

Program Letter

Bureau of Storage Tank Regulation
August 2000

POS and Unattended Marina Fuel Dispensing

Addendum to Marine Fuel Dispensing Systems Located on Docks

The initial May 1997 marina program letter addressed the technical design and application of marina dispensing systems. Since the publication of that program letter various dispensing practices and trends that pose a significant risk to human and environmental safety have been developing. This program letter will communicate the Department policy relating to two dispensing issues and concerns.

- With the popularity of recreational boating and other gas powered water equipment many marinas are now attempting to capture retail fuel sales with an expense reducing practice - eliminate the attendant and cashier.
- Many marina owners are attempting to install POS dispensers as a means to provide 24 hour fuel retail fuel sales during periods when the business is not open. A practice clearly prohibited in the latest edition of NFPA 30A.

Regulatory History

Much of the technology in place today, and many of the retail dispensing practices experienced today were not in place or practice in 1987 and prior to the initial May 1991 effective date of ILHR 10 (now Comm 10). Point-of-sale (POS) dispensers, e.g., credit card, key-card, and cash operated dispensers were just beginning to be marketed in 1987, but for non retail (fleet) use to facilitate unattended 24 hour non retail fleet fueling. POS dispensers did not enter the retail market until 1992 - 93 and are still restricted in many states. The current edition of Comm 10 adopts the 1987 edition of NFPA 30A, which is significantly less restrictive in technical application for marina fueling than the 1990, 1993 and 1996 editions of NFPA 30A. The 1996 edition prohibits POS dispensing at marine fueling sites. Commerce has been asked to justify the policy to apply a standard not adopted by the Comm 10 code in spite of several code revisions since May 1, 1991 and to justify the restrictions placed on marina POS dispensing.

The 1987 edition of NFPA 30A included marinas, but had very little language relating to the direct dispensing into marine craft because the common practice was filling the recreational marine craft fuel tank from portable containers. NFPA made a significant revision (creating a separate marine fueling section) in the 1996 edition prompted by fire, injury incidents and changing fueling practices, very clearly addressing marina fueling and requiring that all direct dispensing into marine craft be under the supervision of an attendant. The marine craft fuel dispensing fire safety concerns are based upon experiences with:

- fuel spillage going into the craft,
- static potential and combustible material of the craft,
- fuel spillage or leakage going into the water,
- limited escape routes - people that can run can not necessarily swim,
- potential static charge ignition,
- exposure of craft occupants to explosion deflagration,
- craft or pier movement during fuel transfer subject to waves or wakes,
- access limitations by emergency response fire/rescue, etc.,
- liberal regulations and attitude toward alcohol use by marine craft occupants.

NFPA 30A – 1987 does not differentiate marine craft fueling from highway vehicle fueling. This edition addresses attended self-service and unattended self-service in a general vehicle fueling application. NFPA 30A – 1996 maintains the self-service applications in the vehicle fueling sections of the standard and excludes self-service application from the marine fuel dispensing section of the standard. This differentiation demonstrates the recognition of a fire safety risk.

Attendant fueling

NFPA 30A 1996 includes very specific requirements that marine craft fueling be conducted by an attendant:

Excerpts from 1996 Edition of NFPA 30A:

NFPA 30A-10-4.7

Each marine service station shall have an attendant or supervisor on duty whenever the station is open for business. The attendant's primary function shall be to supervise, observe, and control the dispensing of liquids.

NFPA 30A-10-11.1

It shall be the responsibility of the attendant to (1) prevent the dispensing of Class I liquids into portable containers not in compliance with Section 9-2; (2) be familiar with the dispensing mechanism and emergency shutoff controls; (3) ensure that the vessel is properly moored and that all connections are made; (4) be within 15 ft (4.6 m) of such dispensing controls during the fueling operation and maintain a direct clear unobstructed view of both the vessel fuel filler neck and the fueling facility emergency fuel shutoff mechanism.

The 1987 edition of NFPA 30A provides for attended self-service fueling, but restricts any type of unattended self-service to the approval of the Authority Having Jurisdiction (8-5.1), which is the state program agency (Commerce). This section of the national standard demonstrates that unattended self-service was not a generally accepted practice in 1987. NFPA 30A 1996 incorporated a requirement for attendant fueling (10.4.7 and 10.11.1) and a prohibition of attended or unattended *self-service* fueling.

The Department has recently become aware of a concept, primarily marina or boat "clubs" issuing cards with the premise that the cardholder is a club member, should be considered a club employee, and are the fueling "attendants". This concept has very little merit. a) The "members" probably pay a membership fee to the club and also must pay for their fuel, thus defining it as retail fueling. b) As the concept is applied, the "member" or attendant would not meet the definition or classification of "employee" and is not recognized as an attendant under code expectations.

Marine craft fueling hazards

People have difficulty recognizing the inherent fire safety issues of marine craft fueling that differ from automobile fueling.

The marine craft fueling environment is very susceptible to static related accidents. Static is generated when liquids move in contact with other materials. This occurs commonly in operations such as flowing them through pipes and in mixing, pouring, pumping, filtering, or agitating. Under certain conditions, particularly with liquid hydrocarbons, static can accumulate in the liquid. If the accumulation is sufficient, a static spark can occur. If the spark occurs in the presence of a flammable vapor-air mixture, an ignition can result. Therefore, steps should be taken to prevent the simultaneous occurrence of these two conditions.

