



DEPARTMENT OF
ECOLOGY
State of Washington

Spill Prevention, Preparedness, and Response Program

Washington State's Voluntary Program for Tank Barges and Articulated Tank Barges (ATBs)

**Best Achievable Protection (VBAP) Standards and
Exceptional Compliance Program (ECOPRO) Standards**

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Abstract: A compilation of 30 standards addressing operating procedures, personnel policies, management practices, marine safety technology, oil spill preparedness, and oil spill response for companies participating in Washington State's Voluntary Program for Tank Barges and Articulated Tank Barges (ATBs). Tank barge and ATB companies meeting these standards receive public recognition for their commitment to marine safety and environmental stewardship.

This publication is also available at our website at <http://www.ecy.wa.gov/programs/spills/spills.html>.

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Washington State Department of Ecology

Spill Prevention, Preparedness, and Response Program

Washington State's Voluntary Program for Tank Barges and ATBs

Best Achievable Protection (VBAP) Standards and Exceptional Compliance Program (ECOPRO) Standards

To become a member of Washington State's Voluntary Program for Tank Barges and ATBs, you must meet all Washington State laws regarding oil spill prevention, preparedness, and response. The applicable laws, known as the Washington Administrative Code (WAC), include:

WAC 173-180	<u>Facility Oil Handling Standards</u>
WAC 173-182	<u>Oil Spill Contingency Plan</u>
WAC 173-183	<u>Pre-assessment Screening and Oil Spill Compensation</u>
WAC 173-184	<u>Vessel Oil Transfer Advance Notice and Containment Requirements</u>
WAC 317-31	<u>Accepted Industry Standards/Substantial Risk</u>
WAC 317-40	<u>Bunkering Operations</u>
WAC 317-50	<u>Financial Responsibility</u>

In addition to complying with applicable state, federal, and international standards, the owner or operator of a tank vessel operating in Washington State waters must meet the following standards to qualify as a VBAP or ECOPRO company. In order to meet an ECOPRO standard, the corresponding VBAP standard must also be met.

<i>VBAP Standard</i>	<i>ECOPRO Standard</i>
<p>1. Navigation Watch Composition</p> <p>Guidelines for tow vessel navigation watch composition:</p> <ol style="list-style-type: none"> a. The navigation watch on the tow vessel consists of at least one licensed deck officer or tow vessel operator; b. When underway in restricted visibility, a lookout is assigned to the navigation watch and stationed in a safe location that allows sight and hearing of all navigational hazards and other vessels, and there is a rapid and reliable means of communication between the lookout and the tow vessel operator; c. The tow vessel's operator or officer in charge of the watch records in the deck log the date and time restricted visibility begins and ends; and d. The names of each navigation watch member are logged in the deck log at the time the member assumes duties. 	<p>1. Navigation Watch Composition</p> <p>While underway in Washington state waters, cell phone use for non-operational purposes is prohibited by persons on navigational watch.</p> <p>AND</p> <p>Operational calls are kept to an absolute minimum.</p>
<p>2. Security Rounds</p> <p>Guidelines for security rounds:</p> <p>Security rounds are conducted in spaces designated by the vessel's operator to identify and to correct, if feasible, safety hazards such as potential fire hazards, defective machinery, hull and bulkhead integrity, malfunctioning safety equipment, potential sources of pollution, and potentially dangerous crew activities.</p> <ol style="list-style-type: none"> a. Security rounds are conducted when the vessel is underway, anchored, and moored. 	<p>2. Security Rounds</p> <p>Security rounds are conducted at least every two hours on all vessels, including those with functioning automated fire and flooding detection systems.</p>

VBAP Standard

ECOPRO Standard

2. Security Rounds *cont.*

- b. Security rounds are conducted on as much of the vessel as the operator deems safe for the crew member making the round. The inspection includes, at a minimum:
 - 1. Inspection of towing equipment;
 - 2. Inspection of navigation lights and other pertinent spaces and equipment on both the tow vessel and the tank barge, to the extent the crew member can do so safely; and
 - 3. For moored barges:
 - a. Inspection of the tank barge if attended by the tow vessel; or
 - b. Inspections that comply with 46 C.F.R. Sec. 35.05-15(b), if not attended by the tow vessel.
- c. Crew members making security rounds are provided appropriate training and checklist and instructed to first notify the officer in charge of the watch before attempting corrective action, when a hazard is noted.
- d. Security rounds are made at least every two hours. On vessels with functioning automated fire and flooding detection systems, security rounds may be made at least every four hours.
- e. The officer in charge of the watch logs the completion of each security round in the deck log.
- f. For ATBs:
 - 1. Visual inspection of the barge-tug connection system and associated machinery.
 - 2. Visual inspection of the barge to the extent it can be done safely.

