"Strawman Towing Industry Safety System"
As amended by the Pacific States/BC Oil Spill Task Force

Goal

Develop and implement a safety system for the towing industry that is:

1. **Real** – that is, a system that addresses real risks and leads to a measurable reduction in accidents and improvement in industry safety performance.

2. **Inclusive** – that is, a system that encompasses the entire towing industry, not only those companies that have chosen to belong to an industry association; a system that is supportable by, and supported by, key industry stakeholders, including Congress, shippers/customers, and vessel crewmembers; a system that addresses shoreside management and support as well as vessels and vessel professionals.

3. **Practical** – that is, a system that is risk-based and makes efficient use of both industry and Coast Guard resources.

4. **Comprehensive** – that is, a system that addresses such key issues of public interest as the uninspected status of towing vessels, human factors, bridge allisions, worker health and safety, and security management.

Applicability

The system should apply to any company that operates:

A towing vessel **greater than eight meters (26 feet) in length**, except a towing vessel that –

a) shifts a barge or barges at a facility or within a fleeting or construction facility;[1] or,
b) provides emergency assistance.

Oversight and Enforcement

Each towing vessel subject to the following requirements must possess a Certificate of Inspection issued by the Coast Guard and valid for a period of five years. In order to receive a Certificate of Inspection, a towing vessel must either be:

1. **Inspected annually by the Coast Guard**; **or**

[1] "Facility" means any structure or facility of any kind located in, on, under, or adjacent to any waters subject to the jurisdiction of the U.S. and used, operated, or maintained by a public or private entity, including any contiguous or adjoining property under common ownership or operation.

Covered by a third-party audit program that meets the following standards:

a) **Auditor must meet standards** incorporated by reference in regulation.[2]
b) **Scope and frequency of audit**:
    i. Third-party audit of company safety management system every five years.
    ii. Internal company audit of all covered vessels over three- to five-year period. (Flexibility based on performance.)
    iii. Third-party audit of specified percentage of vessels (10 percent annually or 50 percent over five-year period).
c) **Coast Guard oversight**: To be done **in connection with Coast Guard boardings to verify compliance with vessel security plan.**[3] Target: one Coast Guard visit per covered vessel over a five-year period; scope of examination dependent on performance.

Safety Management System

A company that operates towing vessels that meet the above criteria should be required to **develop and implement a safety management system** that includes the following components. Policies and procedures must **address the entire marine work environment of towing vessel personnel, including barges that are under the operational control of the towing vessel.**[4]

1. Vessel and Shoreside Operating Policies/Procedures
    - Company-specific vessel operating procedures, including:
        - Bridge/pilothouse management
        - Navigation/watchstanding (watch change, lookouts, standing orders, voyage plan, bar crossing procedures, etc.)
        - Planning (voyage/trip, bridge transits, weather, currents, etc.)
        - Coastal towing standards such as twin screw tugs with 4 pounds of bollard pull per deadweight long ton of cargo
    - Vessel-specific operating procedures, including:
        - Procedures for making horsepower/tow size decisions

[2] Such standards might include, but not be limited to, those established by the American Bureau of Shipping, American Society for Quality, International Registry of Certified Auditors, and Registrar Accreditation Board. At a minimum, auditors should possess the following qualifications: minimum high school education; successful completion of approved auditor training course; Coast Guard license as deck or engineering officer, or two years of maritime vessel management experience, or four years of post-secondary education; auditing experience (six audits, including up to four as junior or trainee auditor); and two letters of reference from persons in a position to evaluate the applicant's suitability to conduct audits.

[3] Such boardings will be required at least once every five years under the Maritime Transportation Security Act of 2003.

[4] A towing vessel crewmember does not step out from under a company's safety and health policies and procedures, for example, simply because he moves from the boat to a barge under the boat's operational control.

