OCCUPATIONAL FRAMEWORK

SECTION B: MINING AND QUARRYING

DIVISION 06: EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS

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Occupational Framework
Extraction Crude Petroleum and Natural Gas
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ABSTRACT

An Occupational Framework (OF) is the outcome of analysis conducted in identifying the work scope of the occupational areas in terms of competencies. It is used to analyse skilled human resource competency requirements for the industry. The development of the Occupational Structure (OS) is a preliminary process in developing relevant National Occupational Skills Standard (NOSS). The NOSS in turn will be developed to be used as the basis to conduct skills training and certification of competent personnel. This document is divided into five chapters, the first two chapters—being an introduction and an industrial overview—are highlighting the definition and scope of the sector, the current analysis of the local sector and its skilled worker requirements, Government bodies and development plans supporting the growth of the industry. The third chapter explains the methodology used in OF development such as qualitative analysis through document analysis and brainstorming discussion sessions. Workshops were held to get a better understanding of the organisational structure, job titles, and the main activities of the specified positions. The final chapters present the findings of the OF that are translated into the occupational structures, levels of competencies, and critical job titles. The OF for Extraction of Crude Petroleum and Natural Gas is based on the Malaysian Standards Industrial Classification 2008 (MSIC 2008) under Section B: Mining and Quarrying, Division 06: Extraction of Crude Petroleum and Natural Gas Activities and Group 061 and 062, which are Extraction of Crude Petroleum and Extraction of Natural Gas respectively. The oil and gas industry represents one of the most potential sectors in the economy and is directly affected in the next industrial revolution IR4.0. The OF on the Extraction of Crude Petroleum and Natural Gas was developed through document analysis and focus group discussion (FGD) with 16 expert panels. Four online sessions were accomplished which involved brainstorming on OS, job title, competency required, and critical job title. The FGD also embarked on discussion and evaluation of the analysis of survey and questionnaire results. The total number of job areas identified is four with 242 job titles. A total of six job titles have been identified as relevant to IR4.0 and 27 job titles are classified as critical jobs in the extraction of crude petroleum and natural gas division.

ABSTRAK

Kerangka Pekerjaan (OF) ialah hasil daripada analisis yang dilaksanakan bagi mengenal pasti skop tugas bidang pekerjaan dari segi kecekapan. Kerangka itu digunakan bagi menganalisis keperluan kecekapan sumber manusia mahir untuk industri. Pembangunan Struktur Pekerjaan (OS) ialah proses awal dalam pembangunan Standard Kemahiran Pekerjaan Kebangsaan (NOSS). Standard Kemahiran Pekerjaan Kebangsaan pula dibangunkan untuk diguna sebagai asas bagi melaksanakan latihan kemahiran dan pensijilan bagi personel yang kompeten. Dokumen ini mengandungi lima bab, dengan dua bab awal masing-masing ialah pengenalan dan gambaran keseluruhan industri, yang mencakupi definisi dan skop sektor terbabit, analisis semasa terhadap sektor tempatan dan keperluan pekerja mahir, badan kerajaan yang terlibat dan pelan pembangunan yang menyokong pertumbuhan industri itu. Bab ketiga menjelaskan tentang metodologi yang digunakan dalam pembangunan OF, misalnya analisis kualitatif menerusi penganalisisan dokumen dan sesi perbincangan secara sumbang saran. Bengkel telah dianjur bagi meningkatkan pemahaman tentang struktur organisasi, nama jawatan, dan aktiviti-aktiviti utama jawatan tertentu. Bab-bab terakhir mengetengahkan dapatan OF yang dicambahkan menjadi struktur pekerjaan, tahap kompetensi, dan nama jawatan kritikal. Kerangka Pekerjaan bagi bidang Pengekstrakan Minyak Mentah dan Gas Asli adalah berdasarkan Klasifikasi Perindustrian Piawaian Malaysia 2008 (MSIC 2008) di bawah Seksyen B: Perlombongan dan Pengkuarian, Bahagian 06: Aktiviti Pengekstrakan Minyak Mentah dan Gas Asli, dan Kumpulan 061 dan Kumpulan 062, masing-masing ialah Pengekstrakan Minyak Mentah dan Pengekstrakan Gas Asli. Industri minyak dan gas ialah satu daripada sektor yang paling berpotensi dari segi ekonomi dan berkait secara langsung dengan revolusi industri IR4.0. Kerangka OF bagi Pengekstrakan Minyak Mentah dan Gas Asli telah dibangunkan menerusi penganalisisan dokumen dan perbincangan kumpulan fokus (FGD) yang melibatkan 16 orang pakar bidang. Empat sesi perbincangan secara dalam talian telah diadakan yang melibatkan sumbang saran terhadap struktur pekerjaan, nama jawatan, kompetensi yang diperlukan, dan nama jawatan kritikal. Sesi FGD juga tertumpu pada perbincangan dan penilaian terhadap analisis survei dan hasil soal selidik. Jumlah bidang perjawatan yang dikenal pasti ialah empat dengan 242 nama jawatan. Sebanyak enam nama jawatan dikenal pasti berkaitan dengan IR4.0 dan 27 nama jawatan diklasifikasikan sebagai jawatan kritikal dalam bidang pengekstrakan minyak mentah dan gas asli.

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ABBREVIATION

GDP	Gross Domestic Product
OGSE	Oil and Gas, Services and Equipment
MESR	Malaysia Economic Statistic Review
TCF	Trillion Cubic Feet
LNG	Liquefied Natural Gas
OF	Occupational Framework
NOSS	National Occupational Skills Standard
OS	Occupational Structure
OA	Occupational Analysis
OD	Occupational Description
MSIC	Malaysia Standard Industrial Classification
FGD	Focus Group Discussion
MQF	Malaysia Qualification Framework
DSD	Department of Standards Development
MOSQF	Malaysia Occupational Skills Qualification Framework
NCS	National Competency Standard
CBT	Competency-Based Training
ISIC	International Standard Industrial Classification
MPRC	Malaysia Petroleum Resources Corporation
MOHE	Ministry of Higher Education
MIDA	Malaysia Investment Development Authority
MITI	Ministry of Industry and International Trade
MOF	Ministry of Finance
MARA	Majlis Amanah Rakyat
MOHR	Ministry of Human Resources
MYS	Ministry of Youth and Sport
MSNT	Malaysia Society of Non-Destructive Test
MOGSC	Malaysia Oil and Gas Services Council
MOGEC	Association of Malaysia Oil and Gas Engineers
MOCA	Malaysia Offshore Contractors Association
MGA	Malaysia Gas Association
MPA	Malaysia Petrochemical Association
INSTEP	Institut Teknologi Petroleum PETRONAS
NIOSH	National Institute of Occupational Safety and Health

ILP	Institut Latihan Perindustrian
ADTEC	Advanced Technology Training Centre
ILKBS	Institut Latihan Kementerian Belia dan Sukan
OCIMF	Safety-Critical Equipment and Spare Parts Guidance
SMS	Safety Management System
ETP	Economic Transformation Programme
MOSTI	Ministry of Science, Technology and Innovation

GLOSSARY

MPRC	MPRC implements industry development initiatives covering technology and innovation, human capital development, market access and internationalisation, and access to finance facilitation.
MOHE	Create a significant ecosystem for quality higher education to produce great individuals to achieve the nation's goal.
MIDA	MIDA assists companies, which intend to invest in the manufacturing and services sectors, as well as facilitates the implementation of their projects
MITI	MITI are also responsible for supervising MATRADE, MATRADE's mission is to promote Malaysia's export has enabled many local companies to carve new frontiers in global markets.
MARA	The Council is responsible for developing, encouraging, facilitating and fostering the economic and social development in the federation
MOHR	Ministry of the human Resource of Malaysia is responsible for skills development, labour, occupational safety and health, trade unions, industrial relations, industrial court, labour market information and analysis
MNST	Establishes and provides linkages and networking with other technical and scientific organisations to disseminate and exchange information to enhance the promotion of the advancement and recognition of NDT practice in Malaysia
MOGSC	Establish an association driven and promoted by the services sector of the Malaysian Oil and Gas Industry
MOCA	Promote cohesive working relationships among staff from various contractors in Oil & Gas offshore business of the industry.
MGA	Play a prominent role in promoting engagement, discourse and dialogue with key stakeholders to develop a vibrant and sustainable gas industry, while fuelling Malaysia's socio-economic growth. The purpose is to facilitate the growth of Malaysia's natural gas sector by positioning natural gas as a clean and efficient source of energy, to drive demand and increase industry participation.

CHAPTER I

INTRODUCTION

1.1 Research Background

Malaysia’s oil reserves are the fourth largest in the Asia-Pacific region and one of the 30 largest reserves in the world. Malaysia has proven oil reserves of 3.6 billion barrels and proven natural gas reserves of 41.8 trillion cubic feet (TCF), as of January 2020. This represents about 0.6% of the world’s natural gas reserves. Malaysia is the fifth largest exporter of liquefied natural gas (LNG) in the world (Fawthrop, 2021). Therefore, in Malaysia, the oil and gas industry is one of the main industries that contribute to the country's development. A large quantity of crude petroleum and natural gas are exported from Malaysia to different parts of the world.

The global energy markets are constantly growing with the evolution of many activities involved in the extraction of oil and natural gas which are exploration, drilling, well completion, production, enhanced oil recovery, and transportation of oil and gas. The Government's main objective is to increase aggregate production capacity to meet domestic demand growth while sustaining crude oil and LNG exports to overseas markets, taking advantage of its strategic location and high demand from China, India, Japan and Southeast Asia.

The effectiveness of the industry can further expatiate with high technology content which is in line with Industry Revolution 4.0. Furthermore, Malaysia was inspired to attain long-term global competitiveness through the transformation and innovation of various investments in the industry to intensify

the extraction of crude petroleum and natural gas activities.

To support the activities, workers of low-skilled, semi-skilled, skilled, and high skilled must be prepared to cater for the skill and occupational demands. The skill workers can be prepared through levels of formal education and competency levels. While formal education is well outlined, the competency levels are very much depending on the job titles and job responsibilities. Consequently, job titles and job responsibilities, as well as competency in demand, must be clearly defined in the occupational framework (OF) which will be used to develop the National Occupational Skills Standard (NOSS) for each job title. Therefore, this chapter explains the problem statement, objectives, and scope of the occupational framework particularly for the extraction of crude petroleum and natural gas activities.

1.2 Problem Statement

There are many National Occupational Skills Standard (NOSS) documents developed for oil and gas job areas but only a few are published specifically on the extraction of crude petroleum and natural gas job titles. The Occupational Structure (OS) of this area of specialisation under the Ministry of Human Resources has been developed for the Oil and Gas Industry in 2011. On the other hand, the Occupational Analysis (OA) in the Oil and Gas Industry has been developed for the Oil, Gas, and Petrochemical Industry in 2010. Later, in 2018, a revised OA has been developed that separated the Oil and Gas Industry from Petrochemical Industry, which was included in Chemical Industry. However, National Occupational Skills Standard (NOSS) will not be sufficient as it only underlined desirable competencies of employees and pathways, in various occupational sectors of the Oil and Gas Industry.

As a result, the OF which is in line with the development of the NOSS based on MSIC sections and divisions is yet to be developed for Mining and Quarrying section B, under the division of Extraction of Crude Petroleum and Natural Gas. Therefore, this study provides further clarity about the industry acumen on OS,

occupational description (OD), skills in demand, job titles, competency level, and identification of the critical tasks required in the job classification, in corresponding to the development of the future NOSS. The development of the OF is based on Malaysia Standard Industrial Classification 2008 (MSIC 2008) sections and divisions.

This study and analysis are important to ensure the OF is in line with the development of the NOSS based on MSIC sections and divisions, therefore this research aims to define the industry as specified in the MSIC based on research methodology on its Occupational Structure, Critical Jobs, and Skills in Demand. The increasing demand for skilled workers and proper qualification for an existing worker in the extraction of crude petroleum and natural gas is one of the main issues that require this industry to develop OF.

1.3 Objective of Study

In general, the main objective of this study is to propose OS, OD, skills demand, jobs title, skills level, and critical tasks in the Extraction of Crude Petroleum and Natural Gas activities. Specifically, the objectives of the study are as follow:

(1) To produce Occupational Structure (OS) for Extraction of Crude Petroleum and Natural Gas activities based on MSIC 2008.
(2) To investigate the competency in demand in the Extraction of Crude Petroleum and Natural Gas activities.
(3) To identify critical jobs in for the Extraction of Crude Petroleum and Natural Gas activities.
(4) To identify jobs titles related to Industry Revolution 4.0 and green technology in the Extraction of Petroleum and Natural Gas Industry.
(5) To establish Occupational Descriptions (OD) for each job title based on the latest industry OS.

1.4 Scope of Study

The scope of the study revolves around the identification of job areas, job titles, and occupational descriptions that exist in the extraction of crude petroleum and natural gas activities. The findings were compiled and produced as Occupational Framework (OF). The study was initiated by analysing the industry's current situation through document analysis. In the initial stage, this study has embarked on reviewing documents available in trade journals, published government reports, and relevant articles. Consulting and interviewing the relevant industry experts as subject matter experts were also done through online platforms to obtain their opinions and inputs. The focus group discussion (FGD) with the pertinent senior industry representatives has furnished a thorough insight overview of the job-related area and further developed the survey instrument items that were eventually employed in the field study.

This study is based on the organisational level where management personnel in Extraction of Petroleum and Natural Gas related companies all over Malaysia were chosen as the target respondent. Both qualitative and quantitative research methods were utilised in this study. Data were collected through document analysis, focus group discussion, and field survey methodology. Extraction of Petroleum and Natural Gas activities are in tandem with the description of Division 06 under Section B in MSIC 2008. This division includes activities of providing expertise in the field of Extraction of Petroleum and Natural Gas such as drilling, well completion, production, on-site oil and gas treatment, and gathering pipeline up to the point of shipment. However, the scope excludes exploration and subsurface activities.

1.5 Structure of Chapters

This chapter concludes with a brief overview of the entire study as follows:

(1) Chapter 1 highlights the research introduction, which consists of the introduction, problem statement, research objectives, and research scope.

(2) Chapter 2 provides a literature review about the research that gives a further understanding of the research purpose.

(3) Chapter 3 explains the overall approach of the study and the method deployed to achieve the objective of the study.

(4) Chapter 4 presents the results and findings of the research based on the approach and method deployed in this chapter.

(5) Chapter 5 discusses and summarises the results then concludes the research outcomes.

CHAPTER II

LITERATURE REVIEW

2.1 Introduction

This chapter emphasises the rationalisation of the extraction of crude petroleum and natural gas activities in the present scenario, introduction to the government policies, development plans, government bodies, and competitiveness at the international level. The content in this chapter was attained through literature review and feedback from industry expert panels. This literature review was further conversed with expert panels to obtain insight on the matters at hand from the real industry perspective.

2.2 Malaysia Skills Certification System

The Malaysia Qualification Framework (MQF) refers to the policy framework that satisfies both the national and internationally recognised qualifications. It comprises titles and guidelines, together with principles and protocols covering articulation and issuance of qualifications and statements of attainment. Element of qualification framework indicates the achievement for each qualification title. It also provides progression routes for all the graduates in the respective occupational fields. The MQF has eight levels of qualification in three sectors and is supported by lifelong education pathways as shown in Table 2.1. Department of Standard Development (DSD) governs the skills sector, in which there are five levels of skills qualification. The definition for each level of skills qualification is specified in the Malaysian Occupational Skills Qualification Framework (MOSQF) in Annex 1.

Table 2.1: Malaysian Qualification Framework (MQF) Chart
(Source: (Malaysian Qualifications Agency, 2017))

MQF Level	Minimum Graduating Credit	Academic Sector	TVET Sector	Lifelong Learning/APEL Criteria for APEL(A)
8	No credit rating	PhD by Research		Admission criteria: • 35 years old • Bachelor's degree in the relevant field/equivalent • 5 years' work experience Passed APEL assessment
	80	Doctoral Degree by Mixed Mode & Coursework		
7	No credit rating	Master's by Research		Admission criteria: • 30 years old • STPM/Diploma/equivalent • Relevant work experience • Passed APEL assessment
	40	Master's by Mixed Mode & Coursework		
	30	Postgraduate Diploma		
	20	Postgraduate Certificate		
6	120	Bachelor's degree		Admission criteria: • 21 years old • Relevant work experience • Passed APEL assessment
	66	Graduate Diploma		
	36	Graduate Certificate		
5	40	Advanced Diploma	Advanced Diploma	
4	90	Diploma	Diploma	Admission criteria: • 20 years old • Relevant work experience • Passed APEL assessment
3	60	Certificate	Certificate	Admission criteria: • 19 years old • Relevant work experience • Passed APEL assessment
2	30	Certificate	Certificate	3R
1	15	Certificate	Certificate	3R

The National Skills Development Act 2006 (Act 652) came into effect on 1 September 2006 after it was officially gazetted on 29 June 2006, with the mandate of promoting, through skills training, the development and improvement of a person's abilities, which are needed for vocation, and to provide for other matters connected therewith. Act 652 is significant because, for the first time in the history of skills training in Malaysia, national legislation has been enacted solely and exclusively for skills training and development. In addition, the meaning and scope of skills training has been clarified and given a statutory interpretation that can be used to distinguish it from other components of the country's national education and training system. Act 652 also provides for the implementation of a Malaysian Skills Certification System, leading to the award of five levels of national skills qualification, namely Malaysian Skills Certificate Level 1, 2, and 3, Malaysian Skills Diploma, and Malaysian Skills Advanced Diploma.

2.2.1 Occupational Framework (OF)

The Occupational Framework (OF) is described as the outcome of the analysis conducted in identifying the work scope of the occupational areas in terms of competencies. It is used to analyse skilled human resource competency requirements for the industry. OF is the outcome of the analysis process to identify the occupational structure of an industry. The OF which was previously known as Occupational Analysis (OA) consists of Occupational Structure (OS), Occupation Description (OD), and Skills in Demand. The development of the Occupational Structure is a preliminary process in developing relevant National Occupational Skills Standard (NOSS). The NOSS in turn will be developed to be used as the basis to conduct skills training and certification of competent personnel.

2.2.2 National Occupational Skills Standard (NOSS) and National Competency Standard (NCS)

National Occupational Skills Standard (NOSS) is defined as a specification of the competencies expected of a skilled worker who is gainfully employed in

Malaysia for an occupational area, level, and pathway to achieve the competencies and is gazetted in Part IV of the National Skills Development Act 652. NOSS is developed by the sector experts based on the needs of the sector and is utilised as the main tool in the implementation of the Malaysian Skills Certification System in which the performance of existing sector workers and trainees are assessed based on NOSS for awarding of Malaysian Skills Certificate. Meanwhile, National Competency Standard (NCS) is described as the knowledge, skills, and attitudes needed to perform in a particular occupation but also do not directly relate to any particular job classification. Standards are developed by the industry experts based on the needs of the industry and are utilised as the main tool in the implementation of the Malaysian Skills Certification System in which the performance of existing industry workers and trainees are assessed based on Standards for awarding of Malaysian Skills Certificate.

2.2.3 Competency-Based Training (CBT)

Competency-Based Training (CBT) is an approach to vocational training, which emphasise what a person can do in a workplace as a result of education and training obtained. CBT is based on performance standards, which are set by the sector with the main focus on measuring the performance while considering knowledge and attitude rather than the duration taken to complete the course. CBT is a learner-centric; outcome-based approach to training that allows each individual to develop skills at their own pace for a similar outcome, thus meaning training practices can be customised for each individual to achieve a similar outcome. CBT concept is the basis of the Malaysian Skills Certification System, which is coordinated by the Department of Skills Development (DSD).

2.3 Malaysia Standard Industrial Classification 2008 (MSIC 2008)

The MSIC is intended to be a standard classification of productive economic activities. Its main purpose is to provide a set of activity categories that can be utilised for the collection and presentation of statistics according to such

activities. Therefore, MSIC aims to present these set of activity categories in such a way that entities can be classified according to the economic activity that they carry out. For purposes of international comparability, the MSIC 2008 Version 1.0 conforms closely to the International Standard Industrial Classification of All Economic Activities (ISIC) Revision 4, published by the United Nations Statistics Division, with some modifications to suit national requirements. The objective of an industrial classification system is to classify data in respect of the economy according to categories of activities and the characteristics of which will be similar. The MSIC is a classification of all types of economic activities and is not a classification of goods & services nor is it a classification of occupations.

2.4 Scope of Occupational Framework of Extraction of Crude Petroleum and Natural Gas Based on MSIC 2008

This occupational framework of Extraction of Crude Petroleum and Natural Gas is based on MSIC 2008, under Section B, Mining and Quarrying: Division 06-Extraction of Crude Petroleum and Natural Gas as detailed in Table 2.2.

Table 2.2: Malaysia Standard Industrial Classifications 2008 (MSIC 2008)
SECTION B: MINING AND QUARRYING

CLASSIFICATION	CODE	DESCRIPTION
Division	**06**	**Extraction of Crude Petroleum and Natural Gas** This Division includes the production of crude petroleum, the mining and extraction of oil from oil shale and oil sands and the production of natural gas and recovery of hydrocarbon liquids. This includes the overall activities of operation and/or developing oil and gas field properties, including such activities as drilling, completing and equipping wells, operating separators, emulsion breaks, desilting equipment and field gathering lines for crude petroleum and all other activities in the preparation of oil and gas up to the point of shipment from the production property. This division excludes support activities for petroleum and gas extraction, such as oil and gas field service, performed on a fee or contract basis, oil and gas well exploration and test drilling and boring activities (see class 0910). This division also excludes the refining of petroleum products (see class 1920) and geophysical, geological and seismic survey in activities (see Class 7110).
Group	**061**	**Extraction of Crude Petroleum** This group includes the extraction of crude petroleum oils.
Class	0610[1]	Extraction of Crude Petroleum **Exclude:** (a) Support activities for oil and gas extraction. See 09101 (b) Oil and gas exploration, see 09101 (c) Manufacture of refined petroleum products, see 19201 (d) Recovery of liquefied petroleum gases in the refining of petroleum, see 19201 (e) Operation of the pipeline, see 49300
Item	06101	Extraction of crude petroleum oils
	06102	Extraction of bituminous or oil shale and tar sand
	06103	Production of crude petroleum from bituminous shale

		and sand
	06104	The process to Obtain Crude Oils [2] **Include:** Decantation, desalting, dehydration, stabilisation, etc. **Exclude:** Extraction of crude petroleum oil, see 06101
Group	**062**	**Extraction of Natural Gas** This group includes production of crude gaseous hydrocarbon (natural gas), extraction of condensates, draining and separation of liquids hydrocarbon fraction and gas desulphurisation.
Class	0620[1]	Extraction of Natural Gas **Include:** Extraction of methane, ethane, butane and propane **Exclude:** (a) Support activities for oil and gas extraction. See 09101 (b) Oil and gas exploration, see 09101 (c) Manufacture of refined petroleum products, see 19201 (d) Recovery of liquefied petroleum gases in the refining of petroleum, see 19201 (e) Operation of the pipeline, see 49300
Item	06201	Production of crude gaseous hydrocarbon (Natural Gas)
	06202	Extraction of Condensates
	06203	Draining and separation of Liquid Hydrocarbon fractions
	06204	Gas Desulphurisation
	06205	Mining of Hydrocarbon Liquids, obtain through liquefaction of pyrolysis

2.5 Key Stakeholders

The key stakeholders for the oil and gas industry in Malaysia comprise government agencies, regulatory bodies, industry associations, and professional bodies.

2.5.1 Government Agencies and Regulatory Bodies

These are the Government Agencies that are empowered by the legislation according to the scope and powers are given in the related acts that directly regulate the oil and gas activities industry in Malaysia as listed in Table 2.3 (but not limited to).

Table 2.3: List of Government Agencies and Regulatory Bodies for Oil and Gas Industry

No.	Organisations	Overview, Roles, Function and Responsibility
1.	Malaysia Petroleum Resources Corporation (MPRC)	MPRC provides trade and investment facilitation services to attract international players to establish their regional bases in the country to reinforce Malaysia's appeal as a regional hub. That includes leveraging on partnerships with fellow Government agencies and international counterparts to promote Malaysian OGSE capabilities globally. To encourage competitiveness and nurture long-term resilience among Malaysian OGSE players, MPRC implements industry development initiatives covering technology and innovation, human capital development, market access and internationalisation, and access to finance facilitation.
2.	Ministry of Higher Education (MOHE)	To create quality higher education, well personal, and great nation. To create a significant ecosystem for quality higher education to produce great individuals to achieve the nation's goal.
3.	Malaysian Investment Development Authority (MIDA)	Incorporated as a statutory body under the Malaysian Industrial Development Authority (MIDA) Act, the establishment of MIDA in 1967 was hailed by the

		World Bank as "the necessary impetus for purposeful, positive and coordinated promotional action" for Malaysia's industrial development. Today, MIDA's is Malaysia's cutting-edge, dynamic and pioneering force in opening pathways to new frontiers around the globe. MIDA assists companies, which intend to invest in the manufacturing and services sectors, as well as facilitates the implementation of their projects. The wide range of services provided by MIDA includes providing information on the opportunities for investments, as well as facilitating companies that are looking for joint venture partners.
3.	Ministry of Industry and International Trade (MITI)	The Ministry of Industry and International Trade (MITI) is responsible to: a) To plan, formulate and implement policies on industrial development, international trade and investment. b) To encourage foreign and domestic investment. c) To promote Malaysia's exports of manufacturing products and services by strengthening bilateral, multilateral and regional trade relations and cooperation. d) To enhance national productivity and competitiveness in the manufacturing sector. MITI are also responsible for supervising MATRADE, MATRADE's mission is to promote Malaysia's export has enabled many local companies to carve new frontiers in global markets. Halal Development Corporation (HDC) is established on 18 September 2006 and coordinates the overall development of the Halal industry in Malaysia. Focusing on the development of Halal standards, audit, and certification, plus capacity building for Halal products and services, HDC promotes participation and facilitates the growth of Malaysian companies in the global Halal market
4.	Ministry of Finance (MOF)	Ministry of Finance are responsible to: a) To formulate and implement fiscal and monetary policies to ensure effective and efficient distribution and management of financial resources.

		b) To formulate financial management and accounting processes, procedures and standards to be implemented by all the governments. c) To manage the acquisition and disbursement of federal Government loans from domestic and external sources. d) To monitor that Minister of Finance incorporated companies are managed effectively. e) To monitor the financial management of Ministries, Government Departments and statutory bodies.
5.	Majlis Amanah Rakyat (MARA)	An Act of Parliament as a result of the first Bumiputera Economic Congress resolution established Majlis Amanah Rakyat (MARA), or the Council of Trust for the People, an agency under the purview of the Ministry of Rural Development, on 1 March 1966 as a statutory body in 196514. The Council is responsible for developing, encouraging, facilitating and fostering the economic and social development in the federation, particularly in rural areas.
6.	Ministry of Human Resources (MOHR)	The Ministry of Human Resources, abbreviated MOHR, is a ministry of the Government of Malaysia that is responsible for skills development, labour, occupational safety and health, trade unions, industrial relations, industrial court, labour market information and analysis, social security.
7.	Ministry of Youth and Sport (MYS)	Crating Malaysia with better surroundings, precious and unity thru youth development and sports culture. Strive youth and sport excellence with a holistic approach for the nation's target.
8.	Training institution	Training institutes include universities, colleges, a school that offers a wide range of hospitality courses includes food and beverage knowledge and skills

2.5.2 Industry Associations and Professional Bodies

This section provides information regarding industry associations and professional bodies related to oil and gas service activities, as presented in Table 2.4 (but not limited to).

Table 2.4: List of Industry Associations and Professional Bodies

No.	Organisation	Overview, Roles, Function and Responsibility
1.	Malaysian Society for Non-Destructive Testing (MSNT)	Establishes and provides linkages and networking with other technical and scientific organisations to disseminate and exchange information to enhance the promotion of the advancement and recognition of Non-Destructive Testing (NDT) practice in Malaysia. MSNT is the appointed Malaysian Industry Lead Body (ILB) for NDT by the Department of Skills Development (DSD), Ministry of Human Resources. i. To create knowledge and sensitivity of the advancement of new technology in the welding field. ii. To enhance the optimal steering forward on the welding field. iii. Information thru communication and sharing knowledge among the welders.
2.	Malaysian Oil & Gas Services Council (MOGSC)	Establish an association driven and promoted by the services sector of the Malaysian Oil and Gas Industry
3.	Association of Malaysian Oil & Gas Engineers (MOGEC)	Foster a closer relationship among the oil and gas engineering consultants
4.	Malaysia Offshore Contractors Association (MOCA)	Promote cohesive working relationships among staff from various contractors in Oil & Gas offshore business of the industry.
5.	MGA (Malaysia Gas Association)	Play a prominent role in promoting engagement, discourse and dialogue with key stakeholders to develop a vibrant and sustainable gas industry, while fuelling Malaysia's socio-economic growth. The purpose is to facilitate the growth of Malaysia's natural gas sector by positioning natural gas as a clean and efficient source of energy, to drive demand and increase industry participation.
6.	Malaysian Petrochemicals Association (MPA)	Provide a forum to discuss and resolve common problems of the petrochemical industry as well, disseminate information and facilitate consultations and exchange of views between members. Provide a focal point for the petrochemical industry to liaise with the public and the government and to make recommendations on relevant issues, within Malaysia and on an international basis.

2.5.3 Training Centres

Training centres that engulf the demanding skills by the oil and gas activities are listed in Table 2.5 (but not limited to).

Table 2.5: List of Training Centres

No	Training Centre	Focus and Scope
1.	INSTEP	The integrated Upstream Downstream Training Plant (UDTP), one of its kind in the world, has transformed INSTEP's business landscape and made a shift in its approach to learning. The integrated live plant is supported by three (3) academies, complete with practical workshops: • Operations (Exploration & Production, Process & Analytical) • Maintenance (Electrical, Mechanical & Inspection, Instrumentation) • Health, Safety & Environment
2.	NIOSH	• To be a leading centre of excellence in Occupational Safety and Health in Malaysia. • To provide practical solutions in the field of Occupational Safety and Health.
3.	ILP	• To produce skilled workers in industrial sectors. • To enhance workers' skills that contributed to the progress of the nation. • To create a platform for the school leavers in preparing themselves in the skill workers environment.
4.	ADTEC	• To produce skilled workers in the high impact industry and new technology. • To increase the quality of the skilled workers in the demanding in advanced sectors. • To create a platform for the school leavers in preparing themselves in the skill workers environment.
5.	ILKBS	• To offer practical training to gear up the youth with the skill needed by the industry after finishing their studies.

2.6 Government Legislations, Policies, and Initiatives

It is imperative that this research has to refer to legislation, by-laws, and policies that are directly related to the oil and gas industry.

2.6.1 Government Legislations

The following legislations are relevant to the extraction of crude petroleum and natural gas activities (but not limited to);

(1) Petroleum Development Act 1974

An Act to provide for exploration and exploitation of petroleum whether onshore or offshore by a Corporation in which will be vested the entire ownership in and the exclusive rights, powers, liberties, and privileges in respect of the said petroleum, and to control the carrying on of downstream activities and development relating to petroleum and its products; to provide for the establishment of a Corporation under the Companies Act 1965 [Act 125] or under the law relating to the incorporation of companies and for the powers of that Corporation; and to provide for matters connected therewith.

(2) Petroleum (Safety Measures) Act 1984

This Act may be cited as the Petroleum (Safety Measures) Act 1984 and shall come into force on such date (hereinafter in this Act called "the appointed date") as the Minister may by notification in the Gazette appoint: Provided that the Minister may by notification in the Gazette prescribe different dates (hereinafter called "the prescribed dates") for different provisions or any part of any provision of this Act and different areas or localities of the Federation, and the purposes of any such provision, area or locality, any reference in any provision of this Act to the appointed date shall be construed as a reference to the prescribed date.

(3) Gas Supply Act 1993

An Act to provide the licensing of the supply of gas to consumers through pipelines and related matters, the supply of gas at reasonable prices, the control of gas supply pipelines, installations, and appliances concerning matters relating to the safety of persons and for purposes connected therewith.

(4) Exclusive Economic Zone Act 1984

An Act on the exclusive economic zone and certain aspects of the continental shelf of Malaysia and to provide for the regulation of activities in the zone and on the continental shelf and matters connected therewith.

(5) Geological Survey Act 1974

An Act to regulate and control geological surveys, establish geological archives and provide for matters incidental thereto.

(6) OSHA 1994

An Act to make further provisions for securing the safety, health, and welfare of persons at work, for protecting others against risks to safety or health in connection with the activities of persons at work, to establish the National Council for Occupational Safety and Health, and matters connected therewith. Furthermore, it shall include all related Safety and Health mandatory courses for all the oil and gas workers.

(7) ISO/TS 29001

It specifies the Quality Management Systems requirements for the layout, establishment, production, and implementation of products and services for the petroleum, petrochemical, and natural gas industries.

(8) ISO 14693 (Drilling equipment)

It provides general principles and specifies requirements for design, manufacturing, and testing of new drilling and well-servicing equipment and replacement primary load-carry components manufactured after the publication of ISO 14693:2003.

(9) Employment Act 1955

The Employment Act 1955: Regulates relations between employers and employees; legislates various terms and conditions of employment; sets out the minimum terms and conditions that employer and employee can agree upon; and penalties for non-compliance.

(10) ISO 16901 (Risk Assessment)

It provides a common approach and guidance to those undertaking assessment of the major safety hazards as part of the planning, design, and operation of LNG facilities onshore and its shoreline using risk-based methods and standards, to enable safe and operational LNG Facilities. The environmental risk associated with LNG release is not addressed in this Technical Specification.

(11) International Associations of Drilling Contractors (Standard Format Equipment List Semi-Submersible Unit)

It provides a comprehensive summary of all relevant items of equipment and streamlines the tender for both contractor and operator. It also to obtain maximum efficiency, users are advised to maintain the price order of the format and to request/provide any additional information on specific equipment as an addendum, referring to the appropriate section number.

(12) Manual of Petroleum Measurement Standard

It consists of a comprehensive Manual of Petroleum Measurement Standard (MPMS).

(13) API Standard 53—Blowout Prevention Equipment System for Drilling

The purpose of this standard is to provide requirements for the installation and testing of blowout prevention equipment systems on land and marine drilling rigs (barge, platform, bottom-supported, and floating). Well control equipment

systems are designed with components that provide wellbore pressure control in support of well operations. The following components may be used for operation under the varying rig and well conditions: BOPs (blowout preventers), choke and kill lines, choke manifolds, control systems, and auxiliary equipment.

The primary functions of these systems are to confine well fluids to the wellbore, provide means to add fluid to the wellbore and allow controlled volumes to be removed from the wellbore. Diverters, shut-in devices, and rotating head systems (rotating control devices) are not addressed in this standard (see API 64 and API 16RCD, respectively); their primary purpose is to safely divert or direct flow rather than to confine fluids to the wellbore.

Procedures and techniques for well control are not included in this standard because they are beyond the scope of the equipment systems contained herein. This standard contains a section pertaining to surface BOP installations followed by a section pertaining to subsea BOP installations. To the extent that this document recommends specific equipment arrangements, it is recognised that other arrangements can be equally effective in addressing well requirements and achieving safety and operational efficiency.

(14) Safety Critical Equipment and Spare Parts Guidance (OCIMF) (First Edition, 2018)

It is to guide safety-critical spare parts for companies to consider when preparing a Safety Management System (SMS). It is equally applicable to companies of any type of vessel.

(15) Occupational Safety and Health for Oil and Gas Well Drilling and Servicing Operation (API RP 54)

It applies to rotary drilling rigs, well servicing rigs, and special services as they relate to operations on location. It is intended that the applicable requirements and recommendations of some sections of the document be applied, as appropriate, to other sections. The recommendations are not intended to cover seismic drilling or water well drilling operations.

2.6.2 Government Policies and Initiatives

This section provides information regarding economic activities of the

respective area which are governed by certain rules and regulations and enforced by related government agencies.

(1) Malaysian's National Transformation Programme

(a) Economic Transformation Programme (ETP)
Created MRPC's main objective is to provide direction and advice to domestic and global oil and gas companies to maximise their investment and growth opportunities.

(b) Industry 4.0 (National Policy on Industry 4.0) by MITI
The breadth and depth of the manufacturing industry and its related services, linked to Malaysia's business and competitiveness advantages and the drives, potential disruptors, and technology developments in the manufacturing industry and its related services.

(c) Sustainable Development GOALS (United Nation-ILO) by MOSTI
The transformation of the manufacturing and services through 4.0 is in line with the United Nation's Sustainable Development (Goals) especially in support of Goals #9 and #12. In Malaysia, MOSTI has been given the caretaker on the spearheading the process:

Goal #9 (Industry Innovation and infrastructure)
Build resilient infrastructure, promote sustainable industrialisation, and foster innovation. Inclusive and sustainable industrial development is the primary source of income generation, allows for rapid and sustained increases in living standards for all people, and provides the technological solutions to environmentally sound industrialisation. Without technology and innovation, industrialisation will not happen, and without industrialisation, development will not happen.

Goal #12 (responsible Consumption and Production)
Ensure sustainable consumption and production patterns. Sustainable consumption and production are about promoting resource and energy efficiency, sustainable infrastructure, and providing access to basic services, green and decent jobs, and a better quality of life for all. Its implementation helps to achieve overall development plans,

reduce future economic, environmental, and social costs, strengthen economic competitiveness and reduce poverty.

(2) Occupational Safety and Health MAP 20-25 by DOSH Malaysia

Strengthen safe and safety health work practices for the prosperity of the country and strengthen stakeholder strategic relationships in cultivating OSH practice. It involved seven strategies such as:

(a) Strategy 1: OSH empowerment in the public sector.
(b) Strategy 2: Strengthening Self-regulation practice in the workplace.
(c) Strategy 3: Promotion of OSH Education & Research
(d) Strategy 4: Empowerment of Occupational Health
(e) Strategy 5: Improving OSH Compliance in the SME Sector
(f) Strategy 6: Strengthening OSH through Technology.
(g) Strategy 7: Enhancing OSH For work related to Road safety (WRRS), Informal Sector and Future Jobs

2.7 Industry and Market Analysis

According to OGSE blueprint (2021) Malaysia's Oil & Gas, Services, and Equipment (OGSE) industry represent a substantial share of the national economy, accounting for annual revenue of more than RM65.1 billion recorded by over 4,000 vendors which employ approximately 59,000 core talents. Currently, the OGSE industry contributes 5%-8% to the country's gross domestic product (GDP), directly servicing Malaysia's oil and gas industry that made up 14.5% of GDP in 2018.

The mining and quarrying sector is also one of the main contributors to Malaysia's economy. In 2018, the GDP share from Mining and quarrying sector is about 7.8% while in 2020, the GDP for Mining and quarrying reduced to 6.8% of total GDP. The main contributor to the GDP for the mining and quarrying sector comes from the extraction of oil and gas activities which contributed about 90% to the sector (Source: MESR, Department of Statistics, Malaysia, 2021)

The oil and gas industry has declined, approximately 11.0 % in 2020 as

compared to 2.0 % in 2019. The main contributor to the decline was the negative growth of crude oil, condensate, and natural gas. Fortunately, in the second quarter of 2021, the oil and gas industry soared about 14 % as compared to a negative 5.0 % in the first quarter of 2021. The increase was supported by the improvement in natural gas which registered a double-digit growth of 21.9 % while crude oil & condensate recorded a 4.9 % improvement (Source: MESR, Department of Statistics, Malaysia, 2021). The oil and gas industry has started to grow in a positive direction after being hit hard with several crises especially the Covid-19 pandemic.

Nevertheless, large quantities of crude petroleum and natural gas are still exported from Malaysia to different parts of the world. The global energy markets are constantly growing with the evolution of many activities involved in the extraction of oil and natural gas which are exploration, drilling, well completion, production, enhanced oil recovery, and transportation of oil and gas.

2.7.1 Growth of Oil and Gas Industry

In the global context, the oil and gas industry has also been affected by the low oil price scenario that has persisted since 2014. The industry has been affected further at the end of 2019, with the emergence of three major events in 2020: the unprecedented COVID-19 crisis, the early 2020 OPEC disagreement on supply cuts, and the storage shock that quickly followed amid an oversupply in the oil market.

Fortunately, in the middle of 2021, rising global oil prices amidst increasing Covid-19 vaccination rates and anticipated higher world economic growth rates in 2022, are brightening the outlook for Malaysia's oil and gas sector. According to the Organisation of the Petroleum Exporting Countries (OPEC) in its latest monthly oil market report, world oil demand is projected to hit 100.8 million barrels per day (bpd) in 2022, exceeding pre-pandemic levels. This is compared against global oil demand in 2021, which is now projected to average 96.7 million b/d (The Star, September 2021). Furthermore, the oil price has climbed to above USD80.00 in September of 2021, seeing a brighter chance for better oil and gas upstream activities.

The recovery of the oil and gas industry is further supported by government-led development, which introduced initiatives such as Bumiputera requirements for licensing and registration with PETRONAS, as well as an extensive list of funding and assistance for SMEs. Malaysia has successfully nurtured an inclusive OGSE industry and achieved a number of its industry participation goals. The OGSE industry's GDP contribution to the national economy is predicted to grow to around RM40 billion – RM50 billion from current levels of around RM20 billion – RM40 billion. It is also envisioned that the industry in 2030 will consist of 60,000 skilled and semi-skilled talents. (OGSE Blueprint, 2021)

2.7.2 Employment Statistics

(1) Labour Force in Malaysia

Labour force can be defined as the sum of persons in employment plus persons in unemployment. Together these two groups of the population represent the current supply of labour for the production of goods and services taking place in a country through market transactions in exchange for remuneration. The concept and definition of the labour force in Malaysia are detailed in Table 2.6.

Table 2.6: Concept and Definition of Labour Force in Malaysia
(Source: Department of Statistics Malaysia, 2019)

Category	Definition
Working Age	All person's aged between16 and 64 years are either in the labour force or outside the labour force.
Labour Force	All persons of the working-age who are either employed or unemployed.
Employed	All people who, at any time during the reference week worked at least one hour for pay, profit or family gain either as employers, employees, own-account workers or unpaid family workers.
Unemployed	All persons who did not work during the reference week and are classified into two groups that are actively unemployed and actively unemployed.
Outside Labour Force	All persons not classified as employed or unemployed are classified as outside the labour force. This category consists of housewives, students (including those going for further studies), retirees, disabled person and those not interested in looking for jobs.

The labour force in Malaysia has increased by 2 % from 15.0 million persons in 2017 to nearly 15.3 million persons in 2018. A total of 299,200 employed persons contributed to the increment in the labour force. Labour force participation rate (LFPR) in 2018 increased by 0.3 % points to 68.3 % as compared to 68.0 % in 2017. Hence, the remaining 31.7 % of the working-age population was outside the labour force. On the other hand, the unemployment rate improved to 3.3 % in 2018 as compared to 3.4 % in 2017. This shows that the country's economy is still operating with full employment where the unemployment rate is below 4.0% *(Source: Department of Statistics Malaysia, 2019).*

(2) Overview of Extraction of Crude Petroleum and Natural Gas Labour Demand

Labour demand indicates the total labour that the economy is willing to employ at any given point in time. At the microeconomic level, labour demand by a firm refers to positions in the company; and through the process of hires and separations, the information of filled positions and vacancies can be estimated. The concepts and definitions of the statistics on labour demand in this publication are as in Table 2.7.

Table 2.7: Concepts and Definitions of The Statistics on Labour Demand (Source: Department of Statistics Malaysia, 2019)

Category	Definition
Position	Positions refer to the total labour that a firm is willing to employ at any given point in time. The position is the sum of filled positions and vacancies.
Jobs Created	Jobs created to refer to positions created in organisations that were not previously available, including newly created service schemes, positions created for the promotion of existing employees and an increase in the number of positions from the existing structure.
Filled Positions	Filled positions refer to the paid employees (full time and part-time). Filled positions exclude individual proprietors and business partners, unpaid family workers and employees on unpaid leave.
Vacancies	Vacancies refer to unified positions which are ready to be filled. Employers are actively seeking candidates including advertising vacancies, issuing notices and registering with employment agencies as well as conducting interviews to select candidates to fill in the vacancies.

Employment statistics for the second quarter of 2021 (DOSM) showed that the labour demand by economic activity showed that the manufacturing sector dominated jobs created in this quarter which comprised 44.6 %. Services sector ranked second with 33.6 %, followed by Construction (16.9%), Agriculture (4.3%) and Mining & Quarrying (0.6%). The Annual Economic Statistic 2018, as shown in Table 2.8, indicates the total number of employments in Extraction of Crude Petroleum and Natural Gas is 36,776 persons in 2017. This number is -6.1% lower than the statistics in 2015 for the same sector. From the number, the extraction of crude petroleum and natural gas activities registered the highest number of employees of 18,630 persons with a percentage contribution of 50.7 % (2015: 17,950 persons). Meanwhile, the support activities for the extraction of crude petroleum and natural gas activities recorded 18,146 persons (49.3%).

Table 2.8: People Engaged in Extraction of Crude Petroleum and Natural Gas. (Department of Statistics Malaysia: Employment Statistics Second Quarter 2019

Year	Number of People Engaged	Changed
2017	36,776	–6.1%
2015	41,698	-

2.8 NOSS Relevant to MSIC 2008 Section 06, Division 061: Extraction of Petroleum Oil

There are several NOSS that have been previously developed which fall directly related to Division 061: extraction of crude petroleum as listed in Table 2.9. However, no previous NOSS were found for Division 062: extraction of natural gas. This also indicates that both divisions are requiring similar job titles and competencies.

Table 2.9: NOSS Relevant to MSIC 2008 Division 061 Extraction of Crude Petroleum

MSIC Group	Level	Corresponding NOSS/ Level
	Area: Oil, Gas and Drilling	
061 Extraction of Crude Petroleum	L5	OG-012-5:2012 Drilling Operation Management (Oil, Gas & Petrochemical)
	L4	OG-012-4:2012 Drilling Operation Management (Oil, Gas & Petrochemical)
	L3	OG-012-3:2011 Drilling Operation (Oil, Gas & Petrochemical)
	L3	OG-019-3: 2013 (Electrical Maintenance)
	L2	OG-019-2: 2013 (Electrical maintenance)
	L1	OG-019-1: 2013 (Electrical maintenance)
	L5	B061-001-5: 2018 Electrical Construction Management
	L4	B061-001-4: 2018 Electrical Construction Supervision
	L3	OG-017-3: 2013 (Instrumentation Maintenance
	L2	OG-017-2: 2013 (Instrumentation Maintenance
	L1	OG-017-1: 2013 (Instrumentation Maintenance
	L3	OG-018-3: 2013 (Penyelia Penyelenggaraan Mekanikal)
	L2	OG-018-2: 2013 (Penyelenggaraan Mekanikal)
	L1	OG-018-1: 2013 (Penyelenggaraan Mekanikal)

2.9 Occupational Comparison Between Malaysia and Selected Countries

This section provides comparisons on total employment for crude petroleum and natural gas activities as well as the GDP contributed by the oil and gas industry in the respective countries as compared to Malaysia. The selected countries are The United States of America, the United Kingdom, Norway, and Italy. Those countries were chosen due to their performance in the oil & gas industry and comparable GDP contributions. The detailed comparisons are as follows.

The United States' oil and gas extraction industry was employer to some 127,000 people in 2020. This figure includes both full-time and part-time employment. The 2020 oil crisis brought about by the coronavirus pandemic led to a decline of 15,000 people being employed within the extraction industry (Statista.com, 2021). In the United States, the oil and gas industry contributed nearly eight per cent of the US nation's Gross Domestic Product (GDP) (American Petroleum Institute, 2021).

On the other hand, statistic shows the total number of employees in the crude petroleum and natural gas extraction industry in the United Kingdom (UK), in 2018, the industry employed in total approximately 12,938 people (Statista, 2021). Production of domestic oil and gas directly accounts for around 1.2 per cent of the UK's GDP (OGUK economic report 2019).

The next comparison is Norway, wherein 2018, statistic shows the total number of employees in the crude petroleum and natural gas extraction sector in total approximately 25,445 people (Statista, 2021). The oil and gas industry has contributed to 4.81 per cent of total GDP in 2019.

Lastly for Italy, in 2018, the statistic shows the total number of employees in crude petroleum and natural gas extraction in total approximately 2,287 people (Statista, 2021). This statistic shows the petroleum expenditure as a share of GDP in Italy, the level of spending on petroleum accounted for 1.3 per cent of the GDP.

As mentioned earlier, for Malaysia in 2018, the extraction of oil and natural gas employed a total of 36,776 employees which also contributed to about 6.8 per cent of Malaysia's GDP, which adds up to the whole oil and gas industry, contributes to about 14.5% GDP. These comparisons show that employment in the oil and gas industry and particularly in the extraction of oil and natural gas is very crucial for the sustainability of the oil and gas industry.

