

**ANNEXURE 01: PHSER<sup>1</sup> STUDIES CHAIRED /CONDUCTED**

<b>Sl.No.</b>	<b>Client</b>	<b>Project Details</b>	<b>PHSER Stages</b>
24	NBTC/ KOC	Contract No. 2509411: Construction of Landfill Facilities for Hydrocarbon Contaminated Soil at South-East Kuwait (Group-A)	PHSER III/ 17 <sup>th</sup> Sept 2014
23	KOC/ BMB	Contract # 12050723: Installation of Effluent Water Disposal System in NK GC's 15, 25 & CIPF	PHSER III/ 2 <sup>nd</sup> Sept 2014 PHSER IV/ 11 <sup>th</sup> Dec 2014
22	KOC/ Petrofac	New Distribution Network for North Kuwait ESPs	PHSER V/ 13-15 July 2014
21	KOC/ BV	EF-1937: Construction of Oil and Vital Facilities Protection Department (O&VIPD) Complex & Perimeter Fence in South RATQA Field	PHSER II/ 25th June 2014
20	KOC/ BV	EW-0012: Minagist Marrat Water Injection Project	PHSER II/ 8th June 2014
19	KOC/ Petrofac	J1-2004:EFFLUENT WATER INJECTION NK-PH-I AND CENTRAL SEAWATER INJECTION NK-PH-II	PHSER V/ 22 & 23 April 2014
18	KOC/ GS/ BV	Replacement of HIC-affected Vessels in GC's in SK	PHSER IV/ Mar. 29 & April 3, 2014
17	KOC/ ABB/ BV	New 30" Crude Transfer Line (TL-4)	Partial PHSER Stage V Mar. 30 to April 2, 2014
16	KOC/ CMSRSL/ Napesco	DCS Upgrade in GC-17, -27 & -28 in West Kuwait	Stages 3 & 4 22 Feb 2014
15	KOC/ BV	EW-0003 – New Firewater Tanks in GC-17, -27 & -28	Stage 2 Dec. 26, 2013
14	KOC/ Saipem	BS-171 – New Booster Station at Wester Kuwait	Stage 4 Nov. 24, 25 & 26, 2013
13	KOC	EW 0010- Oil Containment System for Pipeline Corridor from NTF to North Pier	Stage 2 Oct. 27 & 28, 2013
12	KOC/ Alkhorayef	New GC 16 in West Kuwait	Stage 4 Oct. 10 & 11, 2013
11	KOC/ L&T GC	–Consultancy Services for Debottlenecking of GC-17 at West Kuwait	Stages 2 & 3 Oct. 3 & 4, 2013
10	KOC/ MAK	Ahmad Al Jaber Oil & Gas Exhibition Centre	Stage 4/ August 2013
9	KOC/ Petrofac	New Distribution Network for North Kuwait ESPs	Stage 3/ July 2013

<sup>1</sup> PHSER == Project Health Safety & Environment Review

<b>Sl.No.</b>	<b>Client</b>	<b>Project Details</b>	<b>PHSER Stages</b>
<b>8</b>	KOC	Replacement of HIC-affected Separators/ Scrubbers in SK GCs (sour gas facility)	Stage 3/ May 2013
<b>7</b>	ADMA OPCO	Replacement of 36" NMOL (sour crude)	Stage 3 & 4
<b>6</b>	TOTAL ABK	10" Export Oil Pipeline	Stages 2, 3 & 4
<b>5</b>	ADMA OPCO	Replacement of STOREX Buried Pipework	Stage 2
<b>4</b>	ADMA OPCO	Effluent Water Disposal Project	Stages 4 & 5
<b>3</b>	ADMA OPCO	Zakum Plant Debottlenecking for Additional 100 MBD (mildly sour gas handling)	Stage 2
<b>2</b>	ADGAS	Offshore Associated Gas (OAG) - I Project (from offshore sour gas field)	Stage 2
<b>1</b>	ADMA OPCO	Flares Upgrade Project (in sour gas handling plants)	Stages 3, 4 & 5

