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**DP Operator Training from a Drilling
Contractor's Perspective**

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Abstract

The following paper is a perspective for selecting and training dynamic position operators for the offshore drilling industry as implemented at Diamond Offshore Drilling Incorporated. The Dynamic Positioning Operator position has been classified by the Company as a watchkeeper position and has found this to be very effective, both economically and in the development of competent employees with a wide range of skill sets.

Is a DP operator a watch keeper or just another operator?

Prior to 1996 Diamond Offshore Drilling had only one dynamically positioned (DP) drilling rig, Ocean Alliance, and it was working in the North Sea being managed out of the Company's Aberdeen office. To staff the DP operator positions on the Ocean Alliance, third party employees were hired through a Marine contractor experienced with DP operations in the North Sea environment. However in 1996, Diamond Offshore began converting the drillship Ocean Clipper into a DP vessel in preparation for contracted drilling in the Gulf of Mexico (GOM). This presented a problem in that the North Sea DP operators could not continue as contract employees in the GOM due to United States citizen manning requirements. This dilemma caused Diamond Offshore's management to begin asking many questions concerning this manning issue:

- 1) Where and how are DP operators developed professionally and what are their qualifications? This became a very relevant question because the position was a new company position for the GOM and during the period when the *Ocean Clipper* was being upgraded there was a shortage of experienced DP operators.
- 2) Was the DP operator position similar to a Ballast Control Operator (BCO) position? If this were the case, then Diamond Offshore's best ballast control operators could be trained to become DP operators and the problem would be solved.
- 3) What were the manning requirements for the *Ocean Clipper*? According to the United States (Code of Federal Regulations) 46 CFR 15.520 Mobile Offshore Drilling Units, (MODU) paragraph (e): A drillship must be under the command of an individual who holds a license as master. When a drillship is on location, the individual in command must hold a license as master endorsed as OIM.
- 4) The *Ocean Clipper* had always been a moored drillship. Now that it was being converted to DP operations what would be the manning requirements if underway? CFR 15.810 Mates, paragraph (2) MODUs of 1000 gross tons or more states:
 - (i) Three licensed mates when on a voyage of more than 72 hours.
 - (ii) Two licensed mates when on a voyage of more than 16 but not more than 72 hours.
 - (iii) One licensed mate when on a voyage of not more than 16 hours.

Therefore, the *Ocean Clipper* would have to have mates onboard while underway.

- 5) What if the *Ocean Clipper* went into a Red Alert and had to unlatch from the sub-sea blowout preventer (BOP) stack? In this event, would the vessel now be classified as underway and how long would it be in this mode before being able to latch back up to the stack? It was determined that when unlatched from the BOP stack, the vessel would be in the underway mode. Secondly, depending on the circumstances it may be in the underway mode for several days before being able to latch back onto the BOP stack.

It became obvious to Diamond Offshore's management that manning decisions could be based on three different scenarios with three distinct staffing options. These options are (1) put licensed mates on the vessel every time it would be underway, (2) don't put licensed mates on the vessel and class the vessel as non-self-propelled (having it towed from one location to another) and (3) train the on-site, rig based licensed mates as the DP operators. After weighing each option, Diamond Offshore elected to train licensed mates to become DP operators. Although the pay for DP operators was to be the same for mates and non-mates, the cost of training the mates would be substantially higher because of the Standards for Training Certification of Watchkeepers (STCW) requirements. However, the company concluded it would develop competent DP operators using this approach. This belief was based upon the conclusion that licensed mates would be better trained and would also be experienced in the marine environment, thereby taking advantage of previous training in meteorology, waves, currents, vessel stability and a practical interpretation of the rules of the road/collision regulations.

The next quandary in the development process, Who should train Diamond Offshore's DP operators? Diamond Offshore's philosophy had always been to train its own employees and maintained its own training facility where both well control and stability and ballast control are taught. As it turned out, the stability and ballast control instructor was a former DP operator and was familiar with DP equipment and systems. A Company decision was made to purchase a DP simulator and develop an in-house DP course. In selecting the initial DP operator candidates it was decided to train experienced mates already working as BCOs on two of Diamond Offshore's fourth generation drilling rigs. Following an intense training program, they successfully filled the DP positions on the *Ocean Clipper*.