2.10 Relation of Industry Revolution with Occupation

In recent decades, the oil and gas sector has seen a rapid evolution. From the use of many appraisal wells to the use of technologies to increase reservoir detection efficiency, the oil and gas industry is constantly evolving with more and more infusion of digital and advancement in software application for well simulation. Today, the next phase of evolution is referred to as the Fourth Industrial Revolution or Industry 4.0.

Essentially what it entails is infusing a higher value-added process of exploration and production of oil and gas through the application of advanced digitisation in the subsurface, advanced well drilling coupled with advanced completion technologies thus will give the efficient production of the resource. This would result in enhanced efficiency and reduced dependency on human decision-making and ultimately drive competitiveness going forward. Many oil companies are actively seeking ways to deploy technology in terms of digital, data analytics, automation, and robotic solutions in their assets, specifically in surface operations, maintenance, and logistics, consequently changing the operation of assets and technical requirements.

Furthermore, the application of information technology and the Internet of Things have opened up market supply chains easing access to produce from the most remote of areas, bringing wealth and prosperity to the rural areas. Likewise, IR4.0 could address many issues concerning exploration and production of oil and gas concerns, i.e., hazardous environments, health and safety of human labour, efficiency in managing supply chains, reduction in wastages, and saving in time with efficient management of delivery systems. The growth potential is simply limitless, but it all boils down to knowledge in application. Already at the global front, the oil and gas sector is reimagining the future of exploration and production where conventional models are making way for greater technology adoption and the key determinants are efficiency, speed, and flexibility towards sustaining competitiveness.

In Malaysia, there is a strong and clear demand for the oil and gas sector to shift to higher value-added processes, digitisation, advanced manufacturing

technologies, and efficient resource utilisation to drive competitiveness going forward. A strong oil and gas sector would pave the way to enhanced productivity, job creation, innovation capacity, a high-skilled talent pool, and ultimately economic prosperity and societal wellbeing. This would position Malaysia as a primary destination for smart oil and gas exploration and production globally and attract more high-tech investments.

2.11 Conclusion

The Oil & Gas industry is an important and strategic part of the Malaysian economy. The overall Oil & Gas industry employs around 59,000 people and contributes almost USD16.4 billion in 2018 (National OGSE, 2021). While the extraction of crude petroleum and natural gas sector has contributed to employing around 36,700 people who are directly in the upstream activities. In relation to previously developed NOSS, there are only 16 NOSS related to the division of extraction of crude petroleum and natural gas that have been developed over the years.

The findings on the industry landscape, MSIC definition of the job area, and the NOSS that have been developed give an insight into the overall picture of the industry. These inputs pave the way and guide the next course of action in restructuring the occupational structure, identifying skills in demand and critical job titles. The requirements of Industry Revolution 4.0 as well would give an impact on the future of the manpower in this area. As to realise the above, certain research methodologies are being employed. The description of research strategies and approaches is discussed in the next chapter.

CHAPTER III

METHODOLOGY

3.1 Introduction

This section gives an overview of the overall research design, strategies for data collection, and data analysis procedures performed to meet the objectives. In developing the OF in Extraction of Crude Petroleum and Natural Gas in Malaysia, this study used a mixed-mode approach for multiple data collection (Johnson & Onweughuzie, 2014). The mixed-mode approach involves both quantitative and qualitative methods. There are three stages of multiple data collection: Firstly; document analysis and exploratory on ontology and epistemology of the research. Secondly, Delphi Technique was used for focus group discussion (FDG) which involved experts in the oil and gas upstream sector. Thirdly, a semi-structured questionnaire was issued to the targeted purposive sampling of the workers in the upstream oil and gas sector. Therefore, triangulation of the three multiple data collection can be benefitted for better insights into the industry which will eventually lead to the identification and building of appropriate instruments for the quantitative data collection approach. This section gives an overview of the strategies for data collection and potential analyses to be performed to meet the objectives.

3.2 Research Approach

The mixed-mode approach comprises document analysis, focus group discussion (FDG), and Semi Structure Questionnaire in the survey are detailed as follows.

3.2.1 Document Analysis

Document analysis is a thorough review of existing literature that addresses formulated questions. The review systematically searches, identifies, selects,

appraises, and synthesises research evidence relevant to the oil and gas industry landscape and outlook of the industry trends focusing on the area of extraction of crude petroleum and natural gas (Yin, 2017).

The research problem was determined and identified through preliminary information gathered from secondary data and literature reviews. There are three main sources for data collection, which are economic databases, databases from other agencies, and literature reviews. For the economic database, there is some information related to labour that is highly relevant to this study that has been requested from the Department of Statistics Malaysia (DOSM) such as employment rate, gross capital of the oil and gas sector, etc. Furthermore, documents from ILMIA reports on critical labour and workers structure, occupation categories at 1-digit MASCO, NOSS, policy documents such as Industry IR4ward, SDG goals, etc. are also referred.

Information from the economic database provides an overview of the current oil and gas industry landscape and outlook. In addition to the economic database, databases from other agencies (local and international agencies) that are relevant to the oil and gas industry are also analysed. In addition, local databases from DSD, MOH, and FSQ while international databases—Organisation for Economic Co-operation and Development (OECD), World Bank, and European Union (EU) are also referred.

For the literature review, relevant scientific research publications related to the industry has been reviewed to determine relevant information such as GDP, employment, industry outlook concerning regional and global perspectives, determine the profile of the current and future workforce concerning technological development in the industry such as robotic & automation as well as the element of IR4.0.

3.2.2 Focus Group Discussion

As many as four sessions of industry engagement based on focus group discussion (FGD) were conducted to enable in-depth discussions on the issues of

the industry workforce status. The FGD involves the discussion on the occupational structure (OS), occupational description (OD), skills in demand, jobs title, and critical job titles, potential workforce challenges, and future outlook and trends of the employments.

For focus group discussion, 17 industry experts were selected and appointed after the approval process by the DSD. The industry expert must be a person who has at least seven years of industry experience and working with a company registered with the Companies Commission of Malaysia (SSM). The focus group discussed information and developed occupational standards following the format and guidelines prescribed by the DSD. The semi-structured questionnaires developed for FGD are based on the element of demographic descriptive and vital element on the OS, OD, skills in demand, jobs title, critical job titles, and other related issues. Six main semi-structured questions were constructed as follow:

(1) What will be the industry occupational structure (OS) look like?
(2) What will be the job descriptions for each job title?
(3) How to determine the demand for the industry skills?
(4) How to determine the relevant jobs title that is in line with IR4.0?
(5) How to determine the relevant jobs title that is in line with green technology?
(6) How to determine the critical jobs for the industry.

Occupational Framework on oil and gas has been drawn to use a Delphi Technique (Thomas Grisham, 2008) in decision making through discussion, meeting, brainstorming, and debate to come out with decision and consensus in the discussion. Discussions were conducted via online sessions through the online platform to expedite the tasks.

This study prepared semi-structured questionnaires to obtain the objectives of the FGD. The documented questionnaires were then translated into the spreadsheet format in excel (Table 3: Occupational Structure), Table 4: Occupational Structure (OS) with Occupational Competency (OC), and Table 5:

Occupational Structure (OS) with Job Title and Job Description (JD). This approach gives an easement for industrial panels in making assessment and structured data gathering in creating OS, OC, OD, and to find critical jobs and titles which are in relation to IR4.0 and green technology. Document on MASCO, MSIC 2008, and individual organisations from panel's industry are also used as a guide to determine the sub-area of the occupation. Those documents have been reviewed to justify the OS that needs to be reviewed or added or demoted.

The following analyses are carried out for FGD sessions:

(1) Assess the potential workforce challenges faced by the overall industry and any important area would be useful.
(2) Examine the demand and supply of talent in the oil and gas industry according to NOSS and MQA standards.
(3) Analyse future trends of the occupational demand by various skill categories including TVET related occupations.

Also, indirectly from the focus group discussion and from the document analysis, a reliable instrument was verified and proposed to be used in the actual field survey.

3.2.3 Survey

Actual data collections were carried out through an online survey utilizing Google Forms. The survey was carried out nationwide for generalisation purposes, distributed to mostly upstream oil and gas companies based on an organisational level. Sample from the population was collected at random in order to reflect an objective representation of the scenario in the extraction of crude petroleum and natural gas in Malaysia. This qualitative approach is to examine four key information, namely competencies in demand, jobs in demand, emerging skills, and related issues. Therefore, the survey form was divided into form sections (thematic element) as follows:

Section 1: Competencies in Demand

This section explores the competencies that are required by the oil and gas industry, in particular, the extraction of crude petroleum and natural gas. Another objective of this section is to determine the skills gap and how to overcome the gap.

Section 2: Jobs in Demand

This section is aimed at determining which category of workers is in short supply or oversupply. The category is based on MASCO, for example, skilled workers, semi-skilled workers, and low-skilled workers.

Section 3: Emerging Skills

This section tries to determine the readiness of industry players and workers at the advent of IR4.0. The technology drivers or pillars of IR4.0 are listed and the respondents will decide on the relevancy of each pillar in affecting the extraction of crude petroleum and natural gas.

Section 4: Related Issues

This section explores the common issues surrounding the industry. The respondents determined the most significant issues that are related to the extraction of crude petroleum and natural gas activities.

The sampling procedures are according to Roscoe (1975), where the sample size of 30 and less than 500 are appropriate for most research. However, qualitative sampling proceeds will cater until the saturated phase (Yin, 2017). Therefore, the total feedback of the survey which is 125 correspondences are considered appropriate.

However, to minimise errors in sampling and to take care of issues of non-response, the numbers of targeted respondents were doubled and a total of 94 questionnaires were distributed to selected companies or organisations. For respondent's response rate, based on Brauch and Holtom (2008), the average level of response rate is 52.7 %. After the data collected exercise was conducted, there are 125 total feedbacks collected. The targeted respondents were among

the managerial levels in the related company and association in the industry or human resources director.

Based on the sample size calculator software Raosoft, the sample size was calculated. This research used a 10% margin of error based on Weisberg and Bowen (1977) which stated 10% margin of error is acceptable for this kind of research. Furthermore, this study adopted probability random sampling. Probability sampling design is chosen as opposed to non-probability sampling because of the need to generalise the findings of this study. This sampling design is also most suited for this study because each element in the establishment has the same probability of being chosen (Sekaran, 2004). This sampling technique only requires that the researcher has a list of all members of the establishment which allows him to get access to any member who might be chosen. Being simple it poses the least bias and offers the most generalizability and thus it is the best single way to obtain a representative sample (Sekaran, 2004).

3.3 Conclusion

This chapter has elaborated on the methodology used in the study, which is through document analysis, focus group discussion, and survey. The first approach, document analysis is a suitable method because it provides current statistics in related industries as well as studies the industry's growth. For the focus group discussion, panel members are selected based on the expert area including vast working experience in the oil and gas upstream industry. The panel members discuss thoroughly through four phases of deliberating workshops to retrieve the information needed. Besides, surveys and questionnaires are also deployed in this research where it is an effective way for gathering more thorough feedback from the industry on the subject matter. The developed OS and OD and skills in-demand identified by the survey are presented in the next chapter.

CHAPTER IV

FINDINGS

4.1 Introduction

This chapter elaborates on the findings from the research. The findings revolve around the objectives set for the study namely, to produce OS from document analysis and focus group discussion; to determine job responsibilities of each job title from the OS, to identify the skills in demand in the industry, critical jobs for the industry, and job title related to Industry Revolution 4.0.

Referring to Table 2.3 in Chapter 2, the scope for MSIC 2008, Division B 06 extraction of crude petroleum and natural gas activities includes the production of crude petroleum, the mining, and extraction of oil from oil shale and oil sands, and the production of natural gas and recovery of hydrocarbon liquids. However, through the detailed FGD discussion with expert panels, it is concluded that the extraction of oil from oil shale and oil sands is not yet applicable in Malaysia. Therefore, the scope of this OF include the overall activities of operation and/or developing oil and gas field properties, including such activities as drilling, completing and equipping wells, production, operating separators, emulsion breaks, desilting equipment, and field gathering lines for crude petroleum and all other activities in the preparation of oil and gas up to the point of shipment from the production property.

This division excludes support activities for petroleum and gas extraction, such as oil and gas field service, performed on a fee or contract basis, oil and gas well exploration and test drilling, and boring activities (see class 0910). This division also excludes the refining of petroleum products (see class 1920) and geophysical, geological, and seismic survey in activities (see Class 7110). However, the crucial

support activities to the drilling and production are also covered in this OF.

Under division B06, there are two groups which are 061: extraction of crude petroleum and 062: extraction of natural gas. As been discussed in FGD with panel experts and document analysis, the job area and therefore the job titles from both groups are the same since the set of competencies is the same. This is because the nature of work in the extraction of crude petroleum and extraction of natural gas is the same for upstream activities, regardless the extraction originated from an oil reservoir or gas reservoir.

Under Group 062, a few items like draining and separation of liquid hydrocarbon fractions, gas desulphurisation, mining of hydrocarbon liquids, obtain through liquefaction of pyrolysis are included however these activities are not handled by specific job title since the scope only covers the extraction activities up to the point of shipment from the production property and do not cover any midstream and downstream activities.

4.2 Finding Analysis

This section provides the analysis of data derived from document analysis, FGD, and surveys conducted for this study. The finding of this study includes jobs in demand, skills/competency in demand, emerging skills, and related issues for extraction of crude petroleum and natural gas activities. For this study, a total of 125 respondents have participated in the survey. Based on the number of targeted respondents as described in Chapter 3, the actual number of respondents is sufficient to represent the industry for this research.

4.2.1 Discussion of Results

The findings of this research were obtained from document review analysis, FGD with the involvement of industry representatives during the development workshops and survey, in which the OS and OD of the industry are produced. The discussions have also identified the jobs and skills in demand, skills/competency in

demand, emerging skills, and related issues for extraction of crude petroleum and natural gas activities.

4.2.2 Jobs in Demand

This section provides information regarding jobs in the extraction of crude petroleum and natural gas industry. Jobs in demand can be defined as the occupations that are required by the establishments in the industry. The demand is driven by many factors such as shortage of supply, specific skills or certifications requirements, and change of government policies and initiatives. From the FGD, jobs in demand were identified and listed in Table 4.1(a). The job titles were divided into three categories of workers, which are low-skilled, semi-skilled workers, and skilled workers. The classification is based on MASCO's categories of workers and takes into account the definition outlined in MOSQF level descriptors. The Low Skilled Workers are referring to level 1 in MOSQF, Semi-Skilled Workers referring to levels 2 and 3 and Skilled Workers referring to level 4 and above in MOSQF level description.

Based on the FGD and document analysis, panels suggested that there is no job in demand or the critical category, under the low skilled worker’s category. Most of the jobs in demand are under the semi-skilled workers and skilled workers category. For each category of worker, factors contributing to the demand were also discussed and defined. Specific requirements and skills for each category of workers were also determined by the panels, document analysis, and survey results.

The low-skilled job titles generally cover job titles in level 1 in the MOSQF description. The job titles are Roustabout, Handyman, Painter, Laundryman, and general operator. In this category, the related skills gap is the gap between technology and skills and worker's attitude such as lack of desire to work. The most relevant solutions are therefore training/retraining and upskilling/reskilling the competency of the workers.

The semi-skilled job titles generally are Roughneck, Assistant Electrician, Assistant Deck Supervisor, Derrickman, Motorman, Assistant Materialman, and Galleyhand, etc., which normally cover levels 2 and 3, in MOSQF description. Many of the jobs demand emerged from the specialised skilled requirement as well as wide-field

experience and mastery of product knowledge. In this category, the related skills gap are lack of opportunities, education training mismatch, the gap between technology and skills, and lack of guidance for a future career path. The most relevant solution is therefore career path development program, training/retraining program, continuous learning and training, upskilling/reskilling, and review skills training curriculum so that the workers can gain more competencies and advancement in their career.

The skilled job titles generally cover from technician, mechanics up to managerial position and specialist job in the particular job area. The job title involved is higher in number since it covers levels 4, 5, 6, 7, and 8 of the MOSQF description. Many of the jobs demand emerged from the specialised skills together with managerial talent requirements plus wide field experience and administration. In this category, the related skills gap is lack of opportunities, education training mismatch, and the gap between technology and skills. The most relevant solution are therefore career path development programs, training/retraining programs, and continuous learning and training programs.

Table 4.1(b) elaborates further on the job demand for each category of workers together with factors contributing to the demand and specific requirements and skills.

Table 4.1(a): Jobs and Skills in Demand for Low-Skilled, Medium Skilled and Skilled Workers

	SKILLS AND COMPETENCY IN DEMAND		SUB-SECTOR - JOB AREA/ JOB TITLES RELATED	FACTORS CONTRIBUTING TO THE DEMAND (Skill gap)	SPECIFIC REQUIREMENTS AND SKILLS (Skill gap solution)
	Demand-based on Survey	**Increasing Future Demand (World Economic Report, 2020)**			
Low-Skilled Workers	Safety And Security General Attitude Housekeeping	Analytical thinking and innovation Resilience, stress tolerance and flexibility Creativity, originality and initiatives	No job in demand-Critical Examples of other jobs: Painter Roustabout Messboy Sample Catcher Coil tubing Helper	i) the gap between technology and skills, ii) worker's attitude such as lack of desire to work.	i) Training/ retraining ii) Upskilling/reskilling iii) Review skills training curriculum
Semi-Skilled Workers	Technical Skills	1. Technology use, monitoring and control 2. Technology design and programming	Job in demand-Critical: Junior Managed Pressure Drilling (MPD) Supervisor Electrical Submersible Pump (ESP) Technician ESP Cable Technician Examples of other jobs: Roughneck Assistance Electrician Deck Supervisor Derrickman Motorman Assistance Material man Cook	i) Emerging technology ii) lack of opportunities. iii) education training mismatch iv) the gap between technology and skills, v) lack of guidance for the future career path	i) Career path development program ii) Training/retraining iii) Continuous learning and training iv) Upskilling/reskilling v) Review skills training curriculum
	Diagnostic And Troubleshooting Skills	1. Technology use, monitoring and control 2. Complex problem-solving			
	Machinery Knowledge and Skills	1. Reasoning, problem-solving, ideation 2. Analytical thinking and innovation			
Skilled	Leadership Skills	1. Leadership and social influence 2. Critical thinking and analysis	JOB IN DEMAND: Rig Offshore Installation Manager (OIM)	i) Migration of skilled workers to other countries.	i) Career path development program ii) Training/retraining

	Communication Skills	1. Leadership and social influence 2. Active learning and learning strategies	Custodian Drilling Engineer Deep water/Drilling Superintendent Custodian Completion Engineer Preventive Maintenance Supervisor (PMS) Barge Captain Senior Toolpusher Deep water/ Senior Drilling Supervisor Rig Mechanical Inspector Rig Electrical Inspector Deep Water Drilling Supervisor Technical Supervisor Officer Rig Chief Mechanic Rig Chief Electrician Driller Safety Training Officer Casing While Drilling (CWD) Engineer ESP Supervisor ESP Engineer Senior ESP Technician Senior Cable Technician	ii) Emerging technologies. iii) Lack of opportunities. iv) Education training mismatch v) The gap between technology and skills,	iii) Continuous learning and training
	Planning And Forecasting Abilities	1. Analytical thinking and innovation 2. Creativity, originality and initiatives			

Table 4.1(b): Elaboration of Job in Demand

Category	Education	Experience	Skill Requirement	Factor Contributing to Demand
Low Skilled Job	Certificate	Entry-level	• Early human development (in first 3 years)	• Cheap labour • Possible demand for a start-up business or economic crisis
Semi-skilled Job • Junior Managed Pressure Drilling (MPD) Supervisor • Electrical Submersible Pump (ESP) Technician • ESP-Cable Technician	Certificate	3-5 years	• Managed job independently with minimum supervision • Maintenance and repairing skills • Job rotation cross-department	• Maximise existing resources by controlling downhole and surface facilities • Emerging technology • Increasing the production capability
Skilled Job • Rig Offshore Installation Manager (OIM) • Custodian Drilling Engineer • Deep water/Drilling Superintendent • Custodian Completion Engineer • Preventive Maintenance Supervisor (PMS) • Barge Captain	Diploma Degree Master	More than 5 to 20 years	• Lead and supervise specific work • Job planning • Team leader • Leadership development • Technology inventor • Consultation skills • Executive role and responsible • Ability to manage the risk • Contribute to institution planning	• Quality upgrading/ uniformity. • Expensive to outsource. • Lack of competent personnel. • High salary expectation. • Machine new technology. • Cost saving. • New tools type result • of a new machine. • Formation of new

• Senior Toolpusher • Deep water/ Senior Drilling Supervisor • Rig Mechanical Inspector • Rig Electrical Inspector • Deep Water Drilling Supervisor • Technical Supervisor Officer • Rig Chief Mechanic • Rig Chief Electrician • Driller • Safety Training Officer • Casing While Drilling (CWD) Engineer • ESP Supervisor • ESP Engineer • Senior ESP Technician • Senior Cable Technician			and direction • Contribute to environmental sustainability • Becomes technical expert and references • Becomes instructor and trainer	upstream company. • New product development. • Shortage of skilled personnel in the upstream industry. • Efficient utilisation of material and labour. • Increase production rate. • Production cost control. • Quality improvement and control. • Different quality requirement. • Market demand. • Machine new technology. • Cost saving.

4.2.3 Competency in Demand

A list of competency skills has been selected from the document analysis and the indirect result of FGD was used in the survey. The list of 22 competencies in demand for extraction of crude oil and natural gas industries are as follows:

(1) Technical skills
(2) Communication skills (Communication)
(3) Diagnostic & troubleshooting skills
(4) Problem-solving skills
(5) Administration & management skills
(6) Machinery knowledge & skills
(7) Leadership skills
(8) Data collection and analysis
(9) Planning and forecasting abilities
(10) The general attitude towards work (commitment, resourcefulness, teamwork, etc.)
(11) Product knowledge
(12) Material approach knowledge
(13) Strong technical aptitude/manual dexterity
(14) Competent in using communication tools (Communication)
(15) English language competency (Communication)
(16) Bahasa Malaysia competency (Communication)
(17) Knowledge in OSHA & the environment (Safety)
(18) Training and coaching
(19) Knowledge in rules, regulations, and acts (Safety)
(20) Safety and security
(21) Empowerment skills
(22) Housekeeping knowledge

The following are the results from the survey on the competency in demand for the extraction of crude petroleum and natural gas for three categories of low-

skilled workers, semi-skilled workers, and skilled workers. The selected key issues competencies of each category are then mapped to the skills in increasing demand for the future, as outlined by the World Economic Report 2020, as tabulated in Table 4.1(a). The subject and its results of the top five skills demand are shown and discussed in the following sub-section.

(1) High Competency Demand in Low Skilled Workers

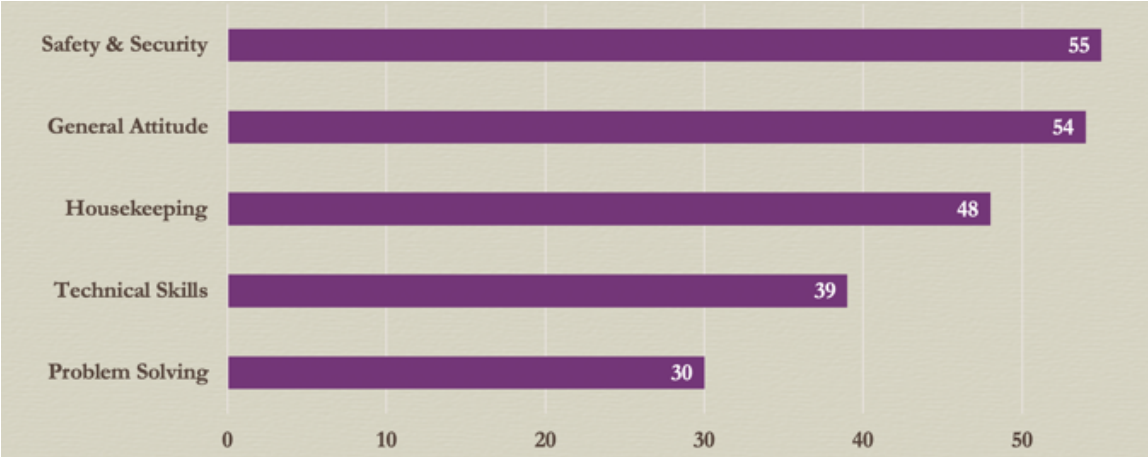


Figure 4.1: High Competency Demand in Low Skilled Workers

The results from the survey on the high competency demand in low skilled workers are presented in Figure 4.1. According to the figure, the top five skills in demand for low-skilled workers are safety and security, general attitude, housekeeping, technical skills, and problem-solving. However, the panels are not so convinced that the low skilled workers are acquired to have good technical skills and to possess problem-solving skills. Therefore, the top three competencies are the most essential competencies for low skilled workers, which are safety and security, general attitude, and housekeeping.

(2) High Competency Demand in Semi-Skilled Workers

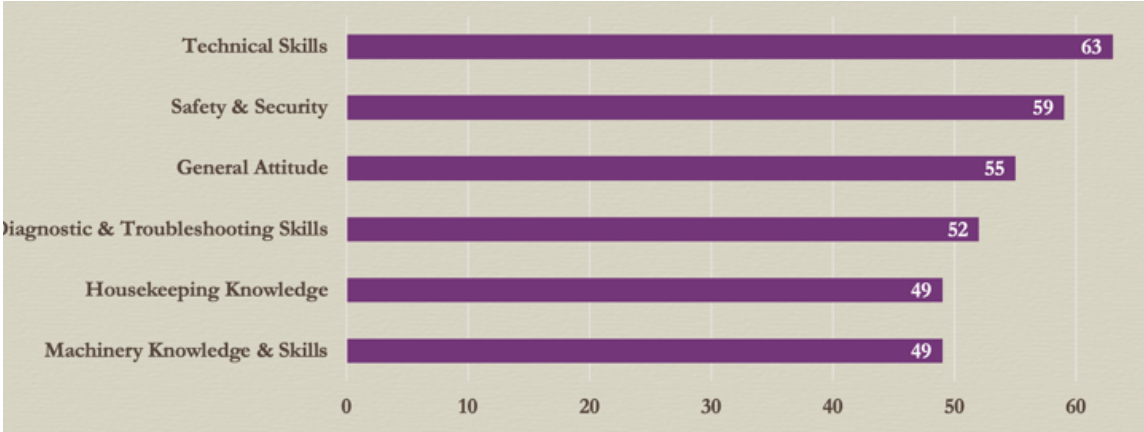


Figure 4.2: High Competency Demand in Semi-Skilled Workers

According to the survey results in Figure 4.2, the top five skills in demand for semi-skilled workers are technical, safety and security, general attitude, diagnostic and troubleshooting skills, housekeeping knowledge, and machinery knowledge and skills. Since the semi-skilled workers are mainly involved specialised technical workers, therefore the most important is the mastery of technical skills which consist of specialised technical skills, diagnostic and troubleshooting skills, and machinery knowledge and skills. These three skills are crucial for the career advancement of semi-skilled workers in the extraction of crude petroleum and natural gas.

(3) High Competency Demand in Skilled Worker

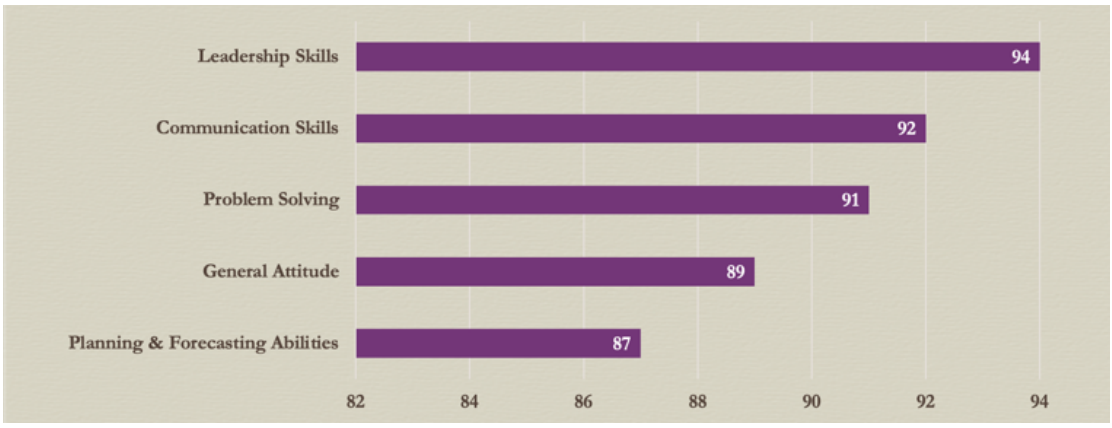


Figure 4.3: High Competency Demand in Skilled Workers

As for the skilled workers, according to the survey results, as shown in Figure 4.3, the top five skills in demand for skilled workers are leadership skills, communication skills, problem-solving, general attitude, and planning and forecasting abilities. Since the skilled workers consist of supervisors, engineers and managerial positions, the most essential skills for this category are related to planning, leading and good communication with subordinate or superior workers. Therefore, the leadership, communication and planning and forecasting abilities skills are considered the most relevant for the skilled worker's category.

4.2.4 Emerging Skills

In tackling the issues of skills gaps and job performance enhancements, several strategies could be applied in the industry. From the survey, as tabulated in Table 4.2, most of the personnel have agreed on lack of opportunities as the main reason for the skill gap among the workers in this industry. Then followed by education/training mismatch, the gap between technology and skills, lack of guidance for a future career path, and lastly because of the worker's attitude such as lack of desire to work.

Table 4.2: Reason for Skill Gap

No	Reason	Respondent	Per centage
1.	Lack of opportunities	85	70.2%
2.	Education/training mismatch	73	60.3%
3.	The gap between technology and skills	71	58.7%
4.	Lack of guidance for a future career path	62	51.2%
5.	Attitudes (e.g., lack of desire to work)	61	51.2%

To overcome the skill gaps, some of the solutions from the survey that can be applied are tabulated in Table 4.3. From the survey, most of the industrial personnel have selected career path development programs, training/retraining, continuous learning and training, upskilling/reskilling, and review skills training curriculum to tackle or at least reduce the skill gap.

Table 4.3: Solution for Skill Gap

No.	Solution	Respondent	Per centage
1.	Career path development program	86	72.9%
2.	Training/retraining	85	72%
3.	Continuous learning and training	83	70.3%
4.	Upskilling/reskilling	62	51.2%
5.	Review skills training curriculum	61	51.2%

The skill gaps and their suggested solution in reducing the gap, for each category of low skilled, semi-skilled and skilled workers are summarised in Table 4.1.

Figure 4.4: The top 10 skills in increasing demand for the future

(Source: World Economic Forum Report 2020)

4.2.5 IR4.0 Related Pillars

The Ministry of International Trade and Industry (MITI) has identified the main pillars of Industry Revolution 4.0, has been described in Chapter 2. From the 12 pillars surveyed, the most relevant IR4.0 pillars to the extraction of crude petroleum and natural gas are shown in Table 4.4(a) and their descriptions are as follow:

Table 4.4(a): Technology Drives / Pillars of IR 4.0

No.	Technology Drives/ Pillars of IR 4.0	Respondent	Per centage
1.	Big data analytics	78	64.5%
2.	Artificial intelligence	75	64.5%
3.	System integrated	73	60.3%
4.	Autonomy robots	69	57%
5.	Simulation	63	52.1%

(1) Big Data Analytics - The analysis of the ever-larger volume of data. Circulation, collection, and analysis of information are a necessity because they support productivity growth based on a real-time decision-making process.

(2) Artificial Intelligence - Many Artificial Intelligence devices and software have been developed to virtually visit and understand offshore equipment without actually presenting yourself on the offshore oil rig.

(3) System Integrated - The process of linking together different computing systems and software applications physically or functionally to act as a coordinated whole via the Internet of Things (IoT).

(4) Autonomous Robots - Coordinated and automated actions of robots to complete tasks intelligently, with minimal human input, in monitoring as well as instrumentation and control applications.

(5) Simulation - The simulation will leverage real-time to mirror the physical world in a virtual model, which can include machines, products, and humans. This allows operators to test and optimise the machine settings for the next product in line in the virtual world before the physical changeover, thereby driving down to more accurate prediction and increasing quality results.

The top five pillars of IR4.0 can be visually mapped to the following IR4.0 job titles related to extraction of crude petroleum and natural gas, as shown in Table 4.4(b).

Table 4.4(b): Mapping of Top IR4.0 Pillars with Job Titles Related To IR4.0

No	Job Title Related to IR 4.0	Group/Area	Description
1	Remote Operation Wireline Engineer#	DRILLING (WIRELINE LOGGING)	Based on the top six pillars of the IR4.0 related to extraction of crude petroleum and natural gas, the big data will be useful to trace the previous history of the well or field. The real-time data could be integrated with artificial intelligence and system integration to give fast and reliable decision making during the operation. By the combination of big data management with the link to an integrated system enable to development of the autonomous robot which reduces the risk of exposure to human and provides smooth field operation works. Enormous and complexity of data, which need to be analysed and segregate thru analytical programming according to its complexity and information. Massive usage in augmented reality, virtual reality, internet of things devices and intelligent software has also been developed.
2	Remote Operation MWD/LWD Engineer#	Drilling (Measurement While Drilling/ Logging While Drilling)	
3	Remote Operation Mud Engineer#	Drilling (Mud Engineering)	
4	Remote Operation Cementing Engineer#	Drilling (Cementing)	
5	Remote Operation Mud Logging Engineer#	Drilling (Mud Logging)	
6	MWD/LWD Engineer#	Drilling (Measurement While Drilling/ Logging While Drilling)	

4.2.6 Related Issues in the Oil and Gas Industry

This section explores the common issues surrounding the industry. The respondents are asked to choose the issues that were identified indirectly in FGD and document reviews. The survey results are summarised in Figure 4.5. High maintainability cost of specialised equipment and machinery is selected as the most popular issue followed by availability of specialised equipment and machinery, lack of infrastructure support for the worker, lack exposure of youth and rapid technology changes are the top five related issues determined by the survey. However, from the document analysis, there are still challenges to producing local workers with relevant capabilities, skills and talents for the whole extraction of oil and gas activities. The industry is still dependent on

international expertise to operate competitively, and therefore, support is needed to build up key capabilities in local talents as well as in local companies.

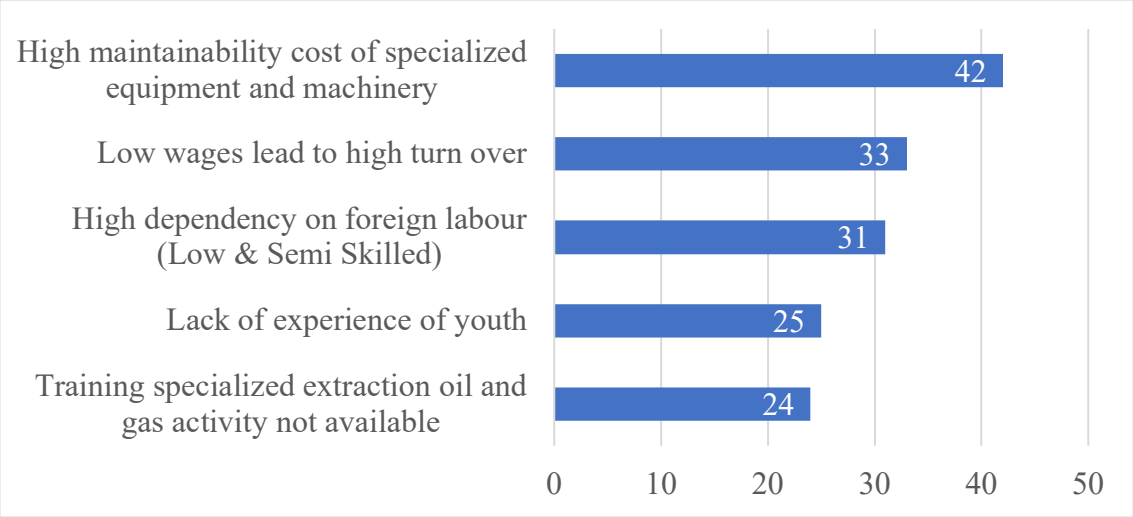


Figure 4.5: Related Issues in Extraction of Crude Petroleum and Natural Gas

4.3 Occupational Structure, OS

The upstream activities of extraction of crude petroleum and natural gas involved three major parties which are field operator, drilling contractor, and services or support group.

Therefore, the OS is developed based on these three main parties. The services activities are also included since they are crucial services to complete the drilling and production process. The research instruments used were focus group discussions and document analysis. The initial information is gathered by using document analysis and used as the basis for the focus group discussion workshop. During the focus group discussion workshops, the information was analysed by looking at the scopes, exclusion of upstream activities, and job areas that are not applicable in Malaysia. The FGD has suggested that the job area should be grouped into four key theme areas which are:

(1) Drilling
(2) Well Completion
(3) Well Intervention/Workover

(4) Offshore Operation and Production

This research work focuses on FGD findings, surveys, and document analysis on the upstream extraction activities but is limited to the scope of MSIC (2008) —the extraction of crude petroleum and natural gas. The OS for the extraction of crude petroleum and natural gas are summarised in Tables 4.5 to 4.12 and a summary of all the job titles according to respective levels and job areas is presented in Table 4.13.

Table 4.5: Occupational Structure in Extraction of Crude Petroleum and Natural Gas (1/8)

Critical job

MSIC SECTION	B: MINING AND QUARRYING			
MSIC DIVISION	BO6: EXTRACTION CRUDE PETROLEUM AND NATURAL GAS			
MSIC GROUP	061- EXTRACTION OF CRUDE PETROLEUM			
JOB AREA / LEVEL	DRILLING (ENGINEERING MANAGEMENT)	DRILLING (OPERATION)	WAREHOUSE	HSE OPERATION
8	Custodian Drilling Engineer*	Drilling/ Deep water Superintendent*	No Job Title	No Job Title
7	Principal Drilling Engineer	Deep water/ Senior Drilling Supervisor*	No Job Title	No Job Title
6	Senior/Staff Drilling Engineer	Deep water/ Drilling Supervisor*	Procurement Manager	Compliance Manager
5	Drilling Engineer	Drilling Engineer	Executive Procurement Engineer (HQ)	Compliance Coordinator
4	No Job Title	No Job Title	Warehouseman	Warehouseman
3	No Job Title	No Job Title	Assistant. Warehouse Man	Assistant Warehouse Man
2	No Job Title	No Job Title	Helper	No Job Title
1	No Job Title	No Job Title	No Job Title	No Job Title

Table 4.6: Occupational Structure in Extraction of Crude Petroleum and Natural Gas (2/8)

MSIC SECTION	B: MINING AND QUARRYING						
MSIC DIVISION	BO6: EXTRACTION CRUDE PETROLEUM AND NATURAL GAS						
MSIC GROUP	061- EXTRACTION OF CRUDE PETROLEUM						
JOB AREA / LEVEL	DRILLING (RIG-Electrical)	DRILLING (RIG-MARINE)	DRILLING (RIG)	DRILLING (RIG-Mechanical)	WAREHOUSE	HSE DRILLING	CATERING
8	Offshore Installation Manager*				No Job Title	No Job Title	No Job Title
7	Preventive Maintenance Supervisor (PMS)*	Barge Captain*	Senior Toolpusher*	Preventive Maintenance Supervisor (PMS)*	No Job Title	Safety manager (office)	No Job Title
6	Rig Chief Electrician*	Assistant Barge Master	Driller*	Rig Chief Mechanic*	No Job Title	Safety Training Officer*	Camp-boss
5	Rig Electrician	Crane Operator	Assistance Driller	Rig Mechanic	Senior Materialman*	Medic	Chief Cook
4	Assistance Electrician	Deck Supervisor	Pumpman	Motorman	Materialman	No Job Title	Cook
3	No Job Title	Assistant Deck Supervisor	Derrickman	No Job Title	Assistance Materialman	+Radio Operator	Galley Hand
2	No Job Title	Handyman	Roughneck	No Job Title	No Job Title	No Job Title	Laundryman
1	No Job Title	Painter	Roustabout	No Job Title	No Job Title	No Job Title	Messboy

*Critical job

+Radio Operator can move vertically to safety training officer after going through related professional courses

Table 4.7: Occupational Structure in Extraction of Crude Petroleum and Natural Gas (3/8)

MSIC SECTION	B: MINING AND QUARRYING				
MSIC DIVISION	BO6: EXTRACTION CRUDE PETROLEUM AND NATURAL GAS				
MSIC GROUP	061- EXTRACTION OF CRUDE PETROLEUM (Drilling)				
JOB AREA / LEVEL	DRILLING (RIG MOVE)	DRILLING (RIG POSITIONING)	DRILLING (DIRECTIONAL DRILLING)	DRILLING (MEASUREMENT WHILE DRILLING/LOGGING WHILE DRILLING)	
8	Rig Mover*	No Job Title	No Job Title	No Job Title	
7	No Job Title	No Job Title	Drilling Eng Manager	No Job Title	
6	No Job Title	Party/Senior chief surveyor	Senior Directional Driller	Senior MWD/LWD Engineer	Remote Operation MWD/LWD Engineer#
5	No Job Title	Surveyor	Directional Driller (engineer)	MWD/LWD Engineer#	
4	No Job Title	No Job Title	Well Planner (cross CP to Drilling Eng)		
3	No Job Title	No Job Title	No Job Title		
2	No Job Title	No Job Title	No Job Title		
1	No Job Title	No Job Title	No Job Title		

*Critical job # IR4.0

Table 4.8: Occupational Structure in Extraction of Crude Petroleum and Natural Gas (4/8)

MSIC SECTION	B: MINING AND QUARRYING											
MSIC DIVISION	BO6: EXTRACTION CRUDE PETROLEUM AND NATURAL GAS											
MSIC GROUP	061- EXTRACTION OF CRUDE PETROLEUM (Drilling)											
JOB AREA / LEVEL	DRILLING (WELL CONTROL)	DRILLING (MUD ENGINEERING)		DRILLING (CEMENTING)		DRILLING (MUD LOGGING)		DRILLING (TUBULAR RUNNING-CASING/TUBING)	DRILLING (CASING WHILE DRILLING)	DRILLING (WIRELINE LOGGING)	
8	Well Control Specialist*	No Job Title		No Job Title		No Job Title		No Job Title	No Job Title	No Job Title	
7	No Job Title	No Job Title		No Job Title		No Job Title		No Job Title	No Job Title	No Job Title	
6	No Job Title	Lead Mud Engineer	Mud Remote Operation Mud Engineer#	Cementing Engineer	Remote Operation Cementing Engineer#	Data Engineer	Remote Operation Mud Logging Engineer#	No Job Title	CWD Engineer*	Wireline Field Senior Engineer	Remote Operation Wireline Engineer#
5	No Job Title	Mud Engineer		Cementer		Mud Logger		Tubular Running Field Supervisor	CWD Supervisor*	Wireline Field Engineer	
4	No Job Title	No Job Title		Assistant Cementer		Junior Mud Logger		Tubular Running Technician	No Job Title	Wireline Field Specialist/ Technician	
3	No Job Title	No Job Title		Cementing helper		No Job Title		No Job Title	No Job Title	Wireline Field Operator/ Wireline Crew Chief	
2	No Job Title	No Job Title		No Job Title		No Job Title		No Job Title	No Job Title	No Job Title	
1	No Job Title	No Job Title		No Job Title		Sample Catcher		No Job Title	No Job Title	No Job Title	

*Critical job # IR4.0

Table 4.9: Occupational Structure in Extraction of Crude Petroleum and Natural Gas (5/8)

MSIC SECTION	B: MINING AND QUARRYING								
MSIC DIVISION	BO6: EXTRACTION CRUDE PETROLEUM AND NATURAL GAS								
MSIC GROUP	061- EXTRACTION OF CRUDE PETROLEUM (Drilling)								
JOB AREA / LEVEL	DRILLING (GYRO)	DRILLING (MANAGED PRESSURE DRILLING)	DRILLING (LINER HANGER)	DRILLING (OPTIMISATION)	DRILLING (INSPECTION)			DRILLING (FISHING)	DRILLING (WELLHEAD)
8	No Job Title	No Job Title	No Job Title	No Job Title	No Job Title			No Job Title	No Job Title
7	No Job Title	No Job Title	No Job Title	No Job Title	Rig Mechanical Inspector*	Rig Electrical Inspector*	Rig Marine Inspector	No Job Title	No Job Title
6	No Job Title	Remote MPD Engineer	Liner Hanger Engineer	No Job Title	No Job Title			Fishing Tool Supervisor	No Job Title
5	Gyro Surveyor/ Engineer	MPD Senior Supervisor	Liner Hanger Supervisor	Drilling Optimisation Engineer	No Job Title			No Job Title	No Job Title
4	No Job Title	MPD Supervisor	No Job Title	No Job Title	No Job Title			No Job Title	Wellhead Service Engineer (Technician)
3	No Job Title	Junior MPD Supervisor* (Emerging Job)	No Job Title	No Job Title	No Job Title			No Job Title	No Job Title
2	No Job Title	MPD Operator							
1	No Job Title	No Job Title	No Job Title	No Job Title	No Job Title			No Job Title	No Job Title

*Critical job # IR4.0

Table 4.10: Occupational Structure in Extraction of Crude Petroleum and Natural Gas (6/8)

MSIC SECTION	B: MINING AND QUARRYING									
MSIC DIVISION	BO6: EXTRACTION CRUDE PETROLEUM AND NATURAL GAS									
MSIC GROUP	061- EXTRACTION OF CRUDE PETROLEUM (Well Completion)									
JOB AREA / LEVEL	WELL COMPLETION (Engineering)	WELL COMPLETION (Operation)	WELL COMPLETION (UPPER)	WELL COMPLETION (WELLBORE CLEANOUT)	WELL COMPLETION (PERFORATION)	WELL COMPLETION (SLICKLINE)	WELL COMPLETION (ELECTRIC SUBMERSIBLE PUMP)		WELL COMPLETION (SAND CONTROL-GRAVEL PACK)	WELL COMPLETION (PERMANENT DOWNHOLE GAUGE)
8	Custodian Completion Engineer*	Completion Manager	No Job Title	No Job Title	No Job Title	No Job Title	No Job Title		No Job Title	No Job Title
7	Principal Completion Engineer	Principal Completion Engineer	No Job Title	No Job Title	No Job Title	No Job Title	No Job Title		No Job Title	No Job Title
6	Staff/Senior Completion Engineer	Staff/Senior Completion Supervisor	No Job Title	No Job Title	No Job Title	Slickline Senior Supervisor	ESP Supervisor*		Gravel Pack Engineer	PDG Supervisor
5	Completion Engineer	Completion Supervisor	Completion Tool Engineer / Completion Tool Supervisor	Wellbore Cleanout Engineer / Wellbore Cleanout Supervisor	Perforation Engineer / Perforation Supervisor	Slickline Engineer	ESP Engineer*		Gravel Pack Lead Supervisor	PDG Engineer
4	No Job Title	No Job Title	Field Completion Specialist	Wellbore Cleanout Specialist	Perforation Specialist	Senior Slickline Operator	Senior ESP Technician*	Senior Cable Technician*	Gravel Pack / Pumping Supervisor	PDG Specialist
3	No Job Title	No Job Title	Completion Tool Repairman/Technician	Wellbore Cleanout Tool Repairman/Technician	Perforation Tool Repairman/Technician	Slickline Operator	ESP Technician*	Cable Technician*	Gravel pack Pumping Operator	PDG Technician
2	No Job Title	No Job Title	No Job Title	No Job Title	No Job Title	Slickline Assistant	No Job Title		Gravel Pack Helper	No Job Title
1	No Job Title	No Job Title	No Job Title	No Job Title	No Job Title	No Job Title	No Job Title		No Job Title	No Job Title

*Critical job # IR4.0

Table 4.11: Occupational Structure in Extraction of Crude Petroleum and Natural Gas (7/8)

