§ 154.812  Facility requirements for vessel liquid overfill protection.

(a) Each facility which receives cargo vapor from a tank barge which is fitted with overfill protection in accordance with 46 CFR 39.20–9(a) as its only means of overfill protection must provide a 120 volt, 20 amp explosion proof receptacle which meets:

(1) ANSI/NEMA WD6 (incorporated by reference; see §154.106);

(2) NFPA 70, National Electrical Code, Articles 410–57 and 501–12; incorporated by reference; see §154.106; and

(3) 46 CFR 111.105–9.

(b) Each facility that receives cargo vapor from a tank barge fitted with an intrinsically safe cargo tank level sensor system complying with 46 CFR 39.20–9(b) as its only means of overfill protection must have an overfill control panel on the dock capable of powering and receiving an alarm and shutdown signal from the cargo tank level sensor system that:

(1) Closes the remotely operated cargo vapor shutoff valve required by §154.810(a) of this subpart and activates the emergency shutdown system required by §154.550 of this part when:

(i) A tank overfill signal is received from the barge, or

(ii) Electrical continuity of the cargo tank level sensor system is lost;

(2) Activates an alarm which is audible and visible to barge personnel and facility personnel when a tank overfill signal, or an optional high level signal corresponding to a liquid level lower than the tank overfill sensor setting, is received from the barge;

(3) Has a means to electrically and mechanically test the alarms and automatic shutdown systems prior to transferring cargo to or ballasting the tank barge;

(4) Has suitable means, such as approved intrinsic safety barriers able to accept passive devices, to ensure that the overfill and optional alarm circuits on the barge side of the overfill control panel, including cabling, normally closed switches, and pin and sleeve connectors, are intrinsically safe;

(5) Is labeled with the maximum allowable inductance and capacitance to be connected to the panel, as specified by the equipment manufacturer; and

(6) Has a female connecting plug for the tank barge level sensor system with a 5 wire, 16 amp connector body meeting IEC 309–1/309–2 (incorporated by reference; see §154.106) which is:

(i) Configured with pins S2 and R1 for the tank overfill sensor circuit, pin G connected to the cabling shield, and pins N and T3 reserved for an optional high level alarm connection;

(ii) Labeled “Connector for Barge Overflow Control System”; and

(iii) Connected to the overfill control panel by a shielded flexible cable.


§ 154.814  Facility requirements for vessel vapor overpressure and vacuum protection.

