COMPLIANCE OF CONDITIONS IN ENVIRONMENTAL CLEARANCE

(COMPLIANCE REPORT)

Environmental Clearance No. J-11011/1/2011-IA II(I) dated 25.09.2013

Well Nos.: CRAI **Drilling Status: Drilled**

Sl.No.	Conditions	Compliance status as on 01.07.2016
1	This EC is only for Exploratory Drilling.In case Development drilling is to be done in future,prior clearance must be obtained from the Ministry.	**Complied**. This EC and conditions prescribed therein are only for drilling exploratory wells whereas for drilling development wells separate EC will be taken.
2	Gas produced during testing shall be flared with appropriate flaring booms. The flare system shall be desinged as per good oil field pratices and Oil Industry Safety Directorate(OISD) guidelines. The stack height shall be provided as per the regulatory requirements emission from stacks will meet the MOEF/CPCB guidelines.	**Complied**. If any quantity of gas is produced during testing there is a provision of flaring in place which is in accordance to OISD guidelines and as prescribed by CPCB vide its letter dt: 27.04.2016. All the quantity of gas come across testing is flared through elevated flare equipped with separator and knock out drum. No ground flaring is resorted to.
3	Ambient air quality should be monitored near the closest human settlements as per the National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No.826(E) dated 16th November,2009 for PM_{10}, $PM_{2.5}$, SO_2,NO_X, CO,methane & Non-methane HC etc.	**Complied**. Ambient air quality was monitored through 3rd party for PM10, PM 2.5, SO2,NOX, CO,methane & Non-methane HC, within and upto the premises of drill site. Henceforth, monitoring of AAQM shall also be carried out near the closest human settlement. It is evident from the monitoring reports placed as Annexure - I, that the concentration of all parameters are within prescribed limits.
4	Mercury should also be analyzed in air, water and drill cuttings twice during drilling period.	**Complied**. Mercury was analysed in waste water & drill cuttings during drilling period. For Testing of mercury in air the program is underway. Report placed as Annexure - II
5	Approach road should be made pucca to minimise generation of suspended dust.	**Complied**. Approach road to drill site are made of metals to minimise generation of suspended dust during transportation of rig equipment, etc..In case of this well approach road of dimension 875 m x 4.0 m was constructed.
6	The company shall make the arrangement for control of noise from the drilling activity Acoustic enclosure should be provided to DG Sets and proper stake height should be provided as per CPCB guidelines.	**Complied**. Accoustic enclosure have been provided to DG sets to reduce noise within permissible limits (Noise level monitoring divulge the efficiency of the acoustic enclosures when the noise levels were monitored within the perimeters of the drill site. However, the noise levels are slightly higher near the engine house and mud pump area and personnel working in these areas are always using ear muff/plug, pl refer reports placed as Annexure-III). The height of Stack of 3 nos. of DG sets ranges from 7-8-ft . Though as per formula referred by CPCB guidelines the stack height of gen sets should be approx. 5 metre. However, the GLC of various parameters prescribed in NAAQM are within the permissible limit which qualifies the spirit under which stack height standards has been set by CPCB. Please refer to AAQM report placed at Annexure - IV. It is notable that the increase in the present height of stacks of DG sets, shall reduce the efficiency of DG sets, as assessed internally. In light of this present stack height of the DG sets should be considered as appropriate.
7	Total water requirement should not exceed 50 M3/day and prior permission should be obtained from the competent authority.	During the drilling activity the water consumption was approx. 50 m3 per day on an average.

8	The Company should construct the garland drain all around the drilling site to prevent run off any oil containing waste it to the nearby water bodies. Separate drainage system should be created for oil contaminated and non-oil contaminated. Effluent should be properly treated and treated waste water should confirmed to CPCB standards.	The garland drains are not constructed to prevent run off any oil contaminating waste as all the vulnerable processess like diesel storage tank, POL shed have their dedicated containment whereas Drains are constructed through out the drill site near mud pumps, cellar pit, mud tanks which drain waste water in HDPE lined waste pit. No garland drains are constructed around drill sites as these are not required since the waste pits have enough volume to accummulate waste water and prevent any run off. The drilled cuttings and other wastes are collected in HDPE lined waste pits and solar dried. It is notable that Gujarat is rain deficient area and chance of run off from drill site area is very remote. As the drill site effluent is a soft effluent , the suspended particles like bentonitic clay are settled leaving clear supernatant water which at times is recycled for washing purpose. Please refer to Annexure-II. In view of above the may be considered as **Complied.**
9	Drilling waste water including drill cuttings wash water shall be collected in disposal pit lined with HDPE lining evaporated or treated and shall comply with the notified standards for on-shore disposal. The membership of common TSDF shall be obtained for the disposal of drill cuttings and hazardous waste. Otherwise secured land fill shall be created at the site as per design approved by the CPCB and obtain Authorization from the SPCB. Copy of authorization or membership od TSDF should be submitted to Ministry's Regional Office at Bhopal.	**Complied**. Drilling waste water including drill cuttings wash water is collected in disposal pit lined with HDPE lining and solar dried. Drill cuttings from water based mud have been removed from the category of hazardous waste [Schedule I - rule 3 (1) (17) (i) of MOEFCC notification dt: 14.04.2016]. ONGC Ahmedabad is member of TSDF at Bharuch Enviro Infrastructure Limited.
10	Good sanitation facility should be provided at the drilling sites. Domestic sewage should be disposed of through septic tank/soft pit.	**Complied**. Domestic sewage is disposed through adequate septic tanks and soak pits
11	Oil spillage prevention schme should be prepared. In case of oil spillage/contamination, action plan should be prepared to clean the site by adopting proven technology. The recyclabale waste(oily sludge) and spent oil should be disposed of to the authorized recycler.	**Complied**. Oil spillage prevention plan like containments of diesel storage tank, POL shed and testing tank(during production testing) and drainage leading to waste pit are in place. However, in case of oil spill and contamination of soil thereof, ONGC is equipped with the technology of bio remediation to address such eventualities. It is notable that ONGC has a step down company M/S ONGC TERI BIO REMEDIATION LIMITED (OTBL) which has developed a consortium of bacteria capable of digesting entire range of hydrocarbon. Recylable hazardous waste like Spent oil, POL barrels etc. are recycled centrally through authorised re-cyclers.
12	The company shall comply with the guidelines for disposal of solid waste, drill cutting and drilling fluids for onshore drilling operation notified vide GSR.546(E) dated 30th August, 2005.	**Complied**. Solid waste like drill cuttings and left over drilling fluids are collected in HDPE lined waste pits which is eventually back filled and covered with local soil after the drilling operations are over. Other solid wastes like oil contaminated hand gloves, cotton waste, filters, chemical sack, etc. are deposited at TSDF site.
13	The company should take necessary measures to prevent fire hazards,containing oil spill and soil remediation as needed.Possibility of using ground flare should be explored.At the place of ground flaring,the overhead flaring stack with knockout drums should be installed to minimize gaseous emissions during operation.	**Complied**. Each drilling rig in ONGC has fixed fire fighting system and portable extinguishers in accordance to OISD 189. All personnel posted at Drill site are trained in fire fighting. Hot jobs are controlled through a permit system ie.e "Hot Work Permit" system. As mentioned above in point 12, in case of oil spill and contamination of soil thereof, ONGC is equpped with the technology of bio remediation to address such eventualities. It is notable that ONGC has a step down company M/S ONGC TERI BIO REMEDIATION LIMITED (OTBL) which has developed a consortium of bacteria capable of digesting entire range of hydrocarbon. All the quantity of gas come across testing is flared through elevated flare equipped with separator and knock out drum. No ground flaring is resorted to.

14	The company should develop a contingency plan for H2S release including all necessary aspects from evacuation to resumption of normal operations. The workers should be provided with personal H2S detectors in locations of high risk of exposure along with self containing breathing apparatus.	**Complied.** Emergency response plans for H2S release is available. H2S detector are available at drilling rigs. However, it is pertinent to mention that H2S is usually not encountered during drilling operations in oil fields of Gandhinagar district.
15	On completion of drilling, the company have to plug the drill wells safely and obtain certificate from the enviroment safety angle from the concerned authority.	**Complied.** On completeion of drilling the well is equipped with a christmas tree which safely regulates the flow of oil & gas. However, if any well is abandoned, it is plugged with a cement coloumn as prescribed in OMR 1984 and the same is communicated to DGMS.
16	Blow Out Preventor(BOP) system should be installed to prevent well blowouts during drilling operations.BOPmeasures during should focus on maintaining well bore hydrostatic pressure by proper pre-well planning and drilling fluid logging etc.	**Complied.** Appropriate Blow Out Preventor(BOP) systems having a set of Annular and RAM BOPs is installed to prevent well blowouts during drilling operations. Function test of BOPs are carried out frequently and care is taken to maintaing proper hydrostatic pressure in the well bore during drilling, logging and other well operations by maintaining mud weight.
17	Emergency response plan(ERP) should be based on the guidelines prepared by OISD, DGMS and Government of India	**Complied.** ONGC has Site Specific Emergency Plan (ERP) and Contingency Plans and Disaster management Plan (DMP) based on relevant and realistic emergency scenarios. ERP and contingency plan are duly approved by DGMS whereas offsite DMP is approved by local district authorities. (copy enclosed)
18	The company shall take measures after completion of drilling process by well plugging and secured enclosures, decommissioning of rig upon abandonment of the well and drilling site shall be restored to original condition. In the event that no economic quantity of hydrocarbon is found a full abandonment plan shall be implemented for the drilling site in accordance with the applicable Indian Petroleum Regulations.	**Complied.** ONGC has formulated a well defined and plausible abandonment and restoration procedure which is being followed in the event of decision taken to abandon the well. The procedure is Annexed as V.
19	All the commitment made to the public during public hearing/consultation meeting held on 22nd January,2013 for Gandhinagar District shall be satisfactorily implemented and adequate budget provision shall be made accordingly.	During the Public Hearing held on 22.01.2013 at Ajol village the main points raised by the villagers were about the delay in compensation payment.The same were resorted and told them the every Thursday is the Farmer day at ONGC if somebody has any problem for delay in payments, he can contact on phone to the dealing officer and the phone no of dealing officer was also provided.
20	Abandoned well inventory and remediation plan shall be submitted with in six month from the date of issue of letter.	**Complied.** Remediation plan is already adressed at point no 12 above. This well has been abandoned and restoration of land by inviting tender and as per SOP for restoration, is in progress.
21	Occupational health surveillance of the workers shall be carried out as per the prevailing Acts and Rules.	**Complied.** PME of all employees is carried out as per company policy (Annexure-VI).
22	In case commercial viability of the project is established, the company shall prepare a detailed plan for development of oil and gas fields and obtain fresh environmental clearance from the Ministry.	**Complied.** In case of commercial viability of oil/gas, fresh EC is obtained for the entire block.
23	Restoration of the project site should be carried out satsfactorily and report should be sent to Minstry's Regional Office at Bhopal.	**Complied.** After the restoration job in this well is over, the report shall be sent to Ministry's regional office Bhopal.
24	Oil content in the drill cuttings should be monitored by some Authorised agency and report should be sent to the Ministry's Regional Office at Bhopal.	**Complied.** Cuttings are analysed for oil content through a reputed laboratory in the area. The analysis shows that the parameters are within permissible limits(Copy of Monitoring Report enclosed - Annexure-II).
25	Under Enterprise Social Commitment (ESC),sufficent budgetary provision should be made for health improvement,education,water and electricity supply etc. in and around the project.	**Complied.** 2% of average net profit of ONGC is earmarked for CSR(Corporate Social Responsibility) projects which includes components of health, education, water, solar lights, ecological development in an around operational area, as directed by GOI
26	An audit should be done to ensure that the Environment Management Plan is implemented in totality and report should be submitted to Ministry's Regional Office	**Complied.** An annual environment audit is carried out through schedule auditors and the reports are submitted to Gujarat Pollution control Board, apart from it annual internal audit and surveillance audit of Environment Management system is carried out in accordance to the protocol of ISO 14001. It is notable that all drilling rigs are maintaining 3rd party certified EMS based on ISO 14001.

27	A social audit shall be carried out for the whole operatio area with the help of reputed institute like Madras Institute of Social Science etc.	**Complied**. CSR shemes for social areas around the work centers of ONGC are usually rendered through reputed 3rd parties which keep on auditing on the progress of the CSR project.
28	All personnel including those of contractors should be trained and made fully aware of the hazards,risks and controls in place.	**Complied**. MVT(Mines Vocational Training) are imparted to all contractual workers before deployment at site. MVT trainings are specially designed to develop competence and skill of employees including contractual employees w .r.t risk management
29	Company shall have own Environment Management Cell having qualified persons with proper background.	**Complied**. EM Cell is atCorporate HSE of ONGC, New Delhi. HSE set up at unit level are also having qualified safety & environment officers.
30	Company should prepare operating manual in respect of all activities.It should cover all safety & environment related issues and system.Measures to be taken for protection.One set of environment manual should be made available at the drilling site/project site.Awareness should be created at each level of the management.All the schedules and results of environment monitoring should be available at the project site office.	**Complied**. Standard Operating Procedures for drilling operations covering safety and environmental aspects of operations and management thereof, have been given to supervisors and concerned persons at all drilling rigs. Safe Work Practices is also made available at all rigs. Regular safety and environment training is being provided to the employees by our various in- house training institutes like IPSHEM Goa,IDT and ONGC Academy, Dehradun and RTI Vadodara etc. Ambient/stack, noise level and potable water report is available at rigs.

