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NWCAA ENFORCEMENT REPORT

Toby Mahar, PE

NOV: 4074 **Dates of Violation:** 9/4/12-9/5/13 **Report Date:** 3/11/14

Sources: Tesoro Refining & Marketing Company LLC (9/4/12-9/5/13)
 Tesoro Logistics Operations LLC (11/15/12-9/5/13)
 7969 North Texas Road
 Anacortes, WA 98221

Violation Summary: The Tesoro refinery constructed and, on September 4, 2012, commenced operation of a crude unloading facility wastewater collection system (aggregated facility) including individual drains, a junction box (X-1400), and an oil-water separator (tank 280) that received process wastewater containing VOC without the required controls installed. The process wastewater stream consisted of vapor header condensate and pump maintenance drains routed through the crude oil pump vault sump to the wastewater junction box (X-1400). Ownership and operation of the individual drain system and junction box were subsequently transferred to Tesoro Logistics Operations on November 15, 2012. Tesoro Logistics Operations continued to operate the individual drains and junction box without the required controls. On September 5, 2013, the crude oil pump vault sump piping connection (containing process wastewater) was removed from the wastewater collection system. Attempts to remove residual VOC in the wastewater equipment are ongoing.

Regulation Cited:

§60.692-1 Standards: General.

(a) Each owner or operator subject to the provisions of this subpart shall comply with the requirements of §§60.692-1 to 60.692-5 and with §§60.693-1 and 60.693-2, except during periods of startup, shutdown, or malfunction.

§60.692-2 Standards: Individual drain systems.

- (a)(1) Each drain shall be equipped with water seal controls.
- (2) Each drain in active service shall be checked by visual or physical inspection initially and monthly thereafter for indications of low water levels or other conditions that would reduce the effectiveness of the water seal controls.
- (3) Except as provided in paragraph (a)(4) of this section, each drain out of active service shall be checked by visual or physical inspection initially and weekly thereafter for indications of low water levels or other problems that could result in VOC emissions.
- (4) As an alternative to the requirements in paragraph (a)(3) of this section, if an owner or operator elects to install a tightly sealed cap or plug over a drain that is out of service, inspections shall be conducted initially and semiannually to ensure caps or plugs are in place and properly installed.

(b)(3) Junction boxes shall be visually inspected initially and semiannually thereafter to ensure that the cover is in place and to ensure that the cover has a tight seal around the edge.

§60.692-3 Standards: Oil-water separators.

(a) Each oil-water separator tank, slop oil tank, storage vessel, or other auxiliary equipment subject to the requirements of this subpart shall be equipped and operated with a fixed roof, which meets the following specifications, except as provided in paragraph (d) of this section or in §60.693-2.

(1) The fixed roof shall be installed to completely cover the separator tank, slop oil tank, storage vessel, or other auxiliary equipment with no separation between the roof and the wall.

(2) The vapor space under a fixed roof shall not be purged unless the vapor is directed to a control device.

(3) If the roof has access doors or openings, such doors or openings shall be gasketed, latched, and kept closed at all times during operation of the separator system, except during inspection and maintenance.

(4) Roof seals, access doors, and other openings shall be checked by visual inspection initially and semiannually thereafter to ensure that no cracks or gaps occur between the roof and wall and that access doors and other openings are closed and gasketed properly.

(b) Each oil-water separator tank or auxiliary equipment with a design capacity to treat more than 16 liters per second (250 gallons per minute (gpm)) of refinery wastewater shall, in addition to the requirements in paragraph (a) of this section, be equipped and operated with a closed vent system and control device, which meet the requirements of §60.692-5, except as provided in paragraph (c) of this section or in §60.693-2.

§60.698 Reporting requirements.

(b)(1) Each owner or operator of a facility subject to this subpart shall submit to the Administrator within 60 days after initial startup a certification that the equipment necessary to comply with these standards has been installed and that the required initial inspections or tests of process drains, sewer lines, junction boxes, oil-water separators, and closed vent systems and control devices have been carried out in accordance with these standards. Thereafter, the owner or operator shall submit to the Administrator semiannually a certification that all of the required inspections have been carried out in accordance with these standards.

Date Discovered: 10/7/13 – Tesoro Refinery - August deviation report received at NWCAA. Full information response received on 1/15/14. Toby Mahar and Jason Bouwman inspected the TLO and Tank 280 equipment on 2/5/14 with a calibrated TVA.

