Quality Management Analysis of Drilling & Workover Services at PT. Besmindo Materi Sewatama Duri

Novia Nurhayati[1], Hutomo Atman Maulana[2]
Program Studi Administrasi Bisnis Internasional, Politeknik Negeri Bengkalis
novia96.nn@gmail.com[1], hutomomaulana@polbeng.ac.id[2]

Abstract

This study aimed to know the drilling & workover services carried out by the company, found out the human resource needed in the provision of drilling & workover services, found out how the mechanism is in the implementation of the tender process and knew the quality management system implemented by the company. Type of this research was descriptive. This research was conducted from September 2nd 2019 until January 6th 2020 at PT. Besmindo Materi Sewatama Duri. Data was collected using interview and documentations techniques. The result showed that PT. Besmindo Materi Sewatama conducted business activities in workover services. The company had used recruitment & selection procedures in fulfilling HR for workover services activities with requirments set by the company. Tender process was carried out by following the flow or procedures that has been determined by oil company. The company implemented an integrated management system among quality, environment and occupatioanl health and safety by using ISO standard to make continuous improvements in accordance with the development of ISO standard.

Keywords : Drilling & workover services, quality management system

1. INTRODUCTION

OIL and GAS industry is one of the economic supports, so many companies engaged in the drilling & workover services. Duri is one of the oil field in Riau province, Duri's oil field has been exploited since the 50th. Currently, petroleum drilling is still managed by PT Chevron Pacific Indonesia, which is co-operative with BP MIGAS and hundreds of other contractors. With the advent of many companies operate in the drilling & workover services raises competition between OIL and GAS contractors to win the CPI's contract. To compete the competitive levels of industry, company need various strategies to maintain the company's existence. One of them is quality management system applied. Quality covers complex things starts from input of the company until output of company. In implementing a quality management system one of them through a Total Quality Management (TQM) approach focused on improving the quality of the organization in total. Total Quality Management (TQM) tries to maximize the competitiveness of the organization through continuous improvement over its products, services, people, processes and environment (Sitio, 2018). Total Quality Management is a management system that lifts quality as a business strategy and oriented to customer satisfaction by involving all members of the company (Kartika and Maulana, 2018). Besides TQM approach there is ISO 9000. ISO 9000 is an international standard for the Quality Management system (Padmantyo and Utami, 2017). ISO (The International Organization for Standarization) is a world standard organization formed to increase international trade related to changes in goods and services. ISO 9000 is a standard consisting of elements that regulate from the responsibility of management to the quality, to the more technical things such as the purchase of raw materials, quality planning of process control, testing of final products, customer service, and so on (Padmantyo and Utami, 2017).

There are some latest research about Critical Factors Affecting The Quality Management Sistem In Oil & Gas On-Shore Drilling Sector For In-Sourcing Drilling Model – Part 1 (Concept Paper) (Harti et al, 2017). The concluded results are that conceptual

framework consists of in-dependent variables which are (competency framework, preventive maintenance, management of change (MOC), technology and innovation, people recognition, assurance and lean) and dependent variable which is the overall performance by establishing a sustainable quality management sistem. In part 2, all the sampling and data analysis will be demonstrated to confirm the proposed conceptual framework as described in part1. The research about Analisis Penerapan Total Quality Manajemen (TQM) pada Perusahaan Kontraktor dengan Pendekatan Metode Servqual di Kota Sukabumi (Kartika and Maulana, 2018). The results of this research are obtained by some of the following, the level of satisfaction between 80-100 means high satisfaction, which is an average of 80.51. TQM elements that need to be improved in the application are: The latest technology used in the implementation of the project, information technology provides convenience to workers in the work, the company's leadership will accept the opinion of the subordinate, insufficient work completion time for the results of satisfactory work, the head of the company provide guidance to its workers, and provide training for the workforce. Other TQM elements belong to the well-implemented category of elements and there are some that are considered supporting elements so it is not yet a priority to make improvements directly. The research about Model Penerapan Sistem Manajemen Mutu Berbasis ISO 9001:2015 Pada Kontraktor Di Propinsi Papua Barat (Wartuny et al, 2018). The results indicate that there are still many needs for improvement of resources, especially human resources construction in the aspect of project management, job planning, leadership and commitment in organization, as well as support and support from local government related to local company performance improvement.

