Environmental and Social Monitoring Report

Project Number: 43903-014 (Loan 2722)
June 2014

PAKISTAN: Uch-II Power Project
Environmental and Social Development Quarterly Monitoring Report (Q2 2014)

Prepared by the Uch II Power (Private) Limited for the Asian Development Bank.

Asian Development Bank

OPERATIONAL PHASE

ENVIRONMENTAL AND SOCIAL MONITORING REPORT

Q2-2014

A	**Project/Business Name and Summary Information**	
	Development of 404 MW Gas Fired Combined Cycle Power Plant by Uch-II Power (Private) Limited	
(i)	*Location of project/business*	Dera Murad Jamali, Baluchistan, Pakistan
(ii)	*Nature*	Operation & Maintenance of low BTU gas fired combined cycle power plant.
(iii)	*Scale/size*	404 MW (ISO Gross Rating) 2 Gas Turbines x 01 Steam Turbine
(iv)	*Date of construction/operation commencement*	Construction activities commenced in July 2011. Project achieved Commercial Operation Date (COD) on April 4, 2014. after successful completion of Reliability Run Test on April 3, 2014
(v)	*Name, designation and signature of person responsible for preparing/reviewing the report*	Fida Muhammad Khan, Manager HSE Uch-II / Waseem Ellahi Plant General Manager
B	**Relevant Environmental Permits or Compliance Certificates**	
(i)	*Summary of permit conditions & media(s) covered*	"No Objection Certificate issued by BEPA"
(ii)	*Issue by which government Agency*	Baluchistan Environmental Protection Agency (BEPA)
(iii)	*Issuance date and duration of validity*	December 9, 2010 – BEPA also issued Confirmation of compliance under PEPA Regulation 2000 in April 2014. Copy of BEPA confirmation of compliance attached as Appendix-H with this report.
(iv)	*Renewal requirements*	None
C	**Incidents of Violations or Non-Compliance**	
(i)	*Recorded date and responsible agencies*	None in Q2-2014
(ii)	*Nature of non-compliance*	No reportable incident to authorities recorded during Q2-2014.
(iii)	*Violation or non-compliance based on what environmental standards and regulations*	N/A
(iv)	*Recorded dates and authorities*	During Q2-2014, EHS related observations of minor nature recorded during routine site monitoring. Log with corrective actions attached as Appendix A.
(v)	*Media or community reactions (if any)*	None in Q2-2014
(vi)	*Corrective actions, deadlines, identification of responsible parties*	Short term corrective actions identified through regular site H&S walks. Please refer to Appendix A.
	(a) short--term: remedial action	Please refer to Appendix A
	(b) long-term: preventative measures	None in Q2-2014
D	**Incidents of Environmental and Safety Accidents**	
(i)	*Incident recorded dates and responsible agencies,*	None in Q2-2014
(ii)	*Scale of damage and injury (if any)*	None in Q2-2014
(iii)	*Authorities in charge of investigation/recording*	Uch-II Management responsible for recording and investigation.
(iv)	*Media or community reactions (if any)*	None in Q2-2014
(v)	*Corrective actions, deadlines, identification of responsible parties*	None in Q2-2014
	(a) short--term: remedial action	None in Q2-2014
	(b) long-term: preventative measures	None in Q2-2014
E	**Labour Relations and Conditions**	
(i)	*Nature of labour dispute or grievance*	None in Q2- 2014
(ii)	*Legal requirements, Permit conditions and renewal requirements*	None in Q2-2014
(iii)	*Authorities in charge of investigation/recording*	Uch-II Management responsible for recording and investigation.
(iv)	*Media or community reactions (if any)*	None in Q2-2014
(v)	*Corrective actions, deadlines, identification*	N/A