Persons Contacted: Paul Johnston, Tesoro Refinery and Brooks Neighbors, Tesoro Logistics

Has the source returned to compliance? Yes – the equipment connection was removed on 9/5/13. However, residual VOC remains in the system, so it is difficult to verify compliance other than by drawings. The potential remains for human error in the system – dumping contaminated water into the drain instead of the collection area.

Incident Description:

According to information submitted to the agency in January 2014: On April 17, 2013, a fugitive emissions monitoring team (Whatcom Environmental Services) found VOC evolving from sump X-1400 using a Method 21 instrument (TVA 100b) while working in the Logistics facility. The initial measurement was 567 ppm as methane emanating from the sump X-1400 3-inch gooseneck vent.

The VOC measurement information was relayed to the Crude Rail Offloading Facility (CROF) terminal manager Robert Gilbert on the same day.

Initially, it was assumed (by Tesoro Logistics personnel) that the VOC was due to a release of crude from "the handling of incidental spills collected in the drip pans." However, it was subsequently discovered (approximately 6 months later) that the facility was built with a piping connection from the crude pump vault sump (pump P-1410) into the wastewater system at sump X-1400.

Sources of VOC-containing material to sump X-1400 were condensate that forms in the vapor header and pump maintenance events. Both streams are collected in the crude oil pump vault. Condensate is routed to the vault sump by a 2-inch diameter pipe without valve control (gravity draining) from the vapor balancing header. Material in the pump vault is pumped by a submersible pump (P-1410) to the wastewater sump. The vault sump piping from P-1410 discharging to the water sump was below grade. Therefore, the piping connection was not readily visible upon visual inspection of the facility. Upon inspection of process flow diagrams and the sump isometric drawing, the piping connection was found.

On September 5, 2013, the piping connection was accessed by excavation and redirected to the crude oil header. Tesoro Refinery was notified of the situation on September 5, 2013.

Water collected in the CROF sump X-1400 is pumped to Tank 280 that is located on the Tesoro Refinery property. Tank 280 is an uncontrolled, fixed roof tank. The tank effluent is normally routed to the API separator. However, the API may be bypassed to the stormwater ponds.

Background:

Tesoro Refining & Marketing Company LLC (Tesoro refinery) applied for and received a permit for and began operation of the crude unloading unit (OAC 1101).

§60.690 Applicability and designation of affected facility.

(a)(1) The provisions of this subpart apply to affected facilities located in petroleum refineries for which construction, modification, or reconstruction is commenced after May 4, 1987.

(2) An individual drain system is a separate affected facility.

(3) An oil-water separator is a separate affected facility.

(4) An aggregate facility is a separate affected facility.

(b) Notwithstanding the provisions of 40 CFR 60.14(e)(2), the construction or installation of a new individual drain system shall constitute a modification to an affected facility described in §60.690(a)(4). For purposes of this paragraph, a new individual drain system shall be limited to all process drains and the first common junction box.

The construction of the aggregate facility (individual drain system, junction box, and Tank 280) in the Tesoro refinery designated as the crude unloading unit was determined by NWCAA at the time of permitting, and again as this enforcement action, an affected facility under QQQ. The applicability was clearly stated in OAC 1101.

The facility anticipated that oily material may enter the sewer system since the discharge is hardpiped directly into the refinery's on-site wastewater treatment system. A stormwater outfall was not utilized for the discharge. Oily wastewater from the CROF was anticipated to be generated from spills or leaks at the unit. Operators are instructed to use portable drip pans for the collection of incidental spills from connecting/disconnecting railcars to/from the system. Catastrophic spills are clearly an upset event. EPA ADI NA01

clarifies that upset conditions will not be used for determining compliance with an applicable NSPS emission limit.

However, normal operations and maintenance events that result in oily material in the sewer system are not exempted. The sewer system was not designed solely for the purposes of collecting stormwater, but rather primarily for the purpose of collecting stormwater.

§60.691 Definitions.

Stormwater sewer system means a drain and collection system designed and operated for the sole purpose of collecting stormwater and which is segregated from the process wastewater collection system.

Therefore, the stormwater exemption is not appropriate to the facility.

Tesoro refinery relied on 60.692-1(d)(1) to exempt the individual drain system from QQQ control requirements as a segregated stormwater sewer. However, (d)(2) is likely the more appropriate exemption:

§60.692-1 Standards: General.