A conductive object can be grounded directly or by bonding it to another conductive object that is already connected to the ground. Some objects are inherently bonded or inherently grounded by their contact with the ground. Examples are underground piping or large storage tanks resting on the ground. Bonding is done to minimize potential differences between conductive objects. Likewise, grounding is done to minimize potential differences between objects and the

ground. *When a liquid is transferred into nonconductive containers (glass, plastic), the container material can hinder charge relaxation to ground. In these instances, even conductive liquids can accumulate charge.*

In the situation mentioned above, typical to marine fueling (outboard motor plastic gas containers), the tank shell is highly insulated from the ground. The handling of flammable liquids in plastic containers having capacities from 5 to 60 gal (19 to 227 L) is hazardous even if the liquid is conductive. While filling the container, charges generated by splashing, turbulence, or filtering can accumulate on the surface of the liquid or on conducting components insulated from ground. Charges can also be generated by rubbing on the external surface of the container while shipping or handling. These charging mechanisms can result in an incendive discharge. Recommended safeguards are to ground all metal parts on or near the container and provide for charge relaxation by bottom filling with a grounded lance.

If a nonconductive container must be used, a discharging electrode should be present in the liquid throughout filling. This can consist of a grounded dip pipe or a grounded wire. All conductive elements such as funnels must be grounded during filling. The filling rate should be minimized, particularly if an upstream filter is present, and the discharging electrode or dip pipe retained in the liquid for at least 30 seconds after filling any low conductivity liquid (less than 50 pS/m). An additional hazard can arise if nonconductive containers are used in areas containing ambient flammable mixtures, owing to the possibility of the container surface becoming charged. Also, the ignition risk posed by ungrounded personnel should be considered. Special advice should be obtained before adopting a procedure involving low conductivity liquids and nonconductive containers exceeding 1 gal (3.8 L) capacity.

NFPA 30A, 10-9

No delivery of any Class I or Class II liquid shall be made into portable containers unless the container is constructed of metal or is approved by the authority having jurisdiction, has a tight closure, and is fitted with a spout or is so designed that the contents can be dispensed without spilling. (See NFPA 30, Flammable and Combustible Liquids Code, 4-2.1, for further information.)

NFPA 30A, 10-9.3

Portable containers of 12 gal (45 L) capacity or less shall not be filled while they are in or on a marine craft.

The marina fueling environment also poses considerable differences from highway vehicle fueling in terms of craft/structure stability, increasing the potential for an accidental spill from craft or pier movement. The location of the vessel fuel tank also increased the risk that a spill will result in the fuel entering the occupant compartment. Probability of a spill and contamination is much higher for marine craft due to the mechanics of fuel transfer and dispensing, and the site characteristics.

The owner of the marine craft and the owner of the dispensing facility are likely not the owner of river or lake immediately below and adjacent to the fueling activity. The attendant and others in the area can not respond adequately to contain a spill from marine craft fueling as they would from an automobile at a local gas station. It only takes 1 gallon of fuel to contaminate 1,000,000 gallons of water above the threshold. Many rivers and lakes are the source of public drinking water. Many current day fuel additives pose a significant contamination threat (e.g., MTBE) to fish, wildlife and humans.

The marine dispensing area has very limited access for emergency operations, whether by marina staff or emergency responders. Exiting a boat and escaping the immediate fuel dispensing area is considerably more challenging for individuals exiting a marine craft than for individuals exiting an automobile. Likewise, fire department staging at a vehicle service station is much more accommodating than marine service stations.

Policy rationale

Commerce has the regulatory authority responsible to maintain public fire and environmental safety for flammable and combustible liquids. Commerce, through the Bureau of Storage Tank Regulation implemented the provisions and prohibitions included in the 1996 edition of NFPA 30A with rationale that current marine craft fueling practices and public safety concerns did not exist when the 1987 edition of the NFPA standard was written.

This rationale and regulatory strategy originates from a meeting with the DILHR Secretary's Office and Legal Counsel in the mid 1990's when we were faced with other disparities between more current standards and the specific editions adopted by the ILHR 10 code. We were advised to "implement the more current standard when the existing code and adopted standard did not address new technology, or practices and applications that appeared to have impact on public safety. The Department has the responsibility and authority to address known hazards to public welfare by implementing the safe-guards provided for in current national standards as well as recognize the applications of modern technology that may not be addressed by the adopted standard." In fact, one of the discussion points was how the DILHR position would play out in litigation. It was believed that litigation or public attitude would favor policy initiated in the interest of public safety, whereas ignoring public safety issues that current standards address, will likely not reflect in the best interests of the Department. The subject regulatory policies as presented in this program letter, has again been supported by the Department's Assistant Legal Counsel.

Enforcement

Comm 10.10 (1) requires that plan review and written approval must be granted prior to conversion to self-service or point-of-sale type dispensing operations.

- (a) Plan review and written approval from the department or its authorized deputy shall be obtained before: . . . conversion of general service stations to self-service stations; or conversion to the use of key, card or code operated dispensing devices.

Comm 10.18 (3)(a) authorizes the enforcement by immediate shut-down for systems or their components that pose an immediate danger to life, safety, or health.

- (a) Immediate shutdown. Tank systems or their components which pose an immediate danger to life, safety or health shall be subject to immediate shutdown.

Petition For Variance Alternative

The Department has been asked to consider allowing the POS dispenser concept for the billing transaction only. The marina would maintain attendant dispensing, but use the POS configuration solely for credit type sales transactions. The ability to conduct a POS transaction would be inhibited if an attendant was not on duty. The Department will recognize this concept provided the request is via the formal Petition For Variance (PFV) process (form ERS-9890-A) and the PFV includes the authorization by the local fire chief or his/her representative. A PFV will not be approved if the local fire department authority does not approve the request.

The PFV must also include:

- Number of dispensers.
- Mechanism or procedure to inhibit the POS operation during the period an attendant is not on duty.
- Diagram of marina and marine fueling area.