This study is the outcome of collaboration between BP India and NR Management Consultants. Thanks are due to BP India for entrusting this important assignment to NRMC. The study is a result of inputs received from a variety of stakeholders in the oil and gas (O&G) industry in India. The NRMC project team sincerely acknowledges the contribution of the persons met during the course of the study. While the list is long, we would like to take this opportunity to thank the management and staff of Oil and Natural Gas Corporation (ONGC), Oil India Safety Directorate (OISD), Reliance Industries Ltd. (RIL), International Centre for Entrepreneurship and Career Development (ICECD), and industry experts for their valuable inputs which helped in shaping up the contours of the study findings. NRMC also acknowledges critical inputs shared by contractors and sub-contractors engaged in upstream operations in the O&G industry in India. We also wish to place on record our sincere thanks to heads and faculty members of a number of ITIs, IITCs and polytechnic colleges with whom the project team interacted during the course of the study. The study would not have been complete without the contribution of nearly 200 Base Level ManPower (BLMP) with whom we interacted to understand the patterns of recruitment, and their insights on safety trainings received before and after recruitment.

This study is aimed at improving the safety skills among the BLMP with the hope that it would serve as an important reference document in considering possible interventions for developing a cadre of adequately trained BLMP for the O&G industry in India.

Note: List of stakeholders who were met for this study is available with NRMC on request.

About NRMC
NR Management Consultants (NRMC) is a development advisory firm providing technical management for inclusive, equitable and sustainable development. In most of its assignments, NRMC works with multiple stakeholders such as NGOs, national and state government agencies, research agencies, bilateral and multilateral agencies. NRMC’s approach is based on enabling stakeholders to identify, share and analyse information about skill development, livelihoods, resources and management strategies. In facilitating group processes that produce clear understandings about stakeholder roles and responsibilities, it helps to establish processes for effective monitoring of programmes and projects.

About BP India
With its many investments in India and employing over 8,500 people in the oil, gas, lubricants and petrochemicals businesses, BP has the largest presence among all international oil companies present in India. In addition to its gas alliance with Reliance Industries Ltd., BP’s activities include: Castrol lubricants; the licensing of competitive petrochemical technologies; IT and procurement back office activities; staffing and training for its global marine fleet; and the recruitment of skilled Indian employees for its global businesses.

For more information on BP India: www.bp.com/india
Contact: Jyotsna Bhatnagar at jyotsna.bhatnagar@bp.com

Acknowledgments

This document highlights the findings of the study conducted on safety skills among the Base Level ManPower in the upstream activities of the O&G industry in India. A description of the approach and methodology followed by NRMC is provided in Annexure B. The report attempts to present the patterns and frameworks of sourcing and recruitment of the BLMP followed by a description of current institutional arrangements for training and certification of BLMP on safety issues. The report concludes with emerging opportunities for the industry to contribute to strengthening safety-related skills of its BLMP.
For more information on NRMC: and responsibilities, it helps to establish processes for shared by contractors and sub-contractors engaged in the study findings. NRMC also acknowledges critical inputs valuable inputs which helped in shaping up the contours of industry in India. Development (ICECD), and industry experts for their developing a cadre of adequately trained BLMP for the O&G opportunity to thank the management and staff of before and after recruitment. The study is a result of inputs received from a variety of with whom we interacted during the course with whom the project team interacted during the course

About this document

This document highlights the findings of the study recruitment of the BLMP followed by a description of current opportunities for the industry to contribute to strengthening

About NRMC

NRMC (NR Management Consultants) is a development employing over 8,500 people in the oil, research agencies, bilateral and alliance with Reliance Industries Ltd., BP’s activities include: government agencies, research agencies, bilateral and alliance with Reliance Industries Ltd., BP’s activities include:

NRMC is provided in Annexure B. The report attempts to safety-related skills of its BLMP.

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Acknowledgments

NRMC project team sincerely acknowledges the the contribution of nearly 200 Base Level ManPower (BLMP) with heads and faculty to place on record our sincere thanks to heads and faculty

The study report.

This study is the outcome of collaboration between BP India upstream operations in the O&G industry in India. We also wish to present the patterns and frameworks of sourcing and

Sub-contractor An individual or company that signs a contract with a contractor to perform part or all of the obligations of the contractor’s contract with the OC.
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Annexure B: References for Study Approach and Methodology

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The study on safety skills among BLMP in the Oil & Gas (O&G) industry seeks to provide patterns and the framework of sourcing and recruiting of Base Level ManPower (BLMP) engaged in the upstream activities of the O&G industry in India. The study provides an understanding of the type of safety training that BLMP have prior to their recruitment and post deployment in the industry. The report is structured into four broad sections, namely (i) Process of Recruitment of BLMP; (ii) Sourcing of BLMP; (iii) Safety Skills Training – Pre-recruitment; and (iv) Safety Skills Training – Post-recruitment. The report also articulates emerging opportunities for the industry to strengthen the safety skills of its BLMP.

Process of Recruitment of BLMP

- BLMP is recruited directly by Operating Companies (OCs) or through contractors.
- BLMP working through contractors comprise 80-90 percent of the total BLMP in the industry engaged in upstream tasks.
- Minimum qualification for BLMP for recruitment is National Trade Certificate (NTC) through ITIs.
- O&G industry prefers recruiting candidates with 4-7 years of experience. Public sector companies, however also recruit NTC certificate holders from ITIs/Diploma Colleges with no prior work experience.
- Those having no experience or not having any formal trade certificate (from ITI) or training from diploma colleges find opportunities to work for contractors as helpers in fabrication units.
- The study shows students passing out of ITIs do not have sufficient industry specific safety knowledge/skills and therefore safety skills are not used as a selection criterion for recruitment of BLMP. Safety skill for BLMP is assessed (though not a usual practice) in terms of basic awareness on fire safety or first aid.

Sourcing of BLMP – Geographical Distribution

- There is a pattern in terms of geography (place/region) from where BLMP is sourced.
- The preference by private OCs and contractors is towards having a mix of BLMP in their pool, sourced from both local areas and other regions.
- Public sector OCs are guided by government regulations sourcing local workers from employment exchanges. For private sector OCs, contractors are the single largest source.
- OCs prefer recruiting from within the concerned state of operation; but a balance of resources from local areas and other regions seems ideal.
- Sub-contractors have trade specific geographic preferences: For instance, Bihar, UP and Kerala for welders, West Bengal for fitters, Punjab and Haryana for riggers.
- For tasks related to fire safety, there is a challenge to source manpower from local areas. Many contractors have started recruiting from local employment exchanges for onshore activity, particularly in fire safety.

Safety Skills Trainings at ITIs/Diploma Colleges/Trade Schools

- Focus on safety in ITI curriculum is planned for 12 hours but study has shown that it is limited to two to four hours at the beginning of the course with basic knowledge on Personal Protective Equipment (PPE), fire prevention and first aid.
- At ITIs, safety is addressed from an individual trade perspective and not any specific industry. Workshop/practical classes are limited to demonstration on safety skills. Safety is mentioned briefly (in a lecture mode) at the start of any specific series of practical classes.
- Industry-ITI linkage is limited to two industrial visits during a two-year course of Craftsmen Training Scheme (CTS) at the ITI.
- Knowledge on safety among Instructors/Faculty at ITI is not in conformity with the rapid changes in technology in the industry.

Methodology

The study used qualitative techniques including Focused Group Discussions (FGDs) and In-depth Interviews (IDIs). Report is based on feedback and inputs of senior management of O&G companies, Departmental Heads and Floor Managers (human resource/personnel/operations), Workers Associations, Contractors and Sub-contractors providing specialised services for the O&G companies, faculty at ITIs/ITCs/other vocational training institutes and BLMP from selected trades, in Maharashtra and Andhra Pradesh.
Patterns and Frameworks of Trainings for BLMP – Post Recruitment

- Safety trainings are obtained through on-job trainings and/or certifications from external certifying agencies as per job requirement.
- Regardless of the nature of the employment contract of BLMP (permanent/tenure-based or contractual), safety training varies from basic induction training to refresher trainings. There is also a system of weekly drills, safety briefing and toolbox talks to discuss safety issues.²
- Trainings provided by contractors and O&G companies are not certified by any external agency.

Gaps and Opportunities Pertaining to Safety Skills of BLMP

- Safety skill training in ITI is limited to PPE training and no specific safety certification course is offered. Following interventions appear desirable:
  - To address the gap of untrained teachers/faculty, OCs can contribute by providing reference material and industry experts as guest faculty to apprise the faculty and students of changing trends.
  - Leveraging the financial resources under the NSDM (National Skill Development Mission) to intensify safety skills training at the ITI level will help in building safety culture.
  - Recruitment of BLMP needs to be informed by safety related competency criteria for each trade or task. The O&G industry would need to develop a common set of minimum safety criteria.
- Comprehensive Training Needs Assessment (TNA) for each worker is not a general practice in the industry and should be introduced to enhance understanding of safety requirements.
- O&G companies in India should map the availability of ITIs within the catchment area/feeder area of the supply of BLMP for their respective onshore/offshore units. The agenda on safety skills training for the industry could be initiated through such identified ITIs.

²Safety skill training comprises 30-35% of the 200 man hours of training imparted by private companies to BLMP in a given year. In private companies, BLMP deployed on contracts of relatively longer duration (one year or more) are provided refresher trainings.
1. Introduction

The Oil and Gas (O&G) industry employs a large number of human resources for construction, repair and maintenance on their onshore/offshore installations. The hazardous nature of work involved in both offshore and onshore operations necessitates safety and emergency preparedness.

Secondary review provides evidence to conclude that several initiatives are being undertaken for enhancing safety skills of resources recruited at a managerial level to enable them to work in the upstream operations of the O&G industry. However, there is not enough documentation about efforts being undertaken towards increasing safety skills of the BLMP engaged in upstream activities of O&G industry. BLMP generally belong to the first rung of technical manpower and are deployed as electricians, fitters, welders, instrumentation staff, riggers, roustabouts and helpers, to name a few. Safety skills at this level are of equal importance vis-à-vis the managerial cadre.

With a view to augment safety skills for BLMP, BP Exploration (Alpha) Ltd. considered it important to map the current environment vis-à-vis safety skills of these workers. This report on “Safety Skills among Base Level Manpower in the Oil & Gas Industry in India” is a response, with reference to BLMP engaged in upstream tasks. The study was done during July-October, 2013, by NR Management Consultants India Pvt. Ltd. (NRMC) on behalf of BP Exploration Alpha Limited (BP India).

The report maps institutional arrangements for training and certification of BLMP on safety issues, particularly pre-recruitment training at relevant technical institutions and post deployment safety training.

Critical gaps have been identified and emerging opportunities have been accordingly highlighted for possible intervention by O&G OCs, institutions, large and small contractors and other associated stakeholders in the O&G industry in India.

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3See Annexure A1 for background on Indian oil & gas industry.
4See Annexure B for detailed objectives, scope, approach and methodology adopted for the study.
OCs in O&G industry in India have loosely, if at all, defined a competency matrix for recruiting BLMP. BLMP is hired as Freshers, Junior Technicians, Senior Technicians and Supervisors based on criteria which include nature of qualification (Basic Schooling/ITI/Diploma/Certification) and number of years of work experience in the related field. The recruitment criteria are different for public and private OCs.

Deployment Pattern of BLMP

BLMP deployment is seen at two levels – in terms of trade and in terms of tasks.

a. Trades for which BLMP is deployed
   - It is observed that in the upstream activities, key trades in which workers are engaged in are:
     - Technical trades – welding, fitting, electrical works, rigging (mainly topside jobs), instrumentation and control, fabrication, scaffolding and repairing oil field equipment (roustabouts).
     - Non-technical trades – painting, fire-fighting, utility management, inspection services, first aid management services, hospitality/facility management services and catering.

b. Tasks for which BLMP is deployed
   BLMP works across functions in the installations. However, analysing the pattern of deployment of BLMP, it emerges that it is the task that determines whether BLMP is permanent or contractual, as mentioned below:
   - i. Commissioning of platforms, drilling rigs and onshore terminals
     - 100 percent contractual workers are deployed for both public OCs and private OCs.
   - ii. Regular maintenance on rigs, platforms and onshore terminals
     - Public OCs: Permanent workers of OC are deployed for routine maintenance of any onshore/offshore activity. No contractual employee is deployed.
     - Private OCs: Only contractual employees are deployed.
   - iii. Repair and maintenance on rigs, platforms and onshore terminals during shut down
     - Public and private OCs both issue manpower supply contracts and job contracts.
     - Contracted company provides required workmen for the task.
     - No permanent OC worker is deployed for this task.

Modes of hiring

BLMP is hired by:
1. OCs through direct recruitment
2. Contractors through
   a. Sub-contractors
   b. Workers’s networks and advertisements
   c. Manpower recruiters for marine crew (which is an interspersed category between the above two levels, which are deployed for offshore vessels)

The schematic in Figure 1 represents the recruitment pattern in the O&G industry. There may be some variations depending on whether the OC is a public sector or private sector company, and due to the OC’s internal HR policies.
Recruitment Criteria

Based on discussions with BLMP, the following distribution (see Figure 2) emerges on the pattern of formal technical training undertaken by BLMP deployed in upstream tasks in the O&G industry:

These workers are hired as junior technicians and senior technicians. While the qualifications required vary across different trades, following qualifications (see Figure 3) are currently used for their recruitment.

2.1: Recruitment by Operating Companies (OCs)

- The BLMP is hired by OCs in any of the following categories:
  - **Tenure-based workers**: Such workers are directly hired by OC but with a fixed tenure (say 1-4 years). They are on the direct payrolls of the OC.
  - **Permanent staff**: They are regular and permanently hired employees of the OC.
  - **Contract workers**: These workers are hired through a contractor for a particular job and are not on direct payrolls of the OC. The contract has a fixed tenure.
- It is observed that some companies deploy man management companies on contract to manage their BLMP.
- Tenure based staff and permanent staff are selected by the OC in response to advertisements (as per OC’s norms) in newspapers, online job portals, OC websites, and most importantly, employment exchanges.

Sources of information for jobs for workers in the O&G Industry

- Networks and personal references: At least 45 percent of BLMP prefer this as a source of information.
- Online job portals (including OCs and contractors): About 50 percent of BLMP use this as a source of information, of which Employment Exchanges are the least preferred channels, with only about five percent of BLMP resorting to this channel for information on jobs in the O&G industry.
- Direct sourcing by manpower recruiters: Less than 5 percent of BLMP use this as a source of information.

- OCs either rely on the local employment exchange for short listing in the first round and/or requesting licensed manpower recruiters for this task.
- Some OCs conduct a written test followed by a personal interview. Specific trades like that of firemen have physical standards and physical efficiency tests to check fitness.
- The industry prefers recruiting candidates with 4-7 years of experience. Public sector companies also recruit freshers\(^*\) from ITIs/diploma colleges (with no prior work experience).
- ITI trainers shared that assessment of safety skills of the candidates during the interview process is in relation to the task for which the OC is recruiting. For example, if an OC is recruiting for an electrical job, it will assess the candidate on aspects such as PPE to be used for electrical jobs and steps to be taken in case of electric shock.
- Discussions suggest that as the ITIs do not impart industry specific safety skills, these are not used as a selection criterion for hiring BLMP. Safety skills for BLMP are assessed (though not a usual practice) primarily in terms of basic awareness on fire safety or first aid.

