

## GAP Analysis of HSEMS in ADCS Oil & Gas, UAE

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### Abstract:

After oil and diesel cost de-direction in midst of 2014, oil and gas industries are seeing quick increment in the transportation of perilous items like petroleum and diesel, because of expanded request of powers by market clients, in this way it has improved the mishap potential amid travel. Additionally fast industrialization has seen expanded prerequisite of fills for different applications in industry and furthermore by end clients or shoppers. The key dangers required in the street transportation of fills can be a street mischance of tanker, hole or spill of fuel, resistance to lawful necessities, significant mishap including flame or blast affecting groups around, disturbance of business and other related impacts. Accessibility of data on the perils and building up control measures at the season of crisis is indispensable for limiting the impact of such mishaps. Accordingly legitimate hazard administration of all dangers identified with land transport is essential piece of street wellbeing administration for administrators. In this paper an attempt has been made to identify and assess the risk associated in oil and gas industry.

### Introduction:

The Occupational health and safety is managed within organization due to ethical, morale, legal and financial reasons. Good health and safety culture is vital for worker's morale and helps to promote a positive culture by involving people in a practical way in health and safety in the workplace. Poor working conditions of any type have the potential to affect worker's health and safety. In the absence of commitment to health and safety, workers will make their own mindset about

the organization's priorities and it can lead to the accidents or injuries, production & financial loss and affect the reputation and image of the organization.

This case study provides an objective assessment of the company's Health & Safety Management System including risk management, existing control and gap analysis. The report provides the relevant information for the improvement of the health and safety management system. This case study provides a reference document for improvement on the information relevant to the health and safety of the personnel and resources of the company.

### Objective of Research:

The purpose of this research paper is to verify the effectiveness and reliability of the organization's Occupational Health and Safety Management System and to assess that the Health and Safety Management System is being effectively implemented in order to manage the risk of accidents and ill health occurring in the workplace and identify how to bridge the gap between current situation and the desired future state

The primary goal of this report is to communicate the top management of the company about the compliance and gaps of their Health and Safety Management system along with the potential hazards, existing controls and additional controls to reduce the associated risks to ALARP (as low as reasonably practicable) level to minimize the risk of accident or injury in the workplace. This gap analysis

undertakes to assess the current sustainability performance of the organization and to highlight the priority areas for the sustainability program.

**Methodology:**

A peer review was carried out to study the company’s Health and Safety Management System. The case study is based on a combined approach of collecting and analyzing qualitative and quantitative data, while it was difficult to collect adequate data for a truly scientific approach, as client is reluctant to share data. The permission was taken from the General Manager of the Company for allowing carrying out the assessment of Health and Safety management System of his company.

The documents of level 2 and 3 were reviewed such as incidents reports, Facilities response plan, HSEMS plan, Standard Operating Procedures (SOP), existing Task Risk Assessments, Audit reports, Corrective Action for non-conformities, review of Health and Safety plan, Health and Safety meetings records, minutes of meeting, safety memo, warning letters for Health and Safety violations, training data to familiarize with the company’s Health and Safety Management System.

The following methodology was adopted to make the case study

The following personnel were interviewed to complete the case study.

- a. Collected the Health and Safety informative documents from the Health and Safety representatives of the company.
- b. Interviewed the key personnel within the organization at various levels
- c. Inspected the different areas of the running project of the company to complete the risk assessment and gap analysis. The company (ADCS Oil & Gas) currently is working with Client Company (Abu Dhabi Onshore Oil Operation Company / Oil and Gas) as contractor for oil and gas plant maintenance and shutdown activities.
- d. Analysis of integrated information to identify the gaps and issues under the various elements of HSG 65 model, which have been identified as underpinning good practice in managing health and safety.
- e. Identified the physical and health hazards
- f. Carried out semi quantitative risk assessment.
- g. Prepared action plan for the improvement of management system (Corrective and preventive actions required.)
- h. Assigned the tasks to the relevant personnel and set the target dates for the completion of the tasks.

| Personnel interviewed             | Case study   |
|-----------------------------------|--|
| General Manager:                  | To assess the leadership and management involvement and visibility                         |
| Construction Manager:             | For the availability of resources and manpower & controlling the risks                     |
| Health and Safety Representative: | For Site Health and Safety inspections, hazard identification and risk management programs |

|               |   |
|---------------|---|
| Site Foreman: | For competency and communication to manage Health and Safety. |
| Labors :      | For competency and cooperation and communication              |

**Result & Discussion:**

The purpose of the gap analysis is to provide project teams with a format in which to do the following:

Compare the best practices with the processes currently in place in the organization. Determine the “gaps” between your organization’s practices and the identified best practices. Selecting the best practices implement in organization.

Upon completion of the gap analysis, project teams will have the following:

- An understanding of the differences between current practices and best practice.
- An assessment of the barriers that need to be addressed before successful implementation of best practices

By analyzing these gaps, management can create specific action plans to move the organization forward toward its goals and close the gaps identified in the gap analysis report. However, a gap analysis does not provide the action plan; it only provides the foundation of understanding necessary to create it.