	of responsible parties		
(vi)	*Labour relations and living conditions for construction labour force*	Large portion of construction labour camp decommissioned after completion of project phase and major chunk of EPC labour demobilized. Only warranty team is at site residing in dormitories with satisfactory living conditions. Basic Medical facility with a qualified nurse also available at site.	
F	**Environmental Capacity**		
(i)	*Staff capacities in environmental management (as relevant)*	Uch-II O&M Environmental Staff Consists of; (i) 01 Manager HSE (ii) 01 Deputy Manager Chemical (Effluent treatment, analysis & Spill Response) (iii) 01 Assistant Manager Chemical (Effluent treatment, analysis & Spill Response) (iv) 01 HSE Officer (v) 02 Senior Chemists (Effluent treatment, analysis & Spill Response) (vi) 01 HSE Coordinator (vii) 01 Chemical Assistants (Effluent treatment & Spill Response) • Organization structure of Uch-II O&M Environmental team is attached as Appendix-G.	
(ii)	*Degree of awareness of: (i) environmental management, (ii) health and safety, (iii) environmental laws and regulations*	Project O&M phase H&S Management plan and all other Environmental applicable & relevant Laws and regulations orientation to O&M team is underway. Owner (Uch-II) project HSE department continues managing O&M phase. Very well updated on all the relevant HSE laws and regulations.	
(iii)	*Training programs carried out*	• Basic firefighting training delivered to O&M team. • Weekly Fire and emergency drills performed by O&M Team • Pre Job TBTs conducted on regular basis.	
(iv)	*Needs assessment of environmental management capacity (as relevant)*	All positions filled as per O&M staffing plan.	
(v)	*Compliance audits carried out*	None in Q2-2014	
G	**Stakeholder Consultation/CSR Activities**		
(i)	*Details of consultations, if any, with local communities, nongovernmental organizations, civil society groups, and other stakeholders, including affected people*	None has been conducted in Q2-2014	
(ii)	*Describe efforts to promote community relations and local development for inhabitants of the project area.*	No communities migrated or effected residing in the vicinity of project site due to facility setup. Uch-II is located within UPL boundary where UPL (owner of Uch-II) maintained a comprehensive CSR local community outreach and social development program since last many years. Main community development segments include; (i) Standardized primary education schools (ii) Modernized Emergency care centre (iii) 08 Drinking water treatment plants (iv) Internship and Trainee engineers program (v) Roads construction, calamity relief and free medical camps.	
(iii)	*Project procedures for (a) hiring and (b) acquisition of goods and services*	UPL prefers hiring human resource from local area at all levels. Local – Balochistan O&M employees ratio 22%	
(iv)	*Provide List of grievances and status of grievance resolution*	None in Q2-2014.	
H	**Issues, Status of Implementation of Mitigating Measures in the Environmental and Social Management Plan and Compliance with Environmental Qualities and Standards (national and international, as relevant) and Environmental and Social Requirements**		
	Parameter	**Issue**	**Status**
1	*Air*	None	Gas Turbines Stack emissions monitored through CEMS. Air Emissions data (HRSGs stacks) for quarter under review attached as Appendix-B
2	*Water (surface and ground water)*	None	Overall compliance with EMP (as applicable against specific parameters) in place. Attached is Appendix C, indicating Consumption data. Waste water generated is treated at Water treatment plant and waste water treatment plant before disposal to evaporation pond. Appendix C,

			indicates waste water qualitative and quantitative data for the period under review.
3	*Waste generation and management*	None	Solid waste managed through onsite land fill for Bio degradable and household waste. Recyclable waste provided to recycling contractor. Solid waste record indicated in appendix-D for the period under review.
4	*Noise and vibration*	Plant high noise areas highlighted.	Plant noise monitoring data indicated in Appendix-E. Issue related to plant noise levels around plant equipment is also explained in Appendix-E.
5	*Occupational health and safety*	None	Monitoring of Health & Safety Key performance Indicators by Uch-II in place. Well-equipped UPL Site medical center with Medical officer and 02 nurses available 24/7 for medical treatment and emergencies. Annual Medical surveillance program for UPL employees in place.
6	*Community safety and security*	None	Community safety during road travel is ensured through driver's awareness and training program. The non-local staff within the boundary wall of power plant sensitized for taking care of local norms and customs and avoiding unnecessary interaction with local community.
7	*CO_2 emissions by the Project*		CO_2 emissions data indicated in Appendix-B for the period under review. Methodology for computation of the CO2 produced by the plant is provided in the Appendix-B)
8	*Environmental and Social Management Plan, including IFC E&S Action Plan (September 29, 2010)*		Project H&S plan and EMP implementation and monitoring maintained throughout project phase. Attached Appendix-F summarizes the compliance status of mitigation measures for E&S plan for Operational Phase for the period under review. Reference Table 4-2 of EIA and Table 6-3 of EMP, both tables integrated into Appendix-F to avoid repetition.

