the CO₂ emissions.

Sources of CO2 at Project Site

Sources of CO ₂	Mitigating/ Preventive Actions
Use of excavation machinery	Regular tuning/servicing of the machinery is made compulsory and regular inspection is done to ensure that. Smoke producing vehicles are banned from working right away until they are repaired
Tree removal/Land use change	Removal of trees on construction sites will increase the concentration of CO ₂ the Project Site atmosphere as trees acted as CO ₂ sink. Therefore, as corrective approach, Tree Plantation shall be carried out as retrofitting measure as stipulated in the EMP when it will be practically possible
Solid Waste Disposal	Improper waste management could result accumulation of CO ₂ and CH ₄ in the atmosphere. To avoid open dumping of waste, Waste Management Plan have been established and implemented. Daewoo E&C signed a MOU with Municipal Corporation Muzaffarabad for proper disposal of waste as per Environmental Protection Agency Muzaffarabad applicable rules and regulations. For temporary storage of waste proper waste collection and storage areas have been designated to ensure good environmental health
Use of Construction machinery	New machinery is used on project site to mitigate the potential source of emission of CO ₂ in the atmosphere. New batching plants installed on recommended sites having minimum impacts. Regular inspections of machinery are practiced by HSE staff to check machinery conditions. NCRs have been issued by OE and EPCC to the smoke producing and vehicles
Usage of liquid fuel	Liquid fuel used at different project activities amounts the maximum CO ₂ emissions by the project
Wood and wood waste	Heaters are provided to the labor to discourage burning wood and coal for heating purposes during cold. HSE staff keeps a look to ensure no wood burning is being carried out on site
Emissions from electricity use	Electrical appliances release some trace amount of gases in order to mitigate that, it is in company's policy to switch off all the electrical appliances when not in use

iv. Environmental and Social Management Plan, including IFC E&HS Action Plan

PS	Action	Verification	Timeline	Status
PS1-1	Establish and staff Project Environmental Management and Monitoring Unit (EMU)	TORs of Manager and staff of the EMU; confirmation of hiring of Manager and staff	Prior to first disbursement of IFC financing	EMU is fully mobilized on site from the date of Notice to Proceed
PS1-2	Preparation of detailed rehabilitation and landscaping plan for all project construction sites and excavation spoil dumping sites.	Plan and budget.	Six months prior to Project commissioning	Will be done as per the timelines
PS1-3	Provide periodic updates to the affected communities of progress in completing this Action Plan.	Public notices/communication/ Meetings	Quarterly during the construction period as part of a general community liaison activities	Being done as per the requirement
PS1-4	Update the Environmental and Social Management Plan (ESMP) for the construction phase (Chapter 9 of the EIA, November 2010) based on the final arrangements with the EPC Contractor, and implement.	Updated ESMP for the construction phase	Prior to start of construction (issuance of EPC contractor's Notice to Proceed).	The EMP was updated in October 2012 and is being implemented. The same is also disclosed on ADB's website.
PS1-5	Update the Environmental and Social Management Plan (ESMP) for the operational phase (Chapter 9 of the EIA, November 2010) based on the final arrangements with the O&M Contractor, and implement.	Updated ESMP for the operational phase	Prior to Project commissioning	Will be done as per the timeline

PS	Action	Verification	Timeline	Status
PS1-6	Public hearing by Khyber Pakhtunkhwa (KP) EPA and Environmental Approval	Minutes of public hearing by KP EPA and a copy of Environmental Approval	Prior to IFC's financial commitment	EPA KP issued Environmental Approval on April 14, 2011
PS1-7	Submit final arrangement of the electricity transmission from the Project to the NTDC's grid connection point	Summary description of the final arrangement and copy of the EIA for the NTDC's transmission line	To be discussed	Will be done once the arrangement is finalized
PS2-1	SHPL establish and implement HR policies and procedures compliant with IFC PS2 requirements.	HR policies and procedures manual	Prior to first disbursement of IFC financing	HR policy of SHPL is already there and the procedures laid down are being followed properly
PS2-2	Ensure direct and contract employee's familiarity with rights and protections under applicable labor laws.	Posting of relevant clauses of applicable labor laws in Urdu in areas where employees and contract workers congregate as confirmed by EMU and Lender's Engineer.	Prior to start of construction (issuance of EPC contractor's Notice to Proceed).	Being done as per the requirement
PS2-3	Ensure that the construction labor camp has appropriate and adequate accommodations, health and sanitation facilities, cooking and recreation facilities and security for the construction workforce.	A copy of the EPC Contractor's design document; confirmation of EMU and Lender's Engineer.	Prior to start of construction (issuance of EPC contractor's Notice to Proceed).	Being done as per the requirement
PS2-4	Ensure standards for labor health and safety (construction and operational phases) are consistent with IFC's Environmental, Health and Safety General Guidelines.	Provisions of EPC and O&M contracts that reference international industry best practice with regard to construction and O&M working conditions and OHS.	EPC contract: prior to first disbursement of IFC financing. O&M contract: prior to start of operations.	EPCC has prepared health & safety plan which is also part of the EPC contract executed between the Company and EPCC.

PS	Action	Verification	Timeline	Status
PS3-1	Prepare and implement Emergency Response Procedures for construction phase and operational phase	Copies of the Emergency Response Procedures	Prior to start of construction (issuance of EPC contractor's Notice to Proceed), and prior to commissioning of the Project	EPCC has prepared Emergency response procedures and also being implemented which are part of the EPC contract executed between the Company and EPCC.
PS4-1	Prepare and implement a construction traffic management plan.	Plan prepared; training delivered; safeguards in place as reported by EMU and Lender's Engineer.	Prior to start of construction (issuance of EPC contractor's Notice to Proceed).	EPCC has prepared a traffic management plan and also being implemented which is part of the EPC contract executed between the Company and EPCC.
PS4-2	Develop an Emergency Management Plan covering all contingencies related to Project construction and operations with relevant local authorities.	Plan prepared as confirmed by Project Management/EMU and Lender's Engineer	Prior to first disbursement of IFC financing.	EPCC has prepared Emergency Management Plan and also being implemented which are part of the EPC contract executed between the Company and EPCC.
PS4-3	Establish standard operating procedures for alerting local communities about blasting during construction and downstream releases of water from diversion structures during construction and operations.	EMU and Lender's Engineer confirmation	Prior to start of construction (issuance of EPC contractor's Notice to Proceed)	EPCC has prepared operating procedures for alerting the communities about blasting and downstream release of water and also being implemented which are part of the EPC contract executed between the Company and EPCC.

PS	Action	Verification	Timeline	Status
PS5-2	<p>Payment of agreed compensation to all individuals/families directly affected by the Project's permanent or temporary land acquisition.</p> <p>Confirm that all individuals/families that have been physically displaced by Project land acquisition have not suffered impairment of their livelihoods.</p>	<p>EMU confirmation of payments</p> <p>Follow-up socio-economic study of those individuals/families permanently displaced.</p>	<p>Prior to start of construction (issuance of EPC contractor's Notice to Proceed).</p> <p>Prior to commissioning of the Project.</p>	<p>The payment to the owners is still in progress and the confirmation will be provided once the disbursement of payment is completed.</p> <p>Status of compensation is discussed in detail in subsequent section –I (ii) of the report</p> <p>Interim socio-economic audit report to be conducted in December 2013.</p>
PS6-1	Release minimum 2 m ³ /s of water from the weir as Reserved Flow constantly to Kunhar River.	Actual "Reserved Flow" data to be included in the Annual Monitoring Report (AMR) to be submitted to IFC	Annually as part of the AMR	Will be done as per the timelines
PS6-2	Monitor flow volume of streams flowing into Kunhar River between the weir and Jhelum River confluence and evaluate whether 3.7 m ³ /s of total flow (2 m ³ /s as Reserved Flow, plus 1.7 m ³ /s from downstream streams) as referred to in the November 2010 EIA has been achieved	Estimated total flow data between the weir and Kunhar-Jhelum confluence to be included in the Annual Monitoring Report (AMR) to be submitted to IFC	Annually as part of the AMR	Will be done as per the timelines

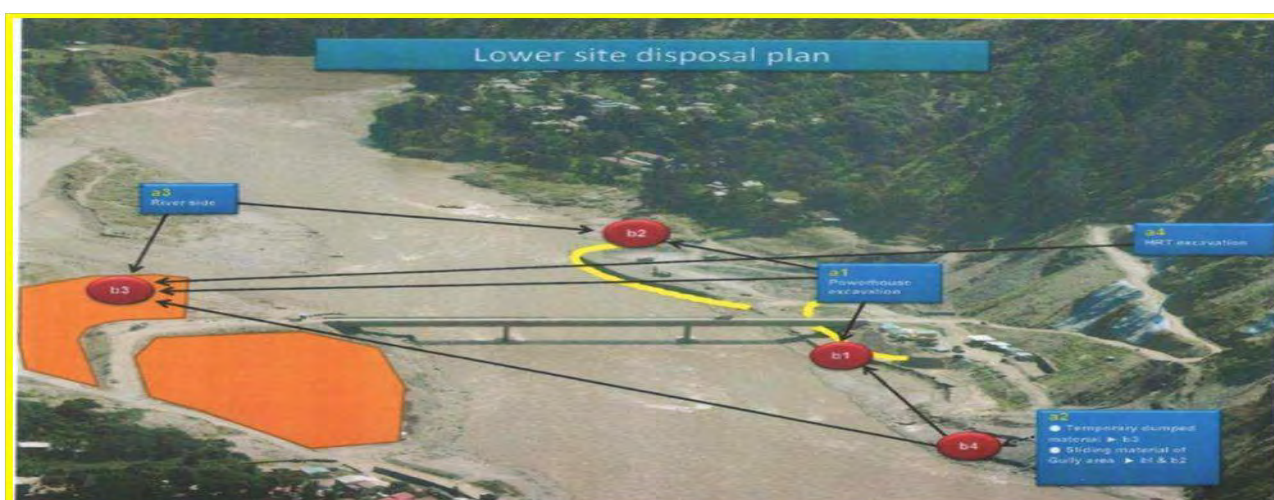
To manage the environmental and social issue appropriately, following detailed plans developed by EPCC have been in implementation to fulfill the environmental and social compliance requirements of the project:

- a) Plan for Waste Management
- b) Plan for Disposal of Excavated Material
- c) Plan for Traffic Management
- d) Social uplift plan

These plans (a, b & c) as part of project EMP document are under implementation, however, major interventions under Social Uplift Plan will be implemented after construction phase.

a-Plan for Disposal of Excavated Material

- Disposal sites already designated on acquired land on both sites.
- Dumping on approved sites has been observed during quarter.



b-Plan for Waste Management

Waste generation and management

a)Generation:

The solid waste produced during the reporting period has been quantified randomly. Different types of waste produced at sites are as follow;

- i. Engine/ Generator Oil- (27 liter is used for 200 hours for 2 Generators installed at both sites)
- ii. Cement/ Slag Bags - (Mostly cement bulker has been used, however bags used have been taken by local labor)
- iii. Food Waste

Description	Tetra packs (Kg)	Plastic Bags (Kg)	Paper (kg)	Metal (Kg)	Vegetable + Food (Kg)
Local mess both sites	6.00	3.50	4.50	5.00	32.00
Korean mess both sites	5.00	2.50	3.70	3.50	24.00
Offices both sites	6.00	3.00	15.00	4.00	10.00
Sub Total	16.00	9.00	23.20	12.5	66.00
Total	126.70 Kg				

- iv. Mineral water bottles both sites: 10-12 Kg daily

Use of 19 liter re-useable mineral water bottle has been increased as water approximately 1100 bottles are being purchased monthly. Also, water dispensers and water coolers have been placed on main locations. Use of ½ liter bottle is reduced and has been limited to travelling duration.

b)Management

The waste produced is properly managed at sites. Each site is provided with dustbins for collection of waste material. The collected waste has been properly disposed-off in trenches at upper site and near workshop area at lower site.



Proper waste collection and disposal mechanism adopted

c-Plan for Traffic Management

Speed limit is controlled; safety precautions have been adopted to protect workers and the general public. Vehicles are equipped with directional control signage and are being inspected prior to use. Workers have been made aware of mobile equipment operating in the area.

Furthermore, for heavy vehicle movement, a diversion has been made near camp office at lower site to mitigate risks and noise near schools, residential area and camp office as per initial traffic management plan.



d-Social uplift plan

A section of road leading from access bridge to children park and onward to Supreme Court has partially been improved (Lower Site), however, major activities under Social Uplift Plan will be implemented after construction phase.

Social Uplift Activities

Sr. No	Social Uplift Activities	Status
1.	Provision of water supply to Patrind & Sarati village	Water supply of Sarati village is completed Water supply to Patrind village completed
2.	School Support & Social Uplift	Construction of Government School located at Sarati village (Daedal) was partially made by EPCC Currently, EPCC is under preparation to give the education of computer for local children, medical services for local communities
3.	Construction of fence for community safety	To ensure community safety at both sites (Upper & Lower) proper fencing has been done around project area. Moreover two households were provided with fence to ensure their privacy and safety.
4.	Development Scheme for Medical Treatment,	HSE Clinic and ambulances available on sites may be used to facilitate local communities on both sites in case of any emergency. However, no request has yet been made from locals in this regard despite having information about the facilities
5.	Road pavement (Upper site)	Road access and pavement adjacent to Sarati village mosque.
6.	Improvement on existing road paving (Lower site)	Regarding improvement of existing road from Supreme Court to Thuri park, matter already had discussed with MDA for its implementation, but its plan has been suspending due to sewage pipe-line construction, therefore, it seems to be proceeded after completion of pipe-line construction.

v.Placement of portable toilets

Due to future increase in man power on project site EPCC has procured portable washrooms for site. The plan for managing the toilet waste from this portable toilet is under process and is submitted to OE for confirmation and design selection for soakage pits to be constructed.

vi. Waste management trainings

EPCC believes in reducing and segregating waste at source and has started conducting training sessions with its labor from time to time to encourage segregation and re-use culture on project area.

vii. Chemical waste management

Chemical waste generated on project site is from batching plant. The chemical Naphthaplast F 707L is used during batching to increase compressing strength of the cement. After using the chemical the empty containers are stored in storage area and then send back to the manufacturer for re-use of the container. Whereas the fiber from batching was previously collected in sedimentation tank near old batching plant, which is now removed after OE's HSE staffs instructions and disposed off in excavated material disposal area.

I-Resettlement Plan Implementation**i. Land Acquisition**

Land acquisition on both sides of the project was done under the land acquisition Act 1894. The Company has deposited the assessed cost into Government Treasuries for acquisition of the land that subsequently had been paid to PAPs.

Land Acquired

Sr. No	Land acquisition type	Area
1.	Permanent Land Acquisition	790.10 Kanal
2.	Temporary Land Acquisition	82.55 Kanal
3.	Total	872.60 Kanal (39.9 Ha)

PERMANENT LAND SUMMARY OF THE LAND TO BE ACQUIRED ON AJK AND KPK

Sr.	Project Component	Affected Land (Kanal)				
		State owned Land/ Riverbed	Farmland	Wasteland	House land	Total
1	Reservoir Impounding	87.3	282.05	231.9	9.1	610.35
2	Weir Structures	0	1.5	48.7	0	50.2
3	Powerhouse	13.6	30.1	32.85	5.25	81.8
4	Surge Tank	-	-	47.75	-	47.75
Total Permanent Land Acquisition (Kanal)		100.9	313.65	361.2	14.35	790.1
1	Colony of Expatriate construction staff, Switchyard, labour camp, access road, bridge, batching plant at Powerhouse Site	54.75	0	27.8	0	82.55
Total Temporary Land Acquisition (Kanal)		54.75	0	27.8	0	82.55

ii. Status of Land Acquisition, Progress on Compensation Payments and Assistance Delivery

The Company deposited the assessed cost (100%) into Govt. treasuries for subsequent payment to APs. However there is delay in the payment due to (i) unavailability of entitled land owners who are working or based in other cities or (ii) an existing shareholding dispute among the families.

Summary of Land Acquisition Progress and compensation payments

Village	Area (Kanal)	Award Amount	Disbursed	%age	No. of Persons	Persons received payment
1.AJ&K						
A.Land/Property						
Powerhouse (Alda Village AJ&K)	81.8	92,479,824	65,925,150	71.29%	196	321*
Headpond (Shoran Village AJ&K)	130.75	75,181,250	72,462,769	96.38%	611 ¹	196
Weir + Headpond (Patrind Village AJ&K)	341.1	204,037,798	161,535,837	79.17%		337
Forest land for Surge Tank (Alda village)	47.75					
B.Trees						
Alda		1,890,635	1,865,684	98.68%		19
Shoran		757,391	654,331	86.39%		55
Patrind		837,882	635,958	75.90%		32
Sub-Total	601.4	375,184,780	303,079,729	80.78%	807	960
2.KPK						
Land/Property/Trees						
Weir + Headpond (Sarati Village KPK)	188.7	128,557,081	114,326,182	88.93%	196	Detail Yet to receive
Sub-Total	188.7	128,557,081	114,326,182	88.93%	196	

*The number of persons who received the payment is higher than the number of affected persons is due to the repetition of the owners names in the payment vouchers.

