Competence Requirements for Offshore Loading Shuttle Tanker Personnel

Work requirements, WR2394, Final Ver. 4.02, published 2024-11-22

Owner: MMP DISC SHP STE Leader

Validity area: Brazil mid-and downstream; MMP Norway - non-specified asset; US mid- and downstream

1 Introduction

Offshore Loading Shuttle Tankers (OLST) are widely used for offshore cargo transfer at various oil fields and from different loading systems. These operations involve specially designed systems, such as:

- Bow Loading System (BLS)
- Dynamic Positioning system (DP)
- Position Reference Systems (PRS)
- Telemetry systems and communication equipment.

Equinor requires specialized training for these operations.

1.1 Objective

The objective of this document is to outline Equinor's training and competence requirements for offshore loading shuttle tanker personnel, and to set a minimum standard for the involved courses and training institutions.

1.2 Target group and applicability

The target group is:

- Equinor personnel involved in the OLST shipping activities described in WR2759 - Equinor Shipping Requirements, section 2.3
- The technical manager of OLSTs either operating for Equinor or operating at Equinor operated fields
- Officers and crew serving on board OLSTs either operating for Equinor or operating at Equinor operated fields
- Training institutions for OLST personnel

No OLST may be used for operations at Offshore Loading Terminals (OLT) unless the officers and crew comply with the content of this document, or a specific dispensation has been approved by Equinor.

These requirements are supplementary to any additional requirements from flag state and/or national, regional, international authorities and organizations.

1.3 Provision

This document is provided for in FR06.

2 General language requirement

OLST master and duty deck officers shall be able to communicate in the English language with the offshore installation and involved vessels.

2.1 Language requirement for the Norwegian Continental Shelf (NCS)

Master and duty deck officers, performing cargo and/or DP watch, within the jurisdiction of any Equinor offshore installation at the NCS, shall be able to communicate with personnel who strictly speaks the Norwegian language.

3 Officer experience

The following minimum experience is required for senior officers serving on board the vessel:

- Master and chief officer shall have a minimum of 3 years combined onboard service time in rank.

- Chief engineer and 2nd engineer shall have a minimum of 3 years combined onboard service time in rank.

Additional requirements for time-chartered vessels:

- Master and chief officer shall have a minimum of 2 years combined onboard service time in rank with the vessel's technical manager.
- The remaining deck officers shall have a minimum of 1 year combined onboard service time in rank with the vessel's technical manager.
- Chief engineer and 2nd engineer shall have a minimum of 2 years combined onboard service time in rank with the vessel's technical manager.
- The remaining engine officers shall have a minimum of 1 year combined onboard service time in rank with the vessel's technical manager.

4 Training institutions

For STCW certificates each education and training institution shall have its academic and training programme approved by the flag state administration.

OLST and field specific DP simulator training courses listed in section 5.6 shall be completed at Equinor recognized DP simulator training institutions, see Appendix A.1.

5 Manning, course and training requirements

5.1 Manning level

Manning level on board the OLST shall be sufficient to perform all specified services and operations, including SIMOPS. Such services or operations may be defined by the vessel’s contract or by project specifications, etc.

5.2 Engine room manning

The engine room shall be manned as per flag state requirement.
However, from arrival 10NMZ, during offshore operation and until departure 10NMZ, the minimum manning in the engine room shall be one (1) engine officer and one (1) rating.
In cases where the OLST must wait in the vicinity of the oil field, flag state manning of the engine room can be adhered to until the approach towards the OLT is being resumed.

5.3 General requirements for bridge manning during DP operation

A minimum of three (3) senior DPOs shall hold DP certificates for the applicable vessel type, issued by:

a) Nautical Institute (NI) – Shuttle Tanker Restricted Dynamic Positioning certificate; or
b) DNV – Shuttle Tanker DP certificate.

The senior DPO positions shall be filled by the master, and a chief officer and a chief officer junior/2nd officer with minimum Deck Officer Class 2 certificates.

During DP operations the bridge shall be manned by at least one senior DPO and one junior DPO.
The master shall be present on the bridge during DP approach, connection, disconnection, and departure from the 500m safety zone. The master shall not be part of the ordinary DP watch scheme but shall be available whenever required.

The senior DPO shall be responsible for the DP watch. The junior DPO shall perform the cargo watch duties. However, the junior DPO may be trained in DP watch duties by the senior DPO on duty.

All DPOs shall be familiarized and evaluated by the master prior to performing independent DP-watch duties on board the specific vessel. If the junior DPO holds a DP certificate and complies with the SDPO requirements in sections 5.3, 5.6.1 and 5.6.2, the senior DPO and the junior DPO may alternate between cargo watch and independent DP watch.

5.4 DPO refresher training requirements

The DPO shall complete a shore-based Offshore Loading phase 3 simulator course at least every three (3) years. See section 5.6.1.

DPOs operating on the NCS, in UK waters and Canadian waters shall focus on training for operations at facilities relevant for these regions (tandem, UKOLS and direct loading facilities).

DPOs operating in Brazilian waters shall focus on training for operations at facilities relevant for this region (tandem and spread moored facilities - including taut hawser operation).

DPOs operating in other regions shall focus on training for operations at relevant facility types.

Requirements for DP simulator training institutions can be found in App A.

5.5 Onboard DP simulator training

The OLSTs shall have an onboard DP simulator training program (Kongsberg DP CAP or similar Equinor recognized program – see Appendix A.1).

The training shall reflect the OLST trading pattern and field realistic conditions.

For senior DPOs and junior DPOs such simulation training shall be carried out in DP Practice mode, with the OLST operating in DP Class 2. DP CAP Field Qualification Training may, however, have individual criteria for simulation mode.

The training should preferably be carried out in “On field” Practice mode, where the exercise starts at a real distance of 1900m from the selected installation. “Anywhere” Practice mode may be used if circumstances do not permit an “On field” exercise. In “Anywhere” Practice mode the exercise may be carried out at any location, simulating the relative distance to the selected installation.