2. Security Rounds *cont.*

VBAP Standard

ECOPRO Standard

3. Voyage Planning

Guidelines for voyage planning:

A written berth-to-berth voyage plan is used and reviewed prior to taking over the watch. A standard voyage plan for consecutive voyages along the same routes may be used if updated as changes occur. The voyage plan includes, at a minimum, the following:

- a. Channel depth, turning areas, and navigational obstructions, based on current and up-to-date charts and navigational publications;
- b. Identification of commercial and recreational fishing grounds to be avoided or navigated;
- c. Identification of areas where tank barges may not transit including Deception Pass, Swinomish Slough, and Hadlock Cut in Puget Sound;
- d. Identification of area to be avoided on Washington Coast;
- e. Accuracy, dependability, and functioning of available navigational aids;
- f. Environmentally sensitive areas designated and provided by the Northwest Area Committee established under 33 U.S.C. sec. 1321(j), traffic separation systems, areas-to-be-avoided, landfalls, routes expected to be transited at night, and other areas where extra caution should be exercised;
- g. Predicted weather, currents, and tides;
- h. Expected vessel traffic;
- i. Review of the information in, and accuracy of, available charts, notices to mariners, and other navigational publications;
- j. The magnetic heading corresponding to each gyro heading; and
- k. Tank barge inspections immediately prior to and after the voyage including inspections of hull integrity, towing equipment, and navigation lights.

3. Voyage Planning

Regular voyage plan updates are made by a licensed tow vessel operator.

AND

Voyage plans are displayed prominently, either electronically or as a paper copy.

AND

Voyage plans are retained for at least 6 months.

AND

Captain reviews plans regularly to ensure they are kept up to date.

VBAP Standard

ECOPRO Standard

4. Bar Crossing Procedures

Tow vessel companies have written guidelines for crossing ocean bars which include at a minimum:

a. For towing astern:

1. Tandem tows are prohibited.
2. All generators and tow winch engines are running.
3. Tow winch brakes are set with the air brake off and the hand brake set hand-tight.
4. The tow vessel operator pilots the vessel, a crew member is stationed at the tow winch controls with a rapid and reliable means of communication with the operator, and a crew member is on call to respond to machinery space alarms.
5. Chafing gear does not restrict release or recovery of wire.

b. For any towing configuration including towing alongside and ATBs:

1. Crossings in heavy weather or sea conditions, or both, or when the swell height is excessive, are prohibited.
2. All main deck hatches and ports on the tow vessel and barge are closed and secured.

4. Bar Crossing Procedures

The ECOPRO standard is identical to the VBAP standard.

VBAP Standard

ECOPRO Standard

5. Pre-arrival and Pre-departure Tests and Inspections and Compass Checks

Guidelines for tow vessel navigation equipment checks:

- a. Twelve hours or less before entering or getting underway, navigational equipment is operationally checked including: compasses, radars, AIS, fathometer, and speed monitoring devices, etc.
- b. The magnetic heading corresponding to each gyro heading steered is posted and kept updated for the helmsman.
- c. Additional tests are performed to verify accuracy or deviation of the compasses.

Examples of additional tests are: Checking gyro and magnetic headings while on ranges, comparing gyro heading with dock (pier or wharf) heading, and determination of gyro error by taking azimuths.

- d. Compass errors are logged in the deck log.

5. Pre-arrival and Pre-Departure Tests and Inspections and Compass Checks

Magnetic compass is calibrated and a deviation table is prepared annually.