Note: Few payments were made in third quarter which shows increase in the no. of persons from second quarter.

¹ Out of the 78 unpaid landowners, about 20 affected persons have not been paid due to family disputes while the rest are being paid upon appearance before the revenue department.

iii. Resettlement and Reconstruction

Updates on housing relocation and reconstruction

Construction of 8 houses has almost been completed by APs in adjacent villages and others have acquired land in urban areas to construct houses. As shown in the pictures below and observed during the site visits by SHPL, MM and ADB, newly constructed houses are far better than the acquired properties. APs who lost their houses had utilized compensation amount in reconstruction of houses others have made investment in alternative lands in urban areas for better facilities. However, it is reality that compensation amount has benefited PAPs together socially and economically.



Land owner Mr. Shafqat (Sarati village) of upper site camp area has been facilitated with access road and house fencing. Beside this, he has been employed as Admin Officer in Daewoo E&C at upper site office.



House acquired at Sarati village (KP) New House being constructed



House acquired at Alda (AJK) New House being constructed House acquired at



Diversion tunnel (KP)

3 New Houses constructed



House acquired at Alda (AJK)

New House being constructed



House acquired at Alda (AJK)

New House being constructed

iv. Resettlement Related Consultation and Disclosure Activities and Grievance Procedures

In order to ensure that grievances and complaints are addressed in a timely and satisfactory manner and that all possible avenues are available to project affected persons (PAPs) to resolve their grievances, a Grievance Redress Committee has been proposed with following composition:

1. District Revenue Officer Chairman
2. Union Council Nazim Principal Member
3. SHPL Representative As Member
4. Affected Community Representative As Member

Establishment of a grievance committee requires the consent from District Administrations (AJK & KPK). The proposed GRC has not been established because SHPL cannot ensure that the availability of District Revenue Officers as and when required. Nevertheless, while the GRC has not yet been formalized, issues related with acquisition and compensation and community complaints are being addressed with the involvement of same authorities. In practice the same forum is functional but officially has not yet been notified. SHPL will continue to pursue the establishment of the GRC, meanwhile, in cooperation with the relevant authorities, ensure that grievances are recorded and addressed following the timeframe in the RP

GRC is a forum for raising objections and holding discussions to resolve conflicts. Moreover, consultation with the local community and concerned public representatives and officials of the relevant line departments is an ongoing process. Relevant information to the stakeholders has been provided in a timely manner and in a form and language that are understandable and accessible to them. A grievance mechanism is available to allow an AP appealing any disagreeable decision, practice or activity arising from land or other assets compensation. The community/ APs complaints are being addressed very diligently and carefully at all levels, i.e. district and at project level.

Annexure

Annex C-1:

Warning Letters



SAFETY VIOLATOR WARNING LETTER

Name: <u>Muhammad Khurshed</u>		Signature: <u>[Signature]</u>	
Section: <u>Construction</u>		Job Title: <u>Laborer</u>	
ID No: <u>82203-3082300-1</u>		Company: <u>Daewoo E&C</u>	
Date: <u>28 July 2013</u>		Time: <u>8:50 AM</u>	
Warning Reason(s)			Tick here
1. Fall Protection Violation			
2. PPE Violation (Eye Goggle, Safety Shoes, Hard Hat).			✓
3. Crossing Barriers.			
4. Unsafe behavior.			✓
5. Using Faulty Tools/ Equipment.			
6. Failure to Supervise.			
7. Operating without Authorization.			
8. Refusal to Show I.D. Card			
9. Others			
Observation Detail: <u>He was working in the slope without body harness while body harness were provided to them.</u>			
Name	Signature	Position	Recommendations
Addil Yusaf	<u>[Signature]</u>	HSE Asst. Engr	
Mr. Aftab Alam	<u>[Signature]</u>	Manage HSE	
Distribution: HSE Manager,		Copy to Violator	

Pakistan Patrind Hydropowerproject.

Warning letters

Warning Letters

Sr. No	Issued to	Job Title	Date	Location/Company
1.	Atif Mughal	Dump Truck Helper	19/06/2013	Power House Site
2.	Naiz Ali	Truck Helper	11/06/2013	Weir Site
3.	Naseeb Khan	Truck Helper	11/06/2013	Weir Site
4.	M. Fareed	Mason	06/06/2013	Weir Site
5.	Wakeel Shah	Labor	01/06/2013	Power House Site
6.	Atta Ur Rehman	Loader Helper	03/06/2013	Weir Site
7.	Abdul Sattaar	TM Driver	01/06/2013	Power House Site
8.	Naiz Ali	Truck Helper	29/05/2013	Weir Site
9.	Zafar Iqbal Khan	Dumper Operator	23/05/2013	Weir Site
10.	Muhammad Rasool	Mixer Helper	22/05/2013	Weir Site
11.	Muhammad Khursheed	Labor	14/05/2013	Weir Site
12.	Shafqat Hussain	Excavator Operator	10/05/2013	Weir Site
13.	Azam Khan	Excavator Operator	28/04/2013	Weir Site
14.	Naseeb Khan	Dumper Helper	27/04/2013	Weir Site
15.	Muhammad Shakeel	Jumbo Operator	21/04/2013	Weir Site
16.	Saeed Ahmed	Charging Car Helper	21/04/2013	Weir Site
17.	Nazim Hussain	Cargo Crane Operator	10/04/2013	Weir Site
18.	Azair Abbasi	Excavator Operator	04/05/2013	Weir Site
19.	Abdul Sattar	TM Driver	01/06/2013	Power House Site
20.	Maroof Khan	Labor	21/05/2013	Power House Site
21.	Iqbal Ahmed Gillani	Dump Truck Driver	31/05/2013	Power House Site
22.	Sajjad Shah	Labor	28/06/2013	Power House Site

Sr. No	Issued to	Job Title	Date	Location/Company
23.	Peer Afzal	Wheel Loader Operator	18/05/2013	Power House Site
24.	Adnan Najeeb Ullah	Lathe Machine Helper	15/05/2013	Power House Site
25.	Mr. Shin	Tunnel Foreman	03/04/2013	Weir Site
26.	Muhammad Irshad	Chain Excavator Helper	7/7/2013	Kyung Dong
27.	Haq Nawaz	TM Operator	10/7/2013	Daewoo
28.	Muhammad Junaid	Labor	16/7/2013	Kyung Dong
29.	Imtiaz Khan	Labor	28/7/2013	Daewoo
30.	Zameer Hussain	Labor	28/7/2013	Daewoo
31.	Tanveer Ahmed Mughal	Labor	28/7/2013	Daewoo
32.	Muhammad Khursheed	Labor	28/7/2013	Daewoo
33.	Tahir Waheed	Workshop Supervisor	31/7/2013	Daewoo
34.	Raja Akhtar Nawaz	Wheel Loader Operator	20/8/2013	Kyung Dong
35.	Ahmed Ashwaq	Surveyor Assistant	22/8/2013	EJ Tech
36.	Faisal Abbasi	Excavator Helper	22/8/2013	Kyung Dong
37.	Zeeshan Qadeer	Engineer	23/8/2013	PES
38.	Zubair Ahmed	Site Inspector	23/8/2013	PES
39.	Tanveer Ahmed	Excavator Operator	23/8/2013	Kyung Dong
40.	Naeem Qureshi	S. Electrician	3/9/2013	Daewoo
41.	Sohail Ahmed	Assistant Camp Worker	3/9/2013	Daewoo
42.	Muhammad Usman	Supervisor	4/9/2013	AJK Enterprises
43.	Murad Khan	Nozzle Man	20/9/2013	ZK Associates
44.	Zaffarullah Khan	Loader Helper	20/9/2013	ZK Associates
45.	Muhammad Sadique	Wheel Loader Operator	20/9/2013	ZK Associates
46.	Muhammad Irfan	Nozzle Man	20/9/2013	ZK Associates
47.	Syed Fahad	Cable Trolley Operator	20/9/2013	ZK Associates
48.	Rustam	Dump Truck Helper	23/9/2013	Daewoo E&C
49.	Abdul Rehman	Batching Plant Operator	4/10/2013	Daewoo E&C
50.	Abdul Waheed	Painter	5/10/2013	Naveed Brothers

Sr. No	Issued to	Job Title	Date	Location/Company
51.	Shan Zada	Dump Truck Driver	9/10/2013	Daewoo E&C
52.	Rashid	Civil Surveyor	12/10/2013	Daewoo E&C
53.	M. Hanif	Welder	09/10/2013	Daewoo E&C
54.	Khuram	Batching Plant Helper	09/10/2013	Daewoo E&C
55.	Ibrar Hussain	Electrician	6/10/2013	Kyung Dong
56.	M. Saqlain	W/L Operator	11/10/2013	Kyung Dong
57.	M. Hanif	Excavator Operator	04/10/2013	Kyung Dong
58.	Waheedullah	Excavator Helper	17/11/2013	Kyung Dong
59.	M. Farooq	TM Operator	29/11/2013	Daewoo E&C
60.	Hameedullah	Excavator Operator	17/11/2013	Kyung Dong
61.	Ahsan Deen	Excavator Helper	13/11/2013	ZK Associates
62.	Naqash	Lab Assistant	22/11/2013	Daewoo E&C
63.	Bilal	Helper	22/11/2013	Daewoo E&C
64.	Muhammad Adnan Tariq	Lab Assistant	25/11/2013	Daewoo E&C
65.	Noman Rehman	Excavator Helper	26/12/2013	ZK-Associates
66.	Waseem Abbasi	Rental Excavator Operator	02/12/2013	Daewoo
67.	Mr. Jung Gyu Yong	Sand trap Site Supervisor	02/12/2013	Sungbo C&E
68.	Bilal Ahmed	Excavator Operator	06/12/2013	Construction
69.	Shoaib Fiaz	Generator Operator	17/12/2013	Sungbo
70.	Muhammad Nadeem	Generator Operator	17/12/2013	Sungbo

Annex D2:

Gas Concentration (H₂S, LEL, O₂)

GAS TEST RECORD

Location : Adit Tunnel And HRT, Power House Area

P1 : Inlet of the adit tunnel.

P2 : Inlet of HRT.

P3 : Middle of HRT.

P4: Near The Face Of Tunnel

DATE:	TIME	STATION	GAS TEST RESULT & ALLOWABLE LIMIT										DAILY VALIDATION		O.E: (Rep)
			LEL	H2S	CO2	NO2	NO	CO	O2	Area Gas Tester	SIGN	SIGN			
17-09-2013	07:40pm	P1	0	0	800	0-3	0-4	44	20.9	Mustafa					
	7:44	P2	0	0	1200	0-2	0-3	82	20.9						
	7:48	P3	0	0	800	0-2	0-3	35	20.9						
	7:52	P4	0	0	400	0-1	0-2	16	20.9						

ACTIVITY:

Maintenance work

11:50pm	P1	0	0	800	0-2	0-3	40	20.9		Mustafa					
11:54pm	P2	0	0	700	0-1	0-2	28	20.9							
11:56	P3	0	0	600	0-0	0-1	20	20.9							
12:00	P4	0	0	500	0-0	0-0	12	20.9							

ACTIVITY:

18-09-2013 Drilling work

03:10	P1	0	0	500	0-2	0-2	20	20.9		Mustafa					
03:15	P2	0	0	400	0-1	0-1	14	20.9							
03:20	P3	0	0	400	0-0	0-0	0	20.9							
03:24	P4	0	0	300	0-0	0-0	0	20.9							

ACTIVITY:

Drilling

GAS TEST RECORD

Location : Adit Tunnel And HRT, Power House Area

P1 : Inlet of the adit tunnel.

P2 : Inlet of HRT.

P3 : Middle of HRT.

DATE	STATION	TIME	GAS TEST RESULT ALLOWABLE LIMIT							DAILY VALIDATION		
			LEL	H2S	CO2	NO2	NO	CO	O2	Area Gas Tester	HSE Manager	O.E. (the)
			0-10%	0-10 PPM	0-5000PPM	0-5PPM	0-35PPM	0-100PPM	19.5%-21.5%	SIGN	SIGN	SIGN
2/9/13	P1	10:29	0	0	500	0.1	0	0	20.9			
	P2	10:37	0	0	200	0.1	0	0	20.9	Stamp	Signature	
	P3	10:45	0	0	200	0.1	0	0	20.9	Stamp	Signature	
2/9/13	P1	11:29	0	0	700	0.1	0	10	20.9			
	P2	11:33	0	0	400	0.2	7	9	20.9	Stamp	Signature	
	P3	11:39	0	0	200	0.1	0	0	20.9			
2/9/13	P1	15:53	0	0	300	0	1.0	0	20.9			
	P2	15:59	0	0	300	0	0.5	0	20.9	Stamp	Signature	Action
	P3	16:06	0	0	200	0	0	0	20.9			
3/9/13	P1	9:26	0	0	1400	0.5	11	63	20.9			
	P2	9:37	0	0	1300	0.1	10.5	41	20.9	Stamp	Signature	
	P3	9:41	0	0	1000	0.2	8.0	22	20.9			
3/9/13	P1	10:54	0	0	800	0.2	7.0	41	20.9	Stamp	Signature	Auto
	P2	11:00	0	0	600	0.3	7.5	58	20.9			
	P3	11:07	0	0	400	0.3	3.0	7	20.9			
3/9/13	P1	16:18	0	0	500	0.5	1.5	0	20.9			
	P2	16:26	0	0	400	0.1	0.5	0	20.9	Stamp	Signature	
	P3	16:33	0	0	300	0.1	0.1	0	20.9			
4/9/13	P1	10:01	0	0	300	0.1	0.5	0	20.9			
	P2	10:12	0	0	400	0.1	1.0	0	20.9	Stamp	Signature	
	P3	10:16	0	0	200	0.2	1.0	0	20.9			
4/9/13	P1	11:20	0	0	200	0.1	0.5	0	20.9			
	P2	11:26	0	0	600	0.1	1.0	0	20.9	Stamp	Signature	
	P3	11:35	0	0	700	0.1	1.0	0	20.9			
	P1											
	P2											
	P3											
	P1											
	P2											
	P3											

Annex-D2

Dust Test, CO₂, N₂O, NO₂


DUST TEST RECORD

Location : Adit Tunnel And HRT, Power House Area

P1 : Inlet of the adit tunnel.


P2 : Inj Middle of HRT.

P3 : Near the face of tunnel.

DATE: 11-09-13		GAS TEST RESULT & ALLOWABLE LIMIT				DAILY VALIDATION			
TIME	STATION	PM1	PM2.5	PM4	PM10	Area Gas Tester	HSE Manager	O.E. (Rep)	
						SIGN	SIGN	SIGN	ACTIVITY
12:05 PM	P1	21.2	482.2	1339.7	2189.2	HARDOON			Shooting
10:10 PM	P2	26.3	204.7	345.0	474.1	AKHIAE			
10:20 PM	P3	15.9	60.9	150.5	298.5	HARDOON			

Activity Inside The Tunnel:

Date 12-09-13

3:55 am	P1	22.1	155.4	726.4	2038.8	HARDOON			Blasting
4:00 am	P2	29.2	222	36.6	42.5	AKHIAE			
9:10 am	P3	10.2	24.6	33.8	44.1	HARDOON			

Activity Inside The Tunnel:

	P1								
	P2								
	P3								

Annex D3: Fatality Report

Fatality Incident Investigation Report Summary

(Struck by Moving Shaft)

Incident	Batching Plant Site (Weir Site)
Project Name	Pakistan Patrind Hydro Power Project
Country	Pakistan
Client	Star Hydro Power LTD
Consultant	Pakistan Engineering Services
Contractor	Daewoo Engineering & Construction

Incident Details

- Date and time of the incident: 9th February, 2013 at 09:40 hour
- Location of the incident: Batching Plant Mixer Part, Weir Site
- Nature of the incident: Employee fell inside concrete mixer while the shaft was moving
- Weather: Sunny day, no rain
- Classification of incident: Fatality Case

Details of Deceased

- Name: Mr. Rizwan Tariq
- Body Size: Height - 168 cm & Weight - 55kg
- Nationality: Pakistani
- Trade: Batching Plant Helper, Employed on 23 Sept. 2012
- Date of HSE Induction: 23rd Sept 2012

Incident Summary

At 9:00 AM, a Batching Plant Helper (deceased) and a Welder were tasked to clean the batching plant equipment including the 1.4 m long, 1.5 m wide and 1.4 m high concrete mixer after a series of concrete mixing. They started cleaning the hopper from the ground and within a few minutes the Helper proceeded to the concrete mixer on the second floor. After finishing cleaning the one side shaft wing of the mixer, the Helper came out from the mixer to signal to the Batching Plant Operator to change the arm side of the shaft for further cleaning. The Helper then signaled the Operator to turn on the shaft of the mixer from the adjacent control room. The operator pressed “Start button” and pushed stop button. At same moment Mr. Rizwan was standing at the edge of opening of mixture. Though the stop button had already been pressed by operator but the shaft blades were completely in rotation, Mr. Rizwan slipped from the edge and fell into the mixture and trapped in the wings of the shaft.