Certified DPOs that have completed all relevant onboard simulator exercises may, instead of repeating onboard DP simulator training, log actual DP operation from Bow-Base 900m (approach until loading position), if supervised by the qualified master. The qualified master shall document and validate such operation as an exercise.

Masters may complete simulation training in DP Simulation mode.

See section 5.6.2 for details.

5.6 Training matrix

5.6.1 Course matrix

		Master / Assisting master	Senior DPO1	Senior DPO2	Junior DPO1	Junior DPO2	Chief engineer	2nd engineer	Electrician
DPO Preparation/DP Induction[1]		Yes	Yes	Yes	Yes	Yes			
DPO Start/DP Simulator		Yes	Yes	Yes	Yes	No			
Offshore Loading phase 1 (Basic)[2]		Yes	Yes	Yes	Yes	No			
Offshore Loading phase 2 (Advanced)[3]		Yes	Yes	Yes	Yes	No			
Offshore Loading phase 3 (Refresher)[4]		< 3Y	< 3Y	< 3Y	< 3Y	No			
DP certificate[5]		Yes	Yes	Yes	No	No			
Onboard DP simulator training program[6]		Yes	Yes	Yes	Yes	Yes			
Offshore Loading phase 4 - Aasta Hansteen[7]		Yes	Yes	Yes	No	No			
Offshore Loading phase 4 - Spread moored[8]		Yes	Yes	Yes	No	No			
Operator course, vessel specific[9]	Artemis/XPR	Yes	Yes	Yes	No	No			
	DGPS & DARPS	Yes	Yes	Yes	No	No			
	RADius	Yes	Yes	Yes	No	No			
	Fanbeam/ CyScan/ SpotTrack	Yes	Yes	Yes	No	No			
	HPR/HiPAP/ HAIN	Yes	Yes	Yes	No	No			
	PMS data recorder	Yes	Yes	Yes	No	No			
Maintenance course, vessel specific[10]	Artemis/XPR						One (1) technical officer trained for each installed system.		
	DGPS & DARPS								
	HPR/HiPAP/ HAIN								
	PMS data recorder								
	DP Maintenance								
	Telemetry								
Equinor UKOLS E-learning course[11]		< 2Y	< 2Y	< 2Y	< 2Y	< 2Y			
BLS course, generation specific[12]		Yes	Yes	Yes	No	No	Yes	Yes	No
OLST Ship-to-Ship simulator training course[13]		Yes	Yes	No	No	No			
Tank inspection course[14]		Compulsory for deck/engine officers who perform tank and structural inspections.							
VOC recovery unit (VRU) operation course[15]							Compulsory for officers in charge of the VRU.		
High voltage course[16]							Yes	Yes	Yes

	All relevant crew members
Ship-to-Ship E-learning course[17]	Compulsory for all crew participating in STS operations.
Onboard BLS training	Compulsory training for any crewmember with responsibility for operation of the BLS equipment, excluding connection and disconnection which shall be carried out by a qualified deck officer. The crewmember(s) shall be trained and evaluated by the chief officer prior to operating the BLS equipment.
Crane operator E-learning course[18]	Compulsory for all crane operators.
Banksman and slinging E-learning course[18]	Compulsory for all officers and crew involved in crane operations.
Course covering transfer of personnel by crane between vessels[19]	Compulsory for personnel subject to transfer, assisting crew, signallers, crane operators and responsible persons (if the OLST are involved in such operations).

1. Junior DPO 2 is given six (6) months grace after first OLST assignment.
2. See A.1, A.5.1.3 and A.5.1.4.
3. See A.1, A.5.1.5 and A.5.1.6.
4. Trade specific. See A.1, A.5.1.7 (Canada/NCS/UK) and A.5.1.8 (Brazil). Offshore Loading Phase 3 – Brazil (Refresher) course has recently been introduced and shall be completed at next scheduled refresher course (<3Y).
5. See section 5.3.
6. See sections 5.5 and 5.6.2.
7. Aasta Hansteen specific course for SDPOs. See A.1 and A.5.1.9.
8. Spread moored specific course for SDPOs. See A.1 and A.5.1.10.
9. Vessel specific systems. Shall be maker recommended courses. DP CAP PRS exercises are accepted (see section 5.6.2).
   Note: Since Fanbeam and CyScan do not have maker recommended courses, the vessel's technical operator shall provide onboard operator training for Fanbeam or CyScan (if installed), that describes the PRS principles and includes all features found in the user manual of the PRS.
10. Vessel specific systems. Shall be maker recommended courses. DP CAP PRS exercises are accepted (see section 5.6.2). Should equipment not require a maintenance course, this shall be documented by the vessel's technical operator. Technical officer is given six (6) months grace after first OLST assignment.
    Note: Since Artemis Maintenance course has been discontinued, the vessel's technical operator shall provide relevant onboard maintenance training for the Artemis (if installed).
11. Equinor will announce when the course is available.
12. BLS maker course, generation specific for the OLSTs BLS. Compulsory for deck officers who connects and disconnects. See also section 5.8.
13. Globally applicable for OLSTs on TC contract, either performing STS underway, drifting or at anchor. Not applicable for OLSTs conducting double banking operations at a berth. Grace period of 1 year from WR2394 version 4.02 publish date. See A.1 and A.5.1.11.
14. Class society provided, instructor-based course. Minimum one (1) officer.
15. Applicable for OLSTs equipped with VOC recovery units based on condensation technology. Shall be maker provided course and in accordance with VOCIC requirements.
16. Six (6) months grace after first OLST assignment. STCW definition of high voltage: An alternating current (AC) or direct current (DC) voltage in excess of 1 000 Volt.
17. An E-learning course to be part of the OLST's technical operator competence training scheme. Globally applicable for OLSTs on TC contract, either performing STS underway, drifting or at anchor. Not applicable for OLSTs conducting double banking at a berth.
18. An E-learning course to be part of vessel's technical operator competence training scheme. Relevant OPITO or NORSOK standard courses are also acceptable.