I Summary Assessment of Client Performance and Recommendations

Project achieved Commercial Operation Date (COD) on April 4, 2014 after completion of Reliability Run Test on April 3, 2014. Uch-II was formally inaugurated on April 25, 2014 by the Prime Minister of Islamic Republic of Pakistan Mian Muhammad Nawaz Sharif.

Through UCH-I and Uch-II, GDF SUEZ now owns 932 MW (net) generation capacity on the national grid in Pakistan, which represents 4.1% of country's installed capacity and around 11% of the IPP installed capacity.

Total of Power Generation for the period under review remained 532.26 GWh

Areas of concern:

- Continuous Emissions Monitoring (CEMS) for both GTs experienced trouble periodically.
- High noise at different plant areas.
- Waste water treatment (RO Plant) commissioning in progress by EPC and not yet handed over to O&M.

The above-mentioned issues taken up as with EPC contractor as post COD major rectification items.

Positive Achievements:

Extensive housekeeping, fire extinguishers inspections, waste disposal and management program, permanent safety signage at plant areas and road safety signs upkeep work carried out during the Period under review. O&M staff safety authorizations, firefighting trainings performed during Q-2 2014. No other significant Environmental & Social issues to report.

Acronyms

BEPA	Balochistan Environmental Protection Agency
CCR	Central Control Room
COD	Commercial Operation Date
CO_2	Carbon Dioxide
dB	Decibel
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
PEPA	Pakistan Environment Protection Agency
EPC	Engineering Procurement Construction
ESAP	Environment and Social Action Plan
E&S	Environmental and Social
GOB	Government of Balochistan
GOP	Government of Pakistan
GWh	Giga watt hours
HRSG	Heat Recovery Steam Generation
HSD	High Speed Diesel
HSE	Health Safety & Environment
H&S	Health and Safety
m^3	Cubic Meter
MSDS	Material Safety Data Sheet
MW	Mega Watt
NEQS	National Environment Quality Standards
NOC	No Objection Certificate
OGDCL	Oil and Gas Development Company Limited
O&M	Operation and Maintenance
pH	Hydrogen Ion Concentration
PPE	Personal Protective Equipment
PTW	Permit to Work
RA	Risk Assessment
RO	Reverse Osmosis
SOP	Standard Operating Procedure
SS	Sub Station (Electrical)
ST	Steam Turbine
TBT	Tool Box Talk
Uch-I	Uch Power Station
Uch-II	Uch-II Power (Private) Limited
WHO	World Health Organization

Appendix-A ***Uch-II Site Monitoring Summary Q2-2014***
Corrective Actions

Monitoring Conducted by	HSE Uch-II
Corrective Actions By	UPL Maintenance Department

S. No	Findings	Corrective Actions	Compliance Status (as of June 30, 2014)
01	Concrete slabs placed over cable trenches were missing at three different locations around Gas Turbine-1 PEECC creating the falling into pits / trench hazards for the crew working nearby. • Unsafe Condition	Immediately barricaded the hazardous area and instructed the sub-contractor to place the concrete slabs over the cable trenches.	Completed
02	Dripping of water from air conditioning unit installed in workshop area was observed. Slipping and falling hazards generated due to presence of water. • Unsafe Condition	HVAC section routed the water drain line to drain. Caution signs of wet surface were displayed around the area as well before rectification of problem.	Completed
03	Un-attended scaffolding pipe installed at cooling water pump "A" inside the cooling water pumping station was creating the striking hazards for the workers working there. • Unsafe condition	Informed the mechanical department to remove the unattended scaffold pipe from the location. TBT was conducted with scaffolding crew regarding the complete removal of scaffolding items after completion of jobs.	Completed
04	Used and unused painting material like paint drum, brushes and thinner were found disorderly outside of admin building area while no work was being performed there. • Fire and chemical hazard	Instruction was passed to the painting sub-contractor regarding the hazards of paints and flammable liquids and for the keeping of material in the designated safe storage area.	Completed
05	Poor housekeeping observed at East side of GT-2 PEECC, where food waste items found disorderly and kept very close to Fire hydrant causing the obstacle for the operation of valve in case of emergency if occurs. • Housekeeping and Delay in emergency response time issues	Immediately instructed the cleaning crew to remove the food waste around the fire water hydrant. In the meantime instruction was passed to the fire department to look for the same hazardous condition at all plant fire hydrants and rectify the same.	Completed
06	A Sub-contractor was performing the Holiday test inside the Demineralized tank without having the Permit. PTW non-compliances	Immediately stopped the activity and informed the shift charge regarding the hazardous situation and later on instructed the activity supervisor to always ensure the arrangements of PTW before starting such activities.	Completed
07	Fire hydrant was being used for filling water drum which was kept by sub-contractor civil team. Drum was placed very close to the hydrant for grouting activity (Lighting pools foundation). • Unsafe act and condition • Delay in emergency response time	Immediately instructed the job supervisor to remove the drum from the area. Also, TBT was conducted with sub-contractor team regarding the unsafe acts and conditions.	Completed