\(^*\)For the purpose of this report the tenure based staff and permanent staff is considered as one category.
\(^*\)Direct pass outs from ITIs/diploma colleges with no prior work experience are referred here as freshers.
• Seventy percent of BLMP respondents stated that they were not asked any specific question on safety skills during the written test/interview during recruitment.

2.2: Contractors/Sub-contractors

• Companies prefer to hire all BLMP staff through contractors. This is because hiring a contractor is a very flexible solution to acquiring additional resources to respond to project requirements. A contractor with a specific skill can free up an OC’s team to concentrate on other areas of the project.

• OCs have a separate department of procurement and contract to recruit contracted staff.

• Contracts issued to contractors are of different types such as Lump Sum Turn Key (LSTK), Open Book Estimate (OBE), Engineering Procurement and Construction (EPC), Engineering Procurement Construction and Commissioning (EPCC) or Package Contracts.

• BLMP is hired by contractors in two ways (see Figure 4), namely:
  • Permanent employees (20 percent), comprising persons who have technical experience and qualifications in desired field.
  • Contractual/temporary employees (80 percent), comprising semi-skilled labour sourced through advertisements, employment agencies, and workers’ networks or sub-contractors.

  Approximately 50 percent of workers hired permanently by contractors/sub-contractors are through advertisements but this percentage may be lower for some of the companies. Almost similar proportion of workers is hired through informal workers’ networks.

• Majority workers are deployed for short periods, as contractual engagements are generally of short duration. It is the contractor who specifies the Health, Safety and Environment (HSE) conditions (minimum competency, do’s and don’ts) for deployment of temporary crew by the sub-contractors. Some contractors also ensure use of competency matrix by sub-contractors for hiring BLMP.

• Recruitment criteria:
  • The qualification required for recruitment of BLMP by the contractor for on/offshore jobs is trade specific.
  • Some contractors have laid down eligibility and competency criteria for hiring workers for welding, or working as marine crews or for helping in anchoring.
  • Jobs like rigging, scaffolding demand unskilled but sturdy built workmen for the role of assistants. For these jobs, the National Trade Certificate or NTC is not a criterion.
  • Fitting and welding are skilled/ semi-skilled categories and, therefore, candidates with 2-3 years of experience are hired with work experience certificate on the given trade in the previous job.

Thirty percent respondents recalled questions related to fire safety and PPE during personal interview.

- Drillers may not have an ITI certificate but are considered for the job subject to have relevant experience and performing satisfactorily at the practical tests taken by the contractors/sub-contractors.
- Contractors also hire freshers (8th -10th grade pass outs) as helpers for a trade of their choice. They are deputed in the fabrication units where they assist senior workers to learn the skill. Such a practice is not encouraged by private OCs.
- Trainees with minimum experience of 1-2 years are allowed at the sites, provided they shall be specifically identified and supervised at the sites.
- At the time of recruitment, where engineers from the OCs may also sit in the interview panel, basic questions on trade are asked from the candidates. Questions specific to safety are asked only from experienced candidates and are limited to use of PPE and fire safety.

1 Advertisements are given in local newspapers and job portals (like naukri.com, oilandgaspeople.com, oil-offshore-marine.com).
2 Large contractors have approximately 20 categories of sub-contractors for different roles (marine, diving, fabrication and commissioning, instrumentation, fitters, non-descriptive testing, logistics, waste disposal, manpower supply, food caterers etc.).
3 Use of higher level trade certifications like American Welding Society Certification (AWS) and work procedure certificates by agencies like ABS, as qualifying criteria, is observed only by few contractors.
4 See Sample CV in Annexure A3.
2.3: Manpower Recruiters

- Manpower recruitment agencies are also involved to source specific manpower and manage their payments. Not more than five percent of BLMP is hired through manpower recruiters.
- Manpower recruiters licensed by the Directorate General of Shipping recruit marine crews for deployment by OCs on rigs and platforms.
- Marine crew recruited through the manpower recruiters are deployed as deckhands on the rigs and platforms. Deckhands assist in berthing and un-berthing of vessels, watch keeping and other maintenance duties.
- Continuous Discharge Certificate (CDC) is a mandatory certificate for any BLMP recruited as a deckhand.

**Continuous Discharge Certificate** or CDC (Seafarer’s Identity Document) certifies that the person holding this document is a seaman as per the International Convention on Standards of Training, Certification and Watch keeping for Seafarers (STCW), 1978, as amended in 1995. Every seafarer must carry this document while on board, which is also an official and legal record of his sea experience. The master of the vessel signs the document each time a seaman is signed off from the vessel, certifying his experience on board. A CDC granted under STCW rules shall be valid for a period of 10 years and may be renewed on expiry or within six months prior to the date of expiry, on a request from the holder, for a further period up to 10 years at a time if the holder is a serving seaman and his CDC has not been cancelled, withdrawn or suspended under these rules. If the period of validity of CDC of a seaman expires during the voyage, it shall continue to be valid till the end of the voyage.

- The oil companies/LSTK contractor can also specify the skill sets for the required BLMP for various types of ships (such as anchor handling ships, diving support ships or platform support ships).
- Safety emerges as a criterion for recruitment, wherein the Principal/Charterer works with the manpower recruiter in developing the job descriptions. Beyond this stage, the principal/charterer is not engaged in short listing or preliminary discussions with the candidates. Principal/charterer only remerges on the scene, when final interviews are held with the candidates.
- The HSE staff on board also ask a few questions (on random basis) to ascertain the safety skill levels of the marine crew.
- Licensed manpower recruiters can get a potential candidate trained on behalf of the principal/charterer. However, there would be cost implications, which are generally not borne by the latter.
- The schematic in Figure 5 shows a representative picture of selection of marine crew through manpower recruiters.
Table 1 summarises the overall profile of BLMP from a recruitment and deployment perspective. This has been presented in terms of select parameters such as (i) geography/areas/states from where the base level workers (BLMP) hail from; (ii) the training institutes where they may have received the formal technical trade specific training (such as ITIs/ITCs/diploma colleges); (iii) the modes of hiring (through contracting agencies/manpower recruiters/or directly by the O&G companies) indicating the nature of their contract; and (iv) their current level of deployment in the operational hierarchy on onshore and offshore locations.

Table 1: Profile of BLMP in the upstream jobs in the O&G industry

<table>
<thead>
<tr>
<th>Level of Education</th>
<th>Recruitment by</th>
<th>Trade</th>
<th>Geography</th>
<th>Experience</th>
<th>Deployment Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-ITIs/ High School/ Mid School</td>
<td>Contractors/ Sub-contractors</td>
<td>Riggers</td>
<td>Riggers - Punjab(^{12}), Haryana, Mumbai(^{13}), Roustabouts - Maharashtra(^{14}) For others, no specific geographic preference emerged</td>
<td>Fresher</td>
<td>Helpers in fabrication units</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Roustabouts</td>
<td></td>
<td>2-3 years</td>
<td>Junior staff</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4 years and above</td>
<td>Initially at Senior Staff, subsequently promoted as Supervisors</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Less than 3 years with fire safety certificate</td>
<td>Junior Firemen</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>More than 3 years with fire safety certificate</td>
<td>Senior Firemen</td>
</tr>
<tr>
<td></td>
<td>O&amp;G OCs</td>
<td>Welder</td>
<td>Relative preference for local sourcing is given by OCs due to various reasons like: Availability Local knowledge Prevalence of similar industries nearby Building relationship with the community and creating employment in the state where they are operating. At the same time, OCs prefer to keep workers from all over India to minimize risks of strikes or all workers taking leave at the same time.</td>
<td>Less than 3 years</td>
<td>Freshers only in public sector. Hired as Junior Technicians</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fitter</td>
<td></td>
<td>4 years and above promoted as Supervisors</td>
<td>Senior Technician and may be</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Electrician</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Instrumentation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Contractors/ Sub-contractors</td>
<td>Welders - UP, Bihar, Kerala. Fitters - West Bengal. Electricians - No specific geography indicated during discussions.</td>
<td>Fresher</td>
<td>Helpers and Assistants in fabrication units</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2-3 years</td>
<td>Junior Technician</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>4-7 years</td>
<td>Senior Technician</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Above 7 years</td>
<td>Senior Technician as well as Supervisors</td>
</tr>
<tr>
<td></td>
<td>O&amp;G OCs, Contractors/ Sub- contractors</td>
<td>Welder</td>
<td>Same as above</td>
<td>Fresher</td>
<td>Junior Technician in public sector</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fitter</td>
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<td>Electrician</td>
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<tr>
<td></td>
<td></td>
<td>Instrumentation</td>
<td></td>
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</tbody>
</table>

\(^{12}\) Information in this table is based upon Focus Group Discussions (FGDs), workshop and In-Depth Interviews (IDI)s conducted with 197 BLMP (base level workers) working with OCs and contractors. No quantitative survey was conducted to get any individual response.

\(^{13}\) Gurdaspur.

\(^{14}\) Chembur, Vashi etc.

\(^{15}\) Thane, Ambarnath, Raigarh, Kolhapur, Nasik.
2.4: Recruitment to Deployment of BLMP – At a glance

The schematic in Figure 6 summarises the recruitment of BLMP and the points of interactions between the OCs, contractors and the BLMP.

<table>
<thead>
<tr>
<th>Operating Company (Biggest Public Sector Company)</th>
<th>Contractor</th>
<th>BLMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Issues RFP for manpower/LSTK contract</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select L1 contractor for the work and issues work order</td>
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<tr>
<td>OC gives JD and qualifications in employment exchange, company website, job portals, newspaper</td>
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<tr>
<td>OC conducts written test and interview</td>
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<tr>
<td>Selected candidates are sent for medical check up and 6 months training.</td>
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<tr>
<td>BLMP hired</td>
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<tr>
<td>Manpower/LSTK contract or Hiring of Permanent Employee</td>
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<tr>
<td>Permanent Employee</td>
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<tr>
<td>OC conducts interview and issues NED</td>
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<tr>
<td>OC conducts interview of BLMP</td>
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<tr>
<td>Checks for PCC &amp; STCW-95 certificate</td>
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<tr>
<td>Sends BLMP to get STCW-95 certificate from partner training agency and deducts cost from salary</td>
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<tr>
<td>Deploy BLMP on platform/rig</td>
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<td>BLMP reports to supervisor on platform/rig</td>
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<tr>
<td>BLMP hired</td>
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<tr>
<td>Application sent to OC for NED pass.</td>
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<tr>
<td>Need to hire more BLMP?</td>
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<tr>
<td>Valid certificate</td>
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<tr>
<td>Not valid/ No certificate</td>
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<tr>
<td>Gives advertisement in newspaper, asks for references from existing employees</td>
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<tr>
<td>Conducts interview of BLMP</td>
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<tr>
<td>Sends BLMP to get STCW-95 certificate from partner training agency and deducts cost from salary</td>
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<td>Deploy BLMP on platform/rig</td>
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<td>BLMP reports to supervisor on platform/rig</td>
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<tr>
<td>BLMP hired</td>
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<tr>
<td>Submits financial proposal to OC</td>
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<tr>
<td>Appoints existing employees to the project</td>
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<tr>
<td>Selected BLMP and sent to induction class. Application sent to OC for NED pass.</td>
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<tr>
<td>BLMP the sent to workshop forequipments training</td>
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<tr>
<td>Deploy BLMP on platform/rig</td>
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<td>BLMP reports to supervisor on platform/rig</td>
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<tr>
<td>BLMP hired</td>
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Figure 6: Recruitment of BLMP
3. Sourcing of BLMP – Geographical Distribution

A broad pattern emerges in terms of geography/region or place of origin of the BLMP in the industry. Private OCs and contractors prefer to have a mix of BLMP in their pool sourced from both local areas and other regions. Few sub-contractors have trade specific geographic preference.

3.1: Geographic Preference by Operating Companies

- Recruitment process in public sector OCs is guided by government regulation on sourcing local workers from employment exchange registered pool of candidates.
- For private OCs, it is usually the contractors who provide the required manpower.
- OCs prefer recruiting from within the concerned State of operation, for reasons such as easy availability, local knowledge, prevalence of similar industries nearby, building relationship with the community/CSR and creating employment in the State where they are operating.
- However, workmen are also hired from outside the State, for broadly the following two reasons:
  - If the quality of manpower available locally is not up to the desired level, then OCs source from outside. For instance, riggers from Punjab are preferred as they are of better built and suited for heavy work.
  - While workmen from local areas are preferred, it is also important for OCs/contractors/sub-contractors to maintain a mix from outside as well. O&G being a crucial business, operations have to continue without a break for even a single working day. Recruiting workers from the same geography may make the operations more vulnerable to instances of local strikes or workers needing leaves en masse for festivals at the same time. Therefore, a mix needs to be maintained to manage this risk.

3.2: Geographic Preference by Contractors/Sub-contractors

- Large contractors prefer hiring workers from local areas.
- Few sub-contractors have trade specific geographic preference.

![Figure 7: Source geographies of BLMP hired by contractors](image)

- For tasks related to fire safety, there is a challenge to source manpower from local areas. Many contractors have started recruiting from the local employment exchange for onshore activity, particularly in fire safety.
  - For East Coast, BLMP is largely hired from within Andhra Pradesh:
    - 90 percent workers are sourced from Andhra Pradesh mainly from East-West Godavari districts (50 percent), Vishakhapatnam (20 percent) and Srikakulam (20 percent).
    - Given the already high rate of attrition in the O&G industry, experts are of the view that there is a need to have workers from nearby areas as they are less likely to have a tendency to quit jobs.

Field observations

- Local hiring from Maharashtra comprises 5 percent of the total workers hired by the contractors/sub-contractors for offshore jobs.
- For onshore works in Maharashtra, workers are sourced by contractors from districts such as Sholapur/Ratnagiri/Sangli etc. (Konkan region).
4. Safety Skills Trainings at ITIs/Diploma Colleges/Trade Schools

The ITIs/ITCs/technical/colleges provide technical training and qualifications to most of the BLMP. In addition, BLMP also acquire skills from special technical colleges like fire-fighting institutes. At the ITI level, safety is largely taught in a lecture mode over a few sessions. Workshops/practical classes do not focus on demonstrating safety skills. These institutions provide the BLMP mainly with a trade specific skill. A limited linkage between the industry and ITI also contribute to the lack of understanding on safety practices being currently followed in the industry. There is a need to invest more on the safety aspects taught in the curriculum as well as on the nature of industry exposure provided to the students in such institutes.