19. The course shall be in accordance with OCIMF “Transfer of Personnel by Crane between Vessels”.

5.6.2 Onboard DP simulator training matrix

The onboard DP simulator training program is intended to reflect the DPOs professional development and shall give the DPO both basic training and facility type specific training.

The training shall reflect the current trading pattern for the OLST and realistic field conditions.

Onboard DP simulator training programs shall be recognized by Equinor, see Appendix A.1.

	Master / Assisting master	Senior DPO1	Senior DPO2	Junior DPO1	Junior DPO2
DP CAP Preparation[1]	Yes	Yes	Yes	Yes	Yes
DP CAP Start[1]	Yes	Yes	Yes	Yes	Yes
DP CAP Field basic exercise – Tandem[2&3]	< 1Y	< 1Y	< 1Y	< 1Y	No
DP CAP Field basic exercise – Spread Moored[2&3]	< 1Y	< 1Y	< 1Y	< 1Y	No
DP CAP Field basic exercise – OLS[2&3]	< 1Y	< 1Y	< 1Y	< 1Y	No
DP CAP Field basic exercise – Direct Loading[2&3]	< 1Y	< 1Y	< 1Y	< 1Y	No
DP CAP Field Qualification Training (FQT) – Aasta Hansteen[4]	Yes	No	No	No	No

1. Includes both theoretical and practical module. Junior DPO 2 is given six (6) months grace after first OLST assignment.
2. Includes both theoretical and practical module. Shall be completed at least once.
   If the DPO in the DP Log Book has documented an approach and a connection to the type of facility in question once (1) within the last 12 months, supervised by a qualified master, DP CAP Field basic exercise retraining is not required.
   Qualified masters are not required to be supervised but shall have documented in the DP Log Book an approach and a connection to the type of facility in question once (1) within the last 12 months, otherwise DP CAP Field basic exercise retraining is required.
   The definition of an approach and a connection is OLST DP operation from 900m to loading hose connected and vessel is in loading position.
   DPOs (including masters) operating on the NCS, in UK waters and Canadian waters shall complete exercises relevant for the region, i.e., Tandem, UKOLS & Direct Loading Field basic exercises.
   DPOs (including masters) operating in Brazilian waters shall complete exercises relevant for the region, i.e., Tandem & Spread Moored Field basic exercises.
3. If a DP CAP Refresher module is available and has been recognized by Equinor (see Appendix A.1), such module may replace DP CAP Field basic exercise retraining. Retraining interval for such DP CAP Refresher is once (1) every 12 months. DP CAP training mode (Practice mode or Simulation mode) shall be defined for such a module.
4. DP CAP FQT can be used by masters to regain qualification at a specific field. See section 5.6.2.1 for details.

5.6.2.1 DP CAP Field Qualification Training (FQT)

Masters can regain qualification at a specific field by using the DP CAP FQT, see flowchart in section 5.7.1, and the DP CAP FQT is also suitable for familiarization of SDPOs. DP CAP FQT shall be completed in DP Anywhere Trainer mode.

DP CAP FQTs have defined criteria when used for field qualification of masters:

Score ≥ 90% at first or second attempt	DP CAP FQT passed, request clearance from Equinor Vetting to proceed with operation.
Score < 90% at first attempt	Fail - DP CAP FQT can be completed one (1) more time.
Score < 90% at second attempt	Fail - Operation to be supervised by a qualified master.

The DP CAP FQT result shall be sent via the digital platform for 12 months data retention.

5.6.2.2 DP CAP PRS Training

Vessel specific PRS operator courses and maintenance courses may be completed by use of the DP CAP PRS exercises.

DP CAP PRS exercises	DP CAP SpotTrack Operator Training
	DP CAP RADius Operator Training
	DP CAP XPR Operator Training
	DP CAP XPR Technical Training
	DP CAP Artemis MkV Operator Training

5.7 Senior DPO experience

	Master / Assisting master	Chief officer/ Senior DPO1	Senior DPO2
General professional experience			
Master and chief officer (SDPO1) shall have a minimum of 3 years combined onboard service time in rank.	Yes[1]	Yes[1]	No[1]
Accumulated installation type specific experience (Number of operations)			
UKOLS	2[2]	*	*
SPAR/SEVAN/Cylindrical F(P)SO	2[2]	*	*
Tandem F(P)SO, active heading control	2[2, 3]	*	*
Tandem F(P)SO, passive weather vaning	2[2, 3]	*	*
Spread moored F(P)SO	2[2]	*	*

1. See section 3 for additional requirements related to time-chartered vessels.
2. Installation specific qualification is valid for a limited time, see flowchart in section 5.7.1. For special projects/operations an evaluation of competence requirements shall be made.
3. If a minimum of 2 operations at heading controlled tandem F(P)SO has been completed, 1 operation at passive weather vaning tandem F(P)SO will be sufficient to meet these requirements and vice versa.

* OLSTs loading at installations not operated by Equinor shall comply with any additional field operator requirements if being more stringent than Equinor requirements.

5.7.1 Master's installation specific qualification criteria

Before being promoted to master, the senior deck officer shall conduct at least six (6) independent operations[1] from any offshore installation type under supervision of a qualified master. These operations shall be planned and conducted close to but prior to the actual promotion. To gain qualification for an installation type, a newly promoted master shall, under supervision of a qualified master, conduct at least two (2) operations[1] from that installation type.