08	Workers without mandatory PPEs (Safety Helmet) were observed performing the cleaning activity in plant operational area. • Non-compliance of PPEs	TBT conducted with the workers for the uses and benefits of wearing mandatory PPEs in plant operational area.	Completed
09	Poor housekeeping was observed inside the cooling water pumping station, where a lots of nut bolts which once used during the valves reinstatement activity found idly and creating the slipping, tripping and falling hazards. • Unsafe Condition	Instructed the mechanical maintenance department to relocate the idle nuts bolt to the designated storage area.	Completed

Appendix-B

Period Q-2 2014
Fuel Type: Low Btu Gas

GTs Stack Emissions

Stack Emissions	Units	Average GT-1	Average GT-2	Average Both GTs	Limits
Exhaust Temp.	**°C**	115.67	115.62	115.65	NEQS
Particulate Matter	**mg/Nm_3**	6.83	2.79	4.82	500
SO_2	**mg/Nm_3**	6.27	6.08	6.17	400
SO_2	**Metric ton/d**			0.21	100
NO_X	**mg/Nm_3**	53.07	50.6	51.83	400
NO_X	**lb/MMBTU**			0.1	0.2

CO_2 Produced

	Unit	Monthly Average	Total Quantity
CO_2 Produced (including CO_2 in fuel gas)	[Tonnes]	148450.87	416,372.87
CO_2 Produced (excluding CO_2 in fuel gas	[Tonnes]	83106.45	233,095.45

CO_2 Calculation Methodology

1.0 Monthly average Natural Gas quality data is obtained from Gas chromatograph indicating Natural gas constituents in %age.

2.0 Mole fraction of constituents is calculated and CO2 weight is obtained.

3.0 The monthly gas consumption data is obtained from flow computers available at gas station in MMBTU.

Typical monthly computation data is as follows;

Data from Gas Chromatograph

Gas Constituents		Moles %
Carbon Dioxide	CO_2	36.00976667
Nitrogen	N_2	20.44097333
Methane	CH_4	41.68367
Ethane	C_2H_6	1.11432
Propane	C3H8	0.41803
I-Butane	C4H10	0.11367
N-Butane	C4H10	0.121
I-Pentane	C5H12	0.03967
N-Pentane	C5H12	0.0300
Hexane	C6H14	0.0200
Molar Total	----	100.0

Manual Calculations

Molecular weight	Fraction of Gas Mole	Wt	Moles of CO_2 Generated	Wt of CO_2	
44.0098	0.360098	15.847826	44	15.84430	
28.01348	0.204410	5.726228	0	0.00000	
16.04276	0.416837	6.687211	44	18.34081	
30.06964	0.011143	0.335072	88	0.98060	
44.09652	0.004180	0.184338	132	0.55180	
58.1234	0.001137	0.066069	176	0.20006	
58.1234	0.001210	0.070329	176	0.21296	
72.15028	0.000397	0.028620	220	0.08727	
72.15028	0.000300	0.021645	220	0.06600	
86.17716	0.000200	0.017235	264	0.05280	
	0.9999	28.984573		36.3366	Incl CO_2 in gas
				20.4923	Excl CO_2 in gas

