Questions concerning LDAR (leak detection and repair work practices designed to identify leaking equipment):

1. For the LDAR monitoring threshold, is a separate tank battery surface site (meaning a tank battery site that is not located at the location of the well that supplies the tank battery) aggregated with the well or wells that supply the tank battery?

    a. Answer: No. (*See* provisions in 25 Pa. Code § 129.137.)

2. If the well that is supplying the separate tank battery surface site is subject to LDAR on its own because of the barrel of oil equivalent produced per day, does that fact automatically make the separate tank battery surface site ALSO subject to LDAR?

    a. Answer: - Please see answer to Question No. 4.

3. Did the Department perform a separate RACT analysis for a conventional oil and gas separate tank battery surface site?

    a. Answer: No.

4. What daily oil equivalency production threshold will trigger the LDAR requirement at a separate tank battery surface site?

    a. Answer: LDAR will be required at a separate tank battery surface site if both of the following apply:

        i. The separate tank battery surface site receives more than 15 barrels of oil or the equivalent amount of natural gas per day; AND

ii. One or more of the wells supplying the separate tank battery surface site produced 5 or more barrels of oil or the equivalent amount of natural gas per day. (*See* 29 Pa. Code § 129.137(b)(3).)

Example: 20 wells supply a separate tank battery surface site. In the aggregate, the 20 wells supply 20 barrels of oil or the equivalent per day to the separate tank battery surface site. However, none of the 20 wells produce more than 5 barrels of oil or the equivalent per day. In this example there is no LDAR requirement for the separate tank battery surface site or any of the well sites. Said another way, no amount received at a separate tank battery surface site triggers the LDAR requirement so long as no one well supplying the separate tank battery surface site produces 5 barrels or more per day.

Questions concerning the collection of volatile organic compounds (VOC Emissions) at separate tank battery surface sites:

1. The volume that triggers the obligation to recover and control VOC emissions from a storage vessel at a conventional well site is potential VOC emissions in excess of 2.7 TPY. How is that 2.7 TPY calculated when there exists more than one tank at a separate tank battery surface site?

    a. Answer: the 2.7 TPY of VOC emissions is per tank, regardless of how many wells are connected to a tank and regardless of how many tanks may co-exist at a single separate tank battery surface site. (*See* 25 Pa. Code § 129.133.) Example: A separate tank battery surface site contains three tanks; tank A is supplied by twenty wells on the "Smith" lease; tanks B and C are supplied by thirty wells on

the "Jones" lease. Collection and control of VOC Emissions is required only from the tank (if any) that has the potential to emit 2.7 or more TPY of VOCs.

2. Is the recovery requirement impacted by how much methane is emitted from a tank?

    a. Answer: No. The requirement relates to the collection of VOC emissions, not methane. (*See* 40 CFR § 51.100(s)(1) for EPA determination that methane has "negligible photochemical reactivity.")

3. Are the VOC recovery and control requirements impacted by the number of wells connected to a particular tank?

    a. Answer: No.

4. Where can an operator locate the RACT analysis for a conventional oil and gas separate tank battery surface site?

    a. Answer: The Department did not conduct this RACT analysis. However, VOC emission recovery and control requirements apply to many kinds of storage vessels in different industries and it is not possible for the RACT analysis to cover every type of eventuality such as the absence of electricity at separate tank battery surface sites.

Question concerning the calculation of the potential to emit VOCs:

1. How is the 2.7 TPY of VOCs calculated?

    a. Answer: The amount of VOCs emitted depends upon many factors including size of tank, shape of tank, type of openings and the like. Various methods can be used to measure or estimate the amount of VOCs emitted and a list of possible

methods is attached as Exhibit A. (*See* 25 Pa. Code § 129.133(a)(2)(i).) Operators may also use the tables provided in Exhibit B to assess whether the potential to emit VOCs exceeds 2.7 TPY.

Questions concerning the identification and location of storage vessels subject to Section 129.133:

1. Do Section 129.140 record keeping obligations apply to storage vessels that are not otherwise subject to the rule?
    a. No
2. If storage vessels are subject to Section 129.133, will the identification and location of the storage vessel described in Section 129.140 be satisfied by reference to the latitude and longitude coordinates of the wellhead on the same pad as the storage vessel?
    a. Yes

Exhibit A

To determine applicability of 25 Pa. Code § 129.133, the owner or operator shall calculate potential VOC emissions for each storage vessel in accordance with 25 Pa. Code § 129.133(a)(2)(i), using any one of the following methods, as applicable:

- Department-approved methods, such as direct measurement
- Calculation methodologies, such as
    - AP-42 method, storage vessels: AP 42 Chapter 7: Liquid Storage Tanks (epa.gov)
    - Vazquez-Beggs equation
- Modeling programs, such as
    - EPA TANKS
    - ProMax
    - and API E&P Tanks
- Process simulation software, such as
    - HYSIM
    - HYSIS
    - WINSIM
    - PROSIM

Exhibit B

Brine Tanks Only with less than 5% hydrocarbon liquids

Using DEP calculator with 50 MW and 8.5 RVP

Tank Size in gallons (Poly tanks)	Tank Size in barrels (42 gallons/bbl)	Annual Production Through Tank in barrels	Average Daily Production in barrels	Tons per year VOC emissions
1025	24.4047619	2,128,500	5,832	2.69
2000	47.61904762	2,062,000	5,649	2.69
3000	71.42857143	2,019,000	5,532	2.69
4000	95.23809524	1,994,000	5,463	2.69
6000	142.8571429	1,961,000	5,373	2.69
8000	190.4761905	1,880,000	5,151	2.69
15000	357.1428571	1,601,000	4,386	2.69

Table of Maximum Oil Production Yielding VOC Emissions Less than 2.7 TPY

Using DEP calculator with 50 MW and 8.5 RVP

Tank Size in barrels (42 gallon/bbl)	Annual Production Through Tank in barrels	Average Daily Production in barrels	Tons per year VOC emissions
30	137,700	377	2.69
50	131,727	361	2.69
100 squat	118,856	326	2.69
100 tall	119,704	328	2.69
140	110,433	303	2.69
150	107,735	295	2.69
210	94,499	259	2.69
300	72,504	199	2.69
400	52,515	144	2.69
500 squat	24,737	68	2.69
500 tall	33,092	91	2.69
750	16,729	46	2.69