Previous research has not yet researched about analysis of quality management system in sector drilling & workover services, specially in case of quality management system applied by the company. The purposes of this study to find out the drilling & workover services carried out by company, to find out the human resources (HR) required to provide drilling & workover services, to find out the tender process mechanism of the drilling & workover service and to find out the quality management system implemented by PT.Besmindo Materi Sewatama Duri. So based on the background the title of this research is Analysis of Quality Management Analysis of Drilling & Workover Services at PT. Besmindo Materi Sewatama Duri.

2. LITERATURE REVIEW

Service Quality Management Practice

A very well managed service companies perform the following general practices: strategic concepts, history of peak management commitment to quality, high standards, self-service technology, systems to monitor service performance and customer complaints and emphasis (Malau, 2017). Leading service companies are "customer obsessed". They have a clear sensitivity to the target customer and the customer's needs. They develop different strategies to satisfy these needs. For example, chained to a luxury four seasons hotel, employees must represent four interviews before being accepted to work. Each hotel also employs a "guest historian" to explore guests' favorites. While most brokerage firms pursue wealthy online brokers based on customers, e-trade’s target generation X 24 to 37-year-olds who are more tech savvy and sufficiency, they are generally overlooked by other companies.

The company's management looks not only at its monthly financial performance, but also service performance. For example, Ray Crock of McDonald's applies continuous measurements of QSCV conformity: Quality, Service, cleanliness, and value in all McDonald's outlets. The best service providers provide high quality standards. Service companies can differentiate themselves by designing better and faster delivery systems. There are three differentiation levels: reliability, flexibility, and level of innovation.

Consumers rate the convenience of services. Many human service interactions are replaced by self-service technology. In traditional vending machines, we can add automated teller machines (ATMs), fill themselves in gas stations, conduct self-exit checks from hotels, and various activities on the internet such as ticket purchases, investment trading, and product adjustments. Leading companies audit the performance of their services, both their own performance and their competitors on a regular basis. They collect voice of customer measurements to investigate customer satisfaction and dissatisfaction. They are using comparison shopping, mysterious shoppers, customer surveys, advice and complaints forms, service audit teams, and letters to the president. We can assess the service against the importance of the customer and the performance of the company. Performance-critical analysis ranks different elements of the service group and identifies what actions are needed.

Companies that encourage disappointed customers to file complaints and also empower employees to recover situations where they have achieved higher revenue and greater profits than companies that do not have a systematic approach to addressing service failures. For example Pizza Hut prints its toll-free numbers on all pizza boxes. When a customer complains, pizza hut sends a voice mail to the manager who has to call the customer within 48 hours and resolve the complaint. Service companies that know how positive employee attitudes will drive stronger customer loyalty. Instilling a strong customer orientation in employees can also improve their job satisfaction and commitment, especially if they are in a service setting that allows a high level of customer contact time.

Quality Management System

Globally, there are many quality management models which are practiced all over the world by different industries. The adoption of a quality management system is a strategic decision for an organization that can help to improve its overall performance and provide a sound basis for sustainable development initiatives, Quality management system (QMS) is defined as a structured and formalized system that documents process, standards, roles and responsibilities for achieving quality policies and objectives. By which the QMS will direct organizations activities to meet the customer and regulatory requirements and improve its overall effectiveness and efficiency continuously. Lots of literatures and studies on quality management system were conducted in different sectors such as education, construction, transportation, manufacturing, tourism, airlines and etc. (Harty et al 2017).

Total Quality Management

The company must also do total quality management to avoid losing the customers. What is said with total quality management (TQM) is an organization wide approach to continuously improving the quality of all the organization's processes, products and services (Alma, 2016). This is a way of working companies that strive to continuously improve the quality of the processes, products and services produced by the company. The point is continuous quality improvement, which in Japanese management is known as KAIZEN which means unending improvement, i.e. continuous improvement, in all activities of the company, so that the quality appears the longer the better. The better quality should be felt by customers.

Total Quality Management is a science that is carried out continuously through a management process that involves all elements including employees to achieve maximum quality (Prawirosentono in Sitio, 2018). The benefit of the implementation of Total Quality Management is to improve the overall quality that exists within the company in order to increase the income or profit of the company. Quality improvement that continuously manages will improve the company's performance and make the company's good image so that it will cause customer satisfaction (Sitio, 2018).