6. Emergency Procedures

Guidelines for emergency procedures:

A tank barge (and a typical tow vessel used to transport the barge) operating in Washington state waters follows written policies, procedures, and practices for emergencies that apply to both the barge and the tow vessel. Guidelines for emergency procedures are kept on the bridge in a separate folder and all bridge team personnel are trained in their use. These procedures include at least the following:

- a. Station bills are posted and clearly state crew assignments and duties for the following emergencies:
 - 1. Shipboard fire;
 - 2. Abandon ship;
 - 3. Man overboard; and
 - 4. Oil spill response.

6. Emergency Procedures

An emergency squad organization with clearly defined duties is in place.

AND

Crew members participate in an emergency preparedness training program for additional emergencies.

Examples of additional emergencies are:

- Helicopter evacuation.
- Tank or void space evacuation.

AND

All emergency procedures required by the VBAP standard are contained in the vessel's drill schedule.

VBAP Standard

ECOPRO Standard

6. Emergency Procedures *cont.*

b. Written procedures and checklists for responding to:

1. Collisions and allisions;
2. Groundings;
3. Loss of propulsion;
4. Loss of steering;
5. Loss of electrical power;
6. Flooding (engine room and pump room);
7. Responding to loss of throttle control from the bridge;
8. Emergency towing (tow vessel), and lost barge retrieval; and
9. Operator incapacitation.

6. Emergency Procedures *cont.*

VBAP Standard

ECOPRO Standard

7. Event Reporting

Guidelines for event reporting:

If the tow vessel or barge is involved in an event, as defined below, while in Washington state waters:

a. An event report is submitted to the Department of Ecology that describes:

1. The date time and location of each event;
2. The weather conditions at the time of the event;
3. The vessel operations underway at the time;
4. The identity of any facilities and other vessels involved in the event;
5. The type and amount of any oil spilled, and the estimated amount recovered;
6. A list of any government agencies to which the event was reported;
7. A brief analysis of any known causes and contributing factors for each event that considers, at a minimum, human error, equipment or technology failure, and maintenance or inspection deficiencies; and
8. A description of measures taken to prevent a reoccurrence of each event, including changes to operating or maintenance procedures, personnel policies, vessel crew and organization, and the vessel's technology.

b. The position plotting records, whether written, typed, recorded electronically or otherwise recorded, and the comprehensive written voyage plan, are not erased, discarded, or altered.

7. Event Reporting

If the tow vessel or the barge is involved in an event (as defined in the VBAP standard) world wide, an event report will be submitted to the Department of Ecology.

EXCEPT

Near miss event reports are required only for near misses which occur in Washington state waters.

VBAP Standard

ECOPRO Standard

7. Event Reporting *cont.*

c. "Event" means a:

1. Collision;
2. Allision;
3. Near-miss incident which means a pilot, master, or other person in charge of navigating a tank vessel successfully takes action of a non-routine nature to avoid a collision with another ship, structure, or aid to navigation, or grounding of the vessel, or damage to the environment, and which trigger the company's causal analysis system;
4. Marine casualty which means those casualties described in 46 C.F.R. sec. 4.05-1, except subsections (a)(5), (a)(6) and (b), regardless of vessel type, nation of registry, or location;
5. Disabled vessel which means an accidental or intentional grounding, failure of the propulsion or primary steering systems, failure of a component or control system that reduces the vessel's maneuverability, or fire, flood, or other incident that affects the vessel's seaworthiness or fitness for service;
6. Spills of oil from a tank vessel; or
7. Near-miss incidents involving towing gear.