(a) Each owner or operator subject to the provisions of this subpart shall comply with the requirements of §§60.692-1 to 60.692-5 and with §§60.693-1 and 60.693-2, except during periods of startup, shutdown, or malfunction.

(b) Compliance with §§60.692-1 to 60.692-5 and with §§60.693-1 and 60.693-2 will be determined by review of records and reports, review of performance test results, and inspection using the methods and procedures specified in §60.696.

(c) Permission to use alternative means of emission limitation to meet the requirements of §§60.692-2 through 60.692-4 may be granted as provided in §60.694.

(d)(1) Stormwater sewer systems are not subject to the requirements of this subpart.

(2) Ancillary equipment, which is physically separate from the wastewater system and does not come in contact with or store oily wastewater, is not subject to the requirements of this subpart.

(3) Non-contact cooling water systems are not subject to the requirements of this subpart.

(4) An owner or operator shall demonstrate compliance with the exclusions in paragraphs (d)(1), (2), and (3) of this section as provided in §60.697 (h), (i), and (j).

60.697 (h) For stormwater sewer systems subject to the exclusion in §60.692-1(d)(1), an owner or operator shall keep for the life of the facility in a readily accessible location, plans or specifications which demonstrate that no wastewater from any process units or equipment is directly discharged to the stormwater sewer system.

(i) For ancillary equipment subject to the exclusion in §60.692-1(d)(2), an owner or operator shall keep for the life of a facility in a readily accessible location, plans or specifications which demonstrate that the ancillary equipment does not come in contact with or store oily wastewater.

The exemption for ancillary equipment 60.692-1(d)(2) might have been available to the facility except that the unit was built with a condensate collection drain into the wastewater sump, triggering QQQ control requirements.

Header condensate is not a large volume stream and therefore does not accumulate to a large mass of VOC released to the wastewater stream. Tesoro estimates the volume to be in the range of 1-3 gallons per trainload of crude unloaded. Upon inspection of the diagrams, there are additional connections into the same piping from the crude pumps. These lines are available for draining the pumps during maintenance.

The LDAR team measured 567 ppm VOC emanating from sump X-1400. However, EPA ADI NR84 clarifies that there is no de minimus level for VOC concentration in petroleum refinery wastewater exempting streams.

Bakken crude oil has been shown to contain benzene. MSDS sheets for Bakken crude oil and industry presentations show benzene concentrations ranging from 0.1% to 1% by volume with an average of 0.3% (assumed as mass %). Therefore, the wastewater stream from the crude unloading area requires an assessment under 40 CFR Part 61 Subpart FF to determine flow rate and benzene content.

The Subpart FF definition of stormwater sewer system is identical to that of Subpart QQQ. Tesoro provided updated FF reporting to NWCAA on 3/7/14 via email. The report provides the following benzene accounting from the CROF: 2 Mg per year of waste; benzene concentrations ranging from 500 ppm to 35,000 ppm; flow weighted annual average concentration of 20,000 ppm benzene; and a total annual quantity of 0.04 Mg benzene per year (uncontrolled).

FACILITY COMPLIANCE INSPECTION – 2/5/14

Toby Mahar and Jason Bouwman, NWCAA staff inspected the Logistics Operation on 2/5/14; meeting with Neil Norcross and Paul Johnston of Tesoro Refinery and Robert Gilbert of Tesoro Logistics Operations. At the time of the inspection, there was one unit train unloading while another unit train recently had arrived full and was idling on the holding track.

The crude oil pump vault is a cement enclosure with two large steel hatches. The hatches were not sealed – but appeared to have been sealed previously (with residual sealant on the edges of the metal hatches). Using the TVA, VOC emissions were measured around the edges of the hatches with concentrations up to approximately 7,000 to 8,000 ppm from the north hatch and 500-700 ppm from the south hatch in numerous locations.