ISO 9000

ISO 9000 is a standard consisting of elements that regulate from the responsibility of management to the quality, to the more technical things such as the purchase of raw materials, quality planning of process control, testing of final products, customer service, and so on (the Endih in Padmantyo. 2017). The core of ISO 9000 is specification, either for purchased components, processes or end results and key's steps controlled strictly that may affect the quality of the final product or service.

Required many documents to run system of ISO 9000. There are three levels of documentation required in the ISO 9000 system, namely: the top level is the quality manual, the second level of the specific document required to control fundamental issues in terms of quality, and third level of Standard Operational Procedure (SOP).

The International standard ISO 9000 is an approach in the processing of organizational activities by developing a controlling mechanism that refers to a number of requirements that are explicitly written in the standard, built on the basis of the eight quality principles: Customer focus, leadership, employee participation, Process control, system control, continuous improvement, factual approach to decision making, as well as mutual mutually beneficial relationship with the supplier (Padmantyo. 2017).

Drilling and Workover

Drilling is an attempt to technically make holes safely until it penetrates the layers of formations rich in oil or gas (Amin, 2014). The hole is then lined with a casing and cemented, with the intention of connecting the layer of the formation with the surface of the earth that commercially disfies oil or gas mining.

Workover is all work done to improve the state of the well so that the production of the well is increased, or can still be maintained including the characteristics of the well. The types of work over work are Add perforation, Perforation hole cleaning, Zone isolation. The drilling methods that have been done so far are with Cable tool drilling and Rotary drilling. Before drilling operations need to be carried out preparations in order to carry out drilling operations such as licensing, preparing the site, preparing the road to the site, preparing water, preparing drilling equipment, transporting equipment to the site and erecting towers (RIG up). After the determination of the drilling point and mapping the site then carried out drilling. The division of oil and gas drilling types is distinguished based on drilling objectives, drilling sites, based on the shape of holes. This type of drilling is based on the objectives that will be achieved in conducting drilling operations.

3. RESEARCH METHOD

The type of study conducted is descriptive. The location of this study is in Duri, precisely at PT. Besmindo Materi Sewatama located at Jl Duri-Dumai KM 9. The object of this study is the work environment area of PT. Besmindo Materi Sewatama. This study was conducted from September 2nd 2019 to January 6th 2020.

Data collection techniques used in this study are interview and documentation. For The data analysis method used in this study is qualitative by displaying or explaining the data that has been obtained during the study. Where the data is obtained in the form of sentences, words and images that can provide descriptions or explanations so that it does not form calculations of numbers. Triangulation is a technique of checking the validity of data by utilizing something else outside the data for the purpose of checking or comparative to the data in question (Moleong in nugrahani 2014). The most widely used triangulation technique is the examination of the validity of data through other sources (Moleong in nugrahani 2014). To conduct validity tests on this study using triangulation.

4. RESULT AND DISCUSSION

Drilling & Workover Services Conducted by Company

Based on the results of the interview with Mr. Erin Fardiansyah as Reliability Engineering & ADM Officer said: "for now we just provide workover service, Workover does not have kind, but the activities there are fishing job and swab job"

The results that had been gained during the study stated that the company is currently operating in the field of workover service and no drilling. The process of drilling or transporting minerals in a well done by several stages, they are:

1. Drilling
2. Completion Job
3. Workover consisting of two activities are fishing job and swabb job.
4. Service routine.

Human Resources (HR) Needed in the Provision of Drilling & Workover Services

Based on the results of the interview with Mr. Freedy as HRD Superintendent who said that: "Requirements requested by a company at least have a degree of senior high school, working experience, the third has a certificate. The fourth is healthy and not in legal matters relating to a criminal offence/violation of the law. And the priority is community around here"

Human Resources (HR) or workers needed by PT. BMS to be able to run workover activities have some provisions or requirements namely:

1. Minimum degree of senior high school
2. Certain departments must have a certificate of expertise or competence
3. Has work experience
4. Healthy physically and spiritually and not in legal matters.
5. Preferred people or local communities that meet the requirements.