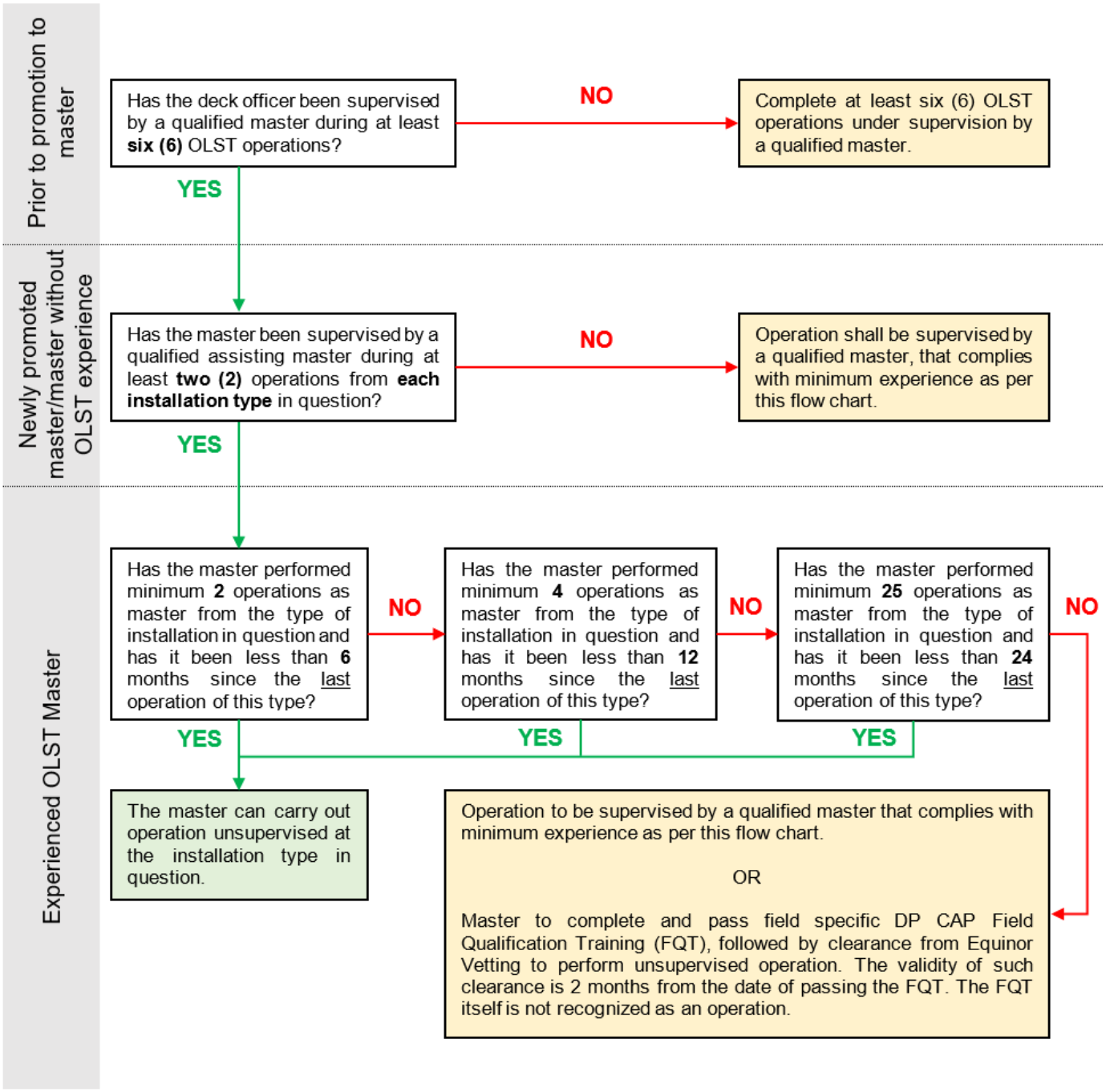
A master without previous OLST experience shall have completed OLST and DP training as specified in this document. He/she shall also conduct at least six (6) independent operations[1] from any offshore installation type under supervision of a qualified master before taking command. After taking command the master shall, under supervision of a qualified master, conduct at least two (2) operations[1] from an installation type to become qualified for that installation type.

Experienced OLST masters calling an installation type for the first time shall, under supervision of a qualified master, conduct at least two (2) operations[2] from an installation type to become qualified for that installation type.

Supervised operations shall be documented and validated by the qualified master.

1. Definition of one operation for qualification requirement: A complete round trip, starting from when the OLST enters the 10 NMZ, approaches the installation, connects, disconnects, departs and exits the 10 NMZ outbound. A partial loading/discharge involving connection and disconnection will be accepted as a second, qualifying operation.
2. Definition of one operation for qualification requirement: Starting from when the OLST approaches the installation from Bow-Base 900m, connects, disconnects, departs and exits the 10 NMZ outbound. A partial loading/discharge involving connection and disconnection will be accepted as a second, qualifying operation.

Installation specific qualification is valid for a limited time, see below flow chart of qualification criteria.



5.7.2 Taut hawser operation - Brazil

Should there be insufficient independent PRSes available for DP equipment class 2 operation at the installation, and the field manual permits taut hawser operation, executing the offloading by taut hawser operation might be considered.

A prerequisite for considering offloading by taut hawser operation is that the OLST master and the SDPOs are familiar with the relevant taut hawser procedure, and that they are aware of the risks involved when changing over from DP mode to taut hawser operation in joystick mode.

The Offshore Loading phase 3 DP simulator course for Brazil includes training in taut hawser operation, and changeover between DP mode and taut hawser operation in joystick mode due to PRS degraded condition. Notwithstanding the scheduled Offshore Loading phase 3 course interval it is recommended to

complete this course as part of familiarization for the OLST master and the SDPOs before their first taut hawser operation.

5.8 BLS experience

Before being in charge of any BLS operation at an installation type the deck officer shall attend a generation specific BLS course (see 5.6.1), have completed on board familiarization on the BLS equipment and have planned and executed minimum 3 supervised BLS operations that shall include minimum 1 connection and 1 disconnection at the installation type. Any senior deck officer already fulfilling these requirements may supervise such training.

Accumulated installation type experience	
Installation type	Number of supervised connections and disconnections performed
UKOLS	3
SPAR/SEVAN/Cylindrical F(P)SO	3
Tandem/Spread moored F(P)SO	3

6 Additional information

6.1 Deviations and dispensations

Contact Equinor Vetting duty telephone in case of a deviation from WR2394:
Equinor Vetting Phone: +47 901 99 251 (duty) Email: vetting@equinor.com

Equinor Vetting shall ensure that the deviation from WR2394 is communicated to relevant parties within Equinor for further processing.