7. Event Reporting *cont.*

<i>VBAP Standard</i>	<i>ECOPRO Standard</i>
<p>8. Tank Barge and Tow Vessel Crewing</p> <p>Guidelines for tank barge and tow vessel crewing:</p> <p>a. Two persons, one of whom is a certified tankerman under 46 C.F.R. subpart 12.20, are on the tank barge during all cargo transfers</p> <p>OR</p> <p>One certified tankerman is required if: the barge has redundant high level alarm systems, the control room has unrestricted view of entire deck, AND for a barge greater than 300 feet long- valves are automated and redundant.</p> <p>b. Three licensed officers or tow vessel operators are on a tow vessel transporting a tank barge in coastal waters.</p> <p>c. Whenever possible while underway in coastal waters, a three officer navigation watch rotation (for example, 4 hours on – 8 hours off) is used.</p>	<p>8. Tank Barge and Tow Vessel Crewing</p> <p>The ECOPRO standard is identical to the VBAP standard.</p>
<p>9. Familiarization (Orientation) Training</p> <p>Guidelines for familiarization (orientation) training:</p> <p>Before being assigned to duties, tow vessel crew members receive familiarization training in personal survival techniques including:</p> <p>a. Communicating with other persons on board about elementary safety matters and understanding safety information symbols, signs, and alarm signals;</p> <p>b. What do if:</p> <ol style="list-style-type: none"> 1. A person falls overboard; 2. Fire or smoke is detected; or 3. The fire or abandon ship alarm is sounded. 	<p>9. Familiarization (Orientation) Training</p> <p>A formal orientation checklist is used for all personnel at time of sign-on.</p> <p>AND</p> <p>Familiarization (orientation) training includes additional topics.</p>

VBAP Standard

ECOPRO Standard

9. Familiarization (Orientation) Training *cont.*

- c. Identification of muster and embarkation stations and emergency escape routes;
- d. Location and donning of life-jackets and survival suits;
- e. Raising the alarm and basic knowledge of the use of portable fire extinguishers;
- f. Taking immediate action upon encountering an accident or other medical emergency before seeking further medical assistance on board;
- g. Closing and opening the weather-tight and water-tight doors, and fire-tight doors (if fitted);
- h. Confined space hazards; and
- i. All officers and tankermen are trained and drilled in oil spill emergency phone numbers for reporting oil spills that occur in Washington state waters.

9. Familiarization (Orientation) Training *cont.*

Some examples of additional topics are:

- Orientation in the working relationship between shore-based vessel operations and tank barge/tow vessel operations (for licensed tow vessel operators and certified tankermen).
- Self-contained breathing apparatus (for example, MSA or Scott Airpak) training, including fit testing (for tank barge personnel).
- Orientation and training in looking for, and reporting, oil in the water around the tank barge and tow vessel (for all crew members).
- Contingency plan orientation.
- Field document orientation including notification drill orientation.

VBAP Standard

ECOPRO Standard

10. Position-Specific Training

Guidelines for position-specific training (training may be in-house, on-the-job or via outside school):

a. Tank barge personnel are trained in:

1. Inert Gas, if tank barge is so equipped;
2. Crude Oil Washing systems, if tank barge is so equipped;
3. Vapor recovery systems, if tank barge is equipped;
4. Safe cargo handling (certified Tankerman PIC – Dangerous Liquids or equivalent); and
5. Oil spill response responsibilities.

b. Licensed tow vessel crew are trained in:

1. Electronic Navigation equipment specific to the vessel;
2. Bridge Resource Management; and
3. Tow vessel handling.

c. Within three years from the date of employment by the owner or operator, a crew member completes the company's training program.

10. Position-Specific Training

Training in additional topics is provided.

Examples of additional topics are:

- Advanced marine fire fighting.
See Table A-VI/3 in Section A- VI/3 of STCW 95.
- Confined Space entry.
- First Aid, CPR, AED training.

AND

The company's training program is completed within one year of date of hire.

<i>VBAP Standard</i>	<i>ECOPRO Standard</i>
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<p>11. Refresher Training</p> <p>Guidelines for refresher training:</p> <p>Crew members receive refresher training at least once every five years. Personnel who fail to undergo refresher training within five years, repeat the position-specific training program.</p> <p>Refresher training includes examination of the crew member's skills to determine his or her ability to safely and effectively perform in the position assigned.</p>	<p>11. Refresher Training</p> <p>Any training identified as necessary to improve performance is accomplished within one year of being identified.</p>
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12. Emergency Drills

Guidelines for emergency drills:

Tow vessel crews conduct the following drills:

a. For coastal towing¹:

1. Fire fighting and man overboard drill monthly; and
2. Review of lost barge retrieval procedures and oil spill response procedures at least once per voyage.

b. For inland waterway towing:

1. Fire fighting drill monthly;
2. Lost barge retrieval drill monthly; and
3. Man overboard and oil spill response drills quarterly.

¹ Coastal towing as used here means outside of Cape Flattery.