4.1: Course Curriculum

- The objective of ITI is to provide technical manpower to industries. The courses in ITIs are designed to impart basic skills in a specific trade.
- Based on a secondary review, some key aspects of the trade courses at ITIs include:
  - A person who has passed 10th standard and has Secondary School Leaving Certificate (SSLC) is eligible for admission to ITI.
  - The duration of the course may vary from one to three years depending upon the trade opted.
  - After completion of the desired period of training, the student is eligible to appear for the All India Trade Test (AITT) conducted by National Council for Vocational Training (NCVT). After passing the AITT, the person is awarded a National Trade Certificate or NTC.
  - After completing the trade course, a person undergoes practical training (also known as apprenticeship) in the given trade in the industry for a year or two, depending on the course. The individual has to subsequently appear and pass in a test conducted by NCVT to get the National Apprenticeship Certificate (NAC).
  - As part of the course, safety is included in the subject on Employability Skills (formally Social Studies). The Employability Skills curriculum specifies 12 hours for safety, which includes set courses on firefighting, health, and artificial respiration. Practical aspects of safety training are introduced in the first two weeks of the academic year. Within this, 12 sessions of one hour each are allocated to safety and eight additional hours are allocated for HIV/AIDS and related topics.
  - Once the introduction to safety is complete, students normally spend a maximum of two hours on theory classes and 5-6 hours in workshops as part of practical classes.
  - Safety is accorded weightage of 10-20 percent in the scoring pattern at the ITI level for all trade related subjects.
- In diploma colleges, the subject of Industrial Management has work study methods, which also include discussions on personal and safety skills.
- Some key aspects observed in the primary study include:
  - Focus on safety in ITI curriculum is planned for 12 hours but primary study has shown that it is limited to two to four hours at the beginning of the course, with basic knowledge imparted on PPE, fire prevention and first aid.
  - As per ITI pass outs and trainers, topics on machine safety, workshop safety and personal safety are covered during the practical sessions at the ITI level.
  -Discussions with BLMP have revealed that at the ITI level, lectures on safety include aspects pertaining to the specific trade. Safety requirements may vary from industry to industry for a given trade. No safety parameters are discussed with respect to any specific industry. For example, a student of welding trade may be taught about the importance of using eye protective gears while doing welding, but not taught tagging of hazardous substances required during the welding procedure in O&G industry.
- During the practical component of the tests, the ITIs generally follow the practice of asking the students a few questions on safety.
- Both the trainers at ITI and the BLMP shared that there are very few practical classes to demonstrate safety skills. Some trainers are of the view that safety on use of PPE is explained in detail during theory lectures, and therefore there is no need for conducting practical classes specifically on safety. A lack of timely supply of proper safety equipment (particularly as the ITIs are not in the vicinity of the industrial centres) also restricts the trainers in practical demonstration on safety aspects.
- From the above discussion, it can be inferred that while a basic understanding on general safety is covered in the course curriculum at the ITI and diploma level, there is nothing currently in the syllabus that can be linked to the safety needs of the O&G industry.

The International Centre for Entrepreneurship and Career Development (ICECD), Ahmedabad in association with BP India has undertaken a pilot initiative on strengthening the curriculum on safety in industrial trades at selected ITIs in Ahmedabad and Gandhinagar in Gujarat. As part of this, ICECD conducted (i) needs assessment covering students, faculty and industry; and (ii) awareness sessions on safety; followed by (iii) testing of a revised HSE module, tuned to the needs of the industry and the students. The revised module has been well received by the Department of Employment and Training in Gujarat and is in the process of being rolled out across ITIs in the State.

15See Annexure A9 for a NTC certificate issued by NCVT.
• The pedagogy followed for safety related topics at ITI level is classroom lecture using course material. No additional reference books or industry newsletters are used to impart training.

• Trainers are not found to take any initiative to encourage students to take additional safety courses or gather information from external sources.

• While the above holds true for most of the institutions, some private ITIs have adopted innovative pedagogic techniques, where Google or YouTube videos are used to demonstrate safety skills and working techniques to the students.

• In some ITIs, efforts have been made to combine safety topics from each trade into a single module on safety, comprising trade specific and general safety skills. The objective of such efforts is that every student understands general safety as well as trade specific safety, not only for the trade where the individual is enrolled but also for the other trades as well. This module at present covers welding, electrical and fitter trades.

4.2: Pedagogic Techniques

4.3: Infrastructure

• The technical institutions have limited or negligible equipment on safety to be shown to the students as part of the training. Discussions with recently recruited BLMP also suggest that some of the government ITIs are provided with necessary infrastructure, though in limited numbers.

• Government ITIs lying in the vicinity of the industrial centres are found to have adequate numbers of safety equipment and students are taught the usage of PPE and other safety equipment.

• Private ITIs have also taken up the initiative of upgrading the safety equipment in practical laboratories. The cost for these is, however, included in the fee paid by the students.

4.4: Industry Interface

• Study has shown that two industrial visits are organised in batches, for students and their faculty at the ITI level. However, no prevalent industrial visits are happening to O&G companies. ITI trainers are of the view that the safety pre-requisites inhibit such visits.

• Few non-O&G private companies come to ITI and identify students for apprenticeship as well as job placements.

• Non-O&G companies provide induction on safety for two to three days to ITI students before the formal start of apprenticeship. This holds for students from private ITIs and government ITIs located in urban areas (or in the vicinity of industrial centres).

• After obtaining the NTC at ITI, the students go through an apprenticeship for one or two years, depending on the course, with a company from any industry.

• Engagement of OCs with ITIs:
  • OCs are of the view that recruiting students as apprentices build up an expectation among students for a permanent job with the company. As a result, the OCs refrain from visiting the campus.
  • Also ITI students are not adequately trained in safety, so OCs prefer recruiting experienced candidates.
  • Some OCs give guest lectures on safety in private as well as government ITIs.

• In order to enhance the interaction between industry and ITIs, the Directorate General of Education and Training (DGE&T) (under the Ministry of Labour and Employment, Government of India), has implemented the Centre of Excellence (CoE) scheme.

Centre of Excellence (CoE) at ITIs – A possible platform for strengthening safety skills training at ITIs

In the CoE scheme, multi-entry and multi-exit provision is allowed for the students. Trainees can opt to go to the labour market after completing Broad Based Basic Training (BBBT) of one year duration as well as completing Advance Training of one and half years duration. ITI pass-outs of particular trade(s) from the conventional system can seek admission for advance training. Key benefits achieved from this scheme as per the ITI representatives are:

• Multiskilling courses of one year duration have been introduced, followed by Advanced and Specialized Modules, which include in-plant training in industries related to their training.

• It is improving infrastructure facilities like buildings, equipment etc.

• It is promoting the adoption of new training technology that closely involves the industry and other stakeholders in planning and implementation of training programmes.

• The scheme has helped to empower CoEs by providing sufficient autonomy in academic, administrative, financial and management dimensions.
In addition, there are some specific fire safety institutes that have also been opened in order to cater to the demand of safety trained BLMP.

**Industrial Fire and Safety Training Academy (IFSTA)** – A response to industry need for trained firemen

IFSTA started its operations in 2012 in Kakinada (in East Godavari district, Andhra Pradesh) for training in fire safety. It was established by a group of fire safety professionals who had worked earlier for RIL at Gadimoga terminal. During their tenure, they observed that there was a lack of recognised fire safety institutes in the nearby areas of Kakinada, and due to this workers were being sourced from northern parts of India. This was a gap that they identified, which led them to start a fire and safety training academy in Kakinada to cater to the needs of the industry by providing skilled and certified manpower from the local community where the industry operates. This academy provides courses in firefighting which lead to creation of trained fire personnel for industries in the area. The subject courses are designed as per the Fire and Rescue Engineering sector syllabus outlined in the Modular Employable Skills of Skill Development Initiative (SDI) Scheme.

Source: Interview with Industrial Fire and Safety Training Academy (IFSTA), Kakinada

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**Contractual Arrangements on Safety**

Given that 80 percent hiring of BLMP is through contractors, selection process of contractors and contractual arrangements on safety are critical.

Contractor selection process is either based on financial aspects (lowest financial quote or generally referred to as L1-based selection); or with consideration to technical competence as well as financial aspects (referred to as QCBS or Quality and Cost Based Selection method).

Large contractors may subcontract individual aspects but deploy their own personnel with sub-contractors to ensure safety compliances.

**Safety Skills among Base Level Manpower in the Indian Oil & Gas Industry**

Contractual Clauses:

- Safety clauses are included in the contracts issued by OCs to contractors and by contractors to sub-contractors.
- Evaluation based on past experience in the Hydrocarbon Operating Plants.
- Evaluate the contractor with reference to the adherence to the RIL HSE Policy.
- Award the contract with HSE clauses.
- Clauses for violation/non-compliance are mandatory.
- Get filled in PQQ from prospective bidders in case of HSE critical contracts and get them evaluated by HSE department.
- Finalise vendor’s list based on above evaluation and the earlier performance rating of vendor in previous RIL contracts.
- RFQ document contains specific HSE clauses and includes provision for penalty for violations.
- Pre-bid meeting held with qualified contractors.
- Kick-off meeting with contractor.
- Induction training.
- Toolbox talks.
- Permit to Work.
- Incident Recording.
- SHEIMS.
- Monthly Safety Review Meetings.
- Quarterly Safety Review Meetings.
- Monthly performance evaluation by Engineer in Charge.
- Six monthly performance evaluation of contractors.
- Feedback to the contractor.

**Figure 8:** Safety aspects in the process of awarding contract

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*See Annexure A10 for fire training certificate from IFSTA.*
5. Contractual Arrangements on Safety

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- Large contractors may subcontract individual aspects but deploy own personnel with sub-contractors to ensure safety compliances.

The process of engaging contracts has three stages:
(i) pre-bid stage; (ii) bid evaluation and contract award stage; (iii) post-award stage. Safety aspects during the entire process have been detailed in Figure 8.

- **Pre-bid Stage**
  - Get filled in PQQ from prospective bidders in case of HSE critical contracts and get them evaluated by HSE department
  - Finalise vendor’s list based on above evaluation and the earlier performance rating of vendor in previous RIL contracts
  - RFQ document contains specific HSE clauses and includes provision for penalty for violations
  - Pre-bid meeting held with qualified contractors

- **Bid Evaluation and Contract Award Stage**
  - Evaluation based on past experience in the Hydrocarbon Operating Plants
  - Evaluate the contractor with reference to the adherence to the RIL HSE Policy
  - Award the contract with HSE clauses
  - Predefined HSE clause template as well as specific HSE clauses in contract
  - Clauses for violation/non-compliance are mandatory

- **After Award Stage**
  - Kick-off meeting with contractor
  - Induction training
  - Toolbox talks
  - Permit to Work
  - Incident Recording SHEIMS
  - Monthly Safety Review Meetings
  - Quarterly Safety Review Meetings
  - Monthly performance evaluation by Engineer in Charge
  - Six monthly performance evaluation of contractors
  - Feedback to the contractor

Figure 8: Safety aspects in the process of awarding contract

- **Contractual Clauses**: Safety clauses are included in the contracts issued by OCs to contractors and by contractors to sub-contractors.
• Training and Induction Programme: The workers while being inducted by contractors need to be made aware of safety requirements through trainings.
  - The contractor is required to conduct a safety induction programme on HSE for all its BLMP and maintain records.
  - This induction is separate from the Tool Box Talks or HSE trainings which are provided on the job after the induction process is complete.
  - HSE induction is imparted to every individual, irrespective of his task/designation/level of employment, whereas HSE training is task specific and is imparted to specific person/group of people who are deployed to carry out a specific task more than once.
    - BLMP to be deployed onshore require personal safety training, mines training etc.
    - BLMP to be deployed offshore require special sea survival training/STCW 95 by DGCA approved training institutes. Training in this case includes different modules like Personal Safety and Social Responsibility (PSSR), Personal Survival Technique (PST), Elementary First Aid (EFA), Fire Prevention Fire Fighting (FPFF), and Helicopter Underwater Escape Training (HUEI) and other key aspects, such as use of lifeboats, basket landing and use of radio communication.
    - In some private companies, a gate pass is issued only to those workers who successfully qualify the safety induction programme.
  • Safety Procedure: Contractors are required to submit safety procedure prior to the start of the offshore activities including safety measures to be taken during offshore work. This includes aspects such as firefighting, safety equipment available at barges in case of any emergency, the number of safety and fire officers and their role, and periodical exercise on awareness of workers towards safety.
  • Safety Management System: Contractors are required to prepare a Safety Management System and get it approved by the OC. This includes preparing a project-specific safety plan for each site (e.g. jacket fabrication site, offshore installation site, completion sites) and implementing the safety plan.
  • Deployment of Safety Personnel: The contractors are required to deploy an adequate number of safety personnel to the OCs. This includes:
    - Provision of safety officer/safety steward by contractor for every ‘n’ number of workmen deployed at the site. This number is dependent on the trade, type of job, duration of assignment, and also varies according to the guidelines of a particular OC. For example, for every 100 BLMP deployed by a contractor for rig repair task, one safety officer will be appointed.
    - The safety officer/safety steward should have a minimum qualification of class XII with physics and chemistry and be trained in fire-fighting, safety/occupational health related subjects with a minimum of two years of practical experience.
    - The safety officer/safety steward should preferably have adequate knowledge of the language spoken by majority of the workers.
    - At least one Safety Walk in a month to be carried out by contractor’s head of site and a report furnished to the OC.
  • Behaviour Based Safety: The contractors also need to develop a system of Behaviour Based Safety (BBS) which involves the workers identifying the risks in their work environment and changing their behaviour to suit the nature of work. The main features of BBS are:
    - Observing the work force while they are doing their jobs and making a record of safe and risky behaviours.
    - After identification of behaviour, the concerned person interacts with the workers and provides them coaching for correcting the at-risk behaviour. Positive reinforcements are also done by the safety personnel with workers who are then observed to adhere to safe behaviour.
    - The HSE committee of contractors observes the individual worker’s behaviour for safe practices adapted in utilisation/execution of work for PPE, tools and equipment, Hazard Identification and Control, housekeeping, Confined Space Entry, etc.
  • Fire Prevention and First Aid: In addition, the specifications include adequate fire drills to be conducted and induction trainings to be provided to the work force. Some key points regarding this aspect are:
    - Contractors are required to arrange fire drills at each site periodically, involving site workmen, site supervisory personnel and engineers. The record of such drills is to be maintained by the contractor at the project site.
    - Some OCs also require that a certain proportion of the BLMP deployed by contractors should be trained in fire safety.
    - OCs monitor the adherence to the HSE requirements by the contractors. The performance of contractors are reviewed regularly by the OCs and contractors found wanting in terms of adherence to contractual HSE requirements are not encouraged to apply for bidding process again.
    - Penalty is applicable for the contractors on different types of HSE. The OCs may impose stoppage of work without any cost implication to OC or impose a penalty of 0.5 percent of the contract value.

Penalty Clause in RFP issued by OCs
The Company’s Representative may at any time object to and require the Contractor to remove forthwith from the site a supervisor or any other authorized representative or employee of the Contractor’s/Sub-contractor(s) or any person(s) deployed by Contractor or his Sub-contractor(s), if, in the opinion of the Company’s Representative, the person in question has not conducted himself in the desired manner or his deployment is otherwise considered undesirable by the Company’s Representative. The Contractor shall forthwith remove and shall not again deploy the person in question of the Work Site without the written consent of the Company’s Representative.
6. Post Recruitment – Patterns and Frameworks of Trainings for BLMP

Given that BLMP is basically untrained, therefore post recruitment training plays a critical role. Safety trainings are in the form of internal on-job trainings or certifications from external certifying agencies as per job requirement. The nature of training may vary from a one-time basic induction training (for those on short term contracts), or refresher trainings on safety for those working on longer contracts (i.e. contracts that have a duration more than a year or so).

6.1: By Contractors/Sub-contractors

Before deployment on onshore/offshore jobs, contractors provide: a) induction; and b) OC specified trainings.

a. Induction covers an orientation following aspects and ‘do’s and don’ts’ on platform where the BLMP is deployed:
   - Education about hazards and precautions required;
   - HSE requirements during project activities;
   - Occupational health issues – do’s & don’ts;
   - Local laws in force on use of intoxicants;
   - Common environmental subjects - lighting, ventilation, vibration, smoke/fumes etc.

b. OC specified trainings
   i. Basic safety – This can be perceived as an enabler for easy comprehension of safety requirements and skills trainings (if any) given by OC while on-the-job.
      - Emergency and evacuation plan;
      - Fire fighting and first aid;
      - Use of PPE.
   ii. Onshore/offshore trainings – The level of safety skills training required is different for onshore jobs and offshore jobs:17
      - Onshore jobs require generic safety trainings like first aid, PPE and trade specific trainings like ‘Work at Height’, mines training and job specific safety training based on job hazard analysis.18
      - Offshore jobs, in addition to above trainings, require more safety related trainings like STCW95 Basic Safety Training which includes PSSR, PST, EFA, FPFF, and HUET (the latter for workers travelling by helicopter).