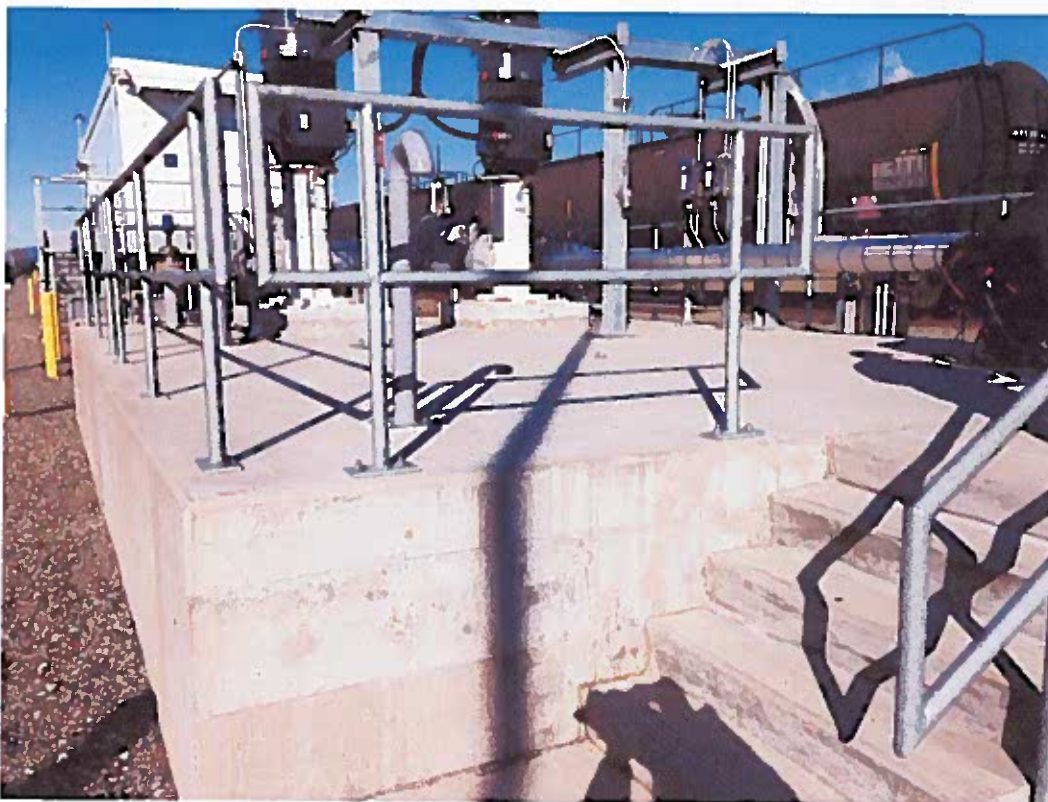
The pump vault sump line was observed excavated on the east side of the vault (Photo 1). The rerouting of the line to the crude header was confirmed. The original line that routed the pump vault sump discharge to the wastewater junction box was not removed, but lies disconnected at the excavation point.



1 - Photo of disconnected sump pump effluent line

The sewer trunk line that runs the length of the unloading pad, receiving water from the pad drains, was observed – the manhole covers are labeled “oily water sewer.” Mr. Gilbert explained that the drains enter the trunk line as submerged fill and each trunk junction box discharges (by gravity) to the next through submerged lines to provide fire protection in the system. However, none of the drains on the pad are equipped with water seals upstream of the trunk line connections.

The wastewater junction box (X-1400) is a concrete vault with a manhole access on the south east corner (Photo 2). There is a “candy-cane” vent pipe that is approximately 3 feet high on the southwest corner of the vault. VOC measurements with the TVA found approximately 300-600 ppm VOC from the opening of the vent. Similar VOC measurements were found from the junction box manhole cover edges. Photo 3 shows the manhole cover on the junction box.



2 - Photo of wastewater junction box at CROF



3 - Photo of junction box manhole cover unsealed

Toby Mahar, Jason Bouwman, Paul Johnston and Neil Norcross, on the same day (2/5/14), inspected Tank 280 at the refinery. The tank is a newly constructed, 400,000 gallon capacity fixed-roof tank. The tank is vented through a centrally located roof vent. The sample well at the top of the tank is covered, equipped with a gasket. VOC odors were observed at the top of the tank when the sample well cover was opened. VOC measurements with the TVA found approximately 300 ppm VOC at the sample opening. The piping system to the tank is a split flow configuration with part of the flow going directly to the oily water sewer via a junction box on the roadside near the tank. That flow is metered by a control valve. Any additional flow is diverted to tank 280. When the pumps at TLO shutdown, wastewater diverted to the tank then gravity drains through the control valve to the oily water sewer hub.

HPV determination:

This violation does not meet any of the HPV criteria.