12. Emergency Drills

The following additional drills are held at least once a year and may be combined:

1. Abandon ship;
2. Collisions and allisions;
3. Groundings;
4. Loss of propulsion;
5. Loss of steering;
6. Loss of electrical power;
7. Flooding (engine room and pump room);
8. Loss of throttle control from the bridge; and
9. Emergency towing (tow vessel).

AND

A formal critique of the drill is presented to all crew members after each drill.

AND

Items requiring follow-up corrective action are logged and a crew member is assigned to take the required corrective action.

<i>VBAP Standard</i>	<i>ECOPRO Standard</i>
<p>13. Drug and Alcohol Policies</p> <p>The owner's or operator's policies, procedures, and practices ensure that:</p> <ul style="list-style-type: none"> a. A person neither consumes, nor is under the influence of, alcohol on a tank barge or tow vessel while in state waters unless that person is a passenger who does not perform any duty on the tow vessel or tank barge in Washington state waters; and b. A person neither consumes, nor is under the influence of, illicit drugs on a tank barge or tow vessel while in Washington state waters. 	<p>13. Drug and Alcohol Policies</p> <p>Vessel personnel are trained in both drug and alcohol abuse awareness and in drug and alcohol testing for post accident and probable cause.</p> <p>AND</p> <p>Random testing is conducted at least annually, as allowed by law.</p>
<p>14. Work Hours (Rest Periods)</p> <p>Guidelines for work hours (rest periods):</p> <ul style="list-style-type: none"> b. Crew members comply with OPA 90 work hour restrictions or STCW 95 rest period requirements. Company policies ensure crew members are well-rested and able to perform their duties. c. Work hours (rest periods) are documented and maintained for all personnel on tow boat and tow vessel, and if requested, made available to the Department of Ecology. d. Company policy specifies that driving hours, paperwork, receiving stores, and bunkering are counted in the computation of work hours (rest periods). e. Bunkering on arrival is discouraged. 	<p>14. Work Hours (Rest Periods)</p> <p>Work hour restrictions exceed OPA 90 requirements or rest periods exceed STCW 95 requirements.</p> <p>OR</p> <p>Additional qualified tank barge personnel are available if needed to meet work hour (rest period) requirements.</p>

<i>VBAP Standard</i>	<i>ECOPRO Standard</i>
<p>15. Record Keeping – Training Records and Work Hour Records</p> <p>Guidelines for Record Keeping – Training Records and Work Hour Records:</p> <p>a. <i>Training Records.</i> Detailed training records are maintained for all crew on each vessel or at a central location. The records include the training required to obtain a license or merchant marine document, completion dates, and performance evaluations of the training described in the training section. If the owner or operator maintains personnel training records, the owner or operator provides the Department of Ecology any records requested within seventy-two hours of receiving a request for the record.</p> <p>b. <i>Work Hour Records.</i> Compliance with work hour requirements is documented on board the vessel and, if requested, provided to the Department of Ecology.</p>	<p>15. Record Keeping - Training Records and Work Hour Records</p> <p>The ECOPRO standard is identical to the VBAP standard.</p>
<p>16. Vessel Visitation</p> <p>Guidelines for vessel visitation:</p> <p>Quarterly visits are conducted by company management, such as port captains or port engineers, to review shipboard management and operations with the vessel master and chief engineer and provide guidance in correcting identified problem areas.</p> <p>The time, date, and findings are recorded in the deck log.</p>	<p>16. Vessel Visitation</p> <p>Vessel is visited more frequently than quarterly.</p> <p>AND</p> <p>Shore-based company personnel manage vessel visitation program and follow-up tracking system.</p>