B	GENERAL CONDITIONS	
i	The project authorities must strictly adhere to the stipulations made by the Gujarat State Pollution Control Board (GPCB) State Government and any other statutory authority.	**Complied.** Consent to Establish (CTE)for exploratory drilling is taken from Gujarat Pollution Control Board prior to commencement of drilling. Conditions stipulated in CTE are complied to. Apart from it all the oil and gas processing installations wherein the oil and gas produced during exploratory and development drilling is processed are operating under concolidated consent and authorisation (CCA) from GPCB. Monthly and annual returns are filed online on XGN site as per the conditions stipulated in CCA
ii	No further expansion or modification in the project shall be carried out without prior approval of the Ministry of Environment & Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, afresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	**Complied.** So far no expansion or modification in the project has been carried out. In future if any expansion and modification happens the stipulated condition shall be complied.
iii	The project authorities must strictly comply with the rules and regulations under Manufacture, Storage and import of Hazardous chemicals Rules, 2000 as amended subsequently. Prior approvals from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc. must be obtained, wherever applicable.	**Complied**. During drilling water base mud is used and no hazardous /toxic chemicals are used. All the mud systems got tested through National Institute of Oceanography (NIO), Goa and found non-hazardous and non-toxic. Hence this point is not applicable. However as precautionary measure MSDS of chemicals are displayed at site. Permissionfor storage ,transportation and use of explosives for perforation of well are taken from controller of explosive.
iv	The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (daytime) and 70 dBA (nighttime).	**Complied**. The overall noise levels in and around the rig area is kept well within the standards by keeping provision of aquostic enclosures and regular condition monitoring of equipment. The ambient noise levels are monitored during day and night time (Recent monitoring reports are annexed) which reveals that the ambient noise level is with in prescribed standards.
v	A separate Environmental Management Cell equipped with full fledged laboratory facilities must be set up to carry out the environmental management and monitoring functions.	**Complied**. Environment Management cell is functional under Head HSE which is responsible for envirroment management, monitoring and compliance to regularity bodies.
vi	Acopy of clearance letter shall be sent by the proponent to concerned Panchayat,ZilaParishad/Municipal Corporation,Urban Local Body and the localNGO,if any,from whom suggestions/representations,if any,were received while processing the proposal.The clearance letter shall also be put on the web site of the company by the proponent.	**Complied**. The communication of the enviromental clearance has been made to all the relevant stake holders by way of publishing the same in the leading news papers. The EC is also posted on the Web Site of ONGC as well as communicated to concerned panchayat and local authorities
vii	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions,including results of monitored data on their website and shall update the same periodically.It shall simultaneously be sent to the Regional Office of the MOEF, the respective Zonal Office of CPCB and the GPCB.The criteria pollutant levels namely;PM10,SO2,NOx,HC(Methane & Non-methane),VOCs(ambient levels as well as stack emissions)or critical sectoral parameters,indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.	**Complied.** The compliance of the stipulated environment clearance conditions,including results of monitored data are uploaded on our website (link - http://www.ongcindia.com/wps/wcm/connect/ongcindia/Home/Initiatives/HSE/Environmental_Clearance/) and updated periodically.It is sent to the Regional Office of the MOEF.The criteria pollutant levels namely;PM10,SO2,NOx,HC(Methane & Non-methane),indicated for the projects are monitored and displayed at the main gate of the rig.

viii	The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MOEF, the respective Zonal Office of CPCB and GPCB.The Regional Office of the this Ministry/CPCB/GPCB shall monitor the stipulated conditions.Environment Clearance and six monthly compliance status reports shall be posted on the website of the company.	**Complied**. The compliance of the stipulated environment clearance conditions,including results of monitored data are uploaded on our website (link - http://www.ongcindia.com/wps/wcm/connect/ongcindia/Home/Initiatives/HSE/Environmental_Clearance/) and updated periodically.It is sent to the Regional Office of the MOEF.The criteria pollutant levels namely;PM10,SO2,NOx,HC(Methane & Non-methane),indicated for the projects are monitored and displayed at the main gate of the rig.
ix	The environment statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules,1986,as amended subsequently,shall also be put on the website of the company alongwith the status of comliance of environment conditions and shall also be sent to the respective Regional Offices of the MOEF by e-mail.	**Complied**. After completion of exploratory drilling and if any oil and gas produced through it is subjected to the nearby production installion for processing and thus becomes part of that installation. All the Installations are operating under CCA from GPCB and accordingly environmental statement as per precribed form-V is filed annually. if no oil is found the well is abandoned and land restored as per company policy.
x	The Project Proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the GPCB and may also be seen at Website of the Ministry of Environment and Forests at http./www.envfor.nic.in. This shall be advertised within seven days from the date of issue of the clearnance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the Regional office.	**Complied**. Information regarding grant EC for the project was passed on to all stake holders and the same was advertised in two newspapers.
xi	The Project Authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.	**Complied**. The details prescribed in condition regarding commencement of exploratory drilling are furnished in six monthly compliance to Regional Office MOEFCC, Bhopal.

18-02-16

के.विश्वनाथ / K. VISWANATH
प्रखड प्र.-III / GM-BM-III
प.अ.द्रोणी, वदोडरा-9
WON,Vadodara-9

Analysis Report of Ambient Air during Drilling of CRNL#4 (CRAI)

NOA NO:MHN/MM/HSE/CONTRACT/206/2013-14/NOA

Analysis Report Of Ambient Air Monitoring For The Month of April-2016

To,

M/s Oil & Natural Gas Corporation Ltd.

Forward Base, Mehsana,

Rig IPS -901 Well No: CRNL-4(CRAI), Dist: Mehsana.

Report Date: 19/04/2016
Report No.: 01/16/04/01

Sample location	:	Rig IPS - 901 Well No: CRNL-4 (CRAI)	Ambient Tem(Max) °C	:	35.0
Sample collected Date	:	05/04/2016 to 06/04/2016	Ambient Tem(Min) °C	:	27.0
Lab ID Code	:	01/L8/16/AM	Humidity (%)	:	41.0
Sampling Time	:	24 hr	Average Wind Speed (Km/hr)	:	15.0
Purpose	:	Environment Monitoring	Wind Direction	:	NW

RESULT TABLE

SR. NO.	PARAMETER	UNIT	GPCB LIMIT	RESULT			Average	TEST METHOD
				I	II	III		
1.	Particulate Matter PM_{10}	$\mu g/m^3$	100	50.3	47.2	52.6	50.0	IS 5182 (PART 23): 2006
2.	Particulate Matter $PM_{2.5}$	$\mu g/m^3$	60	25.1	23.8	27.1	25.3	As per CPCB Guideline
3.	Sulphur Dioxide (SO_2)	$\mu g/m^3$	80	17.6	19.1	15.3	17.3	IS 5182 (PART-2):2001
4.	Oxides of Nitrogen (NOx)	$\mu g/m^3$	80	10.1	12.8	13.1	12.0	IS 5182 (PART-6):2006
5.	Hydrocarbon (HC AsCH4)	$\mu g/m^3$	160	8.1	7.9	7.5	7.8	IS 5182 (PART-10):1999
6.	Carbon Monoxide (CO)	$\mu g/m^3$	5000	1361	1279	1393	1344	IS 5182 (PART-17):1979
7.	Hydrogen Sulphide (H2S)	ppm	0.36*	BDL	BDL	BDL	BDL	IS 5182 (PART-7):1973

* Indicates as per GPCB norms, #BDL: Below Detection Limit, BDL Limit For H_2S: 0.007 ppm

Location I: Nr.D. G. Set (Date: 05/04/2016Time: 07:00 a.m. to 03:00 p.m.)

Location II: Nr. Electrical Room (Date: 05/04/2016Time: 03:15 p.m. to 11:15 p.m.)

Location III: Nr. Incharge Office (Date: 06/04/2016Time: 11:30 p.m. to 07:30 a.m.)

GREEN CARBON ENGINEERING

Authorized Signatory

Prepared By

Waste Pit Water Sample Analysis Report CRNL#4 (CRAI)

S.N. HIRPARA POLLUTION CONSULTANTS & ENGINEERS (P) LTD.

(LABORATORY DIVISION)

Regd. Office & Lab.: 706/A, 406/B, Center Point Building, New Civil Hospital Char Rasta,
Ring Road, Surat – 395 002. Gujarat, India. Email : sureshhirpara@yahoo.co.in
Tele fax : 0261 – 2460493-0261 – 2721401 M.: 98251 28836

31/05/2016

ANALYSIS REPORT

Name & Address of Industry	:	**Oil & Natural Gas Corporation Ltd., MUD Services, Mehsana.**
Analytical Report of	:	Waste Pit Water Sample
Location of Collection	:	Well: M-900-I / CRAI
Date/ Time of Sample Collection	:	25/03/2016 Date of Analysis: 24/05/2016
Date of Spudding	:	18/03/2016
Date of Release	:	14/04/2016
Sample Collected by	:	A. K. GAUR

TEST RESULTS:

Sr. No	PARAMETERS	GPCB LIMITS	RESULTS	UNIT
1.	Mercury	0.01	0.004	ppm

Note: ND = Not Detected

Tested By:

(Chemist)
Name: Arti Singh

Approved By:

(Authorized Signatory)
Name: Suresh Hirpara

Waste Pit Soil Sample Analysis Report CRNL#4 (CRAI)

S.N. HIRPARA POLLUTION CONSULTANTS & ENGINEERS (P) LTD.
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Tele fax : 0261 – 2460493-0261 – 2721401 M.: 98251 28836

31/05/2016

ANALYSIS REPORT

Name & Address of Industry		Oil & Natural Gas Corporation Ltd., MUD Services, Mehsana.
Analytical Report of	:	Waste Pit Soil Sample
Location of Collection	:	Well: M-900-I / CRAI
Date/ Time of Sample Collection	:	25/03/2016 Date of Analysis: 24/05/2016
Date of Spudding	:	18/05/2016
Date of Release	:	14/04/2016
Sample Collected by	:	A. K. GAUR

TEST RESULTS:

Sr. No	PARAMETERS	RESULTS	UNIT
1.	Mercury	0.005	mg/kg

Note: ND = Not Detected

Tested By:

(Chemist)
Name: Arti Sapra

Approved By:

(Authorized Signatory)
Name: Suresh Hirpara

Waste Pit Water Sample Analysis Report CRNL#4 (CRAI)

S.N. HIRPARA POLLUTION CONSULTANTS & ENGINEERS (P) LTD.

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Tele fax : 0261 – 2460493-0261 – 2721401 M.: 98251 28836

31/05/2016

ANALYSIS REPORT

Name & Address of Industry	:	**Oil & Natural Gas Corporation Ltd., MUD Services, Mehsana.**
Analytical Report of	:	Waste Pit Water Sample
Location of Collection	:	M-900-I /CRAI
Date/Time of Collection	:	15/04/2016
Date of Sample Spudding	:	18/03/2016 Date of Analysis : 24/05/2016
Date of Release	:	14/04/2016
Sample Collected by	:	A K GAUR

TEST RESULTS:

Sr. No	PARAMETERS	GPCB LIMITS	RESULTS	UNIT
1.	pH	5.5-9.0	7.5	---
2.	Temperature	40	32	^{0}C
3.	Zinc	2.0	0.2	ppm
4.	Suspended Solids	100	69	ppm
5.	Oil & Grease	10	4.4	ppm
6.	Total Dissolved Solids	2100	1497	ppm
7.	BOD	30	27	ppm
8.	COD	100	90	ppm
9.	Chlorides (as Cl^-)	600	482	ppm
10.	Sulphates (as SO_4^{--})	1000	640	ppm
11.	Sodium	60	31	ppm
12.	Phenolic	1.2	0.4	ppm
13.	Sulphide	2.0	0.6	ppm
14.	Chromium	0.1	0.01	ppm
15.	Total Chromium	1.0	0.04	ppm
16.	Copper	0.2	0.04	ppm
17.	Lead	0.1	0.04	ppm
18.	Mercury	0.01	0.007	ppm
19.	Nickel	0.3	0.04	ppm
20.	Fluoride	1.5	0.2	ppm
21.	Cyanide	0.2	0.01	ppm

Note: ND = Not Detected

Tested By:

(Chemist)
Name: Arti Singh

Approved By:

(Authorized Signatory)
Name: Suresh Hirpara

Waste Pit Soil/Cutting Sample Analysis Report CRNL#4 (CRAI)

S.N. HIRPARA POLLUTION CONSULTANTS & ENGINEERS (P) LTD.
(LABORATORY DIVISION)

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Tele fax : 0261 – 2460493-0261 – 2721401 M.: 98251 28836

31/05/2016

ANALYSIS REPORT

Name & Address of Industry	:	**Oil & Natural Gas Corporation Ltd., MUD Services, Mehsana.**
Analytical Report of	:	Waste Pit Soil/ Cutting Sample
Location of Collection	:	**M-900-I /CRAI**
Date/ Time of Sample Collection	:	15/04/2016
Date of Spudding	:	18/03/2016 Date of Analysis : 24/05/2016
Date of Release	:	14/04/2016
Sample Collected by	:	A K GAUR

TEST RESULTS:

Sr. No	PARAMETERS	RESULTS	UNIT
1.	pH	7.7	pH Unit
2.	Oil & Grease	4.3	mg/kg
3.	Phenolic compounds	0.3	mg/kg
4.	Chromium	0.4	mg/kg
5.	Chloride	3.9	mg/kg
6.	Fluoride	0.04	mg/kg
7.	Mercury	0.007	mg/kg

Note: ND = Not Detected

Tested By:

(Chemist)
Name: Arti singh

Approved By:

(Authorized Signatory)
Name: Suresh Hirpara

Stack Analysis Report of Rig M 900-I(This rig drilled CRNL#03(CRAG) & CRNL#04(CRAI)

NOA NO:MHN/MM/HSE/CONTRACT/206/2013-14/NOA

Analysis Report Of Stack Monitoring For The Month of December-2015

To,
M/s Oil & Natural Gas Corporation Ltd.
Rig M-900-I Well No-LWKG, Dist: Mehsana.