Back to the original question, "Is a DP operator a watchkeeper or just another operator"? Diamond Offshore's belief is that operating a DP vessel puts the drilling contractor in the marine business and must plan and staff accordingly. The primary way to mitigate increased financial and environmental risks associated with DP vessel operations is to have well trained crews who understand the Company's DP philosophy. With correct knowledge and policy comprehension, properly trained DP operators are in the best possible position to initiate proper action(s) to prevent environmental and financial disasters.

Does this position fall under the STCW guidelines?

At this time there are no STCW guidelines for a DP operator who does not hold a Merchant Mariner's license. The question is should the DP Operator position be addressed by STCW? This is a fundamental question that reverts back to a more basic question, is a DP drilling unit that is connected to the seabed by the marine riser and or drill pipe underway or not? There are differing opinions on this subject based on individual company and regulatory philosophies. It is Diamond Offshore's belief that a DP drilling unit is "underway but not making way" when in the drilling mode and "underway making way" when changing location. The United States Coast Guard (USCG) has supported this view. In a letter from M. S. Boothe, Captain USCG and Commanding Officer CG National Maritime Center, to Alan Spackman, Director of Technical and Regulatory Affairs of the IADC, he states: "The Marine Safety Manual, Volume III, Paragraph 10.B.5, permits crediting of service on self-propelled, dynamically positioned MODUs which are not anchored or otherwise bottom bearing as equivalent to service on conventional vessels for deck officers. Such service is creditable without restriction towards all grades of license. Barring a persuasive argument to the contrary, I consider a self-propelled, dynamically positioned MODU, maintaining station by means

of dynamic positioning, to be “underway” even if connected to the seabed by drill pipe or marine drilling riser. Such service shall be credited without restriction towards license upgrade for both deck and engineering licenses.”

The USCG calling a DP vessel attached to the seabed by the drill pipe or marine drilling riser as “underway” begs the question, “Will they view the DP operator of such a vessel as a watchkeeper”? Therefore the question “Does this position fall under the STCW guidelines or not?” is not an issue at Diamond Offshore because of Company staffing requirements. Diamond Offshore’s mates and licensed deck officers who fill the DP Operator positions do fall under the STCW guidelines, resulting in a stricter definition for the position and additional mandated training. From the Company’s perspective, this position classification has led to better trained and more competent employees as a consequence of the standard.

Hiring a person who may become a DP operator

Three areas are searched when seeking trainees who may become a DP operator. First, when Diamond Offshore needs marine licensed personnel, a résumé request for first, second and third mates is posted on Diamond Offshore’s website. Each applicant identified from this source is appraised for employment based on personal résumé, interview and experience. Secondly, maritime academies (e.g. California, Maine, Massachusetts and Texas Maritime Academies) are contacted for potential candidates. Thirdly, each year Company recruiters from the Marine and Personnel Departments attend the Texas A&M Maritime Academy Job Fair in Galveston, Texas, to talk to graduating seniors. Invitations to attend Diamond Offshore’s Comprehensive Stability and Ballast Control Course go to selected seniors from the academies that are identified as potential candidates for employment, allowing Diamond Offshore a first look at each potential candidate.

Training a potential DP operator

A newly hired mate is first trained to become a Ballast Control Operator on one of Diamond Offshore’s moored MODUs. This gives the employee time to learn Diamond Offshore policies and procedures and a better understand of the unique drilling operations of a MODU and how it effects their job. Diamond Offshore is able to follow the newly hired mate’s progress while in this positions of responsibility and determine if the mate has potential to be a DP operator.

Selecting an employee for DP training

As the need arises for DP operators, a DP Operator Trainee Selection Committee comprised of people from the Marine, Personnel, Training and Operation Departments selects the final candidates from this pool of BCO mates. The committee reviews the list of potential candidates, evaluating each based on education, work experience, attitude and work ethic. The Master/OIM of the MODU with whom they work will often make recommendations concerning the candidates. Training files are also examined to verify completed training, ensuring STCW requirements have been met. The best-qualified candidates are then selected to become Diamond Offshore’s next generation of DP operator trainees.

Training the DP operator in the classroom and on the rig

As part of Diamond Offshore's training philosophy, the performance expectation is that a DP operator is trained correctly and consistently, inclusive of company policies, so that critical DP decisions will be optimized and made in a timely fashion, consistent with the Company's operating philosophy.