<i>VBAP Standard</i>	<i>ECOPRO Standard</i>
<p>17. Planned Maintenance Program</p> <p>Guidelines for planned maintenance program:</p> <p>A planned maintenance program for a tow vessel’s navigation, propulsion, steering, communications, electrical, and tank barge’s cargo handling systems that involves at a minimum:</p> <ul style="list-style-type: none"> a. Preventive maintenance for each system according to the procedures and recommended frequency of the machine’s or equipment’s manufacturer; b. Annual inspections of each system; and c. Inventory control and maintenance of necessary replacement parts. 	<p>17. Planned Maintenance Program</p> <p>Selected systems are inspected more frequently than annually if appropriate.</p>
<p>18. Hull Inspection Plans</p> <p>Guidelines for internal inspection of tank barge holds (tanks), piping, and hull:</p> <ul style="list-style-type: none"> a. Areas of a vessel’s holds (tanks), piping, and hull where structural integrity is questioned are visually inspected annually and thickness is gauged; b. Any deficiencies are corrected and records are maintained and available for inspection; and c. Corrosion is noted, reduction measures are identified, and corrosion reduction measures are scheduled. 	<p>18. Hull Inspection Plans</p> <p>Areas where structural integrity is questioned are inspected more frequently than annually if it is indicated by historical information and/or predictive models.</p>

<i>VBAP Standard</i>	<i>ECOPRO Standard</i>
<p>19. Preventive Maintenance Documentation</p> <p>Guidelines for tank barge preventive maintenance documentation:</p> <p>Surveys of the holds (tanks), piping, and hull by the vessel’s classification society, and annual inspections or surveys by any other independent entity are documented, and any reports generated are retained on board or at a central location. These reports are available for inspection.</p>	<p>19. Preventive Maintenance Documentation</p> <p>Explicit documentation and maintenance instructions are posted or readily available.</p>
<p>20. Technology – Navigation Equipment</p> <p>Guidelines for navigation equipment:</p> <p>Tow vessels transporting tank barges are equipped with:</p> <ol style="list-style-type: none"> a. Two functional radars. b. Global positioning system (GPS) receiver. c. Two VHF radios. 	<p>20. Technology – Navigation Equipment</p> <p>One of the two radars is equipped with ARPA.</p> <p>AND</p> <p>Navigation equipment includes an Electronic Chart System (ECS) or Electronic Chart Display Information System (ECDIS).</p>
<p>21. Technology - Tank level sensing equipment and emergency shut-down system</p> <p>Guidelines for tank level sensing equipment and emergency shut-down system:</p> <p>All cargo tanks on barge are equipped with audible and visual high level and high-high level alarms.</p>	<p>21. Technology – Tank level sensing equipment and emergency shut-down system</p> <p>When the tank barge is discharging cargo, the tank barge provides the receiving facility or vessel with a means of remotely shutting down the cargo pump(s) on the tank barge.</p>

22. Technology – Towing Equipment

Guidelines for towing equipment:

a. *Coastal Tow Wire.* The tow wire for coastal hawser towing has:

1. A nominal breaking strength of two one-half times the bollard pull of the tow vessel;
2. An independent wire rope core for wires two inches and greater;
3. Improved plow steel or extra improved plow steel wire;
4. Been heavily lubricated or galvanized at the time of manufacture;
5. A right or left regular lay and is six-by-nineteen construction or larger; and
6. A tow line that terminates in either:
 - a. A spelter or thermo-set resin poured socket sized to exceed the breaking strength of the tow wire; or
 - b. A spliced eye with a thimble sized to exceed the breaking strength of the tow wire.

b. *Inland Tow Wire.* The tow wire for inland hawser towing meets with the requirements in (a) of this section except:

1. The primary tow line for inland towing may be synthetic fiber; and
2. Swaged eyes and wire clips are not used on the primary tow line.

22. Technology – Towing Equipment

Tow line components exceed VBAP standards for breaking strength.

AND

Tow vessel is able to abort and reset the tow winch brake from each steering station on the tow vessel.

AND

The above system is tested monthly.

AND

The monthly test is documented in the log book.

AND

Company has a proactive written maintenance program for tow wires taking into account miles, environment, and service.

22. Technology – Towing Equipment *cont.*

c. *Bridles and Surge Chains.* Tank barges are equipped with:

1. For coastal hawser towing, a tow bridle and surge chains where the:
 - a. Breaking strength of each bridle leg and the surge chain is 1.3 times the nominal breaking strength of the primary tow line;
 - b. Chain used is certified and is Grade Two or higher, welded or forged, integral stud link chain; and
 - c. Surge chain may have an end link or one studless link.
2. For inland hawser towing, tow bridles made of chain or synthetic fiber or wire-rope where the breaking strength of each bridle leg is equal to or better than 2 ½ times the bollard pull of the tug.

d. *Barge Fittings.* Tank barges are equipped with:

1. Two tow pads to which the tow bridle is connected where the:
 - a. Tow pad and supporting structure have a yield strength of 1.25 times the nominal breaking strength of the tow line;
 - b. Tow pad can carry the load applied throughout the full arc possible in normal Service; and
 - c. The axis of the tow pads lies along the axis of the attached bridle leg when towing straight ahead.