- STCW95 – Some contractors arrange STCW95 training with institutes on behalf of new workers but deduct payment from the salary.
- This certificate is valid for only four years and has to be renewed thereafter.
- Some contractors make the BLMP pay for their certification for the first time; payment for renewal of certification for long term employees is undertaken by the contractors themselves.

Primary discussions with various stakeholders have pointed out:
- While the contractors sign up for undertaking the HSE training of the BLMP as per the contract, they tend to push for semi-skilled, unskilled existing manpower they have in their pool. As a result, quality of BLMP for onshore and offshore jobs gets compromised.
- The contractors/sub-contractors engaged in fitting/welding/rigging generally are observed to maintain a pool of 250-300 BLMP readily available to be deployed on contractual basis. This BLMP is provided training at the time of deployment on the first assignment but no repeat trainings are further provided.
- In some cases, the contractors build in the costs related to training in the bids submitted to the OC, if the OC pays directly to the institute.
- A handful (5 to 10 percent) of the BLMP also shared that they do not receive any post recruitment training. A closer look at their profile indicates that they are the workers deployed by sub-contractors and work at the backend sites and not directly on the onshore or offshore locations.
- Some contractors also send freshers to the workshops to help them understand safety skills from senior workers and are also taught how to use PPE for personal safety.
- Very few contractors engage in refresher training for its BLMP on areas related to fire fighting. These comprise:
   - Ability to discern the type of fire;
   - Recall for use of appropriate extinguisher.
- Procedure certification of welding process used by welders is also undertaken by few contractors and is valid across clients. The welders are not allowed break of more than six months to ensure validity of this certification. The payment for this certification is done by contractor and it is up to INR 20,000/day for the certifying agency surveyor.
- Training Needs Assessment (TNA)20 for each worker working at an OC is done by the contractor and trainings are accordingly provided. Out of total training hours for the workers in a given year, safety trainings comprise approximately 30 percent of the time. This percentage might vary slightly across OCs and contractors.
- It is observed that the contractor gets a third party inspection/certification of the process, before it is followed by BLMP, through Third Party Audit (TPA) agencies like ISNetworld, PICS, PEC Premier. Some of the OCs themselves monitor the process.
- Few contractors have also developed training centres with simulators to train locally hired workers.

Leighton Welspun, an O&G contractor has set up a small training centre in Barmer in Rajasthan (at an expense of approx. INR 22 lakh) for providing safety training to the locally hired BLMP for deploying it subsequently on Cairn energy projects.

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17 Each platform has Person on Board (PoB) standards specified after construction. Number of workers deployed needs to adhere to these standards.
18 See Annexure A7 for sample job hazard analysis worksheet.
19 See Annexure A2 for guidelines on certifications.
20 See Annexure A5 for a sample TNA conducted by a contractor.
The following aspects related to safety trainings are provided at the OC level:

a. Safety briefing – Any new person joining is given a safety briefing on do’s and don’ts on the site and trained on desired responses to various types of alarms – particularly to distinguish between alarms meant for leakage of H2S, fire (low or high) etc.

b. Induction – An induction is given to BLMP on company, project and HSE requirements, the period/duration of which may vary across companies. The pedagogic techniques may also vary, from classroom training with AV aids alone or combining it with some practical exposure on the site.

BLMP that are directly recruited by OCs undertake induction training (for onshore equipment handling) for a period of six months to one year. It is only after its completion that the BLMP are assigned individual responsibilities.

c. Safety trainings – A set of basic safety training is given by the OCs regardless of the contractual nature of the worker i.e., the moment a worker is identified to do a task (whether through a contractor or a sub-contractor), the OCs take them through the following trainings:

i. Generic training – This consists of trainings that are useful across trades, such as First Aid, Fire-Fighting/Job Hazard Analysis/Emergency Response Plan/Permit to Work System.

ii. Trade specific training – This is dependent on the nature of the job; for example, Fire Safety/Electrical Safety/Chemical Handling/Work at Height/Metal Handling/Waste Management System/Confined Space Training.

The BLMP once hired, undergo trainings based on their trade and place of deployment. Generally, offshore employees require some additional training.

On average, each worker gets six trainings in a year. Each training session consists of eight hours, and therefore, a total of 48 hours of training is provided in a year to each member of the BLMP.

Some other activities are also undertaken by the OC to ensure safety:

- Some companies follow a system of weekly drills (fire drills) as part of regular safety training for its BLMP and other staff on the platforms. Drills help to identify weaknesses in the response system through the BLMP staff (and other staff on the platform) and take corrective measures through de-briefing after the drills are over.
- Few companies also provide training from Offshore Petroleum Industry Training Organization (OPITO) to handle emergencies.
- Additionally, to improve the safety culture among contract workers, a series of workshops\(^2\) with participation by senior management from OC as well as contractors is conducted specifically for the contract worker. This consists of two to four hours of training largely with the use of AV aids.
- Some OCs provide training to BLMP in training institutes set up by the OCs. It also emerged during the discussions that the training provided by OC-owned and managed training institutes are internal and not accredited by any outside agency. However, the trainings provided are designed to cover the critical aspects on HSE to ensure man and asset integrity and are in accordance with the OC’s HSE standards.
- HSE audit\(^3\) is conducted by OCs to ensure that safety compliances are met. Safety audits are conducted quarterly by TPA appointed by OC to review safety procedures on platforms/rigs.
- Safety meetings\(^4\) are regularly held (every 15th day) on the barges. These meetings are attended by the Master of the Barge, Medical Officer, OC representative, and the cook among others. The audit looks into compliance of the issues raised during the safety meetings.
- Toolbox Talks (TBTs) are undertaken on all operational sites as an active intervention to prevent hazards from leading to incidents. TBTs are held every day before the start of every shift (morning/evening/night) with a view to alerting the workers on specific hazards and appropriate do’s and don’ts. The TBTs are attended mandatorily by all BLMP on the shift. The TBTs are conducted daily by the immediate supervisor of the workers or contractors and proper records of the meetings are maintained. A general format is given below.

### Table 2: Trainings for onshore and offshore employees

<table>
<thead>
<tr>
<th></th>
<th>Generic Training</th>
<th>Trade Specific Trainings</th>
<th>STCW95 &amp; HUET</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onshore BLMP</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Offshore BLMP</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

ONGC has recently taken an initiative of setting up an institute in Mumbai with the aim to provide safety skills and other trainings for offshore deployment of contractual BLMP (i.e. those not on the rolls of ONGC). Onshore training shall also be undertaken as and when the training institute comes up.

In collaboration with Delhi Productivity Council (DPC), Leighton Welspun has set up a trade school for developing competent shuttering carpenters and scaffolders. The certificate is proposed to be made by the internationally recognized TAFE (an Australian agency for trade certification). As part of the collaboration with TAFE, a 6-weeks classroom training coupled with another 2 weeks of training is held. Subsequently, an examination is conducted by TAFE and the certificate is issued to the candidates who clear the exam.

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\(^{2}\)See Annexure A4 for sample summary of safety meetings.

\(^{3}\)See Annexure A6 for site safety inspection report and A8 for monthly safety report.

\(^{4}\)See Annexure A11 for sample summary of safety meetings.
The common topics conducted during TBTs include:

a. Behavioural safety
b. Confined space safety
c. Disease prevention
d. Electrical hazards

### Tool Box Talk Recording Sheet

<table>
<thead>
<tr>
<th>Date &amp; Time</th>
<th>Work Location</th>
<th>Subject (Nature of work)</th>
<th>Presenter</th>
<th>Hazards involved</th>
<th>Precautions to be taken</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Worker’s Name**
- **Signature**
- **Section**

- **Remarks, in any**

- Safety rule book has been provided by some O&G companies to each worker and then workers are trained by experts from the OC. These rules books are translated into local language for easy understanding by the BLMP.

- Sharing of safety training manuals for personal reference is not a common practice. Only 30 percent of the workers could recall having received any such training material for personal reference that can be used beyond the training sessions.
7. Gaps and Opportunities Pertaining to Safety Skills of BLMP

Table 3 below seeks to capture some of the key gaps identified as part of the present study. Based upon the interactions and suggestions received from stakeholders, an attempt has also been made to highlight the possible opportunities and areas of intervention by the O&G industry to develop a cadre of adequately trained BLMP in safety skills in the near future.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Gaps</th>
<th>Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Safety skill training is not a priority in ITIs – gaps exist in curriculum. Current focus on safety training is confined to initial four hours spread over two weeks at the start of courses at ITI.</td>
<td>Need to enhance the allocation of hours devoted to safety training at ITIs. Can introduce ‘Safety’ as a generic credit course across all trades to create a behavior change environment with relation to O&amp;G Industry(^1).</td>
</tr>
<tr>
<td>2</td>
<td>Learning at ITIs is more lecture oriented and has less of hands-on experience.</td>
<td>Creating participatory safety modules that give simulations within classrooms or in open spaces beyond classrooms can be a very useful tool. Students should be given practical projects on safety. Online safety module may be prepared by the industry and made freely available for use by the trainers/instructors at ITI level. Supply of safety training material by O&amp;G companies to ITIs should be considered. Provision of books and training material, including some basic equipment on fire-fighting, fire prevention etc. by the industry to ITIs can be the starting point.</td>
</tr>
<tr>
<td>3</td>
<td>ITIs do not provide any specific certification on safety skills.</td>
<td>Encourage ITIs to offer online as well as offline internationally certified safety courses and encourage students to take online courses. It is important for ITIs to certify that their students have undergone safety training oriented towards the needs of an ever modernising industry. This is likely to enhance the employability of the students in large companies.</td>
</tr>
<tr>
<td>4</td>
<td>Infrastructure gaps exist at ITI level for undertaking safety training.</td>
<td>Industry could provide one set of basic safety equipment/PPE to the ITI (this could initially be undertaken at ITI in the neighborhood and serve as feeder areas for supplying BLMP to the O&amp;G companies directly or through contractors)(^2). At least 40-50 percent of the BLMP feel the need for improvement at ITI level in imparting of safety skills training. Among the various aspects, improvement in the capacity of trainers is seen as critical by 50 percent of BLMP.</td>
</tr>
</tbody>
</table>

**Industry Linkage at ITI Level**

| 5     | Only two industrial visits per batch at ITI conducted during entire two years of Craftsmen Training Scheme (CTS) course.                                                                             | Exposure visits should be increased – at least one per semester. Safety exhibitions could be organised by the industry at common locations with active participation of ITI students. This could be put in as part of safety modules, inviting companies as well as safety equipment makers to participate.                                                                                                                                             |
| 6     | Demand and supply gap in terms of safety skills is not ascertained. No common platform to conduct discussions between supply side (ITI representatives) and demand side (industry experts). Currently, no company talks or career guidance seminars are organised for students in the ITI campus or outside. | Representatives from National Skill Development Agency (NSDA) are of the view that O&G companies in India (in both public and private sectors) could map the availability of ITI within the catchment/feeder area of the supply of BLMP for the onshore/offshore units. The agenda on safety skills for the sector could be initiated through these ITIs, to begin with.                                                                                                                 |

---

\(^1\)Sample structure of credit course has been provided in Annexure A13. It is only a sample and should not be considered as a suggestion from the study team.

\(^2\)For 40 percent of the BLMP, improvement in infrastructure on safety training at the ITI level is a critical area of improvement.
<table>
<thead>
<tr>
<th>S. No.</th>
<th>Gaps</th>
<th>Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Trainers/instructors at ITIs lack updated knowledge on safety skills.</td>
<td>OCs adopt certain ITIs in the catchment of their onshore/offshore locations to promote safety skills training for the future cadre of BLMP.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Industry experts can engage as guest faculty/visiting faculty for classes on safety and to arrange mock drills at the ITI. They can interact with the trainers/instructors at ITI to convey specific requirements on safety skills.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Training the new ITI instructors/trainers in safety skills and make it a part of teaching process with a well-developed module that covers all possible scenarios of teaching conditions.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Conducting exposure visits for the trainers. Online safety modules and safety magazines may be published by the industry for easy comprehension by instructors and potential BLMP.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The various issues may be put by the industry in the public domain for easy access by ITI instructors and students. Real life cases from the magazines could be picked up to drive home a point.</td>
</tr>
</tbody>
</table>

**Contractor Level**

| 8      | Not all contractors have in-house safety training facilities except for the big contractors. | A module can be developed for footloose workers. This can be done by providing training to some strategically located institutions in various states which can provide this training and certify the same for footloose BLMP.  |
|        |                                                                                      | Contractors can liaise with specific agencies for training and certification of their workers on safety.  |
|        |                                                                                      | OCs can set up regional training institutes on safety skills for BLMP by making a corpus fund and utilising it to set up four or more regional training centres specializing in safety trainings like SAS, PSSR, PST, HUET, EFA, confined space training, working at height training etc.  |
|        |                                                                                      | A Total Safety Training Programme (TSTP) can be developed which will be mandatory for all BLMP, whether on payrolls of the OC or hired through contractors. A TSTP certification card with a validity period can also be issued. The TSTP will aim to ensure that all new and existing offshore employees have the same core foundation on safety skills, and require demonstrations and assessment of defined safety behaviour in the workplace. Everyone working on offshore production and drilling facilities will be required to have a TSTP card or be working towards obtaining one.  |

| 9      | High prices of safety certification courses are deterrents for BLMP to undertake these courses on their own. | Contractors could partly fund the courses on the condition that the workers would stay for a defined period with the contractor after the completion of the course.  |
|        |                                                                                      | It is important to lay down eligibility and competency criteria for hiring. For example, for subsea welding operations, a welder has to be therefore also skilled in fitting.  |
|        |                                                                                      | In all these operations, HSE competency plays an important part. Detailed competency criteria should be developed with competency requirement in terms of:  |
|        |                                                                                      | • Safety;  |
|        |                                                                                      | • Environmental impact; and  |
|        |                                                                                      | • Criticality of the job.  |
|        |                                                                                      | These can be developed and integrated into the institutional curriculum as well. (Trade schools in Australia and Singapore are quite strong, as standards help in defining competencies.)  |

*About 50 percent of the BLMP feel that capacity of the trainers on safety skills training should be enhanced. An Improved industry-ITI linkage can provide the necessary platform for this.*
<table>
<thead>
<tr>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>11</strong></td>
</tr>
<tr>
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<tr>
<td><strong>13</strong></td>
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<tr>
<td><strong>14</strong></td>
</tr>
<tr>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

Leveraging upon the initiatives by a few companies to address this, the OCs and contractors could consider providing these materials in local language for easy comprehension by the BLMP. A generic set for general engineering companies and for O&G companies can be developed and translated into five or six relevant regional languages for common use.

Drawing upon some initiatives by few companies in this direction, TNA for each worker, expected to work on medium to long term contracts (six months and more), may be done.

Training interventions on safety can be designed accordingly, based on the TNA.

The practice of devoting specified training hours on safety issues can be institutionalised (as in the case of few companies, where about 30 percent of nearly 200 training hours per annum for a worker, working on more than a year’s contract, is being devoted to safety training).