**ANNEXURE 02: HAZOP STUDIES CHAIRED /CONDUCTED**

Sl. No.	Client	Particulars	
1.	ORYXGTL/ TATA Projects	Units 72, 82, 87 & 81, 74, 75, 78, 72, 82, 83 & 84, 50, 10, 20, 30, 35 and 40 + 60.	HAZOP/ Nov. 2016 ~ September 2017
2.	Salvus/ HPCLVashi	White Oil Pumping Terminal	HAZOP/ 1-4 Sept. 2016
3.	QP/ CCC	HIA Jet A1 Supply	HAZOP/ 24 – 28 July 2016
4.	Chola/ Dodsals/ KOC	EWTIP – Vendor Package HAZOP V	HAZOP/ 19-22 Jun 2016
5.	Chola/ Dodsals/ KOC	Contract No. 14050642: Effluent Water Treatment Plant (EWTIP) in North Kuwait --- Vendor Package HAZOP for Sludge Separators and Auxiliary Systems of HP Injection Pumps	HAZOP/ 10-12 Jan 2016
6.	Chola/ Dodsals/ KOC	Contract No. 14050642: Effluent Water Treatment Plant (EWTIP) in North Kuwait --- Vendor Package HAZOP for IGF (Induced Gas Floatation) & Nut Shell Filters (NSF) Units	HAZOP/ 08-15 Sept. 2015
7.	DBridge Engg/ GAIL Vaghodia	Gas Processing Unit	HAZOP/ 20-25 July 2015
8.	Chola/ Dodsals/ KOC	Contract No. 14050642: Effluent Water Treatment Plant (EWTIP) in North Kuwait	HAZOP/ 15-26 Mar 2015
9.	Chola/ Al Khadda/ KOC/ KNPC	Contract No. 13050702: Replacement of 40" HP Gas Pipeline from GCMB to LPG Plant, MAA (KNPC)	HAZOP/ 10-11 Feb 2015
10.	MEW	Design Upgradation of Fuel Gas System in Shuwaikh Power Station	HAZOP/ 9-10 Dec 2014
11.	NBTC/ KOC	Contract No. 2509411: Construction of Landfill Facilities for Hydrocarbon Contaminated Soil at South-East Kuwait (Group-A)	HAZOP / 17 <sup>th</sup> Sept 2014
12.	ZADCO	FC3020/ FC3026: Temporary Mod to test UA-66 from WHP-03 using Test Separator on WHP-04	HAZOP/ 27 <sup>th</sup> August 2014
13.	Vision Petroleum	Oil Storage Terminal in Hamriyah Free Zone	HAZOP/ 26 <sup>th</sup> August 2014
14.	ORYX GTL	MOC 1020: GAN (Gaseous Nitrogen) Import from GASAL to ORYX	HAZOP/ 19-20 August 2014

Sl. No.	Client	Particulars	
15.	ZADCO	P-7444 Replacement of Plant Air & Instrument Air Compressors in UAD CPC	HAZOP/ 13 <sup>th</sup> August 2014
16.	KOC/ BV	EW-0008: New Mixing Manifold for Jurassic Light Oil	HAZOP/ 10 <sup>th</sup> to 12 <sup>th</sup> June '14
17.	QP/ CGC	IA Compressor Replacement at GDS W1	HAZOP/ 17 <sup>th</sup> April 2014
18.	KOC/ CMSRSL	RFP1159: DCS Upgrade in GC-17, -27 & -28 in West Kuwait	HAZOP – 17 <sup>th</sup> Feb ~ 20 <sup>th</sup> Feb 2014
19.	KOC/ BV	EW-0012: Minagish-Marrat Water Injection Project	HAZOP – 11/ 12/ 13 Feb & 12/ 13 Mar, 2014
20.	QP/ CGC	Misc. Instrumentation PCRs (Replacement of SDV-120 at Point U and Provision of SDV-025/ 026) for QP, Dukhan	HAZOP 27 <sup>th</sup> Jan 2014
21.	ZADCO/ CGC	Modifications to Disposal Sump Caisson	HAZOP 29 <sup>th</sup> Jan 2014
22.	RIL	J3 Expansion – Desal Water System	HAZOP Nov. 21, 22 & 23, '13
23.	RIL	C2 Complex Bulk Chemical System at J3	HAZOP / Oct 30 & Nov 1, 2013
24.	KOC/ Jurassic EPF	HAZOP Study for Gas Wellheads and Flowlines	HAZOP / September 2013
25.	KOC	HAZOP Study for Control System Replacement in LP/ HP Compressors/ Gas Turbine Drivers in GC-27 & GC-28	HAZOP / September 2013
26.	KOC	EW-0011 Export System Upgrade and Modifications	HAZID / July 2013
27.	KOC	EW-0011 Minagish-Marrat New Water Injection System	HAZID / July 2013
28.	KOC	EW-0003: New Firewater Tanks in GC-27/ 28	HAZOP / July 2013
29.	TAKREER (ADNOC)	Replacement of Hydrophor Firewater System	HAZOP / June 2013
30.	GAIL Vijapur	HAZOP Study of the Gas Processing Unit, Natural Gas Compressing station and LPG Pipeline.	HAZOP / Mar & Apr 2013