22. Technology – Towing Equipment *cont.*

22. Technology – Towing Equipment *cont.*

2. Towing fairleads, if the tow pads are not located at the extreme bow, and where:
 - a. Closed fairleads or chocks are installed so that each leg of the tow bridle leads straight from the bridle apex through the center of the fairlead to the tow pad;
 - b. The fairlead opening is round or oval, and large enough to pass all parts of the bridle in either direction but without allowing excessive lateral motion; and
 - c. All fairlead surfaces are ground smooth with a radius four times greater than the bar diameter of the chain, or the diameter of the synthetic or wire-rope used.

e. Shackles. All shackles used are:

1. Rated with a breaking strength of 1.3 times the nominal breaking strength of the primary tow line;
2. Either round pin anchor shackles or chain safety shackles with a locking nut secured by a nut and bolt or cotter pin;
3. Forged or cast; and
4. Marked with the shackle’s safe working load and the shackle’s rated or minimum breaking strength.

f. Shackle and Flounder Plates. Shackle and flounder plates are:

1. Constructed of whole plates with no welding other than on assembly gussets and reinforcing rings; and
2. Triangular cast, forged, or fabricated steel equal to the ASTM-36 standard with all corners rounded.

22. Technology – Towing Equipment *cont.*

22. Technology – Towing Equipment *cont.*

- g. *Wire Rope Records, Inspections and Maintenance.* All wire rope towing equipment described in (a) through (c) of VBAP Standard 22 are inspected and maintained in accordance with the standards in U.S. Coast Guard Navigation and Vessel Inspection Circular (NVIC) 5-92, enclosure 1, part B.
- h. *Chafing Protection.* All towing equipment described in (a) through (d) of this section are protected from chafing where the component contacts a surface that could cause wear during normal operation.
- i. *Tow Winches.* Tank barge tow winches:
 - 1. Accept and hold a load equal to the breaking strength of the tow line without damage to the winch, its foundation, or brakes;
 - 2. Have a brake on the main cable drum capable of holding the breaking strength of the innermost layer of the tow line without power to the winch;
 - 3. Have a towing winch cable drum with a minimum diameter 12 times the diameter of the tow line;
 - 4. Have a connection between the tow line bitter end and the winch cable drum with a holding capacity no greater than fifteen (15) percent of the breaking strength of the tow line;
 - 5. Always have ten or more wraps of the tow line on the bottom layer of the cable drum while towing; and
 - 6. Have control stations located where emergency release of the tow line does not endanger operating personnel.

22. Technology – Towing Equipment *cont.*

<i>VBAP Standard</i>	<i>ECOPRO Standard</i>
<p>23. Technology – Emergency Reconnection Equipment</p> <p>Guidelines for emergency reconnection equipment:</p> <p>A tank barge has emergency reconnection equipment for coastal hawser towing (towing astern) as follows:</p> <p><i>Emergency Tow Line.</i> An emergency tow line and components where the:</p> <ol style="list-style-type: none"> a. Breaking strength of the tow line and components is 1.5 times the bollard pull of the tow vessel; b. Tow line's bitter end is secured down the barge deck from bow to stern with break-away clips; and c. Towing end of the tow line is attached to a trailing buoy with an appropriately sized polypropylene floating line. <p><i>Hook retrieval device.</i> The hook retrieval device is slotted to lock into, and pick up, the tow bridle of the barge adrift. The purpose of the hook retrieval device is to reconnect the tow vessel's tow line to the towing bridle of the barge adrift.</p>	<p>23. Technology – Emergency Reconnection Equipment</p> <p>Tow line and components exceed minimum strength requirements specified under the VBAP standard.</p>
<p>24. Technology – Fenders</p> <p>Guidelines for fenders:</p> <p>Tow vessels used to transport tank barges are equipped with a fender system capable of absorbing the impact of the tow vessel coming alongside the tank barge, and able to protect all parts of the tow vessel's bow and stern exposed to contact during normal operations.</p>	<p>24. Technology – Fenders</p> <p>The ECOPRO standard is identical to the VBAP standard.</p>