At approximately 9:40 AM, while the shaft was moving, the helper slipped and fell into its 1.4 m long and 0.4 m wide opening of mixer. The Operator upon noticing that the helper has fallen inside the mixer shouted for help and rushed to the mixer and observed that he was trapped in the shaft, with little movement. Other workers who rushed to the scene tried to release and rescue the victim from the shaft but to no success for the shaft could not be moved manually. The rescue operation continued for about 5 minutes until they rescuers noticed that the Helper was unresponsive and had died.

Action Taken After the Accident

- Responding workers to the scene strived to release and rescue the Helper but the shaft could not be moved manually. The rescue operation lasted for about five minutes.
- Mr. Mushtaq Site Engineer contacted the nearest medical facility (Kunhar Christen Hospital) at 09:43 AM.
- Police persons are already deputed on site for security of Expatriate Korean staff, however after incident when the death was confirmed, site police in-charge Mr. Babar called local police station for on spot investigation.
- The dead body was transported for autopsy to confirm the cause of death under the custody of Policeman Mr. Zakir.
- Emergency services including Hospital, Rescue and police were contacted.
- Project Manager, staff and all workers were informed with the incident
- All construction activities were stopped till next direction.

- With the consent of the family of deceased, the body was transferred by police to King Abdullah Teaching Hospital Mansehra KPK for Post Mortem Report (Attached as Appendix-7)

Investigation Findings

- Mr. Rizwan Tariq joined Daewoo E&C as Batching Plant Helper on September 23, 2012. On his induction he was oriented with the HSE procedures and policies. He was provided with PPEs and all other relevant instruction necessary for personal safety during work.
- Complete Operational Manual for Batching Plant Model HZS60 remains always available on site for the workers for the secure and smooth functioning.
- A method statement for Concrete Batch Plant Operations including HSE instructions had been disseminated amongst workers at Batching Plant Site.
- Tool box meeting was performed on February 9, 2013 which discussed the Installation of Covers to Protect Slope.
- Method Statement (MS): Concrete Batch Plant is available however; maintenance and cleaning procedure of the mixer is not described in full detail.
- A Lock-Out/ Tag-Out (LOTO) procedures should have been established and implemented to prevent the operation of equipment while being serviced or in maintenance on site thus eliminating the exposure of the Helper from the rotating mechanical hazard and electrical hazard during the cleaning activity. This procedure should be devised and to be implemented for corrective action.
- Confined Space Entry Program has been adopted in accordance with the procedure established by Daewoo E&C's Confined Space Entry Procedure (DTMS-HSE-PS006). However, few lapses in the implementation of Confined Space Entry Procedure were evident during the accident.
- Insufficient engineering controls from the manufacturer to mitigate or prevent exposure of workers from the moving shaft of the concrete mixer during operation and maintenance activity i.e. No provision of any means of barrier or screen to prevent personnel from entering the mixture while in standby mode, and/ or no provision of safety limit switch / interlocking mechanisms when the cover or door of the mixer will be opened.
- No vibration of the concrete mixer while in the operation mode has been observed during the incident investigation.
- Lack of supervision on part of Batching Plant staff that leads to unsafe act of standing on the opening of the concrete mixer while the shaft was still moving.

Causal Factors and Root Cause Analysis

- 1) Operator Pushed the Start Button in the Control Room
 - Management System - Standards, Policies, or Admin Controls (SPAC) Needs Improvement– No SPAC
 - Management System – SPAC Not Used – Enforcement Needs Improvement
 - Procedures – Not Used / Not Followed
- 2) The Helper, Standing on the Edge of the Mixer Opening Slipped and Fell Inside the Mixer
 - Work Direction - Preparation – Work Package / Permit Needs Improvement
 - Work Direction - Supervision during Work – No Supervision
 - Work Direction – Preparation - Fall Protection NI

Patrind Hydro Power Project



CAMP OFFICE THURI LOWER CHATTER
Tel: (92) 058-2243-9498, Fax: (92) 058-2243-2657
MUZAFFARABAD AJ&K
Date: Feb 28, 2013

DEATH COMPENSATION CERTIFICATE OF MUHAMMAD RIZWAN TARIQ S/O MR. MULIK AMAN TARIQ

Muhammad Rizwan Tariq S/O Mr. Mulik Aman Tariq CNIC: 82201-2349601-7 had worked for Daewoo E&C. Unfortunately, he died during the work at Site. According to the Daewoo E&C Policy/ Procedure and in compliance with Workmen's Compensation Act 1923 (enforced in AJK & KPK) and the agreement between Daewoo E&C and the family of Muhammad Rizwan Tariq S/O Mr. Mulik Aman Tariq, We, Daewoo E&C, hereby pay of the death compensation with an amount of say One million Pak Rupees (10,00,000/-) to Family of Muhammad Rizwan Tariq S/O Mr. Mulik Aman Tariq vide Cheque No. 11822930 (ABL Chatter Branch MZO) Dated: 28/02/2013.

Now, as agreed by the deceased's family, there is no further liability, dispute/ Litigation on death compensation of Muhammad Rizwan Tariq S/O Mr. Mulik Aman Tariq CNIC: 82201-2349601-7 between Daewoo E&C and the family of Muhammad Rizwan Tariq S/O Mr. Mulik Aman Tariq.

This is for the record.



Name & Signature
(On behalf of Daewoo E&C)

This is to acknowledge that we, the legal heirs of deceased, have received the Cheque No. 11822930 (ABL Chatter Branch MZO) Dated: 28/02/2013 from Daewoo E&C amounting One million Pak Rs. (10,00,000/-) for the death compensation of Muhammad Rizwan Tariq S/O Mr. Malik Aman Tariq CNIC: 82201-2349601-7. There is no further liability, dispute/ Litigation on death compensation of Muhammad Rizwan Tariq S/O Mr. Mulik Aman Tariq CNIC: 82201-2351830-5 between Daewoo E&C and the family of Muhammad Rizwan Tariq S/O Mr. Mulik Aman Tariq.

Receivers:

Widow
Shazia Kalsoom D/O Muhammad Feroz Khan
CNIC: 82201-2285489-8
Father
Name: Mulik Aman Tariq S/O Muhammad Yaqoob Khan
CNIC: 82201-2351830-5

Signature: Shazia Kalsoom

Signature: Tariq

Witnessed by:

Muhammad Adnan Tariq
S/O Mulik Aman Tariq
CNIC: 82501-0570484-7

Raja Muhammad Rafique Khan
S/O Raja Muhammad Feroz Khan
CNIC: 82201-2351222-5

M. Altaf Alam
S/O Sahibzada M. Alam
CNIC: 82203-9325677-5
HSE Manager

Brian Latif
D/O Abdul Latif Awan
CNIC: 82203-2944006-4
HSE Assistant

Annex D4: Health & Safety Incidents

Incident	Frequency	Description	Media or Community Reaction
First aid case	4	On February 16, 2013 at 10:30am Mr. Haq Nawaz (Subcontractor's worker) was assigned to drive wheels borrow loaded with concrete to make stock yard slope, while passing near the steel (fence) sheets got his hand injured with the screw. Mr. Hasham (another worker) was also with him at the time of this incident so he was immediately provided with a vehicle and sent to the site Medical room for first aid. He was discharged after initial treatment. All the workers at site were oriented with hazard analysis. It was recommended to the labor to work safely, and a tool box meeting was conducted with the labor.	None
		On March 11, 2013 at 09:45AM, the concrete work was being carried out on inlet portal, where an excavator was in operation with the help of signaler. M. Asif (Transit Mixer Helper) indicated Mr. Adil Hussain Shah (Excavator Operator) to turn the shoot of transit mixer to left side with the bucket of excavator. When the excavator operator swung the bucket towards shoot, the shoot struck on the chest of Mr. Asif. At that time, he was in severe pain for he was compressed between shoot and mixer body. He was sent to Kunhar Hospital Garhi habibullah for First Aid. After detailed medical examination he was discharged from hospital and sent back to job after an orientation on safety measures.	None
		On April18, 2013, Mr. Saleem Sub Con. Sungbo's worker was engaged in preparing concrete bags. He moved to take shawl while crossing barricading in an unsafe manner; he was struck with the rope and fell down. He got an injury on his left leg and was sent to medical room for initial treatment and subsequently was sent to Kunhar Christian Hospital for further checkup. No fracture or major injury was found in X-Ray report	None
		On Saturday 21 st Dec. morning Mr. Fareed Qureshi a sub-contractor Kyung Dong's HRT worker during the installation of H- Beam went beneath the beam to give support for balancing and fixing. Suddenly, the lose rock material from ceiling fell down on his left shoulder and got a compression on elbow joint. Although, no apparent injury was observed but as precautionary measures Mr. Fareed was sent to the hospital for further checkup where he was discharged after examination as no internal injury or fracture was found.	None

Incident	Frequency	Description	Media or Community Reaction
Environmental incident/ Property damage	2	Due to river flood at weir site on 26 th May 2013, Generators (200KW+ 100KW (02) +50KW+5KW, 04 water pumps) and other construction materials were swept away. Access roads to bridge and adit tunnel were washed away and also resulted a considerable quantity of soil erosion. Detailed incident /property damage report have already separately been submitted.	Incident was reported in local newspaper "Shamal" on 27 th May 2013
		On Saturday, 6th July at 01:30 sub-contractor Sungbo's prefabricated office cabins due to electric fire was fully destroyed. About six fire extinguishers were used including an excavator to dump sand to extinguish the fire but useless. As immediate actions generator was switched off and cables were disconnected and material laying out side was shifted to the safe place. No injury but a considerable property loss occurred. It was recommended by OE that fire alarms should be fitted in all cabins, workshops, storage rooms and other closed areas. These should be frequently tested and maintained in working condition.	None
Near miss	14	On February 25, 2013 line concrete work was being carried out inside the diversion tunnel. It was 01:40PM and at that instant, all workers were working at upper portion of lining form and some of them were hammering the lining form to move concrete at bottom level. Suddenly a crack sound was heard and 47 cubic meter concrete fell down to the bottom of tunnel. Fortunately, nobody was passing under falling concrete. It was suggested to the labor not to move under lining form during concrete and Kyung Dong was furthermore directed to check the lining form parts before starting concrete to avoid any incident.	None
		On March 07, 2013 Mr. Kim along with two helpers named M. Shakeel and M. Waheed was doing the job of drilling on Adit Tunnel face. At 02:20PM, when the drilling work was being performed with a jumbo machine, suddenly the rock material slide towards the area. At the moment, two helpers were standing beside the Jumbo Machine. All the operators and helpers that were working in the area remained safe, but right boom of machine broke by the compression of rock material and left boom liver became oblique.	None
		On March 25, 2013 at 09:50 a.m. Mr. Akramullah (Loader Operator) was doing his job, due to his negligence, the loader slipped back from aggregate yard to batching plant reeling. At	None

Incident	Frequency	Description	Media or Community Reaction
		that time batching plant operator was not on job. Due to incident only reeling got damaged. A warning letter was issued to Loader Helper and an urgent tool box meeting was arranged regarding heavy machinery operating hazards	
		On 7 th April 2013, at adit Tunnel portal. Kyung Dong's welder Abdul Ghaffar was cutting steel pipe when gas pipe got fire due to leakage. Fire extinguisher was used to overcome fire otherwise an incident could have been occurred if fire reached to gas cylinder. However, fire was controlled and welder was given warning for using gas pipe which was not recommended during color coding.	None
		Based on the gathered information at the scene of the incident, on May 05, 2013. Due to heavy blow of wind at 15:05, roof of prefabricated site office of Daewoo E&C was partially detached. All staff inside and outside the office luckily remained safe. It was suggested to construction team that all the roofs of prefabricated should be inspected and fixing of detached portion should be carried out appropriately while using additional nuts & bolts to strengthen the roof.	None
		On May 23, 2013, backfilling work at coffer dam was in progress, dumper TK-145 was going to unload the loose material. Due to loose soil, dumper slipped from the edge of right side of the cofferdam where few seconds ago labor moved away hence survived without any injury and no damage resulted to vehicle. Dumper was moved from site and driver was instructed not to move on unstable area. Also mechanical /fitness test of vehicle was recommended.	None
		On 13 th June 2013 at 16:30, a Corrugated Galvanized Iron (CGI) sheet fixed with the fence along power house site was dislocated due to heavy wind. Few seconds earlier to that, a labor moved on same section of the road where the separated sheet felled down. Luckily he remained safe and escaped from a possible accident.	None
		Based on the gathered information at the scene of the incident, there was a lifting operation at the work shop area. The material that was to be lifted was the steel structure. The workers decided to use a sling belt instead of a steel rope in lifting the structure. In addition, they didn't use the lifting device that would hold the load appropriately. When they started the lift, the sling belt snapped. Fortunately, the load was not lifted high enough to be broken, to injure someone, or to	None

Incident	Frequency	Description	Media or Community Reaction
		destroy something. Also, the person, Mr. Shahid, who was under the load, was not injured.	
		On 25 th July 2013, at early morning due to heavy rain, water from surge shaft slopes swept loose spoil down towards power house site access road while damaging and over topping CGI Sheets protector placed near bridge. All workers and staff who frequently move across the road remained safe and escaped from a possible accident. HSE staff was placed on site during road clearance and removal of spoil from access roads.	None
		On August 15, 2013 Kyung dong staff was working in the Adit Tunnel. Mucking activity was on going and limited staff was working that day. Due to the heavy rainfall access road gets blocked due to the land sliding. Workers were working near the adit tunnel .One Dumper Truck was driving on the access road & slided material struck against the dumper. Dumper Truck driver Reversed his truck and no damage was observed. Daewoo HSE Assistant Engineer Mr. Adil took an immediate action and gathered the workers at the muster point. No injury was observed as a result of the land sliding. Access road was blocked which was further cleared by the construction department.	None
		On 2nd September, 2013 Mr. Abdul Rauf Daewoo E & C Dumper truck driver was dropping the road construction material on the access road near the Daewoo camp site office. When the driver lift the Bucket to drop the Material on a road, the bucket of the dumper truck touched the live overhead electric wires. As a result the live overhead wire broke down and part of live wire hanged along the electrical pole and the dead end of wire dropped on the road. As the dead end dropped on the road and there is no electricity in that portion of wire because the electrical circuit was broken no electric shock was observed. HSE Engineer Haroon Akhtar took an immediate action and barricaded the area & Relevant Government department WAPDA (Water And Power Development Authority) was informed	None
		On 7 th October 2013, Mr. Akhtar Ali delivery truck driver bring parts of new batching plant from Islamabad to Daewoo E&C lower Site. As the height of the batching plant loaded on the delivery truck was almost 15 feet. As the driver did not follow exact route even there is a big sign board for the HTV & LTV route but driver keeps following the light vehicle route	None

Incident	Frequency	Description	Media or Community Reaction
		as he was passing in front of the Daewoo Camp Site Office, it touches the live overhead wires and wire broken into two pieces. Luckily no major loss or injury occurred, however, corrective actions and education session were undertaken immediately.	
		On November 1 st , 2013 at surge shaft access road a dump truck P-9717slipped while moving down to Access Bridge. Luckily no damage or injury occurred.	None
		On 6 th December 2013 at weir site the Sungbo's Excavator-Operator Mr. Bilal started excavation activity at weir sites upstream the access bridge. He moved excavator in stationary water pond without assessment of its depth and uneven level of ground for placement of excavator in an unsafe manner. As a result excavator lost equilibrium and felled into water pond. Luckily, said operator remained safe and came out of the machine, however, boom, bucket and arm of hydraulic excavator were partially damaged. Excavator operator was immediately sent to HSE site clinic for check up. As only minor injury was observed in left hand finger and after anti septic dressing (ASD) by site male nurse, IP was discharged.	None
Damage Only Incident	1	On Nov19, 2013, Mr. Bashir Ahmed was driving concrete machine after the completion of job in HRT. As he brought the S/C machine out of the Adit tunnel down the access road, due to the mechanical failure S/C machine broke down and Mr. Bashir controlled the machine and pulled it on the side of access road. HSE team investigated the incident and noted that front wheel axis broken down. Detailed report has already been submitted to OE.	
Medical Treatment Case / Routine Checkup (these cases are seasonal diseases like nausea, flue and cough, headache etc)	1746	60 cases were reported during the first quarter	None
		437 staff and workers visited medical facilities during second quarter	
		686 staff and workers visited medical facilities during third quarter	
		563 staff and workers visited medical facilities during the quarter	

Annex D5:

Comments & Recommendations by OE

Sr.	Issue raised by PES	Action Taken by EPCC
PENDING REPORTS AND WRITTEN DOCUMENTATION		
1	The Health and Safety Management Plan must be submitted. It was due 30 days after Notice to Proceed.	HSE Plan has already been revised and submitted to O.E.
2	The Emergency Response Plan must be submitted, along with details of early warning of flood system.	Emergency Response Plan prepared and submitted to OE.
3	The final Fatal Incident Investigation Report must be submitted, incorporating amendments recommended during the EPCC internal HSE audit in March 2013.	Initial Fatality Investigation Report was submitted to Client and final report is attached with Quarterly Report which was submitted on 22, 2013 to OE and SPC. Now requisite document has separately been submitted.
4	All HSE sections of Method Statements should be tailored to the specific work activities to be carried out. Including only generic checklists and site safety is inadequate.	HSE Sections of Method statements have been revised as per OE's directions.
5	All machine operation manuals from the manufacturers should be made available to the OE, including the cleaning and maintenance procedures.	Batching plant manual provided by manufacturer has already been submitted to OE.
6	All EPCC supplied manuals, method statements, induction trainings and safety trainings need to be made available, including the trainings provided to specific work designations.	HSE program derived from company manual has been submitted. All the training record is maintained.
7	All literature provided to Personnel should be translated into Urdu. EPCC must ensure that all Personnel have the necessary level of reading comprehension required to understand the materials provided. Where reading comprehension is insufficient, verbal instruction and practical demonstration is mandatory	For workers, labor rights, HSE policies, emergency procedures, induction trainings and awareness raising materials have already been provided in Urdu and English. For Korean staff/workers, interpreters have been hired.
8	All signboards, flyers, posters etc should be in Urdu, Korean and English, in that priority.	Mode of communication through sign boards/posters as per International Standards is pictorial, however, as needed English and Urdu translation has also been made.
LABOUR		
1	All Personnel employed on the Project should be registered and have provided copies of their Identity Cards. Frequent spot-checks on individuals present on the Sites should be carried out.	The record is being maintained. Workers IDs are also being checked randomly.