6.2 Changes to WR2394

Changes to WR2394 shall be carried out according to Equinors retningslinjer and I-109554 (Impact categories for the management system). Plausible contributors:

- Document owner
- Document author
- Risk owners
- Relevant departments/disciplines within MMP DISC SHP
- Equinor Field Operations (Licence partner contact)
- OLST technical operators and other relevant external parties

6.3 Distribution of WR2394

WR2394 shall be published in pdf-format in Equinor's governing documentation system "Docmap", for internal distribution.

External distribution via email to the following receivers:

- OLST technical operators
- OLSTs on time charter for Equinor
- Relevant training institutions
- License partners lifting own volumes at Equinor OLTs
- Offshore Norge for online distribution

6.4 Definitions and abbreviations

Artemis	Microwave position reference system of the range and bearing type
BLS	Bow Loading System
CyScan	Laser based position reference system
DARPS	Differential Absolute Relative Positioning System
DGPS	Differential Global Positioning System
DP	Dynamic Positioning
DP CAP	Dynamic Positioning, Competence Assurance Practice
DPO	Dynamic Position Operator
Fanbeam	Laser based position reference system
FPSO	Floating Production Storage and Offloading
FSU	Floating Storage Unit
FQT	Field Qualification Training
HAIN	Hydroacoustic Aided Inertial Navigation
HiPAP	High Precision Acoustic Positioning
HPR	Hydroacoustic Positioning Reference
HV	High Voltage
IMO	International Maritime Organization
NMZ	Nautical Mile Zone
UKOLS	Ugland-Kongsberg Offshore Loading System (OLS)
OLST	Offshore Loading Shuttle Tanker
OLT	Offshore Loading Terminal
PMS	Position Monitoring System
PRS	Position Reference System
RADius	Relative position reference system
SIMOPS	Simultaneous Operations
STCW	The IMO's International Convention on Standards of Training, Certification and Watchkeeping for Seafarers
Taut hawser operation	Position kept by hawser tension and by use of thrust astern provided by the main propeller(s) by using the DP joystick or alternatively by manual levers.
UKOLS	Ugland-Kongsberg Offshore Loading System (OLS)
VOC	Volatile Organic Compound
VOCIC	Volatile Organic Compound Industry Cooperation
XPR	Long range relative position reference system of the range and bearing type

6.5 Changes from previous version

Section	Description of change, reasoning
General	Removed old references to ARIS that are no longer relevant.
General	Updated terminology and the consistent use of them.
General	Updated DNV course title from “DP Basic” to “DPO Preparation”.
General	Updated DNV course title from “DP Advanced” to “DPO Start”.
Validity	Updated to reflect current and upcoming operational areas.
1	Former section 1.1. Renamed section, optimized and updated text.
1.1	Former section 1.2. Renamed section, optimized and updated text.
1.2	Renamed section. Added “Equinor personnel (…)”, “The technical manager of OLSTs (…)” and Training institutions” to the target group. Removed “offshore installation manager” from the target group. Added applicability for the document, optimized and updated text.
1.3	Corrected document provision to “WR 2759 – Equinor Shipping Requirements”.
2	Rephrased section. Added “involved vessels” to the requirement.
2.1	Rephrased section. Master and duty deck officers, performing cargo and/or DP watch, within the jurisdiction of any Equinor offshore installation at the NCS, shall be able to communicate with personnel who strictly speaks the Norwegian language.
3	Renamed section. Updated text to reflect WR2759 requirements for officers. Removed text concerning general crew competence (covered by WR2759).
4	Replaced “recognized simulator training center with proven track record” with “Equinor recognized DP simulator training institutions, see Appendix A.1.”
5.1	Former section 5.1 “DP operator renewal requirement” replaced by “Manning level”. Added a general manning requirement.
5.2	Former section 5.3. Added clarification: “In cases where the OLST must wait in the vicinity of the oil field, flag state manning of the engine room can be adhered to until the approach towards the OLT is being resumed.”
5.3	Former section 5.4. Text updated for clarification purposes. Updated “NI – Unlimited certificate” to “NI - Shuttle Tanker Restricted Dynamic Positioning certificate”. Added new text: “All DPOs shall be familiarized and evaluated by the master prior to performing independent DP-watch duties on board the specific vessel. If the junior DPO holds a DP certificate and complies with the SDPO requirements in sections 5.3, 5.6.1 and 5.6.2, the senior DPO and the junior DPO may alternate between cargo watch and independent DP watch.”
5.4	Former section 5.2. Text updated for clarification purposes and to reflect different geographical trading areas. Reference to requirements for DP simulator training institutions added.
5.5	Added requirement for Equinor recognition of the training programs. Added guidelines for how the training shall be carried out.
5.6	Rephrased section title.
5.6.1	Former section 5.6. Table has been updated and rephrased for clarification and to reflect current operations. Removed “Bridge Resource Management” (covered by regulations). Added onboard operator training for Fanbeam and CyScan in footnote 9. Replaced “Artemis Maintenance” course (no longer available – MkV no longer supported) with onboard maintenance training for Artemis in footnote 10. Removed requirement for RADius, Fanbeam, CyScan and SpotTrack maintenance courses (such courses have never existed and are not relevant). Added requirement for crewmembers operating BLS.
5.6.2	New section “Onboard DP simulator training matrix” added to give clear guidelines for onboard DP simulator training, e.g., DP CAP and DP CAP FQT.
5.7	Former section 5.9. Rephrased text and table to clarify the requirement. Removed FSL and SAL, not relevant for Equinor.