Heating values

Constituents	HHV (dry) MJ/kg	LHV (dry) MJ/kg	HHV (dry)	LHV (dry)	
Carbon Dioxide	0	0	0	0	
Nitrogen	0	0	0	0	
Methane	55.4850	49.9995	371.0400	334.3574	
Ethane	51.8645	47.4742	17.3783	15.9073	
Propane	50.3414	46.3418	9.2798	8.5426	
Isobutane	49.5135	45.7279	3.2713	3.0212	
N-Butane	49.5135	45.7279	3.4823	3.2160	
Isopentane	48.9996	45.3419	1.4024	1.2977	
N-Pentane	48.9996	45.3419	1.0606	0.9814	
Hexanes	48.6694	45.0907	0.8388	0.7772	
			407.7535	368.1007	MJ/mole of gas
			MJ/kg	MJ/kg	
			14.06795	12.69988	

For calculating CO_2 emissions the following formula is:

$$CO_2 \text{ Tons} = \frac{\text{Gas Consumed MJ / LCV (MJ/Kg) X Total wt of CO2}}{\text{(Molecular wt of Gas Kg x 1000)}}$$

Whereas 01 MJ = 1055.056 x MMBTU

Example:
If we have consumed Natural Gas = 1,830,729.00 MMBTU than Total CO_2 Generated including CO_2 in Gas will be 190,667.7481 Tons and 107,528.5354 Tons excluding CO_2 in gas.

Appendix-C

Water Consumption Data

Period Q-2 2014	Apr-14	May-14	Jun-14
Water Consumed m^3	156,069	292,483	339,772

Waste Water Data

Period Sampled: Q-2 2014			Apr-14	May-14	Jun-14
Parameter	Units	NEQS	Average Monthly Values of Effluent water flowing to Evaporation pond		
Effluent Flow	(m^3/hr)				
Temperature	°C	40	29	29.5	32.4
pH	pH	6 to 10	8.8	8.9	8.65
TSS	mg/liter	150	24	19	22
Oil & Grease	mg/liter	10	< 10	< 10	< 10

Appendix-D

Q-2 2014

Uch-II Waste Generation Statistics				
Waste Type	**Unit**	**Apr-14**	**May-14**	**Jun-14**
Used oil	Ltr	30	40	230
Metal	Tons	0.15	0.1	0.12
Paper/ Plastic/ Glass	Kg	135	80	65
Food Waste	Kg	145	132	105
Oil Filters & Oily Rags	Kg	40	24	22
Used Batteries	Nos	-	-	-
Old Tyres	Nos	0	0	0

Appendix-E

Uch-II Noise Monitoring Report	**Date:** 12th April 2014

S. No	Noise Monitoring Location of Equipment / Area	Guarantee limits	Noise Monitoring Results (dB) A
01	East side of pump "A" at Raw Water Pumping Station	85 (dB) A	82.6
02	South Side of potable water supply pump "A"	85 (dB) A	77
03	South Side of CT Basin Makeup Pump "B"	85 (dB) A	86.1
04	West side of DM distilation pump "B"	85 (dB) A	79
05	South side of Hot Well make up pump "B"	85 (dB) A	81
06	East side of Service Water pump "B"	85 (dB) A	86.8
07	North Side of CT at ground level close to cell #02	85 (dB) A	84.1
08	North Side of CT at ground level close to cell #06	85 (dB) A	87
09	East Side of Cooling Tower fan motor # 6(10PAB01-AN006)	85 (dB) A	82.4
10	East Side of Fire water pump house with door close & Diesel pump running	85 (dB) A	86.1
11	East Side of Cooling Tower fan motor # 8 (10PAB01-AN008)	85 (dB) A	87.1
12	West side of HSD Decanting point # 3	85 (dB) A	65.1
13	North Side of HRSG-2 main stack	85 (dB) A	74.4
14	North side of GT -2 Generator	85 (dB) A	80.4
15	South side of GT -2 turbine combustion chamber	85 (dB) A	82.2
16	North side of GT -2 PEECC	85 (dB) A	72
17	South side of boiler feed pump "B"	85 (dB) A	87.2
18	South side of GT -1 PEECC	85 (dB) A	76.1
19	South side of GT -1 turbine combustion chamber	85 (dB) A	83.5
20	West side of GT -1 Generator	85 (dB) A	81.3
21	South side of GT -1 turbine compartment (shaft) entrance door	85 (dB) A	89.6
22	North Side of HRSG-1 main stack	85 (dB) A	76
23	West side of HRSG-1 at bottom close to HRSG duct entrance	85 (dB) A	86.2
24	West Side of Cooling water pumping station	85 (dB) A	83.1
25	West Side of CW pump "B" in cooling water pumping station	85 (dB) A	91.3
26	North Side of CW pump "B" in cooling water pumping station	85 (dB) A	90.7
27	West Side of Auxiliary CW pump # 1 in cooling water pump station	85 (dB) A	90.4
28	East Side of Auxiliary CW pump # 1 in cooling water pumping station	85 (dB) A	98.1
29	North Side of CCW pump "B"	85 (dB) A	81.7
30	North Side of instrument Air Compressor "A"	85 (dB) A	83.9
31	North Side of Boiler Feed Pump # 1 at HRSG-1 Bottom	85 (dB) A	86.5
32	East side of Steam Turbine	85 (dB) A	81.5
33	West side of Oil cooler in lube oil console skid for STG	85 (dB) A	87.6
34	West side of Steam Turbine	85 (dB) A	80.5

