

Secondary Containment Calculations
Frank 5, 6LL

| Berm Name | Measured Earthen Berm Height at 5/12/2020 Field Inspection (in) | Minimum Calculated Earthen Berm Height Required for Containment (in) ^{1*} | Berm Area (ft ²) | Berm Capacity (ft ³) | Tank Diameter (ft) | No. of Tanks Displacing Cont. Vol. ² | 25 Yr. Precip. Event ⁴ (in) | Displacement (ft ³) ³ | Berm Volume (bbl) ⁵ | Precipitation Event (bbl) ⁵ | Net Volume (bbl) ⁶ | Largest Tank (bbl) | Containment Capacity ⁷ | Excess Capacity (bbl) |
|---------------------------|---|--|------------------------------|----------------------------------|--------------------|---|--|--|--------------------------------|--|-------------------------------|--------------------|-----------------------------------|-----------------------|
| Tank Battery Earthen Berm | 25.0 | 22.0 | 1116.0 | 2046.0 | 10.0 | 1 | 3.5 | 144.0 | 338.7 | 58.0 | 280.8 | 268 | 105% | 12.8 |

Notes:

¹ Minimum required earthen berm height necessary to provide adequate secondary for largest tank including displacement and precipitation.

² No. of Tanks Displacing Containment Volume = Total Number of Tanks - Largest Tank

³ Displacement for circular equipment = 3.14159 x radius² x Height (berm height or equip. height if less than berm height)

⁴ Precipitation Event (bbl) = (Berm Area x Precip. Event (in./12 in.)) x (7.48 gal/cu. ft.) / (42 gal/bbl)

⁴ Precipitation freeboard depth is the 25-year, 24-hour rainfall event amount (Source - NOAA Atlas, Vol. II)

⁵ Berm Volume (bbl) = (Berm Capacity x (7.48 gal/cu. ft.) / 42 gal/bbl) - (Displacement x (7.48 gal/cu. ft.) / 42 gal/bbl)

⁶ Net Volume = Berm Volume (bbl) - Precip. Event (bbl)

⁷ Containment Capacity = Net Volume / Largest Tank. This accounts for the largest tank, displacement and precipitation.



PDC ENERGY
FRANK 5: 6LL
HWY 60 & CR 40, E 0.25, S INTO
NW NW, SEC. 32-T4N-R66W
WELD COUNTY, CO
1-877-350-0169 OR 911

MAXIMUM TANK HEIGHT
3-9

100%
Produced Water

PRODUCED
WATER
100 BL

CRUDE
OIL

268 HBL

05.12.2020



05.12.2020



05.12.2020



05.12.2020