Report Date: 01/01/2016
Report No.: 96/15/12//02

GENERAL DESCRIPTION

Sample Location	:	Rig M-900-I Well No-LWKG
Sample collected Date	:	26/12/2015
Lab ID Code	:	96/LB/15/ST
Sampling Time	:	20 Min
Purpose	:	Environment Monitoring

RESULT TABLE

SR. NO.	PARAMETER	UNIT	GPCB PERMISSIBLE LIMIT	RESULT	TEST METHOD
				Location 1	
1.	Suspended Particulate Matter (SPM)	mg/Nm^3	150	73.6	IS:11255:(P-1):1985
2.	Sulphur Dioxide (SO_2)	ppm	100	9.1	IS:11255:(P-2):1985
3.	Oxides of Nitrogen (NO_x)	ppm	50	6.5	IS:11255: (P-7):2005
4.	Hydrocarbon as CH_4	mg/Nm^3	15	4.1	Digital Gas Analyzer
6.	Carbon Monoxide (CO)	mg/Nm^3	150	1.3	Digital CO Analyzer
7.	Hydrogen Sulphide (H_2S)	mg/Nm^3	45	BDL	IS:11255: (P-4):2006

BDL: Below Detectable Limit . BDL Limit of H_2S: 0.01 mg/Nm^3

Location 1: D. G. set

Authorized Signatory

Prepared By

VEXIL BUSINESS PROCESS SERVICES

Certificate

This Certificate is issued to

Oil and Natural Gas Corporation Limited
Mehsana Asset
Drilling Rig: M-900-I
Gujarat
INDIA

who have implemented a Quality Management System, which meets the requirements laid down in ISO 9001:2008, with the following scope:

Drilling Services for Exploration & Production of Hydrocarbons

Certificate No. : Q9121178.19
Original Issue : 10 August 2014
Latest Issue : 10 August 2014
Valid Till : 09 August 2017

The continuing validity of this certificate is subject to timely conduct of surveillance audits

Surveillance 1 due before : 12 July 2015
Surveillance 2 due on : 12 July 2016

for Vexil Business Process Services Private Limited

ISO 9001:2008

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F0521C01

VEXIL BUSINESS PROCESS SERVICES

Certificate

This Certificate is issued to

Oil and Natural Gas Corporation Limited
Mehsana Asset
Drilling Rig: M-900-I
Gujarat
INDIA

who have implemented a Occupational Health and Safety Management System, which meets the requirements laid down in OHSAS 18001:2007, with the following scope:

Drilling Services for Exploration & Production of Hydrocarbons

Certificate No. : H9121197.19
Original Issue : 10 August 2014
Latest Issue : 10 August 2014
Valid Till : 09 August 2017

The continuing validity of this certificate is subject to timely conduct of surveillance audits

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F0823C01

ERP	DRILLING SERVICES ONGC, MEHSANA	Doc.No. MN/DS/ERP/01/2010 Issue No. 02 Date : 02.02.2010 Rev. No. 03 Date : 30.11.2015

SITE SPECIFIC EMERGENCY RESPONSE PLAN

(BASED ON LEVEL-1 RESPONSES AS PER CDMP)

DRILLING RIG: M-900-I

HSE- DRILLING SERVICES
MEHSANA ASSET
MEHSANA

Prepared By:	Reviewed By:	Approved By
30/11/15 (M. Sahay) DGM (E)-I/c HSE(DS)	30/11/15 (P.C. Raval) GM (D)-LMDS	30.11.15 (K.K. Swarnakar) GM (D)-HDS

Content

REVISION HISTORY

S.No.	Doc. Title	Para/Page No.	Changes Made	Rev. No.	Rev. date
1	Distribution List	Sl.No. 3	IM IR-900-II deleted	01	02.11.2012
2	First-aid Fire Fighting Equipment	9.2.3	Table revised as per revised STD-189 (June-2012)	01	02.11.2012
3	Roles & responsibilities	11.0	Table 2,4,5 reviewed & revised	01	02.11.2012
4	Content	Page 2	9.7 & 9.8 added	02	11.02.2014
5	Overall risk & brief description of scenarios	Page 10 (8.1)	Point no. 8,9 & 10 added	02	11.02.2014
6	ERP No. 7 & 8	20-23	Addition of new scenarios	02	11.02.2014
7	Roles & responsibilities	11.0	Table 2,4 & 5 reviewed & revised	02	30.11.2015
8	Distribution List	Sl.No. 9	E 760-XVIII added	02	30.11.2015

DISTRIBUTION LIST

Copy No.	Copy Holder / User	Place
1	Location Manager (D) / MR	Base Office
2	I/C HSE – DS	Office
3	Installation Manager M-750-II	M-750-II
4	Installation Manager M-900-I	M-900-I
5	Installation Manager IPS-700-V	IPS-700-V
6	Installation Manager IPS-700-VI	IPS-700-VI
7	Installation Manager IPS-700-VII	IPS-700-VII
8	Installation Manager E-760-XI	E-760-XI
9	Installation Manager E-760-XVIII	E-760-XVIII

1.0 INTRODUCTION:

LOCATION

The base office of Drilling services, Mehsana is located at KDM Bhavan, Palavasana, Mehsana - 384003. It has presently 06 drilling rigs, mainly operating in Mehsana Drilling Mine.

AIRPORT

Ahmedabad is about 70 kms away from Mehsana ONGC Complex.

RAILWAY STATION

Mehsana falls on Ahmedabad- Delhi main line and is about 6 kms from ONGC office complex.

ROAD

ONGC office complex is situated on Ahmedabad- Palanpur State High way, SH # 41.

BRIEF OF ONGC MEHSANA ASSET

The Oil and Natural Gas Corporation, a pioneer in oil industry, started its exploration activities in and around Mehsana city of Gujarat in the year 1964. Mehsana Asset came into existence on 7Th November 1967 when it was bifurcated from Ahmedabad Asset for administrative and operational convenience. Oil struck in North Kadi in June 1967 and trial production commenced on 29-04-1969. Mehsana Asset forms the northern part of the Cambay basin, which lies between 21° N and 23°15' N and longitudes 71°.30' E and 73°.30' E covering an area of 6000 Sq. Km. Several fields have been discovered since inception of Asset. The important commercially producing fields of the Asset are North Kadi, Santhal, Sobhasan, Balol, Jotana, Lanwa, Bechraji, Nandasan and Linch. Starting with meager production 26 TPD during 1968-69, and peak production of 6500 TPD Approximately in 2005-06.

2.0 OBJECTIVE:

A sound Emergency Response Plan (ERP) is required to prevent a minor incident from becoming a disaster, injuries to save lives, and minimize damage to property and the environment. ERP represents all operational risks and hazards and magnitudes of possible crises due to natural disasters in the Installation. The plan describes how the Installation will respond to emergencies situation that would significantly affect the organization.

A basic purpose of this emergency response plan is to equip ourselves with required resources and information for prompt implementation of the actions to ensure that in the event of an emergency, the hazard is controlled and the damage to human life and property is minimized.

3.0 SCOPE:

Emergency is a sudden, undesirable occurrence, which has the potential to cause harm to people, equipment, material & environment and which requires immediate attention from all concerned setting aside all their normal/routine work.

This plan has been prepared to address all types of operational and natural emergencies and to mitigate it in a systematic manner so that damage to human life, property is minimized, normal operation is restored and responsive communication at all levels is assured.

4.0 BRIEF DESCRIPTION OF RIG:

Brief description of rig equipment are as under : (To be filled up by the respective Installation Manager)

Name of the Rig	
Date of Commissioning	
Manufactured By	
Capacity of Rig	
Mast Height	
Rig Engine / Motors	
Torque Converter	
Draw Works	
Rotary Table	
Mud Pump Engine / Motor	
Mud Pump	
Generator Engine	
BOP Accumulator Unit	
BOP	

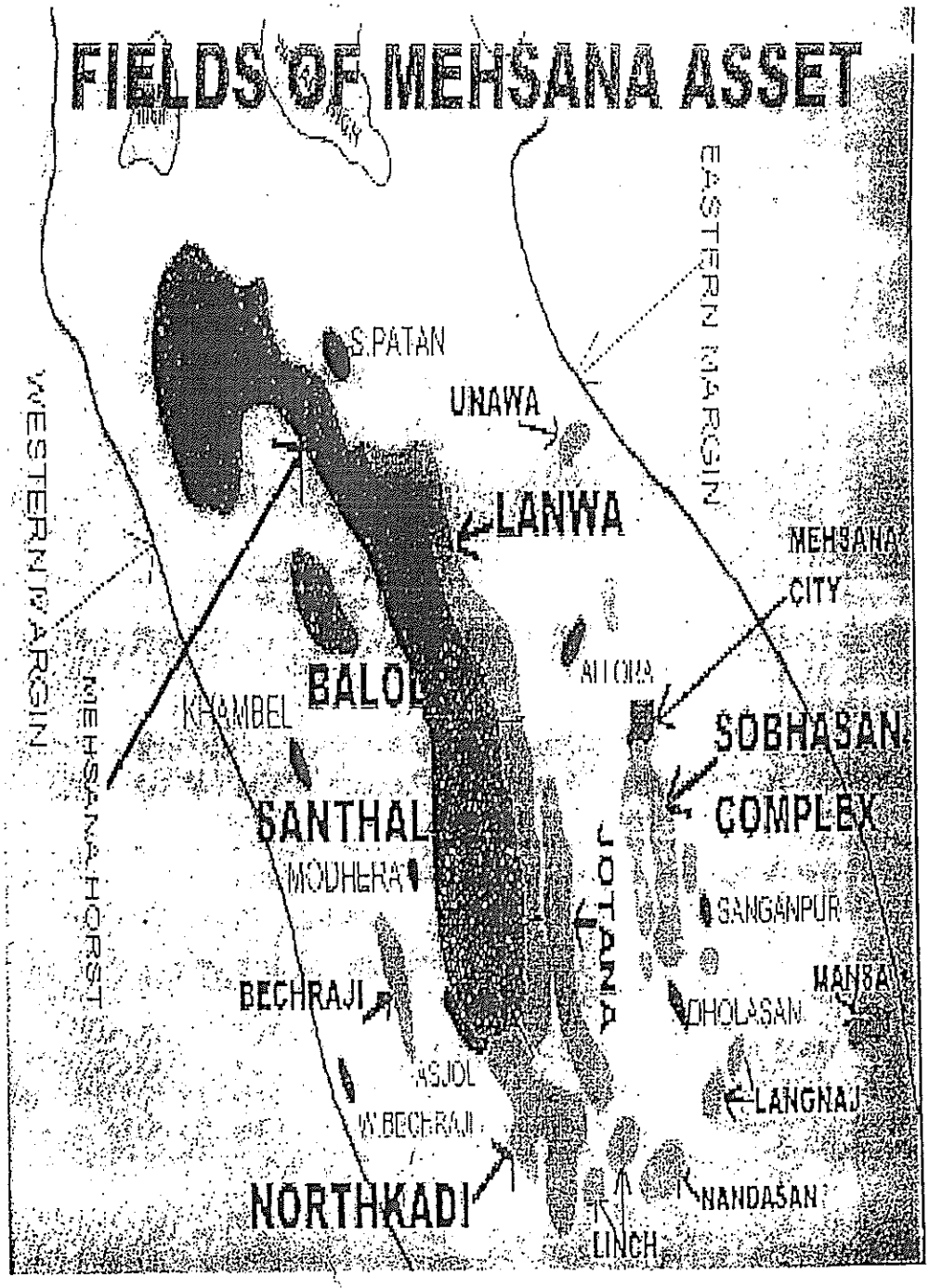
Other Safety Equipment available at the rig are detailed below (Including but not restricted to):

- Crown-O-Matic
- Floor-O-Matic
- Emergency Pneumatic Brake.
- Engine Safety System (like AMOT)
- Trip tank.
- Top-man Escape Device
- Fall Prevention Device
- Portable Fire Extinguishers/Sand Buckets/Fire Bell
- Portable gas detector
- Online Gas Detection system & MVT
- First Aid Box
- Emergency Vehicle with stretcher facility
- BOP
- Emergency Shut-down Valve/ switch.
- Remote BOP Controls.
- Safety belts

5.0 INSTALLATION LOCATION DETAILS:

MEHSANA ASSET: Mehsana Asset is having mainly 8 oil fields where Drilling Rigs are deployed.