35	Waste Water Treatment plant near pump station	85 (dB) A	57.5
36	North Side of workshop	85 (dB) A	64.2
37	Check Post - 14	70 (dB) A	48.8
38	Check Post - 06	70 (dB) A	43.3

High Noise Around Plant Equipment:

Higher noise levels pertains to BOP (Balance of Plant) equipment mainly including closed cooling water pumps, cooling tower fan motors, fire and service water pumps etc. The matter of high noise has been taken up with EPC Contractor. EPC contractor would demonstrate the noise levels of equipment within the specified limits. The high noise levels of identified equipment have not been accepted by owners and currently the matter is taken up with EPC contractor for demonstrating noise levels acceptable as per contract and National Environmental Quality Standards.

Compliance Status of EMP Control Measures Q2-2014

Appendix-F

Uch-II Project

Environmental / Social Impacts	Control & Mitigation Measures	Monitoring Frequency	Responsibility	Compliance Status
Air Emissions	- Stack emissions monitoring in place through CEMS (Continues Emission Monitoring System) - Annual third party stack emissions and ambient air quality testing - Monitoring compliance with National Environmental Quality Standards	- Monthly - Annually	Uch-II O&M team	Complied
Plant Noise	- Noisy equipment are placed inside the acoustic enclosure - Availability of silencers at intake and exhaust channels - Plant routine noise monitoring in place - High noise areas are identified and high noise signage displayed to enhance awareness	Monthly	Uch-II O&M team	Complied
Waste Water	- Uch-II is zero liquid discharge facility - Waste streams generated from plant (sanitary waste water, cooling tower blow down, demin regeneration waste water, oily waste water etc.) disposed off into onsite evaporation pond after required treatment - Waste water sampling, analysis and test record being maintained - Compliance monitoring and reporting in place	Daily	Uch-II O&M team	Complied
Water Sourcing	- Fresh surface water sourced from Pat Feeder Canal as per project design and irrigation permits from Government of Balochistan. - Water consumption monitoring on monthly basis - Water conservation – Reuse from waste Reverse osmosis Plant. (waste water plant not yet handed over to O&M by EPC)	Applicable after RO plant handover	Uch-II O&M team	After RO plant handover
Hazardous Materials	- Segregation of hazardous waste - Separate storage area for hazardous wastes - Hazardous waste disposal through waste contractor - Hazardous waste quantification on monthly basis and record being maintained - Regular inspection of storage areas	Monthly	Uch-II O&M team	Complied
Solid Waste Management	- Waste Management Procedure in place - Color coded waste bins available at different plant locations for different waste types - Designated land fill area for disposal of food / kitchen waste - Non Hazardous waste quantification on monthly basis and record being maintained	Monthly	Uch-II O&M team	Complied