MSIC SECTION	B: MINING AND QUARRYING								
MSIC DIVISION	BO6: EXTRACTION CRUDE PETROLEUM AND NATURAL GAS								
MSIC GROUP	061- EXTRACTION OF CRUDE PETROLEUM (Well Intervention)								
JOB AREA / LEVEL	WELL INTERVENTION (Engineering)	WELL INTERVENTION (Operation)	WORKOVER (Engineering)	WORKOVER (Operation)	WELL INTEGRITY		WELL INTERVENTION (Coil Tubing Unit) (CTU))	WAREHOUSE	WORKOVER (Hydraulic Workover Unit (HWU))	HSE
8	No Job Title		Workover Superintendent		No Job Title		No Job Title	No Job Title	No Job Title	No Job Title
7	Well Intervention Principal Engineer		Workover Principal Engineer		Well Integrity Principal		No Job Title	No Job Title	No Job Title	No Job Title
6	Senior Engineer	Well Intervention Staff	Senior Engineer	Workover Staff	Procurement Manager		Senior Coil Tubing Engineer	No Job Title	HWU Superintendent/ Senior Toolpusher (1)	No Job Title
5	Senior Well Intervention Engineer	Senior Well Intervention Supervisor	Workover Engineer	Senior Workover Supervisor	Executive Procurement Engineer (HQ)	Senior Integrity Engineer	Senior Coil Tubing Supervisor	Ware House Supervisor	HWU Supervisor	HSE Manager
4	Well Intervention Supervisor		Workover Supervisor		Well Integrity Supervisor		Coil Tubing Supervisor	Warehouseman	HWU Senior Operator	HSE Officer
3	Operator/Specialist		Operator/Specialist		Operator/Specialist		Coil Tubing Operator	Assistant. Warehouse Man	HWU Operator	No Job Title
2	No Job Title		No Job Title		No Job Title		Senior Coil Tubing Helper	Tool Repairman	HWU Assistant Operator	No Job Title
1	No Job Title		No Job Title		No Job Title		Coil Tubing Helper	No Job Title	No Job Title	No Job Title

*Critical job # IR4.0

Table 4.12: Occupational Structure in Extraction of Crude Petroleum and Natural Gas (8/8)

MSIC SECTION	B: MINING AND QUARRYING												
MSIC DIVISION	BO6: EXTRACTION CRUDE PETROLEUM AND NATURAL GAS												
MSIC GROUP	061- EXTRACTION OF CRUDE PETROLEUM (Operation and Production)												
JOB AREA / LEVEL	OFFSHORE OPERATIONS (Maintenance Offshore-Fix Structure)			OFFSHORE OPERATIONS (Production - Offshore-Fix Structure)		OFFSHORE OPERATIONS (Maintenance Floating Structure)			OFFSHORE OPERATIONS (Production Floating Structure)		OFFSHORE OPERATIONS (Marine Floating Structure		
8	Field/Asset Manager					Field/Asset Manager							
7	Offshore Installation Manager (OIM)					Offshore Installation Manager (OIM)							
6	Maintenance Supervisor			Production Supervisor	Offshore Integrity Engineer	Maintenance Supervisor			Production Supervisor	Offshore Integrity Engineer	Marine Superintendent		
5	Lead Mechanical Technician	Lead Electrical Technician	Lead Instrument Technician	Lead Production Technician	Integrity Inspector	Lead Mechanical Technician	Lead Electrical Technician	Lead Instrument Technician	Lead Production Technician	Integrity Inspector	Lead Marine Mechanical Technician	Lead Marine Electrical Technician	Lead Marine Instrument Technician
4	Senior Mechanical Technician	Senior Mechanical Technician	Senior Electrical Technician	Senior Production Technician	No Job Title	Senior Mechanical Technician	Senior Mechanical Technician	Senior Electrical Technician	Senior Production Technician	No Job Title	Senior Marine Mechanical Technician	Senior Marine Mechanical Technician	Senior Marine Electrical Technician
3	Mechanical Technician	Electrical Technician	Instrument Technician	Production Technician	No Job Title	Mechanical Technician	Electrical Technician	Instrument Technician	Production Technician	No Job Title	Marine Mechanical Technician	Marine Electrical Technician	Marine Instrument Technician
2	No Job Title					No Job Title					No Job Title		
1	No Job Title					No Job Title					No Job Title		

*Critical job # IR4.0

Table 4.13: Summary of Job Titles According to Level and Area

MSIC SECTION	B: MINING AND QUARRYING									
MSIC DIVISION	BO6:EXTRACTION CRUDE PETROLEUM AND NATURAL GAS									
MSIC GROUP	061- EXTRACTION OF CRUDE PETROLEUM									
JOB AREA No	Sub-Sector	Area	LEVEL								
			1	2	3	4	5	6	7	8	Total
1	Drilling	DRILLING (ENGINEERING MANAGEMENT)	NJT	NJT	NJT	NJT	1	1	1	1	4
		DRILLING (OPERATION)	NJT	NJT	NJT	NJT	1	1	1	1	4
		WAREHOUSE	NJT	1	1	1	1	1	NJT	NJT	5
		HSE OPERATOR	NJT	NJT	1	1	1	1	NJT	NJT	4
		DRILLING (RIG-Electrical)	NJT	NJT	NJT	1	1	1	1	1	5
		DRILLING (RIG-MARINE)	1	1	1	1	1	1	1	1	8
		DRILLING (RIG)	1	1	1	1	1	1	1	1	8
		DRILLING (RIG-Mechanical)	NJT	NJT	NJT	1	1	1	1	1	5
		WAREHOUSE	NJT	NJT	1	1	1	NJT	NJT	NJT	3
		HSE DRILLING	NJT	NJT	1	NJT	1	1	1	NJT	3
		CATERING	1	1	1	1	1	1	NJT	NJT	6
		DRILLING (RIG MOVE)	NJT	NJT	NJT	NJT	NJT	NJT	NJT	1	1
		DRILLING (RIG POSITIONING)	NJT	NJT	NJT	NJT	1	1	NJT	NJT	2
		DRILLING (DIRECTIONAL DRILLING)	NJT	NJT	NJT	1	1	1	1	NJT	4
		DRILLING (MEASUREMENT WHILE DRILLING/LOGGING WHILE DRILLING)	NJT	NJT	NJT	1	1	2	NJT	NJT	4
		DRILLING (WELL CONTROL)	NJT	NJT	NJT	NJT	NJT	NJT	NJT	1	1
		DRILLING (MUD ENGINEERING)	NJT	NJT	NJT	NJT	1	2	NJT	NJT	3
		DRILLING (CEMENTING)	NJT	NJT	1	1	1	2	NJT	NJT	5
		DRILLING (MUD LOGGING)	1	NJT	NJT	1	1	2	NJT	NJT	5
		DRILLING (TUBULAR RUNNING-CASING/TUBING)	NJT	NJT	NJT	1	1	NJT	NJT	NJT	2

		DRILLING (CASING WHILE DRILLING)	NJT	NJT	NJT	NJT	1	1	NJT	NJT	2
		DRILLING (WIRELINE LOGGING)	NJT	NJT	1	1	1	2	NJT	NJT	5
		DRILLING (GYRO)	NJT	NJT	NJT	NJT	1	NJT	NJT	NJT	1
		DRILLING (MANAGED PRESSURE DRILLING)	NJT	1	1	1	1	1	NJT	NJT	5
		DRILLING (LINER HANGER)	NJT	NJT	NJT	NJT	1	1	NJT	NJT	2
		DRILLING (OPTIMISATION)	NJT	NJT	NJT	NJT	1	NJT	NJT	NJT	1
		DRILLING (INSPECTION)	NJT	NJT	NJT	NJT	NJT	NJT	3	NJT	3
		DRILLING (FISHING)	NJT	NJT	NJT	NJT	NJT	1	NJT	NJT	1
		DRILLING (WELLHEAD)	NJT	NJT	NJT	1	NJT	NJT	NJT	NJT	1
		Total by Level	**4**	**5**	**10**	**16**	**24**	**26**	**11**	**8**	103
		Total Critical Job	**0**	**0**	**1**	**0**	**2**	**6**	**6**	**5**	19
		Total IR 4.0 Related Job	**0**	**0**	**0**	**0**	**1**	**5**	**0**	**0**	6
										Total Subsector (Drilling)	103
										Total Critical Job	**19**
										Total IR 4.0 Related Job	**6**
2	Well Completion	WELL COMPLETION (Engineering)	NJT	NJT	NJT	NJT	1	1	1	1	4
		WELL COMPLETION (Operation)	NJT	NJT	NJT	NJT	1	1	1	1	4
		WELL COMPLETION (UPPER)	NJT	NJT	1	1	2	NJT	NJT	NJT	4
		WELL COMPLETION (WELLBORE CLEANOUT)	NJT	NJT	1	1	2	NJT	NJT	NJT	4
		WELL COMPLETION (PERFORATION)	NJT	NJT	1	1	2	NJT	NJT	NJT	4
		WELL COMPLETION (SLICKLINE)	NJT	1	1	1	1	1	NJT	NJT	5
		WELL COMPLETION (ELECTRIC SUBMERSIBLE PUMP)	NJT	NJT	2	2	1	1	NJT	NJT	6
		WELL COMPLETION (SAND CONTROL-GRAVEL PACK)	NJT	1	1	2	1	1	NJT	NJT	6
		WELL COMPLETION (PERMANENT DOWNHOLE GAUGE)	NJT	NJT	1	1	1	1	NJT	NJT	4
		Total by Level	**0**	**2**	**8**	**9**	**12**	**6**	**2**	**2**	41

		Total Critical Job	**0**	**0**	**2**	**2**	**1**	**1**	**0**	**1**	7
		Total IR 4.0 Related Job	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
										Total Subsector (Well Completion)	**41**
										Total Critical Job	**7**
										Total IR 4.0 Related Job	**0**
3	Well Intervention / Workover	WELL INTERVENTION (Engineering)	NJT	NJT	1	1	1	1	1	NJT	5
		WELL INTERVENTION (Operation)	NJT	NJT	1	1	1	1	1	NJT	5
		WORKOVER (Engineering)	NJT	NJT	1	1	1	1	1	1	6
		WORKOVER (Operation)	NJT	NJT	1	1	1	1	1	1	6
		WELL INTEGRITY	NJT	NJT	1	1	2	1	1	NJT	6
		WELL INTERVENTION (Coil Tubing Unit (CTU))	1	1	1	1	1	1	1	NJT	7
		WAREHOUSE	NJT	1	1	1	1	NJT	NJT	NJT	4
		WORKOVER (Hydraulic Workover Unit (HWU))	NJT	1	1	1	1	1	NJT	NJT	5
		HSE	NJT	NJT	NJT	1	1	NJT	NJT	NJT	2
		Total by Level	**1**	**3**	**8**	**9**	**10**	**7**	**6**	**2**	46
		Total Critical Job	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
		Total IR 4.0 Related Job	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
										Total Subsector (Well Intervention/ Workover)	46
										Total Critical Job	**0**
										Total IR 4.0 Related Job	**0**
4	Offshore Operation	OFFSHORE OPERATIONS (Maintenance Offshore-Fix Structure)	NJT	NJT	3	3	3	1	1	1	12
		OFFSHORE OPERATIONS (Production - Offshore-Fix Structure)	NJT	NJT	1	1	2	2	1	1	8
		OFFSHORE OPERATIONS (Maintenance Floating Structure)	NJT	NJT	3	3	3	1	1	1	12
		OFFSHORE OPERATIONS (Production Floating Structure)	NJT	NJT	1	1	2	2	1	1	8

		OFFSHORE OPERATIONS (Marine Floating Structure	NJT	NJT	3	3	3	1	1	1	12
		Total by Level	**0**	**0**	**11**	**11**	**13**	**7**	**5**	**5**	52
		Total Critical Job	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
		Total IR 4.0 Related Job	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
										Total Subsector (Well Intervention/ Workover)	52
										Total Critical Job	0
		Total Job Title By Level	**5**	**10**	**37**	**45**	**58**	**46**	**24**	**17**	242
										Total for division B06	**242**
		Total Critical Job By Level	**0**	**0**	**3**	**2**	**3**	**7**	**6**	**6**	27
										Total Critical Job	**27**
		Total IR4.0 By Level	**0**	**0**	**0**	**0**	**1**	**5**	**0**	**0**	6
										Total IR 4.0 Related Job	**6**

4.4 Occupational Competency, OC

This section provides the detailed occupational responsibilities for each job title identified in the OS. This list will be used later as a reference in developing NOSS for 2-digit MSIC 2008 Division 06: Extraction of Crude Petroleum and Natural Gas, under 1-digit MSIC 2008 Section B: Mining and Quarrying. The actual tasks for each job identified in this OF may include but are not limited to the occupational responsibilities listed in this section. Details of OC for each job title are shown in Tables 4.14 to 4.24.

Table 4.14: Occupational Competency (OC) for Group 061 and 062 (1)

JOB AREA LEVEL	DRILLING (ENGINEERING MANAGEMENT)	DRILLING (OPERATION)	WAREHOUSE	HSE
8	**Custodian Drilling Engineer*** 1) Monitor overall task with the sub-surface and drilling teams to prepare a project Work Data Sheets, well proposals and well objectives in compliance with Company policy and practice. 2) Review and verify designs and procedures including time and cost estimates. Provide input for technology, new venture and asset budgets where appropriate. 3) Monitor drilling performance through research of new technology, tools their applications and techniques. Develop suitable applications and introduce new technologies that can improve the performance and reliability of the Company's an exploration and production wells portfolio. 4) Review and compile offset well descriptions and prepare well designs to ensure that drilling programs adopt optimum engineering, a safe working environment, time and cost solutions. 5) Ensure drilling operations teams by identifying potential drilling risks/hazards and assisting their design/planning of mitigation measures 6) Ensure senior engineers work with third-party (vendor) experts to	**Drilling/ Deep water Superintendent*** 1) Review and verify designs and procedures including time and cost estimates. Provide input for technology, new venture and asset budgets where appropriate including Deep water (design, operation, maintenance and so on). 2) Control overall and verify drilling performance including deep water's activities through research of new technology, tools their applications and techniques. Develop suitable applications and introduce new technologies that can improve the performance and reliability of the Company's an exploration and production wells portfolio. 3) Monitor drilling performance through research of new technology, tools their applications and techniques. Develop suitable applications and introduce new technologies that can improve the performance and reliability of the Company's exploration and production wells portfolio (in Deep water) 4) Review and compile offset well descriptions and prepare well designs to ensure that drilling programs adopt optimum engineering, time and cost solutions. 5) Ensure drilling operations teams by identifying potential drilling risks/hazards and assisting their	**No Job Title**	**No Job Title**

	develop well designs and plans and evaluate design analysis for thoroughness and accuracy 7) Verify tender requests and subsequently evaluate and make recommendations for services to be rendered.	design/planning of mitigation measures 6) Verify tender requests and subsequently evaluate and make recommendations for services to be rendered.		
7	**Principal Drilling Engineer** 1) Ensure sound drilling engineering methods and procedures to be used on assigned drilling problems. 2) Execute assignments and studies in areas outlined in the scope, assuring conformance to overall objectives of all phases of drilling operations in areas including drilling penetration rate optimisation, new drilling technology, and drilling studies. 3) Ensure technical support for many types of drilling wells including complex extended reach (ERD) horizontal oil and gas wells, HPHT gas wells, offshore and deep water, and unconventional wells. Wells include power water injections and producing wells, exploration wells and all kinds of workovers. 4) Review advanced drilling data and the performance of new or existing drilling techniques to determine a need for or benefit from studies, recommendations, and/or modifications concerning unit costs, and operating efficiency consistent with established operations. 5) Ensure ownership of relevant company's standards/guidelines where applicable, recommend	**Deep water/ Senior Drilling Supervisor*** 1) Supervised and review and verify designs and procedures including time and cost estimates. Provide input for technology, new venture and asset budgets where appropriate including Deep water (design, operation, maintenance and so on) 2) Supervised drilling performance including deep water's activities through research of new technology, tools their applications and techniques. 3) Develop suitable applications and introduce new technologies that can improve the performance and reliability of the company's an exploration and production wells portfolio. 4) Supervise drilling performance through research of new technology, tools their applications and techniques. Develop suitable applications and introduce new technologies that can improve the performance and reliability of the Company's exploration and production wells portfolio 5) Supervise and review compile offset well descriptions and prepare well designs to ensure that drilling programs adopt optimum engineering, time and cost solutions 6) Supervise drilling operations teams by identifying potential drilling risks/hazards and assisting their	**No Job Title**	**No Job Title**

	improvements to operational processes and guidelines. 6) Monitor training and technical support to junior engineers and ensure the sustained meeting of regional and global standards, practices, and procedures. 7) Monitor to keep track of the actual estimated drilling cost as the operation continues 8) Prepare Final Well Report. 9) Head of participating in daily operation meetings with rig site as well as with service contractors. 10) Ensure Drilling engineer Prepare Post Drilling Review report once operation completed .	design/planning of mitigation measures 7) Supervise senior engineer to work with third-party (vendor) experts to develop well designs and plans and evaluate design analysis for thoroughness and accuracy		
6	**Senior/Staff Drilling Engineer** 1) Deliver technical support for many types of drilling wells including complex extended reach (ERD) horizontal oil and gas wells, HPHT gas wells, offshore and deep water, and unconventional wells. Wells include power water injections and producing wells, exploration wells and all kinds of workovers. 2) Analyse advanced drilling data and the performance of new or existing drilling techniques to determine a need for or benefit from studies, recommendations, and/or modifications concerning unit costs, and operating efficiency consistent with established operations. 3) Assume ownership of relevant	**Deep water/ Drilling Supervisor*** 1) Drilling and deep water and production teams to prepare a project Work Data Sheets, well proposals and well objectives in compliance with Company policy and practice 2) Review and verify designs and procedures including time and cost estimates. Provide input for technology, new venture and asset budgets where appropriate including Deep water (design, operation, maintenance and so on) 3) Monitor drilling performance including deep water's activities through research of new technology, tools their applications and techniques. Develop suitable applications and introduce new technologies that can improve the performance and reliability of the	**Procurement Manager** 1) Manage and clarify product details, cost estimation and project logistics. 2) Manage and develop new vendor relationships. 3) Manage and develop sourcing proposals. 4) Manage all contracts for management approval. 5) Ensure procurement operations follow regulations. 6) Join in strategic sourcing activities, bid evaluation, and vendor selection processes. 7) Manage delivery schedules and products. 8) Monitor procurement budget and expenses. 9) Manage bids based on	**Compliances Manager** 1) Manage the investigate industrial accidents, injuries, or occupational diseases to determine causes and preventive measures. 2) Manage and monitor of conduct research to evaluate safety levels for products. 3) Manage and evaluate product designs for safety. 4) Manage and conduct or coordinate worker training in areas such as safety laws and regulations, hazardous condition monitoring, and use of safety equipment. 5) Manage, maintain and apply knowledge of current policies, regulations, and industrial processes.

	company's standards/guidelines where applicable; recommend improvements to operational processes and guidelines. 4) Extend training and technical support to junior engineers and ensure the sustained meeting of regional and global standards, practices, and procedures. 5) Keep track of the actual estimated drilling cost as the operation continues. 6) Prepare Final Well Report. 7) Participate in daily operation meetings with rig site as well as with service contractors	Company's exploration and production wells portfolio **4)** Monitor drilling performance through research of new technology, tools their applications and techniques. Develop suitable applications and introduce new technologies that can improve the performance and reliability of the Company's exploration and production wells portfolio 5) Review and compile offset well descriptions and prepare well designs to ensure that drilling programs adopt optimum engineering, time and cost solutions 6) Monitor drilling operations teams by identifying potential drilling risks/hazards and assisting their design/planning of mitigation measures 7) Work with third-party (vendor) experts to develop well designs and plans and evaluate design analysis for thoroughness and accuracy	assessment criteria for vendor selection. 10) Manage vendor categories. 11) Manage and review and shortlist bid submissions. 12) Manage and review data to advise changes to policies. 13) Manage and review vendor performance to suggest recommendations. 14) Manage and work with key stakeholders on sourcing proposals.	
5	**Drilling Engineer** 1) Action to deliver technical support for many types of drilling wells including complex extended reach (ERD) horizontal oil and gas wells, HPHT gas wells, offshore and deep water, and unconventional wells. Wells include power water injections and producing wells, exploration wells and all kinds of workovers. 2) Carry out and analyse advanced drilling data and the performance of new or existing drilling techniques to determine a need for or benefit from studies, recommendations, and/or	**Drilling Engineer** 1) Action to deliver technical support for many types of drilling wells including complex extended reach (ERD) horizontal oil and gas wells, HPHT gas wells, offshore and deep water, and unconventional wells. Wells include power water injections and producing wells, exploration wells and all kinds of workovers. 2) Carry out and analyse advanced drilling data and the performance of new or existing drilling techniques to determine a need for or benefit from studies, recommendations, and/or modifications	**Executive Procurement Engineer (HQ)** 1) Clarify product details, cost estimation and project logistics. 2) Develop new vendor relationships. 3) Develop sourcing proposals. 4) Draft contracts for management approval. 5) Ensure procurement operations follow regulations.	**Compliance Coordinator** 1) Investigate industrial accidents, injuries, or occupational diseases to determine causes and preventive measures. 2) Conduct research to evaluate safety levels for products. 3) Evaluate product designs for safety. 4) Conduct or coordinate worker training in areas such as safety laws and regulations, hazardous condition monitoring, and use of safety equipment. 5) Maintain and apply knowledge of current policies, regulations, and

	modifications concerning unit costs, and operating efficiency consistent with established operations. 3) Assume ownership of relevant company's standards/guidelines where applicable; recommend improvements to operational processes and guidelines. 4) Extend training and technical support to junior engineers and ensure the sustained meeting of regional and global standards, practices, and procedures. 5) Keep track of the actual estimated drilling cost as the operation continues. 6) Prepare the team for Final Well Report. 7) Participate in daily operation meetings with rig site as well as with service contractors.	concerning unit costs, and operating efficiency consistent with established operations. 3) Assume ownership of relevant company's standards/guidelines where applicable; recommend improvements to operational processes and guidelines. 4) Extend training and technical support to junior engineers and ensure the sustained meeting of regional and global standards, practices, and procedures. 5) Keep track of the actual estimated drilling cost as the operation continues. 6) Prepare the team for Final Well Report. 7) Participate in daily operation meetings with rig site as well as with service contractors.		industrial processes.
4	**No Job Title**	**No Job Title**	**<u>Warehouseman</u>** 1) Maintain an optimum level of inventory. 2) Receiving and inspection process in accordance with the Quality Assurance Measures. 3) Manage and direct the material handling, tagging and stocking according to the pre-locator controlled system. 4) Manage and monitor the documentation process. 5) Reviews, verifies regarding the movement of inventory items. Annual stocktaking. 6) Proper locating and retrieving all rejected material as well	**1) <u>Warehouseman</u>** 2) Maintain an optimum level of inventory. 3) Receiving and inspection process in accordance with the Quality Assurance Measures. 4) Manage and direct the material handling, tagging and stocking according to the pre-locator controlled system. 5) Manage and monitor the documentation process. 6) Reviews, verifies regarding the movement of inventory items. Annual stocktaking. 7) Proper locating and retrieving all rejected material as well as damage & overage 8) In charge of Container Control

			as damage & overage 7) In charge of Container Control Form and preparing manifests. 8) Implements approved housekeeping procedures and safety programs. 9) Getting material inspected by the concerned department. 10) Responsible for the maintenance and storekeeping of all inventory items kept in the warehouse.	Form and preparing manifests. 9) Implements approved housekeeping procedures and safety programs. 10) Getting material inspected by the concerned department. 11) Responsible for the maintenance and storekeeping of all inventory items kept in the warehouse.
3	**No Job Title**	**No Job Title**	**<u>Assistant Warehouse Man</u>** 1) Assist and maintain an optimum level of inventory. 2) Receiving and inspection process in accordance with the Quality Assurance Measures. 3) Directing the material handling, tagging and stocking according to pre-locator controlled system. 4) Maintain the documentation process. 5) Checking the movement of inventory items. Annual stock-taking. 6) Proper locating and retrieving all Rejected material as well as Damage & Overage 7) Planning housekeeping procedures and safety programs. 8) Carry out material inspected by the concerned department. 9) Maintenance and storekeeping of all inventory items kept in the warehouse.	**<u>Assistant Warehouse Man</u>** **1)** Assist and maintain an optimum level of inventory. **2)** Receiving and inspection process in accordance with the Quality Assurance Measures. **3)** Directing the material handling, tagging and stocking according to pre-locator controlled system. 4) Maintain the documentation process. 5) Checking the movement of inventory items. Annual stock-taking. 6) Proper locating and retrieving all Rejected material as well as Damage & Overage 7) Planning housekeeping procedures and safety programs. 8) Carry out material inspected by the concerned department. 9) Maintenance and storekeeping of all inventory items kept in the warehouse.

2	No Job Title	No Job Title	**Helper** 1) Loading orders onto trucks and shipping containers, 2) Organizing incoming stock and putting the appropriate labels on outgoing parcels.	**No Job Title**
1	No Job Title	No Job Title	**No Job Title**	**No Job Title**

Table 4.15: Occupational Competency (OC) for Group 061 and 062 (2)

JOB AREA LEVEL	DRILLING (RIG-Electrical)	DRILLING (RIG-MARINE)	DRILLING (RIG)	DRILLING (RIG-Mechanical)	WAREHOUSE	HSE DRILLING
8	**Rig Offshore Installation Manager (OIM)*** 1) Overall command and responsible for the safe management of the offshore facility and personnel in accordance with statutory requirements and the Company's safety and performance standards 2) Responsible for the safe operation of the rig and for prevention of pollution or damage to the environment. 3) Empowered in all situations with overriding authority to act decisively and according to his/ her best judgment to prevent injury to crew members, other persons and to protect the rig and other vessels property and marine environment from damage. 4) Manage all activities on or about the installation and assure the Client's program is accomplished	**Rig Offshore Installation Manager (OIM)*** 1) Overall command and responsible for the safe management of the offshore facility and personnel in accordance with statutory requirements and the Company's safety and performance standards 2) Responsible for the safe operation of the rig and for prevention of pollution or damage to the environment. 3) Empowered in all situations with overriding authority to act decisively and according to his/ her best judgment to prevent injury to crew members, other persons and to protect the rig and other vessels property and marine environment from damage. 4) Manage all activities on or about the installation and assure the Client's program is accomplished with parameters set by the client. 5) Promote and ensure that all Company policies and procedures are communicated and understood by all personnel onboard the	**Rig Offshore Installation Manager (OIM)*** 1) Overall command and responsible for the safe management of the offshore facility and personnel in accordance with statutory requirements and the Company's safety and performance standards 2) Responsible for the safe operation of the rig and for prevention of pollution or damage to the environment. 3) Empowered in all situations with overriding authority to act decisively and according to his/ her best judgment to prevent injury to crew members, other persons and to protect the rig and other vessels property and marine environment from damage. 4) Manage all activities on or about the installation and assure the Client's program is accomplished with parameters set by the client. 5) Promote and ensure that all	**Rig Offshore Installation Manager (OIM)*** 1) Overall command and responsible for the safe management of the offshore facility and personnel in accordance with statutory requirements and the Company's safety and performance standards 2) Responsible for the safe operation of the rig and for prevention of pollution or damage to the environment. 3) Empowered in all situations with overriding authority to act decisively and according to his/ her best judgment to prevent injury to crew members, other persons and to protect the rig and other vessels property and marine environment from	**No Job Title**	**No Job Title**

	with parameters set by the client. 5) Promote and ensure that all Company policies and procedures are communicated and understood by all personnel onboard the installation	installation	Company policies and procedures are communicated and understood by all personnel onboard the installation	damage. 4) Manage all activities on or about the installation and assure the Client's program is accomplished with parameters set by the client. 5) Promote and ensure that all Company policies and procedures are communicated and understood by all personnel onboard the installation		
7	**Preventive Maintenance Supervisor (PMS)*** 1) Supervise electrical related maintenance, costs and personnel to meet the Company's business objectives 2) Supervise all electrical related maintenance work tasks are carried out in a safe, efficient, technical and financial manner and in accordance with the expectation from the Company. 3) Supervise the development of leadership capabilities among senior rig personnel.	**Barge Captain*** 1) Direct courses and speeds of ships, based on specialised knowledge of local winds, weather, water depths, tides, currents, and hazards. 2) Prevent ships under navigational control from engaging in unsafe operations. 3) Serve as a vessel's docking master upon arrival at a port or a berth. 4) Consult maps, charts, weather reports, or navigation equipment to determine and direct ship movements. 5) Steer and operate vessels, using radios, depth finders, radars, lights, buoys, or lighthouses.	**Senior Toolpusher** 1) Supervise and ensure the safety of the drilling crew as well as effective and efficient operations. 2) Responsible for coordinating and delivery of rig supplies, drilling tools, fuel, pipe, etc. 3) Ensure that preventive maintenance procedures are implemented and observed. 4) Responsible for implementation and adherence to training safety programs, assuring that each new employee is appropriately trained. 5) Determine and coordinate optimum drilling conditions based on	**Preventive Maintenance Supervisor (RMS)*** 1) Supervise all mechanical related maintenance work tasks are carried out in a safe, efficient, technical and financial manner and in accordance with the expectation from the Company. 2) Supervise mechanical related development of leadership capabilities among senior rig personnel. 3) Support of the Rig Manager that the unit fulfils the requirement	**No Job Title**	**Safety Manager (office)** 1) Responsible for ensuring all employees are trained to safely before performing their job duties 2) Develop the knowledge and skills needed to oversee the safety management system (SMS). 3) Monitor workers and the environment to quantify the risks associated with drilling. 4) Develop safety policies to improve standards for onshore and offshore operations. 5) Prepare for emergencies, such as

	4) Support of the Rig Manager that the unit fulfils the requirement of the contract. (maintenance) 5) Supervise technical advice to the rig personnel on any operational related matter. 6) Supervise the daily activities to optimise procedures, systems and equipment in order to improve the overall safety and efficiency. 7) Promote positive HSE culture among the rig crew. 8) Anticipate, quickly troubleshoot and resolve operational, equipment and maintenance issues minimise rig downtime 9) Supervise that proper planning of preventative maintenance is carried out to efficiently maintain rig equipment		experience, utilisation of data from a nearby or similar well and or optimised drilling programs. 6) Responsible for periodic scheduled rig inspections and filing of all pertinent reports. 7) Maintain and disseminate information on rig equipment and drill string performance or failures. 8) Assist the Driller in staffing, training and coaching the crews in safe working practices, proper operations and care and maintenance of the drilling equipment. 9) Direct rig crews in setting up and operating power units, draw works and other drilling equipment. 10) Ensure that personal behaviours and work practices are in line with Company safety standards. 11) Responsible for safety of self and others in the vicinity to include, but not limited to, employees, vendors and guests. 12) Ensure all incidents are reported and appropriately investigated in accordance with Company procedure.	of the contract. (maintenance) 4) Supervise manpower is available to perform the task as per the client's well program. 5) Supervise technical advice to the rig personnel on any operational related matter. 6) Supervise the daily activities to optimise procedures, systems and equipment in order to improve the overall safety and efficiency. 7) Promote positive HSE culture among the rig crew. 8) Anticipate, quickly troubleshoot and resolve operational, equipment and maintenance issues minimise rig downtime. 9) Supervise that proper planning of preventative maintenance is carried out to efficiently maintain rig equipment		oil spills or injuries. 6) Improve system quality through reduced workplace accidents and injuries.
6	**Rig Chief Electrician**	**Assistance Barge Master**	**Driller**	**Rig Chief Mechanical**	**No Job Title**	**Safety Training Officer**

	1) Promote operational excellence through procedural discipline. 2) Delegate work effectively with a clear definition of requirements and expectations. 3) Assist to troubleshoot and analysing VFD control logic. 4) Test circuit connections using electrical test equipment. 5) Install, test and maintain electrical equipment such as air conditioning systems, heating and refrigeration equipment. 6) Respond to emergencies as requested and coordinate onsite activities to utilise resources to facilitate repairs in the most expedient and cost-effective manner. 7) Install and repair lighting systems 8) Perform preventative and corrective maintenance of electrical equipment. 9) Repair electrical equipment such as panel lighting, circuit breakers, junction	1) Monitor routine maintenance of the mechanical parts of the lifting devices. 2) Monitor maintenance and the follow-up of all slings, shackles, pulleys, etc. 3) Monitor maintenance of the safety equipment according to governmental regulations and any guidance issued by the manufacturer and keep records of such maintenance. 4) Verify administrative work deriving from Flag state or Class Society regulations. 5) Monitor equipment and pressure vessels, under his/her control are maintained, inspected, tested, certified and recorded based on Statutory Regulations and Class requirements	1) Train crews and introduce procedures to make drill work safer and more effective. 2) Observe pressure gauge and move throttles and levers to control the speed of rotary tables, and to regulate the pressure of tools at bottoms of boreholes. 3) Count sections of the drill rod to determine the depths of boreholes.	1) Immediately rectifying or reporting to the Chief Mechanic / Toolpusher or Driller any defects or discrepancies in drilling equipment or associated equipment 2) Responsibility for care and maintenance of all mechanical tools and workshops equipment's 3) Assist Mechanic to prepare to order of mechanical maintenance/breakdown/spares 4) Maintain his work area in a clean and tidy condition and free from any safety hazards 5) Participate in safety meetings and safety drills 6) Ensure that all orders and instructions are given in writing or verbally are fully understood and adhered to. 7) Familiarise himself with all relevant work and safety procedures issued by the Company and by the Operator, and promote the implementation of		1) Assist Management in developing and implementing their HSE plans and advise on operational safety matters related to the works. 2) Co-ordinate and conduct inspections/audits of facilities and activities to ensure compliance to safe and good work practices in accordance with the statutory requirement of the Factories and Machinery ACT and all safety Procedures. 3) Have the ability to communicate in written and spoken English & Local language. 4) Give a safety pre to enhance the health, safety and Environment awareness of all workers. 5) Assist in accident investigation, reporting and monitoring their follow up in accordance with safety procedures.

	boxes, voltage regulators and reverse current relays. 10) Enter maintenance and repair data into a Maintenance Management System. 11) Repair or replace defective or worn electrical parts. 12) Assist to create Notifications and Work Orders as required and entering into the rig maintenance system. 13) Ensure an adequate amount of critical electrical spare parts are on hand and serviceable at all times.			the same 8) Promptly report all accidents, near-miss accidents and non-conformances and safety hazards to his immediate superior 9) Carry out duties according to the Company's Emergency preparedness Manual when needed 10) Inform the superior of any suggestion to make a safer working environment to make a more efficient operation of the unit.		
5	**Rig Electrician** 1) Inspections of the internal parts of specific equipment including critical measurements and clearance to ensure equipment is running within recommended tolerances. 2) Function testing, pressure testing, load testing and insulation resistance checks for all critical equipment on the drilling unit, as required. 3) Verification that the proper safety devices are installed correctly, testing that this correct	**Crane Operator** 1) Conducting equipment inspections 2) Following safety protocols 3) Keeping maintenance logs 4) Operate cranes and hoists 5) Transfer loads to construction sites and discharge them safely 6) Bind loads to cranes 7) Inspect equipment and machinery 8) Keep and update maintenance and activity log 9) Carry out basic repairs to machines 10) Set up machinery based on complex manuals 11) Coordinate with ground	**Assistant Driller** 1) Organizing crews and equipment for ongoing and upcoming operations. 2) Adhere and advise all relevant governing documents by direct reports 3) Provide clear daily operational guidelines to all direct reports 4) Visible leadership by spending time in the field and monitoring daily operations 5) Conduct drills and checks as required by the company 6) Prepare all applicable	**Rig Mechanical** 1) Inspections of the internal parts of specific equipment including critical measurements and clearance to ensure equipment is running within recommended tolerances. 2) Function testing, pressure testing, load testing and insulation resistance checks for all critical equipment on the drilling unit, as required. 3) Verification that the proper safety devices	**Senior Material man** 1) Participate in HSE-related activities - Tool Box Meetings, Site HSE walks/inspections. 2) Liaise with EPC Contractor and HU&C group to ensure materials and equipment are efficiently managed. 3) Liaise with expeditors and logistic personnel to ensure correct export/import	**Medic (Offshore)** 1) Responsible for routine and emergency healthcare for the rig personnel. 2) Build and maintain an excellent working relationship with International SOS clients, their employees and contractors. 3) Responsible for ensuring personal CPD and clinical skills are kept up to date. 4) Provide onsite routine health care and advice to offshore personnel.

	function and are correctly calibrated to prevent equipment damage and accidents. 4) Verification that the rig equipment complies with API standards, the equipment manufacturer's specifications and recommendations and good engineering practices. 5) Verification that the rig complies with the contractual requirements as provided by the client. 6) Verification of crew competency especially on key personnel. 7) Witness Endurance Test as specified by the client.	operators and interpret hand and verbal signals 12) Follow safety guidelines and protocols	reports and logs as required by Driller, client and company. 7) Subordinates are trained in order to make them suitable for a higher position. 8) Other duties are performed as and when required and/or directed by his/her direct supervisor. 9) Assist with well kill operations as per instructions from supervisors. 10) Operational preparedness of all safety and emergency equipment. 11) Drilling equipment is maintained including first-line maintenance and maintenance is recorded. 12) Measure and record all critical dimensions of downhole equipment to be run in the well.	are installed correctly, testing that this correct function and are correctly calibrated to prevent equipment damage and accidents. 4) Verification that the rig equipment complies with API standards, the equipment manufacturer's specifications and recommendations and good engineering practices. 5) Verification that the rig complies with the contractual requirements as provided by the client. 6) Verification of crew competency especially on key personnel. 7) Witness Endurance Test as specified by the client.	documents to avoid delays. 4) Carry out inspections of received materials and equipment as required. 5) Work closely with Site Material Coordinator to help ensure correct receiving, handling and storage on delivery of materials and equipment according to approved handling, storage, and preservation procedures. 6) Notify company warehouses (if applicable) on impending deliveries and liaise with materials/logistics personnel regarding urgent deliveries. 7) Monitor and follow up with EPC contractor on timely delivery of replacements for damaged and shortage materials. 8) Carry out materials inspection on materials required	5) Seek appropriate and timely consultation/advice from onshore medical services. 6) Arrange any required Medevac cases by International SOS and Client site protocols. 7) Maintain patient confidentiality at all times, supported with clear and concise medical records in line with International SOS Records and Record-Keeping Policy, also maintain the sickbay attendance log, including patient information on medications taken and known allergies. 8) Management of clinical waste and routine cleaning of the sick bays. 9) Ensure all medical equipment and gases are functional, regularly inspected and maintained, including calibration of required items in accordance with manufacturers guidelines. 10) Lead the first aid team and coordinate all first aid team activities and regular training. 11) Completion of relevant

					for offshore work. 9) Manage the materials control for offshore work and maintain relevant registers. 10) Work with EPC contractor on the materials layout plan and proper storage of materials stored onboard platform. 11) Manage and follow up on materials reconciliation with EPC Contractor. 12) Report non-conformities and improvement areas to the Site Material Coordinator.	administrative tasks as the role/client requires. 12) Deliver regular Health Awareness and Health Promotion activities. 13) Maintain all eyewash, earplug and lens cleaning stations. 14) Conduct routine hygiene checks of the galley and accommodation area. 15) Water sampling. 16) Awareness of IADC and OSHA Guidelines. 17) Work together with Campboss and Radio Operator in updating POB and Muster Station list.
4	**Assistance Electrician** 1) Carry out inspections of the electrical parts of specific equipment including critical measurements and clearance to ensure equipment is running within recommended tolerances. 2) Carry out function testing, pressure testing, load testing and insulation resistance checks for all critical equipment on the drilling unit, as required.	**Deck Supervisor** 1) Contribute to defining and executing activity planning and setting surface equipment and facilities. 2) Ensure performance targets for the offshore organisation. 3) Identify opportunities and champion initiatives that enable maximum production output within the parameters of environmental compliance and process safety. 4) Ensure optimum utilisation of company's resources in own section exhibit financial prudence in all decisions;	**Pumpman** 1) Train crews and introduce procedures to make drill work safer and more effective. 2) Observe pressure gauge and move throttles and levers to control the speed of rotary tables, and to regulate the pressure of tools at bottoms of boreholes. 3) Count sections of the drill rod to determine the depths of boreholes. 4) Push levers and brake pedals to control gasoline,	**Motorman** 1) Maintain and lubricate machinery to keep it running efficiently 2) Regularly test equipment for operability and safety 3) Train roustabouts and roughnecks 4) Assist other oil rig crew as necessary 5) Assess tongs that help connect and disconnect drill pipe and spinning chain 6) Work with the rig's	**Materialman** 1) Responsible to Senior Materialman 2) Maintain an optimum level of inventory. 3) Receiving and inspection process in accordance with the Quality Assurance Measures. 4) Manage and direct the material handling, tagging and stocking	No Job Title

	3) Do verification that the proper safety devices are installed correctly, testing that these correctly function and are correctly calibrated to prevent equipment damage and accidents. 4) Do verification that the rig equipment complies with API standards, the equipment manufacturer's specifications and recommendations and good engineering practices. 5) Do verification that the rig is in compliance with the contractual requirements as provided by the client. 6) Do verification of crew competency especially on key personnel. 7) Witness Endurance Test as specified by the client. 8) Support report to Rig Electrician	approve operational expenses within the level of authority 5) Drive an incident-free environment by establishing and maintaining a strong safety culture 6) Organise and supervise the activities and work of subordinates to ensure compliance to relevant health, safety and environmental excellence procedures and controls within the area of responsibility to guarantee employee safety 7) Collate and provide daily reports to OIM on health, safety and environmental issues related to area of work 8) Responsible for daily routine maintenance on cranes in cooperation with the Maintenance Supervisor 9) Responsible for weekly routine maintenance on lifeboats and safety equipment	diesel, electric, or steam draw works that lower and raise drill pipes and casings in and out of wells. 5) Connect sections of drill pipe, using hand tools and powered wrenches and tongs.	boilers **7)** Order tools and replacement parts	according to the pre-locator controlled system. 5) Manage and monitor the documentation process. 6) Reviews, verifies regarding the movement of inventory items. Annual stocktaking. 7) Proper locating and retrieving all Rejected material as well as Damage & Overage 8) In charge of Container Control Form and preparing manifests. 9) Implements approved housekeeping procedures and safety programs. 10) Responsible for the maintenance and storekeeping of all inventory items kept in the warehouse.	
3	**No Job Title**	**<u>Assistant Deck Supervisor</u>** 1) Responsible to Deck Supervisor 2) Safely coordinate and direct lifting operations.	**<u>Derrickman</u>** 1) Work as direct by his immediate superior 2) Maintain working areas, tools, equipment and safety	• **No Job Title**	**<u>Assistant Materialman</u>** 1) Responsible to Materialman 2) Assist and maintain	**<u>Radio Operator</u>** 1) Operates a radio to communicate with onshore bases, ships, helicopters, and other

		3) Manage the deck space to ensure optimal use for the purpose of project execution and maintenance activities. 4) Coordinate and direct the rigging crew and the crane operators, establishing their roles and positions, in order to safely execute lifting operations according to the lifting procedures. 5) Supervise rigging/de-rigging operations. 6) Manage the deck space in order to optimise the deck movements of cranes, forklifts and personnel and the access to materials and equipment positioned on the deck. 7) Control the work activity of riggers and helpers. 8) Ensure all rigging and lifting appliances on board are certified for use in a suitable condition and properly stored. 9) Ensure that all rigging operations are carried out in a safe manner and in accordance with the instructions given. 10) Ensure that only certified gear is used during lifting operation. 11) Manage the handling of material and consumables to be assigned to each work site. 12) Monitor the conditions of all lifting gear before, during and after use and reports any damages. 13) Report unsafe conditions, incidents, and near-miss events.	harnesses in a safe clean, tidy and orderly manner 3) Be familiar with the entire mud system, the safe operation and maintenance of the same 4) Be familiar with the pipe-racking systems and how to properly operate the same 5) Be familiar with pipe tripping operations and how to safely handle and operate all tools and equipment 6) Keep up the mud pump log reports on his shift 7) Keep the Driller informed as to the consistency of the mud and the general condition of the pumps and mudroom		an optimum level of inventory. 3) Receiving and inspection process in accordance with the Quality Assurance Measures. 4) Direct the material handling, tagging and stocking according to pre-locator controlled system. 5) Maintain the documentation process. 6) Checking the movement of inventory items. Annual stocktaking. **7)** Proper locating and retrieving all Rejected material as well as Damage & Overage 8) Assist to Warehouseman of Container Control Form and prepare manifests. 9) Planning housekeeping procedures and safety programs. 10) Carry out material inspected by the concerned department. 11) Maintenance and	relevant parties. 2) Taking steps to repair and maintain radio equipment as well as sending messages via radio. 3) Record incoming messages and keep a log of communications. 4) Participate in emergency preparedness training and perform specific tasks in the event of an emergency.

		14) Perform Toolbox talks meetings at the beginning of each shift (and whenever required) and prepare JSA when required. 15) Perform any additional duties within the limits of his/her own experience and capabilities, as required by the 1st Assistant on duty.			storekeeping of all inventory items kept in the warehouse. 12) Using Oracle-based Warehouse Management System 13) Member of Emergency First Aid Team.	
2	**No Job Title**	**<u>Handyman</u>** 1) By utilizing resources available, work as effectively and efficiently as possible to ensure the service is provided to the agreed standards 2) Ensure a deep cleaning programme is in place and adhere to it 3) Notify line supervisor of any defects or maintenance requirements within areas of responsibility 4) Ensure chemical store is kept clean and tidy 5) Accompany supervisor on daily and weekly inspections of areas of your responsibility 6) Assist in unloading containers 7) Ensure all duties and responsibilities are undertaken in full compliance with the Health and Safety at Work Act 8) Report all accidents and injuries 9) Report any incident of fire, loss, damage, unfit food, and	**<u>Roughneck</u>** 1) Responsibilities include the operation of equipment and machines used in the current drilling task. 2) Execute drilling operation through servicing the rig, coordinating its activities, etc. 3) Work as per SOP to reduce the chance of an accident, rig workers need to ensure not only that they are working safely	**No Job Title**	**No Job Title**	**No Job Title**

		other irregularities and take such action as may be appropriate. 10) Embrace industry training and development and culture by 11) Attending Client and Company training courses as deemed necessary 12) Fully support and participate in all Client and Company safety initiatives 13) All training initiatives which are identified are delivered to maintain the existing safe working practices and environment 14) Carry out joinery and glazing duties, painting and decorating, plumbing, electrical maintenance duties as required 15) Carry out safety inspections as required 16) Carry out general maintenance as required 17) Sourcing & ordering of spare parts & equipment 18) Carry out additional duties and any other tasks within your competency, such as the unloading of containers, which form part of the company service to the customer				
1	**No Job Title**	**Painter** 1) Conduct blasting, painting and various construction duties aboard offshore rigs and facilities. 2) Check equipment, install dust barriers, prepare the blasting site, and operate machinery to	**Roustabout** 1) Perform basic maintenance on the rig accommodation area. 2) Perform accommodation furniture repair as necessary 3) Ensure all duties and	**No Job Title**	**No Job Title**	**No Job Title**

		sandblast appropriate surfaces. 3) Coordinates and communicates with the offshore painter to complete the job. 4) Assist with the preparation but operate equipment to spray paint and apply protective coatings. 5) Maintain all rig areas in a clean condition at all times 6) Cleaning, buffering, hoovering, sweeping and washing floors, walls and ceilings to be carried out in accordance with company procedures and safe systems of work to the contract specified standard, and recorded in the cleaning schedules	responsibilities are undertaken in full compliance with the Health and Safety at Work Act 4) Report all accidents and injuries 5) Report any incident of fire, loss, damage, unfit food, and other irregularities and take such action as may be appropriate 6) Carry out additional duties and any other tasks within your competency, such as the unloading of containers, which form part of the company service to the customer.			