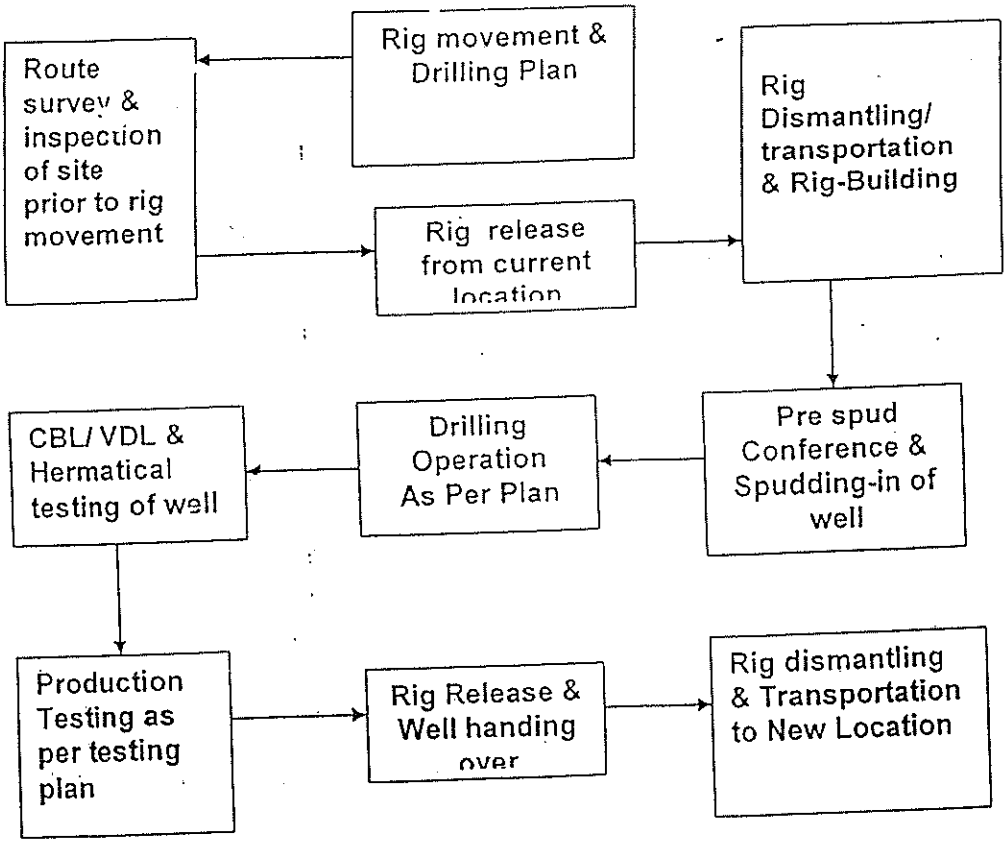
An overview of Field of Mehsana Asset is given as below:-



6.0 INSTALLATION LAYOUT: Installation layout is placed at Annexure - I

7.0 BRIEF DESCRIPTION OF PROCESS:

1. INSTALLATION ACTIVITIES CHART:



2. PROCEDURE FOR DRILLING OPERATIONS:

Before Rig is deployed at new well location, route survey & site inspection is carried out by the Installation Manager/ representative of Logistics & Civil Department and Area Manager. Deficiencies / requirement, if any, are recorded in the report & necessary corrective action is taken by the concerned department prior to rig move. After rig release by SST / FB, Rig is dismantled by rig crew under supervision of Installation manager/Rig engineer/ I/c Rig Building. Rig equipment are safely transported by Logistic section for which requirement is given by base office.
Rig building is carried out by rig crew under supervision of Installation manager/Rig engineer/ I/c Rig Building. Equipment are placed as per Layout plan/availability of space maintaining standard safe distances. Before starting of the operation, Pre spud conference is conducted by safety officer to check readiness of the rig for safe operations and compliance with statutory/safe operation requirement. Conference is attended by respective in charges/experts.
As per well plan (GTO) requirement, different type of jobs are carried out such as drilling, tripping, casing lowering, cementation, BOP Installation & testing, logging, perforation and production testing. After completion of production testing, the rig is

released from that location & well is handed over to the customer (SST/ FB). The rig is dismantled & transported to new location. All care is taken to keep site free from any solid/liquid waste generated during the operation and waste is disposed at designated places.

8.0 PROCESS HAZARDS AND THE CONTROL MEASURES:

SL	PROCESS HAZARDS	CONTROL MEASURES
1	Fall and hit of material/ object	Use of PPE, awareness about hazard
2	Over traveling / fall of Mast.	Pre operational check of hydraulic system, bull line & brake system etc.
3	Falling from heights	SOP & Use of guard, railing, safety belt
4	High pressure release of liquid / Gas during Drilling operations.	Use of proper sp gr mud, Installation & Testing of BOP, Training and Drills.
5	Slip of person due to slippery floor	Good house keeping
6	Bursting of high pressure lines, testing lines	Anchoring of lines, use of proper rating lines
7	Being struck / hit by rolling or falling tubular	Proper stacking of tubular on pipe racks with end rests.
8	Hitting of block to D/floor/ Mast	Twin safety device , its testing
9	Fire	Use of FFE, Good house keeping, Training and drills. Activation of Contingency plan
10	Explosion during logging operation	Work permit, Safe operating practice Pre job safety meeting Handling of Explosives by authorized person.
11	Contact with Chemicals	SOP, MSDS, Pre job meeting & Use of PPE
12	Body contact with rotating parts	Guards on moving parts
13	Noise due to running of Equipment	Use of PPE, PME and Noise survey
14	Being shocked or electrocuted & short circuits	Use of PPE, Proper Earthing Testing of ELR / ELCB Use of Rubber mats.
15	Welding splinters falling on machinery oil spills and oily rags	Permit to work, Good house keeping, Use of PPE
16	Snack bite	Good house keeping, First-aid training, First-aid box

8.1 OVERALL RISK & BRIEF DESCRIPTION OF SCENARIOS:

1. **Kick / Blow out:**
   The uncontrolled gushing of oil and gas is the worst situation which may arise at the well during drilling operation, perforation etc. which may result in fire, environment pollution and resource loss.
2. **Fire:**
   This may occur due to presence of significant concentration of hydrocarbon gas, Short circuit, hot work and may cause immense loss of life and property.

3. Falling from height:
   This may cause minor, major injury or fatality due to failure of controls and non using the PPE. The control measures for this emergency are defined in the operational risk register.
4. Hitting of block to Derrick floor / Mast:
   This may cause serious injury and property loss due to malfunctioning of Twin safety devices. The control measures for this emergency are defined in the operational risk register.
5. Short circuits/ electric shock:
   This may cause fire, serious injury and property loss.
6. H_2S hazard:
   This may occur due to encountering of H_2S gas during drilling operation, which may cause severe health problems & fatality.
7. Snack bite:
   Since the drilling operations are carried out in open fields, presence of snacks cannot be ruled out. Snack bite may be fatal. The control measures for this emergency are defined in the operational risk register.
8. *Chemical Handling:*
   The control measures for this emergency are defined in the operational risk register.
9. *Medical Emergencies:*
   The control measures for this emergency are defined in the operational risk register.
10. Oil spill:
    This may occur during loading of burnt oil barrels and may cause land pollution.

8.2 EMERGENCIES AND RESPONSE IN DRILLING RIG:

1. DETECTION OF AN EMERGENCY:
   Onsite emergency can be detected either manually or automatically through installed detection system. During drilling operation, an abnormality starts with the Kick i.e, uncontrolled flow of oil / gas. Kick usually observed during tripping. When the kick is out of control it may lead to a blowout/ disaster.

2. RESPONSE OF PERSON NOTICING AN EMERGENCY AT SITE:
   a. Any person noticing a fire, kick, accident must shout for help and alert shift In charge and / or Installation Manager.
   b. An attempt should be made to control and contain the emergency with the available resources.

3. 1st ALERT PROCEDURE:
   The person who first notices / sights the emergency situation like blowout or fire should inform his Senior / Shift In charge / Installation Manager by verbally or telephonically, rang the bell or raise the alarm and shout Aag, Aag, Fire, Fire in case of fire and Blowout, Blowout in case of blowout. He along with his crew mates should start the controlling of the emergency situation under supervision of the In-charge of the situation.

4. 2nd ALERT PROCEDURE:
   After an initial assessment of the emergency situation If it is likely to go out of control with the resources available at the site and may extends to outside the premises, In charge of the situation, Installation Manager should ask for the additional authority and

resources by passing the information to higher authorities for activating the Asset Disaster Management Plan.

5. MOCK DRILLS FOR EMERGENCY RESPONSE:
Following mock drills are to be carried out at installation by simulating / creating emergency like situations.

1. Blowout drills
2. Fire mock drills
3. Evacuation drills
4. H_2S Drill
5. First-aid drills

Evaluation of Mock Drill:

a. All lapses observed during the mock drill & response time shall be recorded.
b. These findings shall be discussed / shared with the crew.
c. 'Lessons learned' shall be used during safety briefings to employees and contractor personnel.

6. **Evacuation Plan, Routes and Assembly Point:**

- All personnel in the facility will evacuate to the predetermined assembly point through the emergency escape routes.
- The (OSC – on-scene co-ordinator) Installation Manager or the senior most officer available at scene will assume control of situation & will Head count the personnel to ensure that every one has evacuated safely.
- Keep in contact with control room for latest developments & instructions.

9.0 SCENARIO-SPECIFIC EMERGENCIES, ACTIONS AND RESPONSES:

9.1 KICK / BLOWOUT (ERP NO-1)

Blowout situation may have uncontrolled flow of oil/ gas and fire. In general there are three steps to be taken during such situation

Step-I: Is on spot step i.e. activation of Site Specific ERP
Step-II: Is to be taken at the Asset level i.e. activation of Asset DMP
Step-III: Is to be taken at the Corporate level i.e. activation of Corporate DMP

The various functions with regard to these three steps have been given under head of ERP, DMP and CDMP.
With a view to avoid overlapping of functions, the various actions are required to be taken during blowout and fire have been identified and the personnel responsible for taking these actions have been specified.

9.1.1 INDICATION OF KICK:

WHILE DRILLING:

I. Increase in drilling fluid return rate
II. Pit gain or loss
III. Changes in flov. line temperature
IV. Drilling breaks
V. Pump pressure decease and pump stroke increase
VI. Drilling fluid density reduction
VII. Oil show
VIII. Gas show

WHILE PULLING OUT:

1. Failure of the well to take mud/ brine equal to the metallic volume of pipes/ tubings removed.
2. The hole flows.

WHILE RUNNING IN:

1. Mud tank level will increase more than the steel volume of the pipes/ tubings run in.
2. The holes do not stop flowing during time gap between running in one pipe stand and the other.

WHEN OUT OF HOLE –

1. The hole flows.

Note: As soon as any one of the above mentioned indication is observed, shift in charge should immediately take action for kick control as stipulated in closing well as per IDT kick control worksheet given in DMP

9.1.2 CLOSING OF WELL (WHILE DRILLING)

I. Stop drilling
II. Pick up Kelly to position tool joint
III. Stop mud pump.
IV. Check for self-flow.
V. If positive, proceed further to close the well by any one of the following procedures

a) Soft shut in b) Hard shut in

9.1.3 POSITIONING OF CREW:

After hearing alarm, crew will be positioned as follows:

Shift In charge	On the brake and Communication room after handing over the brake to assist shift In charge.
Assistant Shift-in-charge	Assist Shift-in-charge, shall be ready to handle brake
Topman (1)	At choke manifold
Topman (2)	At pumps
Rigman	At standpipe manifold and on derrick floor, keeping in touch with Shift-in-charge
Rig mechanic/ Mechanical In-charge	Near the Engines awaiting directives from Shift-in-charge.
Pump fitter	At pumps.
Electrician	Near BOP control unit.
Contractual worker	Near mud tanks
Mud Chemist	On shale shaker tank
Geologist, if present	At flow line / mud logging unit.

9.1.4 BOP DRILLS:

Following drills should be performed & record to be maintained:

i) On bottom drill.
ii) Trip drill
iii) Drill collar in blowout preventer drill
iv) String out of the hole drill

RECORDED KICK DATA AFTER WELL SHUT-IN

SHUT-IN DRILL PIPE PRESSURE (SIDPP) =( ) Kg/cm^2

SHUT-IN CASING PRESSURE (SICP) =( ) Kg/cm^2

PIT VOLUME INCREASE =( ) M3

9.1.5 STANDARD OPERATING PRACTICES FOR BLOWOUT

SR. NO.	ACTION	DETAILS OF ACTION	ACTION TO BE TAKEN BY
01.	Declaration of well "Out of Control'	If the I/C of the operation of the Rig feels the well is out of control and could not be brought under control through normal procedure, emergency should be declared.	Installation Manager
02.	Switch off the Power	Immediately after the Blow out is declared, switch off the Main power system, which can cause the ignition.	Installation Manager
03.	Ensure personal safety	Call all personnel from the Rig floor area. Ensure whether all the persons reported or not. If anybody is entrapped try to rescue.	Installation Manager

04.	First Aid	If anybody is injured, carry out the first aid and send him to the nearest hospital.	Installation Manager
05.	Ensure good condition of Emergency Vehicle at site.	Emergency vehicle with stretcher should be available in good condition to send injured person for hospitalization, if needed.	Installation Manager
06.	Communication to control room.	Report the Emergency to Base control room.	Installation Manager
07.	Activation of Asset DMP	Base control room has to communicate the Emergency to all the key personnel as per Asset DMP which includes Asset Manager, Basin Manager, Surface & Sub-Surface Manager, Head Drilling Services/ Well Services/ Engg. Services, Fire, Safety, CMT, P&A, Head Security, District Collector, District Police, Nearest Police Station & Nearest Hospital.	Installation Manager

9.2 FIRE (ERP NO-2)

The operations like Hot work, Blowout, Short circuit can cause the fire when there is a compilation of Source of fire, Oxygen and Temperature. It can be detected by naked eye or smell.