5.7.1	Former sections 5.7 and 5.8. Renamed section, optimized and updated text for clarification. Flow chart updated to reflect 5.7 and DP CAP FQT implementation.
5.7.2	New section “Taut hawser operation - Brazil” added to reflect operations in Brazil.
5.8	Former section 5.10. Rephrased text and table to clarify the requirement. Removed FSL and SAL, not relevant for Equinor.
6	Former section 6 “Hours of rest for watch personnel” deleted: Manning is covered by section 5 and rest hour compliance is covered by regulations. Section replaced by “Additional information”.
6.1	New section “Deviations and dispensations”. Aligned with Equinor field manuals.
6.2	New section “Changes to WR2394”. Aligned with Equinor field manuals.
6.3	New section “Distribution of WR2394”. Aligned with Equinor field manuals.
6.4	Former section 7.1. Updated to reflect document content.
6.5	Former section 7.2. Updated to reflect document content.
6.6	Former section 7.3. Added “Equinor Recognized DP Training for OLST Personnel (WR2394)” and “WR2759 - Equinor Shipping Requirements” to the references.
App A	New section “DP simulator training institutions”. Reestablished minimum requirements for DP simulator training institutions, training facilities, course developers, course instructors, courses and Equinor course recognition.

6.6 References

Equinor Recognized DP Training for OLST Personnel (WR2394)
WR2759 - Equinor Shipping Requirements
WR2585 Lasting av skytteltankere til havs – Direkte lasting (DL)
WR2588 Lasting av skytteltankere til havs - Tandem
WR2589 Lasting av råolje til havs – UKOLS
WR9075 Tandem cargo transfer at sea UK

App A DP simulator training institutions

A.1 Equinor recognition process

The training institution shall contact the author of WR2394 to initiate a recognition process for the training institution, an onboard DP simulator training program or a specific course.

Upon request Equinor <gm_shuttle_support@equinor.com> may distribute an updated list of recognized training institutions, onboard DP simulator training programs and courses.

A.2 Minimum requirements for DP simulator training institutions

Training institutions shall meet the below requirements:

- Be approved according to DNV-ST-0029 “Maritime Training Providers” or to an equal standard from a Classification Society which is a member of IACS.
- The DP system used for simulation shall be of “Class A (NAV) (DP)” type as per DNV-ST-0033 “Maritime simulator systems” or equal class according to IACS member Classification Society.
- Each simulator facility shall be designed and equipped as a typical modern OLST and shall include at least: DP control stations, power management system, propulsion/rudder controls, PRSs, VHF/UHF, BLS Green Line, telemetry, environmental & motion reference systems and systems related to external forces, including tension in hawser and weight loads on the BLS.
- Courses shall be carried out by using simulator ship models representative for the OLST and the DP system the DPOs serves on.
- DP buoy selection and DP software shall be relevant and updated for each installation type.
- Training institutions shall actively be in dialogue with the industry to gain knowledge of lessons learnt as well as new developments.

A.3 Minimum requirements for course developers

The course developer shall have completed a recognized learning programme in course development and instruction techniques in accordance with the below requirements:

- DNV-ST-0024 “Competence of teaching professionals” or to an equal standard from a Classificiation Society which is a member of IACS.
- IMO 6.09 “Training course for instructors” and IMO 6.10 “Train the Simulator Trainer and Assessor”.

A.4 Minimum requirements for instructors

- Shall have held Deck Officer STCW D1 certificate, should have a minimum 2 years documented OLST experience after gaining DP certificate.
- DP certificate (NI or DNV).
- Shall be competent in accordance with STCW Regulation I/6 and A-I/6.
- Shall have completed a recognized learning programme in instruction techniques and assessment in accordance with the below requirements:
    - DNV-ST-0024 “Competence of teaching professionals” or to an equal standard from a Classification Society which is a member of IACS.
    - IMO 6.09 “Training course for instructors” and IMO 6.10 “Train the Simulator Trainer and Assessor”.
- Shall have completed DP software makers instructor course for the specific software utilized for the facility type, i.e., Spread moored/Direct loading, OLS, Tandem (turret moored), as well as relevant retraining after significant changes to the software.
- Shall participate in systematic training and retraining of instructors at the training institution.
- Shall present good understanding of DP class 2 requirements and the correct use of procedures during DP operations.

- Shall be able to communicate with course participant using a maritime vocabulary.

A.5 Minimum requirements for courses

A.5.1 General

- Course shall be developed according to DNV-ST-0008 “Learning programs” or equal.
- Each simulator exercise shall contain briefing, execution and debriefing.
- Course instructor(s) shall be physically present at the course location.
- Maximum 3 course participants per instructor and simulator.
- Course participants shall rotate between the following roles; officer in command, DPO, helmsman. Each course participant shall have sufficient time as officer in command in the simulator.

A.5.1.1 DPO Preparation/DP Induction

DPO Preparation/DP Induction courses shall be as per DNV/NI criteria, respectively.

A.5.1.2 DPO Start/DP Simulator

DPO Start/DP Simulator courses shall be as per DNV/NI criteria, respectively.

A.5.1.3 Offshore Loading phase 1 (5 days)

Prerequisites	Valid D4 certificate of competence
Duration	5 days (equal to 35hrs classroom time)
Course aim	Improve knowledge, understanding and skills in the following competence areas: • Ship handling in general • OLST DP operations at OLTs
Objectives	• Plan and act in accordance with forces involved during ship handling in general and during OLST operations at OLTs • Plan and execute manual manoeuvring in port, narrow waters and at OLTs • Effective use of bridge teamwork and communication • Use of propulsion machinery, navigational equipment, steering systems and other equipment involved
Content	• Ship handling • Pivot point • Propellers/rudders/thrusters • Rate of turn (ROT) technique • Wind/waves/current/swell • Squat/sinkage/interaction • DP setup and modes, PRS, PMS data recorder • Use of tugs • Anchoring
Simulator exercise	Minimum 7 simulator exercises, including briefing, execution and debriefing. Minimum required exercise elements: • Approach and berthing to a shore terminal • Approach and connection to a tandem F(P)SO, active heading control • Anchoring • ROT • Squat/sinkage/interaction

	• Manoeuvring with joystick
Assessment	Course shall start with a theoretical pretest and end with a simulator exercise assessment and a theory assessment.