More than 50 percent of BLMP feel that more refresher trainings should be undertaken on priority on general safety. Training of first aid, fire safety, mock drills and better access to training material is a felt area for improvement for about 30-35 percent of the BLMP.

Policy interventions are needed to improve compliance and reporting on safety skills.

Under the aegis of NSDM, efforts are required to enhance the weightage accorded to safety skills as part of NCVT curriculum. Also need to leverage the financial resources under NSDM to intensify safety skills training at the ITI level by developing a mandatory safety module for all ITI students.

Safety model followed by BG has been provided in Annexure A12.
Annexure A: References Relevant to Field Observations

A 1: Relevant Background on Indian O&G Industry - Upstream Operations

India has 26 sedimentary basins spanning 3.14 million sq. km of which 1.35 million sq. km, is deep water. Ownership of all mineral resources including O&G vests with the central government.

- The Ministry of Petroleum & Natural Gas is entrusted with the responsibility of exploration and production of O&G, their refining, distribution and marketing, import, export, and conservation of petroleum products and Liquefied Natural Gas.
- Directorate General of Hydrocarbons (DGH) is responsible to promote sound management of Indian Hydrocarbon Resources. It plays a significant role in monitoring the upstream, contract management and regulation.
- DGCA/DG Shipping lays down rules for Indian marine seafarers based on the rules of International Maritime Organization (IMO)
- Oil Industry Safety Directorate (OISD) is the safety regulator for non-marine offshore operations.
- Directorate General Mines Shipping (DGMS) is the safety regulator for non-marine onshore operations.

Presently 40 companies are participating in the upstream Exploration & Production (E&P) activities in India, of which 23 are actually operating. Significant areas of operation in the industry still rely on manual work which requires a workforce equipped with adequate safety skills. Decline of 15 percent was observed in the proportion of workmen to total manpower employed in E&P sector from 2002 to 2011.

India’s O&G sector is a promising one as there is a huge untapped potential basin while many large blocks offshore are unexplored. India’s total hydrocarbon reserves are projected to be around 2 billion metric tonne of Oil Equivalent (bmt). Also, the reserves-to-production ratio for the country works out to be 25 years with the current oil production level of around 8,15,000 barrels per day (bpd) and estimated reserves of 1.2 billion metric tonne (bmt). Analysts foresee a bright future for the gas sector wherein reserves-to-production ratio is over 30 years (the current production level being around 40 billion cubic metres (bcm) per annum on an estimated reserves base of around 1,500 bcm).

Over the last few years, Indian Government has also played a pivotal role in strengthening the core industrial sector. For instance, the introduction of the New Exploration Licensing Policy (NELP) was aimed at intensifying activities in O&G exploration, while the administration allowed 100 percent foreign direct investment (FDI) in the sector.

Thus, there lies a great opportunity for international and domestic companies to participate in the industry’s growth and derive benefits out of it.

A 2: Guidelines on Certification

Standards of Training, Certification and Watch keeping or STCW-95 certification: This certification is approved by the Directorate General of Shipping, Government of India and comprises four modules over a period of five days and is mandated for all the off shore workers by the OCs:

- Elementary First Aid (EFA)
- Personal Safety and Social Responsibility (PSSR)
- Personal Survival Techniques (PST)
- Fire Prevention and Fire Fighting (FPFF)

The certifications are valid for a period of five years. Without this certification the worker cannot be sent to off shore. If STCW-95 certificate is not available with the candidate, the latter is sent for obtaining certification (the contractor pays initially, which is deducted on a monthly basis from the salary of the BLMP). For onshore operations, no STCW-95 certificate is demanded. But as per MVT guidelines of DGMS, companies provide mandatory Mines Vocational Training (MVT) and certificate to their employees.

Helicopter Underwater Escape Training (HUET): This training is required to be provided to offshore O&G industry staffs that are regularly transported to and from facilities by helicopters over water. This training prepares the workers to respond to situations in which the helicopter breaks down and they need to take steps for survival. This certificate is valid for a period of four years.

Certificates on the trade related skills:

- *Welding Procedure Specification (WPS)*: Some of the contractors also check for WPS certification. A Welding Procedure Specification (WPS) is a formal written document describing welding procedures, which provides direction to the welder or welding operators for making sound and quality production welds as per the code requirements. The purpose of the document is to guide welders to the accepted procedures so that repeatable and trusted welding techniques are used. A WPS is developed for each material alloy and for each welding type used. If a worker has not been out of job for more than 6 months, then the worker is assumed to be WPS certified; alternatively, certification has to be obtained again in case of discontinuity of job.

- *Agencies certified by American Welding Society provide certification for welders*
  - Depending upon the existing level of the certificate seeker, they may opt for Beginner course to advanced course. ITI trade qualification is not a requirement for obtaining these certifications
  - Third Party Inspection agencies such as ABS, Lloyds, DNV etc. deployed for conducting and recommending the certifications
  - Validity of the certificate is for 12 months. If continuous work is not done for six months, the welder is required to get the certificate renewed. Process of renewal is the same as at the time of obtaining the original certification.
Education & Experience:
Education: High School in Hindi, Eng, Chem, Phy, Maths
Years of Experience: 6 years

Work Authorization & Relocation:
Authorized to work in: Qatar
Present Location: India, Mumbai
Relocation: Anywhere (International)

Expertise:
<table>
<thead>
<tr>
<th>Category</th>
<th>Subcategory</th>
<th>Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trades (Skilled)</td>
<td>Welding</td>
<td>9 years</td>
</tr>
</tbody>
</table>

CV/Resume Details

1. Work Experience
- Seven Months working in NEWTON ENGINEER & CONSTRUCTION CO. at (Gujrat). From 02.10.2006 to 31.05.2007.
- Six Months experience in LAHOUD ENGINEERING CO. DOHA (QATAR). From 01.07.2007 to 18.01.2008.
- Currently working in LARSON & Company at Mulund (W) R&C.

2. Education & Training
Educational qualification:
- S.S.C. passed with first class from Pune board in March 2000.
Technical qualification:
- Provisional National Trade Certificate (ITI)
- Trade Welder (Gas & Electric) with 82.71%, July 2004 to August 2005.
- N.C.V.T Passed as Trade Welder with 74.86%, October 2006.

3. Other Skills
- No
A 3: Sample CV

Education & Experience: Work Authorization & Relocation:

Education: High School in Hindi, Eng, Chem, Phy, Maths
Authorized to work in: Qatar

Years of Experience: 6 years
Present Location: India, Mumbai
Relocation: Anywhere (International)

Expertise:

<table>
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CV/Resume Details

1. Work Experience
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     - Provisional National Trade Certificate (ITI)
     - Trade Welder (Gas & Electric) with 82.71%, July 2004 to August 2005.
     - N.C.V.T Passed as Trade Welder with 74.86%, October 2006.

3. Other Skills
   - No Safety Skills among Base Level Manpower in the Indian Oil & Gas Industry

A 4: Workshop Certificate

NATIONAL SAFETY COUNCIL
Certificate

This is to certify that, Shri Manoj K Mishra has participated in the “One-day Basic Safety Training Programme for Offshore Going Contractual Workers” conducted on 2nd August, 2013 for ONGC, IPSHEM, Goa at ONGC,11-High, Dharavi Road, Mumbai.

(Reko Deoghare)
Course Coordinator

(V. B. Sant)
Director General
### A 5: Training Needs Assessment (TNA)

#### Name of the contractor: Hofincons

<table>
<thead>
<tr>
<th>S.No</th>
<th>Name of the Employee</th>
<th>ID no</th>
<th>Details of mandatory training needs identified</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ATVK Acharyulu</td>
<td>109102769</td>
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<tr>
<td>2</td>
<td>K. Srikanth</td>
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<tr>
<td>3</td>
<td>Y.S. Rao</td>
<td>109102757</td>
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<td>4</td>
<td>B. Venugopal</td>
<td>109102892</td>
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<tr>
<td>5</td>
<td>G. Bharath Kumar</td>
<td>109100671</td>
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<td>6</td>
<td>K.G. Chakravarthy</td>
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<td>K. Ramakrishna</td>
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<td>G. Ganesh</td>
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<td>K. Bala Baijay</td>
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<td>K. Srinivas</td>
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<td>S. Babji Babu</td>
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<td>K.V. Durga Rao</td>
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<td>K. Subrahmanayam</td>
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<td>A. Manohar</td>
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<td>K. Sibarsha</td>
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<td>V. Sunil Kumar</td>
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<td>V. Narayanna Rao</td>
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<td>KHS Sudhir</td>
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<td>37</td>
<td>K. Subba Rao</td>
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<tr>
<td>38</td>
<td>Raja Babu</td>
<td>109105541</td>
<td></td>
</tr>
</tbody>
</table>

#### Details of mandatory training needs identified

- **Work at height:** Yes
- **Material handling:** Yes
- **PPE system:** Yes
- **JSA:** Yes
- **Electrical safety:** Yes
- **RMP:** Yes
- **Waste Management:** Yes

---

**Note:** The above table indicates the mandatory training needs for various employees in the Indian Oil & Gas industry, highlighting the areas of work at height, material handling, PPE system, JSA, electrical safety, RMP, and waste management. Each employee is listed with their ID number and the details of training needs they require to comply with safety standards.
## Site Safety Inspection

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
<th>Comments/Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is lighting adequate for safe access?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are access ways in storage areas.containers clear of obstruction?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do personnel know the location of the nearest safety shower / first aid / emergency muster point?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are fire extinguishers readily available? (Check service tags, 6 month check)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are first aid attendants identified for the workplace?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do emergency service vehicles have clear access to the workplace?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do all personnel understand emergency muster requirements? (Confirm verbally)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is the working area tidy and free of trip hazards?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Electrical Safety:

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
<th>Comments/Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are electrical leads and tools in good condition and is a current inspection tag attached?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are all electrical tools and leads protected by an RCCB (e.g. Safety switch)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are all electrical leads insulated from supporting structures?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are extension leads protected / supported above work areas and damp ground etc.?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are all welding machines, generators and lighting towers bonded?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Work At Heights

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
<th>Comments/Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have all employees working at heights completed height awareness training?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is suitable fall protection provided where a person could fall more than 1.8m?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Site Safety Inspection

**Area Audited:** [Infra Main Substation]

**Date:** 28/09/15

**Inspected By:**
- V. Suresh Kumar
- V. Ram Galla

**Safety Committee:**
- Balaji R.
- K. Murthy Rao

**Supervisor:**
- V. Ram Galla

**Convocation:**
- What is the work you are performing?
  - Preventive Maintenance of Transformers K107 PM 8-318

**Description:**
- Main hazards faced whilst performing the task:
  - Electrical, falling hazards, Hand injury

**Questions:**
- What are the worst things that could happen?
  - Electrical Burns
- How would you be affected if this happened?
  - FAI, LSI, Fatality
- Have you conducted an START Right today?
  - Yes

---

**General**

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is a valid, current work permit available at the work site?</td>
<td>✔️</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has the JSA been signed off by all personnel involved in the task?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have all issues identified on the JSA been adequately addressed? (Confirm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lockout/Tag out - Are all isolations in accordance with the permit requirements? (Confirm verbally)</td>
<td>✔️</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are gas cylinders stored and secured in an upright position?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# A7: Job Hazard Analysis

### Job Hazard Analysis Work Sheet

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Description of Task/Activity</th>
<th>Hazard Potential Incident</th>
<th>Risk or what might be harmed</th>
<th>Severity</th>
<th>Likelihood</th>
<th>Control Measures/Recovery Measures</th>
<th>Action Person</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Isolation of Transformer</td>
<td>Electric shock</td>
<td>Injuries or Fatality</td>
<td>M</td>
<td>H</td>
<td>Use Electrical gloves and insulated tools while carrying out O/M &amp; I inspection</td>
<td>Person</td>
</tr>
<tr>
<td>2</td>
<td>Opening checking of Primary side terminal box</td>
<td>Personal injury to person</td>
<td>Fatality</td>
<td>L</td>
<td>M</td>
<td>Ensure proper equipment is used to check the box</td>
<td>Person</td>
</tr>
<tr>
<td>3</td>
<td>Opening of Transformer head</td>
<td>Personal injury</td>
<td>Fatality</td>
<td>L</td>
<td>M</td>
<td>Ensure proper equipment is used to open the head</td>
<td>Person</td>
</tr>
<tr>
<td>4</td>
<td>Discharging of Static energy</td>
<td>Personal injury</td>
<td>Fatality</td>
<td>L</td>
<td>M</td>
<td>Ensure proper equipment is used to discharge static energy</td>
<td>Person</td>
</tr>
<tr>
<td>5</td>
<td>Taking R Values of Transformer winding</td>
<td>Personal injury</td>
<td>Fatality</td>
<td>L</td>
<td>M</td>
<td>Ensure proper equipment is used to take R values</td>
<td>Person</td>
</tr>
<tr>
<td>6</td>
<td>Housekeeping after completion of PAM</td>
<td>Physical injury, Health</td>
<td>Environment effect</td>
<td>L</td>
<td>M</td>
<td>Ensure proper equipment is used to dispose of waste bins as per waste management procedure</td>
<td>Person</td>
</tr>
</tbody>
</table>

### Notes
- **Severity**:
  - High: Fatality, major injury, colossal equipment damage, pollution, loss of production
  - Medium: Major injury, equipment damage, pollution, loss of production
  - Low: Minor injury, superficial equipment damage or pollution

- **Likelihood**:
  - High: Possible; may occur several times
  - Medium: Possible; could occur occasionally
  - Low: Possible; unlikely to happen
### A 8: Monthly Safety Report

#### ONSHORE TERMINAL - GADIMOGA

**MONTHLY SAFETY REPORT**

**Contractor:** AEZ Infra Services Ltd.  
**Vendor Code:** 341958

**Monthly Safety Report for the Period:**  
From: 01.05.12  
To: 31.07.13

<table>
<thead>
<tr>
<th>Detailed Section/Parameters</th>
<th>Description</th>
<th>First Aid Cases</th>
<th>Medical Treatment Cases</th>
<th>Restricted Work Day Cases</th>
<th>Lost Time Incidents</th>
<th>Dangerous Occurrence</th>
<th>Fire Incidents</th>
<th>Near Miss Incidents</th>
<th>Faulty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past Incidents</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Present Period</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cumulative</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

#### B. Safety Statistics

- **Man Power for the month (Male):** 133  
- **Man Power for the month (Female):** 0
- **Man-hours for the month (Male):** 1064  
- **Man-hours for the month (Female):** 0
- **Total Man-hours:** 1064

#### Details of Man-days lost

<table>
<thead>
<tr>
<th>Details of man-days lost</th>
<th>Date of LTI</th>
<th>Last day for the month</th>
<th>Cumulative</th>
<th>Last day for Cumulative for all</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
</tr>
<tr>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
<td>NIL</td>
</tr>
</tbody>
</table>

#### Frequency Rate

- **Frequency Rate (Number of accidents / Total man hours worked) x 10000:**
  - For the Month: NIL
  - To Date: NIL

#### Severity Rate

- **Severity Rate (Number of Lost Days / Total Man Hours worked) x 10000:**
  - For the Month: NIL
  - To Date: NIL

#### C. Tool Box Meeting

- **Number of Tool box meetings conducted:** 21
- **Number of Male personnel attended:** 3726
- **Number of Female personnel attended:** NIL

#### D. Safety Training

- **Number of training conducted:** 120
- **Executive:** 0
- **Supervisor:** 1
- **HSE Boys:** 1480
- **Total:** 1481

#### E. Tool Box Meeting

- **Total:** 1481

#### F. Safety Training

- **Topic of the safety training program:**
  1. Electrical Equipment handling
  2. Hazard Observation and Near Miss
  3. Personal Protective Equipment
  4. Definition of EHS & EHS Operating Controls
  5. Emergency contact number & Contact person
  6. Grooming & Hygiene
  7. Chemical handling and its usage

#### Note

- Attach Flats copy of tool box meeting records and training records.