Human resources needed to carry out drilling & workover service consist of several parts or departments. Each office has a different number of employees (HR). To know the human resources needed in carrying out drilling services & workover service at PT. BMS can be seen on Table 1. Based on Table 1, it can be seen that the total number of employees needed to implement the current workover service amounted to 702 employees.

Table 1 Employee's Data of PT. Besmindo Materi Sewatama

NO	POSITION	NUMBER OF WORKERS
1	Acces Control Boy	3
2	Bus Driver	34
3	Chief Mechanic	1
4	Crane Operator	3
5	Crane Swamper	4
6	Derrickman	39
7	Dozer Swamper	3
8	Driller	36
9	Driver Ground Anchor	6
10	Electric	3
11	Floorman	136
12	Foco Swamper	38
13	Foco Operator	39
15	Hes Field Officer	6
16	Hes Officer	27
17	Lowbad Swamper	2
18	Mechanic	24
19	Op Crane	3

20	Oprt. Dozer	3
21	Oprt. Lowbad	3
22	Purchasing Officer	1
23	Rig Clerk	33
24	Rig Driver	3
25	Rig Superintendent	2
26	Rigger Crane	3
27	Roustabout	55
28	Swamper Ground Anchor	5
29	Swamper Lowbad	1
30	Tandem Operator	33
31	Tandem Swamper	32
32	Technician Rebuild-2	1
33	Tool Pusher	47
34	Truck Pusher	6
35	Vacum Operator	33
36	Vacum Swamper	34
	NUMBER OF EMPLOYEE	702

Source: PT. Besmindo Materi Sewatama Duri

Based on data obtained from HRD's document of PT. BMS, then there are some positions that are very basic and important in running Workover service. Each position or job has different requirements, they are:

Some requirements or qualifications required for a position as Toolpusher on workover service as follows: minimum degree of senior high school level, has drill controller expert certificate, experience in drilling min. 7 years, including 3 years as Driller, mastering the operation of all drilling equipment on the rig, healthy physically and spiritually, has min SIM. A/B1 that still valid, Can operate computer (Ms. Office), have a strong leadership soul & good motivation, has good verbal and written communication skills, pass Assessment & requirements according to the provisions stipulated.

Some requirements or qualifications that are required for the position or role as driller on workover service is as follows: diploma at minimum senior high school level, has an OUPS-level certificate, experience in drilling min. 4 years, including 1 year as Tower Operator, mastering the operation of all drilling equipment on the rig, healthy physically and spiritually, have good verbal and written communication skills, have the ability to work independently and in a working team.

Some requirements or qualifications required for a position or role as Derrickman on workover service is as follows: minimum degree of senior high school, has an OMPS-level certificate, experience in drilling min. 3 years, including 1 year as Tower Operator, mastering the operation of all drilling equipment on the rig, healthy physically and spiritually, have good verbal and written communication skills, have the ability to work independently and in a working team.

Some requirements or qualifications required for a position or role as a floorman on workover service is as follows: minimum degree of senior high school,has an OLPS-level certificate, the Floorman's min. 1 year-old drilling experience, mastering the operation of all drilling equipment on the rig, healthy physically and spiritually, have good verbal and written communication skills, have the ability to work independently and in a working team.

Some requirements or qualifications required for a position or positions as roustabout on the workover service is as follows: minimum degree of senior high school, has an OLPS-level certificate, the Floorman's min. 1 year-old drilling experience, mastering the operation of all drilling equipment on the rig, healthy physically and spiritually, have good verbal and written communication skills, have the ability to work independently and in a working team.

Mechanism in Auction or Tender Process

Tender process start from the needs of service from oil company, then announcement of the auction. The next stage is the pre-qualification tender. company that will follow the auction process must submit an application letter following the prequalification. The company must have a SKUP, CHESM document, registered with MIGAS and has a register of companies in the government. The company also attach SPDA/CIVD certificates. Then the oil company will issue an invitation to companies that pass the qualifying stage. The company will be invited to take the document, so it can enter the next stage. Prebid meeting will explain the details of the work desired by the oil company. Companies that follow the tender process will arange the necessary auction documents such as the creation of tender bidding letters, the creation of a bid guarantee letter, the creation of an expression of TKDN, fill the list of manpower, technical RIG equipment and prepare HES plan document.