Table 4.16: Occupational Competency (OC) for Group 061 and 062 (3)

JOB AREA / LEVEL	DRILLING (CATERING)	DRILLING (RIG MOVE)	DRILLING (RIG POSITIONING)	DRILLING (DIRECTIONAL DRILLING)	DRILLING (MEASUREMENT WHILE DRILLING)
8	**No Job Title**	**Rig Mover** 1) Direct rigs move operations as required safely and efficiently. 2) Assist in the including unit suitability to operate at a location. 3) Coordination of assessing the suitability of a unit to operate at a particular location, including site assessment and positioning the rig within tight tolerances at the limit of the unit's operational envelope. 4) Guide and establish rig move procedures including attendance during transport 5) Assist in the development and maintenance of stability requirements. 6) Assist with the revision of rig operation manuals as programs. 7) Assist Engineering and in support of rig moves or transports. 8) Review CAD drawings for evaluation, construction and installation. 9) Guide the development of rig policies, operating	**No Job Title**	**No Job Title**	**No Job Title**

		accuracy.			
7	**No Job Title**	**No Job Title**	**No Job Title**	**Drilling Engineering Manager** 1) Delivery of safe and environmentally sound drilling engineering solutions delivering wells compliant with the Standards, on time and within budget. 2) Monitor and coach staff and contractors in international safety culture and expectations, with a strong emphasis on Iraqi Nationals. 3) Monitor and coach staff and contractors in good international land drilling engineering Standards and land drilling Practices, with a strong emphasis on Iraqi Nationals. 4) Work with subsurface team to ensure delivery of new well designs and programmes to meet production targets. Drive full integration between RST, sub-surface and Wells teams during the planning process and operational phase. 5) Assurance of the technical integrity of the operations and compliance with ROO Standards. 6) Provide a technical focal point for input into contract requirements. 7) Interact with the Drilling Department Cost Controllers	**No Job Title**

				and keep Management appraised of actual spend versus contract value of all contracts, to never overspend the contract value on any of the contracts in place. 8) The identification and application of value-enhancing, innovative and new technologies 9) Responsible for technical integrity and assurance of well designs and technical risk assessment, management, contingency planning and mitigation. 10) Coordination and maintenance of the elements of the Well Delivery Process. 11) Develop, maintain and ensure alignment (on a day to day basis) with Standards. 12) Manage continuous improvement through integration of learnings, best practice and benchmarking data. 13) Review of drilling programmes and recommendations for improvement and optimisation.	
6	**Camp-boss** 1) Carry out the daily, weekly and monthly duties as laid out by the Company and below detailed. 2) Fill and keep records of administrative forms in accordance with the Company rules. 3) Manage the team of expatriates' staff working on the rig.	**No Job Title**	**Senior Chief Surveyor** 1) Assist with the development of project documentation. 2) Evaluate tender specifications for compliance in conjunction with other support staff. 3) Assist with the planning of offshore activities; ensure	**Senior Directional Driller** 1) Plans, checks and recommends for approval Drilling/Workover programs and testing procedures for wells in assigned area in accordance with the well objectives, technical requirements and engineering	**Senior MWD/LWD Engineer/ Remote Operation MWD/LWD Engineer# Senior MWD/LWD Engineer/** 1) Provides on-site supervision of the Measurement While

	4) Supervise and take part in the training of staff, according to the rules of HSE, Food Hygiene and Safety, HACCP, etc. 5) Responsible for requests made to warehouse, stocking and stock checking in addition to cost, always ensuring a minimum stock quantity for each item. 6) Responsible for cold and dry stores in the location. 7) Responsible for the effective cleaning of the kitchen and all its corresponding areas, the dining area and stores, in accordance with the Food Hygiene and Safety rules. 8) Supervise the preparation of all meals and ensure that menus established are being adhered to. 9) Ensure that all staff, Local and Expatriates, wear PPE, clean uniforms at all times 10) Ensure that the housekeeping of the accommodation should be carried out in line with reviewed standards. 11) Ensure that the laundry schedule is carried out accordingly,		all parties are fully informed of mobilisation/planning arrangements. 4) Ensure equipment and consumables selected are suitable for the work. Manage any modifications or changes that may be necessary with other departments. 5) Ensure the necessary briefings, inter-departmental pre-and post-project meetings take place, as required; 6) Attend vessel mobilisation / demobilisations and brief / debrief offshore teams. 7) Assist with the implementation of the Company's QA and HSE Management Systems throughout all phases of the project. 8) Ensure project survey reporting is properly delivered, in accordance with the client specification, and document control parameters. Any variations must be documented and additional costs recovered as necessary	standards. 2) Monitor/analyse drilling progress, Well Completion and Workover activity. 3) Troubleshoot any operational problems to avoid potential work schedule delays. 4) Operational responsibility of mob/demob of assigned rigs. 5) Responsible for all related equipment needs. 6) Participates in the preparation of technical input for tender documents and contractors' pre-qualifications. 7) Performs study on the operational and testing procedures in order to optimise cost v time 8) Coordinates and prepares final well drilling and workover reports. **9)** Prepares regular drilling and workover engineering activity reports as required.	Drilling / Logging While Drilling (MWD/LWD) process including tool preparations, data acquisition, log generation and Quality Control (QC), and delivery of the services to the customer. 2) Takes the lead to ensure that expected and needed data, including possible problems, are provided to the customer are accurate, timely and meets the highest service quality standards possible. 3) Takes the lead to provide technical consultation to all the clients. These areas include mud hydraulics, Bottom Hole Assembly (BHA) planning, pore pressure analysis, formation evaluation, drilling tendencies, the mud system, and BHA dynamics. 4) Ensures the proper testing of all tools and equipment before, during, and after each job. Identify and correct operational problems to prevent or minimise service impact. 5) Ensures the accuracy and completeness of all required forms, databases

					(i.e., Service vouchers, lost/damaged equipment, radiation site survey, 6) Ensures that BHA's are assembled as planned to include correct make-up torque, doping and handling. 7) Aware of client's requirements regarding surveying procedures. 8) Leads the effort to interface with the Directional Driller (DD) to ensure BHA compatibility, planned operating parameters are within specification and correct tool face references are applied. 9) Must be proficient in the use of LWD computer software and be able to provide advice and analysis to the client representative at the worksite. This shall include all survey calculations, Log generation, basic geosteering services and data Quality Control (QC). 10) Ensures a daily MWD/LWD report is completed and copied to the client's offshore and onshore drilling teams and to the MWD/LWD Coordinator.

5	**Chief Cook** 1) The employee will serve onboard a drilling jack-up rig. Main tasks: cooking for the crew, delegating and supervising the kitchen staff. 2) Ensure safe & clean working practices in accordance with HACCP.	**No Job Title**	**Surveyor** 1) Review the rig move procedures, the towing vessels and routing. 2) Provide advice and comment as appropriate with regard to the rig move plan. 3) Ensure the operation is conducted within the limits of the rig's Marine Operation Manual and Location Approval Certificate. 4) Survey and approve any vessels engaged in the rig move operation. 5) Verify and approve the seaworthiness (including sea fastening of loose equipment) and watertight integrity of the unit prior to departure from its original location. 1) Monitor and record the unit's transit stability and calculation. 2) Monitor and record the unit's preload operations and calculations. 3) Certificate of Approval (CoA) will be issued by MWS based on the following criteria: 4) Towing and readiness to jack at the present location. 5) Once rig is within 500m zone (transition – afloat to standoff position) after	**Directional Driller** 1) Operate Horizontal Directional Drill 2) Assist in potholing and remediation 3) Assist with setting hand holes and completing tie ins 4) Drive equipment to the job site 5) Confirms with locator/lead the bore path to drill 6) Set equipment up including the drill, water tanks and grounding the machine 7) Drill out following the predetermined drill path to the exit pit 8) Communicate with the locator/lead via radio to confirm the location of the drill head 9) Assist with the install of proper pulling gear and hook up product 10) Reverse process to install the product 11) Oversee labourers and/or crew member's work and monitor time usage 12) Conduct post-job quality checks 13) Clean, check fluid levels and conduct a visual inspection of vehicle/equipment to assure your vehicle/equipment is performing at optimum safety, perform the required pre-trip, post-trip inspections and the required paperwork, perform needed	**MWD/LWD Engineer#** 1) Takes the lead to ensure that expected and needed data, including possible problems, are provided to the customer. 2) Takes the lead to provide technical consultation to all the clients. These areas include mud hydraulics, Bottom Hole Assembly (BHA) planning, pore pressure analysis, formation evaluation, drilling tendencies, the mud system, and BHA dynamics. 3) Ensures the proper testing of all tools and equipment before, during, and after each job. Identify and correct operational problems to prevent or minimise service impact. 4) Ensures that BHA's are assembled as planned to include correct make-up torque, doping and handling. 5) Leads the effort to interface with the Directional Driller (DD) to ensure BHA compatibility, planned operating parameters are within specification and correct tool face references are applied.

			reviewing the stability calculation and rig move meeting onboard and prior to rig move operation for the rig to go onto final position/anchoring etc. 6) Location Approval Certificate – issued in advance for rig move operations, upon submitting final RMP.	maintenance including winterizing equipment. 14) Communicates with Supervisor daily to turn in required paperwork (i.e. Bore log, vehicle maintenance reports, etc.) 15) Follows specifications for the job and company policies 16) Complies with safety procedures while driving and at the job site 17) Strive for optimal production while working safely and performing quality work	6) Ensures all the equipment, personnel, and resources needed to perform the service is available. 7) Proficient in the use of LWD computer software and be able to provide advice and analysis to the client representative at the worksite. 8) Ensures a daily MWD/LWD report is completed and copied to the client's offshore teams and to the MWD/LWD Coordinator and is responsible for its daily cost.
4	**Cook** 1) The Sr. Cook will accurately and efficiently prepare, portion, cook, and present a variety of hot and/or cold food items for various meal periods: to include Breakfast, Lunch, Dinner, and Special/Catered Events. 2) Prepares foods by operating a variety of kitchen equipment to measure and mix ingredients, washing, peeling, cutting and shredding fruits and vegetables, and trimming and cutting meat, poultry or fish for culinary use. 3) Provides the highest quality of service to customers at all times. 4) Tastes products, reads menus, estimates food requirements, check	**No Job Title**	**No Job Title**	**Well Planner** 1) The Well Planner is responsible for providing support to the Directional Department in the planning, development and execution of onshore directional drilling activities for new and existing wells. 2) Independently collaborating with Engineers and Geologists, the Well Planner will use relevant software to calculate well trajectories and ensure customer objectives are met.	**Well Planner** 1) The Well Planner is responsible for providing support to the Directional Department in the planning, development and execution of onshore directional drilling activities for new and existing wells. 2) Independently collaborating with Engineers and Geologists, the Well Planner will use

	production, and keep records in order to accurately plan production requirements and requisition supplies and equipment. 5) Attends all allergy and foodborne illness in-service training. 6) Complies with all Sodexo HACCP policies and procedures. 7) Reports all accidents and injuries in a timely manner. 8) Complies with all company safety and risk management policies and procedures. 9) Participates in regular safety meetings, safety training and hazard assessments. 10) Produces small to large batch goods using the advanced and full range of classical and contemporary cooking, plating and garnishing techniques. 11) Select recipes per menu cycle, prepare bakery items, receives inventory, move and lift foodstuffs and supplies and prepare meals for customers requiring special diets.			3) The Well Planner works under the direction of the Directional Drilling Coordinator. 4) Detailed Description: a. Gather and interpret data to calculate well plans as required by the customer b. Prepare plan reports, anti-collision reports, and wall plots for customer and field use c. Prepare daily PVA reports and End of Well reports d. Update department, customer and field databases to ensure consistency e. Record and archive customer documentation and correspondence f. Maintain job logs and daily tracking databases g. Manage multiple tasks and projects simultaneously h. Work independently and prioritise time to meet processing deadlines **5)** Perform other relevant projects and responsibilities as deemed necessary	relevant software to calculate well trajectories and ensure customer objectives are met. 3) The Well Planner works under the direction of the Directional Drilling Coordinator. 4) Detailed Description: a. Gather and interpret data to calculate well plans as required by the customer b. Prepare plan reports, anti-collision reports, and wall plots for customer and field use c. Prepare daily PVA reports and End of Well reports d. Update department, customer and field databases to ensure consistency e. Record and archive customer documentation and correspondence f. Maintain job logs and daily tracking databases. g. Manage multiple

					tasks and projects simultaneously h. Work independently and prioritise time to meet processing deadlines 5) Perform other relevant projects and responsibilities as deemed necessary
3	**<u>Galley Hand</u>** 1) For starters, working as a galley hand requires multiple skills and training. Basically, they are trained to work in ships and oil rigs. Usually, a galley hand is responsible for assisting in meal preparation, service, and clean-up. 2) A galley hand also ensures that food is stored properly, coffee is promptly served, and the galley area is well-cleaned and maintained. He or she takes on the job of laundry and cleaning the sleeping quarters and latrines. Galley's hands are often needed to complete a 12-hour work shift, including holidays. 3) Aside from cleaning and serving meals, a galley hand is also expected to do some, if not all, of the following tasks in an oil rig or ship. 4) Loading and unloading cargo and supplies from various vessels (e.g., choppers, boats, etc.) 5) Be familiar with the crew's special nutrition or dietary restrictions 6) He or she should carry special certifications (e.g., Water Survival Certification) 7) Ensuring that food inventory is done and avoiding spoilage	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**

	8) Other housekeeping, customer service, and food service tasks				
2	**Laundry Man** 1) Maintain high standards in laundry services. 2) Cleanliness of the laundry work area. 3) Mainly responsible for washing, drying, and ironing. To ensure that the laundry schedule is strictly followed for uniforms and personal clothes, bed linen. 4) To ensure that the chemical solutions and the machines are operated as per standards/instructions so as to ensure that there is no damage to the clothes during the laundering process. 5) To ensure timely collection and return of garments, uniforms, and linen, etc. to the right personnel. 6) To ensure that the laundry machines or the iron box are not left unattended.	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**
1	**Messboy** 1) Working under the supervision of the chief steward 2) Cleaning/sanitation duties on the rig such as: 3) Cleaning specified decks/room/space 4) Cleaning the galley area (washing dishes/silverware, cleaning shelves, trash removal, etc.) 5) Assisting the chief steward and cook/baker in the preparation of meals by retrieving stores and performing basic food preparations (peeling potatoes, cutting fruit, etc.) 6) Taking orders and serving meals 7) Assisting in putting up stores upon arrival of the ship 8) Assisting the chief steward and cook/baker as directed	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**

	9) Mandatory participation in emergency training drills 10) Participating as a general support worker and developing a good knowledge of all galley cleaning and sanitation operations/duties noted in the general work description				

Table 4.17: Occupational Competency (OC) for Group 061 and 062 (4)

JOB AREA / LEVEL	Drilling (Well Control)	Drilling (Mud Engineering)	Drilling (Cementing)	Drilling (Mud Logging)	Drilling (Tubular Running, Casing, Tubing)
8	**Well Control Specialist** 1) Under broad direction, provides on-site consulting and monitoring of oil well blowout and emergency conditions, firefighting, well-killing and other blowout procedures in emergency drilling situations. 2) Ensures that well-site activities are completed in accordance with Company policies, procedures, quality standards, and safety regulations. 3) Advises on specific servicing problems and recommends the use of specialised tools, techniques, and services. 4) Assists in the repair and maintenance of equipment. 5) Completes internal reports and customer reports per job scope without supervision. 6) Understands whether a tool is applicable for a particular well project, without supervision. 7) Demonstrates understanding of procedure(s) to include downhole tools to be used to accomplish project objective(s), under supervision. 8) Operates hydraulic systems and can substitute components if necessary for repair under supervision.	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**

	9) Identifies needed additions or changes to hydraulic systems for operational improvement under supervision. 10) Operates firefighting equipment without supervision. 11) Demonstrates moderate understanding of fluid handling systems and recommends components, without supervision.				
7	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Tite**	**No Job Title**
6	**No Job Title**	**<u>Mud Engineer/Remote Operation</u>** 1) Design the mud mix based on the expected geology which may change as drilling proceeds and geology changes 2) Work with the project manager for the delivery of material to minimise downtime and cost associated with speeding up delivery to meet timelines. 3) Check the virgin fluid to establish a baseline by recording different parameters such as marsh funnel viscosity, pH, fluid density, fluid loss, yield point, and plastic viscosity. 4) Check mud samples every hour against the baseline to detect and monitor developing problems 5) Recognise changes in the mud during the drilling process and make necessary	**<u>Cementing Engineer/Remote Operation</u>** 1) Prepares detailed cementing program. 2) Identifies, assesses and controls potential and actual cementing hazards for each job. 3) Supervises critical cement jobs at sites. 4) Conducts due diligence on the cement proposals received from cementing contractors. 5) Coordinates the use of existing and new technologies to improve cement quality and improve overall drilling performance. 6) Holds pre-cementing job calls before any cement job with drilling supervisor, drilling engineers and drilling superintendent lead project review and closeout.	**<u>Mud Logging Engineer/Remote Operation</u>** 1) Work in wellsite units collecting, processing, logging and describing rock samples 2) Use various laboratory techniques to analyse samples 3) Monitor computer recordings of drillings 4) Interpret information and feed it back to the data engineer and drilling team to enhance safety and success 5) Operate and maintain a real-time computer-based data acquisition system, which records all aspects of rig activity 6) Undertake on-site maintenance when necessary 7) Take on the primary health and safety role for the well through constant monitoring of all critical drilling parameters 8) Predict dangerous situations, such as over-pressured	**No Job Title**

		adjustments for the mud viscosity, mud temperature, pH balance, and chemical components. 6) Ensure the mud supply company provides adequate computer aids and manuals to troubleshoot problems and find solutions. 7) Minimise drilling fluid waste by calculating the correct quantity and having the right mix available at all times. This is particularly important due to the difficulty and cost of disposal. 8) Conduct standardised testing during the drilling process, recommending drill bits, and assisting excavating technicians		formations 9) Assist the wellsite geologist during coring operations 10) Provide written reports to the data engineer, drilling team and company.	
5	**No Job Title**	**Mud Engineer** 1) Design the mud mix based on the expected geology which may change as drilling proceeds and geology changes. The geotechnical information is provided to the mud engineer who examines it and along with the contractor comes up with a drilling fluid plan. 2) Work with the project manager for the delivery of material to minimise downtime and cost associated with speeding up delivery to meet timelines.	**Cementer** 1) Check the forms that hold the concrete to see that they are properly constructed. 2) Set the forms that hold concrete to the desired pitch and depth and align them. 3) Spread, level, and smooth concrete, using rake, shovel, hand or power trowel, hand or power screed, and float. 4) Monitor how the wind, heat, or cold affect the curing of the concrete throughout the entire process. 5) Mold expansion joints and edges, using edging tools, jointers, and straightedges.	**Mud Logger** 1) Work in wellsite units collecting, processing, logging and describing rock samples 2) Use various laboratory techniques to analyse samples 3) Undertake on-site maintenance when necessary 4) Take on the primary health and safety role for the well through constant monitoring of all critical drilling parameters 5) Predict dangerous situations, such as over-pressured formations 6) Assist the wellsite geologist during coring operations 7) Monitor computer recordings	**Tubular Running Field Supervisor** 1) Supervised Open hole completion design 2) Supplying downhole equipment according to customer requirements and specifications 3) Supervised setting the liner hangers and liner packers 4) Inflatable External Casing Packers setting 5) Setting of production packers 6) Installation and maintenance of downhole safety valves

		3) Help calculate the portion of the cost associated with the drilling process in conjunction with other drilling engineers and technicians. 4) Inspect the recycling plant and gain working knowledge to come up with contingency plans. 5) Check the virgin fluid to establish a baseline by recording different parameters such as marsh funnel viscosity, pH, fluid density, fluid loss, yield point, and plastic viscosity. 6) Check mud samples every hour against the baseline to detect and monitor 7) Recognise changes in the mud during the drilling process and make necessary adjustments for the mud viscosity, mud temperature, pH balance, and chemical components. 8) Minimise drilling fluid waste by calculating the correct quantity and having the right mix available at all times. 9) Conduct standardised testing during the drilling process, recommending drill bits, and assisting excavating technicians		of drillings 8) Interpret information and feed it back to the data engineer and drilling team to enhance safety and success 9) Operate and maintain a real-time computer-based data acquisition system, which records all aspects of rig activity 10) Provide written reports to the data engineer, drilling team and company.	7) Running of injection and control lines 8) Setting of cement retainers and bridge plugs 9) Testing, control and preparation of downhole equipment supplies composite

4	**No Job Title**	**No Job Title**	**Assistant Cementer** 1) Check the forms that hold the concrete to see that they are properly constructed. 2) Set the forms that hold concrete to the desired pitch and depth and align them. 3) Spread, level, and smooth concrete, using rake, shovel, hand or power trowel, hand or power screed, and float. 4) Monitor how the wind, heat, or cold affect the curing of the concrete throughout the entire process. 5) Mold expansion joints and edges, using edging tools, jointers, and straightedges.	**Junior Mud Logger** 1) Able to correctly calculate and cross-check the veracity of lag times. 2) Collect cuttings samples, from the proper lagged depths and at the proper intervals as required by the Client for evaluation. □ 3) Wash and screen samples, divide them into correct portions and pack them by sets for the Client, partners and trade. 4) Always use the correct type of marker pen for each label and ensure labels cannot be damaged by seepage of mud fluids etc. 5) Assist in keeping track and recording samples that have been caught and transported. 6) Assist in monitoring and reporting the presence of cavings and their magnitude to senior mud logging personnel.	**Tubular Running Technician** 1) Open hole completion design 2) Supplying downhole equipment according to customer requirements and specifications 3) Setting the liner hangers and liner packers 4) Inflatable External Casing Packers setting 5) Setting of production packers 6) Installation and maintenance of downhole safety valves 7) Running of injection and control lines 8) Setting of cement retainers and bridge plugs 9) Testing, control and preparation of downhole equipment supplies composite
3	**No Job Title**	**No Job Title**	**Cementing Helper** 1) Load and unload items from machines, conveyors, and conveyances. 2) Operate machinery used in the production process, or assist machine operators. 3) Place products in equipment or on work surfaces for further processing, inspecting, or wrapping. 4) Examine products to verify conformance to quality standards.	**No Job Title**	**No Job Title**

			5) Start machines or equipment to begin production processes.		
2	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**
1	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**

Table 4.18: Occupational Competency (OC) for Group 061 and 062 (5)

JOB AREA LEVEL	DRILLING (CASING WHILE DRILLING)	DRILLING (WIRELINE LOGGING)	DRILLING (GYRO)	DRILLING (MANAGED PRESSURE DRILLING)
8	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**
7	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**
6	**CWD Engineer** 1) Reports to the Drilling Superintendent 2) Monitor the daily drilling and completion operations. Update the appropriate charts, files and directional well course maps 3) Prepares Drilling Programs/Loadout the list for each well. Document to be issued 1 week before spud. 4) Prepares program amendments: Changes to the manual/well programs or in case of unscheduled events, i.e. Squeeze procedures, sidetrack procedures, and temporary abandonment procedures. 5) Analyses and updates the equipment inventory spreadsheet for Float equipment, Casings, Liner hangers and Wellheads. Prepares Ordres de Founrniture and follow up with A&C to ensure all equipment is ordered and delivered in a timely fashion in order to minimise freight cost and meet the drilling requirements. 6) Reviews and analyses past drilling programs and actual well data in an effort to identify safer and more environmentally sound operations techniques, and areas where new innovative drilling ideas can be implemented. Recommends ways to	**Wireline Engineer/ Remote Operation** 1) Operates the principal service of Wireline Completions and/or Wireline Logging in an assigned service area. Conducts the operation of a service unit to maintain a high standard of Safety, Quality and Efficiency with Safety above all else. 2) Manages and directs assigned crew and surrounding operations in a safe and effective manner. Completion operations involve a large amount of third party equipment and personnel which must be controlled during our operations involving pressure control, high tension cable and explosives. It is imperative that this role has the ability to maintain control of the wellsite during these operations. 3) Performs electric and/or nuclear well logging operations to provide the client with the required data on any given well operation. This operation requires a great deal of attention to detail and a high level of general log quality. Handles all pre-job and post-job logging tool maintenance, data confidentiality and archiving, and tool troubleshooting. 4) Operates with the quality goals of no Unintentional Pull-Offs or Pump-Offs, no misruns and no off depth	**No Job Title**	**Remote MPD Engineer** 1) Test and maintain equipment in the shop and in the field. 2) Provide onsite labour, when needed. 3) Perform maintenance and repairs on company-owned and rental equipment in the field. 4) Assist in time, cost, and labour estimates for completion of job assignments. 5) Recommend measures to improve methods, performance, and quality to increase efficiency. 6) Accurate and thorough completion of job reports on a timely basis. 7) Assist in the shop and make deliveries when available. 8) Assist Field Service Rep. III when needed. 9) Know and understand Weatherford Quality Policy and comply with all requirements of the Quality Systems Manual, Operating and Technical Procedures and Workplace Instructions. 10) Must understand and comply with all safety rules and company policies of Weatherford. 11) Work assignments carried out to the highest quality level. 12) Perform various other duties and activities as assigned by the supervisor

	reduce cost while drilling and completing a well. 7) Plans, implements, and monitors drilling fluid properties daily and ensures that post-well mud appraisal reports are prepared by the drilling fluid contractor. Check invoices. 8) Plans, implements, and monitors cementing design proposals and ensures that post-well cementing appraisal reports are prepared by the cementing companies. Check invoices. 9) Prepares calculations and makes recommendations pertaining to casing, tubing and drill string designs. 10) Liaison with the representatives from the Geology, Reservoir and Production Departments during the planning, execution, and post-well analysis stages for each well.	perforations in addition to efficient wellsite operations. Active championing of the Perforating Improvement Plan or similar is a requirement. 5) Handles any possible return of undetonated explosives to the surface with the focus on maintaining safe operations without rushing, no matter whatever perceived time pressure may exist.		within the physical constraints of the job.
5	**CWD Supervisor** 1) Supervise contractors in the execution of all drilling and associated programmes, ensuring that all objectives are met in a safe and efficient manner and in keeping with all regulatory requirements. 2) Co-ordinate and provide the necessary leadership to carry out all activities with respect to the various offshore programmes. To coordinate the collection of all data to be transmitted back to the base office, and to ensure the correctness, content and quality of such data. To be the custodian and responsible person for the drilling reporting.	**Wireline Field Engineer** 1) Control the quality of service during all phases of the operation and ensure that products of the highest quality are delivered to the client. 2) Advice clients on the best practices to optimise operational efficiency. 3) Organise and participate actively in the training of his/her operators. 4) Actively lead and support the training of Junior Field Engineer and crew assigned to his/her cell. 5) Attend to his/her personal development by following the Company's development programs, as applicable. 6) Follow and uphold all company's	**Gyro Surveyor** 1) Work closely with Directional Driller and MWD Engineer on the well survey requirement. 2) Provide efficient, safe and fast surveying services to our clients. 3) Check and prepare the equipment necessary to do the job in the most efficient manner as per the company's operating instructions. 4) Establish and maintain good work relations with clients and drilling contractor personnel. 5) Maintains close client contacts and ensures awareness of Clients proposed activity. 6) Organises and control the	**MPD Senior Supervisor** 1) Primary responsibilities of this position are the daily supervision of MPD Operations including pre-planning (e.g., HSE, HAZID and HAZOP) and producing the post-well performance summaries. 2) The MPD Supervisor/Lead will supervise a team including MPD Mechanical Specialist and MPD Control Systems / DAQ Specialist. 3) Manage client relationship and expectations on-site, and when appropriate, demonstrate and explain Managed Pressure Drilling technology - must be able to represent independently

	3) Liaise and report directly to the offshore installation manager with a view to keeping him fully abreast of current drilling and associated activity and to make him aware of any condition which may require certain operating conditions or priority settings. 4) To continually monitor the effectiveness of the ongoing process and to report on the same. To be able to suggest and discuss any changes which may be required to the programme with a view to improvement. 5) Supervise the maintenance work of drilling-related equipment, in accordance with procedures, to ensure safe and efficient operation. 6) Take prompt action, in the event of an emergency within the drilling package, to safeguard life and minimise damage to properties and any detrimental effect on the environment. 7) Evaluate and report on the performance of service contractors to safeguard the technical and commercial interests of the company. 8) Execute thoroughly, any incident investigation, analysis and follow up in order to prevent a recurrence. 9) Train, develop and motivate subordinates (also from other disciplines and contractors), and render technical support and guidance with the aim to promote team spirit.	HSE standards and promote their respect, understanding and adherence. Actively participate in local loss prevention programs. 7) To perform all reporting and administrative duties concerning the field operations, accurately and in a timely manner. 8) To ensure that the good practices are systematically applied to all tools and equipment assigned to him/her and to keep it in a state of readiness. 9) To ensure that the status of all equipment assigned to his/her cell is reported and kept up to date in the company's system. 10) To ensure that supplies are available at the wellsite to perform the operation	maintenance of all equipment in accordance with the procedures. Ensures that the operations called are adequately equipped as per policies, to provide adequate working and maintenance facilities. 7) Plans all surveying operations to ensure high-quality service with the best economical and technical efficiency. 8) Conduct pre-job checks as per the operating procedures. 9) Communicates on daily basis with Operations for current job status & related concerns. Communicate effectively with colleagues and follow the lead engineer instructions, as applicable. 10) Perform Job as detailed in Company's procedures manual or otherwise as agreed with operations prior to the job. 11) Process and analyse data to make sure that it falls within the Company's set forth QA/QC Specification. 12) Prepare, check and submit a final report to Operations as per the client's requirements. 13) Compile any failure or variance report as and when required. Follow up & assist Operations to close out the problem. 14) Actively report HSE observations and any job or site related HSE concerns he may have to the immediate attention of his supervisor or the client representative, as applicable.	4) MPD Supervisors will work closely with other key personnel on the location: Company Man, Directional Drillers, Data Techs, Drilling Foreman and Drillers. 5) The MPD Supervisor to provide strategic customer information including client product and service requirements and expectations and post-well satisfaction. 6) Supervise field installation and operation of Managed Pressure Drilling jobs including pre-planning and logistics, supervision of all on-site personnel and post-well performance summary reporting. 7) Troubleshoot for field operations in the operation, maintenance and repair of Managed Pressure Drilling equipment 8) Participate in the design and supervision of all Managed Pressure Drilling field tests 9) Recommend new approaches and/or specifications for new and existing equipment, software and procedures 10) Competent in the use of drilling engineering calculating programs and other related software. 11) Perform Rig Survey & Rig Audit and able to prepare to layout & P&ID. 12) Lead HARC, HAZID, HAZOP, and DWOP for MPD/PMCD operation 13) Lead MPD Training Level I & II (Classroom) and Level III (Wellsite)
4	**No Job Title**	**<u>Wireline Field Technician/Specialist</u>**	**No Job Title**	**<u>MPD Supervisor</u>**

		1) Control the quality of service during all phases of the operation and ensure that products of the highest quality are delivered to the client. 2) Advice clients on the best practices to optimise operational efficiency. 3) Organise and participate actively in the training of his/her operators. 4) Actively lead and support the training of Junior Field Engineer and crew assigned to his/her cell. 5) Attend to his/her personal development by following the Company's development programs, as applicable. 6) Follow and uphold all company's HSE standards and promote their respect, understanding and adherence. Actively participate in local loss prevention programs. 7) To perform all reporting and administrative duties concerning the field operations, accurately and in a timely manner. 8) To ensure that the good practices are systematically applied to all tools and equipment assigned to him/her and to keep it in a state of readiness. 9) To ensure that the status of all equipment assigned to his/her cell is reported and kept up to date in the company's system. 10) To ensure that supplies are available at the wellsite to perform the operation		1) Primary responsibilities of this position are the daily supervision of MPD Operations including pre-planning (e.g., HSE, HAZID and HAZOP) and producing the post-well performance summaries. 2) The MPD Supervisor/Lead will supervise a team including MPD Mechanical Specialist and MPD Control Systems / DAQ Specialist. 3) Manage client relationship and expectations on-site, and when appropriate, demonstrate and explain Managed Pressure Drilling technology - must be able to represent independently 4) Work closely with other key personnel on the location: Company Man, Directional Drillers, Data Techs, Drilling Foreman and Drillers. 5) Provide strategic customer information including client product and service requirements and expectations and post-well satisfaction. 6) Supervise field installation and operation of Managed Pressure Drilling jobs including pre-planning and logistics, supervision of all on-site personnel and post-well performance summary reporting. 7) Troubleshoot for field operations in the operation, maintenance and repair of Managed Pressure Drilling equipment 8) Participate in the design and supervision of all Managed Pressure Drilling field tests
3	**No Job Title**	**Wireline Field Operator**	**No Job Title**	**Junior MPD Supervisor**

		1) Under supervision, assist Field Engineer and Field Operator with preparation and execution of wireline logging operations. 2) Adhere to Health, Safety, and Environmental (HSE) procedures and guidelines, and other appropriate safety and service quality protocols and guidelines. 3) Assists in the completion of pre and post job equipment inspections and associated paperwork and/or reports. 4) Assists in rigging-up and rigging-down of operation equipment which can include high-pressure iron and hose connections. 5) Assist in completing preventative maintenance procedures and maintaining support equipment. 6) Assist in tool preparation for backload		1) Performs MPD rig up, operate and troubleshooting of the MPD equipment at the job site or workshop, ensure all paperwork and HSE requirements are met and complied 2) Understands the maintenance of the MPD equipment at the job site and workshop when required 3) Understands green tagging, in casing test, or other operational activities required on location or in the shop and all documented procedures for the MPD equipment on location. 4) Knows how to install and remove bearing of RCD. 5) Performs field operations of MPD equipment and is willing to learn to operate Opla's MPD Smart™ software 6) Troubleshoot all electrical/electronic components and repair/maintain chokes and other mechanical equipment as necessary. 7) Provides onsite job support to include but not limited to: mechanical, hydraulic functionality, revision changes, compatibility issues, troubleshooting, system versions, of MPD components. 8) Must understand and comply with all safety rules and company policies of Opla. 9) Perform all duties regarding MPD and Opla assigned by management or supervisors within the physical demand of the job description.
2	**No Job Title**	**No Job Title**	**No Job Title**	**<u>MPD Operator</u>** 1) Monitoring and recording performance of automated Managed Pressure Drilling systems. 2) Taking manual control of systems

				when necessary to maintain well integrity 3) Communicating and working with the driller while Managed Pressure Drilling processes are being followed. 4) Working with rig crews in rigging up MPD equipment 5) Ensuring commissioning and acceptance test procedures are followed, completed and recorded. 6) Ability to understand downhole pressure and interpret trends and signals from MPD and drilling equipment. 7) Active participation in all rig and MPD safety meetings, programmes, risk reviews, pre-job meetings.
1	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**

Table 4.19: Occupational Competency (OC) for Group 061 and 062 (6)

JOB AREA / LEVEL	DRILLING (LINER HANGER)	DRILLING (OPTIMISATION)	DRILLING (INSPECTION)	DRILLING (FISHING)	DRILLING (WELLHEAD)
8	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**
7	**No Job Title**	**No Job Title**	**Rig Inspector Mechanical / Electrical / Marine** 1) Inspections of the internal parts of specific equipment including critical measurements and clearance to ensure equipment is running within recommended tolerances. 2) Function testing, pressure testing, load testing and insulation resistance checks for all critical equipment on the drilling unit, as required. 3) Verification that the proper safety devices are installed correctly, testing that these correct function and are correctly calibrated to prevent equipment damage and accidents. 4) Verification that the rig equipment complies with API standards, the equipment manufacturer's specifications and recommendations and good engineering practices. 5) Verification that the rig is in compliance with the contractual requirements as provided by the client. 6) Verification of crew competency especially on key	**No Job Title**	**No Job Title**

			personnel. 7) Witness Endurance Test as specified by the client.		
6	**Liner Hanger Engineer** 1) Review job and plan for specific equipment requirements to successfully complete job execution. 2) Follow up and fully participate in job preparation at the base 3) Ensure that well program; procedures are available and well understood 4) Ensure that Quality inspection sheets are available and correctly filled out 5) Ensure equipment/tools compatibility with all other equipment used for the job. 6) Participate in equipment preparation and make-up, prior to delivery to the well site. 7) Ensure proper documentation of paperwork pertaining to the job 8) Directly supervise the installation and use of the equipment at the well site to achieve client satisfaction. 9) Ensure that customer expectations are met. 10) Participate in redressing of equipment on return from	**No Job Title**	**No Job Title**	**Fishing Tool Supervisor** 1) Supervising all work activities in laying down the fishing tool bottom hole assembly when out of the hole 2) Conducting safety meetings with rig crew on pulling the fishing bottom hole assemblies out of the wellbore prior to pulling out of the hole to ensure work is done properly and safely. Performs JSA prior to each job site event. 3) Directing rig crew on the rig floor during operation of fishing tools down the hole, including the work of the driller for the entire operation, lasting up to 14 hours in duration if necessary 4) Overseeing that work procedures are safely implemented and equipment used are properly handled and maintained to ensure safety practices and security measures are followed 5) Developing and planning work activities and scheduling with customer representatives to ensure the correct equipment is ordered, used, serviced and maintained according to set procedures and/or agreements 6) Managing the equipment used in the fishing operations to	**No Job Title**

	the well site 11) Complies with all Weatherford QA/QC, HSE policies and procedures 12) Complete all paperwork prior to and upon completion of the job			ensure its safety and cleanliness 7) Meeting with division managers and customer representatives concerning cleaning out the customer's wellbore and other safety issues and concerns affecting the fishing operations 8) Providing daily contact with and/or reporting to customers and Key fishing district regarding costs involved and equipment used	
5	**Liner Hanger Supervisor** 1) Responsible for running completion tools down the holes at the customers well site. 2) Liner hanger subject matter expert in the WBC product line 3) Capable of responding to operational, technical and application requests as well as assisting in resolving technical and operational issues and challenges. 4) Advise customers and geo personnel of technical issues that may affect the installation or sales of products and/or services of the organisation. 5) Provide support to operations and assist in the preparation of field inventory for job	**Drilling Optimisation Engineer** 1) Conducts detailed time study of offset wells. 2) Analyses offset data, including bits, BHA's, equipment and tools failure. Define visible and invisible Non-Productive Time, etc… 3) Develops BHA and hydraulic solutions utilizing the proper engineering software. Develops an understanding of the root causes of drillability problems, including rocks mechanical properties and bit/motor types. 4) Identify areas for improvement, recommend solutions and initiate an implementation plan. 5) Carries out a post well review to ensure that lessons learnt are captured for planning the subsequent	**No Job Title**	**No Job Title**	**No Job Title**

	installations. 6) Train customers and field personnel on new and existing products and services. 7) Advise on technical applications issues that affect the installation of products and/or services of the organisation 8) Assist in the creation of standard operating procedures, failure analysis and corrective action of failed equipment, share best practices and lessons learned	wells.			
4	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**	**<u>Wellhead Service Technician</u>** 1) The Field Service Technician will perform duties in the installation, repair, removal, and maintenance of wellhead equipment on customer well sites within the geographical area of assignment. 2) Install, repair and maintain equipment at the well site. Perform valve repair, valve lubrication, and wellhead upgrading. 3) Repair, assemble, test, maintain tools, and customer equipment. 4) Organise, select, and

					arrange shipment of equipment. 5) Maintain all GE property, including truck, service tools, phone, computer equipment, etc. in a clean and ready state. 6) Prepare service tickets and detailed Job Safety Analysis (JSA) requirements. 7) Promote and perform any field service-oriented sales and maintain a confident customer relationship for the company. 8) Comply with all applicable quality, health, safety, and environmental regulations. 9) Perform other related duties as assigned by management or indicated by
3	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**
2	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**
1	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**

Table 4.20: Occupational Competency (OC) for Group 061 and 062 (7)

JOB AREA / LEVEL	WELL COMPLETION (ENGINEERING)	WELL COMPLETION (OPERATION)	WELL COMPLETION (UPPER)	WELL COMPLETION (WELLBORE CLEANOUT)	WELL COMPLETION (PERFORATION)
8	**Custodian Completion Engineer** 1) Monitor overall task with the well completion teams to prepare a project Work Data Sheets, well completion proposals and well objectives in compliance with Company policy and practice. 2) Review and verify designs and procedures including time and cost estimates. Provide input for technology, new venture and asset budgets where appropriate. 3) Monitor well completion performance through research of new technology, tools their applications and techniques. Develop suitable applications and introduce new technologies that can improve the performance and reliability of the company's well completion. 4) Review and compile offset well descriptions and prepare well designs to ensure that well completion programs adopt optimum engineering, safe working	**Completion Manager** 1) Plan, organise, direct and manage the overall implementation of onshore/offshore exploration, development, completion, workover and wireline activities in accordance with the approved programs, procedures and practices and with the specific objective of achieving optimum operating cost, safeguarding the safety of personnel and property and protection of the environment. 2) Provide technical expertise to troubleshoot major operational problems, such as blow out, rig on fire or a serious accident that may occur during the operations. 3) Lead and guide the development, integration and implementation of new well completion programs in order to meet the short term and long production target in the safest, cost-effective and timely Integration to involve	**No Job Title**	**No Job Title**	**No Job Title**

	environment, time and cost solutions. 5) Ensure safety for well completions operations teams by identifying potential risks/hazards and assisting their design/planning of mitigation measures 6) Ensure senior engineers work with third-party (vendor) experts to develop well completion designs and plans and evaluate design analysis for thoroughness and accuracy 7) Verify tender requests and subsequently evaluate and make recommendations for services to be rendered.	Petroleum Engineering, Project & Facilities, Operation and Production Departments. 4) Initiate the well testing activities to obtain the fluid types, properties, productivity and volume of the new wells through practical, efficient, cost-effective and safe well testing program and implementation. 5) Identify, initiate and monitor the work-over activities to revive, enhance or maximise the oil potential of the existing wells through comprehensive identification, analysis, integration and the development and implementation of the work-over programs.			
7	**<u>Principle Completion Engineer</u>** 1) Serve as the smart matter expert for all offshore completion, intervention, workover, well testing and abandonment related activities within the Company. 2) Perform post-operational analysis at the conclusion of completion operations, inclusive of lessons learned, potential improvements,	**<u>Principle Completion Engineer</u>** 1) Serve as the smart matter expert for all offshore completion, intervention, workover, well testing and abandonment related activities within the Company. 2) Perform post-operational analysis at the conclusion of completion operations, inclusive of lessons learned, potential improvements, benchmarking, and final	**No Job Title**	**No Job Title**	**No Job Title**

	benchmarking, and final performance reports. 3) Implement standards for activities within the smart matter expert area of responsibility, ensuring the highest levels of HSE performance. 4) Review budgets and AFEs for offshore well completion activities and provide assessments of required funding and risks associated with the scope of work. 5) Recommend new technologies and ideas that add value and reduce the risk for the Company 6) Develop and mentor Company staff within the well completion discipline. 7) Represent the Company at industry events and Joint Venture meetings, using appropriate influencing skills to promote the Company interests. 8) Work with various departments (Business Development, Producing Assets, etc.) to share knowledge on well completion and answer questions, provide feedback, and make suggestions/recommendations which will result in added value to the Company. 9) Contribute to maintaining	performance reports. 3) Implement standards for activities within the smart matter expert area of responsibility, ensuring the highest levels of HSE performance. 4) Review budgets and AFEs for offshore well completion activities and provide assessments of required funding and risks associated with the scope of work. 5) Recommend new technologies and ideas that add value and reduce the risk for the Company. 6) Develop and mentor Company staff within the well completion discipline. 7) Represent the Company at industry events and Joint Venture meetings, using appropriate influencing skills to promote the Company interests. 8) Work with various departments (Business Development, Producing Assets, etc.) to share knowledge on well completion and answer questions, provide feedback, and make suggestions/recommendations which will result in added value to the Company. 9) Contribute to maintaining and improving the			

	and improving the Company Well Delivery Process	Company Well Delivery Process			
6	**Senior Completion Engineer** 1) Ensuring consistency of work processes and deliverables 2) Supporting with the preparation and documentation of completion, work-over and other rig operational programs in compliance with requirements 3) Providing input e.g. cost estimate for AFE preparation, completion design and optimised running procedures for new wells, P&A, infill or re-drills, tubing and zonal completions 4) Providing completion engineering support for high risk and critical project drilling activities 5) Providing conceptual engineering for early engagement with project teams	**Senior Completion Supervisor** 1) Ensure that the well completion operations are carried out in a safe manner and that well objectives are achieved on time within budget, and without any adverse effect on the environment. 2) Ensure that all well completion operations are planned and performed in compliance with the approved Company policies. 3) Carry out the necessary engineering calculations and studies to ensure that the completion and well services designs achieve the well objective in the most efficient manner whilst ensuring that the risks of unplanned releases of fluids from the wells are ALARP.	**No Job Title**	**No Job Title**	**No Job Title**
5	**Completion Engineer** 1) Provide support to all completed projects and assist in tubing design and drag movements and construct all mono bore well designs. 2) Install and design all completion processes and plan all work over for	**Completion Supervisor** 1) - Safe and cost-effective Supervision and hands-on implementation of all completion activities in accordance with approved Completion and Work Over programmes for the respective fields. 2) - Prepare completion	**Completion Tool Supervisor/Engineer** **Completion Tool Supervisor/Engineer** 1) To provide installation, repairs, completion tools and other rental equipment in the workshop and in the field. 2) Help generate business to increase revenues through	**Wellbore Cleanout Engineer/Supervisor** 1) Monitoring and remediating anomalous and steepening decline rates that do not fit predicted production rates. 2) Determine wells that need periodic wellbore cleaning and a suitable clean-out method. 3) Planning asphaltene and paraffin	**Perforation Engineer/Supervisor** 1) Work with company representative and drilling crew on location to coordinate operations for Safe execution. 2) Advise company representative in the

	completion procedures. 3) Prepare basic designs and perform alternative completion for all processes and design all completion procedures. 4) Coordinate with internal and external personnel to design all completion processes and administer all completion design projects. 5) Perform all seconded completion engineer processes and assist in the completion of all design and hardware specifications. 6) Supervise identification of all equipment and materials and design all technical specifications for project assessment. 7) Analyse and recommend aan alternatives to completion procedures and ensure competency in the same and design all products according to leveraged agreements. 8) Design new technology with help of network and equipment providers and provide training to all engineers and new employees. 9) Develop all HES objectives and participate in all procedures and perform management processes to ensure career development. 10) Attend all Health, safety and environment processes and	equipment in coordination with workshop completion supervisor. 3) - Initiate and prepare well schematics, equipment load plans in coordination with Drilling Engineer and liaise with Drilling Supervisor and vendors, to ensure completion equipment is prepared and sent offshore promptly. 4) - Assist the Offshore Drilling Supervisor in all matters whilst on the rig, to ensure a safe- and cost-effective operation is being executed. 5) - Forward suggestions and recommendations to improvements, to ensure that the most appropriate completion equipment and design from the most common to state-of-the-art are being utilised. 6) - Feedback on service company equipment and personnel performance to ensure cost-effective operations. 7) Provide service quality feedback to the Completion Specialist and Drilling Engineers. 8) End of well filing on a company data server as well as hard copies of all applicable reports and completion data to ensure all documentation is kept and preserved for future	sales of the company's products and services.	cleanouts for all wells. 4) Ensures that all wellbore cleanout operations are being carried out in accordance with standards and practices. 5) Develops a well integrity program for wellbore cleanout for offshore wells. 6) Establishes and updates periodical reports on the integrity status of wells that have been cleaned out in the field. 7) Reports progress against change implementation process. 8) Recommends required mitigating actions, based on wellbore cleanout failure models/process and controls, well integrity life cycle requirements of the well and completion design. 9) Prepares a well history database related to well cleanout issues. Collects and validates well cleanout data in the database system and properly maintains the data management system. 10) Prepares cost estimates for cleanout services. 11) Works in line with company HSE policy and rules and participates in incident/accident investigations relevant to his/her assignments and responsibilities. 12) Provide monthly updates on the status of all the wells clean out under stewardship to senior management.	perforation operations; troubleshooting, and other well site analysis and decision-making processes. 3) Prepares cost estimates for perforation services.

	ensure compliance with all laws and corporate policies.	usage.			
4	**No Job Title**	**No Job Title**	**Field Technician Specialist** 1) Provide service and customer support during field visits or dispatches. 2) Tie workflow to schedule. 3) Manage all on-site installation, repair, maintenance and test tasks. 4) Diagnose errors or technical problems and determine proper solutions. 5) Produce timely and detailed service reports. 6) Document processes.	**Wellbore Cleanout Specialist** 1) Familiar with inflow testing operations and proficient in hydraulic and differential pressure calculations. 2) Knowledgeable in Wellbore Cleaning chemicals and fluids. 3) Must be proficient in calculating basic oil industry volumes, pressures and forces. 4) Understand different facets of field operations including but not limited to completions, remedial workovers, milling operations, and cementation. 5) Perform maintenance & repairs on company-owned rental equipment in the field as needed. 6) Accurate & thorough completion of job reports on a timely basis. 7) Assist and/or supervise assembly or testing in the workshop as/if required. 8) Ensure that the well completion operations are carried out in a safe manner and that well objectives are achieved on time within budget, and without any adverse effect on the environment. 9) ·Ensure that all well completion operations are planned and performed in compliance with the approved Company policies. 10) ·Carry out the necessary engineering calculations and studies to ensure that the completion and well services designs achieve the well objective	**Perforation Specialist** 1) Involves in job preparation, well support, job execution, and post job analysis and leads a crew in providing the more complex perforating services in compliance with international SOP. 2) Responsible for pre-planning, job execution, post job analysis, and overall performance of company assets on location. 3) Responsible for ensuring equipment's maintenance is recorded and can complete all well site and post-job paperwork. 4) Maintains personal relations with the technical customer base in the designated area and is accountable for onsite customer satisfaction. 5) Functions as a

				in the most efficient manner whilst ensuring that the risks of unplanned releases of fluids from the wells are ALARP.	communications link between customers and the technical sales/solutions team. 6) Provides guidance to junior specialists on more complex tasks.
3	**No Job Title**	**No Job Title**	**Completion Technician** 1) Handling assigned work orders. 2) Performing a variety of routine maintenance tasks. 3) Dealing with incoming work requests. 4) Communicating existing and potential issues with their supervisors. 5) Always log performed maintenance work. 6) Cleaning and maintaining the tools they work with. **7)** Abiding by different safety measures and policies	**Wellbore Cleanout Repairman/ Technician** 1) Handling assigned work orders. 2) Performing a variety of routine maintenance tasks. 3) Dealing with incoming work requests. 4) Communicating existing and potential issues with their supervisors. 5) Always log performed maintenance work. 6) Cleaning and maintaining the tools they work with. **7)** Abiding by different safety measures and policies	**Perforation Tool Repairman/Technician** 1) Handling assigned work orders. 2) Performing a variety of routine maintenance tasks. 3) Dealing with incoming work requests. 4) Communicating existing and potential issues with their supervisors. 5) Always log performed maintenance work. 6) Cleaning and maintaining the tools they work with. **7)** Abiding by different safety measures and policies
2	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**
1	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**