A.5.1.4 Offshore Loading phase 1 (3 days)

Prerequisites	Valid D4 certificate of competence, DPO Preparation/DP Induction course, onboard DP CAP Preparation and onboard DP CAP Start shall have been completed by the course participant.
Duration	3 days (equal to 21hrs classroom time)
Course aim	Improve knowledge, understanding and skills in the following competence areas: • Ship handling in general • OLST DP operations at OLTs
Objectives	• Plan and act in accordance with forces involved during ship handling in general and during OLST operations at OLTs • Plan and execute manual manoeuvring in port, narrow waters and at OLTs • Effective use of bridge teamwork and communication • Use of propulsion machinery, navigational equipment, steering systems and other equipment involved
Content	• Ship handling • Pivot point • Propellers/rudders/thrusters • Rate of turn (ROT) technique • Wind/waves/current/swell • Squat/sinkage/interaction • DP setup and modes, PRS, PMS data recorder • Use of tugs • Anchoring
Simulator exercise	Minimum 6 simulator exercises, including briefing, execution and debriefing. Minimum required exercise elements: • Approach and berthing to a shore terminal • Approach and connection to a tandem F(P)SO, active heading control • Anchoring • ROT • Squat/sinkage/interaction • Manoeuvring with joystick
Assessment	Course shall start with a theoretical pretest and end with a simulator exercise assessment and a theory assessment.

A.5.1.5 Offshore Loading phase 2 (5 days)

Prerequisites	Offshore Loading phase 1 course shall have been completed by course participant, followed by at least 1 OLST DP offshore loading operation to secure a minimum level of experience.
Duration	5 days (equal to 35hrs classroom time)
Course aim	Improve knowledge, understanding and skills for OLST DP operations at OLTs
Objectives	The course objectives shall be in accordance with DNV-ST-0023 Competence of dynamic positioning operators.

Content	• Repetition of Rate of Turn (ROT) technique
	• DP set up and modes, including correct use of PRS and PMS data recorder
	• Facility types and corresponding procedures:
	  ○ Tandem F(P)SO
	  ○ UKOLS
	  ○ Spread moored F(P)SO
	  ○ SAL or SPAR/SEVAN/cylindrical F(P)SO – depending on vessel's trade pattern
	• Tandem operation with and without hawser
	• Contingency scenarios and DP incidents on OLSTs
	• DP limitations (including DP capability plots, online consequence analysis, DP crash stop results, ASOG & CAMO)
	• DP FMEA, technical requirements, competence requirements

Simulator exercise	Minimum 8 simulator exercises, including briefing, execution and debriefing. Minimum required exercise elements: • Approach and connection to a tandem F(P)SO, active heading control, with and without hawser • Approach and connection to UKOLS • Approach and connection to tandem F(P)SO, passive weathervaning • Approach and connection to SAL or Approach and connection to SPAR/SEVAN/cylindrical F(P)SO – depending on vessel's trade pattern • Approach & connection to spread moored F(P)SO • Failure/emergency scenarios
Assessment	Course shall start with a theoretical pretest and end with a simulator exercise assessment and a theory assessment.

A.5.1.6 Offshore Loading phase 2 (3 days)

Prerequisites	Offshore Loading phase 1 course shall have been completed by course participant, followed by at least 1 OLST DP offshore loading operation to secure a minimum level of experience. After completion of the Offshore Loading phase 1 course, the onboard DP CAP field basic exercises relevant for the OLSTs trade pattern shall have been completed by course participant.
Duration	3 days (equal to 21hrs classroom time)
Course aim	Improve knowledge, understanding and skills for OLST DP operations at OLTs
Objectives	The course objectives shall be in accordance with DNV-ST-0023 Competence of dynamic positioning operators.

Content	• Repetition of Rate of Turn (ROT) technique
	• DP set up and modes, including correct use of PRS and PMS data recorder
	• Facility types and corresponding procedures:
	  ○ Tandem F(P)SO
	  ○ UKOLS
	  ○ Spread moored F(P)SO
	  ○ SAL or SPAR/SEVAN/cylindrical F(P)SO – depending on vessel's trade pattern
	• Tandem operation with and without hawser
	• Contingency scenarios and DP incidents on OLSTs
	• DP limitations (including DP capability plots, online consequence analysis, DP crash stop results, ASOG & CAMO)
	• DP FMEA, technical requirements, competence requirements

Simulator exercise	Minimum 6 simulator exercises, including briefing, execution and debriefing. Minimum required exercise elements: • Approach and connection to a tandem F(P)SO, active heading control, with and without hawser • Approach and connection to UKOLS • Approach and connection to tandem F(P)SO, passive weathervaning • Approach and connection to SAL or Approach and connection to SPAR/SEVAN/cylindrical F(P)SO – depending on vessel's trade pattern • Approach & connection to spread moored F(P)SO • Failure/emergency scenarios
Assessment	Course shall start with a theoretical pre-test and end with a simulator exercise assessment and a theory assessment.

A.5.1.7 Offshore Loading phase 3 (Canada/NCS/UK)

Prerequisites	Offshore Loading phase 2 course, PRS courses and PMS data recorder course shall have been completed by course participant.
Duration	3 days (equal to 21hrs classroom time)
Course interval	< 3 years since Offshore Loading phase 2 course or < 3 years since the last Offshore Loading phase 3 course.
Course aim	Refresher course with focus on: • Emergency preparedness during OLST DP operations • Experience exchange from DP incidents • Developments within the DP segment.
Objectives	The course objectives shall be in accordance with DNV-ST-0023 Competence of dynamic positioning operators.

Content	• Refresh of facility types and corresponding procedures:
	  ○ Tandem F(P)SO with and without hawser
	  ○ UKOLS
	  ○ SAL or SPAR/SEVAN/cylindrical F(P)SO – depending on vessel's trade pattern
	• DP incidents on OLSTs
	• Information about new developments with the DP segment, such as PRS, software versions, new concepts etc.