Sr.	Issue raised by PES	Action Taken by EPCC
2	No underage workers should be employed. EPCC is fully aware of children as young as 16 working full shifts on a daily basis in hazardous conditions.	No underage is allowed to work on site. In exceptional case, subcontractor has been warned strictly. According to Employment Child Act 1991, 16 years old is not considered a child.
3	All labor strike resolutions should be notified to the OE with full details of the original demands and the finalized agreements as accepted by all involved parties to check the suitability with the conditions of contract and adverse effect on pace of progress.	In case of labor strike, all contractual requirements have been considered accordingly.

COMMUNITY

1	EPCC should disclose all previous discussions and negotiations with the communities affected by the Project.	The detail of Community complaints and consultations have been elaborated in E&SM Quarterly Report
2	All efforts should be made to inform community members of upcoming Project work likely to affect local settlements, and advice and guidance given for their safety. Children should also be taught Site safety, and discouraged from using Project areas as recreational grounds. Where school children routinely use the Access Road, an awareness campaign should be held on school grounds targeting all students.	Pre blasting survey is part of community safety practices. Engagement of children from community for training purpose is beyond the scope of EPCC. It may result in further conflicts.
3	Public Access Roads should be managed in a way that minimizes the close proximity of Site traffic and pedestrians. It should be encouraged that livestock should not be left unattended or allowed to graze on the Project areas.	District Administration has repeatedly been requested to assist in managing these issues.
4	The Social Uplift Plan should be implemented in a timely way, starting with the maintenance of the Lower Site Access Road through Lower Chatter.	Damaged portion of the access road have been rehabilitated. But construction activity were delayed due to litigation on the part of local community

SITE FACILITIES

1	Washroom facilities should be available in all areas of the Project Sites and Yards. They should be maintained to a high standard of hygiene and kept permanently open.	In surge shaft area, wash rooms facilities have been completed and it has been ensured that the facilities are available to site staff/workers for 24 hours.
2	Once washrooms are available, open defecation must be discontinued.	The site staff and workers have been instructed to use wash room and avoid open defecation.
3	Washing facilities should be available in different areas of the Sites where possible, to encourage	Sufficient water for this purpose is available on all sites

Sr.	Issue raised by PES	Action Taken by EPCC
	hand washing and in case of contact with chemicals or other toxins or allergens.	
4	EPCC should disclose to OE plans for water treatment and septic tank arrangements.	EMP shall be followed in this regard
5	Drinking water should be made readily available to all Personnel.	Drinking water is available to all workers and staff
6	If possible, designated eating places, rest places, prayer rooms and changing rooms should be allocated.	Facilities are partially available. The remaining has been planned.
7	Smoking areas must be designated and all remaining areas are smoke-free zones. Smoking in the HRT and Adit Tunnels must not be allowed. Stubs must be disposed of properly in fireproof bins.	As per HSE policy, Smoking at construction sites is not allowed. Smoking areas have been designated at all camp site and accommodations and shall also be allocated on all working site
SITE SAFETY AND MEDICAL FACILITIES		
1	All slopes have to be stabilized. Work being undertaken next to high risk areas should only be carried out once adequate slope stability has been ascertained.	Relevant to construction department. However, work shall not be allowed in high risk areas.
2	Fallen or felled trees must be removed from site immediately.	Removal of fallen trees shall be made as per given directions.
3	Fire extinguishers should be located, mounted and signed appropriately and checked regularly to ensure they are in working order. Where provided, sand buckets should be kept filled and free of rubbish.	Inspection is being made by HSE department.
4	First Aid kits should be available across all areas of site, should be accessible at all times, and should be well sign posted. Eye wash stations must be provided.	First Aid kits have been provided at all construction sites
5	Medical Facilities should include ambulance, driver and qualified doctor or nurse on each site. Cover should include both day and night shifts. Medical staff should not be expected to work overtime.	Medical facilities are available on both sites.
6	Medical Rooms must be equipped with sink and running water. Equipment must be kept clean and orderly. Expired or leaking medicines must be disposed of. All medical waste must be labeled and disposed of separately.	First Aid trained personnel are available in case of any Emergency during night shifts and complete arrangements have been made available during day time.

Sr.	Issue raised by PES	Action Taken by EPCC
7	The ambulance on the Lower Site should be located on the Site itself for rapid response, rather than at the EPCC offices.	Ambulance is placed at Access Bridge near power house as and when needed.
8	Ambulance and doctor mobile numbers must be available in all areas of the Project Sites.	Already available on site
9	Landlines must be installed. The intercoms currently in use is not in working order and do not allow for communication out of site. There must be working phones available within the HRT – near the rock face and at appropriate intermediate locations. The Explosive Stores must also have a landline available both inside and outside the fenced compound.	Installation of landline is under process and intercoms are being replaced.

SITE SECURITY

1	Site security is poor. No security staff is present on the Powerhouse Site during the nightshift, other than at the Explosive Store.	Wherever security is required has been placed. Also considerable number of police staff has been deputed on site.
2	All security staff should be provided with PPE's (shoes and helmet) if they are expected to patrol Site areas.	Security services have been hired from private company who is responsible to provide them uniform and equipment.
3	All vehicles entering and leaving Site should be noted. Entrance barriers should be installed and used.	Please refer to No. 3 of Community section.
4	Security Personnel should be trained to deal with community members, and be able to request individuals to leave the Site areas if they are unauthorized or contravening site regulations.	Training session will also be held in this regard
5	Fencing of the Site areas is inadequate. Livestock can easily enter, and community members routinely use restricted Access Roads as short cuts.	There is resistance from local community regarding fencing; therefore Local administration may be requested to solve this issue.
6	The Powerhouse Workshops and Batching Yard needs to be fully fenced for security and for protection of local labor collecting river sediments in the vicinity.	Same as 5
7	All existing fences must be maintained. Damaged Corrugated Iron sheets need to be replaced. Loose and hanging sheets are a hazard in windy conditions.	Construction department has been asked to repair damaged fencing.

Sr.	Issue raised by PES	Action Taken by EPCC
PERSONAL PROTECTIVE EQUIPMENT (PPE's)		
1	All Personnel on Site should be provided all necessary PPE's. Ear Muffs and Safety Glasses are essential for certain work, and must be made available by EPCC. All Personnel working within confined areas such as the HRT must wear protective ear muffs if noise-generating activities are being carried out.	Ear plugs have already been provided.
2	Masks (chemical and dust respirators) are essential in the HRT at all times.	Already given.
3	Dust masks must be provided to Personnel working with or in the vicinity of the Drilling Machines.	Have been provided as per demand by concerned site staff.
4	All Drivers and machine helpers must wear PPE's when on Project Site. Even if not expected to leave vehicle, PPE's are essential in case of emergency when the vehicle has to be abandoned.	All drivers/operators and helpers have been given induction training and PPEs to use as and when required.
5	Spot checks should be carried out to ensure compliance with safety regulations. Where PPE's are provided but are not being worn, disciplinary measures should be used.	Verbal and written warnings are being issued.
6	Issued PPE's should be regularly checked for wear, and should be replaced when necessary.	Checking is routine activity and for replacement subcontractors have been instructed.
7	Accountability for issued PPE's should be enforced. Daily Wage Laborers must return their equipment when their employment on Site is discontinued.	Already, same procedure is adopted.
ACCESS ROADS AND ROUTES		
1	Dust levels are high on Access Roads in hot or windy weather. Vehicle speeds should be restricted and water sprinkling should be carried out hourly.	Water sprinkler is hired for sprinkling twice a day and in dry weather more times.
2	All primary Access Roads through the Site must be accessible for machinery and vehicles, including emergency vehicles. Turning, passing and parking areas should be available and signposted. Blind corners should have convex mirrors for oncoming vehicles.	Roads are accessible through all sites. Recommended signboards shall be installed on sites.
3	Pack animals such as horses, mules or donkeys must not be used for the transporting of materials in areas where the Access Road has been	There are no clear directions in EMP/ADB guidelines, not to use pack animals as alternate means of transportation. As consulted with social

Sr.	Issue raised by PES	Action Taken by EPCC
	inadequately maintained. Similarly, Subcontractor staff should not be required to carry heavy equipment or material up slopes or along inadequate paths.	and environmental experts, the interim use of pack animals may have economic benefits for marginalized professions. Keeping in view, the steepness of slope, pack animals were used to avoid any manual handling of heavy equipment by workers of subcontractor. However it has been ensured that pack animals have not been over loaded / abused.
4	All Access Roads must be suitably signposted, tagged and with appropriate lighting during the night.	A lay out plan for traffic sign boards and lighting is being developed.
5	Drainage on the Access Roads is essential to prevent erosion and seepage.	At surge tank access road drain is almost completed. On other roads as per requirement these may be developed.
6	All Access paths and other routes must have steps, rails or fixed ladders where necessary.	These facilities have been developed on sites where required
VEHICLES AND MACHINERY		
1	All vehicles must be regularly maintained and checked for emissions. Broken windows, side-mirrors etc should be replaced immediately.	Periodic inspection is being carried out.
2	All vehicle and machine drivers must hold relevant and valid licenses.	Drivers and operators are not allowed without valid license.
3	All vehicles and machinery must be parked and maintained on a concrete base. Oil changes and engine grease are a frequent source of localized contamination.	As new machines and equipments have reached on site before making them operational an appropriate workshop has been developed.
OTHER ENVIRONMENTAL CONCERNS		
1	Ad hoc dumping of excavated materials in undesignated places must be discontinued.	No more Ad hoc dumping of excavated material is allowed on unapproved sites
2	Waste collection is disorganized and without segregation of types of waste.	Major quantity of waste comprises of mineral water bottles that is being handed over to scavenger's rest of the waste is disposed-off into trenches.
3	Waste disposal is mainly through dumping or burning. Air pollution is severe and a lot of waste ends up (both intentionally and unintentionally) in the river.	No dumping into river is allowed. Waste is being managed as mentioned above.
4	Aggregate stores need to be designed and maintained to prevent cross-contamination and	Materials stored on separate yards

Sr.	Issue raised by PES	Action Taken by EPCC
	spread.	
5	Waste concrete (i.e. from slump tests) should be disposed of in designated areas.	For Concrete waste, excavated material disposal sites have been allocated.
6	Vehicle and Batching Plant wash water should be drained into sedimentation tanks. Surfaces currently contaminated with Polypropylene fibers should be cleaned.	With construction team design for sedimentation tanks has been discussed and soon will be implemented
7	All fuels and chemicals must be stored on a concrete base allowing easy cleaning of leaks and spills. Porous grounds magnify the risks of soil and water contamination.	Concrete pads are being developed for fuel storage area. Polythene sheets are also used for the purpose.
8	All surface run-off water originating from the Project must be frequently checked for contamination from fuels, chemicals or cement and Polypropylene Fibers.	Different labs have been contacted for environmental monitoring including water quality.
AIR QUALITY AND BLASTING		
1	Air quality must be checked in the HRT during all phases of work and in numerous locations. Ongoing activities, ventilator and location within the tunnel must be documented and taken into account.	HRT gases concentration is regularly being monitored jointly by OE and EPCC's HSE staff.
2	The Air quality testing devices must be available at all times in the immediate vicinity of the HRT and Adit Tunnels.	Gases concentration is being checked during peak working hours. Unattended device may not be placed at site.
3	Blasting should be carried out in accordance with the Method Statement submitted. Warning sirens must be deployed before the blast, regardless of how few people are present on Site. At least 15 to 20 minutes must be waited until first entry into tunnel after blast. Complete detonation must be ascertained before entry of mucking vehicles. Blasting must not occur during the quiet hours – it is observed to regularly occur between 11pm and 2am.	Blasting procedures have been provided to concerned staff. With few exceptions mostly blasting is not allowed during night time.
4	Vibration and sound readings of blasting must be submitted to the OE. Blasting schedule should be provided to OE 12 hours before expected blasting time, and confirmed one hour before blasting time.	All the relevant data is being maintained and will be provided to OE.

Annex D6: Audit Report

HSE AUDIT REPORT

[☒] Internal [☐] External

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ACL No. OC-ACL(O)-13-001

Report No. OC-AR(O)-13-001

Organization : Pakistan Patrind Hydropower Project (PC410)

Audit Date : 2013.03.16 ~ 03.20, 5 days

1. PROJECT SUMMARY

- 1) Project Name : Pakistan Patrind Hydropower Project
- 2) Construction Period : 2012.12.28 ~ 2016.12.27 (48 months)
- 3) Contract Amount: USD 289,775,000 (DAEWOO 100 %)
- 4) Client :Star Hydropower Ltd. (특수목적법인)
- 5) Investor :
 - Lenders(Asian Development Bank + Islamic Development Bank + International Finance Corporation) – 75%
 - KDS(K-Water + Daewoo E&C) – 25%
- 6) Current Progress : 19 %(as of 2013.03)

2. SITE VIEW



Project View



Site View(Upper Site)

3. AUDIT TEAM

- 1) Leader : Jung, Hyun Jae
- 2) Member : Sung, Young Jog (IRCA Reg. # 01200823)

4. AUDIT SCOPE

- 1) HSE Management System based on OHSAS 18001:2007&ISO 14001:2004
- 2) Project HSE Requirements &Program

5. AUDIT REVIEW

The audit was conducted on 16~20 March, 2013 and covers the entire hydropower project facility. The criteria used in the audit are based on OHSAS 18001, ISO 14001, Daewoo E&C and client's HSE requirement.

The project site has been completing actions to develop and continuously implement health, safety and environmental management system documentation and establish a structure that will support its implementation. As mentioned below;

- Environmental & social monitoring report submission
- Commitment of top management (project manager) to establish a safety culture through participation in the toolbox meeting.

However, there are still lapses in the implementation of HSE Management system that needs to be addressed. Aspects in the project's management system and compliance program that require improvement are the following;

- Establishment and implementation of HSE management procedure
- Establishment of risk assessment and permit to work system
- Implementation and documentation of inspection program
- Provision of necessary HSE and specialized trainings (work at height, lifting and rigging work, scaffolding, and electrical safety and energizing isolation etc.)
- Implementation and verification of the effectiveness of corrective actions regarding the fatal accident happened last 9 February, 2013

The location of the project is critical and imparts risk due to its geographically inclined construction site. Risk of landslide due to soft soil and rock is the imminent danger to workers if the foundation was not properly established and maintained.

Possible contributory factors to the weakening and collapsing of the inclined ground foundation are the course of running water from rain, unexpected earthquake, frequent and miscalculation of movement of heavy equipment machineries and human error due to poor planning of the activities.

In addition, risk of vehicle accident in roads is likely to occur due to narrow roads, no existence of barricade and other traffic safety arrangement. It is imperative for the project to improve its road safety management system and continuous interest.

6. AUDIT FINDINGS

1) [4.1 General Requirement]

The specific HSE procedures shall be established depending on site standards and requirements.

- HSE procedures and methods stipulated in safety plan for ongoing identification of hazards, risk evaluation and development risk control measures.

2) [4.4.2 Competence, Training & Awareness]

Required to improve training program (workers awareness level in safety is very low, the project training scheme shall be reinforced)

- HSE induction program shall be modified more specifically and covered all required information for the new worker.
- Job-craft training program shall be introduced (scaffolder, riggers, operator, signal man, mason etc.)
- Recommended Korean supervisors training to confirm and remind their HSE responsibilities.

3) [4.4.6 Operational Control]

Some of high-risk tasks defined by project team shall be proceeded by permit to work system (Deep or extensive excavation, heavy lifting operations, hot work, isolated electrical power work, scaffolding work etc.)

➤ Practical training and specific pre-instruction before commencing work.

➤ Review the Permit to work system and revise that on a regular basis.

