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TRAINING AND COMPETENCY ASSURANCE SESSION

The Evolution and Divergence of DPO Competency: Commonalities and Differences in the Competencies Required of DPOs across Industry

By Aaron Smith
Offshore Service Vessel Dynamic Positioning Authority

Summary of the Project:

- To achieve shared goal of incident-free operations, must ensure all DPOs have:
  - The ability to safely perform the jobs assigned to them today, and
  - Underlying knowledge to participate in tomorrow's industry.
- Current certification schemes do too little to ensure DPOs are competent in logistic vessel DP operations.
- Closing this gap requires a teaching and assessing of competencies addressing the safe operation of an OSV.
- The OSVDPA built such a system by reviewing existing competency tables against OSV guidance and filling the holes where necessary.

Section Guide:

- The evolution DPO training and certification guidance and standards.
- Summary of a gap analysis of existing DPO competency guidance.
- How the OSVDPA used this analysis to formulate the OSVDPA competency requirements.
- Examples of OSVDPA competency requirements.

The evolution of DPO training and certification.

The evolution of DPO training and certification.

- 1983: the NI's certification scheme approved "for any DSV or other DP operated vessel working within any 500 meter zone."
- Due in large part to its creators and their DP usage, certification scheme is based upon length of sea time.
- 11 years later NI scheme sees one of its biggest changes during first 25 years, the addition of the limited certificate.

The evolution of DPO training and certification.

- 1996: First DPO guidance from broad base of stakeholders.
- Recommended competencies for DPOs, (Sec. 4), DP experience levels (Sec. 5), and objectives of training courses (Appx. 2 and 4).
- The guidance called for formal assessments of DPOs after Induction and Simulator courses.
- When released: 250 DPOs coming from the same training centers and going into same industry.

The evolution of DPO training and certification.

DPO competencies in alarm recognition and response as detailed in IMCA M 117	DPO competencies in alarm recognition and response as detailed in DNV 3.322
[His/her knowledge and experience should include] system redundancy, alarms and warnings (4.3.2(v))	Determine and set alarm and warning limits (3.7.11)
[His/her knowledge and experience should include] Knowledge of DP alarm sequences and communications with reference to operational condition (4.3.2(vii))	Recognize alarms which may interfere with a proper operation of the DP-system and maintaining position (3.7.12)
	Discuss alarms with Engine Control Room (3.7.13)
	Evaluate the possible consequences of each alarm (3.7.14)
	Identify the procedures to follow for DP and non-DP alarms (3.7.16)
	Acknowledge alarms within time constraints (3.7.17)
	Decide to continue or to abort an operation after analyzing alarms (3.7.20)

The evolution of DPO training and certification.

- 2012: DNV creates DPO certification scheme approval system.
- First scheme approved is SMSC in Trondheim, Norway. Scheme is marked by three features:
  - Scheme can be completed in 15 days,
  - First scheme to include a true competency assessment, and
  - First scheme to recognize unique requirements of different portions of maritime industry on DPOs

The evolution of DPO training and certification.

- Resulted in the addition of:
  - Shuttle tanker specific certification scheme, and
  - Theoretical assessments conducted after the Induction and Simulator courses,
- Did Not Result in:
  - Setting of competency requirements for certification scheme, or
  - Inclusion of a defined final assessment.

By this time (2012) the Nautical Institute has accredited more than 70 training centers and is certifying more than 1,000 DPOs per year.

The evolution of DPO training and certification.

First DPO Cert. Scheme → IMCA M 117 → DNV 3.322 → SMSC Scheme → NI's New Scheme → **New DNV 3.322** → Other Guidance

Notation Code	Competent in the use of the following DP-systems	Examples of Operations	Applicable Competence Tables
AJ/S	Autopos, Joystick	Station keeping: Supply, Standby, Anchor handling, Cruise, Well service, Accommodation, Lifting operations, Construction, Diving	Table 3-1 – General, Table 3-2 – Autopos/ Joystick
AJ/DPA-WV	Autopos, Joystick, DP-Approach mode, Weather vane	Offshore Loading: Shuttle tankers (SPM, OLS, Tandem, FSL, SAL, DSL)	Table 3-1 – General, Table 3-2 – Autopos/ Joystick, Table 3-3 – DP Approach Mode Table 3-4 –Weather Vane
AJ/FT-AT	Autopos, Joystick, Follow Target, Auto Track	ROV operations, Cable laying, Pipe laying, Trenching, Dredging, Rock dumping	Table 3-1 – General, Table 3-2 – Autopos/ Joystick, Table 3-5 – Follow Target Mode Table 3-6 – Auto Track Mode
AJ/DPA-STL	Autopos, Joystick, DP-Approach mode STL-Connect, STL-Loading	Submerged Turret Loading Operations	Table 3-1 – General, Table 3-2 – Autopos/ Joystick, Table 3-3 – DP Approach Mode Table 3-7 – STL
AJ/POS	Autopos, Joystick, anchorhandling, Posmoor, Drilling, Riser management	Drilling Rig, Production Rig: Use of DP while anchored and during drilling / production operations	Table 3-1 – General, Table 3-2 – Autopos/ Joystick, Table 3-8 – Position Mooring / ATA

The evolution of DPO training and certification.

ISO/IEC 17024: *Conformity assessment – General requirements for bodies operating certification of persons:*

- "One of the characteristic functions of the certification body for persons is to conduct an examination, which uses objective criteria to measure competence."
- "The design of the examination requirements shall ensure the comparability of results of each single examination, both in content and difficulty, including the validity of fail/pass decisions."