Sl. No.	Client	Particulars	
31.	Unnamed Overseas Client	Jet A1 Fuel Storage, Loading/ Unloading & Handling, Firewater System at Air Base	HAZOP / Nov 2012& Mar 2013
32.	IOCL, Baroda	GT 6 and HRSG	HAZOP / Feb 2013
33.	CAIRN Energy Pvt. Ltd.	HAZID & HAZOP Study at Mangala Processing Terminal (sour crude processing facility)	HAZOP / Sept 2011
34.	Chevron Vietnam	FEED for Vietnam Block B Gas Development Project (sour gas processing facility)	HAZOP (Process Lead)/ Nov 2010
35.	ADMA OPCO	Debottlenecking of N2 Generation Plant at USSC, TA Platform	HAZOP / Sept 2010
36.	ADMA OPCO	Revamp/ Upgrade of Flares at Das Island (handling of sour gas streams)	HAZOP / 1999-2003
37.	ADMA OPCO	Debottlenecking Studies for Das Island Process Facilities (all sour oil/gas processing facility)	HAZOP /2000-2005
38.	GASCO	Super High Yield Project for Bu Hasa -- to increase plant yield from 97 % to 99%+ in Train #1 of Bu Hasa NGL plant (sour gas plant)	HAZOP / 1996
39.	GASCO	Technical services activities related to GASCO's NGL Plants at Asab, Bab, BuHasa and Ruwais (all sour gas plants)	HAZOP studies for Plant Modifications/ 1992-1997
40.	Qatar Petroleum	Detailed design and engineering follow-up of Diyab Development Project in Dukhan field, Qatar	HAZOP / 1990
41.	Qatar Petroleum	Commissioning of Powered Water Injection (PWI) pump stations (6 pump stations for a total of 210,000 bbl/day water injection capacity).in Dukhan field, Qatar	HAZOP /1991
42.	Qatar Petroleum	Operation troubleshooting of a low-temperature C3/C4 separation plant for recovering LPG components from associated gas streams (capacity 1800 t/day approx.) at Fahahil, Qatar (sour gas plant)	HAZOP / 1991
43.	Shell Offshore Sarawak, Malaysia	Design of topside facilities for process platforms	HAZOP / 1988

Sl. No.	Client	Particulars	
44.	Maharashtra Gas Cracker Complex, Nagothane	Ethylene plant of Maharashtra Gas Cracker Complex, including cryogenic storage facilities for C2/C3 and ethylene	HAZOP / 1987
45.	NOCIL and IPCL VCM Plants and Debottlenecking	Integrated ethylene-based petrochemical units in India, using Stauffer process: <ul style="list-style-type: none"> <li>○ 55000 TPA Vinyl Chloride Monomer plant of IPCL</li> <li>○ Oxychlorination plant of NOCIL (to use 2.86 Tons per hour of HCl)</li> </ul>	HAZOP /1985

**ANNEXURE 03: OTHER GROUP REVIEW STUDIES CHAIRED /CONDUCTED**

<b>Sl. No.</b>	<b>Client</b>	<b>Particulars</b>	
1.	DOME/ Punj Lloyd/ ORPIC	14" NGL Pipeline and 32" Gas Loop Line	Design Review/ 25/9 ~ 5/10/2016
2.	ADNOC/ GASCO / Mott MacDonald	Taweelah Gas Compressor Station	Value Engineering/ 16 December 2015
3.	Chevron/ EDG Consulting Engineers	Vietnam Block B Gas Project (VBGP)	Value Engineering/ September 2010
4.	Chevron/ EDG Consulting Engineers	Vietnam Block B Gas Project (VBGP)	Project Risk Assessment / October 2010

**ANNEXURE 04: HAZID STUDIES CHAIRED /CONDUCTED**

<b>Sl. No.</b>	<b>Client</b>	<b>Particulars</b>	
1.	Chola/ Dodsar/ KOC	Contract No. 14050642: Effluent Water Treatment Plant (EWTIP) in North Kuwait	HAZID/ 18-19 Feb 2015
2.	Chola/ Al Khadda/ KOC/ KNPC	Contract No. 13050702: Replacement of 40" HP Gas Pipeline from GCMB to LPG Plant, MAA (KNPC)	HAZID/ 12 Feb 2015
3.	NBTC/ KOC	Contract No. 2509411: Construction of Landfill Facilities for Hydrocarbon Contaminated Soil at South-East Kuwait (Group-A)	HAZID / 16 <sup>th</sup> Sept 2014
4.	KOC/ BV	12050723: Installation of New Effluent Water Disposal Facilities in GC-15/ -25/ CIPF in NK	HAZID/ 7 <sup>th</sup> August 2014
5.	KOC/ BV	EW-0008: New Mixing Manifold for Jurassic Light Oil	HAZID / 9 <sup>th</sup> June '14
6.	KOC	EW-0011 Export System Upgrade and Modifications	HAZID Chairman/ July 2013
7.	KOC	EW-0011 Minagish-Marrat New Water Injection System	HAZID Chairman/ July 2013
8.	KOC	EW-0003: New Firewater Tanks in GC-27/ 28	HAZID Chairman/ July 2013
9.	CAIRN Energy Pvt. Ltd.	Mangala Processing Terminal (sour crude processing facility)	HAZID Chairman/ Sept 2011