Table 4.21: Occupational Competency (OC) for Gr Group 061 and 062 (8)

JOB AREA / LEVEL	WELL COMPLETION (SLICKLINE)	WELL COMPLETION (ELECTRIC SUBMERSIBLE PUMP)	WELL COMPLETION (SAND CONTROL/ GRAVEL PACK)	WELL COMPLETION (PERMANENT DOWNHOLE GAUGE)
8	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**
7	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**
6	**Slickline Senior Supervisor** 1) Ensure all Slickline operations are carried out safely as per client safety operation procedure 2) Coordinate daily with the client and conduct brief safety meetings with all crew discussing the job and operation as required by the client 3) Ensure that operators are fully aware of the requirement and preparation of the operation prior to any task commences 4) Encourage and obtain crew performance feedback remarks from clients on monthly basis for wireline work improvement 5) Ensure Incoming and Outgoing operators practice and apply proper handover documents a day earlier and before new Jobs commence 6) Maintain good relationships and cooperation with staff as well as with the clients. 7) Ensure all equipment are properly maintained in good condition and proper documented 8) Motivate crew personnel work performance under your supervision to achieve the company safety objective 9) Ensure all HSE and Quality	**ESP Supervisor** 1) Advise customer on a most adapted model for a submersible pump with regards to borehole characteristics and client requirements. 2) Procurement of submersible pumps, motors & electrical parts + maintain stock inventory.	**Gravel Pack Engineer** 1) Advise customer on a most adapted model for gravel pack system with regards to borehole characteristics and client requirements. 2) Demonstrate technical leadership within the Well Services department and in particular within the gravel packing team. 3) Monitor and quality check (QC) the overall gravel packing optimisation process to enhance production and increase gravel packing run life. 4) Manage and communicate with vendors involved during Installation operation.	**PDG Supervisor** **1)** Manage and supervise the PDG surface & downhole installation work to ensure compliance to HSE and adherence to approved completion program as per client requirements. Well experienced in PDG installation in HPHT environment as well as onshore drilling. **2)** Supervise the PDG surveillance activities which include downhole gauge data interpretation services based on data collected from the PDG sensor before perforation, packer setting, during well start-up, well fracturing and well testing/clean-up activities. **3)** Lead the PDG troubleshooting activities which include diagnostic on the installed PDG surface monitoring system also performing rectification work as required. **4)** Lead and supervise PDG installation with coil tubing during well workover and re-completion activities. **5)** Responsible for Pre-job Equipment Preparations which includes Tools & Equipment Inventory Checklist, logistic arrangements for spooling units and preparation of cargo

	documents are available at the base and strictly follow			manifest for Permanent Down-Hole Gauge (PDG) container & sub-surface installation equipment.
5	**Slickline Engineer** 1) Plans, prepares and coordinates operations at a well site controlling the quality-of-service delivery and execution during all phases of operations to ensure procedures are performed in accordance with original equipment manufacturer s standards, applicable safety guidelines, as well as appropriate industry standards. 2) Trains and supervises a crew of operators in the use of assigned tools preparation of the unit and calibration of equipment; responsible for planning, assigning, and directing work for crew. 3) Operates, maintains, and troubleshoots wireline surface facilities and equipment including diagnostics, as well as keeps records for the overall operation; may also operate heavy machinery with proper certification 4) Ensures compliance with all regulations applicable to wireline explosives operations 5) Interfaces with customers noting unusual conditions at the well site, maintains direct contact with the company s representatives throughout the operations, prepares, drafts, and completes logs for printing per customer requirements,	**ESP Engineer** 1) Demonstrate technical leadership within the Well Services department and in particular within the ESP team. 2) Monitor and quality check (QC) the overall ESP well performance optimisation process to enhance production and increase ESP run life. 3) Manage and communicate with vendors involved during Installation operation.	**Gravel Pack Lead Supervisor** 1) Performs in the role of a mentor to field specialists and field engineers. 2) Liaises with the client on location and assists in troubleshooting. 3) Ensures installation procedures are in order without compromising safety. 4) Procurement of gravel pack components and maintaining stock inventory. 5) Handles all other responsibilities as advised by Management.	PDG Engineer 1)Plans, prepares and coordinates operations at a well site controlling the quality-of-service delivery and execution during all phases of operations to ensure procedures are performed in accordance with original equipment manufacturer s standards, applicable safety guidelines, as well as appropriate industry standards. 2) Trains and supervises a crew of operators in the use of assigned tools preparation of the unit and calibration of equipment; responsible for planning, assigning, and directing work for crew. 3) Operates, maintains, and troubleshoots PDG facilities and equipment including diagnostics, as well as keeps records for the overall operation; may also operate heavy machinery with proper certification 4) Ensures compliance with all regulations applicable to wireline explosives operations 5) Interfaces with customers noting unusual conditions at the well site, maintains direct contact with the company s representatives throughout the operations, prepares, drafts, and completes logs for printing per customer requirements,

	and ensures the confidentiality of all logging operations 6) Provides support to crew members with operations on and off location and liaise with management on equipment failure			
4	**Senior Slickline Operator** 1) Assist team with preparation and running of equipment for slickline intervention operations under supervisory guidance in line with operating manual. 2) Liaise with offshore Supervisor, team members when required to ensure all aspects of the operations are discussed as required with the relevant parties to ensure effective communication and guidance to achieve safe operations and task completion. 3) Attend and participate in toolbox talks and planning meetings when required. 4) May be required to work on onshore bases in the preparation, maintenance and return of equipment. 5) Liaise with clients representatives if applicable in a professional manner ensuring quality of service to the client. 6) Work with colleagues and Supervisor to complete required competencies for current and next role. 7) Actively work with subordinates to share knowledge to assist with their competency progression when required. 8) Actively adhere to and ensure	**Senior ESP Technician / Senior Cable Technician** 1) Manage a team that can provide installation of ESP, training and maintenance of ESP to clients. 2) Lead reporting team in defining the application of ESP for the reporting system. 3) Able to collect information during testing and inspection to provide customers with recommendations on equipment status.	**Gravel Pack Pumping Supervisor** 1) Leads sand control gravel pack completion installations. 2) Leads the job preparation process in accordance with client-specific quality plans. 3) Submits accurate and timely paperwork, inclusive of job reports and captures any lessons learned.	**PDG Specialist** 1) Down Hole Gauges Specialist cover gauge installation and commissioning. 2) Link between acquisition unit and client SCADA system & perform troubleshooting for all data acquisition units including all the PDG units that had been installed in Client locations and platforms.

	compliance with applicable Quality policies, procedures, processes and systems. Take an active part in quality improvement processes. Identify and report any deficiencies to the supervisor and obtain authorisation for any deviations from standard procedures. 9) Actively comply with all applicable Health, Safety & Environmental (HSE) policies, procedures and processes. Promote HSE awareness; take responsibility and be accountable for own safety and the safety of others.			
3	**Slickline Operator** 1) Operating the slickline winch to work downhole to manipulate various slickline equipment/tools to execute various slickline programmes and reservoir management works i.e. zone change, gas lift valve change, fishing, running and pulling plugs, SCSSV, bottom hole pressure survey, sand bailin, etc. 2) Have knowledge of Camco, Baker, Petroline, Otis, PCE of Slickline downhole tools. Able to know slickline completion down accessories. 3) Supervise slickline crew and coordinate activities for the tasks to be executed. Ensuring that all personnel obey safety rules and follow safe working procedures and practices. 4) Ensure integrity of slickline equipment and rig of heavy equipment/routine repairs,	**ESP Technician / Cable Technician** 1) Installing electrical submersible pumps, cable splicing, and starting equipment on variable speed drives. 2) Trouble-shooting experience with ESPs. 3) Must have the willingness and desire to also do ESP cable and shop work. 4) Maintains service equipment and performs daily inspections to ensure compliance with regulations. 5) Completes daily timesheet. 6) Ability to collect information during testing and inspection to provide customers with recommendations on equipment status. 7) Adjusts to changing job assignments/requirements and the flexibility to work overtime with little or no advance notice.	**Gravel Pack Pumping Operator** 1) Focal point for communication with the client at the well-site. 2) Running/retrieving lower completion packers. 3) Participates in the job preparation process in accordance with client-specific quality plans. 4) Prepare job reports and capture any lessons learned.	**PDG Technician** 1) The Technicians shall assist Permanent Downhole Gauge (PDG) Offshore Supervisor to install/test the PDG as well as other well services jobs. 2) Candidates must be suitably qualified with relevant training-certified and experienced with CONTRACTOR's proposed equipment and procedures for running any equipment provided by CONTRACTOR.

	maintenance and adjustments of slickline tools are carried out in the correct way. 5) Compile a slickline report at the end of each task and plan activity following the data. Chair per job meeting on-site and motivate subordinates to act safely and run smoothly on the operations.			
2	**Slickline Assistant** 1) Assists the slickline operator in all aspects of the job, from rigging up equipment; installing equipment onto the x-mas tree, to performing other slickline work. 2) Assists in carrying hand toolbox and other equipment to and from the job, including up and downstairs. 3) Installs and removes tree cap by using an appropriate tool. 4) Assists in making lubricators together to the proper length to run service tools. 5) Assists the operator with the installing of the wireline valve. 6) Completes the make-up of the stuffing box onto the lubricator. 7) Assists in carrying all equipment and hand toolbox off the job site. 8) Maintains, services, and cleans tools and equipment. 9) Assists the mechanic when on the worksite. 10) Responsible for ensuring that all required training is current at all times. 11) Responsible for attending all safety-related meetings and following all safety regulations and guidelines as	**No Job Title**	**Gravel Pack Helper** 1) Assists the GP operator in all aspects of the job, from rigging up equipment and installing GP. 2) Maintains, services, and cleans tools and equipment. 3) Assists the mechanic when on the worksite. 4) Responsible for ensuring that all required training is current at all times. 5) Responsible for attending all safety-related meetings and following all safety regulations and guidelines as defined by Cardinal or its customers. 6) Maintains a safe work area or job site by following the Standard Operating (SOP's) procedures manuals	**No Job Title**

	defined by Cardinal or its customers. 12) Maintains a safe work area or job site by following the Standard Operating (SOP's) procedures manuals			
1	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**

Table 4.22: Occupational Competency (OC) for Group 061 and 062 (9)

JOB AREA / LEVEL	WELL INTERVENTION (ENGINEERING)	WELL INTERVENTION (OPERATION)	WORKOVER (ENGINEERING)	WORKOVER (OPERATION)
8	**No Job Title**	**No Job Title**	**Workover Superintendent** 1) The Workover Superintendent is responsible for delivering safe and efficient workover operations. Reporting to the Workover Superintendent is the Deputy WO Superintendent and four Delivery Team Leaders. Each of the four delivery teams can manage up to 4 Workover rigs. 2) Provide Safety Leadership 3) Lead weekly safety meetings with Delivery Team Leaders and Wells HSE 4) Identify high-risk operations and focus resources to mitigate those risks 5) Complete four Leadership Site Visits (LSVs) per rotation 6) Assist Delivery Teams with incident reporting and investigations 7) Support HSE Self Verification initiative 8) Lead the monthly HSE meeting with our various Workover Rig Contractors. 9) Provide Operational Effectiveness 10) Provide 24/7 support for well control, well integrity and complex operations 11) Lead problem-solving sessions with	Workover Superintendent 1) The Workover Superintendent is responsible for delivering safe and efficient workover operations. Reporting to the Workover Superintendent is the Deputy WO Superintendent and four Delivery Team Leaders. Each of the four delivery teams can manage up to 4 Workover rigs. 2) Provide Safety Leadership 3) Lead weekly safety meetings with Delivery Team Leaders and Wells HSE 4) Identify high-risk operations and focus resources to mitigate those risks 5) Complete four Leadership Site Visits (LSVs) per rotation 6) Assist Delivery Teams with incident reporting and investigations 7) Support HSE Self Verification initiative 8) Lead the monthly HSE meeting with our various Workover Rig Contractors. 9) Provide Operational Effectiveness 10) Provide 24/7 support for well control, well integrity and complex operations 11) Lead problem-solving sessions with

			delivery teams, engineering and service providers to resolve challenges and manage change 12) Review and approve complex and high-value programs 13) Resolve operations challenges, such as: 14) Inefficient use of dual work strings 15) Contactor pipe corrosion 16) Drive consistency across varied rig fleets, such as: 17) Develop Blind/Shear Ram Expectations for rig contractors 18) Coach workover team on new wireline PCE requirements 19) Share solutions between contractors 20) Transfer of best practices between different rigs and contractors 21) Enhance Staff Competency Development 22) Mentor DTLs, WSLs and WO Engineers on safety, efficiency and risk management 23) Demonstrate an unyielding focus on well control and dual barrier philosophy 24) Identify improvement opportunities and develop tools to affect change, such as 25) Balanced plug cement squeeze excel workbook 26) Forward Planning spreadsheet 27) Keys to successful wellsite supervision 28) Provide leadership guidance and coaching	delivery teams, engineering and service providers to resolve challenges and manage change 12) Review and approve complex and high-value programs 13) Resolve operations challenges, such as: 14) Inefficient use of dual work strings 15) Contactor pipe corrosion 16) Drive consistency across varied rig fleets, such as: 17) Develop Blind/Shear Ram Expectations for rig contractors 18) Coach workover team on new wireline PCE requirements 19) Share solutions between contractors 20) Transfer of best practices between different rigs and contractors 21) Enhance Staff Competency Development 22) Mentor DTLs, WSLs and WO Engineers on safety, efficiency and risk management 23) Demonstrate an unyielding focus on well control and dual barrier philosophy 24) Identify improvement opportunities and develop tools to affect change, such as 25) Balanced plug cement squeeze excel workbook 26) Forward Planning spreadsheet 27) Keys to successful wellsite supervision 28) Provide leadership guidance and coaching

7	**Well Intervention Principal Engineer** 1) Responsible for ensuring well intervention activities, including workovers, Slickline interventions, and well tests are planned and engineered in compliance with the well delivery process. 2) Ensures HSE requirements are integral to all aspects of completion, testing and well intervention activities. 3) Responsible for completion/testing engineering support for Central Africa operations 4) Provide input into the specification of completion, well testing and well intervention related equipment and services in accordance with company procedures, including scopes of work, tendering support, and equipment orders. 5) Ensures that all completion activities comply with company standards and governmental regulations. 6) Provides completions input to the team and well engineering delivery objectives as necessary. 7) Review and provide feedback to improve operational programmes which account for and dictate the best HSE practice. 8) Ensures that all work within the area of responsibility is adequately documented and as-built completions diagrams and lessons learned register are updated for the benefit of future operations worldwide. 9) Ensure well material and service providers comply with specified	**Well Intervention Principal Engineer** 1) Responsible for ensuring well intervention activities, including workovers, Slickline interventions, and well tests are planned and engineered in compliance with the well delivery process. 2) Ensures HSE requirements are integral to all aspects of completion, testing and well intervention activities. 3) Responsible for completion/testing engineering support for Central Africa operations 4) Provide input into the specification of completion, well testing and well intervention related equipment and services in accordance with company procedures, including scopes of work, tendering support, and equipment orders. 5) Ensures that all completion activities comply with company standards and governmental regulations. 13) Provides completions input to the team and well engineering delivery objectives as necessary. 14) Review and provide feedback to improve operational programmes which account for and dictate the best HSE practice. 15) Ensures that all work within the area of responsibility is adequately documented and as-built completions diagrams and lessons learned register are updated for the benefit of future operations worldwide. 16) Ensure well material and service	**Workover Principal Engineer** 1) The Workover/Completions Senior Engineer will report directly to Workover Engineering Team Lead and organisationally to Comp/WO Manager. The position is responsible for the delivery of safe, effective Workover and Completion solutions for the Iraq field development plan. 2) The Senior Engineer will work closely in a multi-cultural environment that requires daily liaison with Workover Team Leads, Well Services, International Service Providers, Contractors, and support to Subsurface Team. 3) Provide engineering experience, expertise and leadership to Workover Department 4) Lead by example as a senior team member with a strong commitment to HSE. 5) QA/QC and contribution to ensure the highest standard provision of Workover/Completion Programs generated by Workover Engineering Team 6) QA/QC of all pre-job technical calculations within Programs 7) Daily engineering and troubleshooting support to Workover/Completions Operations including but not limited to Water Shut-offs/zonal isolation, ESP Installation, Water Injection, High Angle TCP and 'Barefoot" Completions, Wellbore Cleanout, Cased Hole Fishing, and Well	**Workover Principal Engineer** 1) The Workover/Completions Senior Engineer will report directly to Workover Engineering Team Lead and organisationally to Comp/WO Manager. The position is responsible for the delivery of safe, effective Workover and Completion solutions for the Iraq field development plan. 2) The Senior Engineer will work closely in a multi-cultural environment that requires daily liaison with Workover Team Leads, Well Services, International Service Providers, Contractors, and support to Subsurface Team. 3) Provide engineering experience, expertise and leadership to Workover Department 4) Lead by example as a senior team member with a strong commitment to HSE. 5) QA/QC and contribution to ensure the highest standard provision of Workover/Completion Programs generated by Workover Engineering Team 6) QA/QC of all pre-job technical calculations within Programs 7) Daily engineering and troubleshooting support to Workover/Completions Operations including but not limited to Water Shut-offs/zonal isolation, ESP Installation, Water Injection, High Angle TCP and 'Barefoot" Completions, Wellbore Cleanout, Cased Hole Fishing, and Well

	quality assurance requirements. 10) Liaise with sub-surface personnel to ensure reservoir requirements are delivered. 11) Liaise with the extended Drilling & Completions team to ensure well objectives and risks are well understood. 12) Build effective relationships and interact professionally with internal/external stakeholders and service companies.	providers comply with specified quality assurance requirements. 17) Liaise with sub-surface personnel to ensure reservoir requirements are delivered. 18) Liaise with the extended Drilling & Completions team to ensure well objectives and risks are well understood. 19) Build effective relationships and interact professionally with internal/external stakeholders and service companies.	Integrity repair/intervention 8) Training and mentoring of local and junior staff engineers 9) Liaise with Service Providers and Contractors with regards to inventory and equipment needs to be aligned with short- and long-term Rig/Well scheduling and planning 10) Prepare, conduct and represent Workover Engineering at multi-disciplined CWOP and pre-spud meetings 11) Conduct QA/QC of EOWR and other technical reports as required 12) Conduct engineering post-job reviews with Workover Rig contractors and Service Companies to define engineering and performance improvements 13) Provide technical and engineering support to Workover Operations site staff 14) Support Engineering Team Lead in developing and managing technical training programs to cover all of the requirements of the Workover and Completions Work functions. 15) Ensure each Workover Engineering trainee receives the following documents upon entering the program: Iraq Golden Rules; Oilfield Primer; Iraq Standards; Training Guide for Iraq Drilling and Workover Engineers 16) Work with the in-place training material and develop it further to be able to accurately appraise individual performance.	Integrity repair/intervention 8) Training and mentoring of local and junior staff engineers 9) Liaise with Service Providers and Contractors with regards to inventory and equipment needs to be aligned with short- and long-term Rig/Well scheduling and planning 10) Prepare, conduct and represent Workover Engineering at multi-disciplined CWOP and pre-spud meetings 11) Conduct QA/QC of EOWR and other technical reports as required 12) Conduct engineering post-job reviews with Workover Rig contractors and Service Companies to define engineering and performance improvements 13) Provide technical and engineering support to Workover Operations site staff 14) Support Engineering Team Lead in developing and managing technical training programs to cover all of the requirements of the Workover and Completions Work functions. 15) Ensure each Workover Engineering trainee receives the following documents upon entering the program: Iraq Golden Rules; Oilfield Primer; Iraq Standards; Training Guide for Iraq Drilling and Workover Engineers 16) Work with the in-place training material and develop it further to be able to accurately appraise individual performance.

6	**Senior Well Intervention Engineer Engineer** 1) Responsible for ensuring well intervention activities, including workovers, Slickline interventions, and well tests are planned and engineered in compliance with the well delivery process. 2) Ensures HSE requirements are integral to all aspects of completion, testing and well intervention activities. 3) Provide input into the specification of completion, well testing and well intervention related equipment and services in accordance with company procedures, including scopes of work, tendering support, and equipment orders. 4) Ensures that all completion activities comply with company standards and governmental regulations. 5) Provides completions input to the team and well engineering delivery objectives as necessary. 6) Review and provide feedback to improve operational programmes which account for and dictate the best HSE practice. 7) Ensures that all work within the area of responsibility is adequately documented and as-built completions diagrams and lessons learned register are updated for the benefit of future operations worldwide.	**Senior Well Intervention Engineer Engineer** 1) Responsible for ensuring well intervention activities, including workovers, Slickline interventions, and well tests are planned and engineered in compliance with the well delivery process. 2) Ensures HSE requirements are integral to all aspects of completion, testing and well intervention activities. 3) Provide input into the specification of completion, well testing and well intervention related equipment and services in accordance with company procedures, including scopes of work, tendering support, and equipment orders. 4) Ensures that all completion activities comply with company standards and governmental regulations. 5) Provides completions input to the team and well engineering delivery objectives as necessary. 6) Review and provide feedback to improve operational programmes which account for and dictate the best HSE practice. 7) Ensures that all work within the area of responsibility is adequately documented and as-built completions diagrams and lessons learned register are updated for the benefit of future operations worldwide.	**Senior Workover Engineer** 1) Ensure that the Well Completion, Re-completion Workover, Plug and Abandonment programmes are implemented in compliance with HSE Policies & Regulations site, and to contractors' standards. 2) Ensure that the WO Contractors and all other Service Contractors HSE Management Systems are implemented and are working effectively during the execution of well programs. 3) Design and prepare a WORK programme in line with the Geological Task issued. 4) Check and verify in advance the availability of all surface and downhole equipment as per the WORK programme in terms of type, specification, quality & quantity in order to meet the objectives of the workover programme. 5) Ensure Well Control is maintained at each step as per the WORK programme. 6) Provide technical guidance for the development and optimisation of performance standards 7) Report to Completion and Workover Manager on the daily progress of operations, emphasis on the critical jobs performed, discuss on next courses of action and obtain instructions and clarifications on any amendment to the WORK program. 8) Apply the Management of Change	**Senior Workover Engineer** 1) Ensure that the Well Completion, Re-completion Workover, Plug and Abandonment programmes are implemented in compliance with HSE Policies & Regulations site, and to contractors' standards. 2) Ensure that the WO Contractors and all other Service Contractors HSE Management Systems are implemented and are working effectively during the execution of well programs. 3) Design and prepare a WORK programme in line with the Geological Task issued. 4) Check and verify in advance the availability of all surface and downhole equipment as per the WORK programme in terms of type, specification, quality & quantity in order to meet the objectives of the workover programme. 5) Ensure Well Control is maintained at each step as per the WORK programme. 6) Provide technical guidance for the development and optimisation of performance standards 7) Report to Completion and Workover Manager on the daily progress of operations, emphasis on the critical jobs performed, discuss on next courses of action and obtain instructions and clarifications on any amendment to the WORK program. 8) Apply the Management of Change process in case of any deviation on WORK programs during the course

	8) Ensure well material and service providers comply with specified quality assurance requirements. 9) Liaise with sub-surface personnel to ensure reservoir requirements are delivered. 10) Liaise with the extended Drilling & Completions team to ensure well objectives and risks are well understood.	8) Ensure well material and service providers comply with specified quality assurance requirements. 9) Liaise with sub-surface personnel to ensure reservoir requirements are delivered. 10) Liaise with the extended Drilling & Completions team to ensure well objectives and risks are well understood.	process in case of any deviation on WORK programs during the course of operations. 9) Review and approve and End of Well Reports prepared by WO Supervisors. • Review work performance of the WO Rig and other service contractors. Inform Workover Manager in time about the contractor who shows poor performance or does not fulfil its obligations.	of operations. 9) Review and approve and End of Well Reports prepared by WO Supervisors. • Review work performance of the WO Rig and other service contractors. Inform Workover Manager in time about the contractor who shows poor performance or does not fulfil its obligations.
5	**Well Intervention Engineer** 1) Prepare, finalise and review well intervention work programme. Organise technical challenge session/well intervention on paper exercise 2) Prepare and submit DPR approval requests. Obtain DPR approval 3) Execute well intervention work programme in accordance with strict HSE standards and operational excellence **4)** Closeout well intervention work programme with all necessary documentation and reporting	**Senior Intervention Supervisor** 1) Ensure all Wireline and Coiled Tubing operations are carried out safely as per standard CT and Wireline Safety Operation procedure/ guidelines/ government regulations. 2) •Supervise other rigless activities like pumping, injectivity test, wireline perforation, wireline logging or deployment/ reverse deployment of artificial lift equipment in wells. 3) •Meet the goal and objectives and KPIs of the department. 4) •Manage and coordinate Well Intervention Supervisor with regards to daily CT and Wireline operations as instructed by WS superintendent. 5) •Contribute to planning and scheduling operations and suggest alternative plans if needed. 6) •Monitoring job planning progress regarding adjacent or simultaneous activities. 7) •Ownership of simops matrix for simops operations concerning	**Workover Engineer/Supervisor** 1) Evaluating the need for services equipment and material and providing for the issuing of their request. 2) Providing for the preparation of annual Workover and well intervention program review 3) Excellent knowledge of well control best practices. 4) Experience in the Middle East is a plus. 5) Coordinating the activities of the Company's and Contractors units involved in completion, work-over, wireline, and rigless operations and deciding about day by day matters. 6) Reporting during well testing, work-over and wireline operations any technical or economical variation from approved scope, proposing the appropriate changes if necessary. 7) Participating as a member of the emergency task force in event of a blow-out of another major emergency.	**Workover Engineer/Supervisor** 1) Evaluating the need for services equipment and material and providing for the issuing of their request. 2) Providing for the preparation of annual Workover and well intervention program review 3) Excellent knowledge of well control best practices. 4) Experience in the Middle East is a plus. 5) Coordinating the activities of the Company's and Contractors units involved in completion, work-over, wireline, and rigless operations and deciding about day by day matters. 6) Reporting during well testing, work-over and wireline operations any technical or economical variation from approved scope, proposing the appropriate changes if necessary. 7) Participating as a member of the emergency task force in event of a blow-out of another major emergency.

		Wireline and CT operations in accordance with offshore HSE representatives.	8) Completion, well testing, work-over, wireline, and rigless operations technology knowledge acquisition and capitalisation. 9) The Workover engineer utilises analytical skills, practical experience and good judgement to evaluate, select, and recommend well control equipment, and to develop procedures and implementation plans, for completions, workovers and interventions. 10) The Workover engineer will have expertise in surface and subsurface BOP's and related control systems. 11) Engineering skills from petroleum or mechanical engineering and practical applications provides the basis for this position's responsibilities and job requirements; although a person without a technical degree who possesses relevant, practical experience could meet such requirements. 12) The Workover engineer is also expected to work closely with workover rig contractors and third-party consulting firms on well control matters in a multitude of environments. 13) Evaluate well plans and data to detect potential problems and recommend corrective actions to ensure well workover/intervention is maintained. 14) Provide technical consultation during completion, well testing, workover, and intervention operations to prevent loss of, or to	8) Completion, well testing, work-over, wireline, and rigless operations technology knowledge acquisition and capitalisation. 9) The Workover engineer utilises analytical skills, practical experience and good judgement to evaluate, select, and recommend well control equipment, and to develop procedures and implementation plans, for completions, workovers and interventions. 10) The Workover engineer will have expertise in surface and subsurface BOP's and related control systems. 11) Engineering skills from petroleum or mechanical engineering and practical applications provides the basis for this position's responsibilities and job requirements; although a person without a technical degree who possesses relevant, practical experience could meet such requirements. 12) The Workover engineer is also expected to work closely with workover rig contractors and third-party consulting firms on well control matters in a multitude of environments. 13) Evaluate well plans and data to detect potential problems and recommend corrective actions to ensure well workover/intervention is maintained. 14) Provide technical consultation during completion, well testing, workover, and intervention operations to prevent loss of, or to regain, well control.

			regain, well control.	
4	**Well intervention Supervisor** 1) Ensure safety and environmental performance are given the highest priority during well operations including adherence with all Hess, Contractor, and Vendor EHS Policies 2) Supervise on-site well intervention/completion related activities to ensure that work programs are followed and regularly communicate progress to the Well Intervention Team Lead 3) Take part in daily safety communications and process improvement operational calls 4) Responsibilities may include office meetings for pre-job risk assessments and lessons learned reviews at the Kuala Lumpur office 5) Communicate job-specific forecasts and daily job reports to Kuala Lumpur (primary Well Intervention Team Lead) 6) Coordinate with Contractor, Equipment and Service Providers to provide operational forecasts to allow continuous operations and contingency plans and provide performance feedback 7) Interface with Production Operations Designated Person In Charge (DPIC) to ensure proper interface with production 8) Monitor and ensure all QA/QC requirements of equipment and design standards 9) Ensure accuracy of vendor daily	**Well intervention Supervisor** 1) Ensure safety and environmental performance are given the highest priority during well operations including adherence with all Hess, Contractor, and Vendor EHS Policies 2) Supervise on-site well intervention/completion related activities to ensure that work programs are followed and regularly communicate progress to the Well Intervention Team Lead 3) Take part in daily safety communications and process improvement operational calls 4) Responsibilities may include office meetings for pre-job risk assessments and lessons learned reviews at the Kuala Lumpur office 5) Communicate job-specific forecasts and daily job reports to Kuala Lumpur (primary Well Intervention Team Lead) 6) Coordinate with Contractor, Equipment and Service Providers to provide operational forecasts to allow continuous operations and contingency plans and provide performance feedback 7) Interface with Production Operations Designated Person In Charge (DPIC) to ensure proper interface with production 8) Monitor and ensure all QA/QC requirements of equipment and design standards 9) Ensure accuracy of vendor daily safety and operational reports	**Workover Supervisor** 1) Responsible for directing and coordinating activities on Workover and Completions rigs. 2) Execute rig operates in a safe and efficient manner. 3) Implement stimulation technologies (acidizing, hydraulic fracturing, etc); 4) Assist, supervise and report workover rig crew activity. 5) Ensure all equipment is kept in working order, coordinate maintenance and repair of equipment. 6) Ensure that company policies and procedures are followed by all rig and support personnel. 7) Assist with on-the-job training of rig crew. 8) Identify hazards, problems and possible improvements and pass these on to the operations team.	**Workover Supervisor** 1) Responsible for directing and coordinating activities on Workover and Completions rigs. 2) Execute rig operates in a safe and efficient manner. 3) Implement stimulation technologies (acidizing, hydraulic fracturing, etc); 4) Assist, supervise and report workover rig crew activity. 5) Ensure all equipment is kept in working order, coordinate maintenance and repair of equipment. 6) Ensure that company policies and procedures are followed by all rig and support personnel. 7) Assist with on-the-job training of rig crew. 8) Identify hazards, problems and possible improvements and pass these on to the operations team.

	safety and operational reports 10) Ensure accuracy of equipment and tool specifications and detail 11) Monitor and report daily costs to ensure cost-effective operations 12) Ensure shore base QA/QC for efficiency and reliability from shore base to shore base (KSB/TBSB - Kemaman/Tok Bali, respectively) 13) Conduct operations in compliance with Global Drilling and Completions Operating Standards 14) Effective planning and execution require daily interface with Kuala Lumpur engineering 15) WIS will be based in the Kuala Lumpur office but with offshore Malaysia operations when work is ongoing reporting to Well Intervention/Completion Team Lead.	10) Ensure accuracy of equipment and tool specifications and detail 11) Monitor and report daily costs to ensure cost-effective operations 12) Ensure shore base QA/QC for efficiency and reliability from shore base to shore base (KSB/TBSB - Kemaman/Tok Bali, respectively) 13) Conduct operations in compliance with Global Drilling and Completions Operating Standards 14) Effective planning and execution require daily interface with Kuala Lumpur engineering 15) WIS will be based in the Kuala Lumpur office but with offshore Malaysia operations when work is ongoing reporting to Well Intervention/Completion Team Lead.		
3	**Well intervention Operator** 1) Maintain and perform safety inspections on equipment and tools. 2) Prepare reports of services rendered, tools used, or time required, for billing purposes. 3) Close and seal wells no longer in use. 4) Confer with others to gather information regarding pipe or tool sizes or borehole conditions in wells. 5) Operate pumps that circulate water, oil, or other fluids through wells to remove sand or other materials obstructing the free flow of oil. 6) Interpret instrument readings to ascertain the depth of obstruction.	**Well intervention Operator** 1) Maintain and perform safety inspections on equipment and tools. 2) Prepare reports of services rendered, tools used, or time required, for billing purposes. 3) Close and seal wells no longer in use. 4) Confer with others to gather information regarding pipe or tool sizes or borehole conditions in wells. 5) Operate pumps that circulate water, oil, or other fluids through wells to remove sand or other materials obstructing the free flow of oil. 6) Interpret instrument readings to	**Workover Operator** 1) Knowledgeable of downhole tools, rod and tubing handling equipment, pump equipment and pipe wrangler equipment. 2) Responsible for direct supervision of the immediate rig crew. 3) Ensure all crew members are at the rig and prepared to work at the scheduled time. 4) Operate the rig and equipment as requested by the company contracting the rig. 5) Working closely with customers to resolve concerns and complaints. 6) Maintain productivity standards for all rig functions. 7) Ensure quality products and services	**Workover Operator** 1) Knowledgeable of downhole tools, rod and tubing handling equipment, pump equipment and pipe wrangler equipment. 2) Responsible for direct supervision of the immediate rig crew. 3) Ensure all crew members are at the rig and prepared to work at the scheduled time. 4) Operate the rig and equipment as requested by the company contracting the rig. 5) Working closely with customers to resolve concerns and complaints. 6) Maintain productivity standards for all rig functions. 7) Ensure quality products and services

	7) Install pressure-control devices onto wellheads. 8) Select fishing methods or tools for removing obstacles such as liners, broken casing, screens, or drill pipes. 9) Insert detection instruments into wells with obstructions. 10) Operate specialised equipment to remove obstructions by backing off or severing pipes by chemical or explosive action. 11) Apply green technologies or techniques, such as the use of coiled tubing, slim-hole drilling, horizontal drilling, hydraulic fracturing, or gas lift systems. 12) Monitor sound wave-generating or detecting mechanisms to determine well fluid levels.	ascertain the depth of obstruction. 7) Install pressure-control devices onto wellheads. 8) Select fishing methods or tools for removing obstacles such as liners, broken casing, screens, or drill pipes. 9) Insert detection instruments into wells with obstructions. 10) Operate specialised equipment to remove obstructions by backing off or severing pipes by chemical or explosive action. 11) Apply green technologies or techniques, such as the use of coiled tubing, slim-hole drilling, horizontal drilling, hydraulic fracturing, or gas lift systems. 12) Monitor sound wave-generating or detecting mechanisms to determine well fluid levels.	are provided to the customer. 8) Comply with all safety procedures and ensure a safe working environment. 9) Establish and maintain a positive work environment for the crew.	are provided to the customer. 8) Comply with all safety procedures and ensure a safe working environment. 9) Establish and maintain a positive work environment for the crew.
2	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**
1	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**

Table 4.23: Occupational Competency (OC) for Group 061 and 062 (10)

JOB AREA / LEVEL	WELL INTEGRITY	WELL INTERVENTION (COIL TUBING UNIT)	WAREHOUSE	WORKOVER (HYDRAULIC WORKOVER UNIT)	HEALTH SAFETY AND ENVIRONMENT
8	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**
7	**Well Integrity Principal** 1) Approve Well Integrity proposals, prepare programs and a detailed method of statement for different well types for PM activities. 2) Execute activity of Well Integrity PM and CM as per procedure given. And verify existing protective barriers in place before commencing the preventive/corrective operations. 3) Review the plan with the operation planner and integrity team to ensure job execution is being carried out as per the agreed plan. 4) Update Well Integrity documents such as WIMS (Well integrity management system), testing procedures and other documents. 5) Assist subsurface intervention team on well integrity evaluation, problems identification and develop prioritised media medical plans. 6) Review submitted reports and approve the recommendations of	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**

	corrective maintenance required. 7) Provides technical support to the site execution units and follow up the remedial well integrity issues. 8) Focal Point for issuing MOC, work Step-out and for well integrity decision-making committee. 9) To apply the new and latest techniques and technologies in order to reduce workover cost and improve well delivery quality. 10) To follow up day to day well integrity cost expenditure, review and approve the monthly value of work done (VOWD), annual well integrity budgets to control and measure the consumption cost against ACV. 11) Approve authorisation for expenditure (AFEs) request with estimated costs and time frame. Check and review all well integrity invoices and get them approved by the Well Intervention manager.				
6	**Procurement Manager** 1) Manage and clarify product details, cost estimation and project logistics. 2) Manage and develop new vendor relationships. 3) Manage and Develop	**Senior Coil Tubing Engineer** 1) The Coil Tubing Engineer shall be responsible for overseeing the entire coil tubing operations and maintenance of oilfield equipment on the assigned	**No Job Title**	**HWU Superintendent** 1) Demonstrate a high level of leadership in HSSE in the office, by conducting audits and Safety Observation Conversations 2) Review plans to ensure that the	**No Job Title**

	sourcing proposals. 4) Manage all contracts for management approval. 5) Ensure procurement operations follow regulations. 6) Join in strategic sourcing activities, bid evaluation, and vendor selection processes. 7) Manage delivery schedules and products. 8) Monitor procurement budget and expenses. 9) Manage bids based on assessment criteria for vendor selection. 10) Manage vendor categories. 11) Manage and review and shortlist bid submissions. 12) Manage and review data to advise changes to policies. 13) Manage and review vendor performance to suggest recommendations. 14) Manage and work with key stakeholders on sourcing proposals.	work location. The incumbent will be required to provide daily activities reports and actively communicate with clients. 2) Ensures that adequate safety precautions are taken prior to any job. 3) Conducts short safety meeting/Tool Box meeting with direct reports for the current job prior to operations. Ensure that each personnel are made aware of the hazards and is fully aware of their responsibilities. 4) Perform all types of Coiled Tubing related calculations, simulations and recording. 5) Prepare Coiled Tubing Procedures and Job Programmes. 6) Identify and exploit all potential sales opportunities and ensure budgets are achieved/exceeded. 7) Detailed knowledge of Coiled Tubing services and their applications within the industry.		client HSSE procedures and standards are adhered to and that all work is conducted without incident. 3) Responsible for the HSSE and logistic of all personnel, plant, equipment and environment during well operations and review incident reporting and investigation 4) Review all on-site compliance of all work performed on the rig or location is subject to the client's policies and legislative requirements. 5) Interface with platform management to ensure appropriate control of simultaneous operations' 6) Provide operational guidance in well planning, completion and workover procedures and forward programmes and actively participate in the client's continuous improvement processes. 7) Review and advise the technical limit process on the rig/unit. 8) Manage and control the operational costs, by optimising activities on the rig/unit.	
5	**Senior Interiority Engineer/ Executive Procurement Engineer** 1) To maintain, monitor and report on all parts of the well operating envelope when in the production life of the	**Senior Coil Tubing Supervisor** 1) Responsible for organizing, overseeing and managing the day-to-day operations of the department. 2) Plans and coordinates operations to ensure that all	**Warehouse supervisor** 1) To supervise all warehouse functions including receiving, stocking, shipping, monitoring inventory, maintaining, and organizing the facility and	**HWU supervisor** 1) Keep close control of rental tools and contractor personnel performances to ensure value for money. 2) Supervision of daily HWU operations (workover,	**HSE Manager** 1) Responsible for the design, development, implementation, communication, and coordination of all environmental, health, safety and DOT programs for the

	well phase. 2) To manage the well integrity as per the company's Well Integrity Management System, adhere to government legislation and work within the agreed budget. 3) To write job programmes and work instructions and give operational support during maintenance routines and interventions. 4) To work within the Drilling and Completions department to ensure safe and efficient operations on Platform operations	materials are rigged up, tested and ready for mobilisation 3) Provides technical support and supervision of crews/clients on well sites offshore and on land 4) Ensure inspection of equipment pre and post job/Periodic Preventive Maintenance (PPM) using required documentation. 5) Ability to manage the scope of work, job budgets, transportation, rental equipment, and expendable supplies to complete jobs on time and within budget. 6) Provides support to the Coil Tubing division as the primary sales representative for customer service and support operations. 7) Supervise all aspects of coil tubing equipment for the operation to include maintenance, assembly, disassembly of coil unit, fluid pump, nitrogen etc 8) Ensures delivery of services with flawless quality service execution, HSE standards and ZERO accidents 9) Maintain communication with clients representative, rig crew and field support staff and participate in knowledge sharing 10) Trains and mentor's subordinates in all aspects of operations	assisting the assistant operations manager in all of their respective duties. 2) Work with Senior Operations Manager to maintain inventory levels that will assure uninterruptible supply for our customer base and achieve optimum inventory investment. 3) Identify appropriate bin and staging areas and ensure proper stock for pails, drums, package, bulk, and totes are maintained in the assigned areas within the warehouse to optimise the facility. 4) Perform monthly cycle counts and organise personnel for all quarterly inventories as required. 5) Check inventory receipt documents and advise any discrepancies to management in a timely manner. Including timely receipt of the same into the computer system. 6) Train personnel in proper standard operating procedures. 7) Ensure compliance with QAQC and logs (sample, receiving, packaging). 8) Timely communications with Operations Personnel, Dispatchers, Fleet Maintenance Manager and assist them as required. 9) Conduct monthly safety meetings and perform training on monthly topics within a given timeframe.	completion) according to well program, with the utmost regard to efficiency, cost and safety, and in compliance with Health Safety & Environment (HSE) guidelines. 3) Ensure accurate and timely reporting of workover activities and that well data are properly captured. 4) Supervise workover and completion activities. 5) Thoroughly understand work programmes & notes before the commencement of work on all wells. 6) Order all required services and equipment on time. 7) Hold daily operations meeting with all contractors on-site to discuss look ahead. 8) Maintain well control kick sheet.	organisation. 2) Essential Job Functions Develops and implements safety policies and procedures in compliance with local, state and federal rules and regulations as they apply to the organisation's operations, including but not limited to OSHA, EPA and DOT. 3) Identify best practices and lead continuous improvement initiatives to reduce work process risks raise safety awareness and improve safe work practices. 4) Develop, implement and maintain employee training programs as indicated by regulatory guidelines, hazardous condition monitoring, and use of safety equipment, including authorised level training. 5) Provide technical advice, coaching, guidance and mentoring to managers and employees on safety initiatives and necessary changes. 6) Performs safety surveys and inspections prepare written reports of findings and recommendations for corrective and preventative measures where indicated and follows up to ensure measures have been implemented. 7) Ensure compliance with

		11) Prepare and deliver comprehensive job program and post job reports to clients	10) Monitor employees weekly time worked, and assure that all shifts have adequate coverage. 11) Produce all daily fleet planning and build all necessary work for personnel. 12) Assist in achieving all warehouse related KPI goals on a monthly basis.		timely reporting as required by state and federal health safety regulations and statutes.
4	**Well Integrity supervisor** 1) Implement the well integrity management system during the lifecycle of the well. 2) Develop monitoring and testing plans related to all wells and ensure relevant and quality updated data are gathered. 3) Define the integrity status of all wells during the operational phase and develop prioritised remedial plans. 4) Provide technical support to the sites and the drilling division regarding well integrity issues. 5) Follow up the execution of remedial action to ensure integrity compliance of all wells.	**Coil Tubing Supervisor** 1) Responsible for organizing, overseeing, and performing all types of coil tubing jobs. 2) Provide technical support to crew and clients at the wellsite. 3) Develop expertise on advanced coil tubing techniques. 4) Plan and coordinate operations and ensure that all materials are rigged up, tested, and ready to perform the job. 5) Prepare and deliver comprehensive job reports. 6) Manage storage and inventories of supplies and fixed assets on the rig. 7) Maintain communication with client wellsite representative, rig crew, and field support staff. 8) Follows upon service quality events with the operations management team and ensure incident reports are closed with	**Warehouseman** 1) Ensure that materials are available for operational needs. 2) Maintain an optimum level of inventory. 3) Receiving and inspection process in accordance with the Quality Assurance Measures. 4) Manage and direct the material handling, tagging and stocking according to the pre-locator controlled system. 5) Manage and monitor the documentation process. 6) Reviews, verifies regarding the movement of inventory items. 7) In charge of Container Control Form and preparing manifests. 8) Implements approved housekeeping procedures and safety programs. 9) Getting material inspected by the concerned department. 10) Responsible for the	**HWU Senior Operator** 1) Monitor and coordinate activities on Workover and Completions rigs 2) Execute rig operates in a safe and efficient manner 3) Implement stimulation technologies (acidizing, hydraulic fracturing, etc) 4) Assist, supervise and report workover rig crew activity 5) Ensure all equipment is kept in working order, coordinate maintenance and repair of equipment 6) Ensure that company policies and procedures are followed by all rig and support personnel 7) Assist with on-the-job training of rig crew 8) Identify hazards, problems and possible improvements and pass these on to the operations team.	**HSE Officer** 1) Assist line managers in implementing and supervising HSE issues in all activities on site (including subcontractors). 2) Ensure deliverables are in accordance with company procedures, policies and guidelines and the requirements of OSH Regulations 1997. 3) Monitor and compile site HSE statistical report, HSE weekly and other reports. 4) Assist in the implementation of HSE MS, 2nd and 3rd level procedures and roll out. 5) Maintenance of HER register, Incident report, Lessons Learned databases and other associated records of the HSE Management System. 6) Give HSE support to the HSE team and wider organisation as required. 7) Actively participate in the promotion of HSE policies,

		clients. – 9) Ensure work is performed in compliance with service quality, health, safety, and IT standards.	maintenance and storekeeping of all inventory items kept in the warehouse.		plans and programmes. 8) Provide daily advice on HSE support and services to the line. 9) -Ensure company targets and goals are communicated to all employee 10) Ensure HSE performance aspects comply with the client and all relevant government and international legislations. 11) Act as secretary and facilitate the site HSE Committee Meeting and activities.
3	**Well Integrity Operator** 1) Accurate reporting of the test data and relevant information to the supervisor. 2) Implement and monitor maintenance programs for field equipment. 3) Be involved in the field crew assessment program. 4) For supervision of their trainee and delegating the required tasks to the trainee. 5) Ensuring that the program for the job is understood and workable. 6) Advise the Supervisor of any change in the work program or procedure. 7) Ensure that all data collected is relevant and accurate. 8) Perform the onsite	**Coil Tubing Operator** 1) The Coiled Tubing Operator is responsible for performing supervised and directed equipment operation required for assigned jobs, equipment maintenance and ensuring the Client's objectives are delivered safely, without damage to the environment. 2) Plan and prepare for assembles equipment for installation and service in Well sites and fields. 3) Preparation of equipment for the next job. 4) Under direct supervision, performs Job Safety Analysis (JSA) and safety meetings, and the rigging up and down of Coil Tubing service line	**Assistant Warehouse Man** 1) Handles all incoming goods, receive transactions. 2) Checking of physical deliveries against documents (Delivery Order, Packing list etc.) 3) Inform Inventory Clerk / Warehouse Supervisor immediately of any discrepancies, either of quantity and/or grade of the delivery, against Purchase Order and Delivery Order 4) Detection of any D/O – P/O discrepancies 5) Processing of production job sheet and issuance of materials. 6) Handling of the warehouse documentation process for rental equipment/ items. 7) Documentation & filing of received goods and job	**HWU Operator** 1) Use safe practices while performing duties 2) Supervise and assign responsibilities for rig up of the unit 3) Rig up and function the choke manifold 4) Operate jack with tubular and BHA's 5) Provide instruction in the rig-up/down of the unit 6) Instruct personnel on inspection and starting on power packs (Hydraulic or Mud Pump) 7) Set the pumps on hydraulic power pack with Supervisor 8) Operate travelling and stationary slip bowls and demonstrate how to	**No Job Title**

	operation as per the program in a professional manner 9) Communicate to the customer information that they may require. 10) Develop and maintain the skills required to operate in an offshore environment. 11) To understand and become involved in the Company Quality Systems. 12) To report all near misses and hazardous situations to the Supervisor/Manager.	equipment. 5) Performs pre/post job Coiled Tubing equipment inspections. Responsible for safe crane and rigging operations during the delivery of services in accordance with Customer's design and departmental KPI's. 6) Monitors well control parameters and calculations before and during job applications. 7) Performs hydrostatic testing on Blow Out Prevention (BOP) and reels during pre/post job procedures including Preventative Maintenance (PM's). 8) Complete all relevant timesheets and charge item paperwork in accordance with the contractual agreement and ensure client signature and acceptance for invoicing purposes. 9) Carry out basic maintenance of coiled tubing equipment where applicable and report any faults, damage and repairs required through the correct forms in a clear and legible manner for any activities which can't be completed in the field. 10) Maintain suitable records of all training, knowledge	sheet. 8) Required to stand in to do goods receipt in the absence of receiving staff. 9) To lead & assist in stuffing and loading of outgoing goods 10) Housekeeping and maintenance of the store 11) Other ad-hoc duties as and when required by the supervisor to support the CO's operational function 12) https://sg.joblum.com/job/warehouse-assistant-offshore-oil-gas-west/805582	dress the bowls with appropriate dies for tubular requirements to complete the job 9) Instruct personnel on operating counterbalance winches and demonstrate how to adjust hydraulic pressure 10) Follow lift plans for rig-up with two lift concepts 11) Operate high-pressure pumps 12) Instruct personnel on operating tongs correctly to prevent damage to work string and personnel 13) Load and unload equipment	

		and experience gained for use as evidence towards future competency in each service. .			
2	**No Job Title**	**Senior Coil Tubing Helper** 1) Under strict supervision, assists senior operators and/or performs pumping, acidizing, and coiled tubing pumping specific job roles. 2) Learns basic operations to include but are not limited to: performing pre/post job equipment inspections, performing and completing preventative maintenance procedures and operating support equipment (e.g., proppant handling, fluid tanks, suction manifolding, discharge manifold equipment, etc.). 3) Completes requisite training and demonstrates competency as defined for current and next level. 4) Assists in assembly and preparation of equipment for installation and service. 5) Assists in the cleanup, repair, and preparation for the next job. 6) Exhibits safety awareness and environmental consciousness and complies with all applicable safety and environmental	**Tool Repairman** 1) Under strict supervision, performs maintenance functions such as repairs on down-hole tools, surface equipment and other production equipment in the application for down-hole tools. 2) Assembles and disassemble down-hole tools, surface equipment, and other production equipment. 3) Promotes safety awareness and environmental consciousness and complies with all applicable safety and environmental procedures and regulations. 4) Ensures compliance with Health, Safety, and Environmental (HSE) regulations and guidelines.	**HWU Assistant Operator** 1) Supervise and assign responsibilities for rig up of the unit Rig up and function the choke manifold Operate jack with tubular and BHA's 2) Provide instruction in the rig-up/down of the unit Instruct personnel on inspection and starting on power packs (Hydraulic or Mud Pump) 3) Set the pumps on hydraulic power pack with Supervisor 4) Instruct personnel on operating counterbalance winches and demonstrate how to adjust hydraulic pressure 5) Operate high-pressure pumps Instruct personnel on operating tongs correctly to prevent damage to work string and personnel 6) Load and unload equipment Operate the CB winch during pipe tripping operation with all tubular sizes when needed 7) Assist on all ground	**No Job Title**

		procedures and regulations. 7) Participates in quality and continuous improvement processes.		operations during HWO pipe rack operations 8) Assist with testing of the BOP's and related equipment 9) Assist with BHA measurements, ID's and OD's prior to preparing slip dies and tong dies 10) Arrange for the layout of BOP and riser assembly to properly space out a stack for operation	
1	**No Job Title**	**<u>Coil Tubing Helper</u>** 1) Perform pre/post job equipment inspections. Specifically, perform pre-trip vehicular inspections. 2) Complete DOT logs as required by regulation and training. 3) Keep workspaces clean and free of safety hazards at all times. 4) Observe all safety rules at all times. 5) Assist in rig-ups/rig-downs as well as operation of all equipment during a job. 6) Assist with maintenance of equipment, replenishment of stores and general housekeeping while in the shop. 7) Perform scheduled maintenance on assigned equipment. 8) Takes instruction on how to operate tools and equipment utilised on the job and in the	**No Job Title**	**No Job Title**	**No Job Title**

		shop. 9) Specifically learn to independently (without constant supervision) operate and maintain fluid pumps and nitrogen equipment.			

