

TEST 1 ANSWERS

A 30-inch pipeline leaked heavy crude oil into a creek that flowed into a river. Initial estimates were that 19,500 barrels were released. (1 barrel = 42 gallons)

The MSDS used for Test 1 is Crude Oil, Sour. The heavy crude oil from Canada is typically sour (high sulfur).

1. Who should you call?

911, PEAS, NRC

2. How many pounds of crude oil were released to navigable waters?

Hint: the formula to convert gallons to pounds is on pg 6-15 of the SARA guidebook.

$19,500 \text{ bbl} \times 42 \text{ gal/bbl} = 819,000 \text{ gallons crude oil}$

The specific gravity (from the MSDS) is 0.7-1.03. Use the highest value in the calculation.

$819,000 \text{ gal} \times 1.03 \text{ (s.g.)} \times 8.34 \text{ lbs/gal (weight of water)} = 7,035,374 \text{ lbs crude oil released}$

3. How many pounds of benzene were released to navigable waters?

The MSDS shows <1% benzene in the crude oil. Use 1% in the calculation.

$7,035,374 \text{ lbs crude oil} \times 0.01 \text{ (1\% benzene)} = 70,354 \text{ lbs benzene}$

4. What is the CERCLA RQ for Benzene?

10 lbs

5. What regulations apply?

Hint: The reporting criteria might reference the oil, or the benzene (i.e. as a CERCLA chemical).

- NREPA Part 201 (because of the benzene)
- Fire Prevention Code sect 29.5g
- CWA Section 311, 33 CFR 153 (Coast Guard, Dept of Homeland Security) The CWA sect 311 defines "onshore facility" as any facility, including, but not limited to, motor vehicles and rolling stock, of any kind located in, on, or under, any land within the United States other than submerged land. Pipelines are covered by this definition.
- CWA Section 311, 40 CFR 110 (US EPA)
- 49 CFR 195 (Pipeline and Hazardous Materials Safety Administration, Dept of Transportation)

6. Why is this release not reportable under SARA Title III sect 304 or CERCLA sect 103?

Because of the Petroleum Exclusion that is on pg 6-2 in the SARA guidebook.

7. Why is this release not reportable under 49 CFR 171 (Transportation of Hazardous Materials)?

Petroleum is a Class 3 flammable or combustible liquid as defined in 49 CFR 173. However, this regulation only applies to hazardous materials transported by air, highway, rail, or water as cargo.

8. Why is this release not reportable under the Part 5 Rules?

Hint: Look at the definitions in the Part 5 Rules - Appendix C.

The Part 5 rules apply to "oil storage facilities" and "on-land facilities." These are defined on pg C-2 and exclude a "transportation-related facility as defined in 40 CFR part 112." 40 CFR part 112 (Oil Pollution Prevention) describes the requirement to prepare and implement an SPCC plan and it also excludes transportation-related facilities. Transportation-related facilities, as defined in that regulation, include interstate and intrastate onshore and offshore pipeline systems...(see Appendix A to 40 CFR part 112).

TEST 2 ANSWERS

At 9:30 a.m. a release of 98% concentrated sulfuric acid was discovered. The sulfuric acid is leaking outside the containment area and onto the ground. The release rate is estimated to be one ton per hour from a 1600 ton container. The cause may be due to a tank bottom leak, but confirmation has not been determined at this time.

1. Who should you call?

911
PEAS
NRC

The situation at 4 p.m. was as follows: A full HAZMAT crew responded to the scene and the leak has been contained. Approximately 200 gallons of sulfuric acid leaked from a tank at the plant. US Coast Guard investigators responded to the incident, however due to the containment of the acid and no waterways being affected, the Environmental Protection Agency will complete the investigation. There were no reported evacuations or injuries.

2. How many pounds of sulfuric acid were released to the ground?

Hint: The formula to convert gallons to pounds is on page 6-15 of the SARA guidebook.

The specific gravity (from the MSDS) is 1.84.

$200 \text{ gal} \times 1.84 \text{ (s.g.)} \times 8.34 \text{ lbs/gal (weight of water)} = \underline{3069 \text{ lbs sulfuric acid}}$

3. Complete the following for sulfuric acid.

CAS number = 7664-93-9

CERCLA RQ = 1000 lbs

SARA EHS RQ = 1000 lbs

SARA sect 313 toxic? No (only aerosol forms are on toxic list)

Part 5 Rules TRQ = 100 lbs

4. What regulations apply? (Assume company is in Michigan)

- CERCLA section 103
- NREPA Part 201
- Fire Prevention Code sect 29.5g
- NREPA Part 31, Part 5 Rules

SARA Title III sect 304 only applies if the release has the potential to migrate beyond the facility boundaries such that it might result in exposure to persons offsite. The release should be reported under this regulation if the substance soaks into the ground and has the potential to impact groundwater or if it volatilizes into the air. In this scenario, it is unlikely that this regulation applies.