7. OBSERVATIONS & RECOMMENDATIONS

1) [4.3.1 Hazard Identification, Risk Assessment & Determining Control]

Job Safety Analysis has been set up; the more effective improvements of job Safety analysis program and method are recommended.

➤ Modification of job safety analysis format, covering actual job sequence of all activities, evaluation risk level.

➤ The practice communication (instruction) shall be implemented for field personnel joining the task.

2) [4.3.3 Objectives & Programmes]

The measurable incident target shall be established plus that the specific performance targets will be prepared to achieve the incident target.

3) [4.4.1 Resources, Roles, Responsibility, Accountability & Authority]

The AED (defibrillator) is recommended in clinic and no. of first aider shall be designed at site.

4) [4.4.3 communication, Participation & Consultation]

Practical and effective site observation program is recommended. (UA/UC observation)

5) [4.4.7 Emergency Preparedness & Response]

Emergency drill should be carried out regularly with effective plan.

6) [4.5.1 Performance Measurement & Monitoring]

Project inspection program shall be developed, conducted kept in record and reviewed.

➤ Light vehicle / heavy equipment, power electrical tools and equipment, control of substances hazardous to health, fire fighting facilities, hygiene condition.

➤ The introduction UA/UC observation program is recommended to identify and analyze the leading indicators.

Annex D7: Inspections

Sr. No	Inspection	Date	Inspected by	Location
1.	HSE Inspection	20/01/2013	Yasir Ghauri	Powerhouse Site
2.	HSE Inspection	30/01/2013	Yasir Ghauri	Powerhouse Site
3.	HSE Inspection	31/01/2013	Yasir Ghauri	Powerhouse Site
4.	batching plant inspection	1/02/2013	Yasir Ghauri	Powerhouse Site
5.	HSE Checklist	1/02/2013	Yasir Ghauri	Powerhouse site
6.	HSE Checklist	2/02/2013	Yasir Ghauri	Powerhouse site
7.	HSE Inspection	3/02/2013	Mubashar Janjua	Powerhouse Site
8.	HSE Inspection	4/02/2013	Yasir Ghauri	Powerhouse Site
9.	HSE Inspection	5/02/2013	Yasir Ghauri	Powerhouse Site
10.	HSE Inspection	6/02/2013	Yasir Ghauri	Powerhouse Site
11.	HSE Inspection	7/02/2013	Yasir Ghauri	Powerhouse Site
12.	batching plant inspection	8/02/2013	Saboor Khan	Powerhouse Site
13.	HSE Inspection	8/02/2013	Saboor Khan	weir site
14.	HSE Inspection	18/02/2013	Yasir Ghauri	weir site
15.	batching plant inspection	18/02/2013	Yasir Ghauri	Powerhouse Site
16.	HSE Inspection	19/02/2013	Yasir Ghauri	weir site
17.	batching plant inspection	19/02/2013	Yasir Ghauri	Powerhouse Site
18.	batching plant inspection	20/02/2013	Yasir Ghauri	Powerhouse Site
19.	HSE Inspection	23/02/2013	Saboor Khan	weir site
20.	HSE Inspection	24/02/2013	Saboor Khan	weir site
21.	HSE Inspection	25/02/2013	Saboor Khan	weir site
22.	HSE Inspection	26/02/2013	Saboor Khan	weir site
23.	batching plant inspection	27/02/2013	Yasir Ghauri	Powerhouse site
24.	HSE Inspection	27/02/2013	Saboor Khan	weir site
25.	HSE Inspection	28/02/2013	Saboor Khan	weir site
26.	Crane Inspection	1/03/2013	Adil Yousaf	Weir Site

Sr. No	Inspection	Date	Inspected by	Location
27.	batching plant inspection	1/03/2013	Adil Yousaf	Powerhouse Site
28.	HSE Inspection	1/03/2013	Saboor Khan	weir site
29.	HSE Inspection	2/03/2013	Saboor khan	Weir Site
30.	HSE Inspection	3/03/2013	Saboor Khan	weir site
31.	batching plant inspection	3/03/2013	Adil Yousaf	Powerhouse Site
32.	batching plant inspection	3/03/2013	Yasir Ghauri	Powerhouse Site
33.	Blasting Inspection	3/03/2013	Yasir Ghauri	weir site
34.	HSE Inspection	4/03/2013	Saboor Khan	weir site
35.	Mobile Crane Inspection	4/03/2013	Saboor Khan	weir site
36.	Batching Plant Inspection	7/03/2013	Adil Yousaf	Powerhouse Site
37.	batching plant inspection	10/03/2013	Saboor Khan	weir site
38.	Mobile Crane Inspection	17/03/2013	M. Javed	Weir Site
39.	Mobile Crane Inspection	17/03/2013	M. Javed	Weir Site
40.	batching plant inspection	17/03/2013	M. Javed	Weir Site
41.	Blasting Inspection	23/03/2013	M. Javed	Adit Tunnel
42.	Blasting	20/03/2013	M. Javed	Adit Tunnel
43.	Blasting	23/03/2013	M. Javed	Adit Tunnel
44.	Scaffold Inspection	23/03/2013	M. Javed	Adit Tunnel
45.	Fire Extinguisher	11/04/2013	M. Javed	Upper Site
46.	Excavator	13/04/2013	Adil Yousaf	Lower Site
47.	Dump Truck/JKT-251	13/04/2013	Adil Yousaf	Lower Site
48.	Dump Truck/IKB-831	12/04/2013	Adil Yousaf	Lower Site
49.	Dump Truck/TKB-448	12/04/2013	Adil Yousaf	Lower Site
50.	Batching Plant	11/04/2013	M. Javed	Upper Site
51.	Batching Plant	18/04/2013	M. Javed	Upper Site
52.	Fire Extinguisher	15/04/2013	Adil Yousaf	Camp Office
53.	Kitchen Hygiene	16/04/2013	Adil Yousaf	Camp Office

Sr. No	Inspection	Date	Inspected by	Location
54.	Batching Plant	30/05/2013	M. Javed	Upper site
55.	W. Loader-03	20/05/2013	M. Javed	Upper site
56.	W. Loader-02	20/05/2013	M. Javed	Upper site
57.	Excavator-03	20/05/2013	M. Javed	Upper site
58.	Charging Car-005	20/05/2013	M. Javed	Upper site
59.	Jumbo Drill-352	20/05/2013	M. Javed	Upper site
60.	Fire Extinguisher Camp Office	18/05/2013	Adil Yousaf	Camp Office
61.	D/Truck-362	18/05/2013	M. Javed	Upper site
62.	Kitchen Staff Hygienic Inspection	19/05/2013	Adil Yousaf	Camp Office
63.	Excavator-02	19/05/2013	M. Javed	Upper site
64.	Water Tanker-01(Sungbo)	19/05/2013	M. Javed	Upper site
65.	Concrete Pump	19/05/2013	M. Javed	Upper site
66.	C-2094 T/Mixer	17/05/2013	M. Javed	Upper site
67.	Excavator-200	18/05/2013	M. Javed	Upper site
68.	Diesel tanker-01	19/05/2013	M. Javed	Upper site
69.	T-Mixer-529	15/05/2013	M. Javed	Upper site
70.	Dump Truck-251	14/05/2013	M. Javed	Upper site
71.	Dump Truck	13/05/2013	M. Javed	Upper site
72.	Dump Truck-04	12/05/2013	M. Javed	Upper site
73.	Dump Truck-03	12/05/2013	M. Javed	Upper site
74.	Cargo Crane-01	15/05/2013	M. Javed	Upper site
75.	T/ Mixer-3238	15/05/2013	M. Javed	Upper site
76.	W/ Loader	15/05/2013	M. Javed	Upper site
77.	Batching Plant	14/05/2013	M. Javed	Upper site
78.	Fire Extinguisher (Pak Mess & HSE)	12/05/2013	M. Javed	Upper site
79.	Fire Extinguisher (Batching Plant)	11/05/2013	M. Javed	Upper site
80.	Fire Extinguisher (HSE Office)	10/05/2013	M. Javed	Upper site

Sr. No	Inspection	Date	Inspected by	Location
81.	Fire Extinguisher(Store Generator Room)	10/05/2013	M. Javed	Upper site
82.	Fire Extinguisher (Near Office)	10/05/2013	M. Javed	Upper site
83.	Fire Extinguisher (C/ Office)	10/05/2013	M. Javed	Upper site
84.	Wheel Loader	3/06/2013	Adil Yousaf	Lower Site
85.	Mobile Crane	6/06/2013	Adil Yousaf	Lower Site
86.	Batching Plant	10/06/2013	Adil Yousaf	Lower Site
87.	Fire Extinguishers	10/06/2013	Adil Yousaf	Lower Site
88.	Transit Mixer	15/06/2013	Adil Yousaf	Lower Site
89.	Dump Truck	15/06/2013	Adil Yousaf	Lower Site
90.	Wheel Loader	17/06/2013	Adil Yousaf	Lower Site
91.	Dump Truck	17/06/2013	Adil Yousaf	Lower Site
92.	Transit Mixer	17/06/2013	Adil Yousaf	Lower Site
93.	Wheel Excavator	19/06/2013	Adil Yousaf	Lower Site
94.	Wheel Loader	19/06/2013	Adil Yousaf	Lower Site
95.	Cable Trolley	2/06/2013	M. Javed	Upper site
96.	Pakistani Mess	2/06/2013	M. Javed	Upper site
97.	Dump Truck 251	3/06/2013	M. Javed	Upper site
98.	Wheel Loader	3/06/2013	M. Javed	Upper site
99.	Mobile Crane	6/06/2013	M. Javed	Upper site
100.	Scaffolding Staircase	8/06/2013	M. Javed	Upper site
101.	Batching Plant	10/06/2013	M. Javed	Upper site
102.	Fire Extinguishers	10/06/2013	M. Javed	Upper site
103.	Fire Extinguishers	12/06/2013	M. Javed	Upper site
104.	Crawler Drill 585	14/06/2013	M. Javed	Upper site
105.	Transit Mixer	15/06/2013	M. Javed	Upper site
106.	Dump Truck	15/06/2013	M. Javed	Upper site
107.	Cable Trolley	15/06/2013	M. Javed	Upper site

Sr. No	Inspection	Date	Inspected by	Location
108.	Dump Truck	15/06/2013	M. Javed	Upper site
109.	Scaffolding Cr.	17/06/2013	M. Javed	Upper site
110.	Cable Trolley	17/06/2013	M. Javed	Upper site
111.	Wheel Loader	17/06/2013	M. Javed	Upper site
112.	Dump Truck	17/06/2013	M. Javed	Upper site
113.	Transit Mixer	17/06/2013	M. Javed	Upper site
114.	Wheel Excavator	19/06/2013	M. Javed	Upper site
115.	Wheel Loader	19/06/2013	M. Javed	Upper site
116.	Dump Truck # 052	22/06/2013	M. Javed	Upper site
117.	Batching Plant	27/06/2013	M. Javed	Upper site
118.	Fire Extinguishers	27/09/2013	S. Tariq Hussain	Camp Office
119.	Wheel Loader WA350/194-35	02/09/2013	Haroon Akhtar	Powerhouse Site
120.	Charging Car ME2-006	08/09/2013	Haroon Akhtar	Powerhouse Site
121.	Boomer Jumbo 352	08/09/2013	Haroon Akhtar	Powerhouse Site
122.	Batching Plant	01/09/2013	M. Javed	Weir Site
123.	Batching Plant	20/09/2013	M. Javed	Weir Site
124.	Batching Plant	25/09/2013	M. Javed	Weir Site
125.	Batching Plant	14/09/2013	M. Javed	Weir Site
126.	Batching Plant	07/09/2013	M. Javed	Weir Site
127.	Charging car MEQ-005	19/09/2013	M. Javed	Weir Site
128.	Jumbo Drill MEQ-001	19/09/2013	M. Javed	Weir Site
129.	Dumper Truck TKA-167	19/09/2013	M. Javed	Weir Site
130.	Dumper Truck TKA-831	19/09/2013	M. Javed	Weir Site
131.	Dumper Truck IKD-164	19/09/2013	M. Javed	Weir Site
132.	Transit Mixer TM-429	19/09/2013	M. Javed	Weir Site
133.	MT- 410	19/09/2013	M. Javed	Weir Site
134.	MT-403	19/09/2013	M. Javed	Weir Site

Sr. No	Inspection	Date	Inspected by	Location
135.	MT-404 (2)	19/09/2013	M. Javed	Weir Site
136.	MT- 403 (1)	19/09/2013	M. Javed	Weir Site
137.	Transit Mixer TM-431	19/09/2013	M. Javed	Weir Site
138.	Grove Machine MC-420	20/09/2013	M. Javed	Weir Site
139.	Excavator EX-599	30/09/2013	M. Javed	Weir Site
140.	Fire Extinguishers	05/09/2013- 23/09/2013	M. Javed	Weir Site
141.	Batching Plant	20/08/2013	Adil Yousaf	Powerhouse Site
142.	Fire Extinguisher inspection	27/08/2013	S. Tariq Hussain	Powerhouse Site
143.	Blasting Inspection	01/08/2013	Adil Yousaf	Powerhouse Site
144.	Blasting Inspection	05/08/2013	Adil Yousaf	Powerhouse Site
145.	Color Coding Inspection	01/08/2013	M. Javed	Weir Site
146.	Fire Extinguisher inspection	03/08/2013	M. Javed	Weir Site
147.	Heavy Equipments Inspection	12/08/2013	M. Javed	Weir Site
148.	Heavy Equipments Inspection	13/08/2013	M. Javed	Weir Site
149.	Wheel Loader and Forklift Inspection	13/08/2013	M. Javed	Weir Site
150.	Dump Truck Inspection	13/08/2013	M. Javed	Weir Site
151.	Heavy Equipments Inspection	14/08/2013	M. Javed	Weir Site
152.	Wheel Loader Inspection	16/08/2013	M. Javed	Weir Site
153.	Dump Truck Inspection	17/08/2013	M. Javed	Weir Site
154.	Color Coding Inspection	12/08/2013	M. Javed	Weir Site
155.	Color Coding Inspection	13/08/2013	M. Javed	Weir Site
156.	Batching Plant Inspection	17/08/2013	M. Javed	Weir Site
157.	Dump Truck Inspection	21/08/2013	M. Javed	Powerhouse Site
158.	Chain Excavator Inspection	22/08/2013	M. Javed	Powerhouse Site
159.	Excavator EX- 05	01/07/2013	M. Javed	Weir Site
160.	Excavator EX-600	01/07/2013	M. Javed	Weir Site
161.	Excavator EX-601	01/07/2013	M. Javed	Weir Site

Sr. No	Inspection	Date	Inspected by	Location
162.	Excavator EX-605	01/07/2013	M. Javed	Weir Site
163.	Jumbo Drill	01/07/2013	M. Javed	Weir Site
164.	TM – 431	01/07/2013	M. Javed	Weir Site
165.	TM – 432	01/07/2013	M. Javed	Weir Site
166.	Batching Plant	01/07/2013	M. Javed	Weir Site
167.	Batching Plant	02/07/2013	Adil Yousaf	Powerhouse Site
168.	Charging Car	04/07/2013	M. Javed	Weir Site
169.	Dump Truck	06/07/2013	Adil Yousaf	Powerhouse Site
170.	Fire Extinguisher	06/07/2013	M. Javed	Weir Site
171.	Power House Lower Site/ Blasting	07/07/2013	Adil Yousaf	Powerhouse Site
172.	Power House Lower Site/ Blasting	07/07/2013	Adil Yousaf	Powerhouse Site
173.	Chain Excavator	12/07/2013	Adil Yousaf	Powerhouse Site
174.	Chain Excavator EX-200-C	12/07/2013	Adil Yousaf	Powerhouse Site
175.	Dump Truck	12/07/2013	Adil Yousaf	Powerhouse Site
176.	Chain Excavator	12/07/2013	Adil Yousaf	Powerhouse Site
177.	Power House Lower Site/ Blasting	12/07/2013	Adil Yousaf	Powerhouse Site
178.	Power House Lower Site/ Blasting	12/07/2013	Adil Yousaf	Powerhouse Site
179.	Power House Lower Site/ Blasting	16/07/2013	Adil Yousaf	Powerhouse Site
180.	Power House Lower Site/ Blasting	17/07/2013	Adil Yousaf	Powerhouse Site
181.	Dozer	18/07/2013	M. Javed	Weir Site
182.	Batching Plant	19/07/2013	M. Javed	Weir Site
183.	Wheel Loader D-155	19/07/2013	M. Javed	Weir Site
184.	Fire Extinguishers Inspection	19/10/2013	S. Tariq Hussain	Camp Office
185.	Color Coding Inspection	11/10/2013	Haroon Akhtar	Power House Site
186.	Heavy Equipment Inspection Dump Truck (Model 1993) C2153	1/10/2013	Adil Yousaf	Power House Site
187.	Heavy Equipment Inspection Dump Truck (Model 1993) TKB710	1/10/2013	Adil Yousaf	Power House Site
188.	Heavy Equipment Inspection Dump Truck (Model 2008) A-11 (APF2008)	1/10/2013	Adil Yousaf	Power House Site