- Procedures to ensure proper/valid documentation carried aboard vessels; list of documentation to be carried
- Fuel transfer procedures
- Vessel maintenance procedures, including:
    - Persons responsible for maintenance
    - Maintenance schedules
    - Qualifications and training requirements for persons responsible for maintenance
    - Procedures to correct deficiencies identified during maintenance
    - Maintenance record retention program
- Vessel inspection procedures, including:
    - Persons responsible for conducting in-house inspections
    - Frequency of inspections
    - Qualifications and training requirements for persons responsible for conducting in-house inspections
    - Procedures to correct deficiencies identified during inspections
    - Inspection record retention program
- Cargo transfer/cargo handling procedures, including:
    - Benzene policy
    - Vapor control procedures
    - Cargoes requiring special handling
- Lightering procedures (if applicable)
- Procedures for identifying critical stores and supplies

2. Safety & Health policies/procedures
    - Company safety policy, including:
        - Accountability and commitment to safety at all organization levels
    - Company safety rules, including:
        - Painting in enclosed spaces
        - Non-skid surfaces
        - Flammable and combustible liquids
    - Personal protective equipment policy, including:
        - Use of PPE
        - Inspection of PPE
        - Maintenance of PPE
        - Replacement of PPE
        - Respiratory protection
        - Fall arrest
    - Safety training/drills/meetings
        - Topics to be covered
        - Frequency
    - Safe use of equipment, including:
        - Welding/cutting
        - Hand tool safety
        - Safe use of ladders
        - Abrasive wheel machinery

- Cargo knowledge
- Hazard communication procedures
- Fall overboard prevention
- Hearing conservation
- Confined space entry
- Bloodborne pathogens
- Process for reporting safety deficiencies/non-conformities
- Corrective action process

3. Environmental policy/procedures
   - Company environmental policy
   - Garbage disposal requirements/procedures/documentation
   - Handling of waste oil, bilge slops, and used filters
   - Hazardous waste disposal/handling
   - Sanitary systems/handling of sewage
   - Oil spill prevention policies and procedures

4. Incident Reporting procedures
   - Personal injury
   - Oil or hazardous substance spill
   - Vessel accident
   - Allision with bridge, lock, or dock
   - Grounding
   - Hazardous situation reporting

5. Emergency Response procedures
   - Personal injury response
   - Oil or hazardous substance spill response
   - Vessel accident response
   - Lost barge retrieval
   - Onboard emergency response training/drill procedures, including:
     - Subject matter
     - Frequency
     - Documentation

6. Internal audit and review procedures (covering vessels and shoreside)
   - Internal audit schedule, topics, and scope
   - Method for identifying nonconformities
   - Method of tracking corrective action, including:
     - Assigned responsibility
     - Management review
     - Follow-up timeframe
   - Procedures to ensure compliance with applicable federal laws and regulations concerning marine safety, security, and environmental protection
   - Personal injury investigation and lessons learned
   - Spill investigation and lessons learned

- Vessel accident investigation and lessons learned
- Near-miss reporting procedures
- Communication procedures for disseminating lessons learned
- Document control, updating, and distribution
- Performance measurement procedures

7. Vendor safety

8. Organization and levels of authority
   - Explain/depict company organization and authority/responsibility of individuals at different levels
   - Person responsible for operation of company and vessels
   - Designated Person[5]
   - Master's authority and responsibility[6]

9. Personnel policies
   - Hiring policy
   - Physical exams/physical standards policy
   - Drug and alcohol policy
   - Proficiency evaluation policy
   - Orientation and training policy, including:
     - Who is trained
     - Subjects in which training is given
     - Frequency of training
   - Personnel development program
     - Deck personnel
     - Tankermen
     - Engineers
     - Wheelhouse personnel
   - Prescription medication notification policy
   - Disciplinary policy

10. Security policies/procedures
    - Company and vessel compliance with regulations/Alternative Security Program/international conventions, as applicable

Vessel Equipment Standards

1. Hull
   - Drydock period (routine hull inspection)

[5] Individual who is responsible for monitoring safety and environmental operations and ensuring adequate support and resources for vessel operations, and who has direct access to highest level of management.

[6] E.g, carrying out safety and environmental policies, motivating vessel crew to comply with SMS, issuing orders clearly and simply, reviewing SMS, making decisions regarding safety, and requesting assistance from the company.