Company entered the entry phase of documents. After that oil company will conduct a field assessment. Field assessment is the process of review in the field both in terms of readiness of tools to operate, quality management system and occupational health and safety as well as checking in the field related documents that have been attached. The final stage is the winner announcement. If all the process has been executed to the participant, then the auction will be final to announce who the winner is. To find out how process or mechanism the tender that done by company can be seen in the figure 1 tender process mechanism.

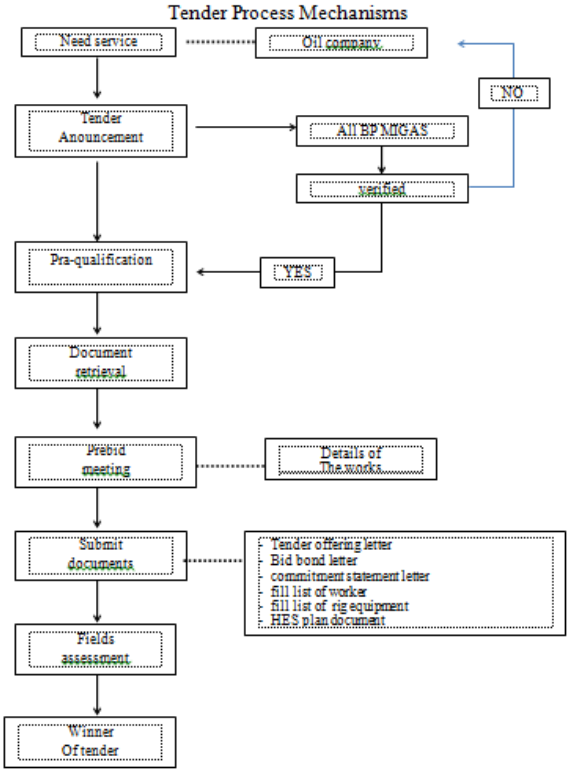

Figure 1 Tender Process Mechanism

Source: PT. Besmindo Materi Sewatama Duri

Quality Management System Implemented by the Company

The quality management system implemented by the company is an integrated management system among occupational health and safety, environmental and quality. Implementation of quality management system adopted by the company using ISO standard. This is based on the results of interview with Mr. Hidayat as ISO Officer who said that: "Besmindo used system that integrated. There is a quality ISO 9001 2015, ISO 14001 2015 it's environmental related. OHSAS 8001 2008 related K3".

1. ISO 9001 version 2015

PT. BMS in the application of quality management system already using ISO 9001 version 2015. The implementation of ISO 9001:2015 contains about quality management and quality processes to maintain the quality, resources, performance of the company etc.

Based on the data obtained The ISO 9001 standard uses a process approach, which combines the Plan-Do-Check-Act (PDCA) cycle and risk-based thinking. The process approach aims to move the company in planning processes and interactions. The PDCA cycle is to ensure the processes of obtaining resources and management are conducted accordingly, opportunities for improvement can be determined and conducted. The PDCA cycle can be applied to all processes and overall quality management system.

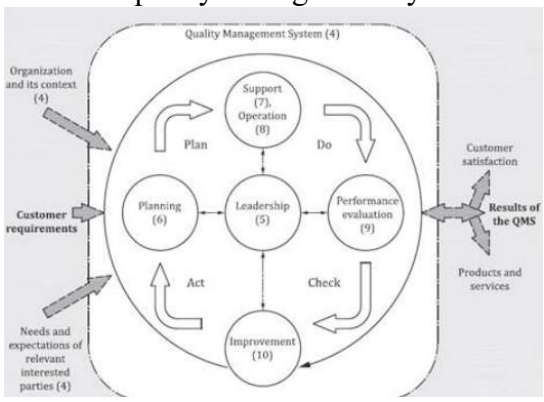

Figure 2 PDCA Cycle

Sources: PT. Besmindo Materi Sewatama Duri

The PDCA cycle can be described briefly as follows:

1. Plan: Set the goals of the system and Proses-prosesnya, and the resources needed in order to provide results in accordance with customer requirements and company policies, as well as identifying and addressing risks and opportunities.
2. Do: Apply what's planned
3. Check: Monitor and (where appropriate) measure processes and produce products and services against planned policies, objectives and requirements and acitivity, and report on the results.
4. ACT: Take action to improve process performance, which is required.