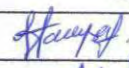

Sr. No	Inspection	Date	Inspected by	Location
189.	Heavy Equipment Inspection Wheel Excavator (Model 2007) WV-140	1/10/2013	Adil Yousaf	Power House Site
190.	Heavy Equipment Inspection Hino TKV 509	1/10/2013	Adil Yousaf	Power House Site
191.	Heavy Equipment Inspection Hino Dumper Truck MCM (APF2008)A-41	1/10/2013	Adil Yousaf	Power House Site
192.	Heavy Equipment Inspection Dumper Truck (Model 2005) C-1477	1/10/2013	Adil Yousaf	Power House Site
193.	Heavy Equipment Inspection Hino (APF 2008) A-12	1/10/2013	Adil Yousaf	Power House Site
194.	Heavy Equipment Inspection ISUZU P-6573	1/10/2013	Adil Yousaf	Power House Site
195.	Heavy Equipment Inspection Crane	23/10/2013	Adil Yousaf	Power House Site
196.	Daily HSE Inspection	07/10/2013	M. Javed	Weir Site
197.	Daily HSE Inspection	08/10/2013	M. Javed	Weir Site
198.	Fire Extinguishers Inspection	10/10/2013	M. Javed	Weir Site
199.	Batching Plant Inspection	20/10/2013	M. Javed	Weir Site
200.	Batching Plant Inspection	05/10/2013	M. Javed	Weir Site
201.	Batching Plant Inspection	28/10/2013	M. Javed	Weir Site
202.	HSE Inspection (HRT)	21/10/2013	M. Javed	Weir Site
203.	HSE Inspection (Sand trap)	21/10/2013	M. Javed	Weir Site
204.	Batching Plant inspection	20/11/2013	M. Javed	Weir Site
205.	Batching Plant inspection	17/11/2013	M. Javed	Weir Site
206.	Heavy Equipment Inspection Excavator EX-599	19/11/2013	M. Javed	Weir Site
207.	Heavy Equipment Inspection Excavator EX-605	19/11/2013	M. Javed	Weir Site
208.	Heavy Equipment Inspection Transit Mixer TM -410	19/11/2013	M. Javed	Weir Site
209.	Heavy Equipment Inspection Transit Mixer TM -429	19/11/2013	M. Javed	Weir Site
210.	Heavy Equipment Inspection Transit Mixer TM -431	19/11/2013	M. Javed	Weir Site
211.	Heavy Equipment Inspection Wheel Loader WL-622	19/11/2013	M. Javed	Weir Site
212.	Heavy Equipment Inspection Transit Mixer TM -403	19/11/2013	M. Javed	Weir Site
213.	Heavy Equipment Inspection Transit Mixer TM -406	19/11/2013	M. Javed	Weir Site
214.	Fire Extinguishers Inspection (Camp Office, batching plant area, police shelter& construction office)	10/11/2013	M. Javed	Weir Site
215.	Fire Extinguishers Inspection(, sand trap area & workshop area)	30/11/2013	M. Javed	Weir Site
216.	Fire Extinguishers Inspection (batching plant area)	11/11/2013	M. Javed	Weir Site
217.	Fire Extinguishers Inspection	1/11/2013	S. Tariq Hussain	Powerhouse Site
218.	Heavy Equipment Inspection Dumper Truck RLF-4889, Model 1994	18/11/2013	Haroon Akhtar	Powerhouse Site
219.	Heavy Equipment Inspection Wheel Loader WL-140 Model 2004	18/11/2013	Adil Yousaf	Powerhouse Site

Sr. No	Inspection	Date	Inspected by	Location
220.	Heavy Equipment Inspection Dumper Truck SEA-381 Model 2000	18/11/2013	Haroon Akhtar	Powerhouse Site
221.	Heavy Equipment Inspection Chain Excavator EX-200LC, HITACHI-200	18/11/2013	Haroon Akhtar	Powerhouse Site
222.	Heavy Equipment Inspection Dumper Truck SEA-389 Model 2000	18/11/2013	Haroon Akhtar	Powerhouse Site
223.	Heavy Equipment Inspection Dumper Truck SEA-316	18/11/2013	Adil Yousaf	Powerhouse Site
224.	Heavy Equipment Inspection Dumper Truck SEA-372	18/11/2013	Adil Yousaf	Powerhouse Site
225.	Heavy Equipment Inspection Dumper Truck (Small) MDRA-586	22/11/2013	Adil Yousaf	Powerhouse Site
226.	Heavy Equipment Inspection Dumper Truck TKB-921	25/11/2013	Adil Yousaf	Powerhouse Site
227.	Heavy Equipment Inspection Dumper truck TAA-362 Model:1995	25/11/2013	Adil Yousaf	Powerhouse Site
228.	Fire Extinguishers Inspection	1/12/2013	S. Tariq Hussain	Powerhouse Site
229.	Heavy Equipment Inspection Transit Mixer TM-409	7/12/2013	Adil Yousaf	Powerhouse Site
230.	Heavy Equipment Inspection Transit Mixer TM-407	7/12/2013	Adil Yousaf	Powerhouse Site
231.	Heavy Equipment Inspection Wheel Excavator WV-140	7/12/2013	Adil Yousaf	Powerhouse Site
232.	Heavy Equipment Inspection Dump Truck RIR-5491 Model: 1991	10/12/2013	Adil Yousaf	Powerhouse Site
233.	Heavy Equipment Inspection Dump Truck TKD- 831 Model:1982	10/12/2013	Adil Yousaf	Powerhouse Site
234.	Heavy Equipment Inspection Dump Truck TKB-414	13/12/2013	Adil Yousaf	Powerhouse Site
235.	Heavy Equipment Inspection Wheel Loader 85ZIV (MCM)	13/12/2013	Adil Yousaf	Powerhouse Site
236.	Heavy Equipment Inspection Dump Truck TKF-798	16/12/2013	Adil Yousaf	Powerhouse Site
237.	Heavy Equipment Inspection Mobile Crane EZ-02521 Model:1989	20/12/2013	Adil Yousaf	Powerhouse Site
238.	Heavy Equipment Inspection Dump Truck C-1536	28/12/2013	Adil Yousaf	Powerhouse Site
239.	Heavy Equipment Inspection Chain Excavator	28/12/2013	Adil Yousaf	Powerhouse Site
240.	Heavy Equipment Inspection Dump Truck TAL-109	28/12/2013	Adil Yousaf	Powerhouse Site
241.	Batching Plant	05/12/2013	M. Javed	Weir Site
242.	Heavy Equipment Inspection Drill Machine	08/12/2013	M. Javed	Weir Site
243.	Heavy Equipment Inspection Shotcrete Machine-004	07/12/2013	M. Javed	Weir Site
244.	Heavy Equipment Inspection Folk Lift-FK-244	07/12/2013	M. Javed	Weir Site
245.	Heavy Equipment Inspection Excavator-200-HITACHI	07/12/2013	M. Javed	Weir Site
246.	Heavy Equipment Inspection Excavator-140	07/12/2013	M. Javed	Weir Site
247.	Heavy Equipment Inspection Excavator-604	07/12/2013	M. Javed	Weir Site
248.	Heavy Equipment Inspection Excavator-200-HITACHI	06/12/2013	M. Javed	Weir Site
249.	Heavy Equipment Inspection Excavator-605	06/12/2013	M. Javed	Weir Site
250.	Heavy Equipment Inspection Excavator-601	06/12/2013	M. Javed	Weir Site
251.	Heavy Equipment Inspection Excavator-600-HITACHI	06/12/2013	M. Javed	Weir Site
252.	Heavy Equipment Inspection Excavator-200-HITACHI	06/12/2013	M. Javed	Weir Site
253.	Heavy Equipment Inspection Batching Plant Inspection	24/12/2013	M. Javed	Weir Site
254.	Batching Plant Inspection	15/12/2013	M. Javed	Weir Site
255.	Batching Plant Inspection	07/12/2013	M. Javed	Weir Site
256.	Fire Extinguishers Inspection	27/12/2013	M. Javed	Weir Site
257.	Heavy Equipment Inspection Drill Machine	08/12/2013	M. Javed	Weir Site

Annex D8:

Heavy Equipment Inspections

HEAVY EQUIPMENT INSPECTION CHECKLIST

COMPANY NAME: Daewoo E&C		DATE: 19 June 2013.	
EQUIPMENT DETAILS:- Wheel loader.		Operator Name: Peer Afzal.	
MANUFACTURER:	MODEL: 926E	Plant or Equipment No:	
YEAR OF MANUFACTURE:	TECHNICAL INSPECTION EXPIRY DATE:	OVERALL PASS/FAIL	
	PASS	FAIL	N/A
			REMARKS
Tyre size/type	✓		
Tyre condition	✓		
Roadwheels	✓		
Exhaust system	✓		
Exhaust emissions (smoke)	✓		
Fuel system	✓		
Battery and terminals	✓		
General condition (corrosion etc.)	✓		
Operator Visibility good	✓		
Windscreen wipers effective		✓	Windscreen wipers must be Installed.
Maintenance Check-list available?		✓	
Equipment log-book available?		✓	
Grounding cable and clamp/rod in good condition	✓		
Safety signs attached and in good condition		✓	
Equipment guards in place and in good condition	✓		
Emergency Stop accessible and working	✓		
Operating instruments legible and in English		✓	
Hydraulics in good condition	✓		
Hoses and fittings in good order	✓		
No oil, hydraulic fluid or fuel leaks	✓		
Tracks & Rails			✓
Front Idlers			✓
Top & Bottom Rollers			✓
Drive Sprockets			✓
Pins & Bushings	✓		
Main springs	✓		
Adjusting screws	✓		
Swing frame			✓
Steering linkages	✓		
Master and Steering clutches			✓
Final Drive	✓		
Bellows seals	✓		
Dozer Blade	✓		
Bucket(s)			✓
Outriggers & mats			✓
Comments : General & mechanical condition of wheel loader is satisfactory. Windscreen wipers must work effectively. All the operating instruments must be labeled which are legible in English.			
INSPECTION BY			SIGNATURE
HSE Ass.Engineer	Addil Yusaf		
Manager HSE	Mr.Aftab Alam		

Annex D9:

Batching Plant Inspection

Pakistan Patrind Hydro Power Project		It's Possible DAEWOO E&C
SAFETY CHECKLIST FOR BATCHING PLANT		
DATE	27.02.2013.	NOTES ; Tick columns A, B or C A : Suitable at time of inspection B : Requires improvement C : Requires immediate action / : Not applicable
HSE OFFICER	Yasir Ghauri	
HSE MAGR	Aftab Alam	
APPROVED BY	Chung Myung Hun	

INSPECTION ITEMS	BATCH PLANT 1			BATCH PLANT 2		
	A	B	C	A	B	C
1) Isolation of Plant.	✓					
2) Check aggregate hoppers and protecting wall condition.	✓					
3) Clearance of blockages.	✓					
4) Access and working platforms.	✓					
5) Moving parts guarded/protected.	✓					
6) Control of Vehicles/flagman.	✓					
7) Warning Signs.		✓				
8) Authorized Personnel.	✓					
9) Cleaning / housekeeping.	✓					
10) Lighting checks of all units.	✓					
11) Check wire rope condition for overhead crane.	✓					
12) Check trolley upper limit switch condition.	✓					
13) Check bell warning system for belt conveyor.	✓					
14) Check emergency stop switch at belt conveyor.	✓					
15) Check CCTV for conveyors, hoppers and mixer condition.		✓				
16) Check emergency stop switch at mixers unit.	✓					
17) Check that breaker switch is in off position before mixer cleaning (Place danger lock out tag).	✓					
18) Check special PPE rubber gloves, rain boots etc. for admixture filling.	✓					
19) Check special PPE leather gloves, nose mask for cement loading.	✓					
20) Check safety harness use during cement loading activity.	✓					
21) Check fire extinguishers condition & location.	✓					
Remarks						

SCL004

Revision : 0

Annex D10:

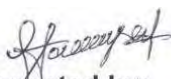
Fire Extinguishers Inspection

FIRE EXTINGUISHER INSPECTION RECORD SHEET

Pakistan Patind Hydro Power Project

Date: May18, 2013

Sr.	Type of Fire Extinguisher	Capacity/ Quantity	Location	Condition (Valid/ Expire)	Any Part that need attention	Corrective action taken
18.	BC	6Kg	Security Guard Room	Valid	No	Nill
19.	BC	6Kg	HSE Training Hall	Valid	No	Nill
20.	BC	6Kg	Pakistani Mess	Valid	No	Nill
21.	BC	6Kg	Pakistani Accommodation	Valid	No	Nill
22.	BC	6Kg	Pakistani Accommodation	Valid	No	Nill
23.	BC	6Kg	Pakistani Accommodation	Valid	No	Nill
24.	BC	6Kg	Pakistani Accommodation	Valid	No	Nill
25.	BC	6Kg	Kyung Dong Accommodation	Valid	No	Nill
26.	BC	6Kg	Security Guard Room	Valid	No	Nill
27.	BC	6Kg	Lab QA/QC	Valid	No	Nill
28.	BC	6Kg	Entrance of Block A	Valid	No	Nill
29.	BC	6Kg	Entrance of Block B	Valid	No	Nill
30.	BC	6Kg	QA/QC Office	Valid	No	Nill
31.	BC	6Kg	Server Room	Valid	No	Nill
32.	BC	6Kg	Admin	Valid	No	Nill
33.	BC	6Kg	Korean Mess	Valid	No	Nill
34.	BC	6Kg	Korean Store	Valid	No	Nill
35.	ABC	4kg	Pakistani Mess	Valid	No	No Corrective action required
36.	ABC	4kg	Pakistani Accommodation	Valid	No	No Corrective action required
37.	ABC	4kg	Pakistani Accommodation	Valid	No	No Corrective action required
38.	ABC	4kg	Pakistani Accommodation	Valid	No	No Corrective action required
39.	ABC	4kg	Main Gate Entrance	Valid	No	No Corrective action required
40.	ABC	4kg	Main Gate Entrance	Valid	No	No Corrective action required
41.	ABC	4kg	Main Gate Entrance	Valid	No	No Corrective action required
42.	ABC	4kg	Accomodation First Floor	Valid	No	No Corrective action required


Inspected by:
 ADDIL YUSAF


HSE MANAGER

Annex-E1

(Labour Dispute Report)

Labour Strike at Adit Tunnel of Weir Site

It's Possible
DAEWOO E&C

Patrind Hydropower Project

- ☐ **Date & Time of Strike** : 7th July 2013 at 07:00 a.m.
- ☐ **Location** : Adit Tunnel at Weir Site
- ☐ **Duration of Strike** : Seven (7) hours (07:00 a.m. ~ 14:00 p.m.)
- ☐ **Description of Strike**

- Mr.Arif, chief of daytime labour shift among other twelve labours interrupted six labours working at Sunday shift, in fact kept insisting for payment of 843Rs/day for holiday salary in addition to deployment of tunnel team for Sunday shift.
- The strikers demanded 537Rs/day for weekday salary insisting that working hours during the ramadan are seven hours for daytime, 07:00 a.m. to 14:00 p.m., eight hours for nighttime, 23:00 p.m. to 07:00 a.m.
- The strikers kept insisting that a wage increase asserting publication of wage increase in June 2013.
- From the above it is confirmed that instigation of strike took place for fulfillment of unilateral demands.

☐ Details of Strike

- 07:00 a.m. : Mr.Arif and twelve labours instigated the strike interrupting and threatening six labours working at Sunday.
- 07:20 a.m. : Mr. Arif, Chief of daytime labors along with Mr.Jamil, Chief of nighttime labour, demanded fulfillment of above mentioned points of demand.
- 07:30 a.m. : The strikers blocked nighttime labours, not allowing them to leave for work so police assistance was requested.
- 08:30 a.m. : The strikers interrupted and threatened labours working at cable-trolley.
- 09:30 a.m. : Meeting was held with attendees : Mr.Park (PM of Kyungdong), Mr.Arif and one labour, police
 - Mr. Park notified that working hours during ramadan should be as follows ;
Working hours during ramadan : ten (10) hours for daytime shift (05:00 a.m. to 15:00 p.m.), ten (10) hours for nighttime shift (15:00 p.m. to 01:00 a.m.) and five (5) times pray per day.
 - In addition to this, no more menace to holiday shift labours and publication of wage increase will be ascertained.
 - The strikers were notified that eight (8) hours salary will be paid against eight (8) hours working. And unless company's policy is followed, labours, not following it, are not allowed to work in our site.
- 11:30 a.m. : The strike was stopped with promise that work will resume from 14:00 p.m.
- 14:00 p.m. : Work was resumed.