    - Inland towing vessels as needed; maximum 36 months
    - Coastal towing vessels twice every five years; maximum 36 months
    - Vessels operating exclusively in coastal harbor service (i.e., not beyond the boundary line) as needed; minimum once every five years with a mid-term underwater inspection between the 24th and 36th months
- For coastal towing equipment, hull gaugings and ballast tank inspections
    - Maximum 36 months for ballast tanks or voids; maximum five years for hull gaugings
- Watertight closures (doors, hatches, airports, windows, etc.)
    - Watertight closures inspected annually, with particular attention to main or freeboard deck closures
- Other openings (ventilators, air pipes, tank vents, etc.)
    - *Annual inspection for water or weather tightness and structural integrity*
- Rails, ladders, bulwarks, lighting, walking surfaces, chain guards, and handrails
    - Annual inspection for wastage, weakness, and personnel safety considerations
    - For inland towing equipment, safety chains along outboard sides of main deck
- Emergency walkways and hatchways
    - Annual inspection
- Freeing ports and scuppers
    - Coastal towing vessels annual survey and inspection while at sea to note satisfactory drainage of main deck for seaworthiness
- Piping systems and tanks
    - Piping diagrams should be kept aboard the vessel and piping systems identified by color-coding, numbering, lettering, etc.
    - Annual inspection
- Freeing ports and scuppers (if applicable)
    - Annual survey and inspection while underway to note satisfactory drainage of main deck for seaworthiness

2. Machinery
    - Vessel maintenance program covering the following:
        - Propulsion system (all major propulsion machinery, including engines, reduction gears, clutches, controls, shafting, bearings, and other items prone to wear)
        - Steering system (all components)
        - Miscellaneous auxiliary systems
        - Electrical systems (should be labeled or documented by schematic diagram)
    - Maintenance records should be kept on all systems identified above. Records should contain sufficient information to develop a program for overhauls, repairs, and preventative maintenance, and indicate part

replacement dates and test dates. Logs should be kept indicating any maintenance or inspections performed.

- Company maintenance procedures should include a lock-out/tag-out policy
- Guards should be placed around any exposed moving parts (e.g., shafts, belts, pulleys, etc.)
- Vessel should have the following alarms or have individuals assigned responsibility to monitor and document the following in accordance with company policy:
    - Main engine water temperature
    - Main engine lube oil pressure
    - Bilge alarm
    - Generator water temperature
    - Generator lube oil pressure
    - Hydraulic steering fluid level
    - Vessel should have general alarm audible in all compartments
    - General alarm shall be tested weekly. Other alarms should be tested quarterly.
    - For unmanned or periodically manned engine room, alarms should have display board in both engine room and wheelhouse.
- Vessel should have the following gauges or have individuals assigned responsibility to monitor and document the following in accordance with company policy:
    - Main engine water temperature
    - Main engine lube oil pressure
    - Generator water temperature
    - Generator lube oil pressure
    - Main engine tachometer
    - Gear oil pressure
    - Hydraulic steering fluid level (sight glass)

3. Firefighting/lifesaving equipment
    - A check-off report should be turned in or a log entry made at least quarterly verifying that the following required firefighting and lifesaving equipment is present and in proper working order:
        - Coast Guard-approved life preservers (46 CFR 25.25-5)
        - Coast Guard-approved ring buoy (46 CFR 25.25-5(d))
        - Coast Guard-approved work vests (46 CFR 26.30-5) (46 CFR 26.30-10)
        - Coast Guard-approved hand-portable fire extinguishers and semi-portable fire extinguishing systems (46 CFR 25.30)
    - Other equipment/items carried (and addressed in check-off report or log entry) should include the following:
        - Fire hydrants with hose and nozzle
        - Flare kits (if applicable)
        - Fire axe
        - First aid kit/trauma kit (properly stocked and maintained)

- Smoke alarms to protect all accommodation spaces (and connected to central alarm)
- Emergency lighting
- Fire detection system to detect engine room fires (46 CFR 27.210)
- Remote engine fuel shutoff valve (46 CFR 27.230)
- Heat or flame detector in galley
- Externally activated fire extinguishers in engine room
- Remote manual engine shutdown
- Remote starter for fire pump
- Posted safety notices/placards/warning signs
- Placarded storage area appropriate for flammable products
- Inflatable life raft (coastal towing vessels)