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Gap analysis of existing DPO competency guidance.

STCW B-V/f:

- Lists only eight items DPO training should cover,
- Importance of vessel-specific training.

IMCA M 117:

- Required competency section (Section 6) is too broad to be standalone scheme basis,
- Importance of vessel-specific training,
- Manual maneuvering capabilities, and
- Course Objectives found in Appendix 2 and Appendix 4.

Gap analysis of existing DPO competency guidance.

IMCA M 182:

- Does not include an explicit competency table;
- Stress importance of the following concepts:
  - Risk assessing operations,
  - Manual ship handling, and
  - Operation and contingency planning.

The Nautical Institute's DPO Certification Scheme:

- No competency standard, phase requirements contain gaps,
- Does not provide proper emphasis to manual control or MTS concepts, and
- Provides good description of required reference system knowledge.

Gap analysis of existing DPO competency guidance.

MTS DP Operations Guidance:

- Does not include an explicit competency table,
- Properly recognizes importance of vessel's FMEA,
- ASOG risk assessment tool and vessel configurations, and
- Guidance for operations manual can be used as competency checklist.

MTS Mapping Delivery Ability Tool:

- Casual factors of DP incidents are a guide to what DPO training must cover,
- Seven attributes of a quality DP system, and
- Cognitive level for crew members for 11 elements of DP operations.

Gap analysis of existing DPO competency guidance.

DNV 3.322:

- Competencies are broken down too far to be of practical use,
- Division among competency tables not line up with OSV operation,
- Does not include MTS concepts (e.g. ASOGs, CAMO, etc.),
- Details importance of manual control,
- Level of cognition is useful guide building DPO competency, and
- Single line item for every competency required of DPO.

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How the OSVDPA used this analysis to formulate the OSVDPA Competency Requirements.

1. Draft competencies addressing all elements of foundational documents (STCW B-V/f and IMCA M 117).
2. Draft competencies addressing all relevant competencies in DNV 3.322 (Table 3-1 and 3-2 and parts of 3-3, 3-5, and 3-6), along with Nautical Institute's Course Objectives and Task Book.
3. Draft competencies to filling the areas of emphasis in the other documents reviewed and not covered by competencies created in step 1 or 2.

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Examples of OSVDPA competency requirements.

Example 1: The commonality and extrapolation of operation planning and risk assessing competencies.

MTS Operations Guidance highlights importance:

- Vessel configuration (CAMO/TAM),
- Preparation of ASOG and discussion,
- Capability (intact/after WCF),
- SIMOPS

DNV 3.322 also does Ops. Planning well, Section 1.13 has 12 planning competencies.

OSVDPA Competencies:

Describe the importance of properly planning a DP operation and the elements that should be considered when planning an operation (19.1).

Demonstrate selection of the proper reference systems for an operation, the ability to evaluate the consequences of losing a particular reference system, and external influences that may interfere with references systems (19.7).

Utilizing the vessel's ASOG, and/or operating mode (i.e. CAMO or TAM), and class requirements, demonstrate proper set up of the generator and bus ties for a particular operation (19.10).

Examples of OSVDPA competency requirements.

Example 2: Divergence from existing schemes via the integration of ASOGs into competency requirement.

Existing Schemes do not cover ASOG.

Despite the fact the MDAT states:

"Development and use of the WSOG/ASOG has succeeded in reducing loss of position incidents,"

"Loss of position incidents where effective ASOGs were in place revealed that failure to follow the ASOG was the key and at times the sole contributing factor."

OSVDPA Competencies:

Describe the use of an ASOG, CAMO, or TAM in an emergency situation and how these documents guide the operator (15.3).

Describe how the vessel's FMEA correlates to the vessel's redundancy concept, ASOG, CAMO, and other operational procedures (16.2).

Demonstrate use of the vessel's ASOG and capability plot to determine if DP operations are possible(19.5).

Describe how to use an ASOG to determine if continued operations are possible (21.7).

Examples of OSVDPA competency requirements.

Example 3: The commonality and extrapolation of manual control competencies.

Discussed as part of IMCA M 117.

Focal Point of IMCA M 182:

Unlike most other DP vessel operations. OSVs can, under normal operating circumstances: terminate supply operations and move away from the offshore installation at a moment's notice and /or can be safely maneuvered in joystick/manual control while supply operations are being carried out.

OSVDPA Competencies:

Describe if manual control should or should not be selected after a blackout based on the specifics of your vessel(11.4).

Demonstrate holding position and maneuvering in manual mode under various weather conditions (11.6).

Demonstrate competency in ship handling abilities, including stopping, station-keeping, and maneuvering the vessel in close quarter situations under various environmental conditions (11.8).

Demonstrate the ability to change from DP to manual control (11.9).

Examples of OSVDPA competency requirements.

Example 4: The commonality and differences of approach and set up competencies.

IMCA M 182 highlights importance of proper approach/set up procedures.

DNV 3.322 contains good competencies for approach (but listed in shuttle tanker tables):

- "Enter the required speed and size of steps into DP Approach dialog," (3.2.4);
- "Anticipate the behavior of the vessel as a result of changes in environmental conditions during the approach to the loading point," (3.3.2).

OSVDPA Competencies:

Demonstrate how to set up and conduct a drift test (20.8).

Utilizing company/client procedures and/or the vessel's ASOG, demonstrate proper selection of speed and steps to approach an installation (20.10).

Demonstrate proper anticipation and reaction to changes in operational or environmental conditions during the approach (20.11).