9.2.1 FIRE TYPE

a. **Major Fire Incident**: Fire more than 15 minutes duration or fire with any of the following outcome-
   - Injury causing permanent Loss of Body Part or Permanent Disability or Loss of more than 500 Man-Hours
   - Loss of Property >Rs.5 lakhs
   - Incident resulting in Shut down of Plant/ Installation/ Rig
   - Blow out/ Explosion

b. **Minor Fire Incident**: Any fire incident resulting in injury or property loss due to fire and not falling under any of the categories of major incident

9.2.2 FIRE CONTROL PROCEDURE:

a) Shout Fire, Fire or Aag, Aag and sound the Fire bell or alarm
b) Stop the operation and keep the string in safe condition.
c) Assemble at identified / designated Assembly Point.
d) Take the charge of the situation.(Senior most person at site)
e) Start the head count
f) Keep security check at the entrance of the site.
g) Keep the Emergency vehicle/Ambulance ready.
h) Inform the Control room at base and other concerned senior officials of the rig.

i) Identify the source of fire, isolate the same and attempt to extinguish the fire with the facility available at the site.(The fire fighting trained personnel should be assigned for this job by the In charge of the situation)

j) The first-aid trained personnel should be assigned to give first-aid/ evacuation of injured, if any.

k) Designate one competent person to station at the VHF / Control room to update the other senior officials at base about action and progress

l) Control room at base/ Emergency control room will Inform Fire station, other control rooms, Mines manager, Mines safety officer, Head RCMT, Security, CISF, C&M, Medical services.

m) Nearby source of ignition should also be cut off immediately (like stoppage of hot jobs such as cutting, welding, engine running, switching on/off electricity, any flowing well if needed etc.)

n) Activate Asset DMP if out of control.

9.2.3 FIRST AID FIRE FIGHTING EQUIPMENTS at Drilling Rig (AS PER OISD-STD-189)

S.N	Type of Area	Portable Extinguisher AS PER OISD
1.	Derrick/Rig Floor	2 Nos. 10 Kg DCP extinguishers.
2.	Engine Area	1 No. 10 Kg DCP extinguisher per engine.
3.	Mud Preparation Pump Area	1 No. 6.8 Kg CO_2 extinguisher/ 1 No. 10 Kg DCP extinguisher
4.	Mud Gunning Pump Area	1 No. 6.8 Kg CO_2 extinguisher/ 1 No. 10 Kg DCP extinguisher
5.	Electrical Control Room	2 Nos. 6.8 Kg CO_2 extinguishers.
6.	Diesel Generator House	2 Nos. 10 Kg DCP and 1 No. 6.8 Kg CO_2 extinguishers and 1/2 sand drum with SCOOP.
7.	Mud Mixing Tank Area and Chemical Laboratory	1 No. 10 Kg DCP extinguisher each.
8.	Diesel Storage Area	2 No. 25 Kg trolley mounted and 2 Nos. 10 Kg DCP extinguishers and 1/2 sand drum with scoop.
9.	Lube Storage Area	1 No. 10 Kg DCP extinguisher and 1/2 sand drum with scoop.
10.	Air Compressor Area	1 No. 10 Kg DCP extinguisher per compressor.
11.	Fire Pump Area	1 No. 10 Kg DCP extinguisher for every two pumps or min 2 Nos. 10 Kg DCP extinguisher for each Pump House whichever is higher.
12.	DIC Office, bunk house area	1 No. fire extinguisher shed with 3 No. 10 kg DCP and 3 NO. 6.8 Kg CO_2 extinguisher and 1/2 sand drum with scoop. 1 No. fire bell

9.3 SHORT CIRCUIT / ELECTRIC SHOCK (ERP NO-3)

FIRST AID FOR ELECTRIC SHOCK:

a. Switch off the current, if possible, by removing the fuse or switching off the circuit breaker.
b. Do not touch the person who is in contact with electricity
c. If you can't turn off the source of current, use a board, wooden stick, rope or other non-insulating device to pull the victim away from the source of the electric current. Make sure your hands and feet are dry and you are standing on a dry surface.
d. If it is safe for you to touch the victim:
e. Check the heart beat and breathing. Feel for pulse along the neck, under the earlobe, on the chest or on the wrist. Watch the rise and fall of the chest to see if the person is breathing. If there is a heartbeat, but no breathing, immediately start rescue breathing.
f. Send the person to hospital.

Shock treatment chart is available and displayed at site.

9.4 HYDROGEN SULFIDE (H_2S) (ERP NO-4)

Hydrogen sulfide is a colourless, flammable, extremely hazardous gas with a "rotten egg" smell. It occurs naturally in crude petroleum, natural gas, and hot springs. Industrial activities that can produce the gas include petroleum/natural gas drilling and refining, wastewater treatment, coke ovens etc. Hydrogen sulfide can also exist as a liquid compressed gas.

a) HAZARDOUS PROPERTIES OF H_2S GAS

Hydrogen sulfide is heavier than air and may travel along the ground. It collects in low-lying and enclosed, poorly ventilated areas. For work within confined spaces, use appropriate procedures for identifying hazards, monitoring and entering confined spaces. The primary route of exposure is inhalation and the gas is rapidly absorbed by the lungs. People can smell the "rotten egg" odour of hydrogen sulfide at low concentrations in air. However, with continuous low-level exposure, or at high concentrations, a person loses his ability to smell the gas even though it is still present

b) PROTECTION AGAINST H_2S EXPOSURE

Before entering areas where hydrogen sulfide may be present:

1. Air must be tested for the presence and concentration of hydrogen sulfide by a qualified person using air monitoring equipment, such as hydrogen sulfide detector tubes or a multi-gas meter that detects the gas. Testing should also determine if fire/explosion precautions are necessary.
2. If the gas is present, the space/area must be ventilated continually to remove the gas.
3. If the gas cannot be removed, the person entering the space/area must use appropriate respiratory protection and any other necessary personal protective equipment, rescue and communication equipment.

4. Permissible Exposure Limit (P.E.L) for H_2S gas is 10 ppm. Personnel protection must be used if the work area concentration of H_2S exceeds 10 ppm 8-hour time weighted average (TWA) or 15 ppm as a Short Term Exposure Level (STEL) averaged over 15 minutes.

c) ENTERING DANGEROUS H_2S ATMOSPHERES

A level of H_2S gas at or above 100 ppm is immediately dangerous to Life and Health (IDLH).

Entry into IDLH atmospheres can only be made using:

1. A full-face piece pressure demand self-contained breathing apparatus (SCBA) with a minimum service life of thirty minutes, or
2. A combination full-face piece pressure demand supplied-air respirator with an auxiliary self-contained air supply. If H_2S levels are below 100 ppm, an air-purifying respirator may be used, assuming the filter cartridge/canister is appropriate for hydrogen sulfide.
3. A full-face piece respirator will prevent eye irritation. If air concentrations are elevated, eye irritation may become a serious issue. If a half mask respirator is used, tight fitting goggles must also be used. Workers in areas containing hydrogen sulfide must be monitored for signs of overexposure.

NEVER attempt a rescue in an area that may contain hydrogen sulfide without using appropriate respiratory protection and without being trained to perform such a rescue.

d) FIRST AID MEASURES:

INHALATION EXPOSURE:
Move the victims to fresh air area. Provide artificial respiration or oxygen if needed. Seek medical aid.
EYE EXPOSURE:
Remove victims from exposure. Flush the eyes with plenty of water for 15 minutes. Seek medical aid, if required.
SKIN EXPOSURE:
Remove victims from exposure. Remove contaminated clothing and wash the affected area with plenty of water and soap. Seek medical aid, if required.

9.5 SODIUM HYDROXIDE (Caustic) (ERP NO-5)

a) First Aid

1. Inhalation: Remove the victim from exposure. Support respiration, give oxygen, if necessary.
2. Ingestion: Give water or milk followed by dilute vinegar or fruit juice. Do not induce vomiting.
3. Skin: Wash the affected area with plenty of water and soap.
4. Eyes: Wash with plenty of water for 15 mins. Seek medical aid immediately.

b) Personal Protective Equipment.

1. Avoid contact with solid or liquid.
2. Provide side covered safety goggles, face shield, filter or dust-type respirator, rubber shoes and rubber hand gloves.

c) Handling and Storage Precautions

Keep in a cool, dry and well-ventilated place.

d) Emergency Procedure

Keep the containers cool by spraying water if exposed to heat or flame.

e) Spill

Sweep and collect without making dust. Wash the surface with plenty of water and soap.

9.6 SNAKE BITE (ERP NO. 6)

A) PREVENTION : How to Avoid Getting Bitten

1. Avoid stepping out in the dark, especially during the monsoons, without a torch and boots. Pathways should be well lit.
2. While walking through high grass, disturb the grass ahead with a stick to ensure that there are no snakes.
3. Wear leather ankle shoes for outdoor activities.
4. Before you wear your boots, hold its sole from toe side and bang the heel side on the ground several times to disturb any snakes or biting and stinging insects inside and let it go.
5. Rats or other small animals are attracted to left over food. Snakes are likely to follow rat tracks. Make sure that your leftover food is thrown far away at a designated area or buried.

B) First Aid & Treatment

In case of snakebite, a well-administered first-aid is vital. The following activities are important:

1. Keep the victim calm, restrict movement, and keep the affected area below the level of the heart to reduce the flow of venom. Try to make calm. When a person is frightened or excited, his blood circulates faster, and the venom will spread quicker too.
2. Wash the bitten area with soap and water. But no manipulation of the site i.e. squeezing etc.
3. Remove any rings or constricting items; the affected area may swell.
4. If the area of the bite begins to swell and change colour, the snake is venomous for sure.
5. The limb, which has been affected by the bite, should be immobilized with splint and be kept below the level of the heart.

6. Next, a cloth tourniquet or band (but not a thin rope or rubber or cable) should be tied above the bite. If bite is on the hand, tie it on the upper arm, about a few inches above the bite. If snakebite is on foot or lower leg, tie it above the knee joint. It should not be too tight; a very tight tourniquet could paralyse the affected limb and may lead to amputation.
7. One should loosen tourniquet every ten minutes for two to three seconds. It should not cut off blood flow from a vein or artery.
8. The wound should be gently cleaned with antiseptic.
9. Do not cover the bite area.

9.7 MEDICAL EVACUATION (ERP NO. 7)

(a) Medical Emergencies

Onsite medical emergencies may results from accidents or illnesses involving employees, mine visitors or contract workers in a mine and timely, appropriate medical response may be matter of life and death.

Scenario: Onsite Medical Emergencies from Accidents or Illnesses

Nature of incident:

Persons requiring medical attention as result of accidents, illness or pre-existing medical conditions (e.g., heart attack, stroke, alcohol /drug use, disease or other medical conditions) or other emergencies that include injuries to personnel

Potential cause:

Pre-existing medical conditions, failure to observe safety precautions or procedures, equipment failure, operator error or natural disasters.

Preventive Measures

Compliance with applicable SOPs pertaining & not limited to:

1. Electrical Safety
2. Work permit system
3. Working at height
4. Use of PPEs
5. First-aid/ safety trainings, drills & meetings
6. Routine inspections
7. Near-miss reporting
8. Maintenance, inspection and testing of safety critical equipment.

Response:

Immediate first aid /Cardiopulmonary Resuscitation by appropriately trained persons closest to the affected person, followed by evacuation to medical facilities as required

Conduct incident investigation and, if appropriate, undertake corrective and preventive action as per the procedure. Implement other emergency-specific actions.

(b) MEDICAL/ EMERGENCY EVACUATION

The purpose of any evacuation procedures is to: Move People from Danger to Safety. For smooth completion of the evacuation process, the responsibilities are divided into the following key personnel.

INSTALLATION MANAGER

- Will determine in consultation with the first -aider / Doctor that the situation is serious enough to warrant a medical evacuation especially during night hours.
- Will ensure that adequate first aid is provided to the patient and will designate responsibilities to the key persons.
- Will communicate with the base manager and the ambulance in-charge to identify self, patient, location of the incident, nature of illness /injury to ensure preparedness for initiating evacuation.
- Shall assist the ambulance crew and doctor as required once the ambulance arrives to evacuate the patient.

SHIFT IN-CHARGE

- Will take the responsibilities of Installation Manager in his absence.
- Will ensure that the patient reaches the AMC and will be responsible for relaying information.
- Will keep installation manager and Base manager informed about arrival and departure times of the ambulance.
- Will liaise with the nearby installation to arrange the alternative transport to ensure speedier evacuation of the patient.