4. Navigation/communication equipment
   - A check-off report should be turned in or a log entry made at least quarterly verifying that all required navigation and communication equipment is present and in proper working order:
   - For all vessels:
     - Copy of Navigation Rules (33 CFR 88.05)
     - Radiotelephone log (where applicable) (47 CFR 80.405, 80.409(e) and (f))
     - VHF radio (33 CFR 26.03)
     - Valid FCC radio station license (47 CFR 80.25) posted near radio
     - Navigation lights (33 USC 2023(a))
     - Whistle and bell (33 CFR 86.05) (COLREGS Rule 33)
     - Sound signal device (33 USC 2033(b)) (COLREGS Rule 33)
     - Additional VHF radio capable of connection to battery backup
     - 2 radars (if only one radar is carried, need documented procedures to address radar failure) (one radar 33 CFR 164.72(a)(1))
     - Navigation charts/maps (33 CFR 164.72(b)(1))
     - Tide and Current Tables (where applicable) (33 CFR 164.72(b)(3))
     - Coast Pilot (where applicable) (33 CFR 164.72(b)(3))
     - Notice to Mariners (33 CFR 164.72(b)(3))
     - Search light (33 CFR 164.72(a)(2))
     - Defroster/de-icer (where applicable)
     - VTS Manual (where applicable)
     - Backup marine radio or telephone communications (33 CFR 164.72(a)(3))
     - Loran or satellite navigation receiver (where applicable) (33 CFR 164.01, 33 CFR 164.41)
     - Handheld VHF radio
     - Public address system/internal communication system
     - Windshield wiper (when visibility will be improved by its use)
   - Additional equipment for inland towing vessels
     - Swing meter or magnetic compass, depending on area of operations (33 CFR 164.72(a)(4))

- Additional equipment for coastal towing vessels
    - Emergency position indicating radio beacon (EPRIB) (46 CFR 25.26)
    - Magnetic compass and back-up means of determining course and direction (gyrocompass for oceangoing tugs) (33 CFR 164.72(a)(4))
    - Fathometer
    - Light List
    - Rudder angle indicator
    - Autopilot

5. Towing gear/rigging
    - Each company operating inland towing vessels should:
        - Establish documented procedures for safe use of wires, ropes, chains, shackles, ratchets, and winches.
        - Identify minimum rigging requirements for each vessel according to service.
        - Formulate an inspection and replacement program for rigging.
        - Establish minimum (original/time of purchase) specifications for each element of rigging.
    - Each company operating coastal towing vessels should follow established guidelines for the following towing gear:
        - Tow wire/towing hawser
        - Bridles and surge gear (if used)
        - Associated towing gear (e.g., shackles, flounder/fish plates, shock hawser, and pennant)
        - Chafing protection
        - Emergency towing gear
        - Emergency reconnection equipment (Orville hook, extra bridle and pendant on barge)
        - Wire rope records, inspection and maintenance

6. Environmental controls
    - Fuel oil and bulk lubricating oil containment (33 CFR 155.320)
    - Bilge slop containment (33 CFR 155.330)
    - Oily water separator equipment (33 CFR 155.380) (where applicable)
    - Placard prohibiting discharge of oil (33 CFR 155.450)
    - MARPOL placard (33 CFR 151.59)
    - Certified marine sanitation device (33 CFR 159.7)
    - Fuel oil transfer procedures (33 CFR 155.720)
    - Oil spill contingency plan outlining procedures to be followed in the event of a fuel spill from the towing vessel
    - Containment around fueling stations
    - Spill kit
    - Closable scuppers or other containment method (where applicable)

Personnel Standards

1. Manning
   - All towing companies should man their vessels for safe operation, taking into account the following criteria:
     - Applicable law and regulation
     - Number, size, and type of barges to be towed
     - Towing route
     - Safety of personnel, equipment, environment
     - Service in which tow is engaged
     - Functional duties required of crew in addition to standard navigation
     - Configuration of vessel superstructure and deck and engine room
     - Extent of automation
     - Size and power of equipment used
     - Environmental/climatic conditions (e.g., icing)
     - Experience of crew
     - Frequency of opportunities for personnel to receive 7 to 8 hours of uninterrupted sleep
     - Extent to which tow vessel has been fitted or retrofitted to meet ergonomic standards for maritime applications
     - Extent to which tow vessel has been fitted or retrofitted to minimize performance degradation of personnel based on factors identified in the company's Crew Endurance Management System (CEMS)
     - Any performance stressors that cannot be adequately addressed through the company's CEMS
   - Except in an emergency, at least one qualified wheelhouse person and one additional crewmember should be on duty at all times while the vessel is underway.
   - During coastal towing, a third operator should be available for assistance when entering a difficult navigation area, or a bar crossing, or when shortening or recovering a tow, for example.