Simulator exercise	Minimum 5 simulator exercises, including briefing, execution and debriefing. Minimum required exercise elements: • DP operation with failure/emergency scenarios • Approach and connection to a tandem F(P)SO, active heading control, with and without hawser • Approach and connection to UKOLS • Approach and connection to tandem F(P)SO, passive weathervaning • Approach and connection to SAL or Approach and connection to SPAR/SEVAN/cylindrical F(P)SO – depending on vessel's trade pattern • Manual manoeuvring (or other relevant exercise based on course participants request)
Assessment	Course shall start with a theoretical pre-test and end with a simulator exercise assessment and a theory assessment.

A.5.1.8 Offshore Loading phase 3 (Brazil)

Prerequisites	Offshore Loading phase 2 course, PRS courses and PMS data recorder course shall have been completed by course participant.
Duration	3 days (equal to 21hrs classroom time)
Course interval	< 3 years since Offshore Loading phase 2 course or < 3 years since the last Offshore Loading phase 3 course.
Course aim	Refresher course with focus on: • Emergency preparedness during OLST DP operations • Experience exchange from DP incidents • Developments within the DP segment.
Objectives	The course objectives shall be in accordance with DNV-ST-0023 Competence of dynamic positioning operators.

Content	• Refresh of facility types and corresponding procedures:
	  ○ Turret moored tandem F(P)SO with hawser
	  ○ Spread moored/direct loading tandem F(P)SO with hawser
	• Field specific DP buoy software:
	  ○ Reduced power demand
	  ○ Reduced OLST movements in all axes
	  ○ Field specific alarm limits in HMI
	• Operations during degraded condition due to defect PRSes on board the F(P)SO
	  ○ DP Class 2 requirements, including use of ASOG
	  ○ DP capability and online DP consequence analysis
	  ○ Transition between operational modes – From DP operation to taut hawser operation and vice versa
	  ○ Tug assistance during taut hawser operation
	• DP incidents on OLSTs
	• Information about new developments with the DP segment, such as PRS, software versions, new concepts etc.

Simulator exercise	Minimum 5 simulator exercises, including briefing, execution and debriefing. Minimum required exercise elements: • DP operation with failure/emergency scenarios • Field specific DP buoy software impact on OLST operation • Approach, connection and disconnection to a turret moored tandem F(P)SO, active heading control, with hawser • Approach and disconnection to a spread moored tandem F(P)SO, with hawser • Spread moored tandem F(P)SO: Approach outside main sector, connection and disconnection/departure • Transition between operational modes – From DP operation to taut hawser operation and vice versa • Tug assistance during taut hawser operation
Assessment	Course shall start with a theoretical pre-test and end with a simulator exercise assessment and a theory assessment.

A.5.1.9 Offshore Loading phase 4 – Aasta Hansteen

Prerequisites	Offshore Loading phase 2 course and a valid DP certificate.
Duration	1,5 days (equal to 11hrs classroom time)

Course aim	Obtain detailed knowledge of the Aasta Hansteen loading concept, procedure and DP software.
Objectives	The course objectives shall be in accordance with DNV-ST-0023 Competence of dynamic positioning operators.
Content	Familiarization with loading concept, procedure and DP software. • Approach mode with “approach setpoint radius” and “heading envelope” • Base heading offset • Pickup mode • Circle around buoy function • Bow rotation function • Safety barriers within the software
Simulator exercise	Minimum 2 simulator exercises, including briefing, execution and debriefing. Minimum required exercise elements: • Approach and connection • Approach outside main sector, connection and disconnection/departure

A.5.1.10 Offshore Loading phase 4 – Spread moored

Prerequisites	Offshore Loading phase 2 course and a valid DP certificate.
Duration	1,5 days (equal to 13hrs classroom time)
Course aim	Obtain detailed knowledge of spread moored tandem FP(S)O loading concept, procedure and DP software.
Objectives	The course objectives shall be in accordance with DNV-ST-0023 Competence of dynamic positioning operators and be in accordance with KPOS DP software version 8.4.3 spread moored/direct loading functionalities.

Content	• Familiarization with software and various modes and functions:
	  ○ Approach mode with “approach setpoint radius” and “heading envelope”
	  ○ FSU position function
	  ○ Base heading offset
	  ○ Pickup mode
	  ○ Circle around buoy function
	  ○ Bow rotation function
	  ○ Safety barriers within the software
	• Dual OLST DARPS configuration versus single OLT DARPS configuration.
	• Practice mode with “Anywhere” functionality.

Simulator exercise	Minimum 2 simulator exercises, including briefing, execution and debriefing. Minimum required exercise elements: • Approach and connection • Approach outside main sector, connection and disconnection/departure

A.5.1.11 OLST Ship-to-Ship simulator course

Prerequisites	Valid D1 or D2 certificate of competence
Duration	4 days (equal to 30hrs classroom time)
Course aim	Improve knowledge, understanding and skills for OLST ship-to-ship operations
Objectives	The course objectives shall be in accordance with “Ship to Ship Transfer Guide for Petroleum, Chemicals and Liquefied Gases” (CDI, ICS, OCIMF and SIGTTO).

Content	• STS procedures and checklists • Environmental conditions (wind/waves/current/swell) • Roles and competence framework • Operational preparedness • STS equipment • Manoeuvring, mooring and unmooring • Anchoring • Use of tugs • STS operation under way, drifting, at anchor and at berth • STS incidents
Simulator exercise	Minimum 6 simulator exercises, including briefing, execution and debriefing. Minimum required exercise elements: • STS underway – run in, unmooring, departure • STS at anchor – run in, unmooring, departure – with or without tugs • STS contingency scenarios underway, drifting and at anchor • STS in heavy weather – emergency lightering
Assessment	Practical knowledge and skill to be assessed during the simulator exercises. The course shall end with a theory assessment.