(a) A facility’s vapor collection system must have the capacity for collecting cargo vapor at a rate of not less
than 1.25 times the facility’s maximum liquid transfer rate for cargo for which vapor collection is required plus any
inserting, diluting, or enriching gas
which may be added to the system, un-
less the vapor growth for turbulent
loading of the most volatile liquid han-
dled by the facility is less than 25 per-
cent.
(b) A facility vapor collection system
must maintain the pressure in a ves-
sel’s cargo tanks between 80 percent of
the highest setting of any of the ves-
sel’s vacuum relief valves and 80 per-
cent of the lowest setting of any of the
vessel’s pressure relief valves for a non-
inerted tank vessel, and between 0.2
psig and 80 percent of the lowest set-
ing of any of the vessel’s pressure re-
lied valves for an inerted tank vessel.
The system must be capable of main-
taining the pressure in the vessel’s
cargo tanks within this range at any
cargo transfer rate less than or equal
to the maximum transfer rate deter-
mimed at the pre-transfer conference
required by §156.120(w) of this chapter.
(c) The pressure measured at the fa-
cility vapor connection must be cor-
rected for pressure drops across the
vessel’s vapor collection system and
the vapor collection hose or arm.
(d) A pressure sensing device must be
provided which activates an alarm
when the pressure at the facility vapor
connection falls below either the pres-
sure corresponding to the upper pressure de-
termined in paragraph (b) of this sec-
tion or a lower pressure agreed upon at
the pre-transfer conference required by
§156.120(w) of this chapter.
(e) A pressure sensing device must be
provided which activates an alarm
when the pressure at the facility vapor
connection exceeds either the pressure
corresponding to the lower pres-
sure determined in paragraph (b) of
this section or a higher pressure agreed upon at
the pre-transfer conference required by
§156.120(w) of this chapter.
(f) A pressure sensing device must be
provided which activates the emer-
gency shutdown system required by
§154.550 of this part and closes the re-
motely operated cargo vapor shutoff
valve required by §154.810(a) of this
subpart when the pressure at the facili-
ty vapor connection exceeds 2.0 psi, or
a lower pressure agreed upon at the
pre-transfer conference required by
§156.120(w) of this chapter. The sensing
device must be independent of the de-
vice used to activate the alarm re-
quired by paragraph (d) of this section.
(g) A pressure sensing device must be
provided which closes the remotely op-
erated cargo vapor shutoff valve re-
quired by §154.810(a) of this subpart
when the vacuum at the facility vapor
connection is more than 1.0 psi, or a
lesser vacuum set at the pre-transfer
conference required by §156.120(w) of
this chapter. The sensing device must
be independent of the device used to
activate the alarm required by para-
graph (e) of this section.
(h) The pressure sensing devices re-
quired by paragraphs (d) and (f) of this
section must be located in the vapor
collection line between the facility
vapor connection and the manual isola-
tion valve, if required by §154.810(h) of
this subpart, unless an interlock is pro-
vided which prevents operation of the
system when the isolation valve is
closed.
(i) A pressure indicating device must
be provided which indicates the pres-
sure in the vapor collection line.
(j) If a compressor, blower, or eductor
capable of drawing more than 1.0 psi
vacuum is used to draw vapor from the
vessel, a vacuum relief valve must be
installed in the vapor collection line
between the compressor, blower, or
eductor and the facility vapor connec-
tion, which:
(1) Relieves at a pressure such that
the pressure in the vapor collection
system at the facility vapor connection
does not exceed 1.0 psi vacuum;
(2) Has a relieving capacity equal to
or greater than the capacity of the
compressor, blower, or eductor;
(3) Has a flame screen fitted at the
vacuum relief opening; and
(4) Has been tested for relieving ca-
pacity in accordance with paragraph
1.5.1.3 of API 2000 (incorporated by ref-
erence; see §154.106) with a flame screen
fitted.
(k) When a facility collects cargo
vapor through an undersea pipeline
from a vessel moored offshore, the vac-
uum relief valve may be set at a vacu-
um greater than 1.0 psi vacuum pro-
vided the pressure controls take into
account the pressure drop across the
§ 154.820 Fire, explosion, and detonation protection.

(a) A vapor control system with a single facility vapor connection that receives vapor only from a vessel with inerted cargo tanks and processes vapor with a vapor recovery unit must:

(1) Be capable of inerting the vapor collection line in accordance with §154.824(a) of this subpart prior to receiving vapors from the vessel; and

(2) Have at least one oxygen analyzer that samples the vapor concentration continuously at a point not more than 6 meters (19.7 ft.) from the facility vapor connection; and

(3) Meet §154.824(f)(1), (f)(2), (g), (h)(2), and (h)(3) of this subpart.

(b) A vapor control system with a single facility vapor connection that receives vapor only from a vessel with inerted cargo tanks and processes vapor with a vapor destruction unit must:

(1) Have a detonation arrester located not more than 6 meters (19.7 ft.) from the facility vapor connection; or

(2) Have an inerting system that meets the requirements of §154.824 of this subpart.

(c) A vapor control system with a single facility vapor connection that receives vapor from a vessel with cargo tanks that are not inerted and processes vapor with a vapor recovery unit must:

(1) Have a detonation arrester located not more than 6 meters (19.7 ft.) from the facility vapor connection; or

(2) Have an inerting, enriching, or diluting system that meets the requirements of §154.824 of this subpart.

(d) A vapor control system with a single facility vapor connection that receives vapor from a vessel with cargo tanks that are not inerted and processes the vapor with a vapor destruction unit must:

(1) Have a detonation arrester located not more than 6 meters (19.7 ft.) from the facility vapor connection; and

(2) Have an inerting, enriching, or diluting system that meets the requirements of §154.824 of this subpart.

(e) A vapor control system with multiple facility vapor connections that processes vapor with a vapor recovery unit must have a detonation arrester located not more than 6 meters (19.7 ft.) from each facility vapor connection.

(f) A vapor control system with multiple facility vapor connections that processes vapor with a vapor destruction unit must:

(1) Have a detonation arrester located not more than 6 meters (19.7 ft.) from each facility vapor connection; and

(2) Have an inerting, enriching, or diluting system that meets the requirements of §154.824 of this subpart.

(g) A vapor control system that uses a vapor balancing system in which cargo vapor from a vessel is transferred...