<i>VBAP Standard</i>	<i>ECOPRO Standard</i>
<p>25. Technology: Navigation Lights</p> <p>Guidelines for Navigation Lights and Day Shapes:</p> <ul style="list-style-type: none"> a. Tank barge electrical systems meet American Bureau of Shipping and U.S. Coast Guard standards for the most volatile cargo allowed on the barge according to the barge's certificate of inspection or other classification document. b. Tank barge is fitted with a redundant navigation light system, for example, automatic lamp changers, or LED lights for coastal tows. 	<p>25. Technology – Navigation Lights</p> <p>The ECOPRO standard is identical to the VBAP standard.</p>
<p>26. Technology: Tug–Tow Match</p> <p>Guidelines for Tug–Tow Match:</p> <p>Tow vessels that transport tank barges in Washington’s coastal waters have:</p> <ul style="list-style-type: none"> a. Twin screws; and b. Minimum bollard pull of four pounds per deadweight ton of the tank barge. 	<p>26. Technology: Tug–Tow Match</p> <p>ALL tow vessels, regardless of operating area have:</p> <p>Twin screws.</p> <p>AND</p> <p>Bollard pull greater than 4 lbs. per deadweight ton of the tank barge.</p>
<p>27. Ballast Water Management, if applicable</p> <p>Guidelines for ballast water management:</p> <ul style="list-style-type: none"> a. Written ballast water management procedures and policies are contained in the Shipboard Management System (SMS). b. Ballast water management training is provided for all shipboard officers involved in ballast operations. 	<p>27. Ballast Water Management</p> <p>The ECOPRO standard is identical to the VBAP standard.</p>

VBAP Standard

ECOPRO Standard

28. Waste Oil and Oily Water Management System

Guidelines for the Waste Oil and Oily Water Management System:

- a. Waste oil management procedures are contained in the vessel's Shipboard Management System (SMS).
- b. Training in waste oil and oily water handling procedures is provided for all engineering officers and all unlicensed crew members involved in the handling waste oil or oily water. This training includes the operation and maintenance of the oily water separator and incinerator, and log entries related to waste oil and oily water.
- c. Written procedures or checklists for waste oil and oily water management are readily available.
- d. The oily water separator (OWS) and incinerator are maintained in accordance with manufacturer's recommendations and a record of maintenance is maintained, checked, and verified by the Chief Engineer.
- e. While in Washington waters, all waste oil and oily water is discharged to shore facilities or vacuum trucks.

28. Waste Oil and Oily Water Management

Company has seal system to monitor overboard valves.

<i>VBAP Standard</i>	<i>ECOPRO Standard</i>
<p>29. Automated Identification System (AIS)</p> <p>Guidelines for the Automated Identification System (AIS):</p> <ul style="list-style-type: none"> a. AIS equipment is calibrated, tested, and maintained according to the manufacturer’s recommendations and regulatory requirements. b. Maintain a record showing dates and descriptions of AIS calibration, testing, maintenance, and operation. c. Pre-departure and pre-arrival checklists include checking AIS for proper operation and inputs. d. After anchoring or mooring, AIS is adjusted to transmit the correct status and information. 	<p>29. Automated Identification System (AIS)</p> <p>The ECOPRO standard is identical to the VBAP standard.</p>
<p>30. Spill Preparedness Forms and Checklists</p> <p>Emergency oil spill response procedures and checklists are posted or readily available on board all tank barges.</p>	<p>30. Spill Preparedness Forms and Checklists</p> <p>All Qualified Individuals are trained in basic ICS procedures, such as filling out ICS Form 201 <i>Incident Briefing</i> before the spill response team arrives, if the spill occurs in Washington state waters.</p> <p>AND</p> <p>An ICS 201 form is used at every deployment drill and spill in Washington state waters.</p>

END