Risk-based thinking aims to determine which factors can cause the process and the quality management system to deviate from the planned results, placing preventive control to minimize negative effects and maximize the use of emerging opportunities. In the procedures of the management system the company must establish, implement, maintain and continuously improve the quality management system, including the necessary processes and interactions, in accordance with the requirements of the standard quality management system. The processes in the company's quality management system are:

1. Determine the required inputs and the expected output of those processes.
2. Determine the order and interaction of those processes.
3. Defining and implementing criteria and methods (including monitoring, measurement and related performance indicators) necessary to ensure effective operational and control over such processes.
4. Determine the required resources and ensure availability.
5. Determine the responsibility and authority for such processes.
6. Addressing the risks and opportunities as prescribed in accordance with the requirements.
7. Evaluate the processes and apply any necessary changes to ensure those processes achieve the desired results.
8. Improve the processes and management system.

The implementation of ISO 9001 in the company is characterized by a certificate owned by the company. This ISO 9001 certificate is as physical proof that the company is worthy and has been running a quality management system in accordance with international standards. The company has had an ISO 9001 certificate issued by the QM certification.

2. ISO 14001 version 2015

PT. BMS in the application of environmental management system is already using ISO 14001 version 2015. The implementation of ISO-14001:2015 contains the planning and implementation of control over all activities within the company that have environmental aspects. The existence of ISO 14001 makes the company should pay attention to environmental governance, so that the activities undertaken by the Company does not cause pollution that can give long term impact. The company must understand all environmental regulations and legislation related to its activities to comply with regulations and legislation. Application of environmental management system in the company is marked with ISO 14001certificate. The company has had an ISO 14001 certificate issued by the QM certification

3. OHSAS 18001 version 2007

PT. BMS in the application of Occupational Health and Safety management system is already using OHSAS 18001 version 2007. The Occupational Health and Safety Assessment Series (OHSAS) standards were developed to respond to customer demand for occupational health and safety management systems standards. OHSAS 18001 serves to regulate the Occupational Health and Safety management system in the company, so that the work done does not cause injury or incident. The implementation of the Occupational Health and Safety management system in the company is characterized by the certificate of OHSAS 18001. The company has had OHSAS 18001 Certificate issued by QM certification

5. CONCLUSION AND SUGGESTION

Based on the results of the study that has been outlined in the discussion chapter, the conclusion is derived from this study as follows:

1. Business activitiy undertaken by PT. Besmindo Materi Sewatama provides workover services that consists of two activities: fishing job and Swabb job.
2. In the process of fulfillment of HR required some position or job title. The general requirements are: at least senior high school degree, some positions must have a certificate of expertise or competence, have work experience, healthy physical and spiritual and not in legal matters and the priority is local society who is suitable with the requirements.
3. Then to follow the auction process there are several stages in the tender process mechanism namely: Pre-qualification tenders, document retrieval invitations, Prebid meeting, preparing tender documents, document marketing, field assessment and announcement of winners.
4. Quality management system applied by PT. Besmindo Materi Sewatama is an integrated management system between occupational health and safety, environment and quality. For quality using ISO 9001 version 2015, the environment uses ISO 14001 version 2015 and occupational health and safety using OHSAS 18001 2007 certificates.

Based on the results of the conclusion obtained from the study conducted at PT. Besmindo Materi Sewatama Duri, then obtained advice that is to maintain the quality of workover service is advised by conducting training to employees in greater depth about the quality, environment and and occupational health and safety in order to avoid the occurrence of accidents or incident in the company.

Based on the result of conclusion obtained, suggestion for future research is when the study discuss the same topic, such as quality management it will be better if the discussion discuss quality management deeply than before, because quality management has the large topic and discussion.

In this study, there are limitations:

1. This study is only done at PT. Besmindo Materi Sewatama Duri, so it can not be used as a reference or benchmark for other companies. Because each company has its own strategy and policy in terms of management and managing existing resources in its company.
2. This study focuses only on the drilling and workover services offered, HR required, auction process, applied SOP and quality management system applied by PT. BMS.

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