FIRST AIDER / DOCTOR

- Will provide the information concerning the condition of the patient and the nature of the injuries to the ambulance attendant and to the approved medical centre. First aid trained personnel must be deployed at all work centers / installation and in each shift. After First aid, the victim must be taken to the nearest hospital/ Doctor along with the relevant information about the accident / illness of the victim.
- The information should include, but not limited to:
- Full name, designation, age, address of the patient and family contact details.
- Details of the accident or symptoms exhibited by the sick or injured person.
- First aid/ treatment administered on the installation.
- Patient's blood group.
- Special Medical considerations (hypertension, diabetes etc)

Based on nature of illness /injury, the first -aid / Doctor shall ensure that necessary medical equipment and facility is available on the ambulance during transit from the installation to the approved medical centre. He should also ensure that the patient is safely transferred and secured in the ambulance.

Based on condition of the patient and strength of the ambulance crew, the first -aid / Doctor will recommend to the installation manager whether a first –aid qualified attendant to travel with the patient.

BASE MANAGER / LOCATION MANAGER

- Will receive information from installation manager and will notify the ambulance in-charge, approved medical centre, family of the patient and his superiors.
- Will authorize the ambulance in-charge to dispatch an ambulance to the installation in question and will inform the installation manager about the ETA of the ambulance at the installation.
- He shall coordinate with all concerned parties to ensure that the patient is transported to the approved medical centre with minimum delay.
- Will liaise with the nearby police station to notify them to the accident as per local law.
- Will liaise with the Base Doctor/ first –aid center to ensure that approved medical centre is prepare to receive and treat the patient.
- Will designate the Base Doctor to be present at the AMC to ensure that patient treatment is expedited and will inform the installation manager as and when the patient has been admitted / treated at the AMC.

BASE DOCTOR

- Liaise with the AMC to ensure preparedness to receive and treat the patient.
- Take a copy of PME report (for quick medical history) of the patient available at the dispensary record.
- Accompany patient to the AMC and administer treatment, if necessary, during transit.
- Will inform installation manager and Base manager as and when the patient has been admitted / treated at the AMC.

9.8 OIL SPILLS (ERP NO-8)

Spills of hazardous materials i.e used oil can be harmful to the environment. Oil spills may occur during loading/ unloading despite prevention efforts.

(a) EFFECTS: Land pollution

(b) PREVENTING OIL SPILLS: Safe handling during loading / unloading

(c) RESPONSE TECHNIQUES

As quantity of used oil will not be more than few barrels (200 Lts) physical methods are used to clean up oil spills. Physical methods, such as pressure washing is used to clean the area & saw dusts spreading are used to soaking the contaminated oil. Contaminated oil is collected from spillage areas and further sent to bioremediation site for further treatment.

(d) The following guidance is provided for Oil spill response.

Person, who first noticed oil spill

Person, who first noticed oil spill, will take action as under:

- Quickly try to identify the extent of the situation, i.e. how large is the spill, what is the source, and what is the material spilled.
- Inform to the Installation Manager / Shift Incharge
- Seal off the area and alert others of possible dangers.

- Remain in a safe location where you can provide additional information to the Installation Manager / Shift Incharge
- Be prepared to receive and follow instructions from the Installation Manager / Shift Incharge

Installation Manager / Shift Incharge

On getting information about oil spill, Installation Manager / Shift Incharge will immediately take the following general actions:

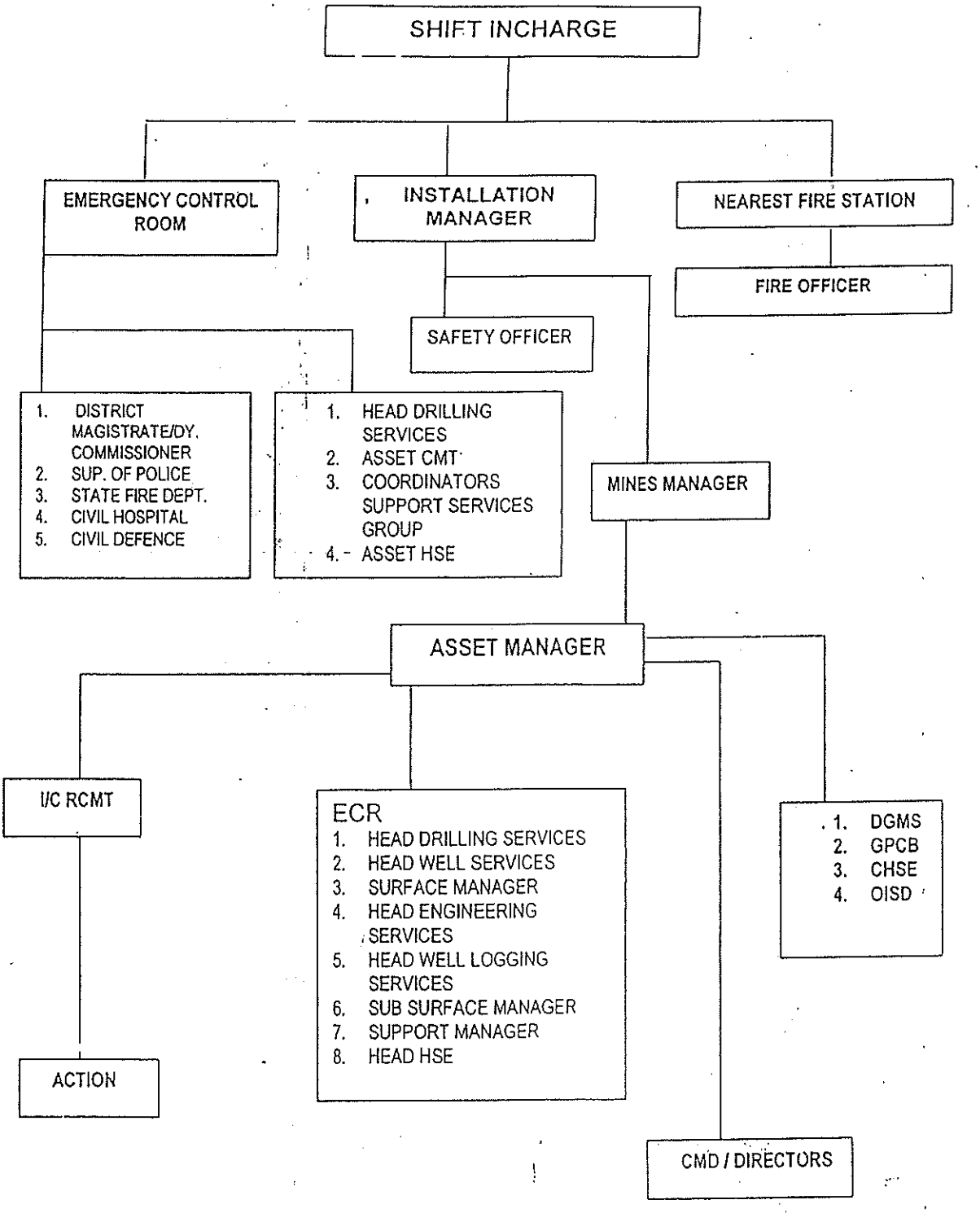
- Begin a log of the incident including date, times, information gathered, and persons providing information.
- Quickly assess the size of the spill, what resources are likely to be needed
- Notify the base office
- Provide information to the Health, Safety and Environment Department
- If evacuation is required, he shall ensure that proper personnel accounting is conducted.
- Once the emergency is declared over, the Installation Manager / Shift Incharge shall take control to co-ordinate documentation, cleanup, and return to normal operational state

Emergency Response Team / Base Team

Upon arrival at the emergency site, the team will typically follow the following general steps, recognising that all situations are different and may call for different actions.

- Clearly identify/acknowledge the Installation Manager / Shift Incharge
- Initiate local area evacuation if deemed necessary.
- Quickly try to identify the extent of the spill.
- Seal off the area and alert others of possible dangers.
- Look for injured personnel.
- Take time to quickly identify existing and potential hazards including the fire hazards, potential ignition sources, or confined space hazards.
- Identify emergency response equipment needed, including personal protective equipment, and what emergency response equipment is immediately available.
- Prepare a plan of action.
- Call for additional help, resources, and emergency response equipment if required.
- Communicate with the Installation Manager to address any evacuations, or off-site/emergency reporting:
- Carry out the plan of action to bring the spill under control.
- Determine when the emergency is under control and make the declaration that the emergency is over. Control will then be turned over to the Installation Manager.

10.0 EMERGENCY COMMUNICATION FLOW CHART:



11.0 ROLES AND RESPONSIBILITY

1. EMERGENCY CONTROL ROOM: (ECR)

An emergency Control Room (ECR) is the place from where the operation to handle emergency is directed and coordinated. The ECR should be equipped with copy of Corporate Disaster Management Plan (CDMP), Disaster Management Plan (DMP), Site Emergency Response Plan (ERP), list of key personnel, there address and telephone numbers, chart showing locations of installations & fire stations, good communication facilities like Telephone, Radio equipment, note pads, telephone directories, etc.

LOCATION	ECR will function from Control Room – Drilling Services, Mehsana.
DUTY OFFICER	Head Drilling services will depute two – three suitable officers on 8 hours shift in ECR. List of officers likely to be deputed as Duty Officers & their telephone nos. for this is given below.
FUNCTIONS	Command and control the entire operations. • Information to all key officers. • Round the clock monitoring and flow of information to and from the site of emergency. • Maintenance of running record of events and actions taken. • Casualty list (if any) and information to next of kin. • Preparation of management report on the situation at every 12 hours interval. • Co-ordination with the key personnel for guidance and assistance required at site. • Co-ordination with other installations (if required). • Co-ordination with local authorities such as police, civil administration, hospitals, fire departments, etc (if required). • Arrangements of food, water, shelter, medicine, logistic, etc. • Information to public. Co-ordination with regions / projects and head quarter (if required).

2. KEY PERSONNEL FOR ECR

Sl No.	Name/ Shri	Designation	Office		
			EPABX	DIRECT	Mobile
1	K.K. SWARNAKAR	GM (D)- HDS	2303	225824	9426612318
2	P. C. RAVAL	GM (D)-LM (DS)	2307	222307	9428008863
4	S J A LARI	GM (D)-PMDS	2389	262389	9426612809
5	S. DEODHAR	GM(D) LM-CMTG	2841	252559	9428008325
6	P.C.RANOWT	GM(CHEM)	2365	262365	9426612760
7	R.P. GOUTAM	GM (M)-I/c Maint	2331		7574834040
8	U. PANDEY	GM(D)	2305	262305	9428008842
9	B. V. HALANI	DGM(M)	2368	--	9428518677
10	D.K.BHATIA	DGM (D) –I/c RB & DTYS	2382	262382	9426612436
11	B.C.UPRETI	DGM (D) Area Mgr.-I	2318		9426612381
12	G.C.SINGHA	DGM (D) Area Mgr.-II	2355		9428008856
13	R.GOYAL	DGM(E)	2366	232934	9426618833
14	M. SAHAY	DGM(E)- I/C HSE (DS)	2686	--	9426612723
15	RBP ROY	CE(D)-DTYS	2395	--	9426612566

3. CHIEF EMERGENCY COORDINATOR:

Head Drilling Services will be the **Chief Emergency Coordinator** and will exercise control through Emergency Control Room. He will keep record of messages and decisions taken to control the emergency. He will also apprise the ED-Asset Manager & ED-Chief of Drilling Services from time to time on steps taken to control the situation and status of emergency.

4. DRILLING RIG INCHARGES:

S.No.	Name/ Shri	Design	CPF No.	RIG	Telephone Nos.	
					Office	Residence
					FCT / EPABX	Mobile
1	R.PRASAD	CE (D)	59501	E-760-XI	9426612894	9428008855
2	N.K.VERMA	CE (D)	53400	M-750-II	9426612899	9426612661
3	S.PAL	CE (D)	65931	M-900-I	9426612900	9428008846
4	RAJESH NAGPAL	CE (D)	60224	IPS-700-V	9426612895	9426612716
5	M.P.SHARMA	CE (D)	59510	IPS-700-VI	9426612896	9428518692
6	R.B.YADAV	CE (D)	66732	IPS-700-VII	9426612897	9426612455
7	H.R.VERMA	CE (D)	53608	E-760-XVIII	9426612958	9428008071