Occupational Health and Safety				
Electrical Hazards	- Permit to work / Lock out Tag out procedure in place. All electrical isolations are ensured before performing any activity on energized systems - Access to high voltage areas (electrical substations, 220 KV switchyard, panel rooms etc.) is controlled - Electrical safety signage displayed in respective areas to enhance the risk awareness of staff	Ongoing on regular basis	Uch-II O&M team	Complied
Confined Space Entry	- Identification of all confined spaces at plant - Confined Space entry procedure in place covering all confined space associated risks and control measures - Regular confined space training sessions with staff - Training sessions on Responsibilities of Standby Man	Ongoing on regular basis	Uch-II O&M team	Complied
Machine Guarding	- Moving and rotating parts of plant equipment are properly guarded to eliminate the risk of entanglement and injury - Permit to work / Lock out Tag out procedure in place to ensure the safety of staff working in plant equipment - All kinds of plant and machinery inherent dangers to workers are mitigated through engineering controls and safety devices	Ongoing on regular basis	Uch-II O&M team	Complied
Eye Head and Foot Protection	- Mandatory and Job specific personal protective equipment are provided to all staff and contractors working at plant - A procedure for provision, use & maintenance of PPEs in place - Open toe shoes are not allowed inside the plant area - PPEs awareness signage displayed at prominent locations at plant - Regular monitoring of PPEs compliance - Contractors and visitors safety induction program in place	Ongoing on regular basis	Uch-II O&M team	Complied
Fire and Explosion Hazards	- Portable fire extinguishers are available throughout the plant area and buildings as per design layout and clearly identifiable - Inspection of fire extinguishers on monthly basis - Fire water system composed of fire water storage tanks, fire water pumps, fire water ring main (hydrants, monitors) available as per design and clearly marked - Emergency exits are well marked luminaries - Emergency response plan in place - No smoking policy in place	Ongoing on regular basis	Uch-II O&M team	Complied
Housekeeping	- Regular housekeeping drives program in place - Regular safety walks and housekeeping inspections - Lock out Tag out procedure in place	Ongoing on regular basis	Uch-II O&M team	Complied

Chemical Exposure	- Respirators are made available to staff works in chemical areas Regular inspection of work areas and storage areas to detect any leakages/ spillage - Safe movement of chemicals and fuels - Spill emergency response procedure	Ongoing on regular basis	Uch-II O&M team	Complied
Noise Levels	- Provision of ear defenders (ear muff, ear plugs) to staff - High noise safety signage displayed around noisy equipment to enhance awareness - Awareness session with workers on High Noise Risks and Control Measures	Ongoing on regular basis	Uch-II O&M team	Complied
Heat Related Stress / Illness	- Provision of cooling neck bands to employees, shaded rest areas for workers and cold drinking water facilities during summer season - Rest break system is ensured during works in hot weather - Heat Stress awareness session with staff	Ongoing on regular basis	Uch-II O&M team	Complied