2. Watchstanding/Work Hours
   - Except as otherwise provided, such as 46 USC 8104(c), current law (46 USC 8104(h)) provides that "an individual licensed to operate a towing vessel may not work for more than 12 hours in a consecutive 24-hour period except in an emergency."
   - All other crewmembers on a towing vessel should be permitted to work no more than 15 hours in any 24-hour period or more than 42 hours in a 72-hour period, except in an emergency or drill.
   - Crew Endurance Management System (written program plus training for all crewmembers and appropriate shoreside employees)

3. Training
   - Towing vessel crewmembers should receive initial training and periodic refresher training in the following subjects. Refresher training should be

conducted in accordance with company policy, but no less frequentely than once every five years

- Unless required as a condition of licensure or otherwise prescribed by regulation, training courses need not be Coast Guard-approved.
- The training identified below is intended to apply to any individual serving in the listed capacity aboard a towing vessel, regardless of license held. Training required as a condition of licensure (e.g., firefighting) may be used to satisfy the training specifications listed below.

A. Master (captain), relief captain, mate (pilot)
    - Radar training
    - Navigation/boat handling training or proficiency evaluation; Rules of the Road refresher training
    - Company policy and procedure orientation, including review of federal requirements and company policies
    - Marine firefighting/fire prevention
    - Personal safety, including:
        (1) First aid and CPR awareness
        (2) Confined space hazard awareness
        (3) Injury prevention, including back training
    - For tank barge tows:
        (1) First responder/spill mitigation/emergency response orientation (may include HAZWOPER training)
        (2) Benzene awareness training
    - Cargo knowledge/hazard awareness
    - Responsibility and authority of master; supervisory skills training

B. Engineer
    - Marine diesel school or in-house training, including equipment and process updates
    - Company policy and procedure orientation, including review of federal requirements and company policies
    - Marine firefighting/fire prevention
    - Personal safety, including:
        (1) First aid and CPR awareness
        (2) Confined space hazard awareness
        (3) Injury prevention, including back training
        (4) Lock-out/tag-out procedures
    - For tank barge tows:
        (1) First responder/spill mitigation training

C. Tankerman
    - Tank barge safety training
        (1) Loading and discharging operations
        (2) Safety practices
        (3) Environmental protection and loading procedures

(4) Federal regulation review and training
(5) First responder/spill mitigation/emergency response orientation (may include HAZWOPER training)
(6) Vapor recovery operations
(7) Tank overfill protection system operation, inspection and testing

- Company policy and procedure orientation, including review of federal requirements and company policies
- Marine firefighting/fire prevention
- Personal safety, including:
  (1) First aid and CPR awareness
  (2) Confined space hazard awareness
  (3) Injury prevention, including back training
  (4) Cargo-specific training
- Vessel communications system and procedures

D. Deck crew
- Deck operations and safety training
- Company policy and procedure orientation, including review of federal requirements and company policies
- Vessel firefighting/fire prevention
- Personal safety, including:
  (1) First aid and CPR awareness
  (2) Confined space hazard awareness
  (3) Injury prevention, including back training
  (4) Lock-out/tag-out procedures
- For tank barge tows:
  (1) First responder/spill mitigation training

E. Entry-level personnel
- Company orientation, including:
  (1) Drug and alcohol policy
  (2) Safety as a condition of employment
  (3) Vessel layout/deck operations
  (4) Required safety gear
  (5) Job responsibilities
- Emergency procedures orientation
  (1) Fire
  (2) Collision/allision
  (3) Sinking
  (4) Grounding
  (5) Man overboard
  (6) Personal injury
- Confined space hazard awareness
- Injury prevention, including back training