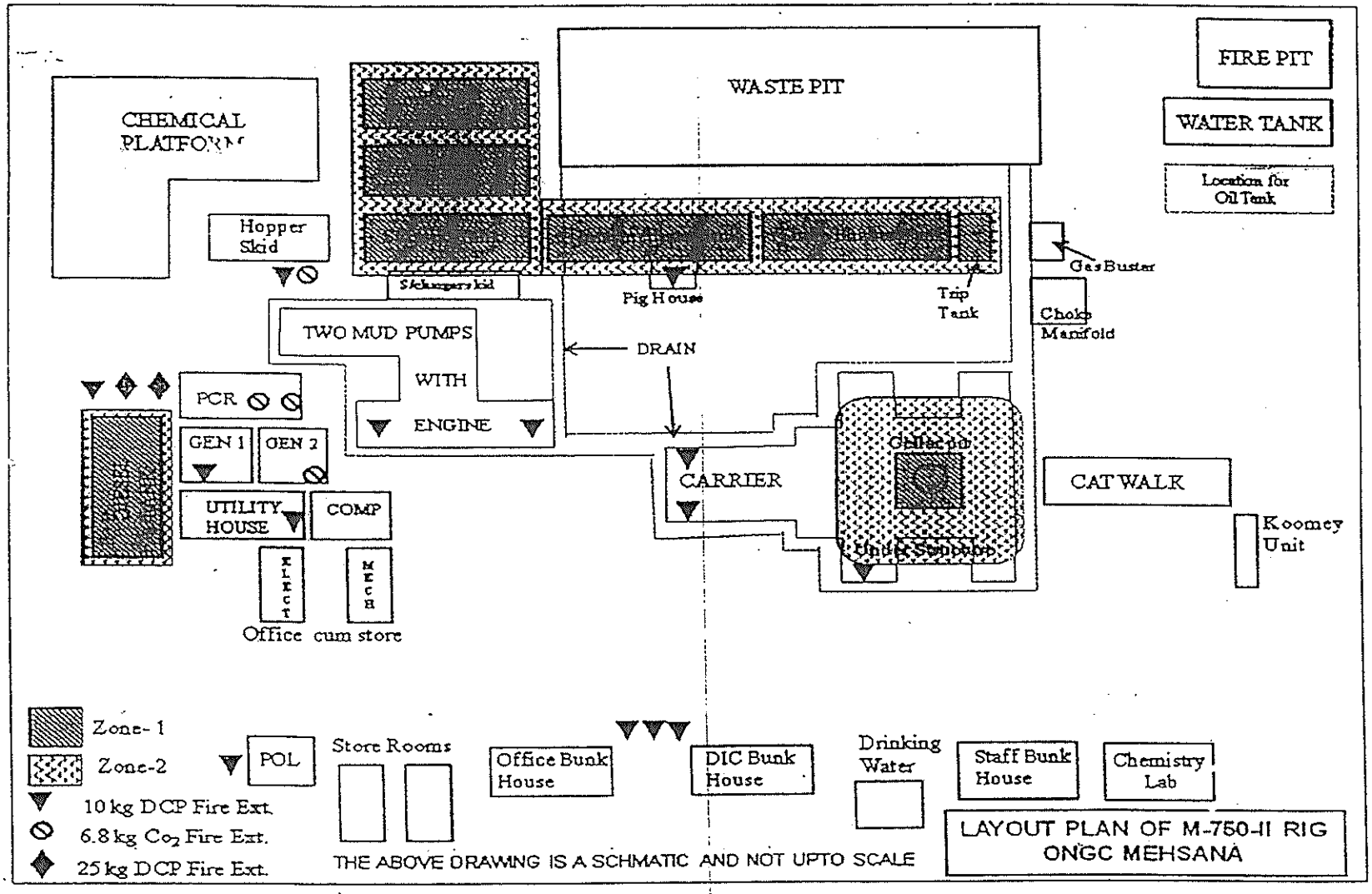
5. OTHER IMPORTANT PERSONS:

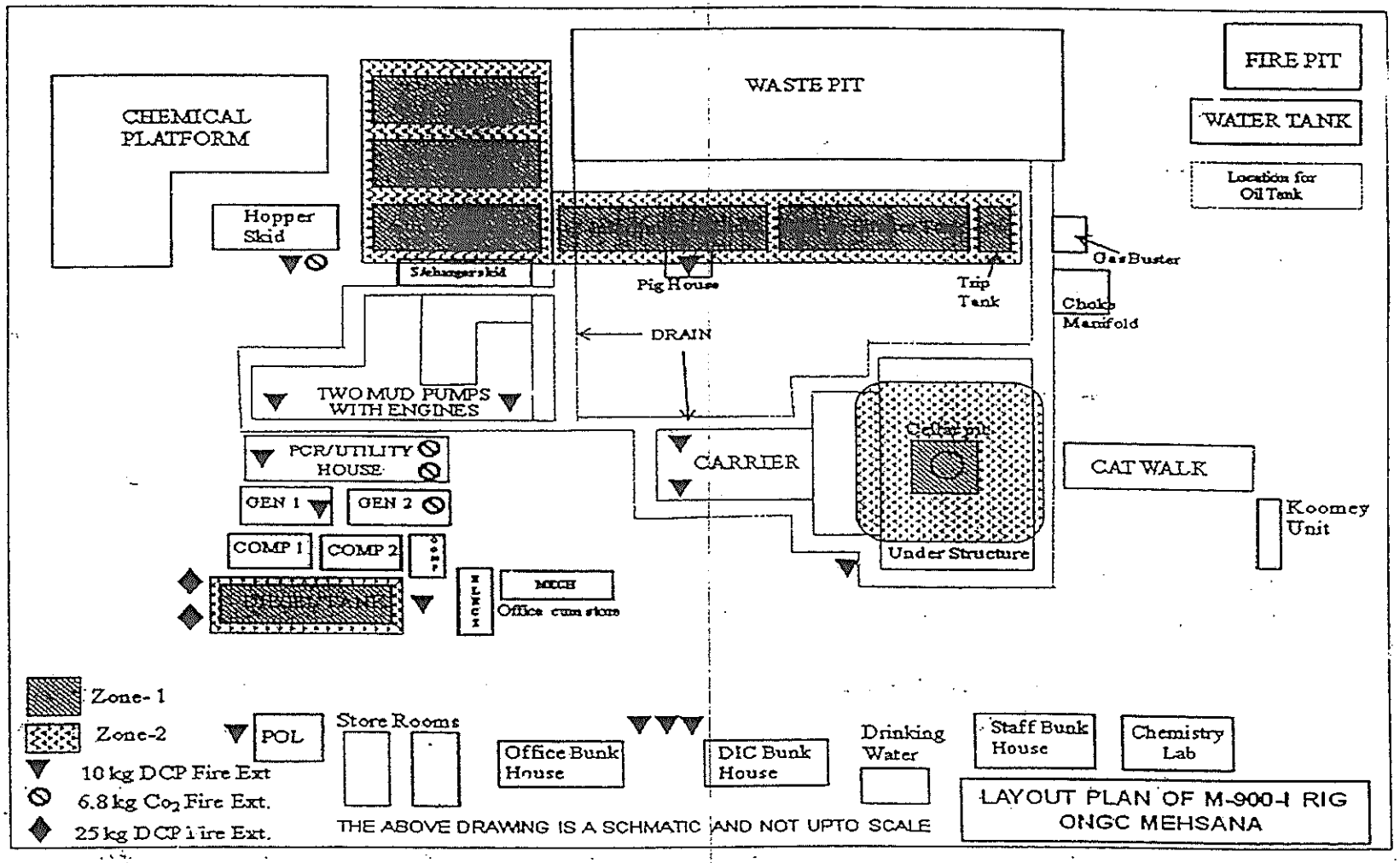
Sl No.	Name	Design.	Telephone No.	
			Office	Mobile
1.	K.M. Ginoya	GM-Head HSE	02762-253699	9426612700
2	P.M. Bharati	DGM (D)-I/c CMT		9442500617

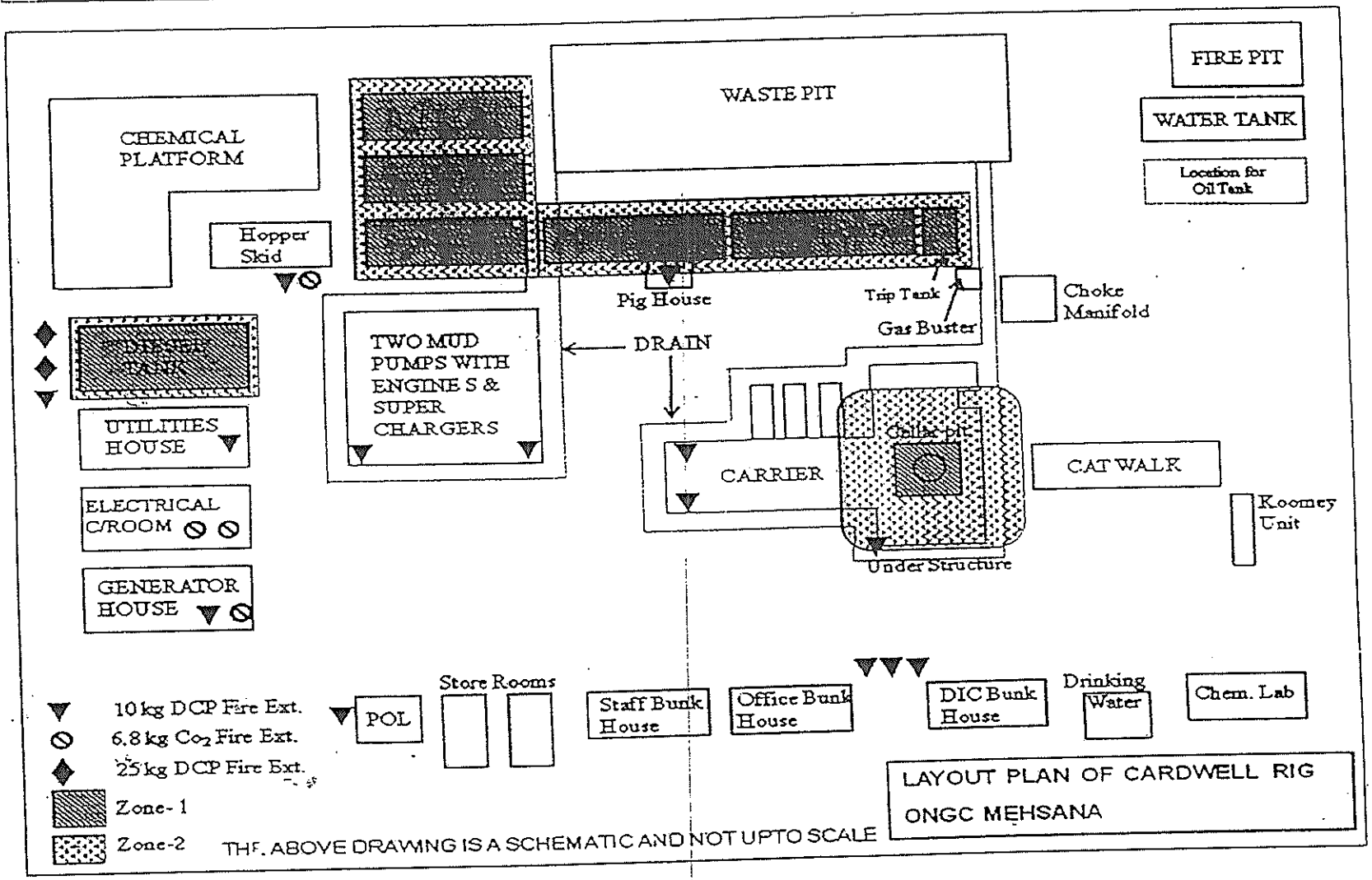
12.0 RE-ENTRY AND RESUMPTION OF WORK:

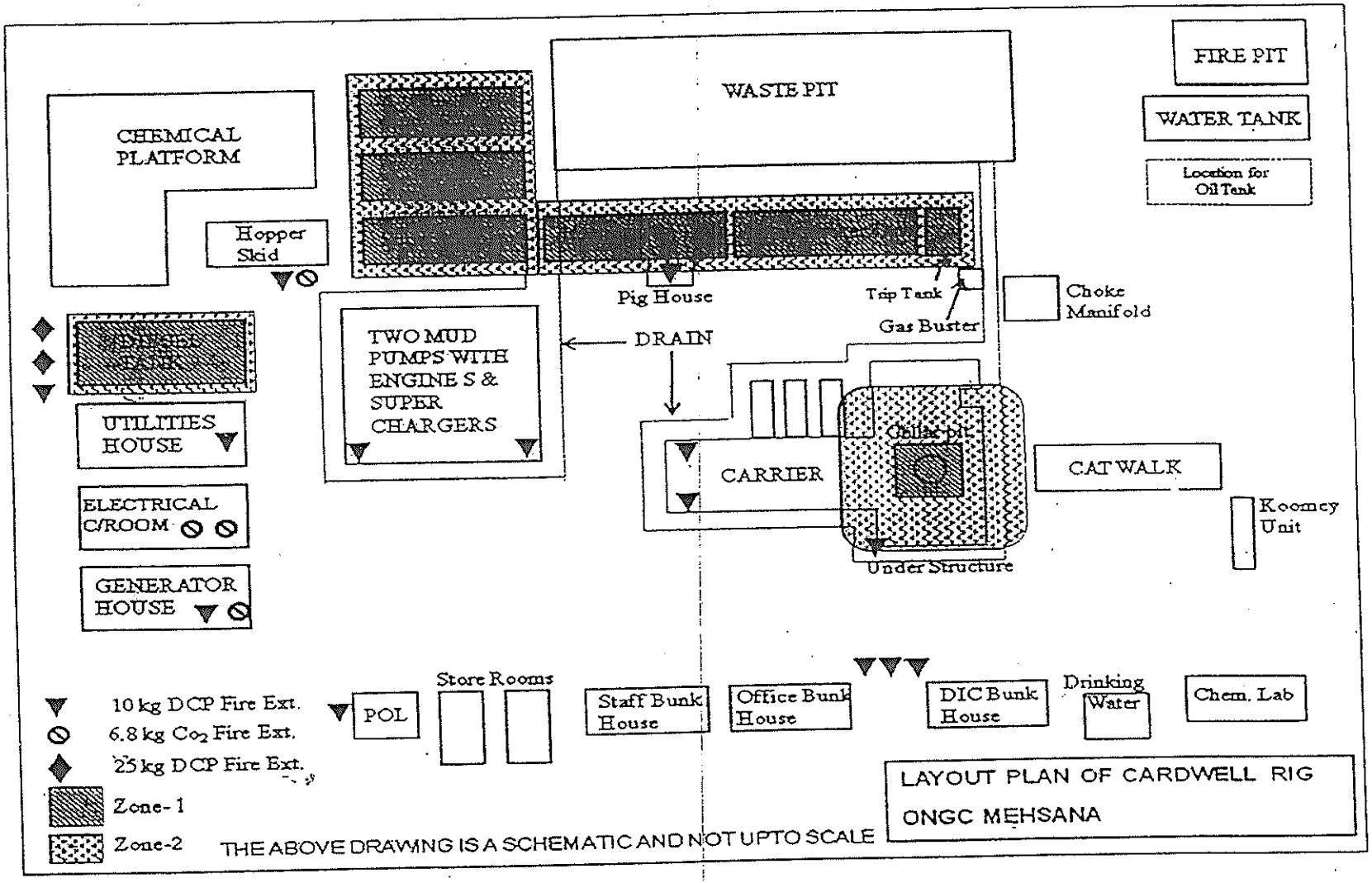
Once the disaster / emergency has been brought under control, an assessment of the situation of the rig and equipment will be made by an expert team appointed by CEC for safe operation and the measure needed for safety of personnel. CEC after having satisfied himself about the safety of the installation and personnel will issue written instruction to On-scene Coordinator (OSC) regarding termination of the emergency.