**Prepared By:** Prasanna Vishnu  
**Approved By:**

**Name:** Prasanna Vishnu  
**Date:** 01.08.13

**Signature:**

---

**Safety Skills among Base Level Manpower in the Indian Oil & Gas Industry**

33
A 9: NCVT Certificate

National Council For Vocational Training
NATIONAL CERTIFICATE IN MODULAR EMPLOYABLE SKILLS

Certified that Shri KUDUPUDI DURGA RAMA KRISHNA has passed the competency test in module Assistant Fire Operator assessed by KITCO Ltd., on 26 Mar 2013.

and is hereby awarded National Certificate in Modular Employable Skills.

Pash Rohayyata / Competencies Acquired
Assemble and operate equipment and extinguish different types of fire safety. Provide first aid and carry out evacuation and artificial respiration.

Place: Hyderabad
Date: 16-03-2013

ABN: 0374-FRS101-B12025
INDUSTRIAL FIRE AND SAFETY TRAINING ACADEMY

Patavala, Tallarevu Mandal
Approved by Govt. of India

Certificate

No : 0046

Certified that Shri NARALA VARA PRASAD has successfully completed the Fire & Safety Engineering Course, Approved by Ministry of Labour & Employment Govt. of India at Industrial Fire and Safety Training Academy from 1st December 2012 to 31st May 2013 and he was placed in HONOURS Class.

Place : Kakinada
Date : 01-07-2013

Principal
Managing Director
# SAFETY COMMITTEE MEETING - MINUTES

**Meeting Date:** 31.08.2013  
**Start Time:** 05:00 pm  
**Finish Time:** 06:00 pm  
**Meeting Location:** Aux Sub Station  
**Chairman:** RAM BALLA  
**Attendees:** 20  
**Apologies:** 00  
**Minutes of Previous Meeting:** Reviewed Last Meeting Minutes

## SAFETY STATISTICS -

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td> Calls</td>
<td>10</td>
</tr>
<tr>
<td>FIA's</td>
<td>Nil</td>
</tr>
<tr>
<td>MTI's</td>
<td>Nil</td>
</tr>
<tr>
<td>LTI's</td>
<td>Nil</td>
</tr>
</tbody>
</table>

## REVIEW INVESTIGATIONS (Close Calls & Injuries since last meeting)

<table>
<thead>
<tr>
<th></th>
<th>Action by</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Close calls</td>
<td>All Concern, RIL HSE Department</td>
<td>Immediately</td>
</tr>
<tr>
<td>FAI</td>
<td>Nil</td>
<td>-</td>
</tr>
<tr>
<td>MTI</td>
<td>Nil</td>
<td>-</td>
</tr>
<tr>
<td>LTI</td>
<td>Nil</td>
<td>-</td>
</tr>
</tbody>
</table>

## TRAINING REQUIREMENTS (since last meeting)

**Electrical Skill development training need to be conducted for technicians**

**Target Date:** 14.09.2013

**Safety training need to be conducted for technicians**

**Target Date:** 21.09.2013

## SAFETY ALERTS (since last meeting)

Hofincons HSE Alerts, Reliance Safety Contacts, Fire Incidents taken from news, etc.

## CHANGES TO LEGISLATION (since last meeting - Give details)

## REVIEW OF REPORTS & CORRESPONDENCE (Pending Action)

<table>
<thead>
<tr>
<th></th>
<th>Action required</th>
<th>Status</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Pending actions since last meeting to be closed by concern persons</td>
<td>Reviewed pending actions in the last meeting</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

## ENVIRONMENTAL MATTERS (Review & Action)

<table>
<thead>
<tr>
<th></th>
<th>Action required</th>
<th>Action by</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provided blue colour drum to store cotton cloths, please use red colour bins for oily and greasy cloths for easy segregation</td>
<td>Please follow 5S system for Housekeeping at material storage area</td>
<td>All concern</td>
<td>Immediately</td>
</tr>
</tbody>
</table>

## HAZARD REGISTER REVIEW (Review & Action)

<table>
<thead>
<tr>
<th></th>
<th>Action required</th>
<th>Action by</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazard observation cards reviewed and discussed on closed observations, Best Hazard observation will be given a prize by RIL HSE Department</td>
<td>Report all work place hazards and near misses to safety officer</td>
<td>All concern</td>
<td>31.08.2013</td>
</tr>
</tbody>
</table>

Form No: TMF-5231-SA- 0028  
Revision No: 1  
Date: April 2010  
Page 1 of 2
A 12: BG Safety Model

Contractors are of the view that O&G Companies like BG conduct safety training at their own cost and these trainings are quite comprehensive in nature and suggest same model may be adopted by the O&G industry in India for its safety training of the BLMP. Industry experts refer to BG safety model as quite comprehensive with standards like:

- HSE Contractor Management Standard: Provides direction on the HSE requirements at each stage of the contracting process, from pre-qualification and selection to engagement and performance monitoring.
- Contractor Personnel Management Standard: Covers contracting, screening and training contractor personnel; setting, monitoring and assuring standards of HSE and ethical behaviour; and dealing with non-compliance.

A 13: Sample Credit Course Module for ITI

<table>
<thead>
<tr>
<th>Topic</th>
<th>1. Risk / Behaviour Training</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Learning objectives after completing the training the participants ill/will be able to:</th>
<th>Content</th>
<th>Performance requirements</th>
<th>Example of Method</th>
<th>Example of training environment</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Have knowledge of how individuals can contribute to increased safety through behaviour and attitudes</td>
<td>• Behaviour training</td>
<td>Must be able to understand the background for companies utilising instruments to prevent undesirable incidents</td>
<td>Theory Lecture</td>
<td>Class room during practical exercises</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Reporting undesirable incidents</td>
<td>Use some of these instruments through the course</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Observation techniques</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Experience transfer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Order and cleanliness</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Safety programme</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2 Demonstrate that individuals can contribute to increased safety through behaviour and attitudes</td>
<td>Animations from the Working Together for Safety (SfS) website</td>
<td>Participate actively in discussions and reflections regarding the films</td>
<td>Show at least two films that involve a breach of barriers: Falling objects; Crane and lifting</td>
<td>Class room Group</td>
<td>Films developed by SfS</td>
</tr>
<tr>
<td>1.3 Must be able to explain the background for use of a reporting system, and be able to use it</td>
<td>Why is it important to report? Use of tools. Reporting and registration</td>
<td>Use forms used offshore</td>
<td>Various forms used offshore</td>
<td>Filling out form</td>
<td>During practical exercises within all disciplines</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Topic</th>
<th>2. Barriers/risk understanding</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Learning objectives after completing the training the participants ill/will be able to:</th>
<th>Content</th>
<th>Performance requirements</th>
<th>Example of Method</th>
<th>Example of training environment</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Observe and propose corrective measures for undesirable incidents based on barrier faults</td>
<td>Observation technique • Ability to shift focus • See details • Think what if • Confirm/disprove barriers What do I do if I see something? &quot;If you see something say something or do something&quot; What do I do if I observe conditions/ nearmisses/dama_s/iruvv?</td>
<td>Uncover at least two conditions during the course</td>
<td>Fill out form</td>
<td>During practical exercises within all disciplines</td>
<td>E.g. form used by the different operating companies</td>
</tr>
<tr>
<td>2.2 Identify barriers</td>
<td>Organisational, technical and human</td>
<td>Be able to observe at least two barriers</td>
<td>Fill out form</td>
<td>During practical exercises within all disciplines</td>
<td></td>
</tr>
<tr>
<td>2.2a Describe definition of risk</td>
<td>Likelihood x consequence</td>
<td>Be able to provide at least two examples of risk.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2b Understand the term consequence.</td>
<td>Consequence philosophy</td>
<td>Be able to provide at least two examples of consequences</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.3 Be aware of possible consequences of breaches to barriers</td>
<td>Breach to barriers</td>
<td>Contribute actively in discussions, reflections</td>
<td>Films, pictures and discussions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.4 Describe what tools you use offshore to uncover and clarify that you have control of risk elements before starting work</td>
<td>Take two Pre-job conversation ‘Toolbox talks’</td>
<td>Use methods as a tool to create reflection regarding risk, and how to prevent undesirable incidents</td>
<td>Use pre-job conversation before exercises in the course</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Topic: 3. Responsibilities

<table>
<thead>
<tr>
<th>Learning objectives after completing the training the participants ill/will be able to:</th>
<th>Content</th>
<th>Performance requirements</th>
<th>Example of Method</th>
<th>Example of training environment</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 Be responsible for themselves and others</td>
<td>Role model/power of example Buddy check Report hazardous conditions Order and cleanliness</td>
<td>Actively carry out: Ask open questions Buddy check Reporting Cleaning up after yourself</td>
<td>Fill out form</td>
<td>During practical exercises within all disciplines</td>
<td></td>
</tr>
</tbody>
</table>

### Topic: 4. Conclusion/summary

<table>
<thead>
<tr>
<th>Learning objectives after completing the training the participants ill/will be able to:</th>
<th>Content</th>
<th>Performance requirements</th>
<th>Example of Method</th>
<th>Example of training environment</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1 Understand the importance of safe behaviour and use of instruments to support this</td>
<td>Summary and brief refresher Gather all experiences from the course: • How did the questions work? • How did the discussions work? • What did you learn Conclusions: observe, think what could happen, how can I prevent it from happening and report through nonconformity system. Ask if in doubt.</td>
<td>Actively contribute to discussions, reflections</td>
<td>Reflections Discussions</td>
<td>Class room</td>
<td></td>
</tr>
</tbody>
</table>

All of the practical exercises must be included in the exercises through the courses. The student must fill in observations according to items on the form made by the centre.

### Topic: 5. FIRST AID — Theory and practical exercises

<table>
<thead>
<tr>
<th>Learning objectives after completing the training the participants ill/will be able to:</th>
<th>Content</th>
<th>Performance requirements</th>
<th>Example of Method</th>
<th>Example of training environment</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1 Explain what lifesaving first aid involves.</td>
<td>Life-saving first aid: The chain that saves lives • Early understanding of the situation • Early CPR • Early defibrillation • Post-resuscitation career Explain first aid provider’s role relative to professional care. • Importance of supplying oxygen to brain and heart to avoid serious damage • CPR buys more time</td>
<td>TEST: Carry out all measures in the CPR cycle and continue with two minutes under the supervision and assessment of the instructor While the individual test takes place, the other participants can continue practicing</td>
<td>Follow the guidelines for instructors for Norwegian First Aid Council basic first aid course Lecture Demonstration Practical exercises</td>
<td>Class room</td>
<td>Norwegian First Aid Council Norwegian Basic First Aid Course</td>
</tr>
<tr>
<td>5.2 Know medical emergency number</td>
<td>Medical emergency number 1-1-3 (onshore) 1-1-2 (offshore)</td>
<td>Explain how the emergency number works</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

Safety Skills among Base Level Manpower in the Indian Oil & Gas Industry
### 5. FIRST AID — Theory and practical exercises

<table>
<thead>
<tr>
<th>Learning objectives after completing the training the participants ill/will be able to:</th>
<th>Content</th>
<th>Performance requirements</th>
<th>Example of Method</th>
<th>Example of training environment</th>
<th>References</th>
</tr>
</thead>
</table>
| 5.3 Explain what happened? Illness, or injury  
• Assess consciousness  
• Assess whether the person is breathing normally | That happened?  
• What are you looking for  
• What are you asking for  
• What can you feel by touching the skin  
• Assess whether the condition is serious  
• Is the person reacting  
• Is the person breathing normally or not  
• Demonstrate how to check for consciousness and how to open the airways and determine that the person is not breathing normally  
• Demonstrate chest compressions  
• Demonstrate rescue breathing | Be able to assess the consciousness of the patient  
• Explain/demonstrate easy way to secure free airways  
• Assess whether the person is breathing normally  
• Put patients that are breathing normally in a stable lateral position within one minute  
Exercise: Unconscious, but breathing normally  
1. Examination  
2. Lateral position  
• Demonstrate how to check for consciousness and open airways and determine that the person is not breathing normally  
• Demonstrate chest compressions  
• Demonstrate rescue breathing  
Exercise  
1. Carry out 30 compressions on a training manikin, count out loud  
Focus on compression point, depth, release and pace  
2. Carry out rescue breathing  
Give rescue breaths that, individually and an visibly elevate the chest, several times  
Use sufficient time for each rescue breath  
3. Demonstrates all measures in correct order on the training manikin during a CPR cycle  
Practice with all the course participants for two minutes. One of the participants responds as a nurse on 1-1-3 call. Speak loudly - switch roles | Class room | Norwegian First Aid Council: Basic First Aid Course |
| 5.4 Person is not breathing normally  
• Call 1-1-3/1-1-2 (offshore) and start CPR  
• Determine that the patient does not respond to verbal calls or careful shaking  
• Open airways and determine that the patient is not breathing normally  
• Perform satisfactory CPR | | | | |
| 5.5 Foreign object in the airways: Demonstrate various methods of clearing the airways | Various methods of clearing the airways  
• Placement of hands for back blows  
• Pose and hand placement for abdominal thrusts  
• CPR in the event of a foreign object in the airways, chest compressions | | | | Norwegian First Aid Council |

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**Safety Skills among Base Level Manpower in the Indian Oil & Gas Industry**

39
### 5. FIRST AID — Theory and practical exercises

<table>
<thead>
<tr>
<th>Learning objectives after completing the training the participants ill/will be able to:</th>
<th>Content</th>
<th>Performance requirements</th>
<th>Example of Method</th>
<th>Example of training environment</th>
<th>References</th>
</tr>
</thead>
</table>
| 5.6 Describe the most important first aid treatment measures in the event of suspicion of acute heart disease | • Radiating chest pain  
• Breathing difficulties and severe pain in stomach region  
• Crushing feeling in the chest and pain in the upper back area  
• Chest pain that improves with rest  
• Sudden feeling of exhaustion, feeling of fatigue | • Explain/demonstrate first aid measures in the event of chest pain  
Exercise | Lecture Demonstration | Class room | Follow the Norwegian basic first aid course's instructor guidelines when carrying out the course. |
| 5.7 Stop bleeding Stop external bleeding | External bleeding  
• Be able to compress the wound  
• Be able to elevate the wound  
• Be able to make a pressure dressing | Be able to stop bleeding using pressure bandages | Practical exercise using markers | Class room/ exercise area | |

### 6. Fire protection - Theory

<table>
<thead>
<tr>
<th>Learning objectives after completing the training the participants ill/will be able to:</th>
<th>Content</th>
<th>Performance requirements</th>
<th>Example of Method</th>
<th>Example of training environment</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1 List the conditions that must be present for a fire to start. Describe the different fire classes. Describe the different extinguishing principles</td>
<td>The Fire SquareHC (Hydrocarbons), LEL/UEL (Lower and Upper Explosion Limit), Flashpoint, Ignition temperature, Pyrolysis, Fire class, A, B, C, D, F, Fire in electrical systems/equipment, Hazard elements</td>
<td></td>
<td>Theory/groupwork</td>
<td>Classroom/ fire drill field.</td>
<td></td>
</tr>
</tbody>
</table>
| 6.2 Explain the different ways in which a fire can spread. | Radiation  
Conduction  
Convection | | Theory/groupwork | | |
| 6.3 Explain what poisoning hazards/risk can occur from an indoor fire. Explain what poisoning hazards can occur from inhaling gaseous hydrocarbons | Poisoning risk  
Fire gases  
Incomplete combustion  
Hazards  
Narcotic effect  
Protective measures | | Theory/groupwork | | |