In this gap analysis, SWOT analysis (strengths, weaknesses, opportunities, and threats analysis) and benchmarking methods are used. Assessment is on the basis of both quantitative and qualitative. The company’s Health and Safety Management of ADCS Oil & Gas reviewed in-line with Occupational Health and Safety regulations and laws.

**Conclusion:**

This case study has assessed the gaps in the organizations Health and Safety plan and identified the non-compliance and requirement for improvement. The risk

assessment was carried out for two activities i.e. lifting operation and exposure to gases (hydro carbons and toxic gases such as methane, propane and Hydrogen sulfide etc.), with the approach to eliminate the risk or reduce the risk to ALARP level. Overall the company ADCS has demonstrated a positive approach towards health and safety of the people and in implementing company’s Health and Safety Management System, Clients requirements and standards HSE model OHSAS 18001 and HSG65. Although the company is following the international procedures but there were some gaps identified in the construction site as below.

- 1 The policy is signed by Company CEO but during site visit it was observed that it is not displayed on some Safety notice boards in the field and offices.
- 2 Health and Safety focal points are not appointed by name to take the overall responsibility of health and safety issues.
- 3 The budget for Health and Safety programs is insufficient.
- 4 There is no procedure available for HSE awards & recognition events for HSE performance.
- 5 As stated in Policy section that Health and Safety focal points are not appointed by name to take the overall responsibility of health and safety issues.
- 6 No specified budget for technical trainings is allocated and employee’s training requirements are not

- communicated to the employee and appropriate supervisors.
- 7 There is no record or evidence for the evaluation of the trainings evaluation.
  - 8 As per client requirement the contractor's Health and safety plan to be in-line with the Company Health and safety plan Health & Safety is not discussed as an agenda item for subcontract awards and kick-off meetings.
  - 9 Project specific medical record as required by client is not available.
  - 10 No hazard register available. The risk assessment was carried out for common activities. Each applicable job has not been evaluated using a risk assessment system.
  - 11 Key Performance Indicators are developed but without logic.
  - 12 Inadequate number of trained and competent auditors, other than HSE team.
  - 13 For improvement of company Health and Safety Management system no benchmarking company was selected with the similar business.
  - 14 Facilities Response plan is available for the emergencies but the emergency drills to check the emergency preparedness is not conducted.
  - 15 The strength of HSE professional is not sufficient to the proportionate to the workforce.
  - 16 There is no allocation of the separate budget for the HSE campaigns and HSE trainings.
  - 17 Training matrix is developed but not implemented.
  - 18 Training for the critical activities are not planned such as use of breathing apparatus , escape sets and emergency response/ facilities response
- In the site audit, consultation with the workers and company incident data shows that lifting operation and exposure to gases due to machineries are the two most significant hazards in company operations. Although, there were many good controls in place, but some important controls are omitted which if implemented could bring down the risk level. They were primarily:-
- 1 Appointing of competent and third party certified (as per UAE law) crane operators, banks men & lifting supervisor.
  - 2 All lifting gears should be certified by 3<sup>rd</sup>. party and color coded (Ref. UAE local law).
  - 3 Load chart, Warning signs and positioning of crane, use of flag men to warn about overhead lifting operation.
  - 4 Proper maintenance of cranes by competent mechanic and inspection by crane operator before starting the lifting operation must be carried out.
  - 5 Barricaded should be provided for lifting operation with appropriate warning signs to avoid unauthorized entry in the lifting area.
  - 6 To enter in the hydrocarbon area – Zone -2, the crane should have Zone – 2 acceptable certificate
  - 7 There should be a scenario in the Facilities Response Plan for quick response in case of accident resulting by crane incident
- The second significant health hazard identified during site audit is working with hydrocarbons and toxic fluids and the

company HSE system & procedures have documented few controls to reduce risks. However, there were some significant deficiencies in these controls are as:-

- 1 Need to conduct more emergency drills/ exercises (at least annual) to train the workforce to respond in case of loss of containment of hydrocarbons and other toxic gases.
- 2 There is no availability of personal multi gas monitors with individuals.
- 3 Fixed gas detectors are available at few locations only. Needs to install more numbers.
- 4 Safe heaven (Gas proof) area is not available at the site.
- 5 Trainings on hydrocarbons and hydrogen sulfide are not conducted.
- 6 Action limits are not defined as first action and second action limits.
- 7 Rescue plan for vessel entry is available but not signed by the authorized personnel.
- 8 Escape sets are not available with every single person to escape in case of hydrogen sulfide or hydrocarbon leak

### **Recommendations:**

#### **Management System**

Major gaps in the existing management system are captured in sec 2.2 (gap analysis) and detailed action plan with target date and responsible person is demonstrated in the action plan.