Mitigation Measures – Photographs

Noise Signage at High Noise Equipment and Areas

Color Coded Waste Bins at different plant location

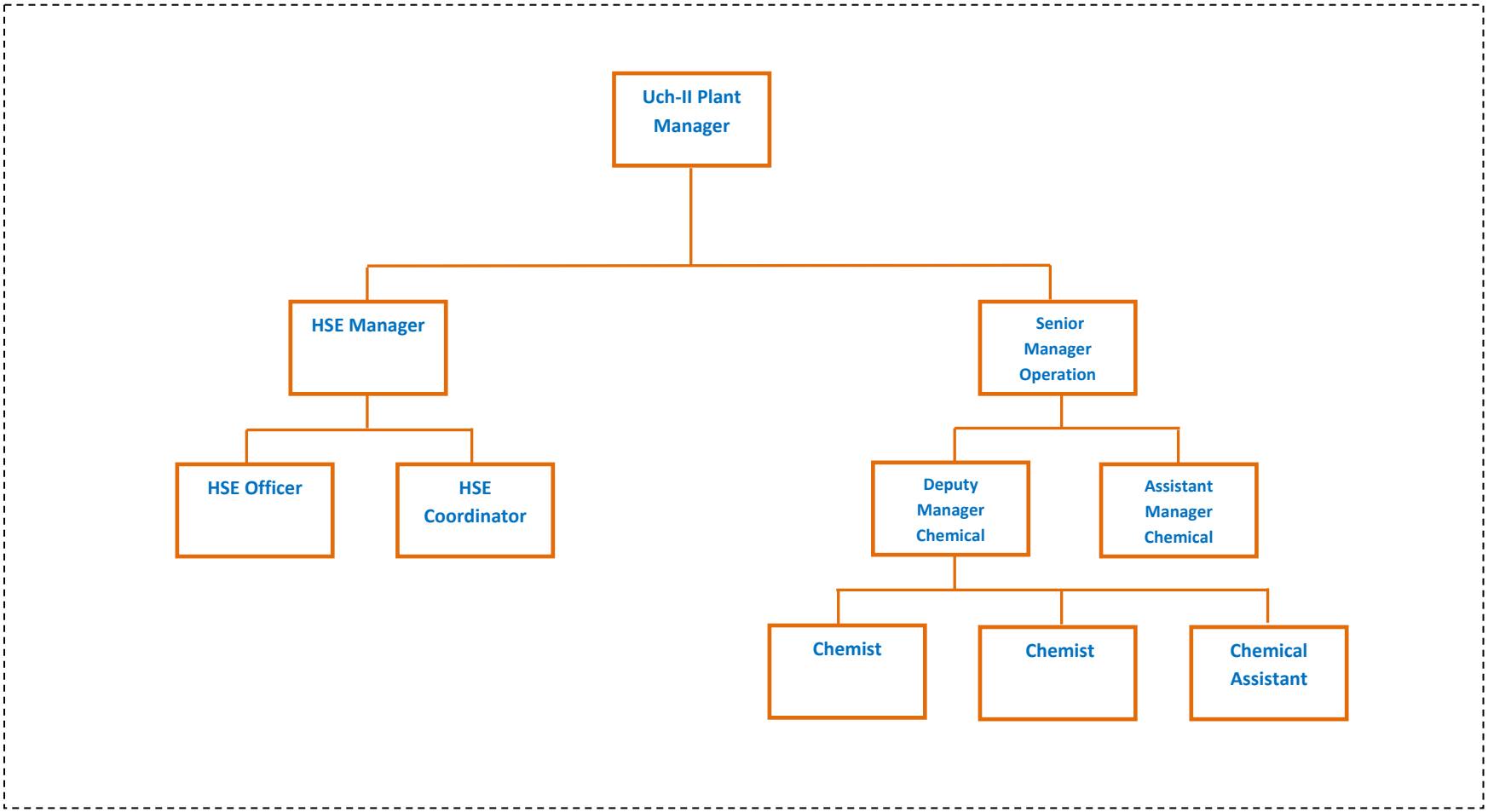
Safety Awareness Signage (PPEs, Housekeeping, Chemicals and Electrical Hazards)

Fire Equipment at Plant and Emergency Exits

Appendix-G

Uch-II (404 MW – ISO) CCGT Power Project

Uch-II Environmental Team - Organization Structure



Total Dedicated members	08

Appendix-H

Fax no: 0838 711752

Attention: MR FIDA KHAN SB
M/S USE

OFFICE OF THE DIRECTOR GENERAL BALOCHISTAN
ENVIRONMENTAL PROTECTION AGENCY
GOVERNMENT OF BALOCHISTAN
SAMUNGLI ROAD QUETTA

Office: 081-9201840 Fax: 081-9201180 Email: epa_baluchistan@yahoo.com

No. DG (EPA)/ 4688 /2014 Dated: 22-04-/2014

To,

Mr. Babar Saeed Khan,
Construction Manager
48, Khayabar-e-Iqbal, Main Margalla Road
F-7/2 Islamabad-400 Pakistan
Tel: - +92512654901-4, Fax:-+92512654905

Subject;- **Request for Confirmation of Compliance under BEPA IEE/EIA Regulation 2000.**

With reference to your letter No.2.7.8/BEPA)/Corr dated 18th January, 2014 and to convey the approval of this Agency for the commencement of operation and commissioning of Combined Cycle subject to the conditions as already conveyed vide letter No. DG(EPA)/ 6269-72 dated 09-12-2010.

2. Furthermore, under section 14(1) of IEE/EIA Regulations,2000, the proponent is supposed to submit regular auditing and reporting in order to mitigate and manage the environmental impacts for the life of project.

(Naseer Khan Kashani)
Director General

Master file.

Incoming

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