Table 4.24: Occupational Competency (OC) for Group 061 and 062 (11)

JOB AREA / LEVEL	OFFSHORE OPERATIONS (FIXED STRUCTURE MAINTENANCE)	OFFSHORE OPERATIONS (FIXED STRUCTURE PRODUCTION)	OFFSHORE OPERATIONS (FLOATING STRUCTURE MAINTENANCE)	OFFSHORE OPERATIONS (FLOATING STRUCTURE PRODUCTION)	OFFSHORE OPERATIONS (MARINE FLOATING STRUCTURE
8	**Field / Asset Manager**	**Field / Asset Manager**	**Field / Asset Manager**	**Field / Asset Manager**	**Field / Asset Manager**
7	**Rig Offshore Installation Manager (OIM)*** 1) Overall command and responsible for the safe management of the offshore facility and personnel in accordance with statutory requirements and the Company's safety and performance standards 2) Responsible for the safe operation of the rig and for prevention of pollution or damage to the environment. 3) Empowered in all situations with overriding authority to act decisively and according to his/ her best judgment to prevent injury to crew members, other persons and to protect the rig and other vessels property and marine environment from damage. 4) Manage all activities on or about the installation and assure the Client's program is accomplished with parameters set by the client. 5) Promote and ensure that all Company policies and procedures are communicated and understood by all	**Rig Offshore Installation Manager (OIM)*** 1) Overall command and responsible for the safe management of the offshore facility and personnel in accordance with statutory requirements and the Company's safety and performance standards 2) Responsible for the safe operation of the rig and for prevention of pollution or damage to the environment. 3) Empowered in all situations with overriding authority to act decisively and according to his/ her best judgment to prevent injury to crew members, other persons and to protect the rig and other vessels property and marine environment from damage. 4) Manage all activities on or about the installation and assure the Client's program is accomplished with parameters set by the client. 5) Promote and ensure that all Company policies and procedures are communicated and understood by all	**Rig Offshore Installation Manager (OIM)*** 1) Overall command and responsible for the safe management of the offshore facility and personnel in accordance with statutory requirements and the Company's safety and performance standards 2) Responsible for the safe operation of the rig and for prevention of pollution or damage to the environment. 3) Empowered in all situations with overriding authority to act decisively and according to his/ her best judgment to prevent injury to crew members, other persons and to protect the rig and other vessels property and marine environment from damage. 4) Manage all activities on or about the installation and assure the Client's program is accomplished with parameters set by the client. 5) Promote and ensure that all Company policies and procedures are communicated and understood by all personnel onboard the installation	**Rig Offshore Installation Manager (OIM)*** 1) Overall command and responsible for the safe management of the offshore facility and personnel in accordance with statutory requirements and the Company's safety and performance standards 2) Responsible for the safe operation of the rig and for prevention of pollution or damage to the environment. 3) Empowered in all situations with overriding authority to act decisively and according to his/ her best judgment to prevent injury to crew members, other persons and to protect the rig and other vessels property and marine environment from damage. 4) Manage all activities on or about the installation and assure the Client's program is accomplished with parameters set by the client. 5) Promote and ensure that all Company policies and procedures are communicated and understood by all personnel	**Rig Offshore Installation Manager (OIM)*** 1) Overall command and responsible for the safe management of the offshore facility and personnel in accordance with statutory requirements and the Company's safety and performance standards 2) Responsible for the safe operation of the rig and for prevention of pollution or damage to the environment. 3) Empowered in all situations with overriding authority to act decisively and according to his/ her best judgment to prevent injury to crew members, other persons and to protect the rig and other vessels property and marine environment from damage. 4) Manage all activities on or about the installation and assure the Client's program is accomplished with parameters set by the client. 5) Promote and ensure that all Company policies and procedures are communicated and understood by all personnel onboard the installation

	personnel onboard the installation	personnel onboard the installation		onboard the installation	
6	**Maintenance Supervisor** 1) Assist to develop maintenance strategy, making annual maintenance plans and maintenance costs. 2) Provide onsite guidance for maintenance activities, offer professional technical solutions and lead the team to complete the tasks in a safe and efficient manner. 3) Make technical drawings for technical clarification, process modification, equipment upgrading and other cases in need. 4) Conduct routine maintenance management, develop PM plan and keep tracking, collect equipment running log and main equipment status. 5) Participate in the maintenance activities and assess the outcome. 6) Assist or organise major maintenance activities, major upgrading and new project commissioning, etc. 7) Planning the maintenance tasks according to priority, tracking the work order completion status and quality, analyse the maintenance trend mode, ensuring maintenance tasks are carried out in high quality and timely-observing way, ensuring facility &	**Production Supervisor** 1) Ensure that all production operations are executed in a safe and efficient manner in accordance with the Safety Management System and in compliance with the production target set 2) Co-ordinate activities relating to Hydrocarbon processing, water injection and utility systems in accordance 3) Liaison/communication with onshore Production Engineer on production issues and with onshore operations engineers on production and water injection process issues 4) A Permit to Work Controller, ensure the effective administration of the Permit to Work System 5) Troubleshooting as required and recovering from production outages as they occur 6) Closely monitor results of analysis ensuring optimal chemical usage and compliance with environmental policy 7) Direct and control platform operations on start-up, or in the event of a process upset, to minimise the loss of production 8) Facilitate the execution of all	**Maintenance Supervisor** 1) Assist to develop maintenance strategy, making annual maintenance plan and maintenance costs. 2) Provide onsite guidance for maintenance activities, offer professional technical solutions and lead the team to complete the tasks in a safe and efficient manner. 3) Make technical drawings for technical clarification, process modification, equipment upgrading and other cases in need. 4) Conduct routine maintenance management, develop PM plan and keep tracking, collect equipment running log and main equipment status. 5) Participate in the maintenance activities and assess the outcome. 6) Assist or organise major maintenance activities, major upgrading and new project commissioning, etc. 7) Planning the maintenance tasks according to priority, tracking the work order completion status and quality, analyse the maintenance trend mode, ensuring maintenance tasks are carried out in high quality and timely-observing way, ensuring facility & equipment at a high	**Production Supervisor** 1) Ensure that all production operations are executed in a safe and efficient manner in accordance with the Safety Management System and in compliance with the production target set 2) Co-ordinate activities relating to Hydrocarbon processing, water injection and utility systems in accordance 3) Liaison/communication with onshore Production Engineer on production issues and with onshore operations engineers on production and water injection process issues 4) A Permit to Work Controller, ensure the effective administration of the Permit to Work System 5) Troubleshooting as required and recovering from production outages as they occur 6) Closely monitor results of analysis ensuring optimal chemical usage and compliance with environmental policy 7) Direct and control platform operations on start-up, or in the event of a process upset, to minimise the loss of production 8) Facilitate the execution of all	**Marine Superintendent** 1) Participate in the annual review, audits of and provide an assessment of the Operations Management System. 2) Ensuring that any non-compliance is identified and addressed. 3) Ensure that policies are known, understood and adhered to. 4) Fulfill risk management support requirements by ensuring all risks in process systems, associated utilities and operations/maintenance tasks are identified and processes are established and implemented in line with the requirements of the Safety Case. 5) Perform walkthroughs and ensure on & offshore compliance by means of inspection, verification, and audit of their allocated areas of responsibility. 6) Audits of third-party inspection contractors and rectification of identified deficiencies 7) Monitor lifting equipment and operations Shuttle Tanker, mooring/unmooring operations 8) Monitor stability and cargo load distribution and hull stress management 9) Management of Change, implementation of small MOC's: working with offshore opposite numbers to develop recommendations,

	equipment a high level of reliability and stability. 8) Be responsible for developing standard maintenance procedures and regulations, and ensure all procedures and regulations are properly executed.	platform maintenance work by maintaining close contact with Discipline Supervisors 9) Ensure that all plants, processes and equipment are functioning efficiently, with any failure of safety-critical elements to meet performance standards being reported immediately to the OIM.	level of reliability and stability. 8) Be responsible for developing standard maintenance procedures and regulations, and ensure all procedures and regulations are properly executed.	platform maintenance work by maintaining close contact with Discipline Supervisors 9) Ensure that all plants, processes and equipment are functioning efficiently, with any failure of safety-critical elements to meet performance standards being reported immediately to the OIM.	produce/documents/deliverables, gain approvals, produce work-packs (with coordinators) implement, close-out MOC's that are less than 90 days duration from approval to execution close-out. 10) For large MOC's greater than 90 days of duration: Provide support, assistance and coordination (with offshore and Project Team) within your discipline to internal or external and other contractors. 11) Monitor and ensure operationally and maintain compliance within their discipline, recommend improvements and efficiencies for management approval. 12) To review all associated inspection reports against the contract requirements and ensure that all maintenance recommendations deliver compliance with that contract.
5	**Lead Technician Mechanical /Electrical/Instrument** 1) Responsible and accountable for mechanical/ electrical/ instrument maintenance activities performed at the facilities as directed by the Maintenance Supervisor. 2) Responsible for communicating job safety requirements to the Maintenance Teams to ensure that all understand the safety, health, environmental, and	**Lead Production Technician** 1) To coordinate and supervise operations and maintenance activities offshore. 2) To manage and control the operations team to ensure the safe and efficient functioning of all process facilities and operations. 3) To complete all other assignments as may be assigned by the Production Supervisor. 4) Assist production supervisor	**Lead Technician Mechanical / Electrical/ Instrument** 1) Responsible and accountable for mechanical/electrical/instrument maintenance activities performed at the facilities as directed by the Maintenance Supervisor. 2) Responsible for communicating job safety requirements to the Maintenance Teams to ensure that all understand the safety, health, environmental, and security concerns as well as the	**Lead Production Technician** 1) To coordinate and supervise operations and maintenance activities offshore. 2) To manage and control the operations team to ensure the safe and efficient functioning of all process facilities and operations. 3) To complete all other assignments as may be assigned by the Production Supervisor. 4) Assist production supervisor	**Lead Marine Mechanical/ Electrical/ Instrument** 1) Responsible and accountable for mechanical/ electrical/ instrument maintenance activities performed at the facilities as directed by the Maintenance Supervisor. 2) Responsible for communicating job safety requirements to the Maintenance Teams to ensure that all understand the safety, health, environmental, and security concerns as well as the work objectives.

	security concerns as well as the work objectives. 3) Responsible for working with mechanical/electrical/instrument lead and operations leads to ensure maintenance activities are scheduled to minimise downtime and optimise efficiency. 4) Responsible for ensuring maintenance and reliability expectations are followed. 5) Responsible for supporting the operational management as needed. 6) Responsible for supporting the Operations Emergency Response activities. 7) Responsible for mentoring of the Maintenance national workforce. 8) Lead the Job Safety Analysis process at the site. 9) Ensure compliance with the Work Management System at the site. 10) Ensures good communication across the facilities so that issues can be adequately addressed and actions completed.	to ensure safe and efficient functioning of all process facilities and operations 5) Responsible for operation, condition monitoring and troubleshooting of process plant, CCR, relevant utility systems and equipment. 6) Responsible for operation of safety control systems 7) Responsible for monitoring and troubleshooting turret/ swivel equipment 8) Responsible for meeting production objectives 9) Participate in pre-commissioning and commissioning 10) Responsible for competency assessment and performance evaluation of subordinates	work objectives. 3) Responsible for working with mechanical/electrical/instrument lead and operations leads to ensure maintenance activities are scheduled to minimise downtime and optimise efficiency. 4) Responsible for ensuring maintenance and reliability expectations are followed. 5) Responsible for supporting the operational management as needed. 6) Responsible for supporting the Operations Emergency Response activities. 7) Responsible for mentoring of the Maintenance national workforce. 8) Lead the Job Safety Analysis process at the site. 9) Ensure compliance with the Work Management System at the site. 10) Ensures good communication across the facilities so that issues can be adequately addressed and actions completed.	to ensure safe and efficient functioning of all process facilities and operations 5) Responsible for operation, condition monitoring and troubleshooting of process plant, CCR, relevant utility systems and equipment. 6) Responsible for operation of safety control systems 7) Responsible for monitoring and troubleshooting turret/ swivel equipment 8) Responsible for meeting production objectives 9) Participate in pre-commissioning and commissioning 10) Responsible for competency assessment and performance evaluation of subordinates	3) Responsible for working with mechanical/electrical/instrument lead and operations leads to ensure maintenance activities are scheduled to minimise downtime and optimise efficiency. 4) Responsible for ensuring maintenance and reliability expectations are followed. 5) Responsible for supporting the operational management as needed. 6) Responsible for supporting the Operations Emergency Response activities. 7) Responsible for mentoring of the Maintenance national workforce. 8) Lead the Job Safety Analysis process at the site. 9) Ensure compliance with the Work Management System at the site. 10) Ensures good communication across the facilities so that issues can be adequately addressed and actions completed.
4	**Senior Technician Mechanical / Electrical/ Instrument** 1) Installation, commissioning and maintenance of all equipment associated with the oil production such as turbines (power and compressor driver) compressor (gas and	**Senior Production Technician** 1) Support the assets and operation to ensure that production targets are achieved (production & environmental) and ensure losses are minimised. 2) Operate, monitor and adjust	**Senior Technician Mechanical /Electrical/Instrument** 1) Installation, commissioning and maintenance of all equipment associated with the oil production such as turbines (power and compressor driver) compressor (gas and Air) pumps and diesel engine (Genset and	**Senior Production Technician** 1) Support the assets and operation to ensure that production targets are achieved (production & environmental) and ensure losses are minimised. 2) Operate, monitor and adjust	**Senior Marine Mechanical / Electrical/ Instrument** 1) Installation, commissioning and maintenance of all equipment associated with the oil production such as turbines (power and compressor driver) compressor (gas and Air) pumps and diesel engine (Genset and fire pump)

	Air) pumps and diesel engine (Genset and fire pump) etc. 2) Ensure that all Electrical routine, corrective and breakdown maintenance activity plans include appropriate Job Hazard Analysis (JHA), Risk Assessment and precautionary measures in compliance with the company permit to work system and procedure; in order to minimise risk to personnel, the environment and company assets. 3) Ensure all electrical maintenance activities provide for maximum availability of plant, equipment and machinery under the control of the company based CMMS (EAM) system, covering all planned, corrective and breakdown maintenance, including discipline resource management and materials requirements and availability. 4) Responsible for job preparation, from parts, permits, manpower distribution and reporting of all jobs completion, Timesheet on a company computer database. 5) To perform the implementation of these programs in accordance with field operations 6) Supervise the maintenance personnel and manage the external service providers	production and injection well fluid flow and pressures, fluid separation vessels, produced water handling facilities, crude oil to export and gas compression and the treatment and distribution equipment and process. 3) Report potential process safety and operational optimisation issues to the appropriate supervisory level. 4) Complete all maintenance routines as defined by planned maintenance (PM) schedules and procedures. 5) Monitor the preparation and status of isolations conducted and permits issued in compliance with SSOW. 6) Carry out and log daily plant checks accurately with relevant data and information to assist with shift handover and scrutiny of historical events. 7) Report of defects in liaison with discipline technicians to ensure correct data is input and materials, resources and target dates are captured. 8) Review operating parameters on the various monitoring systems regularly, looking for process anomalies and addressing these as necessary.	fire pump) etc. 2) Ensure that all Electrical routine, corrective and breakdown maintenance activity plans include appropriate Job Hazard Analysis (JHA), Risk Assessment and precautionary measures in compliance with the company permit to work system and procedure; in order to minimise risk to personnel, the environment and company assets. 3) Ensure all electrical maintenance activities provide for maximum availability of plant, equipment and machinery under the control of the company based CMMS (EAM) system, covering all planned, corrective and breakdown maintenance, including discipline resource management and materials requirements and availability. 4) Responsible for job preparation, from parts, permits, manpower distribution and reporting of all jobs completion, Timesheet on a company computer database. 5) To perform the implementation of these programs in accordance with field operations 6) Supervise the maintenance personnel and manage the external service providers 7) Ensure that all equipment is restarted and running efficiently after being repaired or maintain 8) Coordinate with technical support, the spare parts, the	production and injection well fluid flow and pressures, fluid separation vessels, produced water handling facilities, crude oil to export and gas compression and the treatment and distribution equipment and process. 3) Report potential process safety and operational optimisation issues to the appropriate supervisory level. 4) Complete all maintenance routines as defined by planned maintenance (PM) schedules and procedures. 5) Monitor the preparation and status of isolations conducted and permits issued in compliance with SSOW. 6) Carry out and log daily plant checks accurately with relevant data and information to assist with shift handover and scrutiny of historical events. 7) Report of defects in liaison with discipline technicians to ensure correct data is input and materials, resources and target dates are captured. 8) Review operating parameters on the various monitoring systems regularly, looking for process anomalies and addressing these as necessary.	etc. 2) Ensure that all Electrical routine, corrective and breakdown maintenance activity plans include appropriate Job Hazard Analysis (JHA), Risk Assessment and precautionary measures in compliance with the company permit to work system and procedure; in order to minimise risk to personnel, the environment and company assets. 3) Ensure all electrical maintenance activities provide for maximum availability of plant, equipment and machinery under the control of the company based CMMS (EAM) system, covering all planned, corrective and breakdown maintenance, including discipline resource management and materials requirements and availability. 4) Responsible for job preparation, from parts, permits, manpower distribution and reporting of all jobs completion, Timesheet on a company computer database. 5) To perform the implementation of these programs in accordance with field operations 6) Supervise the maintenance personnel and manage the external service providers 7) Ensure that all equipment is restarted and running efficiently after being repaired or maintain 8) Coordinate with technical support, the spare parts, the preparations and documentation up-date and correct storage

	7) Ensure that all equipment is restarted and running efficiently after being repaired or maintained 8) Coordinate with technical support, the spare parts, the preparations and documentation up-date and correct storage 9) Identifies recurrent corrective maintenance intervention, analyses them and suggest improvements		preparations and documentation up-date and correct storage 9) Identifies recurrent corrective maintenance intervention, analyses them and suggest improvements		9) Identifies recurrent corrective maintenance intervention, analyses them and suggest improvements
3	**Technician Mechanical /Electrical/Instrument** 1) Maintaining and troubleshooting electrical instrumentation (including power generation and distribution systems, electronic controls and shutdown systems on offshore platforms 2) Experience in Process Control, Distributed Control System (DCS) and Programmable Logic Control (PLC) 3) Experience in instrumentation and electrical work installation, preventive/corrective maintenance and troubleshooting works 4) Valid electrician certificate from local electrical profession board or Energy Commission such as Electrical Chargeman AO or higher will be an added advantage	**Production Technician** 1) Operating oil and gas production/process facilities including turbomachinery, produced water, water injection, gas conditioning and gas lift systems on offshore platforms 2) Experience in the upstream oil and gas production system and distributed control systems 3) Assists and provides technical assistance on oil and gas production-related issues. 4) Implements production operational standards and coordinates data acquisition for the Production Engineer, Operations Manager, and Superintendent. 5) Performs onsite supervision and monitoring and testing, and makes changes or adjustments to equipment. 6) Communi clearly with contract personnel during	**Technician Mechanical / Electrical/Instrument** 1) Maintaining and troubleshooting electrical instrumentation (including power generation and distribution systems, electronic controls and shutdown systems on offshore platforms 2) Experience in Process Control, Distributed Control System (DCS) and Programmable Logic Control (PLC) 3) Experience in instrumentation and electrical work installation, per preventive/corrective maintenance and troubleshooting works 4) Valid electrician certificate from local electrical profession board or Energy Commission such as Electrical Chargeman AO or higher will be an added advantage Mechanical Technician 5) Maintaining and	**Production Technician** 1) Operating oil and gas production/process facilities including turbomachinery, produced water, water injection, gas conditioning and gas lift systems on offshore platforms 2) Experience in the upstream oil and gas production system and distributed control systems 3) Assists and provides technical assistance on oil and gas production-related issues. 4) Implements production operational standards and coordinates data acquisition for the Production Engineer, Operations Manager, and Superintendent. 5) Performs onsite supervision and monitoring and testing, and makes changes or adjustments to equipment. 6) Communicate clearly with contract personnel during modification and/or	**Marine Mechanical / Electrical/ Instrument** 1) Traveling to the marina or dock where the vessel is located. 2) Testing the performance of marine engines and electrical systems. 3) Carrying out services and minor repairs on outboard, inboard, and ship engines. 4) Conducting plumbing and intake repairs. 5) Troubleshooting engine and electrical problems. 6) Replacing broken or worn-out engine parts. 7) Repair faulty hydraulic and steering systems. 8) Conducting electrical AC system maintenance. 9) Completing service records and repair documents.

	Mechanical Technician 5) Maintaining and troubleshooting mechanical equipment including major turbines and reciprocating engines, valves, pumps, compressors, industrial gas/diesel engines and associated high-pressure equipment on offshore platforms 6) Experience in maintenance, repair or overhaul of air compressors, pumps, diesel engines or other mechanical equipment 7) Experience with the use of precision measurement tools, alignment between driver to driven equipment and preventive/corrective maintenance of mechanical equipment 8) Experience/holder of a valid certificate in operating crane or other machinery will be an added advantage 9) Installing, troubleshooting, repairing, maintaining, commissioning, and testing of mechanical/electrical/instrument equipment and systems on oil rigs. 10) Involves working on mechanical/electrical/instrument distribution and transmission equipment. 11) Develop and design mechanical/electrical/instrument control systems for oil and gas drilling equipment.	modification and/or adjustment of equipment. 7) Supporting field personnel in managing the production data 8) Compiling and forecasting production expense data 9) Generating production graphs and analysing production trends utilizing computer applications 10) Participating in incident reviews and job safety analysis 11) Helping to coordinate spill reporting and remediation 12) Developing and adjusting procedures, policies, and operational guidelines	troubleshooting mechanical equipment including major turbines and reciprocating engines, valves, pumps, compressors, industrial gas/diesel engines and associated high-pressure equipment on offshore platforms 6) Experience in maintenance, repair or overhaul of air compressors, pumps, diesel engines or other mechanical equipment 7) Experience with the use of precision measurement tools, alignment between driver to driven equipment and preventive/corrective maintenance of mechanical equipment 8) Experience/holder of a valid certificate in operating crane or other machinery will be an added advantage 9) Installing, troubleshooting, repairing, maintaining, commissioning, and testing of mechanical/electrical/instrument equipment and systems on oil rigs. 10) Involves working on mechanical/electrical/instrument distribution and transmission equipment. 11) Develop and design mechanical/electrical/instrument control systems for oil and gas drilling equipment. 12) Write routine reports and correspondence.	adjustment of equipment. 7) Supporting field personnel in managing the production data 8) Compiling and forecasting production expense data 9) Generating production graphs and analyzing 10) production trends utilizing computer applications 11) Participating in incident reviews and job safety analyses 12) Helping to coordinate spill reporting and remediation 13) Developing and adjusting procedures, policies, and operational guidelines	

	12) Write routine reports and correspondence. 13) Conduct daily inspections on all systems and report any potential issues. 14) Troubleshoot all mechanical/electrical/instrument systems and make recommendations for upgrades, repairs, maintenance, etc. 15) Calibrate and modify systems according to site needs.		13) Conduct daily inspections on all systems and report any potential issues. 14) Troubleshoot all mechanical/electrical/instrument systems and make recommendations for upgrades, repairs, maintenance, etc. 15) Calibrate and modify systems according to site needs.		
2	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**
1	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**	**No Job Title**

4.5 Mapping OS versus NOSS Available

This section provides the mapping between OS and current available NOSS. A total of 16 available NOSS are identified and mapped into the proposed OS as shown in Table 4.25.

Table 4.25: Mapping Occupational Structure with Existing NOSS

MSIC SECTION	B: MINING AND QUARRYING										
MSIC DIVISION	BO6: EXTRACTION CRUDE PETROLEUM AND NATURAL GAS										
MSIC GROUP	061- EXTRACTION OF CRUDE PETROLEUM										
JOB AREA / LEVEL	DRILLING (ENGINEERING Management)	DRILLING (OPERATION)	DRILLING (RIG-Electrical)	DRILLING (RIG-MARINE)	DRILLING (RIG)	DRILLING (RIG MOVE)	DRILLING (RIG-Mechanical)	DRILLING (RIG POSITIONING)	DRILLING (DIRECTIONAL DRILLING)	DRILLING (MEASUREMENT WHILE DRILLING/LOGGING WHILE DRILLING)	
8	Custodian Drilling Engineer*	Drilling/ Deep water Superintendent*	No Job Title	Superintendent	Rig Manager*	Marine Warranty Surveyor (MWS)*	No Job Title	No Job Title	No Job Title	No Job Title	
7	Principal Drilling Engineer	Deep water/ Senior Drilling Supervisor*	Rig Maintenance Supervisor (RMS)*	Captain*	Offshore Installation Manager* OIM	No Job Title	Rig Maintenance Supervisor (RMS)*	No Job Title	Drilling Engineer Manager	No Job Title	
6	Senior/Staff Drilling Engineer	Deep water/ Drilling Supervisor*	Rig Chief Electrician	Barge Master	Toolpusher	No Job Title	Rig Chief Mechanical	Party/Senior chief surveyor	Senior Directional Driller	Senior MWD/LWD Engineer	Remote Operation MWD/LWD Engineer#
5	Drilling Engineer	Drilling Engineer OG-012-5: 2012	Rig Electrician B061-001-5: 2018	Assistant Barge Master OG-025-5: 2016	Driller	No level	Rig Mechanical B091-002-5: 2018 (Instrumentation Maintenance Management)	Surveyor	Directional Driller (engineer)	MWD/LWD Engineer#	
4	Wellsite Drilling Engineer	Wellsite Drilling Engineer OG-012-4: 2012	Rig Senior Technician B061-001-4: 2018	Deck Supervisor OG-025-4: 2016	Assistant. Driller	No Job Title	Rig Senior Technician B091-002-4: 2018 (Instrumentation Maintenance Supervision)	No Job Title	Well Planner (cross CP to Drilling Engineer)		
3	No Job Title	No Job Title	Rig Technician OG-019-3: 2013 (Electrical Maintenance)	Deck Foreman	Pumpman OG-012-3: 2011	No Job Title	Rig Technician OG-017-3: 2013 (Instrumentation Maintenance) OG-018-3: 2013 (Penyelia Penyelenggaraan Mekanikal)	No Job Title	No Job Title		

2	No Job Title	No Job Title	Assistant Rig Technician OG-019-2: 2013 (Electrical maintenance)	Roustabout	Derrickman	No Job Title	Assistant Rig Technician OG-017-2: 2013 (Instrumentation Maintenance) OG-018-2: 2013 (Penyelenggaraan Mekanikal)	No Job Title	No Job Title
1	No Job Title	No Job Title	Apprentice OG-019-1: 2013 (Electrical maintenance)	Handyman	Roughneck	No Job Title	Apprentice OG-017-1: 2013 (Instrumentation Maintenance) OG-018-: 2013 (Penyelenggaraan Mekanikal)	No Job Title	No Job Title

CHAPTER 5

DISCUSSION, RECOMMENDATION AND CONCLUSIONS

5.1 DISCUSSION

The extraction of crude petroleum and natural gas can be considered as an established segment in the mining and quarrying sector. The findings from the study of the OS based on MSIC 2008 B061 and B062 have suggested a total of four main job areas and 242 job titles, 27 critical job titles, and six job titles relevant to IR 4.0 identified from FGD.

5.2 RECOMMENDATION

As a recommendation from the focus group discussion and document analysis, the main problem identified in this extraction activity is the changes in technology and market demand. New critical skills have been identified to meet industrial demand and to improve the competency of the workers. Besides that, a new revision on wages also needs to be addressed since the people who are working in this industry need to perform multi-tasks and jobs that are not clearly defined in their job descriptions. Companies in the industry also need to enhance the competency of local skilled workers by providing critical skills to them. Several policies can be taken such as providing an incentive to the companies that perform high-level skills to their employees.

It is believed that the results of this OF are useful as a reference to fulfil the plans of developing skilled personnel and certifying Malaysians in this industry towards improving the quality of the local industry and thus spurring Malaysia's global competitiveness. There are several options when addressing the workforce's demand and supply. It may include establishing and maintaining partnerships with other agencies or departments or educational institutions to increase external talent pools and also through the training of existing staff in line with new skills requirements.

Based on the above comments, specific recommendations are listed as follow:

(1) Continue and streamline efforts in NOSS development for areas under the industry in line with the findings of this analysis. This includes the development of the NOSS for the sectors and sub-sectors that are in demand and have not been developed.
(2) Invest in the employee training program to increase employees' performance as well as competencies and skills for semi-skilled workers. Training is the main issue that affects employees' performance and needs to be addressed imminently.
(3) Upskilling and reskilling are seen as useful means of coping with changes fostered by technological innovation; market competition, organisational structuring, and most importantly it plays a key role to enhance employees' performance.

5.3 CONCLUSIONS

The conclusions are drawn accordingly based on the specified objectives of the OF as follows:

Objective 1: To construct OS for Division B: 061 and 062 of MSIC 2008

As a result of the OF conducted together with expert panel members from various organisations, a total of four job areas, 242 job titles, 27 critical job titles, and six jobs titles relevant to IR 4.0 have been identified.

Objective 2: To determine the competency in demand for extraction of crude petroleum and natural gas

Based on the survey findings, the respondents and FGD highlighted the top three skills in demand for skilled workers are leadership skills, communication skills, and planning and forecasting abilities. Whereas, for semi-skilled workers, the top three skills in demand are technical, diagnostic and troubleshooting skills and machinery knowledge and skills. For the low skilled workers, the top three skills in demand are safety and security, general attitude and housekeeping.

Objective 3: To determine the critical job titles for the Extraction of Crude Petroleum and Natural Gas.

The researchers have identified 27 critical job titles in Extraction of Crude Petroleum and Natural Gas.

Objective 4: To identify the Extraction of Crude Petroleum and Natural Gas job titles that are relevant to IR4.0

For identification of job titles relevant to IR 4.0, the Focus Group Discussion members have reviewed the developed OS and comprehensively concluded with six job titles relevant to IR4.0 in Extraction of Crude Petroleum and Natural Gas activities.

Objective 5: To create an Extraction of Crude Petroleum and Natural Gas Occupational Competency (OC) for each job title based on the constructed OS.

The OC for all the different job titles were obtained from Focus Group Discussion and related job description documents. These OC will also serve as a reference of job scope. In addition, Occupational Description (OD) has also been constructed with the required competencies for NOSS development. The OD can be referred to in Annex 6.

In conclusion, the government and stakeholders need to take serious attention to the oil and gas industry requirement to sustain the development of the oil and gas industry, and also to ensure that the progress of Malaysia oil and gas industry is in line with other notable oil and gas producing countries. The results of this study can be one of the key references to ensure the development of extraction of oil and gas activities in Malaysia is on the right track and continuously developing to become one of the industries that enhances country development.

REFERENCES

3rd Industrial Master Plan (IMP3) 2006-2020, Malaysia. Ministry of International Trade and Industry. https://www.miti.gov.my/index.php/pages/view/1690?mid=110. Retrieved 25 August 2021.

Annual Economic Statistic (2018), DOSM, Malaysia. https://www.dosm.gov.my/v1/index.php?r=column/cthemeByCat&cat=96&bul_id=T1NYUmJQUEhycGplR2VXbi9mSzV0UT09&menu_id=TXdvYTlvQXVlTFhVOUJ6NVVESVBNUT09. Retrieved 25 August 2021.

American Petroleum Institute (API) (2021). Oil & Natural Gas Contribution To U.S. Economy Fact Sheet. https://www.api.org/news-policy-and-issues/taxes/oil-and-natural-gas-contribution-to-us-economy-fact-sheet. Retrieved 7 November 2021.

API Recommended Practice 54 (2019). Occupational Safety and health For Oil and Gas Well Drilling and Servicing Operation, Fourth Edition, February 2019. American Petroleum Institute. https://www.api.org/-/media/Files/Publications/RP-54_e4.pdf. Retrieved 25 August 2021.

Baruch, Y. and Holtom, B.C. (2008). Survey response rate levels and trends in organisational research. *Human Relations*. 61(8):1139-1160. doi:10.1177/0018726708094863

BS-EN-ISO-14693 - Petroleum And natural gas Industries- Drilling and Well-Service Equipment. https://www.document-centre.com/standards/show/BS-EN-ISO-14693. Retrieved 25 August 2021.

Department of Statistics, Malaysia, (2021). https://www.dosm.gov.my/v1/index.php?r=column/cthemeByCat&cat=100&bul_id=Y1MyV2tPOGNsVUtnRy9SZGdRQS84QT09&menu_id=TE5CRUZCblh4ZTZMODZIbmk2aWRRQT09. Retrieved 9 November 2021.

Economic Transformation Programme (ETP), Performance Management and Delivery Unit (PEMANDU), an agency under the Prime Minister Department of Malaysia. https://www.centreforpublicimpact.org/case-study/performance-management-delivery-unit-kuala-lampur. Retrieved 25 August 2021.

Eddie, C. Y. K. and Low, L. (2011). Information Economy and Changing Occupational Structure in Singapore. *The Information Society*, pp 281-293.

Employment Act 1955 (1995). Law of Malaysia.

Employment Statistics Second Quarter 2019. https://www.dosm.gov.my/v1/index.php?r=column/pdfPrev&id=Y1A1WU14RG1ZRURxNkdkeHRMQjhjZz09. Retrieved 25 August 2021.

Exclusive Economic Zone Act. 1984 (1984) Law of Malaysia.

Fawthrop, A., (2021). Profiling the Top Five Countries With The Biggest Natural Gas Reserves: Features and Analysis Oil & Gas Upstream, NS Energy (Online), March 2021.

Gas Supply Act 1993 (1993). Laws of Malaysia.

Geological Survey Act. 1974 (1974). Law of Malaysia.

Hashim, Y. A. (2010). Determining Sufficiency of Sample Size In Management Survey Research Activities. *International Journal of Organisational Management & Entrepreneurship Development*. 6(1): 119-130

https://www.dosm.gov.my/v1/index.php?r=column/cone&menu_id=bGRZdEM3eW5GTWpOWDBEa2V1Ym5CQT09. Retrieved 25 August 2021.

Industry 4.0 (National Policy on Industry 4.0) by MITI. https://www.miti.gov.my/miti/resources/National%20Policy%20on%20Industry%204.0/Industry4WRD_Final.pdf. Retrieved 25 August 2021.

International Labour Organisation (2018). https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_630199.pdf. Retrieved 25 August 2021.

ISO/TS 29001:2020 - Petroleum, petrochemical and natural gas industries-Sector-specific quality management systems- Requirements for product and service supply organisations. https://www.iso.org/standard/67773.html. Retrieved 25 August 2021.

Leonard Broom, F. Lancaster Jones and Jerzy Zubrzyckithe (1965). An Occupational Classification of the Australian Workforce. *Australian and New Zealand Journal of Sociology*, 1(2): 1-16.

Malaysian Qualification Framework 2nd Edition (updated 25 February 2021). https://www.mqa.gov.my/pv4/mqf.cfm. Retrieved 25 August 2021.

Malaysian Standard Classification of Occupations (2008) (MASCO). https://www.dosm.gov.my/v1/uploads/files/4_Portal%20Content/3_Methods%20%26%20Classifications/2_List%20of%20References/updated%202019/MASCO%202008_EBOOK_BI.pdf. Retrieved 25 August 2021.

Malaysian Standard Industrial Classification (MSIC) (2008). Jabatan Perangkaan Malaysia.

National Occupational Skills Standards (NOSS), Jabatan Pembangunan Kemahiran. Kementerian Sumber Manusia. https://www.dsd.gov.my/index.php/perkhidmatan/artikulasi/123-perkhidmatan/435-national-occupational-skills-standard-noss. Retrieved 25 August 2021.

National OGSE Industry Blueprint 2021-2030 ABRIDGED REPORT, Economic Planning Unit, Prime Minister's Department, March 2021.

https://www.mprc.gov.my/sites/default/files/resources/National%20OGSE%20Industry%20Blueprint.pdf. Retrieved 25 August 2021.

National Skills Development Act 2006 (Act 652) (2006). https://www.ilo.org/dyn/natlex/natlex4.detail?p_lang=en&p_isn=95630&p_country=MYS&p_count=199. Retrieved 25 August 2021.

Occupational Safety And Health Act 1994. (1994). Law of Malaysia. https://www.dosh.gov.my/index.php/legislation/acts-legislation/23-02-occupational-safety-and-health-act-1994-act-514/file. Retrieved 25 August 2021.

Occupational Safety and Health MAP 20 -25 by DOSH Malaysia

Oil & Gas Journal (2019), "Worldwide look at reserves and production", 117(12):

Petroleum (Safety Measure) Act 1984. (1984). https://www.dosh.gov.my/index.php/legislation/acts-legislation/25-04-petroleum-act-safety-measure-1984-act-302/file. Retrieved 25 August 2021.

Petronas Activity Outlook 2019-2021. https://www.petronas.com/sites/default/files/Media/PETRONAS%20Activity%20Outlook%202019-2021.pdf. Retrieved 25 August 2021.

Robet K.Yin (2017). Case Study Research, Design method. 3rd Edition. Sage Publication 2009, USA.

Sekaran, U. (2003). *Research Methods for Business: A Skill-Building Approach.* 4th Edition, John Wiley & Sons, New York.

Statista.com (2021). Number of employees in the oil and gas extraction industry in the United States from 1998 to 2020. https://www.statista.com/statistics/193217/employment-in-the-us-oil-and-gas-extraction-industry-since-1998/. Retrieved 7 November 2021

Statista.com (2021). Total number of employees in the crude petroleum and natural gas extraction sector in the United Kingdom (UK) from 2008 to 2018. https://www.statista.com/statistics/422220/number-of-employees-extraction-of-crude-petroleum-and-natural-gas-uk/. Retrieved 7 November 2021.

Statista.com (2021). Total number of employees in the crude petroleum and natural gas extraction sector in Norway from 2008 to 2018. https://www.statista.com/statistics/545421/number-of-employees-extraction-of-crude-oil-petroleum-and-natural-gas-norway/. Retrieved 7 November 2021

Statista.com (2021). Total number of employees in the crude petroleum and natural gas extraction sector in Italy from 2008 to 2018. https://www.statista.com/statistics/422215/number-of-employees-extraction-of-crude-petroleum-and-natural-gas-italy/. Retrieved 7 November 2021

The Star, (2021). Brighter outlook for Malaysia's oil and gas sector. https://www.thestar.com.my/business/business-news/2021/09/18/brighter-outlook-for-malaysias-oil-and-gas-sector. Retrieved 21 September 2021.

Thomas Grisham, (2008), A Delphi Technique: A method for testing complex and multifaceted topics. *International Journal of Managing Projects in Business*, 2(1): 112-130. DOI:10.1108/17538370910930545

Weisberg, H. F. & Bowen, B. D. (1977). *An Introduction to Survey Research and Data Analysis*. W. H. Freeman, Amazon.

World LNG Report (2021). https://www.igu.org/resources/world-lng-report-2021/. Retrieved 25 August 2021.

ANNEX 1: MOSQF LEVEL DESCRIPTORS
Malaysian Occupational Skills Qualification Framework (MOSQF)
(Source: Department of Skills Development)

Level	Level Descriptors
8	Achievement at this level reflects the ability to develop original understanding and extend a sub-area of knowledge or professional practice. It reflects the ability to address problematic situations that involve many complex, interacting factors through initiating, designing and undertaking research, development or strategic activities. It involves the exercise of broad autonomy, judgement and leadership in sharing responsibility for the development of a field of work or knowledge, or for creating substantial professional or organisational change. It also reflects a critical understanding of relevant theoretical and methodological perspectives and how they affect the field of knowledge or work.
7	Achievement at this level reflects the ability to reformulate and use relevant understanding, methodologies and approaches to address problematic situations that involve many interacting factors. It includes taking responsibility for planning and developing courses of action that initiate or underpin substantial change or development, as well as exercising broad autonomy and judgment. It also reflects an understanding of theoretical and relevant methodological perspectives, and how they affect their sub-area of study or work.
6	Achievement at this level reflects the ability to refine and use relevant understanding, methods and skills to address complex problems that have limited definition. It includes taking responsibility for planning and developing courses of action that are able to underpin substantial change or development, as well as exercising broad autonomy and judgment. It also reflects an understanding of different perspectives, approaches or schools of thought and the theories that underpin them.
5	Achievement at this level reflects the ability to identify and use relevant understanding, methods and skills to address broadly-defined, complex problems. It includes taking responsibility for planning and developing courses of action as well as exercising autonomy and judgment within broad parameters. It also reflects an understanding of different perspectives, approaches or schools of thought and the reasoning behind them.

4	Achievement at this level reflects the ability to identify and use relevant understanding, methods and skills to address problems that are well defined but complex and non-routine. It includes taking responsibility for overall courses of action as well as exercising autonomy and judgment within fairly broad parameters. It also reflects an understanding of different perspectives or approaches within a sub-area of study or work.
3	Achievement at this level reflects the ability to identify and use relevant understanding, methods and skills to complete tasks and address problems that are well defined with a measure of complexity. It includes taking responsibility for initiating and completing tasks and procedures as well as exercising autonomy and judgments within the limited parameters. It also reflects awareness of different perspectives or approaches within a sub-area of study or work.
2	Achievement at this level reflects the ability to select and use relevant knowledge, ideas, skills and procedures to complete well-defined tasks and address straightforward problems. It includes taking responsibility for completing tasks and procedures and exercising autonomy and judgment subject to overall direction or guidance.
1	Achievement at this level reflects the ability to use relevant knowledge, skills and procedures to complete routine and predictable tasks that include responsibility for completing tasks and procedures subject to direction or guidance.

ANNEX 2: LIST OF CONTRIBUTORS

List of Expert Panel

BIL	Name	Position	Company
1.	En. Azizurady Bin Mohd Ariff	Jurutera Kanan Operasi	Repsol Oil & Gas Malaysia Limited
2.	Pn. Azwina Binti Othman	Jurutera Kualiti & keselamatan	MMC Oil and Gas Engineering Sdn Bhd
3.	Dr. Ahmad Soyuthi Bin Haji Sabran	HSE Manager	Sapura Offshore Sdn Bhd
4.	En. Norisham Bin Mohd Kamil	Inspector Engineer	Bureau Veritas (M) Sdn Bhd
5.	En. Mohd Razak Mohidin	Manager	Pengerang Refining Company Sdn Bhd
6.	En. Zahris Sham Bin Abu @ Musa	Pengarah	Schlumberger WTA (M) Sdn Bhd
7.	En. Zaidi Bin Mohamed	Drilling Superitendent	Vestigo Petroleum Sdn Bhd
8.	En. Zainol Fariz Bin Ja'afar	Jurutera dan SHE Officier	UMD Energy Sdn Bhd
9.	En. Muhammad Nazar Bin Mat Deris	Staff Completion Engineer	Petronas Carigali Sdn Bhd
10.	En. Jamangudin Mohamed Jamali	Qa/QC Manager	CETCO Service (M) Sdn Bhd
11.	Ir. Zainal Abidin Salleh	Head Of Technical Projects	PTTEP Sarawak Oil Limited
12.	En. Mohamed Nizam Shamsurdin En.	Project Director	SAPURA OFFSHORE Sdn Bhd
13.	Ts. Shaifulazri Zainulabidin	DOSH Officier	FREELANCE ex-KPOP Sdn Bhd
14	Ammar Mohd Yusop	HSE Manager	Petronas Carigali Sdn Bhd
15.	Haszrami Bin Dzahalan	HSE Manager	Lee Ling Timber Sdn Bhd
16.	En. Sharkawi Hazim Shafie	Pengurus Kanan	CIMAH, DOSH

List of DSD Officer

No	Name	Position
1	Khadijah binti Isaak	Head of Assistant Director
2	Noor azura binti Adnan	Senior Assistant Director
3	Ahmad Azran bin Ranaai	Senior Assistant Director
4	Nazrul Hilmi bin Mohammad	Senior Assistant Director
5	Norhadawati binti Daud	Skill Development Officer

List of Technical Evaluator

No	Name	Position/Company
1	En Nor Azlan Bin Adnan	Pesara-
2	En Abdul Rahman Bin Yusoff	Pesara-INSTEP

List of Researcher

No	Name	Position	Company
1	Dr Shamsuri Bin Khalid	Penolong Pengarah, Jabatan Kejuruteraan Forensik	Jabatan Kesihatan Dan Keselamatan Pekerja
2	PM.Dr. Muhammad Noorul Anam Bin Mohd Norddin	Ketua Program Kejuruteraan Petroleum	Sekolah Kejuruteraan Kimia Dan Kejuruteraan Tenaga, UTM
3	PN.Issham Bin Ismail	Pensyarah Kejuruteraan Petroleum	Sekolah Kejuruteraan Kimia Dan Kejuruteraan Tenaga, UTM

ANNEX 3: QUESTIONNAIRE

Extraction of Crude Petroleum and Natural Gas: Occupational Framework Survey

The Department of Skills Development (DSD), Ministry of Human Resources is currently conducting an analysis on the Occupational Framework of the Industry. From this analysis, the industry framework, occupational structure, occupational job titles and job description will be summarised for the use of the government, private sector, investors, employers, employees, educators or any personnel involved either directly or indirectly with the industry.