Main recommendations according to their priorities to improve the existing management systems are:-

1. Appoint a competent Health & Safety management representative, who will be the focal point to address any issues on behalf of the top management besides his normal duties.
2. Appoint sufficient numbers of competent health & safety staff as proportionate to the work force.
3. A platform is essential for coordinating or presenting key issues that needs consensus and conveyed to all departments the quickest and easiest way. Therefore, timely and scheduled meetings need to be conducted to discuss safety related issues.
4. Companies that ask employees for their views on health and safety issues can cut down on accidents. By including workers' ideas and involving them in enforcing health and safety rules, companies can create a positive attitude towards maintaining good practice and make significant improvements collective participation of all in suggestions can yield more improvement options.
5. The best way to identify all hazards and risks is to breaking down all critical jobs and describe the method use to conduct those activities and critically assess the risks involved. This requires a system of method statements and risk assessments for all critical jobs.
6. Health & Safety programs include provision of adequate training, personal protective equipment, reward programs etc. Hence, allocating a budget for health & safety on all projects are essential and same must be incorporated while assessing the project values

and putting forward bid proposals for new contracts.

7. All health & safety programs needs to be measured and only by assigning a SMART (Simple, measurable, achievable, realistic and time bound) Setting objectives can measure the performance. Only measuring gets the activity done. Hence, objectives and targets need to be clearly identified and periodically reviewed, in any case not later than yearly.
8. Emergency response drills needs to be conducted periodically (at least annually) so that the company can evaluate the effectiveness of the response plan and take corrective measures before an accident happens.
9. The management system needs to be continuously reviewed and measured so as to incorporate any changes in the company's organization; equipment or processes or legislation changes so that company can proactively address issues take appropriate controls. Therefore, internal audits are required to be conducted on an annual basis.

Out of these recommendations only additional budget/ cost involvement is to impart external training which can be either done by awarding a training provider a long term contract or by sending people individually to the training providers. The former option will work out to be more cost efficient. Rest all recommendations can be developed and implemented within the existing company resources and would work out cheaper than it sounds.

Physical Hazard – Lifting operation/Suspended load on the over heads on workers

After studying and analyzing the existing controls the company has employed, the following additional controls were recommended to bring down the risk of fall of load on persons down the load on workers during lifting operation to a more tolerable level (ALARP):-

- 1 Appointing appropriately trained crane operators, banks men & lifting supervisor which are technically sound in all aspects of lifting operation and avoid losses, both direct and indirect.
- 2 All lifting gears should be certified by 3rd party. After the use it should be stirred properly. It should be checked by Banks man at daily bases not depend only on certificates. The capacity and ID no's should be marked clearly and color code system should be applied for all lifting gears.
- 3 Warning signs and positioning of crane, use of flag men to warn about overhead lifting operation Warning signs and night lights will provide awareness to people who are working in near vicinity and prevent them from coming in the line of fire of fall of load during the lifting operation.
- 4 All cranes should be inspected by competent mechanic and operator before starting the lifting

- operation. The checklist should be used for inspection & inspection copy should be in the crane. End of the day it should be file for record purpose.
- 5 Lifting area should be barricaded & warning signs should be in place. Only banks men and lifting supervisor should allow entering the lifting operation area. The crane routs should be identified and marked before lifting the load.
  - 6 Training and regular tools box talks must be imparted to all operatives and supervisory staffs on the correct use of lifting gears and cranes and about safe procedure of lifting operation to avoid any accidents and incidents to self and to others.
  - 7 An emergency rescue plan must be developed and communicated to all so that people are aware of actions that need to be taken during any incident related to lifting operation and can initiate speedy recovery programs thereby reducing the chances for an aggravated injuries/situations and limit the impact of the incident.
- from exposure to the hydrocarbon and toxic gases are not properly dealt with. It was necessary to conduct a survey to identify sources / potential of gas leak & concentrations and vulnerable risk groups. Based on the survey, the following recommendations are made:-
- 1 It is needed to provide shade / shelters for the workers for rest and must be provided with drinking water and refreshment facilities.
  - 2 It is required to monitor continuously the weather condition during summer weather and implement the rules of frequent break as per the heat index requirements
  - 3 It is needed to conduct emergency drills/ exercises (at least annual) with the scenario “Loss of containment” to train the workforce to respond in case of loss of containment of hydrocarbons and other toxic gases.
  - 4 It is recommended to provide the personal multi gas monitor to individual working inside the hazardous areas.
  - 5 The Fixed gas detectors are not sufficient, need to install more numbers in high concentration areas in operations.
  - 6 It is recommended to build a Safe haven (Gas proof) area close to the location where the workers / contractors (ADCS and others) are working.
  - 7 A training plan must be developed to arrange the training for employees working near Hydrocarbon and toxic gas area on hydrocarbons and hydrogen sulfide and the use of

Health Hazard – Asphyxiation and serious injury due to loss of containment of hydrocarbon and toxic gases

It was evident from the review of records, consultations and site survey that appropriate controls for protecting people

breathing apparatus and escape sets.

- 8 It is recommended to provide the escape sets for individual to carry with them in hazardous area to escape in case of sudden gas release.

By ensuring that the above mentioned controls are put in place, the company can reduce the injuries and accidents significantly and thus save on both direct and indirect costs. Improve productivity by avoiding business interruptions, enforcement actions; improve the public image and trust. Improve employee relations and will also help optimization of resources.

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