☐ Local Labour Laws

- Kyungdong's minimum salary is more higher than current local labour law and also announcement of AJK cabinet meeting at 31st May 2013.
⇒ Kyungdong's current salary : Rs 537/day ÷ (8hours + 3hours x 2times) = **RS 38.36/hour**
- According to current local labour law, the minimum wages of unskilled workers is Rs7,000 per month.
⇒ Current local labour law minimum salary : Rs 7,000/month ÷ 26days ÷ 8hours = **Rs 33.65/hour**
- The AJK government has raised the minimum wages of unskilled workers from Rs7,000 to Rs9,000 per month. The decision was taken at a cabinet meeting which was presided over by Prime Minister Chaudhry Abdul Majeed here on Thursday but not stated yet on the labour law.
⇒ announced minimum salary by AJK cabinet meeting : Rs 9,000/month ÷ 26days ÷ 8hours = **Rs 43.27/hour**

☐ Photographs



Annex F1:

Daily Toolbox Talks



Camp Site Daily Tool Box Talk

(January 2013)

Date/Day	HSE Topic	Delivered by	Remarks
1/1/2013 (Tue)			New Year Holiday
2/1/2013 (Wed)	Zero accident campaign	All staff	Campaign
3/1/2013 (Thu)	Risk Assessment & Managment	Majid Khan	
4/1/2013 (Fri)	Environmental Management	Aftab Alam	
5/1/2013 (Sat)			Weekend
6/1/2012 (Sun)			Weekend
7/1/2013 (Mon)	Fire Prevention and Protection	Yasir Ghauri	
8/1/2013 (Tue)	Concrete work safety procedure	Abdul Mannan	
9/1/2013 (Wed)	Excavation Work Safety	Muhammad Shahid	
10/1/2013 (Thu)	Fall prevention and Protection	Muhammad Aslam	
11/1/2013 (Fri)	Confined Space Entry Procedure	Qazi Rashid	
12/1/2013 (Sat)			Weekend
13/1/2013 (Sun)			Weekend
14/1/2013 (Mon)	Importance of PPEs	Muhammad Ishfaq	
15/1/2013 (Tue)	Fuel Storage and handling	Majid Khan	
16/1/2013 (wed)	Electrical Safety	Ahsin Gillani	
17/1/2013 (Thu)	Waste Management	M Rashid Awan	
18/1/2013 (Fri)	Health Management	Khurram Javaid	
19/1/2013 (Sat)			Weekend
20/1/2013 (Sun)			Weekend
21/1/2013 (Mon)	Office Safety/Security	Iftikhar Rauf	
22/1/2013 (Tue)	Traffic Management	Israr Ahmed	
23/1/2013 (Wed)	Safe Driving	Yasir Ghauri	
24/1/2013 (Thu)			Public Holiday
25/1/2013 (Fri)	Site House Keeping	Athar Zubair	
26/1/2013 (Sat)			Weekend
27/1/2013 (Sun)			Weekend
28/12/2013 (Mon)	Recycling	Aftab Alam	
29/1/2013 (Tue)	Controlled blasting	Majid Khan	
30/1/2013 (Wed)	Electric fire	Ahsin Gillani	
31/1/2013 (Thu)	Fall prevention & protection	Yasir Ghauri	

HSE

Signature: [Handwritten Signature]

Signature: [Handwritten Signature]

Annex F2: HSE Awards

Date	Sr. No	Names	Company	Award	Location
7/2/2013	1	Kim Jea Yong	Kyung Dong	Best Engineer	P/H Site
	2	Majid Khan	Daewoo E&C	Best Engineer	P/H Site
	3	Tabarak Ali	Kyung Dong	Best Worker	P/H Site
	4	Arsalan Qureshi	Kyung Dong	Best Worker	P/H Site
	5	Lee Ho Jun	Sungbo	Best Engineer	Weir Site
	6	Mushtaq Ahmed	Daewoo E&C	Best Engineer	Weir Site
	7	Hakim Din	Kyung Dong	Best Worker	Weir Site
	8	M. Zaman	Kyung Dong	Best Worker	Weir Site
7/5/2013	1	Lee Kang Jae	Kyung Dong	Best Manager	Weir Site
	2	Shin Sang Ku	Kyung Dong	Best Manager	P/H Site
	3	Nabeel	Kyung Dong	Best Labor	P/H Site
	4	Khawaja Abdul Waheed	Kyung Dong	Best Labor	P/H Site
	5	Jameel Nazir	Kyung Dong	Best Labor	P/H Site
	6	Malik Kashif	Daewoo E&C	Best Labor	Weir Site
4/6/2013	1	Sim Sang Min	Kyung Dong	Best Manager	Weir Site
	2	Attique	Daewoo E&C	Best Manager	Weir Site
	3	Cheon Jin Seon	Kyung Dong	Best Manager	P/H Site
	4	Najam Pervaiz	Daewoo E&C	Best Driver	P/H Site
	5	Muskeen	Kyung Dong	Best Labor	P/H Site
	6	Ibrar Hussain	Kyung Dong	Best Labor	Weir Site
	7	M. Waseem Abbasi	Sungbo	Best Driver	Weir Site
4/7/2013	1	Kwak Haensoo	Sungbo	Best Manager	Weir Site
	2	Ko Jang Ho	Kyung Dong	Best Manager	P/H Site
	3	Sultan Fazal Elahi	Sungbo	Best Manager	Weir Site
	4	Waqas Naseer	Daewoo E&C	Best Engineer	Weir Site
	5	Gulraz Ahmed	Sungbo	Best Labor	Weir Site
	6	Naem Ahmed	Daewoo E&C	Best Labor	P/H Site
	7	Adnan Qureshi	Kyung Dong	Best Labor	P/H Site
6/8/2013	1	Liaqat Abbasi	Daewoo E&C	Best Manager	P/H Site

	2	M. Shahid	Daewoo E&C	Best Engineer	P/H Site
	3	M. Hameed Zaki	Daewoo E&C	Best Labor	P/H Site
	4	Yasir Ghauri	Daewoo E&C	Best Engineer	P/H Site
	5	Nazahat Abbasi	Sungbo	Best Labor	Weir Site
	6	Nazim Hussain	Sungbo	Best Labor	Weir Site
	7	Sultan Khan	Sungbo	Best Labor	Weir Site
Date	Sr. No	Names	Company	Award	Location
29/08/2013	1	Seon Jong Kil	Sungbo	Best Manager	Weir Site
	2	Oh Jeong Tae	Kyung Dong	Best Engineer	Weir Site
	3	Muhammad Javed	Daewoo E&C	Best Engineer	Weir Site
3/10/2013	1	Mr. Noh Jae Kyun	Kyung Dong	Best Manager	P/H Site
	2	Ahsan Gillani	Daewoo E&C	Best Engineer	P/H Site
	3	Mr. Adil Yousaf	Daewoo E&C	Best Engineer	P/H Site
	4	Mr. Fareed	Kyung Dong	Best Worker	P/H Site
8/11/2013	1	Jo Hun Dae	Kyung Dong	Best Manager	P/H Site
	2	Dawood Akbar Awan	EJ Tech	Best Engineer	P/H Site
	3	Fareed Qureshi	Kyung Dong	Best Labor	P/H Site
	4	Tariq Mehmood	Daewoo E&C	Best Engineer	Weir Site
	5	Hamid Jabbar	Kyung Dong	Best Labor	Weir Site
	6	Sohail Ahmed	Sungbo	Best Labor	Weir Site

Annex F3:

Certificate for Merit in Safety

제 13-002 호



CERTIFICATE OF MERIT

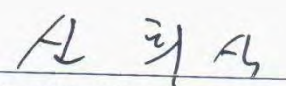
PROJECT	:	Pakistan Patrind Hydropower PJ
NAME	:	MAJID KHAN
COMPANY	:	DAEWOO
TRADE	:	GEOLOGIST

MANAGEMENT HEREBY CONGRATULATES YOU FOR
BEING ONE OF THE WINNERS OF "BEST ENGINEER"
AWARD FOR THE MONTH OF FEBRUARY, 2013.

WE APPRECIATE YOUR OUTSTANDING PERFORMANCE IN YOUR
DUTY AND PROPER ADHERENCE TO THE PROJECT SAFETY
REQUIREMENTS.

WE WISH YOU GREATER ACHIEVEMENTS IN THE MONTHS AHEAD.




HEE-SIK, SHIN/ PJ MANAGER

Annex F4: Trainings

Sr.	Trainings	Date	Target Staff / Location
1.	Safe Driving & Traffic management	09/01/13	Drivers (P/H site)
2.	Safe Driving & Traffic management	10/01/13	Drivers (Weir Site)
3.	Post incident Education Session	12/02/2013	Batching Plant Staff/workers (P/H Site & Weir Site)
4.	Workshop on “HSE Audit”	20/03/2013	Project Management
5.	Seminar on Infectious/Seasonal Disease	28/03/2013	Camp Office Staff (P/H site)
6.	Koreans Manager & Supervisors Training	23/05/2013	HSE Training Hall (P/H site)
7.	Induction for Supervisor	06/05/2013	HSE Training Hall (P/H site)
8.	PPE Awareness Training	30/05/2013	HSE Training Hall (Weir Site)
9.	Driving Safety Training	16/05/2013	HSE Training Hall (P/H site)
10.	First Aid	09/05/2013	HSE Training Hall (P/H site) External (Red Crescent Society)
11.	Safe Methods for Blasting	21/06/2013	HSE Training Hall (P/H site)
12.	Sub. Con Korean Manager Training	14/06/2013	HSE Training Hall (P/H site)
13.	Work at height and Fall Protection Training	24/06/2013	HSE Training Hall (P/H site)
14.	First Aid Training	06/06/2013	HSE Training Hall (Weir Site) External (Red Crescent Society)
15.	Cable Trolley	28/06/2013	HSE Training Hall (Weir Site)
16.	Behavior Safety	30/06/2013	HSE Training Hall (Weir Site)
17.	Sub. Con Korean Manager Training	14/7/2013	HSE Training Hall (P/H site)
18.	Occupational Health and Precautionary Measures in Ramadan	20/7/2013	HSE Training Hall (P/H site)
19.	Emergency Response Training	14/8/2013	(Weir Site)
20.	Confined Space Entry	16/8/2013	HSE Training Hall (P/H site)
21.	Permit to Work	19/8/2013	(Weir Site)
22.	Motor Bike Safety Training	3/9/2013	HSE Training Hall (P/H site)
23.	HSE Counseling	3/9/2013	HSE Training Hall (P/H site)
24.	Electrical Safety Training	5/9/2013	HSE Training Hall (P/H site)
25.	Road Safety Awareness	6/9/2013	First Step School Lower Chatter Thuri
26.	Drinking Water Training	9/9/2013	HRT (P/H site)
27.	Drinking Water Training	9/9/2013	Daewoo Site Office Near Bridge
28.	Rigging Safety Training	12/9/2013	HSE Training Hall (P/H site)
29.	Lifting and Rigging Safety	14/9/2013	HSE Training Hall Weir Site Office
30.	Environmental Management	18/9/2013	HSE Training Hall (P/H site)
31.	Personal Hygiene	18/9/2013	HSE Training Hall (P/H site)
32.	Confined Space Entry	19/9/2013	HSE Training Hall (P/H site)
33.	Road Safety Awareness	20/9/2013	Govt. Primary School Lower Chatter
34.	Eye and Face Protection	21/9/2013	HSE Training Hall Weir Site Office
35.	Safety Culture	28/9/2013	HSE Training Hall Weir Site Office
36.	Fire and Safety Sign	29/9/2013	HSE Training Hall Weir Site Office
37.	Re-Induction of ZK Associates	09/10/2013	HSE Training Hall (P/H site)
38.	Visit of School Children in HSE Office	9/10/2013	HSE Training Hall (P/H site)

39.	Basic Safety Training of Batching Plant Workers	23/10/2013	(Batching Plant Workers of Daewoo & Sub-Contractor Companies) HSE Training Hall (P/H site)
40.	Fire Extinguisher and fire blanket training	28/10/2013	HSE Training Hall (P/H site)
41.	Visit of School Children in HSE Office	29/10/2013	HSE Training Hall (P/H site)
42.	Fire Fighting Mock Drill	31/10/2013	Camp Office P/H Site Open Area
43.	Incident Safety Training	29/10/2013	HSE Training Hall Weir Site Office
44.	Slope and falling hazard training	04/10/2013	HSE Training Hall Weir Site Office
45.	Welding and Cutting Safety Training	06/10/2013	HSE Training Hall Weir Site Office
46.	Defensive Driving Training	29/11/2013	HSE Training hall Weir Site Office
47.	Safe Driving Training	28/11/2013	(Sungbo workers) HSE Training hall Weir Site Office
48.	Safe Driving Training	28/11/2013	(Daewoo & Kyung Dong) HSE Training hall Weir Site Office
49.	Working in slopes and body harness training	6/11/2013	(Labor Working on slopes) HSE Training hall Weir Site Office
50.	Electric Safety Training	21/11/2013	(Kyung Dong) HSE Training hall Weir Site Office
51.	Safe use of explosive material	16/11/2013	(Kyung Dong, PES, Daewoo) Near Explosive storage area
52.	Electrical safety training for kyung dong staff & workers	8/11/2013	(Kyung Dong) HSE Training Hall (P/H site)
53.	Fire Warden Training for Office Boy and junior staff HSE	21/11/2013	(Office Boys an junior HSE Staff) HSE Training Hall (P/H site)
54.	Hazardous Chemical Handling Training	20/11/2013	Batching Plant Staff (Daewoo & Subcontractors) On Site (Batching Plant area P/H Site)
55.	Explosive Handling and Safety Training	22/11/2013	Explosive storage area staff (Daewoo E&C & Subcontractors) On Site (Explosive Storage Area)
56.	Safety Training for universal associates (Safety Violators)	19/11/2013	(Universal Associates) New Batching Plant Area
57.	Unsafe Act and condition (K-D)	25/11/2013	(Kyung Dong) HSE Training Hall (P/H site)
58.	Unsafe Act and condition (S-B)	26/11/2013	(Sungbo) HSE Training Hall (P/H site)
59.	Defensive driving training for professional drivers	26/11/2013	(Daewoo & Subcontractors) HSE Training Hall (P/H site)
60.	General Safety (ZK Associates)	27/11/2013	(ZK Associates) HSE Training Hall (P/H site)
61.	Explosive Handling and Safety Training	5/12/2013	(Daewoo & Kyung Dong) HSE Training Hall (P/H site)
62.	Explosive Handling and Safety Training	12/12/2013	(Kyung Dong Staff and workers) HSE Training Hall (P/H site)

63.	Fire Extinguisher and fire blanket training	18/12/2013	(Security Staff Daewoo E&C) HSE Training Hall (P/H site)
64.	Tool Box Talk with the HRT Team	21/12/2013	(Kyung Dong Staff and workers) On Site Training
65.	Tool Box Talk with the HRT Team	21/12/2013	(Kyung Dong Staff and workers) On Site Training
66.	Fire Extinguisher and fire blanket training	14/12/2013	(Security Staff Daewoo E&C) HSE Training Hall (P/H site)
67.	Drilling Safety	22/12/2013	(ZK Associates) On Site (Power House)
68.	Safe Driving Training	07/12/2013	(Operators from all companies) On Site Training
69.	Defensive driving training	05/12/2013	(Operators (Night Shift Staff) HSE Training Hall Weir Site
70.	PPEs Training	05/12/2013	(Sungbo) HSE Training Hall Weir Site
71.	Use of body harness and working at slopes	02/12/2013	(Daewoo) HSE Training Hall Weir Site
72.	Fall Protection Training	12/12/2013	(Kyung Dong)HSE Training Hall Weir Site
73.	Fall Protection Training	12/12/2013	(Sungbo)HSE Training Hall Weir Site
74.	Fire Prevention and Protection Training + Drill	19/12/2013	(Kyung Dong + Sungbo) HSE Training Hall Weir Site + Site Open area (Drill)

Annex G1:

Flora and Fish Study

Summary Flora and Fauna study

Kunhar river fish is limited to few species because of its year round low temperature ranges. The temperature goes up to 17 degrees maximum during three months of the year i.e., July, August and September. The fish found here other than the trout have very low economic value due to their limited growth and occurrence of lateral spines which makes it undesirable by humans. Brown trout is common in the upper reaches of the river Kunhar and streams. Government of Khyber Pakhtoon Khawa has established hatcheries for the production of rainbow trout. At present sufficient seed is available for further expansion in the small private sector of rainbow trout farming. Indigenous fish, mainly Schizothoracine carps, support an unknown level of subsistence fishery. The famous game fish Mahseer (*Tor tor*, *Tor putitora*) and Schizothoracines are becoming rare due to overfishing and the disappearance of spawning grounds.

The fish Caught during the study was small. Only 7 fish were caught during netting. The species caught was *Schizothorax curvifrons* (snow trout).

Sr. No	Weight (gm)	Length (cm)
1)	168	25
2)	52	24.2
3)	28	15.24
4)	39	22.86
5)	22	12.7
6)	47	25.4
7)	18	12.7
8)	32	20.32

Vegetation

The sustainable management of forests is of central concern to the local people who depend on forest resources for their livelihood, to international conservation agencies, and to the legal custodians of the forests, the forest services. Some of the issues relevant to low vegetative cover are common property management, including political ecology, property rights, and co-management. The local firewood collection is not the only main cause of deforestation but it has also occurred due to commercial harvesting and mismanagement by the government Forest Department. There is no land use policy implemented in Pakistan, due to which the steep slopes are not wisely used resulting into the massive vegetation loss which ultimately causes the land destabilization. Patind is not the only area which has become so prone to land erosion, in recent times.