ANNEXURE-I


CHEMICAL PLATFORM
WASTE PIT
FIRE PIT
WATER TANK
Location for Oil Tank
Hopper Skid
Shakers skid
Pig House
Trip Tank
Gas Buster
Choke Manifold
TWO MUD PUMPS
WITH
ENGINE
DRAIN
PCR
GEN 1
GEN 2
UTILITY HOUSE
COMP
ELECT
MECH
Office cum store
CARRIER
Shale Shaker
Under Shaker
CAT WALK
Koomey Unit
Zone-1
Zone-2
POL
Store Rooms
Office Bunk House
DIC Bunk House
Drinking Water
Staff Bunk House
Chemistry Lab
10 kg DCP Fire Ext.
6.8 kg Co2 Fire Ext.
25 kg DCP Fire Ext.
THE ABOVE DRAWING IS A SCHMATIC AND NOT UPTO SCALE
LAYOUT PLAN OF M-750-II RIG
ONGC MEHSANA


CHEMICAL PLATFORM
Hopper Skid
WASTE PIT
FIRE PIT
WATER TANK
Location for Oil Tank
Gas Buster
Choke Manifold
Trip Tank
Pig House
DRAIN
TWO MUD PUMPS WITH ENGINES
PCR/UTILITY HOUSE
GEN 1
GEN 2
COMP 1
COMP 2
CARRIER
Cellar pit
Under Structure
CAT WALK
Koomey Unit
Office cum store
Zone-1
Zone-2
POL
10 kg DCP Fire Ext
6.8 kg Co2 Fire Ext.
25 kg DCP Fire Ext.
Store Rooms
Office Bunk House
DIC Bunk House
Drinking Water
Staff Bunk House
Chemistry Lab
THE ABOVE DRAWING IS A SCHMATIC AND NOT UPTO SCALE
LAYOUT PLAN OF M-900-I RIG ONGC MEHSANA


FIRE PIT
WATER TANK
Location for Oil Tank
WASTE PIT
CHEMICAL PLATFORM
Hopper Skid
Pig House
Trip Tank
Gas Buster
Choke Manifold
DRAIN
TWO MUD PUMPS WITH ENGINE S & SUPER CHARGERS
UTILITIES HOUSE
ELECTRICAL C/ROOM
GENERATOR HOUSE
CARRIER
Cellar pit
CAT WALK
Koomey Unit
Under Structure
10 kg DCP Fire Ext.
6.8 kg Co2 Fire Ext.
25 kg DCP Fire Ext.
Zone-1
Zone-2
POL
Store Rooms
Staff Bunk House
Office Bunk House
DIC Bunk House
Drinking Water
Chem. Lab
THE ABOVE DRAWING IS A SCHEMATIC AND NOT UPTO SCALE
LAYOUT PLAN OF CARDWELL RIG
ONGC MEHSANA


FIRE PIT
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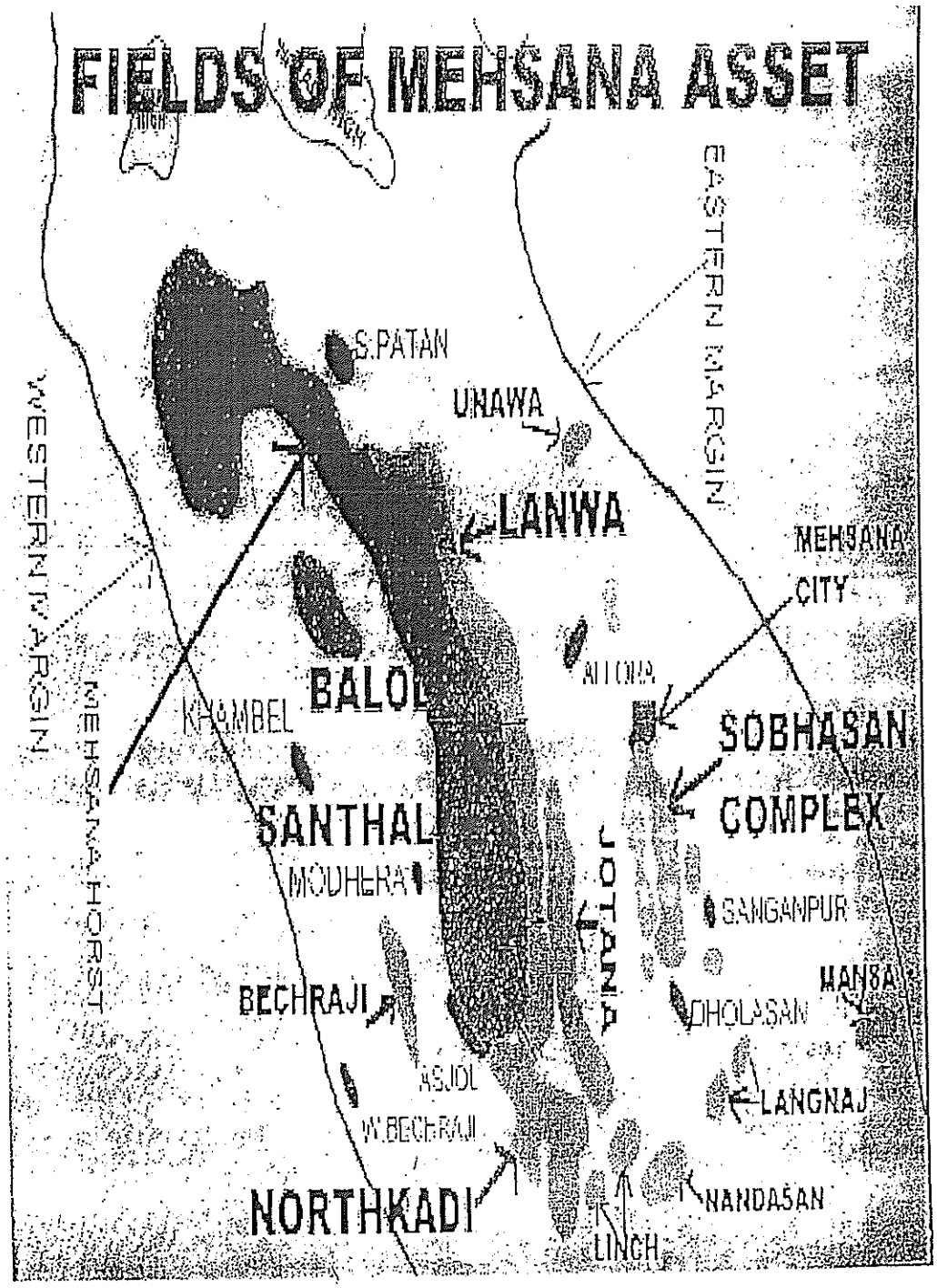
Office Bunk House
DIC Bunk House
Drinking Water
Chem. Lab
THE ABOVE DRAWING IS A SCHEMATIC AND NOT UPTO SCALE
LAYOUT PLAN OF CARDWELL RIG
ONGC MEHSANA

5.0 INSTALLATION LOCATION DETAILS:

MEHSANA ASSET: Mehsana Asset is having mainly 8 oil fields where Drilling Rigs are deployed.

An overview of Field of Mehsana Asset is given as below:-



DISTRIBUTION LIST

Copy No.	Copy Holder / User	Place
1	Location Manager (D) / MR	Base Office
2	I/C HSE – DS	Office
3	Installation Manager M-750-II	M-750-II
4	Installation Manager M-900-I	M-900-I
5	Installation Manager IPS-700-V	IPS-700-V
6	Installation Manager IPS-700-VI	IPS-700-VI
7	Installation Manager IPS-700-VII	IPS-700-VII
8	Installation Manager E-760-XI	E-760-XI
9	Installation Manager E-760-XVIII	E-760-XVIII

3.0 SCOPE:

Emergency is a sudden, undesirable occurrence, which has the potential to cause harm to people, equipment, material & environment and which requires immediate attention from all concerned setting aside all their normal/routine work.

This plan has been prepared to address all types of operational and natural emergencies and to mitigate it in a systematic manner so that damage to human life, property is minimized, normal operation is restored and responsive communication at all levels is assured.

4.0 BRIEF DESCRIPTION OF RIG:

Brief description of rig equipment are as under : (To be filled up by the respective Installation Manager)

Name of the Rig	
Date of Commissioning	
Manufactured By	
Capacity of Rig	
Mast Height	
Rig Engine / Motors	
Torque Converter	
Draw Works	
Rotary Table	
Mud Pump Engine / Motor	
Mud Pump	
Generator Engine	
BOP Accumulator Unit	
BOP	

Other Safety Equipment available at the rig are detailed below (Including but not restricted to):

- Crown-O-Matic
- Floor-O-Matic
- Emergency Pneumatic Brake.
- Engine Safety System (like AMOT)
- Trip tank.
- Top-man Escape Device
- Fall Prevention Device
- Portable Fire Extinguishers/Sand Buckets/Fire Bell
- Portable gas detector
- Online Gas Detection system & MVT
- First Aid Box
- Emergency Vehicle with stretcher facility
- BOP
- Emergency Shut-down Valve/ switch.
- Remote BOP Controls.
- Safety belts

1.0 INTRODUCTION:

LOCATION

The base office of Drilling services, Mehsana is located at KDM Bhavan, Palavasana, Mehsana - 384003. It has presently 06 drilling rigs, mainly operating in Mehsana Drilling Mine.

AIRPORT

Ahmedabad is about 70 kms away from Mehsana ONGC Complex.

RAILWAY STATION

Mehsana falls on Ahmedabad- Delhi main line and is about 6 kms from ONGC office complex.

ROAD

ONGC office complex is situated on Ahmedabad- Palanpur State High way, SH # 41.

BRIEF OF ONGC MEHSANA ASSET

The Oil and Natural Gas Corporation, a pioneer in oil industry, started its exploration activities in and around Mehsana city of Gujarat in the year 1964. Mehsana Asset came into existence on 7Th November 1967 when it was bifurcated from Ahmedabad Asset for administrative and operational convenience. Oil struck in North Kadi in June 1967 and trial production commenced on 29-04-1969. Mehsana Asset forms the northern part of the Cambay basin, which lies between 21° N and 23°15′ N and longitudes 71°. 30′ E and 73°.30′ E covering an area of 6000 Sq. Km. Several fields have been discovered since inception of Asset. The important commercially producing fields of the Asset are North Kadi, Santhal, Sobhasan, Balol, Jotana, Lanwa, Bechraji, Nandasan and Linch. Starting with meager production 26 TPD during 1968-69, and peak production of 6500 TPD Approximately in 2005-06.

2.0 OBJECTIVE:

A sound Emergency Response Plan (ERP) is required to prevent a minor incident from becoming a disaster, injuries to save lives, and minimize damage to property and the environment. ERP represents all operational risks and hazards and magnitudes of possible crises due to natural disasters in the Installation. The plan describes how the Installation will respond to emergencies situation that would significantly affect the organization.

A basic purpose of this emergency response plan is to equip ourselves with required resources and information for prompt implementation of the actions to ensure that in the event of an emergency, the hazard is controlled and the damage to human life and property is minimized.

ERP	DRILLING SERVICES ONGC, MEHSANA	Doc. No. MN/DS/ERP/01/2010
		Issue No. 02 Date: 02.02.2010
		Rev. No. 03 Date: 30.11.2015

Content

REVISION HISTORY

S.No.	Doc. Title	Para/Page No.	Changes Made	Rev. No.	Rev. date
1	Distribution List	Sl.No. 3	IM IR-900-II deleted	01	02.11.2012
2	First-aid Fire Fighting Equipment	9.2.3	Table revised as per revised STD-189 (June-2012)	01	02.11.2012
3	Roles & responsibilities	11.0	Table 2,4,5 reviewed & revised	01	02.11.2012
4	Content	Page 2	9.7 & 9.8 added	02	11.02.2014
5	Overall risk & brief description of scenarios	Page 10 (8.1)	Point no. 8,9 & 10 added	02	11.02.2014
6	ERP No. 7 & 8	20-23	Addition of new scenarios	02	11.02.2014
7	Roles & responsibilities	11.0	Table 2,4 & 5 reviewed & revised	02	30.11.2015
8	Distribution List	Sl.No. 9	E 760-XVIII added	02	30.11.2015