The main objective of this research is to enhance skills training starting from the entry level position for any job in this industry based on input from the industry. It will also provide a reference competency for skills required by workers to perform as required in the industry. This survey will be used as field data in order to conduct a comprehensive analysis of the industry's Occupational Framework in EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS. The target group for this survey is the organisation's representative either from the Human Resource Department or personnel at management level.

We would like to extend our heartfelt gratitude upon your cooperation in answering this survey. Please fill in where necessary in the question provided.

Name of Respondent

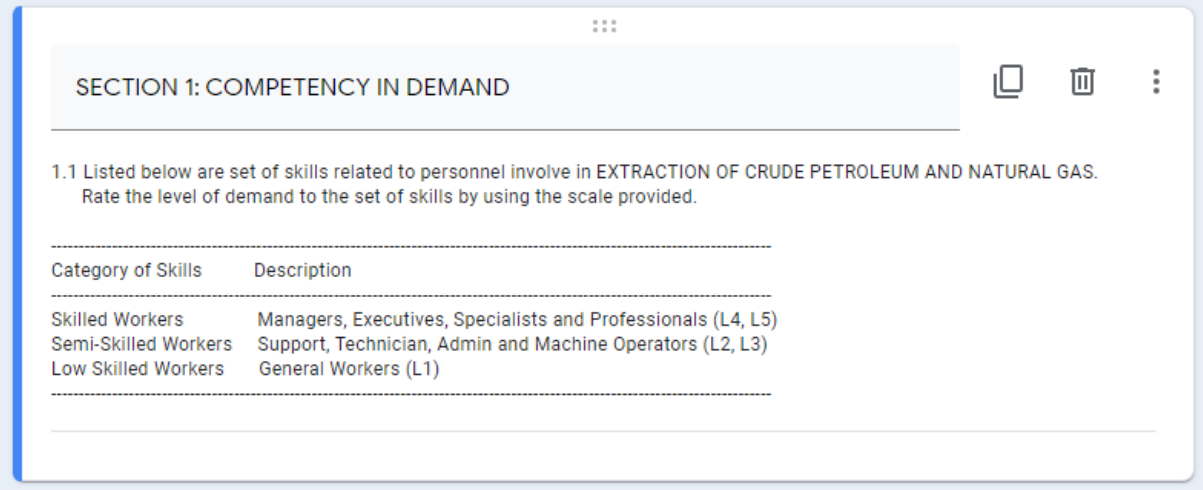
Short answer text

Position in Organisation

Short answer text

Name of Organisation *

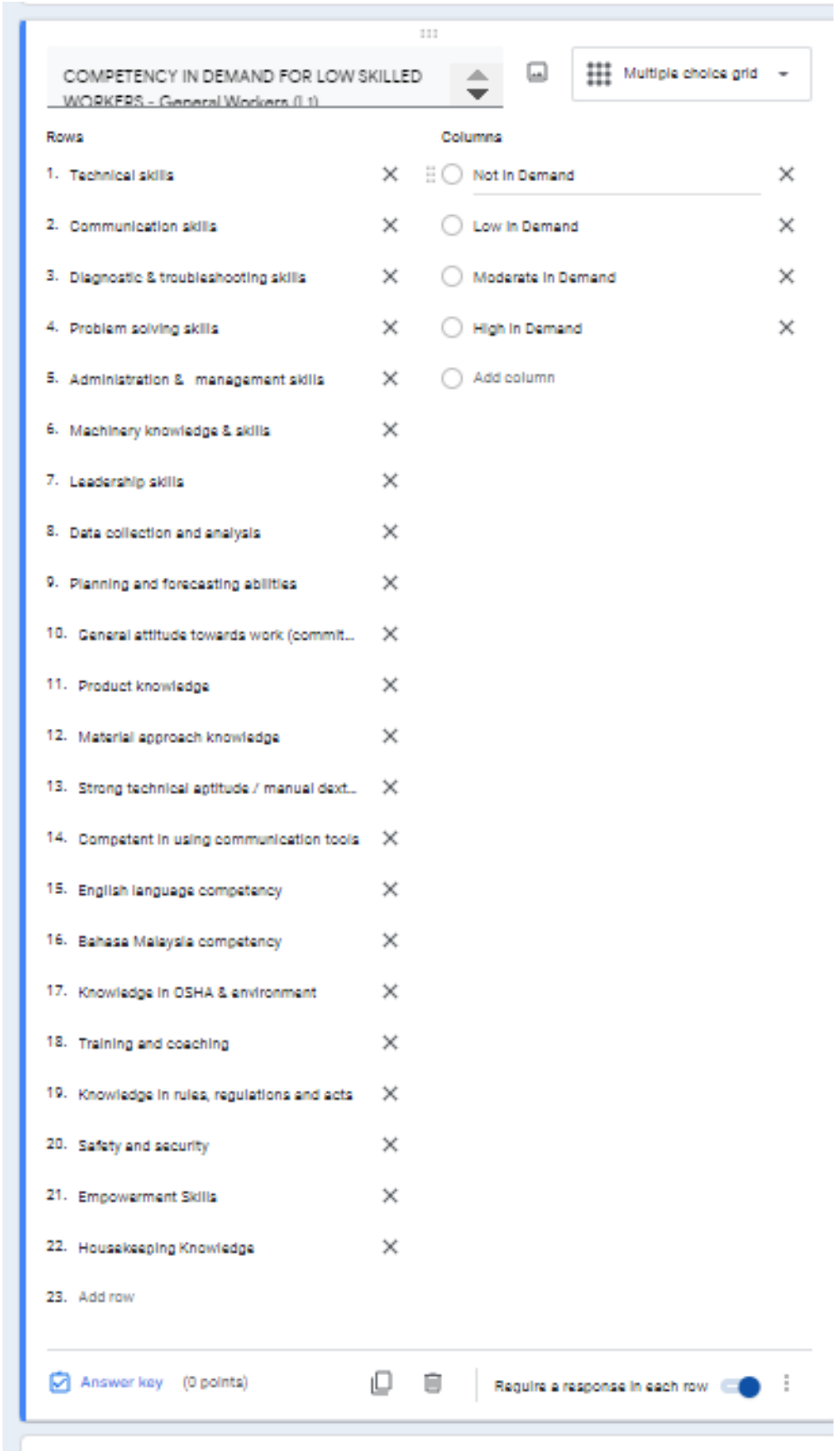
Short answer text



SECTION 1: COMPETENCY IN DEMAND

1.1 Listed below are set of skills related to personnel involve in EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS. Rate the level of demand to the set of skills by using the scale provided.

Category of Skills	Description
Skilled Workers	Managers, Executives, Specialists and Professionals (L4, L5)
Semi-Skilled Workers	Support, Technician, Admin and Machine Operators (L2, L3)
Low Skilled Workers	General Workers (L1)

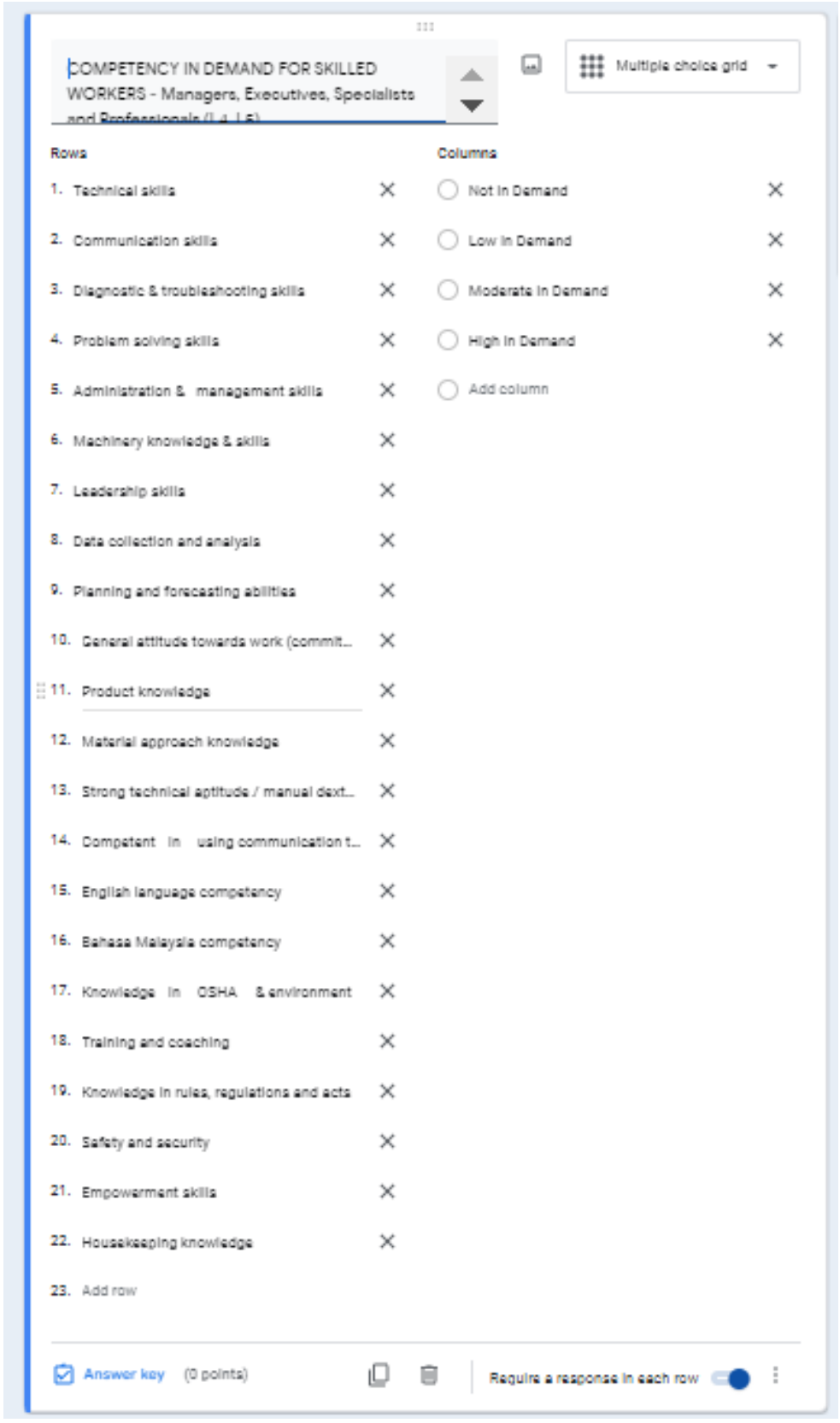

COMPETENCY IN DEMAND FOR LOW SKILLED WORKERS - General Workers (L1)
Multiple choice grid
Rows
Columns
1. Technical skills
2. Communication skills
3. Diagnostic & troubleshooting skills
4. Problem solving skills
5. Administration & management skills
6. Machinery knowledge & skills
7. Leadership skills
8. Data collection and analysis
9. Planning and forecasting abilities
10. General attitude towards work (commit...
11. Product knowledge
12. Material approach knowledge
13. Strong technical aptitude / manual dext...
14. Competent in using communication tools
15. English language competency
16. Bahasa Malaysia competency
17. Knowledge in OSHA & environment
18. Training and coaching
19. Knowledge in rules, regulations and acts
20. Safety and security
21. Empowerment Skills
22. Housekeeping Knowledge
23. Add row
Not in Demand
Low in Demand
Moderate in Demand
High in Demand
Add column
Answer key
(0 points)
Require a response in each row

COMPETENCY IN DEMAND FOR SEMI-SKILLED WORKERS - Support, Technician, Admin and Machine Operators (L2, L3) *

	Not in Demand	Low in Demand	Moderate in Dema...	High in Demand
Technical skills	○	○	○	○
Communication ski...	○	○	○	○
Diagnostic & troubl...	○	○	○	○
Problem solving sk...	○	○	○	○
Administration & m...	○	○	○	○
Machinery knowled...	○	○	○	○
Leadership skills	○	○	○	○
Data collection and...	○	○	○	○
Planning and forec...	○	○	○	○
General attitude to...	○	○	○	○
Product knowledge	○	○	○	○
Material approach ...	○	○	○	○
Strong technical ap...	○	○	○	○
Competent in using...	○	○	○	○
English language c...	○	○	○	○
Bahasa Malaysia c...	○	○	○	○
Knowledge in OSH...	○	○	○	○
Training and coach...	○	○	○	○
Knowledge in rules,...	○	○	○	○
Safety and security	○	○	○	○
Empowerment skills	○	○	○	○
Housekeeping kno...	○	○	○	○

COMPETENCY IN DEMAND FOR SKILLED WORKERS - Managers, Executives, Specialists and Professionals (L4, L5) *

	Not in Demand	Low in Demand	Moderate in Dema...	High in Demand
Technical skills	○	○	○	○
Communication ski...	○	○	○	○
Diagnostic & troubl...	○	○	○	○
Problem solving sk...	○	○	○	○
Administration & m...	○	○	○	○
Machinery knowled...	○	○	○	○
Leadership skills	○	○	○	○
Data collection and...	○	○	○	○
Planning and forec...	○	○	○	○
General attitude to...	○	○	○	○
Product knowledge	○	○	○	○
Material approach ...	○	○	○	○
Strong technical ap...	○	○	○	○
Competent in using...	○	○	○	○
English language c...	○	○	○	○
Bahasa Melaysia c...	○	○	○	○
Knowledge in OSH...	○	○	○	○
Training and coach...	○	○	○	○
Knowledge in rules,...	○	○	○	○
Safety and security	○	○	○	○
Empowerment skills	○	○	○	○
Housekeeping kno...	○	○	○	○


COMPETENCY IN DEMAND FOR SKILLED WORKERS - Managers, Executives, Specialists and Professionals (L4 - L6)
Multiple choice grid
Rows
Columns
1. Technical skills
2. Communication skills
3. Diagnostic & troubleshooting skills
4. Problem solving skills
5. Administration & management skills
6. Machinery knowledge & skills
7. Leadership skills
8. Data collection and analysis
9. Planning and forecasting abilities
10. General attitude towards work (commit...
11. Product knowledge
12. Material approach knowledge
13. Strong technical aptitude / manual dext...
14. Competent in using communication t...
15. English language competency
16. Bahasa Malaysia competency
17. Knowledge in OSHA & environment
18. Training and coaching
19. Knowledge in rules, regulations and acts
20. Safety and security
21. Empowerment skills
22. Housekeeping knowledge
23. Add row
Not In Demand
Low In Demand
Moderate In Demand
High In Demand
Add column
Answer key (0 points)
Require a response in each row

1.2 Based on your observation, do you think the graduates / trainees / apprentices / current workers possess the skills required by the industry? If 'No' please respond to the following questions (Question 1.3 & 1.4). *

- ○ Yes
- ○ No

1.3 What is/are the reason/s for the skills gap? Tick (√) where applicable, you may tick more than once. *

- ☐ Education / training mismatch
- ☐ Incompetent trainers
- ☐ Major changes in traditional training and new skill requirements
- ☐ Gap between technology and skills
- ☐ Lack of opportunities
- ☐ Lack of guidance for future career path
- ☐ Lack of staff benefit (personal & family insurance, outing, annual leave, etc)
- ☐ Lack of knowledge
- ☐ Attitudes (e.g. lack of desire to work)

1.4 What is/are solution/s for the skills gap would you recommend? Tick (√) where applicable, you may tick more than once.

- ☐ Training / retraining
- ☐ Upgrade trainer qualification
- ☐ Review employment policy (e.g. enhance skilled workers' incentives)
- ☐ Upskilling / reskilling
- ☐ Formal mentoring and/or coaching
- ☐ Career path development programme
- ☐ Increase salary and emoluments (bonus, increment, allowance, promotion)
- ☐ Review skills training curriculum
- ☐ Continuous learning and training
- ☐ Acknowledgements & recognitions

SECTION 2: JOBS IN DEMAND IN EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS ACTIVITIES

2.1 Listed below are job areas and description of category of skills. Based on your observation, which job area is experiencing shortage of manpower in EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS activities.

Category of Skills	Description
Skilled Workers	Managers, Executives, Specialists and Professionals (L4, L5)
Semi-Skilled Workers	Support, Technician, Admin and Machine Operators (L2, L3)
Low Skilled Workers	General Workers (L1)

JOBS IN DEMAND IN THE EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS ACTIVITIES FOR LOW SKILLED WORKERS

	High Shortage	Mid Shortage	Low Shortage	No Shortage
1. Extraction of Cru...	○	○	○	○
2. Extraction of Bit...	○	○	○	○
3. Production of Cr...	○	○	○	○
4. Processes to Ob...	○	○	○	○
5. Production of Cr...	○	○	○	○
6. Extraction of Co...	○	○	○	○
7. Draining and Sep...	○	○	○	○
8. Gas Desulphuriz...	○	○	○	○
9. Mining of Hydro...	○	○	○	○

JOBS IN DEMAND IN THE EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS ACTIVITIES FOR SEMI-SKILLED WORKERS

	High Shortage	Mid Shortage	Low Shortage	No Shortage
1. Extraction of Cru...	○	○	○	○
2. Extraction of Bit...	○	○	○	○
3. Production of Cr...	○	○	○	○
4. Processes to Ob...	○	○	○	○
5. Production of Cr...	○	○	○	○
6. Extraction of Co...	○	○	○	○
7. Draining and Sep...	○	○	○	○
8. Gas Desulphuriz...	○	○	○	○
9. Mining of Hydro...	○	○	○	○

JOBS IN DEMAND IN THE EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS ACTIVITIES FOR SKILLED WORKERS

	High Shortage	Mid Shortage	Low Shortage	No Shortage
1. Extraction of Cru...	○	○	○	○
2. Extraction of Bit...	○	○	○	○
3. Production of Cr...	○	○	○	○
4. Processes to Ob...	○	○	○	○
5. Production of Cr...	○	○	○	○
6. Extraction of Co...	○	○	○	○
7. Draining and Sep...	○	○	○	○
8. Gas Desulphuriz...	○	○	○	○
9. Mining of Hydro...	○	○	○	○

SECTION 3: EMERGING SKILLS

Emerging Skills are skills that are predicted to be imperative to the industry in the near future based on recent development, trend or study.

3.1 Do you think Industry Revolution 4.0 (IR4.0) would give an impact to the JOBS IN DEMAND IN EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS ACTIVITIES?

- ○ Yes
- ○ No
- ○ Not Sure

3.2 Listed below are the Eleven (11) technology drives/pillars of IR 4.0. Which drives/pillars are likely to affect the job in demand in extraction of crude petroleum and natural gas activities? Tick (√) where applicable, you may tick more than once. *

- ☐ Additive Manufacturing
- ☐ Autonomous Robots
- ☐ Artificial Intelligence
- ☐ Big Data Analytics
- ☐ Cloud Computing
- ☐ Cybersecurity
- ☐ System Integration
- ☐ Internet of Things
- ☐ Advanced Materials
- ☐ Augmented Reality
- ☐ Simulation

SECTION 4: RELATED ISSUES

Description (optional)

4.1 What is/are the key issue/s related to extraction of crude petroleum and natural gas activities?

	Strongly Disagree	Disagree	Agree	Strongly agree
Availability of speci...	○	○	○	○
High maintainabilit...	○	○	○	○
Training specialize...	○	○	○	○
Unattractive trainin...	○	○	○	○
Insufficient skilled ...	○	○	○	○
Incompetent workf...	○	○	○	○
Under performing ...	○	○	○	○
High dependency o...	○	○	○	○
Lack of Quality Ass...	○	○	○	○
Compromise qualit...	○	○	○	○
Rapid technology c...	○	○	○	○
Youth not interests...	○	○	○	○
Lack exposure of y...	○	○	○	○
Lack of infrastruct...	○	○	○	○

We truly appreciate your feedback on the survey for the formation of the occupational framework. Thank you & have a nice day.

Description (optional)

ANNEX 4: LIST OF CRITICAL JOB TITLES

No	Critical Job Title	Group/Area	Level	Ls	Ss	S
1	**Custodian Drilling Engineer***	Drilling (Engineering Management)	8			✓
2	**Drilling/ Deep water Superintendent***	Drilling (Operation)	8			✓
3	**Offshore Installation Manager (OIM)***	Drilling (Rig)	8			✓
4	**Rig Mover***	Drilling (Rig Move)	8			✓
5	**Well Control Specialist***	Drilling (Well Control)	8			✓
6	**Custodian Completion Engineer***	Well Completion (Engineering)	8			✓
7	**Preventive Maintenance Supervisor (PMS)***	Drilling (Rig-Electrical)	7			✓
8	**Barge Captain***	Drilling (Rig-Marine)	7			✓
9	**Senior Toolpusher***	Drilling (Rig)	7			✓
10	**Deep water/ Senior Drilling Supervisor***	Drilling (Operation)	7			✓
11	**Rig Mechanical Inspector***	Drilling (Inspection)	7			✓
12	**Rig Electrical Inspector***	Drilling (Inspection)	7			✓
13	**Deep water/ Drilling Supervisor***	Drilling (Operation)	6			✓
14	**Rig Chief Electrician***	Drilling (Rig-Electrical)	6			✓
15	**Rig Chief Mechanics***	Drilling (Rig-Mechanical)	6			✓
16	**Driller***	Drilling (Rig)	6			✓
17	**Safety Training Officer***	Drilling HSE	6			✓
18	**CWD Engineer***	Drilling (Casing While Drilling)	6			✓
19	**ESP Supervisor***	Well Completion (Electric Submersible Pump)	6			✓
20	**CWD Supervisor***	Drilling (Casing While Drilling)	5			✓
21	**ESP Engineer***	Well Completion (Electric Submersible Pump)	5			✓
22	**Senior Material Man***	Warehouse	5			✓
23	**Senior ESP Technician***	Well Completion (Electric Submersible Pump)	4			✓
24	**Senior Cable Technician***	Well Completion (Electric Submersible Pump)	4			✓

25	**Junior MPD Supervisor* (Emerging Job)**	Drilling (Managed Pressure Drilling)	3		✓	
26	**ESP Technician***	Well Completion (Electric Submersible Pump)	3		✓	
27	**Cable Technician***	Well Completion (Electric Submersible Pump)	3		✓	

ANNEX 5: JOB TITLES RELEVANT TO INDUSTRIAL REVOLUTION 4.0

No	Job Title Related to IR 4.0	Group/Area	Level	LS	SS	S
1	Remote Operation Wireline Engineer#	DRILLING (WIRELINE LOGGING)	6			✓
2	Remote Operation MWD/LWD Engineer#	Drilling (Measurement While Drilling/ Logging While Drilling)	6			✓
3	Remote Operation Mud Engineer#	Drilling (Mud Engineering)	6			✓
4	Remote Operation Cementing Engineer#	Drilling (Cementing)	6			✓
5	Remote Operation Mud Logging Engineer#	Drilling (Mud Logging)	6			✓
6	MWD/LWD Engineer#	Drilling (Measurement While Drilling/ Logging While Drilling)	5			✓

ANNEX 6: OCCUPATIONAL DESCRIPTION

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA **:** DRILLING
JOB AREA/TITLE: CUSTODIAN DRILLING ENGINEER *
LEVEL **:** 8

A Custodian Drilling Engineer is responsible to monitor of overall task with the sub-surface and production teams to prepare project Work Data Sheets, well proposals and well objectives in compliance with Company policy and practice.

Tasks:

- Monitor overall task with the sub-surface and production teams to prepare a project Work Data Sheets, well proposals and well objectives in compliance with Company policy and practice.
- Review and verify designs and procedures including time and cost estimates. Provide input for technology, new venture and asset budgets where appropriate.
- Drilling performance through research of new technology, tools their applications and techniques. Develop suitable applications and introduce new technologies that can improve the performance and reliability of the Company's an exploration and production wells portfolio.
- Review compile offset well descriptions and prepare well designs to ensure that drilling programs adopt optimum engineering, time and cost solutions.
- Ensure drilling operations teams by identifying potential drilling risks/hazards and assisting their design/planning of mitigation measures
- Ensure senior engineers work with third-party (vendor) experts to develop well designs and plans and evaluate design analysis for thoroughness and accuracy
- Verify tender requests and subsequently evaluate and make recommendations for services to be rendered.

Knowledge:

- **Engineering and Technology** — Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services
- **Public Safety and Security** — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.
- **Computers and Electronics** — Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.
- **Physics** — Knowledge and prediction of physical principles, laws, their interrelationships, and applications to understanding fluid, material, and atmospheric dynamics, and mechanical, electrical, atomic and sub-atomic structures and processes.

Skills:

- **Critical Thinking** — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.

- **Complex Problem Solving** — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
- **Judgment and Decision Making** — Considering the relative costs and benefits of potential actions to choose the most appropriate one.
- **IOT** – knowledge on the System Operation (Computers), Data Analytical, structure on IoT, AI and AR on the new Age of the Internet of Things (IoT).

Attributes:

- **Integrity** — Job requires being honest and ethical.
- **Dependability** — Job requires being reliable, responsible, and dependable, and fulfilling obligations.
- **Initiative** — Job requires a willingness to take on responsibilities and challenges.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : DRILLING
JOB AREA/TITLE: PRINCIPAL DRILLING ENGINEER *
LEVEL : 7

A Principal Drilling Engineer is a head of the team responsible to execute and accomplish assignments and studies in areas outlined in the scope, assuring conformance to overall objectives of all phases of drilling operations in areas including drilling penetration rate optimisation, new drilling technology, and drilling studies

Tasks:

- Ensure sound drilling engineering methods and procedures to be used on assigned drilling problems.
- In charge of executing and accomplishing assignments and studies in areas outlined in the scope, assuring conformance to overall objectives of all phases of drilling operations in areas including drilling penetration rate optimisation, new drilling technology, and drilling studies.
- Ensure technical support for many types of drilling wells including complex extended reach (ERD) horizontal oil and gas wells, HPHT gas wells, offshore and deep water, and unconventional wells. Wells include power water injections and producing wells, exploration wells and all kinds of workovers.
- Review advanced drilling data and the performance of new or existing drilling techniques to determine a need for or benefit from studies, recommendations, and/or modifications concerning unit costs, and operating efficiency consistent with established operations.
- Ensure ownership of relevant company's standards/guidelines where applicable, recommend improvements to operational processes and guidelines.
- Monitoring training and technical support to junior engineers and ensuring the sustained meeting of regional and global standards, practices, and procedures.
- Monitor to keep track of the actual estimated drilling cost as the operation continues
- Prepare Final Well Report.
- Head of participating in daily operation meetings with rig site as well as with service contractors.
- Ensure Drilling engineer Prepare Post Drilling Review report once operation completed
- Participate in the debriefing and After-Action Review session.
- Consolidate surplus equipment
- Communicate/liaise with rig site Wellsite Drilling Engineering on the operation progress and requirement.
- Assist Senior Drilling Engineer in day-to-day activities.
- Assist Drilling Superintendent and operation team whenever required.

Knowledge:

- Engineering and Technology — Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques,

procedures, and equipment to the design and production of various goods and services
- Public Safety and Security — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.
- Computers and Electronics — Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.
- Physics — Knowledge and prediction of physical principles, laws, their interrelationships, and applications to understanding fluid, material, and atmospheric dynamics, and mechanical, electrical, atomic and sub-atomic structures and processes.

Skills:
- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Complex Problem Solving — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
- Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.
- IOT – knowledge on the System Operation (Computers), Data Analytical, structure on IoT, AI dan AR on the new Age of the Internet of Things (IoT).

Attributes:
- Integrity — Job requires being honest and ethical.
- Dependability — Job requires being reliable, responsible, and dependable, and fulfilling obligations.
- Initiative — Job requires a willingness to take on responsibilities and challenges.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : DRILLING
JOB AREA/TITLE: SENIOR/STAFF DRILLING ENGINEER
LEVEL : 6

A Senior/ Staff Drilling Engineer is responsible to provide sound drilling engineering methods and procedures to be used on assigned drilling problems and execute and accomplish assignments and studies in areas outlined in the scope, assuring conformance to overall objectives of all phases of drilling operations in areas including drilling penetration rate optimisation, new drilling technology, and drilling studies.

Tasks:

- Deliver technical support for many types of drilling wells including complex extended reach (ERD) horizontal oil and gas wells, HPHT gas wells, offshore and deep water, and unconventional wells. Wells include power water injections and producing wells, exploration wells and all kinds of workovers.
- Analyse advanced drilling data and the performance of new or existing drilling techniques to determine a need for or benefit from studies, recommendations, and/or modifications with respect to unit costs, and operating efficiency consistent with established operations.
- Assume ownership of relevant company's standards/guidelines where applicable; recommend improvements to operational processes and guidelines.
- Extend training and technical support to junior engineers and ensure the sustained meeting of regional and global standards, practices, and procedures.
- Keep track of the actual estimated drilling cost as the operation continues.
- Prepare Final Well Report.
- Participate in daily operation meetings with rig site as well as with service contractors.

Knowledge:

- Engineering and Technology — Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services
- Public Safety and Security — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.
- Computers and Electronics — Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.
- Physics — Knowledge and prediction of physical principles, laws, their interrelationships, and applications to understanding fluid, material, and atmospheric dynamics, and mechanical, electrical, atomic, and sub-atomic structures and processes.

Skills:

- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Complex Problem Solving — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
- Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.

Attributes:

- Integrity — Job requires being honest and ethical.
- Dependability — Job requires being reliable, responsible, and dependable, and fulfilling obligations.
- Initiative — Job requires a willingness to take on responsibilities and challenges.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA **:** DRILLING
JOB AREA/TITLE: DRILLING ENGINEER
LEVEL **:** 5

A Drilling Engineer is responsible to provide sound drilling engineering methods and procedures to be used on assigned drilling problems and execute and accomplish assignments and studies in areas outlined in the scope, assuring conformance to overall objectives of all phases of drilling operations in areas including drilling penetration rate optimisation, new drilling technology, and drilling studies.

Tasks:

- Action to deliver technical support for many types of drilling wells including complex extended reach (ERD) horizontal oil and gas wells, HPHT gas wells, offshore and deep water, and unconventional wells. Wells include power water injections and producing wells, exploration wells and all kinds of workovers.
- To carry out and analyse advanced drilling data and the performance of new or existing drilling techniques to determine a need for or benefit from studies, recommendations, and/or modifications with respect to unit costs, and operating efficiency consistent with established operations.
- Assume ownership of relevant company's standards/guidelines where applicable; recommend improvements to operational processes and guidelines.
- Extend training and technical support to junior engineers and ensure the sustained meeting of regional and global standards, practices, and procedures.
- Keep track of the actual estimated drilling cost as the operation continues.
- Prepare in the team for Final Well Report.
- Participate in daily operation meetings with rig site as well as with service contractors.

Knowledge:

- Engineering and Technology — Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services
- Public Safety and Security — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.
- Computers and Electronics — Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.
- Physics — Knowledge and prediction of physical principles, laws, their interrelationships, and applications to understanding fluid, material, and atmospheric dynamics, and mechanical, electrical, atomic and sub-atomic structures and processes.

Skills :

- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Complex Problem Solving — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
- Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.

Attributes:

- Integrity — Job requires being honest and ethical.
- Dependability — Job requires being reliable, responsible, and dependable, and fulfilling obligations.
- Initiative — Job requires a willingness to take on responsibilities and challenges.

MSIC GROUP : B06 EXTRACTION OD CRUDE PETROLEUM
AREA : DRILLING
JOB AREA/TITLE : DRILLING/DEEP WATER SUPERINTENDENT *
LEVEL : 8

A Drilling/Deep water superintendent is responsible to control and supervise overall tasks with the drilling and deep water and production teams to prepare project Work Data Sheets, well proposals and well objectives in compliance with Company policy and practice.

Tasks:

- Review and verify designs and procedures including time and cost estimates. Provide input for technology, new venture and asset budgets where appropriate including Deep water (design, operation, maintenance and so on).
- Control overall and verify drilling performance including deep waters activates through research of new technology, tools their applications and techniques. Develop suitable applications and introduce new technologies that can improve the performance and reliability of the Company's an exploration and production wells portfolio.
- Drilling performance through research of new technology, tools their applications and techniques. Develop suitable applications and introduce new technologies that can improve the performance and reliability of the Company's an exploration and production wells portfolio. (in Deep water)
- Review compile offset well descriptions and prepare well designs to ensure that drilling programs adopt optimum engineering, time and cost solutions.
- Ensure drilling operations teams by identifying potential drilling risks/hazards and assisting their design/planning of mitigation measures
- Verify tender requests and subsequently evaluate and make recommendations for services to be rendered.

Knowledge:

- Engineering and Technology — Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services
- Public Safety and Security — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.
- Computers and Electronics — Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.
- Physics — Knowledge and prediction of physical principles, laws, their interrelationships, and applications to understanding fluid, material, and atmospheric dynamics, and mechanical, electrical, atomic and sub-atomic structures and processes.

Knowledge:

- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Complex Problem Solving — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
- Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.
- IOT – knowledge on the System Operation (Computers), Data Analytical, structure on IoT, AI dan AR on the new Age of the Internet of Things (IoT).

Attributes:

- Integrity — Job requires being honest and ethical.
- Dependability — Job requires being reliable, responsible, and dependable, and fulfilling obligations.
- Initiative — Job requires a willingness to take on responsibilities and challenges.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : DRILLING
JOB AREA/TITLE : DEEP WATER/SENIOR DRILLING SUPERVISOR *
LEVEL : 7

A Deep water/Senior Drilling Supervisor is a head of the team responsible to execute and accomplish assignments and studies in areas outlined in the scope, assuring conformance to overall objectives of all phases of drilling operations in areas including drilling penetration rate optimisation, new drilling technology, and drilling studies

Tasks:
Supervised with the drilling and deep water and production teams to prepare a project Work Data Sheets, well proposals and well objectives in compliance with Company policy and practice

- Supervised and review and verify designs and procedures including time and cost estimates. Provide input for technology, new venture and asset budgets where appropriate including Deep water (design, operation, maintenance and so on)
- Supervised drilling performance including deep water's activities through research of new technology, tools their applications and techniques. Develop suitable applications and introduce new technologies that can improve the performance and reliability of the Company's exploration and production wells portfolio
- Supervised drilling performance through research of new technology, tools their applications and techniques. Develop suitable applications and introduce new technologies that can improve the performance and reliability of the Company's exploration and production wells portfolio
- Supervised and review compile offset well descriptions and prepare well designs to ensure that drilling programs adopt optimum engineering, time and cost solutions
- Supervised drilling operations teams by identifying potential drilling risks/hazards and assisting their design/planning of mitigation measures
- Supervised senior engineer to work with third-party (vendor) experts to develop well designs and plans and evaluate design analysis for thoroughness and accuracy

Knowledge:

- Engineering and Technology — Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services
- Public Safety and Security — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.
- Computers and Electronics — Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.
- Physics — Knowledge and prediction of physical principles, laws, their interrelationships, and applications to understanding fluid, material, and atmospheric dynamics, and mechanical, electrical, atomic and sub-atomic structures and processes.

Skills :

- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Complex Problem Solving — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
- Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.
- IOT – knowledge on the System Operation (Computers), Data Analytical, structure on IoT, AI dan AR on the new Age of the Internet of Things (IoT).

Attributes:

- Integrity — Job requires being honest and ethical.
- Dependability — Job requires being reliable, responsible, and dependable, and fulfilling obligations.
- Initiative — Job requires a willingness to take on responsibilities and challenges.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : DRILLING
JOB AREA/TITLE : DEEP WATER/ DRILLING SUPERVISOR *
LEVEL : 6

A Deep water/Senior Drilling Supervisor is a head of the team responsible to execute and accomplish assignments and studies in areas outlined in the scope, assuring conformance to overall objectives of all phases of drilling operations in areas including drilling penetration rate optimisation, new drilling technology, and drilling studies

Tasks:

- Drilling and deep water and production teams to prepare project Work Data Sheets, well proposals and well objectives in compliance with Company policy and practice
- Review and verify designs and procedures including time and cost estimates. Provide input for technology, new venture and asset budgets where appropriate including Deep water (design, operation, maintenance and so on)
- Drilling performance including deep water's activities through research of new technology, tools their applications and techniques. Develop suitable applications and introduce new technologies that can improve the performance and reliability of the Company's exploration and production wells portfolio
- Drilling performance through research of new technology, tools their applications and techniques. Develop suitable applications and introduce new technologies that can improve the performance and reliability of the Company's exploration and production wells portfolio
- Review compile offset well descriptions and prepare well designs to ensure that drilling programs adopt optimum engineering, time and cost solutions
- Drilling operations teams by identifying potential drilling risks/hazards and assisting their design/planning of mitigation measures
- Work with third-party (vendor) experts to develop well designs and plans and evaluate design analysis for thoroughness and accuracy

Knowledge:

- Engineering and Technology — Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services
- Public Safety and Security — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.
- Computers and Electronics — Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.
- Physics — Knowledge and prediction of physical principles, laws, their interrelationships, and applications to understanding fluid, material, and atmospheric dynamics, and mechanical, electrical, atomic and sub-atomic structures and processes.

Skills :

- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Complex Problem Solving — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
- Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.
- IOT – knowledge on the System Operation (Computers), Data Analytical, structure on IoT, AI dan AR on the new Age of the Internet of Things (IoT).

Attributes:

- Integrity — Job requires being honest and ethical.
- Dependability — Job requires being reliable, responsible, and dependable, and fulfilling obligations.
- Initiative — Job requires a willingness to take on responsibilities and challenges.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : DRILLING
JOB AREA/TITLE: DRILLING ENGINEER
LEVEL : 5

A Drilling Engineer is responsible to provide sound drilling engineering methods and procedures to be used on assigned drilling problems and execute and accomplish assignments and studies in areas outlined in the scope, assuring conformance to overall objectives of all phases of drilling operations in areas including drilling penetration rate optimisation, new drilling technology, and drilling studies.

Tasks:

- Action to deliver technical support for many types of drilling wells including complex extended reach (ERD) horizontal oil and gas wells, HPHT gas wells, offshore and deep water, and unconventional wells. Wells include power water injections and producing wells, exploration wells and all kinds of workovers.
- To carry out and analyse advanced drilling data and the performance of new or existing drilling techniques to determine a need for or benefit from studies, recommendations, and/or modifications with respect to unit costs, and operating efficiency consistent with established operations.
- Assume ownership of relevant company's standards/guidelines where applicable; recommend improvements to operational processes and guidelines.
- Extend training and technical support to junior engineers and ensure the sustained meeting of regional and global standards, practices, and procedures.
- Keep track of the actual estimated drilling cost as the operation continues.
- Prepare in the team for Final Well Report.
- Participate in daily operation meetings with rig site as well as with service contractors.

Knowledge:

- Engineering and Technology — Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services
- Public Safety and Security — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.
- Computers and Electronics — Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.
- Physics — Knowledge and prediction of physical principles, laws, their interrelationships, and applications to understanding fluid, material, and atmospheric dynamics, and mechanical, electrical, atomic and sub-atomic structures and processes.

Skills:

- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Complex Problem Solving — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
- Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.

Attributes:

- Integrity — Job requires being honest and ethical.
- Dependability — Job requires being reliable, responsible, and dependable, and fulfilling obligations.
- Initiative — Job requires a willingness to take on responsibilities and challenges.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : DRILLING
JOB AREA/TITLE: PROCUREMENT MANAGER
LEVEL : 6

A Procurement Manager is responsible for managing procurement operations

Tasks:

- Manage and clarify product details, cost estimation and project logistics.
- Manage and develop new vendor relationships.
- Manage and Develop sourcing proposals.
- Manage all contracts for management approval.
- Ensure procurement operations follow regulations.
- Join in strategic sourcing activities, bid evaluation, and vendor selection processes.
- Manage delivery schedules and products.
- Monitor procurement budget and expenses.
- Manage bids based on assessment criteria for vendor selection.
- Manage vendor categories.
- Manage and review and shortlist bid submissions.
- Manage and review data to advise changes to policies.
- Manage and review vendor performance to suggest recommendations.
- Manage and work with key stakeholders on sourcing proposals.

Knowledge:

- Administration and Management — Knowledge of business and management principles involved in strategic planning, resource allocation, human resources modelling, leadership technique, production methods, and coordination of people and resources.
- English Language — Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.
- Economics and Accounting — Knowledge of economic and accounting principles and practices, the financial markets, banking and the analysis and reporting of financial data.
- Mathematics — Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.
- Customer and Personal Service — Knowledge of principles and processes for providing customer and personal services. This includes customer needs assessment, meeting quality standards for services, and evaluation of customer satisfaction.

Skills:

- Social Perceptiveness — Being aware of others' reactions and understanding why they react as they do.

- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Speaking — Talking to others to convey information effectively.
- Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.

Attributes:

- Fluency of Ideas — The ability to come up with several ideas about a topic (the number of ideas is important, not their quality, correctness, or creativity).
- Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.
- Oral Expression — The ability to communicate information and ideas in speaking so others will understand.
- Written Comprehension — The ability to read and understand information and ideas presented in writing.
- Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : DRILLING
JOB AREA/TITLE : EXECUTIVE PROCUREMENT
LEVEL : 5

An Executive Procurement is responsible for managing procurement operations

Tasks:

- Clarify product details, cost estimation and project logistics.
- Develop new vendor relationships.
- Develop sourcing proposals.
- Draft contracts for management approval.
- Ensure procurement operations follow regulations.
- Join in strategic sourcing activities, bid evaluation, and vendor selection processes.
- Manage delivery schedules and products.
- Monitor procurement budget and expenses.
- Prepare bids based on assessment criteria for vendor selection.
- Prepare vendor categories.
- Review and shortlist bid submissions.
- Review data to advise changes to policies.
- Review vendor performance to suggest recommendations.
- Work with key stakeholders on sourcing proposals.

Knowledge:

- Customer and Personal Service — Knowledge of principles and processes for providing customer and personal services. This includes customer needs assessment, meeting quality standards for services, and evaluation of customer satisfaction.

Skills:

- Speaking — Talking to others to convey information effectively.
- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.

Attributes:

- Oral Expression — The ability to communicate information and ideas in speaking so others will understand.
- Near Vision — The ability to see details at close range (within a few feet of the observer).
- Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.
- Information Ordering — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).
- Speech Clarity — The ability to speak clearly so others can understand you.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA **:** DRILLING
JOB AREA/TITLE: Warehouseman
LEVEL **:** 4

A Warehouseman is responsible for ensuring that materials are available for operational needs

Tasks:

- Maintain an optimum level of inventory.
- Receiving and inspection process in accordance with the Quality Assurance Measures.
- Manage and direct the material handling, tagging and stocking according to the pre-locator-controlled system.
- Manage and monitor the documentation process.
- Reviews verifies regarding the movement of inventory items.
  Annual stocktaking.
- Proper locating and retrieving all Rejected material as well as Damage & Overage
- In charge of Container Control Form and preparing manifests.
- Implements approved housekeeping procedures and safety programs.
- Getting material inspected by the concerned department.
- Responsible for the maintenance and storekeeping of all inventory items kept in the warehouse.
- Using Oracle-based Warehouse Management System
- Member of Emergency First Aid Team.

Knowledge:

- Computers and Electronics — Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.
- Mathematics — Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.
- English Language — Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.
- Design — Knowledge of design techniques, tools, and principles involved in the production of precision technical plans, blueprints, drawings, and models.

Skills:

- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Reading Comprehension — Understanding wrote sentences and paragraphs in work-related documents.
- Programming — Writing computer programs for various purposes.
- Complex Problem Solving — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.

- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.

Attributes:

- Information Ordering — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).
- Written Comprehension — The ability to read and understand information and ideas presented in writing.
- Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.
- Inductive Reasoning — The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).
- Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : DRILLING
JOB AREA/TITLE: Assistant Warehouseman
LEVEL : 3

An Assistant Warehouseman is responsible for ensuring that materials are available for operational needs

Tasks:
- Assist and maintain an optimum level of inventory.
- Receiving and inspection process in accordance with the Quality Assurance Measures.
- Direct the material handling, tagging and stocking according to the pre-locator-controlled system.
- Maintain the documentation process.
- Checking the movement of inventory items. Annual stocktaking.
- Proper locating and retrieving all Rejected material as well as Damage & Overage
- Assist to Warehouseman of Container Control Form and prepare manifests.
- Planning housekeeping procedures and safety programs.
- Carry out material inspected from the concerned department.
- Maintenance and storekeeping of all inventory items kept in the warehouse.
- Using Oracle-based Warehouse Management System
- Member of Emergency First Aid Team.

Knowledge:
- Computers and Electronics — Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.
- Mathematics — Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.
- English Language — Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.
- Design — Knowledge of design techniques, tools, and principles involved in the production of precision technical plans, blueprints, drawings, and models.

Skills:
- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Reading Comprehension — Understanding wrote sentences and paragraphs in work-related documents.
- Programming — Writing computer programs for various purposes.
- Complex Problem Solving — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.

Attributes:

- Information Ordering — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).
- Written Comprehension — The ability to read and understand information and ideas presented in writing.
- Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.
- Inductive Reasoning — The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).
- Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA **:** DRILLING
JOB AREA/TITLE: WAREHOUSE HELPER
LEVEL **:** 2

A Helper is responsible for carrying out the logistics of receiving, processing, storing and sending inventory according to purchase orders and shipping schedules

Tasks:
- Loading orders onto trucks and shipping containers,
- Organizing incoming stock and putting the appropriate labels on outgoing parcels.

Knowledge:
- Mechanically inclined
- Ability to lift up to 70 lbs

Skills:
- Use of hand and powered tools: drills, saws, forklift etc. Stallion provides all tools

Attributes:
- Capable of working with minimal oversight, but willing to follow directions closely
- Able to align with and support Stallion’s Mission and Values

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : DRILLING
JOB AREA/TITLE: COMPLIANCE MANAGER
LEVEL : 6

A Compliance is responsible for all the routine and emergency healthcare for the rig personnel.

Tasks:
- Manage the investigation of industrial accidents, injuries, or occupational diseases to determine causes and preventive measures.
- Manage and monitor of conduct research to evaluate safety levels for products.
- Manage and evaluate product designs for safety.
- Manage and conduct or coordinate worker training in areas such as safety laws and regulations, hazardous condition monitoring, and use of safety equipment.
- Manage and maintain and apply knowledge of current policies, regulations, and industrial processes.

Knowledge:
- Analytical or scientific software — Computational fluid dynamics CFD software; Root cause analysis software; The MathWorks MATLAB
- Compliance software — Fire safety inspection and testing software; Material safety data sheet MSDS software; Safety integrity level SIL software; Safety, health, and environmental management software
- Computer-aided design CAD software — Autodesk AutoCAD; Electronic design automation EDA software; Mathsoft Mathcad; Roof support design software
- Database user interface and query software — Anthropometric databases; Incident tracking software; Microsoft Access; Reliability information software
- Presentation software — Microsoft PowerPoint

Skills:
- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Reading Comprehension — Understanding wrote sentences and paragraphs in work-related documents.
- Speaking — Talking to others to convey information effectively.
- Writing — Communicating effectively in writing as appropriate for the needs of the audience.
- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.

Attributes:
- Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.

- Written Comprehension — The ability to read and understand information and ideas presented in writing.
- Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.
- Inductive Reasoning — The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).
- Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : DRILLING
JOB AREA/TITLE: COMPLIANCE COORDINATOR
LEVEL : 5

An HSE officer is responsible for the routine and emergency healthcare for the rig personnel.

Tasks:
- Investigate industrial accidents, injuries, or occupational diseases to determine causes and preventive measures.
- Conduct research to evaluate safety levels for products.
- Evaluate product designs for safety.
- Conduct or coordinate worker training in areas such as safety laws and regulations, hazardous condition monitoring, and use of safety equipment.
- Maintain and apply knowledge of current policies, regulations, and industrial processes.