Project site vegetation does not contain any species listed as endangered or threatened by the Government of Pakistan or IUCN. *Celtis australis* (Batculd) and *Ficus carica* (Anjeer) are two rare species in Pakistan but they are listed as common for the rest of the world. The presence of these two species will not be disturbed as they are present above the submerged area and away from the area where trees were cut down.

Following Tree species were documented in the project area both in Patrind and in Alda:

Sr. No	Common Name	Botanical Name	Type Of Tree	Status
1)	Phagwarr	<i>Ficus palmata</i>	Soil Binder	Common
2)	Anjeer	<i>Ficus carica</i>	Fruit	Rare
3)	Dhaman	<i>Grewia oppositifolia</i>	Fodder	Common
4)	Drawa	<i>Ailanthus anus</i>	Firewood	Common
5)	Robinia	<i>Robinia pseudoacacia</i>	Firewood	Common
6)	Drek	<i>Melia azadrach</i>	Firewood	Common
7)	Batculd	<i>Celtis australis</i>	Soil binder	Rare
8)	Kangarr	<i>Pistacia khunjak</i>	Soil Binder	Rare
9)	Talli (Shisham)	<i>Dalbergia sisso</i>	Furniture Wood	Common
10)	Phulai	<i>Acacia modesta</i>	Firewood	Common
11)	Sherol	<i>Alnus nitida</i>	Firewood	Common
12)	Shahtoot	<i>Morus alba</i>	Fruit	Common
13)	Akhrot (Walnut)	<i>Juglans regia</i>	Fruit	Common
14)	Nim	<i>Azadirachata indica</i>	Firewood	Common
15)	Kau	<i>Olea cuspidate</i>	Firewood	Common
16)	Chir	<i>Pinus roxburglii</i>	Timber	Common
17)	Pipal	<i>Ficus religiosa</i>	Firewood	Common
18)	Kiker	<i>Acacia nilotica</i>	Firewood	Common
19)	Beence	<i>Salix spp</i>	Firewood	Common
20)	Batang	<i>Prunus patia</i>	Fruit	Common
21)	Ber	<i>Zizyphus mauritiana</i>	Fruit	Common
22)	Snatha	<i>Dodonaea viscosa</i>	Soil Binder	Common

Annex H1:

EMP Compliance Status

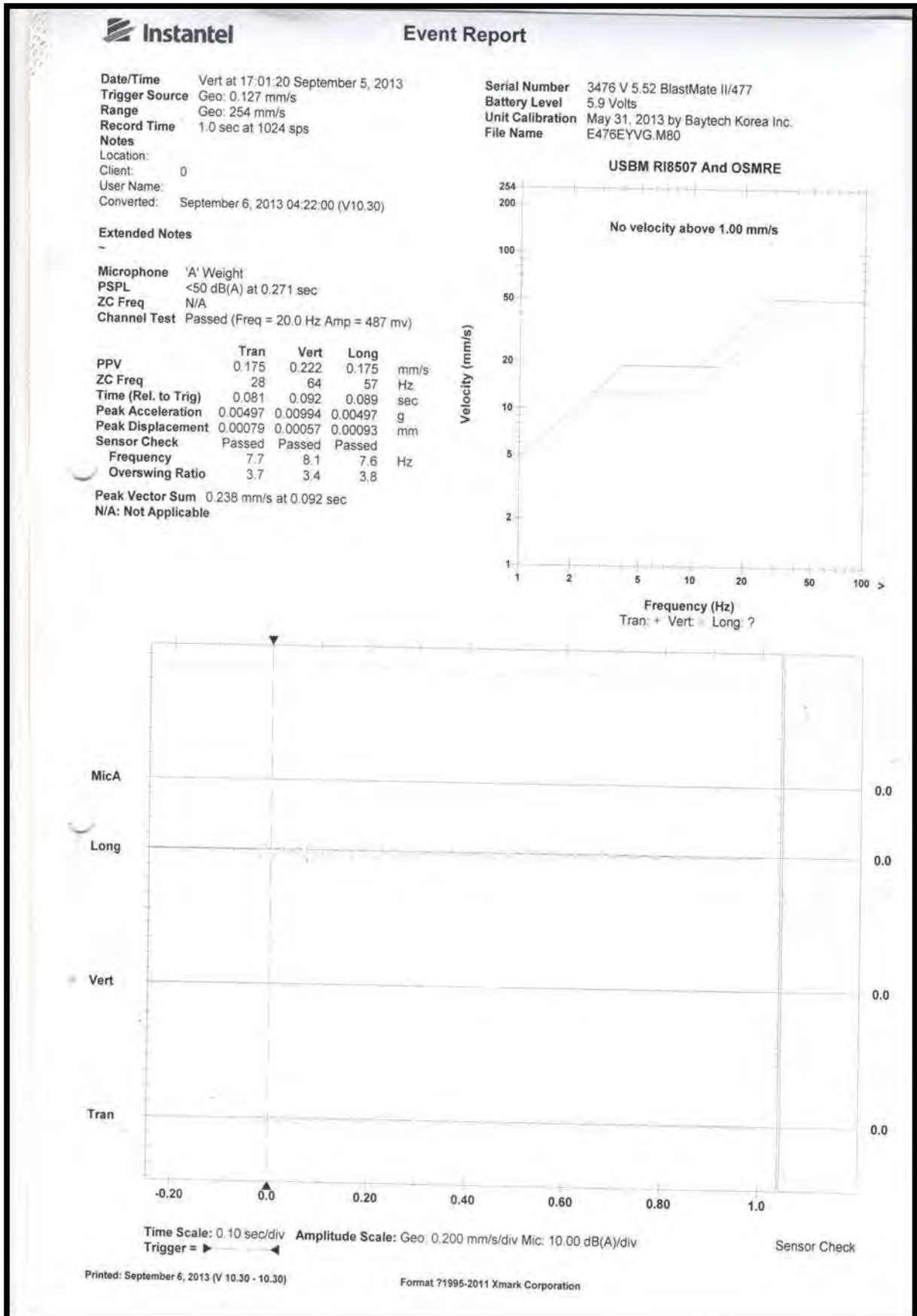
Feature/Issue	Parameters/monitoring	Location	Actions taken and monitoring results	Detailed reports
Statutory Requirements	i.Compliance with approval conditions	Whole Project	Implementation in compliance with: EPA's NOC & ADB's Environmental and Social Safeguards, IFC's Performance Standards	
Landslides	i.Slope Stability ii.Crack on the slope iii.Water from the slope	Weir/Power house Sites	Monitoring is required once the year. During 2013 this activity has not been undertaken. Now this it will be carried out in 2014. However measures like rock bolt, Shotcrete on surge shaft slopes and sand trap area undertaken. Furthermore, cut off drain over surge shaft slopes were constructed.	Pictures given in Annex-D4 for slope stability
Vegetation Clearance	i.Progressive vegetation clearance within marked sites	Weir/Power house Sites	Limited clearance undertaken at power house catchment within marked area. No additional clearance occurred.	To be provided in next ESMR
Erosion and Sediment	i.Slope protection ii.Slope drainage system iii.Sedimentation ponds	Weir/Power house Sites	To mitigate erosion and risk of sliding shotcrete activity on slopes has been carried out on both sides. Surge shaft slopes and sliding areas were covered with polythene membrane sheets, on surge shaft access area.	Pictures given in Annex-D4 for slope stability
Muck Disposal	i.Reuse of spoil/muck within Project areas where possible ii.Correct disposal of surplus spoil/muck in designated areas	Weir/Power house Sites	i.Excavated material from HRT is being used in civil works such as backfilling and road improvement (Upper & Lower site) ii.Dumping on approved sites.	Page 58-59 "Excavated material waste management plan"
Water Quality	i.Wastewater treated prior to river discharge ii.Temperature, dissolved oxygen, pH, conductivity, turbidity, total phosphorous, inorganic	Weir/Power house Sites	Treatment being undertaken through sedimentation tanks. Quality monitoring will be undertaken in 1 st quarter 2014. i.Septic tanks constructed with accommodation, camp and site office facilities(Upper & Lower site) ii.Drinking water quality tests of adjacent sources	Page no. 17-18 and 61 sedimentation tank under construction

	phosphorous, total nitrogen, ammonia nitrogen, nitrogen oxides, biochemical oxygen demand and faecal coli forms		undertaken during past year. iii. For waste water and river water quality tests proposal received from three labs. Monitoring will be undertaken soon.	
Waste Management	i. Waste materials reused or recycled on-site where possible ii. Non-recyclable wastes disposed of appropriately	Weir/Power house Sites	i. Papers, mineral water bottles and cement bags are being sent to market for recycling. ii. Garbage/Waste disposed in designated trenches iii. MoU signed with MCM for collection of waste (Lower site) iv. Portable washrooms procured for both sites.	Page 59 Waste management plan
Hazards/Risk	i. Workers provided with appropriate safety equipment and regular safety training ii. Storage of hazardous goods in bounded areas or in secure sheds iii. Explosives stored in guarded bunkers iv. Use of hazardous goods according to manufacturers' specifications	Weir/Power house Sites	i. Induction training providing PPEs, Tool Box Meetings, Job craft & on site trainings, ii. Hazardous material like polypropylene fiber and acetylene placed in segregated areas. iii. Explosive store established under NOC fulfilling all requirements iv. MSDS and SOPs being followed	
	i. Enforcement of workforce rules and regulations ii. Provision of alternative fuels for cooking, heating and light iii. Provision of adequate and well maintained services and facilities	Weir/Power house Sites	i. National and International Labour Laws and Standards are implemented ii. LPG cylinders are being used for cooking purpose and adequate arrangements for heating and lighting iii. Health and other welfare facilities as per required standards	
Aquatic Ecology	i. Fish and Aquatic populations	Weir Site	Study during 3 rd quarter completed Fishing & hunting prohibited on project sites. No endanger species found. No considerable disturbance to aquatic life. Will be conducted during next quarter as it was delayed	To be reported in ESMR-Q1-2014

			due to EPCC's internal official approvals/procedures.	
Flora	i.Direct observation of surrounding vegetation	Weir/Power house Sites	Study/monitoring undertaken in previous months. Removal undertaken as indicated in EIA. Mitigation measures will be undertaken after construction phase. Monitoring is required once the year. During 2013 this activity has not been undertaken. Now this it will be carried out in 2014.	To be reported in ESMR-Q1-2014
Noise and Vibration	i.Maintenance of equipment in accordance with manufactures' specifications ii.Controlled blasting	Weir/Power house Sites	Regular inspections and service of heavy equipment replacement and removal Pre blasting survey, blast permit issuance and SOPs adopted.	Page No. 21, 22, 23- and 52(iii Noise and vibration) & 56 vibration measurement
Air Quality	i.Exhaust emissions from machinery – visual inspection	All heavy equipment and machinery	For non-compliance replacement of vehicles and equipment undertaken. Monitoring through labs has also been planned.	Page No. 52- (i)- Air quality
Traffic/Access	i.Enforcement of speed limits on Project roads ii.Noise Traffic Signs	Weir/Power house Sites	Heavy equipment/vehicle drivers education sessions Speed limit and directional sign board installed	Page No. 61 Traffic management plan
Spring Water	Water Quantity Drinking Water quality monitoring items	Weir/Power house Sites	Drinking water monitoring was carried out in August 2012 and results were presented in ESMR 3 rd Quarter 2012. Monitoring has recently been undertaken and results will be included in ESMR 1 st Quarter 2014.	To be reported in ESMR-Q1-2014
Complaints	i.All complaints replied to	Weir/Power house Sites	Internal Grievance Redress Committee Compliant boxes installed for community but with little exception direct mode is being used i.e. meetings / telephonic etc.	

Annex-H2

(Noise and Vibration Record)



Annex H3: Pre-Blast Survey

NOTICE OF BLASTING

PAKISTAN PATRIND HYDROPOWER PROJECT

It's Possible
DAEWOO E&C

PLEASE BE INFORMED!

1. On May28, 2013 Tuesday, at Project Power House Site adjacent to your village, blasting activity shall be carried out.
2. You are requested to please do not enter into Blasting Site and surrounding during aforementioned time period and also restrict your pets and other animals.
3. While listening warning siren please do not come out of your houses
4. After five minutes of warning siren, countdown will start (1, 2, 3, 4, 5) and then blast will occur.
5. When the blast will be fired, you may feel vibration and air over pressure and it will last for a second or two, therefore, you don't need to be afraid.
6. If you have any questions or concerns regarding the blast, please contact us on 0322-9418179.

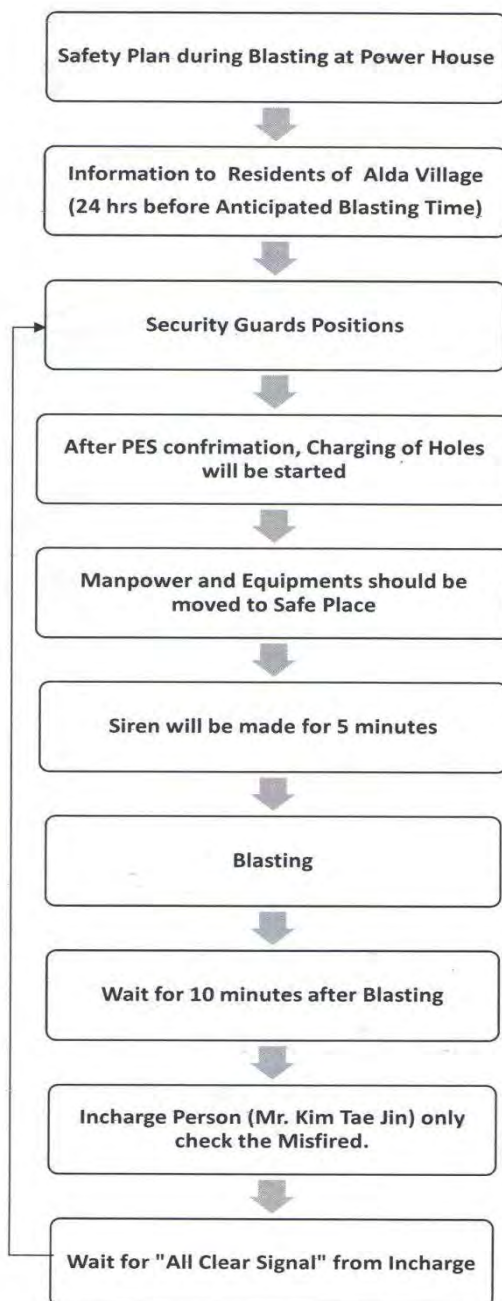
Thank you for your kind cooperation.

نوٹس:

بمہربانی مطلع رہیں

- 1- مورخہ 28 مئی 2013 بروز منگل، آپ کے گاؤں سے ملحقہ پراجیکٹ کی پاور ہاؤس والی جگہ پر بلاسٹنگ کی جائے گی۔
 - 2- آپ سے گزارش ہے کہ بمہربانی متذکرہ بالا دورانیہ میں بلاسٹنگ سائٹ کے احاطہ اور گرد و نواح میں داخل نہ ہوں اور اپنے پالتو جانوروں اور موبائیل فون کو بھی بند رکھیں۔
 - 3- وارننگ سائرن کی آواز سننے پر اپنے گھروں سے باہر نہ نکلیں۔
 - 4- وارننگ سائرن کے 5 منٹ بعد ایک سے پانچ تک گنتی ہوگی اور پھر بلاسٹ ہوگا۔
 - 5- بلاسٹنگ کے دوران ہلکا سا ارتعاش محسوس کر سکتے ہیں جو صرف ایک یا دو سیکنڈ کے دورانیہ کا ہوگا۔
 - 6- بلاسٹنگ کے حوالہ سے اگر آپ کے مزید سوالات یا تھنکات ہیں تو اس نمبر پر رابطہ کریں: 0322-9418179۔
- آپ کے تعاون کا شکریہ۔

Power House Routine Blasting Safety Plan



Kyung Dong	Daewoo E&C
PM	CM

1. Summary of House Survey at Weir Site

House survey at Weir site has been completed during 25th Feb to 05th Mar 2013 by Subcontractor, Sungbo & Kyungdong jointly, with attendees from EPA and OE.

Survey had been conducted for the houses which are located away 450~500m from the site after obtaining consent of house's owners. But some house's owners had rejected to survey on their houses which are one (1) house of Patrind village and one (1) house of Tarcheela village. Meanwhile, there were eight (8) dismantled houses in Sarati village.

Photos had been taken on the cracks and crack gauges had been installed on the main cracks. But measurement of each crack had not been measured due to rejection of house's owners and their signature also had not been able to taken on the survey sheets.

In conclusion, twenty-seven (27) houses had been surveyed and one (1) house had been rejected at Patrind village, seven (7) houses had been surveyed and two (2) houses had been rejected at Tarcheela village, seven (7) houses had been surveyed and eight (8) houses had been investigated as dismantled houses.

The purpose of house survey is to avoid the argument when construction works are started like blasting. Measurement equipment will be installed and measured to identify consistently on surveyed houses whether those data is satisfied with standard of vibration and noise.