### 6. Fire protection - Practical exercises

<table>
<thead>
<tr>
<th>Learning objectives after completing the training the participants ill/will be able to:</th>
<th>Content</th>
<th>Performance requirements</th>
<th>Example of Method</th>
<th>Example of training environment</th>
<th>References</th>
</tr>
</thead>
</table>
| 6.4 Extinguish small fires in a safe and controlled manner using the correct extinguishing technique. Understand the extinguishers' usage areas and extinguishing effects | • Correct use of portable fire extinguishers.  
• Extinguish the beginnings of a fire in a safe and controlled manner.  
• Correct techniques for use.  
• The apparatus' capacity, capabilities and limitations. | • Must be able to extinguish the beginnings of fires inflammable liquid with the use of PowderCO2Minimum one exercise per type of powder extinguisher per student. Minimum 2 exercises per type of CO2 extinguisher per student. Demonstration  
Use of fire blanket  
Fire in grease pot  
Electrical fire  
Powder apparatus against fibre fire  
Fire hose against fibre fire  
Foam apparatus against liquid fire. | Repeated practical exercises.  
Demonstration | Fire field, container, drill area. | |
| 6.5 Perform a controlled evacuation from surroundings with poor visibility. Explain why one should note the position of the emergency exits and escape routes in advance. | Must be able to evacuate safely and in a controlled manner. | Carry out controlled evacuation in surroundings with poor visibility over a distance of at least 20 metres with various obstacles, doors, etc. | Practical exercises with escape hood, with darkened glass or darkened surroundings. | | |
### 7. Helicopter Evacuation Theory/practice

<table>
<thead>
<tr>
<th>Learning objectives after completing the training the participants ill/will be able to:</th>
<th>Content</th>
<th>Performance requirements</th>
<th>Example of Method</th>
<th>Example of training environment</th>
<th>References</th>
</tr>
</thead>
</table>
| 7.1 Demonstrate actions in the event of prepared/controlled emergency landing at sea. | Procedure:  
- Emergency report/warning  
- Loose objects  
- Suit  
- Seat belt  
- Re-orientation  
- Crash position | Through practical exercises the course participants must show that they are able to remember the five preparation items  
- Secure loose objects  
- Suit (correct attire)  
- Check seat belt  
- Re-orientation  
- Crash position | Theory/ demonstration/ practical training | Class room/simulator | Norwegian First Aid Council  
Norwegian Basic First Aid Course |
| 7.2 Demonstrate correct action in the event of unprepared emergency landing at sea | Procedure:  
- Emergency report/warning  
- Crash position | Course participant must, through practical exercise, show they are able to react correctly to an emergency report; assume crash position. | Theory/ demonstration/ practical training | Class room/simulator |
| 7.3 Correct use of breathing lung | Procedure:  
- Preparation  
- Breathing techniques  
- Limitations | Course participant must be able to demonstrate and explain main elements for use of the breathing lung | Theoretical review with demonstration | Pool/Sea  
Class room |

### 7. Helicopter Evacuation Theory

<table>
<thead>
<tr>
<th>Learning objectives after completing the training the participants ill/will be able to:</th>
<th>Content</th>
<th>Performance requirements</th>
<th>Example of Method</th>
<th>Example of training environment</th>
<th>References</th>
</tr>
</thead>
</table>
| 7.4 Correct action following emergency landing at sea when helicopter floats upright. | Procedure:  
- Find nearest escape route  
- Establish breathing lung  
- Establish reference point (window and valve) Remain buckled in until you receive other orders from the crew  
- In the event of evacuation, focus on reference points | Course participant must be able to carry out the recommended actions following an emergency landing at sea (window scat). | Practical exercises/training | Class room/simulator | Norwegian First Aid Council  
Norwegian Basic First Aid Course |
| 7.5 Describe actions in the event of evacuation from a submerged helicopter | Procedure/recommendation:  
- Activate breathing lung  
- Reference points  
- Evacuation | Course participant must be able to explain the significance of:  
- When should you activate the breathing lung  
- Why do you have reference points  
- Best way to evacuate | Theory | Pool/Sea  
Class room |
| 7.6 Correct use of breathing lung | Procedure:  
- Preparation  
- Breathing technique  
- Limitations | Course participant must be able to demonstrate and explain main elements for use of the breathing lung | Practical training with testing assigned vests/lungs | Pool/Sea  
Class room |
Annexure B: References for Study Approach and Methodology

B 1: Objectives of the Study and Scope of Work

A. Need for Safety Analysis
With the recent investment of BP India to the tune of approximately $7 billion in Exploration and Production (E&P) in the KG D6 Basin, the company has deepened its investment in the O&G industry. Safety is a core value underpinning BP's business. The need to address availability of appropriately skilled workforce in safety at the base level for the industry has been identified by BP as a core focus area. There does not seem to be relevant data in the public domain pertaining to Base Level ManPower (BLMP) - safety skills possessed by them, their qualifications catering to safety and work experience in the domain. The current assessment addressing the issue of source, quality, gaps and opportunities catering to safety related skills of the BLMP, will thus contribute to enhancing the understanding of:

- Overall industry's practices and pattern of recruitment of BLMP;
- Safety criteria used during recruitment of BLMP;
- Existing pattern/s of safety training of BLMP; and
- Emerging opportunities at industry and policy levels for enhancing safety skills of BLMP in the E&P stage of the O&G sector in India.

B. Objectives
The purpose of the skill assessment study is to do a formal assessment of the energy sector's BLMP to provide an understanding of the patterns and frameworks of sourcing of BLMP, quality considerations related to safety and subsequent safety training, gaps in safety training and broad pointers of missed and emerging opportunities related to efforts planned for improving safety skills of BLMP in the O&G sector.

The study has covered the following aspects:

- Recruitment Patterns of BLMP - Stakeholders involved and their roles; geographical location and institutional sources of recruitment (direct or sourced via contractor etc.);
- Contract related terms and conditions on safety, importance laid on health and safety issues in recruitment;
- Safety related criteria (training and certification) laid down for recruitment of BLMP; assessment at contractor level;
- Safety linked certification for BLMP (Certification if any; financed by);
- Education and proficiency levels, work experience; on the job training duration; institutional connects;
- Pattern of safety training for BLMP - Source of safety trainings (on the job, professional, duration and frequency of trainings);
- Perception of relevance of safety - manpower and market;
- Lack of availability of labour adequately trained in safety issues;
- Gaps pertaining to health and safety skills - Perception of Management/Project Managers/Floor Managers towards safety skills of BLMP;
- Missed opportunities/ market needs, nature of supply side constraints for safety trained BLMP for the E&P stage in the oil & gas sector;
- Skill related aspirations of employer and employee, drivers for joining the line;
- Opportunities to fill the gaps - key players; how do they function/ operate; financial scenario; existing approaches/ initiatives; best practice replication possibilities; institutional linkages.

Figure: Objectives in BLMP skill assessment
C. Scope of Work
The tasks undertaken by study team are as follows:
1. Undertook a qualitative survey and information collection exercise to identifying the patterns and framework of source, quality, gaps and opportunities on safety skills of BLMP in the E&P stage of the O&G industry in India: The focus of qualitative survey was on the following:
   a. Mapping of the recruitment process of BLMP and the current levels of safety skills among the BLMP vis-à-vis the expected levels and mandated roles across selected trades (such as welding, fitting, rigging, heavy crane driving etc.);
   b. Assessment of the institutional arrangements currently in operation for training and certification of the BLMP on health and safety issues; and
   c. Identification of emerging opportunities for BP in India and other players/stakeholders in the industry to contribute to the development of BLMP in safety related skills.
2. Study prepared a final study report on safety skills of BLMP in O&G industry on current patterns and framework of sourcing, training and certifications, gaps and emerging opportunities.

B 2: Study Methodology

This section details out the study methodology and techniques used for information collection, the target groups approached, geographical distribution of the sample across sites and cities and rationale for choosing the same.

STUDY DESIGN
The study began with a preliminary visit to study locations to understand the processes in E&P stage. Subsequently, primary information collection was done with the help of stakeholder consultations/interviews at the ministry, different organisational management levels and in-depth interviews with selected trades of BLMP to get a perspective of the base level safety skills.

Keeping in mind the broad objectives of the study, process oriented mapping techniques were used to form the base framework of field study. Based on the nature of information to be collected and the target groups to be approached during the course of the study, different qualitative data collection techniques were used. In-depth interviews (IDIs) and Focus Group Discussions (FGDs) with various stakeholders were held to understand their views and perception regarding the issues outlined under the information areas mentioned below. Table below outlines the tools used for the various tasks mentioned in the scope for work.

Table: Methods and tools for the given tasks

<table>
<thead>
<tr>
<th>S.No</th>
<th>Key Information Area</th>
<th>Method and Tools</th>
<th>Key Stakeholder</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>• Nature of manpower recruitment management</td>
<td>Stakeholder consultations (FGD and IDIs)</td>
<td>Workers Association, BLMP, Contractors and Sub-contractors, Personnel Department</td>
</tr>
<tr>
<td></td>
<td>• Recruitment Patterns of BLMP - Stakeholders involved and their roles; geographical location and institutional sources of recruitment</td>
<td>Stakeholder consultations - IDIs/ Semi Structured questionnaire</td>
<td>Management, Representative at ITIs/ITCs/IFSTA</td>
</tr>
<tr>
<td></td>
<td>• Contractual arrangements for employing BLMP</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Importance laid on health and safety issues in recruitment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>• Safety skills requirement for recruitment</td>
<td>Stakeholder consultations - Interview schedules and checklists for discussions</td>
<td>Management of Personnel Department, Floor Site Manager, Contractors and Sub-contractors, Workers Association, BLMP, Representative at ITIs/ITCs/IFSTA</td>
</tr>
<tr>
<td></td>
<td>• Process for identifying safety training needs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Patterns of safety trainings and certifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>• Views on need for safety trainings</td>
<td>Stakeholder consultations - FGDs and IDIs</td>
<td>Review of documents:</td>
</tr>
<tr>
<td></td>
<td>• Extent of safety trainings at ITIs/ITCs</td>
<td></td>
<td>• Ministry of Petroleum &amp; Natural Gas (MoP&amp;NG)</td>
</tr>
<tr>
<td></td>
<td>• Safety certification courses</td>
<td></td>
<td>• Oil Industry Safety Directorate (OISD)</td>
</tr>
<tr>
<td></td>
<td>• Gaps in safety standards and recruitment standards</td>
<td></td>
<td>• National Skill Development Agency (NSDA)</td>
</tr>
<tr>
<td>4</td>
<td>• Identification of best practices - replication possibilities</td>
<td></td>
<td>• Department of Personnel DG&amp;E (Ministry of Labour)</td>
</tr>
<tr>
<td></td>
<td>• Institutional linkages for a. Sourcing BLMP and developing Safety Trainers</td>
<td></td>
<td>Contracts and Sub-contractors, Workers Association, Representative at ITIs/ITCs/IFSTA, MGMT at Personnel Department.</td>
</tr>
<tr>
<td></td>
<td>b. Provision of pre &amp; post recruitment training</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Safety Skills among Base Level Manpower in the Indian Oil & Gas Industry
TRADES AND STUDY GROUP

Based on the preliminary discussion held with BP and other industry stakeholders, the study team identified following trades/tasks where safety is a key concern, to get an understanding of the safety skills among the BLMP: These include:

- Welding (engaged in both hot and cold welding)
- Electrical tasks
- Lifting tasks including rigging
- Roustabouts
- Maintenance
- Truckers
- Scaffolding

In addition to covering base level employees working in different functions of O&G industry (E&P), discussions were held with:

- Officials from the human resource/personnel/operations department of the parent companies/floor managers;
- Workers Associations (of workers either directly employed by the OC or through the contractor);
- Contractors & sub-contractors providing specialised services for the O&G companies;
- Officials at Industrial Training Institutes (ITIs)/Industrial Training Centres (ITCs)/other vocational training institutes;
- CECD managing the pilot ITI project started by BP;
- Officials in Ministry of Petroleum and Natural Gas (MoP&NG), Oil Industry Safety Directorate (OISD), DG Shipping, National Skill Development Agency (NSDA).

STUDY LOCATIONS

The study team chose one state each on the east and west coast of India. The geographical location for the study was Bombay High (West Coast) and Kakinada (East Coast). NRMC visited Bombay High on the west coast, which is the biggest offshore oil field in the country and where the oil operations are run by Oil and Natural Gas Corporation (ONGC), a public sector undertaking. On the west coast (Maharashtra), NRMC covered Mumbai (metro) and Thane as one of the tier II cities for interaction with various stakeholders/study groups as listed in sections above.

On the east coast, NRMC visited Kakinada as the area of study owing to its natural gas fields. Several O&G companies have Kakinada as a transit point for O&G shipments. Reliance Industries Limited, ONGC and Gujarat State Petroleum Corporation Limited (GSPC) have made significant discoveries of O&G in the area. Thus, a private sector OC was covered in the proposed area. Here, in Andhra Pradesh, tier II city could not be covered due to the existing Telangana issue in the state.

SAMPLE SIZE

Given the research methodology and the stakeholders involved, the following sample was covered in order to gain a view of the perspectives of different stakeholders.

Table: Stakeholders and their respective sample size

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLMP (from different trades)</td>
<td>Group discussion held in batches of 15-20 with 227 (114 Fresher, 113 experienced, individual Discussion held with 197 out of 227)</td>
</tr>
<tr>
<td>Managers (at specific stages) Operations/Floor/Production</td>
<td>21</td>
</tr>
<tr>
<td>Representatives of Contractors and Sub-contractors</td>
<td>26</td>
</tr>
<tr>
<td>Workers Association/Management Personnel</td>
<td>6</td>
</tr>
<tr>
<td>Representatives at ITIs in Thane/Mumbai</td>
<td>19</td>
</tr>
<tr>
<td>Principal/Director/Faculty Members Industry Experts</td>
<td>7</td>
</tr>
</tbody>
</table>
The study followed the stages as outlined in the diagram below:

**Figure: Field Process Steps**

1. **Stage 1: Finalisation of Study Design in consultation with BP**
2. **Stage 2: Preparation of Tools for assessment**
3. **Stage 3: Field Work and Data Collection**
4. **Stage 4: Data Analysis and Report Writing**

**1. Preparing an Inception Report**

The project team from NRMC had an inception meeting on 8 July 2013 to set the tone for implementation of the assignment. Based on the discussions and agreements during the meeting, NRMC submitted the Inception Report which covered the detailed approach and methodology for implementation. The report included a detailed breakdown of tasks within the overall timelines.

**2. Preliminary Visit and Preparation of Checklist**

NRMC undertook a preliminary field visit to Mumbai to understand E&P processes, fine tuning the list of trades/tasks relevant for the study, identifying the broad pattern of recruitment and sourcing of BLMP obtaining a list of contractors/sub-contractors and the major agencies/institutes providing certified safety training courses for BLMP. This visit also contributed in fine tuning the key areas of enquiry and preparation of tools for the study. The draft tools were shared with BP for comments/suggestion and concurrence. The finalised tools were used by the NRMC study team to collect information during the field visit.