Knowledge:
- Analytical or scientific software — Computational fluid dynamics CFD software; Root cause analysis software; The MathWorks MATLAB
- Compliance software — Fire safety inspection and testing software; Material safety data sheet MSDS software; Safety integrity level SIL software; Safety, health, and environmental management software
- Computer-aided design CAD software — Autodesk AutoCAD; Electronic design automation EDA software; Mathsoft Mathcad; Roof support design software
- Database user interface and query software — Anthropometric databases; Incident tracking software; Microsoft Access; Reliability information software
- Presentation software — Microsoft PowerPoint

Skills:
- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Reading Comprehension — Understanding wrote sentences and paragraphs in work-related documents.
- Speaking — Talking to others to convey information effectively.
- Writing — Communicating effectively in writing as appropriate for the needs of the audience.
- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.

Attributes:
- Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.

- Written Comprehension — The ability to read and understand information and ideas presented in writing.
- Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.
- Inductive Reasoning — The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).
- Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : DRILLING
JOB AREA/TITLE: WAREHOUSEMAN
LEVEL : 4

A Warehouseman is responsible for ensuring that materials are available for operational needs

Tasks:

- Maintain an optimum level of inventory.
- Receiving and inspection process in accordance with the Quality Assurance Measures.
- Manage and direct the material handling, tagging and stocking according to the pre-locator-controlled system.
- Manage and monitor the documentation process.
- Reviews verifies regarding the movement of inventory items. Annual stocktaking.
- Proper locating and retrieving all Rejected material as well as Damage & Overage
- In charge of Container Control Form and preparing manifests.
- Implements approved housekeeping procedures and safety programs.
- Getting material inspected by the concerned department.
- Responsible for the maintenance and storekeeping of all inventory items kept in the warehouse.
- Using Oracle-based Warehouse Management System
- Member of Emergency First Aid Team.

Knowledge:

- Computers and Electronics — Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.
- Mathematics — Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.
- English Language — Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.
- Design — Knowledge of design techniques, tools, and principles involved in the production of precision technical plans, blueprints, drawings, and models.

Skills:

- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Reading Comprehension — Understanding wrote sentences and paragraphs in work-related documents.
- Programming — Writing computer programs for various purposes.
- Complex Problem Solving — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.

- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.

Attributes:

- Information Ordering — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).
- Written Comprehension — The ability to read and understand information and ideas presented in writing.
- Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.
- Inductive Reasoning — The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).
- Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : DRILLING
JOB AREA/TITLE: ASSISTANT WAREHOUSEMAN
LEVEL : 3

An Assistant Warehouseman is responsible for ensuring that materials are available for operational needs

Tasks:
- Assist and maintain an optimum level of inventory.
- Receiving and inspection process in accordance with the Quality Assurance Measures.
- Direct the material handling, tagging and stocking according to the pre-locator-controlled system.
- Maintain the documentation process.
- Checking the movement of inventory items. Annual stocktaking.
- Proper locating and retrieving all Rejected material as well as Damage & Overage
- Assist to Warehouseman of Container Control Form and prepare manifests.
- Planning housekeeping procedures and safety programs.
- Carry out material inspected from the concerned department.
- Maintenance and storekeeping of all inventory items kept in the warehouse.
- Using Oracle-based Warehouse Management System
- Member of Emergency First Aid Team.

Knowledge:
- Computers and Electronics — Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.
- Mathematics — Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.
- English Language — Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.
- Design — Knowledge of design techniques, tools, and principles involved in the production of precision technical plans, blueprints, drawings, and models.

Skills:
- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Reading Comprehension — Understanding wrote sentences and paragraphs in work-related documents.
- Programming — Writing computer programs for various purposes.
- Complex Problem Solving — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.

Attributes:

- Information Ordering — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).
- Written Comprehension — The ability to read and understand information and ideas presented in writing.
- Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.
- Inductive Reasoning — The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).
- Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : DRILLING
JOB AREA/TITLE: RIG OFFSHORE INSTALLATION MANAGER *
LEVEL : 8

A Rig Offshore Installation Manager (OIM) is overall command and responsible for the safe management of the offshore facility and personnel in accordance with statutory requirements and the Company's safety and performance standards

Tasks:
- Overall command and responsible for the safe management of the offshore facility and personnel in accordance with statutory requirements and the Company's safety and performance standards
- Responsible for the safe operation of the rig and for prevention of pollution or damage to the environment.
- Empowered in all situations with overriding authority to act decisively and according to his/ her best judgment to prevent injury to crew members, other persons and to protect the rig and other vessels property and marine environment from damage.
- Manage all activities on or about the installation and assure the Client's program is accomplished with parameters set by the client.
- Promote and ensure that all Company policies and procedures are communicated and understood by all personnel onboard the installation

Knowledge:
- ALL STCW Required Training for master
- Management of master Emergencies.
- IWFC Well Control
- Health and Safety Supervisor Training
- Risk Assessment
- LOLER Awareness

Skills:
- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Complex Problem Solving — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
- Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.
- IOT – knowledge on the System Operation (Computers), Data Analytical, structure on IoT, AI dan AR on the new Age of the Internet of Things (IoT).

Attributes:
- Integrity — Job requires being honest and ethical.
- Dependability — Job requires being reliable, responsible, and dependable, and fulfilling obligations.
- Initiative — Job requires a willingness to take on responsibilities and challenges.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : DRILLING
JOB AREA/TITLE: SENIOR TOOL PUSHER
LEVEL : 7

A Tool Pusher is responsible for supervising a crew on the Company's drilling rig ensuring safe and efficient work practices

Tasks:

- Supervise and ensure the safety of the drilling crew as well as effective and efficient operations.
- Responsible for coordinating and delivery of rig supplies, drilling tools, fuel, pipe, etc.
- Ensure that Company preventive maintenance procedures are implemented and observed.
- Responsible for implementation and adherence to Company training safety programs, assuring that each new employee is appropriately trained.
- Responsible for enforcement and clarification of Company policies and procedures.
- Determine and coordinate optimum drilling conditions based on experience, utilisation of data from a nearby or similar well and or optimised drilling programs.
- Responsible for periodic scheduled rig inspections and filing of all pertinent reports.
- Be aware and knowledgeable of the state of repair concerning drill pipe collars, BOP equipment, etc., in coordination with Field Superintendent and Operations Manager
- Maintain and disseminate information on rig equipment and drill string performance or failures.
- As needed, assist the Driller in staffing, training, and coaching the crews in safe working practices, proper operations and care and maintenance of the drilling equipment.
- Direct rig crews in setting up and operating power units, draw works and other drilling equipment.
- Assist Company training and safety director in rig surveys and weekly safety meetings.
- Abide by Company policies and procedures.
- Other duties and special projects as assigned.
- Ensure that personal behaviours and work practices are in line with Company safety standards.
- Responsible for safety of self and others in the vicinity to include, but not limited to, employees, vendors and guests.
- Provide visible leadership engagement, be aware of housekeeping and take additional safety precautions to ensure no one is put at risk.
- Do not take shortcuts or unnecessary risks and actively work with others to ensure they take due care and do not put themselves or others at risk.
- Ensure all incidents are reported and appropriately investigated in accordance with Company procedure.
- As needed, seek advice from the HSE representative.

Knowledge:

- Engineering and Technology — Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services
- Public Safety and Security — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.

Skills:

- Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.
- Must have a current Well Control certificate and any other certificates required by clients.
- Current H2S, Fire Fighting, Offshore Survival certifications are preferred.
- Must be familiar with NOV Amphion Chair Joystick Drilling Control System (Pipe Racking System, Iron Roughneck, Draw works, Top-Drive

Attributes:

- Initiative — Job requires a willingness to take on responsibilities and challenges.
- Reading Comprehension — Understanding wrote sentences and paragraphs in work-related documents.
- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- Promote positive HSE culture among the rig crew

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : DRILLING
JOB AREA/TITLE : DRILLER
LEVEL : 6

A Driller is responsible for setting up or operating a variety of drills to remove underground oil and gas or remove core samples for testing during oil and gas exploration.

Tasks:
- Train crews and introduce procedures to make drill work safer and more effective.
- Observe pressure gauge and move throttles and levers to control the speed of rotary tables and to regulate the pressure of tools at bottoms of boreholes.
- Count sections of drill rod to determine depths of boreholes.
- Push levers and brake pedals to control gasoline, diesel, electric, or steam draw works that lower and raise drill pipes and casings in and out of wells.
- Connect sections of drill pipe, using hand tools and powered wrenches and tongs.

Knowledge:
- Mechanical — Knowledge of machines and tools, including their designs, uses, repair, and maintenance.
- Mathematics — Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.
- Administration and Management — Knowledge of business and management principles involved in strategic planning, resource allocation, human resources modelling, leadership technique, production methods, and coordination of people and resources.
- Education and Training — Knowledge of principles and methods for curriculum and training design, teaching and instruction for individuals and groups, and the measurement of training effects.
- Personnel and Human Resources — Knowledge of principles and procedures for personnel recruitment, selection, training, compensation and benefits, labour relations and negotiation, and personnel information systems.

Skills:
- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Operation and Control — Controlling operations of equipment or systems.
- Operations Monitoring — Watching gauges, dials, or other indicators to make sure a machine is working properly.
- Monitoring — Monitoring/Assessing performance of yourself, other individuals, or organisations to make improvements or take corrective action.
- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.

Attributes:
- Control Precision — The ability to adjust the controls of a machine or a vehicle quickly and repeatedly to exact positions.

- Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.
- Near Vision — The ability to see details at close range (within a few feet of the observer).
- Arm-Hand Steadiness — The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.
- Manual Dexterity — The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : DRILLING
JOB AREA/TITLE : ASSISTANT DRILLER
LEVEL : 5

An Assistant Driller is responsible for the safe and efficient execution of all well and drilling activities.

Tasks:

- Organizing crews and equipment for ongoing and upcoming operations.
- All relevant governing documents are adhered to and advised to by direct reports
- Clear daily operational guidelines are provided to all direct reports
- Visible leadership by spending time in the field and monitoring daily operations
- All drills and checks are conducted as required
- All applicable reports and logs as required by Driller, client and company are maintained.
- Subordinates are trained in order to make them suitable for a higher position.
- Other duties are performed as and when required and/or directed by his/her direct supervisor.
- Assist with well kill operations as per instructions from supervisors.
- Operational preparedness of all safety and emergency equipment.
- Drilling equipment is maintained including first-line maintenance and maintenance is recorded.
- Measure and record all critical dimensions of down-hole equipment to be run in the well.
- All tubular, handling gear and other equipment required for the well operations are prepared.
- Participate in meeting activities proactively and constructively.

Knowledge:

- Mechanical — Knowledge of machines and tools, including their designs, uses, repair, and maintenance.
- Mathematics — Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.
- Administration and Management — Knowledge of business and management principles involved in strategic planning, resource allocation, human resources modelling, leadership technique, production methods, and coordination of people and resources.
- Education and Training — Knowledge of principles and methods for curriculum and training design, teaching and instruction for individuals and groups, and the measurement of training effects.
- Personnel and Human Resources — Knowledge of principles and procedures for personnel recruitment, selection, training, compensation and benefits, labour relations and negotiation, and personnel information systems.

Skills:

- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.

- Operation and Control — Controlling operations of equipment or systems.
- Operations Monitoring — Watching gauges, dials, or other indicators to make sure a machine is working properly.
- Monitoring — Monitoring/Assessing performance of yourself, other individuals, or organisations to make improvements or take corrective action.
- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.

Attributes:

- Control Precision — The ability to adjust the controls of a machine or a vehicle quickly and repeatedly to exact positions.
- Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.
- Near Vision — The ability to see details at close range (within a few feet of the observer).
- Arm-Hand Steadiness — The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.
- Manual Dexterity — The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.

MSIC GROUP B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA **:** DRILLING
JOB AREA/TITLE **:** PUMPMAN
LEVEL **:** 4

A Pumpman is responsible for setting up or operating a variety of drills to remove underground oil and gas or remove core samples for testing during oil and gas exploration.

Tasks:

- Train crews and introduce procedures to make drill work safer and more effective.
- Observe pressure gauge and move throttles and levers to control the speed of rotary tables and to regulate the pressure of tools at bottoms of boreholes.
- Count sections of drill rod to determine depths of boreholes.
- Push levers and brake pedals to control gasoline, diesel, electric, or steam draw works that lower and raise drill pipes and casings in and out of wells.
- Connect sections of drill pipe, using hand tools and powered wrenches and tongs.

Knowledge:

- Production and Processing — Knowledge of raw materials, production processes, quality control, costs, and other techniques for maximizing the effective manufacture and distribution of goods.
- English Language — Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.
- Mechanical — Knowledge of machines and tools, including their designs, uses, repair, and maintenance.
- Mathematics — Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.

Skills:

- Operations Monitoring — Watching gauges, dials, or other indicators to make sure a machine is working properly.
- Monitoring — Monitoring/Assessing performance of yourself, other individuals, or organisations to make improvements or take corrective action.
- Operation and Control — Controlling operations of equipment or systems.
- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.

Attributes:

- Near Vision — The ability to see details at close range (within a few feet of the observer).
- Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.
- Perceptual Speed — The ability to compare similarities and differences quickly and accurately among sets of letters, numbers, objects, pictures, or patterns. The things to be compared may be presented at the same time or one after the other. This ability also includes comparing a presented object with a remembered object.
- Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.
- Oral Expression — The ability to communicate information and ideas in speaking so others will understand.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : DRILLING
JOB AREA/TITLE : DERRICKMAN
LEVEL : 3

A Derrickman is responsible for:

Tasks:

- Work as direct by his immediate superior
- Maintain working areas, tools, equipment and safety harnesses in a safe clean, tidy and orderly manner
- Be familiar with the entire mud system, the safe operation and maintenance of the same
- Be familiar with the pipe-tracking system and how to properly operate the same
- Be familiar with pipe tripping operations and how to safely handle and operate all tools and equipment
- Keep up the mud pump log reports on his shift
- Keep the Driller informed as to the consistency of the mud and the general condition of the pumps and mudroom

Knowledge:

- Production and Processing — Knowledge of raw materials, production processes, quality control, costs, and other techniques for maximizing the effective manufacture and distribution of goods.
- English Language — Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.
- Mechanical — Knowledge of machines and tools, including their designs, uses, repair, and maintenance.
- Mathematics — Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.

Skills:

- Operations Monitoring — Watching gauges, dials, or other indicators to make sure a machine is working properly.
- Monitoring — Monitoring/Assessing performance of yourself, other individuals, or organisations to make improvements or take corrective action.
- Operation and Control — Controlling operations of equipment or systems.
- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : DRILLING
JOB AREA/TITLE : ROUGHNECK
LEVEL : 2

A Roughneck is somebody who works on an oil rig or in an oil field doing manual labour.

Tasks:
- Responsibilities include the operation of equipment and machines used in the current drilling task.
- Essential to maintaining the drilling operation through servicing the rig, coordinating its activities, or assisting the crew
- Essential for companies to train every worker in safety measures on the rig, such as colour-coding the equipment and first aid techniques
- To reduce the chance of an accident, rig workers need to ensure not only that they are working safely

Knowledge:
- Mechanical — Knowledge of machines and tools, including their designs, uses, repair, and maintenance.
- English Language — Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.
- Transportation — Knowledge of principles and methods for moving people or goods by air, rail, sea, or road, including the relative costs and benefits.
- Mathematics — Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications

Skills:
- Monitoring — Monitoring/Assessing performance of yourself, other individuals, or organisations to make improvements or take corrective action.
- Operations Monitoring — Watching gauges, dials, or other indicators to make sure a machine is working properly.
- Equipment Maintenance — Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.
- Operation and Control — Controlling operations of equipment or systems.
- Repairing — Repairing machines or systems using the needed tools.

Attributes:
- Manual Dexterity — The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.
- Arm-Hand Steadiness — The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.
- Control Precision — The ability to adjust the controls of a machine or a vehicle quickly and repeatedly to exact positions.

- Multilimb Coordination — The ability to coordinate two or more limbs (for example, two arms, two legs, or one leg and one arm) while sitting, standing, or lying down. It does not involve performing the activities while the whole body is in motion.
- Reaction Time — The ability to quickly respond (with the hand, finger, or foot) to a signal (sound, light, picture) when it appears.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : DRILLING
JOB AREA/TITLE : ROUSTABOUT
LEVEL : 1

A Roustabout is responsible to:

Tasks:
- Perform basic maintenance on the rig accommodation areas
- Perform accommodation furniture repair as necessary
- Ensure all duties and responsibilities are undertaken in full compliance with the Health and Safety at Work Act
- Report all accidents and injuries
- Report any incident of fire, loss, damage, unfit food, and other irregularities and take such action as may be appropriate
- Carry out additional duties and any other tasks within your competency, such as the unloading of containers, which form part of the company service to the customer, as requested by the manager

Knowledge:
- Engineering and Technology — Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services
- Public Safety and Security — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.
- Marine Operation – overall process on the marine and barge.

Skills:
- Strength and dexterity – this role involve a significant amount of physical labour and the ability to operate in cramped, elevated, and uncomfortable spaces, so roustabouts should be physically strong and dexterous
- Physical and mental stamina – roustabouts also need a high level of physical and mental stamina to work shifts that can be longer than 12 hours for weeks at a time
- Safety procedures – maintaining site safety is central to this role, so roustabouts should be familiar with and adhere to safety procedures and precautions at all times
- Communication skills – roustabouts should also be effective verbal communicators to work with team members, coordinate activities, and ensure safety on the drill site

Attributes:
- Team coordination – roustabouts work with other roustabouts and roughnecks on rigs and drill sites, so they should be able to effectively coordinate team member activities
- Time management – this role also requires excellent time management skills, since roustabouts need to determine which tasks are most vital and set priorities throughout the day

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : DRILLING
JOB AREA/TITLE: PREVENTIVE MAINTENANCE SUPERVISOR *
LEVEL : 7

A preventive maintenance supervisor is responsible to supervise all maintenance, costs and personnel to meet the Company's business objectives

Tasks:

- Supervised maintenance, costs and personnel to meet the Company's business objectives
- Supervised all maintenance work tasks are carried out in a safe, efficient, technical, and financial manner and in accordance with the expectation from the Company.
- Supervised development of leadership capabilities among senior rig personnel.
- Support of the Rig Manager that the unit fulfils the requirement of the contract. (maintenance)
- Support Client's Drilling Superintendent and Senior Drilling Personnel on daily basis.
- Supervised technical advice to the rig personnel on any operational related matter.
- Supervised the daily activities to optimise procedures, systems, and equipment in order to improve overall safety and efficiency.
- Promote positive HSE culture among the rig crew.
- Anticipate, quickly troubleshoot, and resolve operational, equipment and maintenance issues minimise rig downtime
- Supervised that proper planning of preventative maintenance is carried out to efficiently maintain rig equipment

Knowledge:

- Engineering and Technology — Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services
- Public Safety and Security — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.
- Computers and Electronics — Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.
- Physics — Knowledge and prediction of physical principles, laws, their interrelationships, and applications to understanding fluid, material, and atmospheric dynamics, and mechanical, electrical, atomic and sub-atomic structures and processes.
- IOT – knowledge on the System Operation (Computers), Data Analytical, structure on IoT, AI dan AR on the new Age of the Internet of Things (IoT).

Skills:

- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Complex Problem Solving — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
- Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.
- IOT – knowledge on the System Operation (Computers), Data Analytical, structure on IoT, AI and AR on the new Age of the Internet of Things (IoT).

Attributes:

- Integrity — Job requires being honest and ethical.
- Dependability — Job requires being reliable, responsible, and dependable, and fulfilling obligations.
- Initiative — Job requires a willingness to take on responsibilities and challenges.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : DRILLING
JOB AREA/TITLE: RIG CHIEF ELECTRICIAN
LEVEL : 6

A Rig Chief Electrician is responsible to Support the HSE objective of no injuries, accidents or harm to the environment as it relates to all electrical processes, procedures, and policies.

Tasks:

- Promote operational excellence through procedural discipline.
- Delegate work effectively with a clear definition of requirements and expectations.
- Assist to troubleshoot and analysing VFD control logic.
- Test circuit connections using electrical test equipment.
- Install, test and maintain electrical equipment such as air conditioning systems, heating and refrigeration equipment.
- Respond to emergencies as requested and coordinate onsite activities to utilise resources to facilitate repairs in the most expedient and cost-effective manner.
- Install and repair lighting systems
- Perform preventative and corrective maintenance of electrical equipment.
- Repair electrical equipment such as panel lighting, circuit breakers, junction boxes, voltage regulators and reverse current relays.
- Install and maintain alarm system.
- Read and analyse electrical drawings, schematics and equipment manuals.
- Enter maintenance and repair data into a Maintenance Management System.
- Repair or replace defective or worn electrical parts.
- Assist to create Notifications and Work Orders as required and entering into the rig maintenance system.
- Ensure an adequate amount of critical electrical spare parts are on hand and serviceable at all times.
- Perform additional duties, responsibilities, and special projects as may be directed.

Knowledge:

- Computers and Electronics — Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.

Skills:

- Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.

Attributes:

- Dependability — Job requires being reliable, responsible, and dependable, and fulfilling obligations.
- Initiative — Job requires a willingness to take on responsibilities and challenges.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS

AREA **:** DRILLING
JOB AREA/TITLE: RIG ELECTRICIAN
LEVEL **:** 5

A Rig Senior Electrician is responsible to:

Tasks:

- Carry out inspections of the internal parts of specific equipment including critical measurements and clearance to ensure equipment is running within recommended tolerances.
- Carry out function testing, pressure testing, load testing and insulation resistance checks for all critical equipment on the drilling unit, as required.
- Do verification that the proper safety devices are installed correctly, testing that these correctly function and are correctly calibrated to prevent equipment damage and accidents.
- Do verification that the rig equipment complies with API standards, the equipment manufacturer's specifications and recommendations and good engineering practices.
- Do verification that the rig is in compliance with the contractual requirements as provided by the client.
- Do verification of crew competency, especially on key personnel.
- Witness Endurance Test as specified by the client.
- Support report to Rig Electrician.

Knowledge:

- Engineering and Technology — Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services
- Public Safety and Security — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.
- Computers and Electronics — Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.

Skills:

- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.

Attributes:

- Dependability — Job requires being reliable, responsible, and dependable, and fulfilling obligations.
- Initiative — Job requires a willingness to take on responsibilities and challenges.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : DRILLING
JOB AREA/TITLE : ASSISTANT ELECTRICIAN
LEVEL : 4

A RIG Technician is responsible to:

Tasks:

- Modify, maintain, or repair electronics equipment or systems to ensure proper functioning.
- Replace defective components or parts, using hand tools and precision instruments.
- Set up and operate specialised or standard test equipment to diagnose, test, or analyse the performance of electronic components, assemblies, or systems.
- Read blueprints, wiring diagrams, schematic drawings, or engineering instructions for assembling electronics units, applying knowledge of electronic theory and components.
- Identify and resolve equipment malfunctions, working with manufacturers or field representatives as necessary to procure replacement parts.

Knowledge:

- Engineering and Technology — Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services
- Public Safety and Security — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.
- Computers and Electronics — Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.
- Design — Knowledge of design techniques, tools, and principles involved in the production of precision technical plans, blueprints, drawings, and models.
- Mathematics — Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.

Skills :

- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.

Attributes:

- Dependability — Job requires being reliable, responsible, and dependable, and fulfilling obligations.
- Initiative — Job requires a willingness to take on responsibilities and challenges.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA **:** DRILLING
JOB AREA/TITLE **:** BARGE CAPTAIN*
LEVEL **:** 7

A Captain is responsible to:

Tasks:
- Direct courses and speeds of ships, based on specialised knowledge of local winds, weather, water depths, tides, currents, and hazards.
- Prevent ships under navigational control from engaging in unsafe operations.
- Serve as a vessel's docking master upon arrival at a port or a berth.
- Consult maps, charts, weather reports, or navigation equipment to determine and direct ship movements.
- Steer and operate vessels, using radios, depth finders, radars, lights, buoys, or lighthouses.

Knowledge:
- Transportation — Knowledge of principles and methods for moving people or goods by air, rail, sea, or road, including the relative costs and benefits.
- Public Safety and Security — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.
- Law and Government — Knowledge of laws, legal codes, court procedures, precedents, government regulations, executive orders, agency rules, and the democratic political process.
- Mechanical — Knowledge of machines and tools, including their designs, uses, repair, and maintenance.
- English Language — Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.

Skills:
- Operation and Control — Controlling operations of equipment or systems.
- Operations Monitoring — Watching gauges, dials, or other indicators to make sure a machine is working properly.
- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Speaking — Talking to others to convey information effectively.

Attributes:
- Far Vision — The ability to see details at a distance.

- Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.
- Oral Expression — The ability to communicate information and ideas in speaking so others will understand.
- Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.
- Control Precision — The ability to adjust the controls of a machine or a vehicle quickly and repeatedly to exact positions.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : DRILLING
JOB AREA/TITLE : ASSISTANT BARGE MASTER
LEVEL : 6

Assistant Barge Master is responsible for assisting and carrying out the task of the overall training of personnel in the barge and monitoring conduct and practice musters, drills and lectures at required intervals and recording them on logbooks or reports.

Tasks:
- Routine maintenance of the mechanical parts of the lifting devices.
- Maintenance and the follow-up of all slings, shackles, pulleys, etc.
- Monitor maintenance of the safety equipment according to governmental regulations and any guidance issued by the manufacturer and keep records of such maintenance.
- Administrative work deriving from Flag state or Class Society regulations.
- Carry out equipment and pressure vessels, under his/her control are maintained, inspected, tested, certified and recorded based on Statutory Regulations and Class requirements

Knowledge:
- Engineering and Technology — Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services
- Public Safety and Security — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.
- Marine Operation – overall process on the marine and barge.

Skills:
- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.

Attributes:
- Dependability — Job requires being reliable, responsible, and dependable, and fulfilling obligations.
- Initiative — Job requires a willingness to take on responsibilities and challenges.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : DRILLING
JOB AREA/TITLE : DECK SUPERVISOR
LEVEL : 4

A Deck Supervisor is responsible to:

Tasks:

- Contribute to defining and executing activity planning and setting performance targets for the offshore organisation
- Identify opportunities and champion initiatives that enable maximum production output within the parameters of environmental compliance and process safety
- Ensure optimum utilisation of company's resources in own section Exhibit financial prudence in all decisions; approve operational expenses within the level of authority
- Drive an incident-free environment through establishing and maintaining a strong safety culture
- Organise and supervise the activities and work of subordinates to ensure compliance to relevant health, safety and environmental excellence procedures and controls within the area of responsibility to guarantee employee safety
- Collate and provide daily reports to OIM on health, safety and environmental issues related to area of work
- Responsible for daily routine maintenance on cranes in cooperation with the Maintenance Supervisor
- Responsible for weekly routine maintenance on lifeboats and safety equipment

Knowledge:

- Engineering and Technology — Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services
- Public Safety and Security — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.
- Marine Operation – overall process on the marine and barge.

Skills:

- Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.
- Working experience on construction vessels, preferably doing subsea operations, umbilical handling, activities involving divers (DSV etc.).
- Good English language.

Attributes:

- Dependability — Job requires being reliable, responsible, and dependable, and fulfilling obligations.

- Initiative — Job requires a willingness to take on responsibilities and challenges.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : DRILLING
JOB AREA/TITLE : ASSISTANT DECK SUPERVISOR
LEVEL : 3

an assistant deck supervisor is responsible to:

Tasks:
- Safely coordinate and direct lifting operations.
- Manage the deck space to ensure optimal use for the purpose of project execution and maintenance activities.
- Coordinate and direct the rigging crew and the crane operators, establishing their roles and positions, in order to safely execute lifting operations according to the lifting procedures.
- Supervise rigging/de-rigging operations.
- Manage the deck space in order to optimise the deck movements of cranes, forklifts and personnel and the access to materials and equipment positioned on the deck.
- Control the work activity of riggers and helpers.
- Ensure all rigging and lifting appliances on board are certified for use in a suitable condition and properly stored.
- Ensure that all rigging operations are carried out in a safe manner and accordance with the instructions given.
- Ensure that only certified gear is used during lifting operation.
- Manage the handling of material and consumables to be assigned to each work site.
- Monitor the conditions of all lifting gear before, during and after use and reports any damages.
- Report unsafe conditions, incidents, and near-miss events.
- Assist during marine operations if required.
- Perform Toolbox talks meetings at the beginning of each shift (and whenever required) and prepare JSA when required.
- Perform any additional duties within the limits of his/her own experience and capabilities, as required by the 1st Assistant on duty.
- Stop activities if required on safety grounds, whenever continuing could cause any damages or injuries.
- In offshore operations, report to the 1st Assistant.

Knowledge:
- Engineering and Technology — Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services
- Public Safety and Security — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.
- Marine Operation – overall process on the marine and barge.

Skills:

- Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.
- Working experience on construction vessels, preferably doing subsea operations, umbilical handling, activities involving divers (DSV etc.).
- Good English language.

Attributes:

- Dependability — Job requires being reliable, responsible, and dependable, and fulfilling obligations.
- Initiative — Job requires a willingness to take on responsibilities and challenges.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA **:** DRILLING
JOB AREA/TITLE: HANDYMAN
LEVEL **:** 2

A Handyman is responsible to:

Tasks:

- By utilizing resources available, work as effectively and efficiently as possible to ensure the service is provided to the agreed standards
- Ensure deep cleaning programme is in place and adhere to it
- Notify line supervisor of any defects or maintenance requirements within areas of responsibility
- Maintain accommodation areas in a clean and sanitary condition at all times
- Cleaning, buffering, hoovering, sweeping and washing floors, walls and ceilings to be carried out in accordance with company procedures and safe systems of work to the contract specified standard, and recorded in the cleaning schedules
- Ensure all laundry is done to clients satisfaction and contract specification
- Ensure chemical store is kept clean and tidy
- Accompany supervisor on daily and weekly inspections of areas of your responsibility
- Assist in unloading containers
- Ensure all duties and responsibilities are undertaken in full compliance with the Health and Safety at Work Act
- Report all accidents and injuries
- Report any incident of fire, loss, damage, unfit food, and other irregularities and take such action as may be appropriate
- Embrace industry training and development and culture by
- Attending Client and Company training courses as deemed necessary
- Fully support and participate in all Client and Company safety initiatives
- All training initiatives which are identified are delivered to maintain the existing safe working practices and environment
- Carry out joinery and glazing duties, painting and decorating, plumbing, electrical maintenance duties as required
- Carry out safety inspections as required
- Carry out general maintenance as required
- Sourcing & ordering of spare parts & equipment
- Carry out additional duties and any other tasks within your competency, such as the unloading of containers, which form part of the company service to the customer, as requested by the manager

Knowledge:

- Engineering and Technology — Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services

- Public Safety and Security — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.
- Marine Operation – overall process on the marine and barge.

Skills:

- Strength and dexterity – this role involve a significant amount of physical labour and the ability to operate in cramped, elevated, and uncomfortable spaces, so roustabouts should be physically strong and dexterous
- Physical and mental stamina – roustabouts also need a high level of physical and mental stamina to work shifts that can be longer than 12 hours for weeks at a time
- Safety procedures – maintaining site safety is central to this role, so roustabouts should be familiar with and adhere to safety procedures and precautions at all times
- Communication skills – roustabouts should also be effective verbal communicators to work with team members, coordinate activities, and ensure safety on the drill site

Attributes:

- Team coordination – roustabouts work with other roustabouts and roughnecks on rigs and drill sites, so they should be able to effectively coordinate team member activities
- Time management – this role also requires excellent time management skills, since roustabouts need to determine which tasks are most vital and set priorities throughout the day

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : DRILLING
JOB AREA/TITLE: RIG CHIEF MECHANIC
LEVEL : 6

A Rig Chief Mechanic is responsible to perform a regular inspection of Drilling Machinery

Tasks:

- Immediately rectifying or reporting to the Chief Mechanic / Toolpusher or Driller any defects or discrepancies in drilling equipment or associated equipment
- Responsibility for care and maintenance of all mechanical tools and workshops equipment's
- Assist Mechanic to prepare to order of mechanical maintenance/breakdown/spares
- Maintain his work area in a clean and tidy condition and free from any safety hazards
- Participate in safety meetings and safety drills
- Ensure that all orders and instructions are given in writing or verbally are fully understood and adhered to.
- Familiarise himself with all relevant work and safety procedures issued by the Company and by the Operator and promote the implementation of the same
- Promptly report all accidents, near-miss accidents and non-conformances and safety hazards to his immediate superior
- Be safely conscious in all his work and use compulsory protective equipment
- Carry out duties according to the Company's Emergency preparedness Manual when needed
- Inform the superior of any suggestion to make a safer working environment to make a more efficient operation of the unit.

Knowledge:

- Engineering and Technology — Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services
- Public Safety and Security — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.

Skills:

- Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.

Attributes:

- Dependability — Job requires being reliable, responsible, and dependable, and fulfilling obligations.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : COMPLETION
JOB AREA/TITLE : RIG MECHANIC
LEVEL : 5

A Rig Mechanic is responsible to:

Tasks:
- Inspections of the internal parts of specific equipment including critical measurements and clearance to ensure equipment is running within recommended tolerances.
- Function testing, pressure testing, load testing and insulation resistance checks for all critical equipment on the drilling unit, as required.
- Verification that the proper safety devices are installed correctly, testing that these correctly function and are correctly calibrated to prevent equipment damage and accidents.
- Verification that the rig equipment complies with API standards, the equipment manufacturer's specifications and recommendations and good engineering practices.
- Verification that the rig is in compliance with the contractual requirements as provided by the client.
- Verification of crew competency especially on key personnel.
- Witness Endurance Test as specified by the client.

Knowledge:
- Engineering and Technology — Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services
- Public Safety and Security — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.
- Computers and Electronics — Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.
- Physics — Knowledge and prediction of physical principles, laws, their interrelationships, and applications to understanding fluid, material, and atmospheric dynamics, and mechanical, electrical, atomic, and sub-atomic structures and processes.

Skills:
- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Complex Problem Solving — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
- Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.

- IOT – knowledge on the System Operation (Computers), Data Analytical, structure on IoT, AI dan AR on the new Age of the Internet of Things (IoT).

Attributes:
- Integrity — Job requires being honest and ethical.
- Dependability — Job requires being reliable, responsible, and dependable, and fulfilling obligations.
- Initiative — Job requires a willingness to take on responsibilities and challenges.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS

AREA **:** DRILLING
JOB AREA/TITLE: Assistant Warehouseman
LEVEL **:** 3

An Assistant Warehouseman is responsible for ensuring that materials are available for operational needs

Tasks:
- Assist and maintain an optimum level of inventory.
- Receiving and inspection process in accordance with the Quality Assurance Measures.
- Direct the material handling, tagging and stocking according to the pre-locator-controlled system.
- Maintain the documentation process.
- Checking the movement of inventory items. Annual stocktaking.
- Proper locating and retrieving all Rejected material as well as Damage & Overage
- Assist to Warehouseman of Container Control Form and prepare manifests.
- Planning housekeeping procedures and safety programs.
- Carry out material inspected from the concerned department.
- Maintenance and storekeeping of all inventory items kept in the warehouse.
- Using Oracle-based Warehouse Management System
- Member of Emergency First Aid Team.

Knowledge:
- Computers and Electronics — Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.
- Mathematics — Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.
- English Language — Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.
- Design — Knowledge of design techniques, tools, and principles involved in the production of precision technical plans, blueprints, drawings, and models.

Skills:
- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Reading Comprehension — Understanding wrote sentences and paragraphs in work-related documents.
- Programming — Writing computer programs for various purposes.
- Complex Problem Solving — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.

Attributes:

- Information Ordering — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).
- Written Comprehension — The ability to read and understand information and ideas presented in writing.
- Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.
- Inductive Reasoning — The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).
- Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.

DRILLING SERVICE

DIRECTIONAL DRILLING

MSIC GROUP B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA **:** DRILLING
JOB AREA/TITLE: DIRECTIONAL DRILLING ENGINEER
LEVEL **:** 5

A Directional Drilling Engineer is responsible for:

Tasks:

- Adherence to Company policies concerning the conduct of directional drilling and surveying operations
- Familiar with the Well Programme and the requirements relating to the directional operations contained therein
- Checking the accuracy and completeness of the proposed well plots before the commencement of drilling operations
- Ensuring the rig site inventory meets the programme requirements and liaising with the Drilling Supervisor to ensure future requirements are available in good time
- providing standard daily reports to the Drilling Supervisor comprising a summary of drilling activity, the drilling assembly in use, drilling parameters, survey data, equipment requirements, proposed BHA's and recommendations for operations optimisation
- Supervising the Driller in the application of drilling parameters and practice to ensure smooth directional control over the well
- Maintaining up-to-date survey calculations and projections and working to maintain the well path within the tolerances as specified in the Drilling Programme
- Providing BHA design, supervision and maintenance expertise and ensuring that all recommended BHA designs are suitable with respect to Survey Programme requirements
- Maintaining records of drilling parameters and BHA performance during drilling operations to facilitate analysis at the well review stage
- Supervising hole opening, reaming, and tripping operations to monitor hole conditions and prevent unintended side-tracking of the well
- Maintaining up-to-date records on all directional equipment on-board to ensure a timely return for re-inspections, redress or over-haul.

Knowledge:

- Engineering and Technology — Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services
- Public Safety and Security — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.

- Computers and Electronics — Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.
- Physics — Knowledge and prediction of physical principles, laws, their interrelationships, and applications to understanding fluid, material, and atmospheric dynamics, and mechanical, electrical, atomic and sub-atomic structures and processes.

Knowledge:
- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Complex Problem Solving — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
- Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.
- IOT – knowledge on the System Operation (Computers), Data Analytical, structure on IoT, AI dan AR on the new Age of the Internet of Things (IoT).

Attributes:
- Integrity — Job requires being honest and ethical.
- Dependability — Job requires being reliable, responsible, and dependable, and fulfilling obligations.
- Initiative — Job requires a willingness to take on responsibilities and challenges.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : DRILLING
JOB AREA/TITLE: DRILLING ENGINEERING MANAGER
LEVEL : 7

A Drilling Engineer Manager major accountabilities for the role are the following, for all assets and engineering within the area of responsibility:

- Promote safety awareness and sound HSE leadership including the timely follow-up and closeout of all incidents
- Define the Drilling organisation (internal and external), identify and resource manpower and training requirements and set roles and responsibilities
- Define and ensure compliance with a structured Well Planning & Delivery Process and associated work systems addressing the following;
    - Budgeting cost estimating and forecasting
    - Quality Assurance o Risk Assessment
    - Regulatory and Internal reporting o Procurement, Contractor selection and auditing
    - Logistics support
    - Emergency response
    - Document management
    - Operations Reporting
    - Data Management

Tasks:

- Manage drilling engineering methods and procedures to be used on assigned drilling problems.
- Manage in any execute and accomplish assignments and studies in areas outlined in the scope, assuring conformance to overall objectives of all phases of drilling operations in areas including drilling penetration rate optimisation, new drilling technology, and drilling studies.
- Manage technical support for many types of drilling wells including complex extended reach (ERD) horizontal oil and gas wells, HPHT gas wells, offshore and deep water, and unconventional wells. Wells include power water injections and producing wells, exploration wells and all kinds of workovers.
- Manage and analyse advanced drilling data and the performance of new or existing drilling techniques to determine a need for or benefit from studies, recommendations, and/or modifications with respect to unit costs, and operating efficiency consistent with established operations.
- Managed and assume ownership of relevant company's standards/guidelines where applicable, recommend improvements to operational processes and guidelines.
- Extend training and technical support to junior engineers and ensure the sustained meeting of regional and global standards, practices, and procedures.

Knowledge:

- Engineering and Technology — Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques,

procedures, and equipment to the design and production of various goods and services
- Public Safety and Security — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.
- Computers and Electronics — Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.
- Physics — Knowledge and prediction of physical principles, laws, their interrelationships, and applications to understanding fluid, material, and atmospheric dynamics, and mechanical, electrical, atomic and sub-atomic structures and processes.

Knowledge:
- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Complex Problem Solving — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
- Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.
- IOT – knowledge on the System Operation (Computers), Data Analytical, structure on IoT, AI dan AR on the new Age of the Internet of Things (IoT).

Attributes:
- Integrity — Job requires being honest and ethical.
- Dependability — Job requires being reliable, responsible, and dependable, and fulfilling obligations.
- Initiative — Job requires a willingness to take on responsibilities and challenges.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : DRILLING
JOB AREA/TITLE : RIG MOVER *
LEVEL : 8

A Rig Mover is responsible for conducting all aspects of the move in the best interest of safety for personnel and the installation. He shall be competent in all aspects including towing, afloat stability, seaworthiness, navigation, appraisal of weather and passage planning.

Tasks:

- Suitable rig experience and knowledge of the rig move operation (including positioning, anchoring and jacking operation).
- Review the planned routing and highlight any shallow patches, underwater obstructions or hazards to navigation that may lie in or in the proximity of the intended towing route.
- Discuss all aspects of the move with appointed tow vessels.
- Participate with the OIM to ensure key personnel involved with all aspects of the move are provided with a detailed briefing prior to each operation.
- Ensure the rig is ready for tow by inspecting the following but not limited to sea fastenings, mooring systems, tow equipment and arrangements, stability and load distribution and watertight integrity plan.
- Familiar with the details of the arrival location, field layout, water depth, soil details, anticipated leg penetrations and recommendation details within the Location Approval Certificate.
- Familiar with the positioning details of the new location i.e., platform configuration If applicable, details of positioning tolerances and potential platform interference.
- Plan and coordinate anchors deployment.
- Liaise with Barge Master to ensure that rig's stability is compliant with IMO criteria and Marine Operating Manual, including making any adjustments to the trim and/or heel as necessary.
- Liaise with OIM, Barge Master, MWS and client's representative on the operation associated with the rig move.

Knowledge:

- Engineering and Technology — Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services
- Public Safety and Security — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.
- Computers and Electronics — Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.
- Physics — Knowledge and prediction of physical principles, laws, their interrelationships, and applications to understanding fluid, material, and atmospheric

dynamics, and mechanical, electrical, atomic and sub-atomic structures and processes.

Skills:

- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Complex Problem Solving — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
- Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.
- IOT – knowledge on the System Operation (Computers), Data Analytical, structure on IoT, AI dan AR on the new Age of the Internet of Things (IoT).

Attributes:

- Integrity — Job requires being honest and ethical.
- Dependability — Job requires being reliable, responsible, and dependable, and fulfilling obligations.
- Initiative — Job requires a willingness to take on responsibilities and challenges.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : DRILLING
JOB AREA/TITLE: SENIOR CHIEF SURVEYOR
LEVEL : 6

A Senior Chief Surveyor is responsible to lead a team to make exact measurements and determine property boundaries. Provide data relevant to the shape, contour, gravitation, location, elevation, or dimension of land or land features on or near the earth's surface for engineering, mapmaking, mining, land evaluation, construction, and other purposes

Tasks:

- Monitor the verify the accuracy of survey data, including measurements and calculations conducted at survey sites.
- Verify the direct or conduct surveys to establish legal boundaries for properties, based on legal deeds and titles.
- Supervise the preparation of, all data, charts, plots, maps, records, and documents related to surveys.
- Verify the preparation and maintain sketches, maps, reports, and legal descriptions of surveys to describe, certify, and assume liability for work performed.
- Review report on written descriptions of property boundary surveys for use in deeds, leases, or other legal documents.

Knowledge:

- Mathematics — Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.
- Engineering and Technology — Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services.
- Customer and Personal Service — Knowledge of principles and processes for providing customer and personal services. This includes customer needs assessment, meeting quality standards for services, and evaluation of customer satisfaction.
- English Language — Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.
- Law and Government — Knowledge of laws, legal codes, court procedures, precedents, government regulations, executive orders, agency rules, and the democratic political process.

Skills:

- Mathematics — Using mathematics to solve problems.
- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Reading Comprehension — Understanding wrote sentences and paragraphs in work-related documents.

- Speaking — Talking to others to convey information effectively.
- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.

Attributes:

- Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.
- Mathematical Reasoning — The ability to choose the right mathematical methods or formulas to solve a problem.
- Written Comprehension — The ability to read and understand information and ideas presented in writing.
- Number Facility — The ability to add, subtract, multiply, or divide quickly and correctly.
- Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : DRILLING
JOB AREA/TITLE : SURVEYOR
LEVEL : 5

A SURVEYOR is responsible to Make exact measurements and determining property boundaries. Provide data relevant to the shape, contour, gravitation, location, elevation, or dimension of land or land features on or near the earth's surface for engineering, mapmaking, mining, land evaluation, construction, and other purposes

Tasks:

- Verify the accuracy of survey data, including measurements and calculations conducted at survey sites.
- Direct or conduct surveys to establish legal boundaries for properties, based on legal deeds and titles.
- Prepare, or supervise the preparation of, all data, charts, plots, maps, records, and documents related to surveys.
- Prepare and maintain sketches, maps, reports, and legal descriptions of surveys to describe, certify, and assume liability for work performed.
- Write descriptions of property boundary surveys for use in deeds, leases, or other legal documents.

Knowledge:

- Mathematics — Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.
- Engineering and Technology — Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services.
- Customer and Personal Service — Knowledge of principles and processes for providing customer and personal services. This includes customer needs assessment, meeting quality standards for services, and evaluation of customer satisfaction.
- English Language — Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.
- Law and Government — Knowledge of laws, legal codes, court procedures, precedents, government regulations, executive orders, agency rules, and the democratic political process.

Skills:

- Mathematics — Using mathematics to solve problems.
- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Reading Comprehension — Understanding wrote sentences and paragraphs in work-related documents.
- Speaking — Talking to others to convey information effectively.

- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.

Attributes:

- Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.
- Mathematical Reasoning — The ability to choose the right mathematical methods or formulas to solve a problem.
- Written Comprehension — The ability to read and understand information and ideas presented in writing.
- Number Facility — The ability to add, subtract, multiply, or divide quickly and correctly.
- Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : DRILLING
JOB AREA/TITLE: HSE Officer (Level 4)
LEVEL : 8

An HSE Officer is responsible for the routine and emergency healthcare for the rig personnel.

Tasks:
- Investigate industrial accidents, injuries, or occupational diseases to determine causes and preventive measures.
- Conduct research to evaluate safety levels for products.
- Evaluate product designs for safety.
- Conduct or coordinate worker training in areas such as safety laws and regulations, hazardous condition monitoring, and use of safety equipment.
- Maintain and apply knowledge of current policies, regulations, and industrial processes.

Knowledge:
- Analytical or scientific software — Computational fluid dynamics CFD software; Root cause analysis software; The MathWorks MATLAB
- Compliance software — Fire safety inspection and testing software; Material safety data sheet MSDS software; Safety integrity level SIL software; Safety, health, and environmental management software
- Computer-aided design CAD software — Autodesk AutoCAD; Electronic design automation EDA software; Mathsoft Mathcad; Roof support design software
- Database user interface and query software — Anthropometric databases; Incident tracking software; Microsoft Access; Reliability information software
- Presentation software — Microsoft PowerPoint

Skills:
- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Reading Comprehension — Understanding wrote sentences and paragraphs in work-related documents.
- Speaking — Talking to others to convey information effectively.
- Writing — Communicating effectively in writing as appropriate for the needs of the audience.
- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.

Attributes:
- Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.
- Written Comprehension — The ability to read and understand information and ideas presented in writing.

- Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.
- Inductive Reasoning — The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).
- Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.

MSIC GROUP: B06 EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS
AREA : DRILLING
JOB AREA/TITLE: SAFETY TRAINING OFFICER
LEVEL : 6

Responsible for:

- The routine and emergency healthcare for the rig personnel.
- Investigate industrial accidents, injuries, or occupational diseases to determine causes and preventive measures.
- Conduct research to evaluate safety levels for products.
- Evaluate product designs for safety.
- Conduct or coordinate worker training in areas such as safety laws and regulations, hazardous condition monitoring, and use of safety equipment.
- Maintain and apply knowledge of current policies, regulations, and industrial processes.

Knowledge:

- Analytical or scientific software — Computational fluid dynamics CFD software; Root cause analysis software; The MathWorks MATLAB
- Compliance software — Fire safety inspection and testing software; Material safety data sheet MSDS software; Safety integrity level SIL software; Safety, health, and environmental management software
- Computer-aided design CAD software — Autodesk AutoCAD; Electronic design automation EDA software; Mathsoft Mathcad; Roof support design software
- Database user interface and query software — Anthropometric databases; Incident tracking software; Microsoft Access; Reliability information software
- Presentation software — Microsoft PowerPoint

Skills:

- Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Reading Comprehension — Understanding wrote sentences and paragraphs in work-related documents.
- Speaking — Talking to others to convey information effectively.
- Writing — Communicating effectively in writing as appropriate for the needs of the audience.
- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.

Attributes:

- Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.
- Written Comprehension — The ability to read and understand information and ideas presented in writing.
- Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.

- Inductive Reasoning — The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).
- Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.