DP Induction and Simulator Courses, validated by the Nautical Institute, are offered at the Diamond Offshore Training Center. The courses use a Nautronix ASK 4001 DP simulator based upon Diamond's drillship the *Ocean Clipper*. The courses follow the objectives set out by the Nautical Institute for DP training. Having in-house courses allow Diamond Offshore's policies and procedures pertinent to DP vessel operation to be reviewed while providing a venue for evaluating trainees on the simulator. After the Induction Course, the DP instructor assigns each trainee to one of Diamond Offshore's four DP vessels for 28 days of on-rig-training (ORT) for mentoring by a seasoned senior DP operator. Each DP rig has a set of written objectives for training new operators specific to their DP system. Each trainee has to meet these objectives before taking over the responsibility of operating any DP system. After the first 28 days of ORT, the trainee will attend the Simulator Course at the Training Center where the instructor can monitor the trainee's progress. The trainee is then scheduled on the same rig for a second 28 days of ORT, giving the trainee up to 672 hours of rig training. The Familiarisation Log is to be completed in the trainee's Nautical Institute Logbook during the ORT sessions. Additional training is to be completed as specified by Diamond Offshore's offshore training system called TOPAZ. This system not only specifies training but is used to document when the employee has completed each safety related training requirement and has demonstrated to the senior DP operator proficiency in all required DP operator skill sets. Additionally, all formal training that applies to the DP Operator position must be completed. When a trainee completes the prescribed rig based training, the Master will review and rate the trainee's overall performance before signing the completed TOPAZ form. The TOPAZ form is sent to the DP instructor for review and approval and is forwarded to the Training, Marine and Personnel Managers for review and signature. The qualified employee is then promoted to Junior DP Operator and is assigned to the next available position under the supervision of a Senior DP Operator until reaching 2,000 logged hours as prescribed by the Nautical Institute.

Training the DP operator who does not have DP drilling experience

On occasion, Diamond Offshore hires experienced DP operators who have no experience in the drilling industry. Experience has shown that in addition to understanding marine operations, these employees must be trained to understand the drilling side of the business and the application of company policies and procedures. For these employees, one of the first steps is to attend a Comprehensive Stability and Ballast Control Course at the Training Center for training and development of an understanding as to how ballasting operations effect vessel stability and DP operations. All Company DP operators are required to have and maintain a valid USCG or Panamanian Ballast Control Operator endorsement. For some DP vessels, the DP operator not on watch takes care of ballasting the rig while the BCO completes the deck survey and other deck duties.

To reinforce understanding of the drilling operations and their relationship to DP operations, newly promoted DP operators are given study materials and provided continued coaching alongside senior DP operators. This is a similar review as was given trainees except now they are acting as DP operators under the watchful eye of a knowing Master. When the DP operator has met all requirements and has the approval of the Master, then and only then, will the newly promoted DP operator be allowed to take the DP watch.

Refresher training for a DP operator

Diamond Offshore requires refresher training. The expectation is that DP operators are to excel at what they do and the position is in a sense self-regulating because non-competent operators cannot and will not be tolerated by the Master. To minimize the potential for complacency and to enhance personal skill sets, an extra day of training is added to stability refresher courses for DP operators. This day is devoted to reviewing recent DP incidents, problems associated with scintillation, and updates concerning DGPS, hydroacoustic and DP systems. As an added bonus, with the refresher courses being taught in Houston, each class visits local area training centers and vendor service shops. Students can then ask supplier service personnel all those stored up equipment specific questions that they have always wanted to ask about their system.

Conclusions

1. Diamond Offshore believes that training licensed marine mariners to be DP operators is the most effective approach. This philosophy has paid off for the company as well as for the employee. Diamond Offshore gets a competent, well-trained employee who has a career path encouraging longevity with the company. The employee can develop a sense of value and can achieve the level of Master/OIM with sea time and experience.
2. Diamond Offshore develops DP operators up through the BCO ranks, successfully creating competent BCO backups as a by-product of the DP operator development program.
3. When Diamond Offshore hires a DP operator without drilling experience, the new-hire can be effectively brought into the system through training, coaching and mentoring.
4. Diamond Offshore's training program mandates refresher training. Experience has proven that as DP technology evolves, a format is needed to refresh knowledge of new and improved systems and mitigate the degradation of skills. Additionally, it is critical to review DP incidents to understand root causes and minimize the potential for repeat occurrences.