**3. Information Collection and Debriefing**

Information was collected from various sources. Study team with competency in qualitative research was deployed for each location. NRMC ensured a gender balance in the study team. On the first day of the field visit, the study team conducted discussions with OC management to apprise them of the project and its requirements.

Besides interviews with BLMP at both the locations, and FGDs with workers association, it was also ensured that the policy point of view towards interventions and advocacy were also made a part of the research framework. In addition, interviews with floor managers (at specific stages), contractors and sub-contractors, management personnel (Procurement), Operations/Floor/Production, representatives at ITIs/ITCs in Mumbai/ Thane/Kakinada - Principal/Director/faculty members in the area was conducted. During the entire course of study, steps were taken to ensure highest standards of quality in information collection.

Given the areas of enquiry, it was ensured that a process oriented mapping on patterns and frameworks determining the safety skills of base level workers was used for the proposed assignment. Steps taken are outlined below:

- As a first step, the process involved in E&P was studied and BLMP involved at each stage of the process was identified.
- The second step was to understand the recruitment pattern, nature and procedure of hiring BLMP at that stage.
- As suggested by secondary reviews, there are some processes for which in-house workers are employed who are on the payroll of the OC. On the other hand, some of the processes are outsourced to contractors who might further sub-contract the work. The employees hired through external sources have to fulfil certain criteria laid out by the OC and the process through which they are hired also has a few conditions attached to it as per the parent companies/owner’s policies and guidelines.
- Furthermore, the training level and experience of the manpower recruited was assessed and their experience and concerns regarding safety training were identified.
- From the demand side the perception of safety, the requirement of relevant skills pertaining to safety, the existing gaps and best practices have also been documented.

**4. Information Analysis and Report Writing**

As most of the information is on qualitative parameters, the information has been analysed using coding and categorisation of the information into concepts and conducting a content analysis. Further, the information is interpreted to see if one concept influences another and corroboration of the information has been done through evaluating possible explanations. Based on this analysis a draft base level safety skills assessment report was submitted to BP. The analysis included mapping of the recruitment process of BLMP and the current levels of safety skills among the BLMP vis-à-vis the expected levels and mandated roles across trades (such as plumbing, welding, fitting, heavy crane driving etc.); assessment of the institutional arrangements currently in operation for training and certification of the BLMP on health and safety issues; and identification of the emerging opportunities for BP and other players/stakeholders in the industry to contribute to the development of safety related skills among the BLMP.
3. Information Collection and Debriefing

We would like to ask you about most important trades in E&P process. Further, we would be asking you about your involvement and engagement in the sourcing of BLMP in the context of safety in select trades and safety quality parameters used during recruitment. We would be asking you about the safety training through on-job training and gaps in safety skills. Also, we would like to know about the factors and emerging opportunities at the company, industry and policy level for enhancing the supply of adequately trained and certified BLMP.

A. General Information
1. Name of the Company: (self-filled)
2. Area of Operation:
3. Month and Year of formation: (secondary sources)
4. Number of BLMP on permanent roll of the company:
5. Average number of contractual employees employed per contract? What is the ratio of permanent BLMP to contractual BLMP?

B. Indicative trades
1. Which are the E&P activities that require skilled labour?
2. Which are the activities for which semi-skilled labour and un-skilled labour is required?
3. Are any activities which are completely outsourced by some of the companies? List those activities.
4. Which are the most important trades which require high safety standards?
5. What is the importance of maintenance staff from the perspective of safety?

C. Sourcing of BLMP
a. Recruitment Process
1. Please detail out the process of BLMP recruitment. Who are the key stakeholders involved in the recruitment process?
2. Do you recruit directly from ITI or employment exchange or through BLMP contractors/manpower recruitment agencies? Which one is the most preferred and why?
3. What are the contractual arrangements on training of BLMP?
4. Do companies hire man management contractors to manage BLMP on the pay rolls of the company?

b. Selection Criteria
5. What are the hiring criteria for BLMP? Is there any prescribed skill set/competency matrix for each trade?

D. Training, Certification and Gaps

1. Is there any guideline for safety training needs at worker level? If yes, please give details.
2. Is the training needs for offshore and onshore employees same? If not, what is the difference?
3. Do ITI trained workforce have sound understanding of ideas such as health, safety, environment and security?
4. What kind of in-house trainings are provided to BLMP by the companies?
5. Are there any refresher training courses run by the company?

6. Are health and safety criteria considered while recruiting BLMP? If yes, then detail out some of these criteria.

b. Certifications
6. Do you facilitate the workers to obtain certifications on safety skills? How? Please provide details of agency, course duration and course content. What is the validity period of such certifications?

7. Is there any mechanism of certification of safety training provided to BLMP as a part of on-job-training?

8. Are the trainings given by the company certified? If yes, which agency provides this certification? How is training certification given? Who gives certification, is the certification test online/offline? Do the certifications have any validity period?

9. Does the company issue any Permit to Work card to its employees? Is the issuance of the card linked to safety trainings undertaken?

C. Gaps
10. Do ITI trained workforce face any trouble in adjusting to companies’ safety standards policies? Are there any patterns of accidents (LTIF/FAR)? Please give the details.

11. To what extent have the trainings influenced the LTIF and FAR rates/levels?

12. Despite the trainings given, what are the safety issues still faced by company at BLMP level?

13. Do you feel any gap in safety standards training at institutes and recruitment standards of the company? If yes, what are the gaps?

E. Opportunities
1. What can be the institutional linkages (with ITI and certification agencies) for sourcing BLMP and developing safety training skills of existing trainers?

2. What kind of skill development programmes are needed to ensure high standards of safety in BLMP?

3. Can you suggest some best practices being followed in the industry to ensure safety skills among BLMP?
CHECKLIST FOR DISCUSSION WITH MANPOWER RECRUITMENT AGENCY/ MANPOWER CONTRACTOR/ LUMP SUM TURN KEY CONTRACTORS

Good ______ or Namaste! I am ______ (MENTION YOUR NAME) from NRMC, Management Consultancy company organization in Delhi. We are doing a study to understand the safety skills in Base Level Man Power (BLMP) in Exploration & Production (E&P) stage of Oil and Gas (O&G) Industry. Please be assured that all information given by you will be kept strictly confidential and not revealed to anyone with your name/contact details without your prior permission. Information provided will be used for the purpose of research only.

A. General Information
1. Name of the Agency:
2. Month and Year of formation:
3. Area of Operation:
4. Type of Contractor: Manpower Recruitment Agency/ Manpower Contractor/LSTK Contractor/Sub-contractor
5. Major Clients:
6. Average number of sub-contractors, the agency is dealing with:
7. Do you have any manpower permanently on your pay roll? If yes, then what is the ratio of permanent manpower to contractual manpower per project?
8. What do you see as the strength of the agency in terms of manpower solutions to the company?

B. Recruitment and Selection Criteria
Recruitment
1. Please detail out the process of BLMP recruitment?
2. What are the different channels of recruitment? Do you maintain a roster of potential job seekers at the BLMP level?
3. Do you recruit from ITI or employment exchange or through open advertisement?
4. Who are the key stakeholders involved in the recruitment process?
5. Which one is the most preferred channel of recruitment and why?
Selection
6. Apart from the technical skills, what are the other hiring criteria for BLMP? Is there any prescribed skill set/ competency matrix on safety skills for each trade?
7. Whether health and safety issues are considered while recruiting BLMP? Is there any standard criteria for judging HSE competency of an applicant?
8. What are the contractual arrangements for employing BLMP vis-à-vis their safety skills, their subsequent training, cost sharing of the training cost, role of the contractor in facilitating safety skill certification, and tenure of employment conditional to safety skills training imparted by contractor/sub-contractor or the O&G company for which the worker would be working?

C. Trainings, Certifications and Gaps
Training
1. What are the different kinds of safety trainings at BLMP level demanded by companies?
2. Are the training needs for offshore and onshore employees same? If not, what is the difference?
3. Does the ITI trained workforce have sound understanding of ideas such as health, safety, environment and security?
4. Do you provide safety training to BLMP after hiring but before deploying at the site?
5. Are there any refresher training courses run by you or the company? Who pays for this? Is the training cost covered/included as part of the overall LSTK contracts?
6. Is there a difference between large players and mid-level players in the industry regarding in-house training facilities?
Certification
7. Which are some of the major safety training certification courses? Please provide details of institute and course duration.
8. How is training certification given? Who gives certification, is the certification test online/offline? Do the certifications have any validity period?
9. Is there any mechanism of certification of safety training provided to BLMP as a part of on-job-training?
10. Do you encourage BLMP to undertake any safety related certification courses? If yes, which are these courses? Which are these certifying agencies? What is the average duration of these courses and the average cost? Do these trainings add to the remuneration paid to the workers??
Gaps
11. What are your views on extent of safety trainings at ITIs/ITCs? Do you feel any gap in safety standards of ITI trained candidates and recruitment standards? If yes, what are the gaps (infrastructure, limited module, financial resources, lack of trainers/instructors on safety skills)?
12. Do ITI trained workforce face any trouble in adjusting to companies’ safety standards policies? If yes, then what are the key issues?
13. What are the safety issues faced by company at BLMP level?

D. Opportunities
1. What can be the institutional linkages for sourcing BLMP and developing safety training skills of existing trainers? (through apprenticeship, internship, or sponsoring specific modules on safety in ITI, efforts towards campus placement).
2. Can you suggest some best practices being followed in the industry to ensure safety skills among BLMP?
3. What can be the institutional linkages for sourcing BLMP and developing safety training skills of existing trainers?
Safety Skills among Base Level Manpower in the Indian Oil & Gas Industry

Good______ or Namaste! I am_______ (Mention your name from NRMC, a management consultancy organization in Delhi. We are doing a study to understand the safety skills in Base Level Manpower (BLMP) in Exploration & Production (E&P) stage of Oil and Gas (O&G) Industry. Please be assured that all information given by you will be kept strictly confidential and not revealed to anyone with your name/contact details without your prior permission. Information provided will be used for the purpose of research only.

1. General Information
   - Name and location of the Institute:
   - Month and Year of formation:
   - Number of trainers in the institute:
   - How many students come to the institute every year? (approximately)
   - Are there any more institutes in the nearby location?

2. Indicative trades
   - Do you offer specific courses for O&G industry? Please specify.
   - Which are the courses/streams/trades that are opted by majority of students?
   - Which trades require specific focus on safety and health?

3. Sourcing of BLMP
   - Do companies recruit BLMP directly from ITIs? Please name a few. Which are the other institutional sources for recruitment of BLMP?
   - Do companies specify hiring criteria while recruiting from ITIs? Are these criteria trade specific?
   - Whether health and safety issues are considered while recruiting BLMP? If yes, what criteria are followed to ensure health and safety requirement in recruitment from ITI?

4. Quality
   - What are the different kinds of safety trainings at BLMP level demanded by companies?

5. Gaps and Opportunities
   - Which are some of the major safety training certification courses? Please provide details of course duration and course content. Do the certifications have any validity period?
   - What are the key topics in Health, Safety and Environment (HSE) which are covered in ITI curriculum?
   - Do the trainers have knowledge about HSE practices in modern industry with state-of-the-art technology?
   - What are the different types of study tools used by trainers in ITIs?
   - Is industry exposure visit to O&G companies or guest faculty lecture included in the curriculum?
   - Are latest reference books on HSE available in ITI library? How are the students encouraged to read them?
   - Are the students given any safety and health related practical projects as a part of curriculum?
   - What kinds of seminars/workshops on HSE are organised in ITIs? What is the frequency of such seminars?
   - Do ITIs conduct refresher training programs in collaboration with O&G companies or contractors?
   - What is the difference between training requirements for skilled labour and unskilled labour? Please detail out some of the trade specific safety requirements.
   - What is your USP? What do you see as the strength of the institute in terms of BLMP training?
QUESTIONNAIRE FOR BLMP

Please be assured that all information given by you will be kept strictly confidential and not revealed to anyone with your name/contact details without your prior permission. Information provided will be used for the purpose of research only.

A. General Information

1. Name of the Respondent: ...................................................................................................................................

2. Age: .................................................................................................................................................................

3. Native place: ......................................................................................................................................................

4. What is your job title? Welders/ Electrician/ Riggers/ Roustabout/ Maintenance/ Crane Operators/ Scaffolder/ Other (Please specify)........................................................................................................................................

5. How many companies/contractors have you worked for in oil and gas industries before joining current job?

B. Recruitment

1. How did you get to know about this job? Newspaper/online job portals/ registration with manpower recruiter/ employment exchange Other (Please specify)........................................................................................................................................

2. Were safety skills criteria during recruitment? (Yes/No)

3. What kind of questions on safety skills were asked during recruitment? Name one or two questions.

C. Pre-Recruitment Training and Certification (In terms of training acquired by self or through ITIs)

1. Did you attend some institution for technical training? Yes/No. If yes, please specify name of institution, course, duration and district.

2. Do these institutions provide safety trainings during the course?

3. a. Was it mandatory to attend the safety training course? (Yes/No)

   b. If Yes, was the course with credit/ without credit ..........................................................................................

   c. How many hours and modules of training were you required to attend on safety skills?

4. Did you enrol at Employment Exchange? (Yes/No). If yes, did they provide you any counselling on obtaining any kind of certification on safety skills? (Yes/No). If yes, which certification were you asked to obtain?

5. Apart from any mandatory/compulsory training on safety in the ITI, did you attend any other training programme (outside ITI course) on safety skills? (Yes/No)

   a. If yes, provide name, duration and agency for the course?

   b. Was it a certified course? (Yes/No) Does the certification have any validity period? (Yes/No). If yes, specify number of years

   c. Did you take a separate exam for obtaining certification? (Yes/No)

6. Did the ITI/ITC/ Other Vocational Training Institute support in any kind of placement on completion of your course? (Yes/No)

Safety Skills among Base Level Manpower in the Indian Oil & Gas Industry 49
D. On-Job Training (Current Job)
1. Did the company give any training after recruitment? Please specify, type of training and duration.
   a) ...........................................................................................................................................................
   b) ...........................................................................................................................................................
2. Was any written safety rules and instruction manual given during training? (Yes/ No)

E. Previous Job Experience
1. What aspects of health and safety were covered during recruitment in your previous job?
2. What kind of on-job trainings were provided on safety skills in previous job?
3. Did you get a chance to express your needs regarding safety in your previous job?
4. Did the company issue any Permit to Work card to its employees? Was the issuance of the card linked to safety trainings undertaken?
5. Did the company organise any meetings to discuss safety issues? If yes, what was the frequency?
6. Do you remember any accidents that have occurred with any worker in your trade or any other trade? Cause for that accident – Fire due to leakage of oil and gas/Mechanical/Electrical/Fall from height
   a. What according to you, were the top three causes of accidents?
   ...........................................................................................................................................................
   ...........................................................................................................................................................
   ...........................................................................................................................................................
   b. What are the follow ups and measures taken after the accident?
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F. Suggestions
1. Do you think safety is an important aspect of your work?

2. Now that you are hired by one of the biggest oil company ONGC, what are your expectations regarding safety and health related trainings from management?

3. What improvements are required in ITI/ITC/ Other Vocational Training Institutes in terms of:
   a. Faculty/ Trainer:
   ...........................................................................................................................................................
   b. Physical Infrastructure:
   ...........................................................................................................................................................