

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Tank Identification and Physical Characteristics**

**Identification**

|                      |                          |
|----------------------|--------------------------|
| User Identification: | Anadarko Water Tank      |
| City:                |                          |
| State:               |                          |
| Company:             |                          |
| Type of Tank:        | Vertical Fixed Roof Tank |
| Description:         | 400 bbl (300 BWPD)       |

**Tank Dimensions**

|                          |              |
|--------------------------|--------------|
| Shell Height (ft):       | 20.00        |
| Diameter (ft):           | 12.00        |
| Liquid Height (ft) :     | 19.00        |
| Avg. Liquid Height (ft): | 10.00        |
| Volume (gallons):        | 16,800.00    |
| Turnovers:               | 273.75       |
| Net Throughput(gal/yr):  | 4,599,000.00 |
| Is Tank Heated (y/n):    | N            |

**Paint Characteristics**

|                    |            |
|--------------------|------------|
| Shell Color/Shade: | Gray/Light |
| Shell Condition    | Good       |
| Roof Color/Shade:  | Gray/Light |
| Roof Condition:    | Good       |

**Roof Characteristics**

|                           |      |
|---------------------------|------|
| Type:                     | Cone |
| Height (ft)               | 0.00 |
| Slope (ft/ft) (Cone Roof) | 0.06 |

**Breather Vent Settings**

|                          |       |
|--------------------------|-------|
| Vacuum Settings (psig):  | -0.03 |
| Pressure Settings (psig) | 0.03  |

Meterological Data used in Emissions Calculations: San Antonio, Texas (Avg Atmospheric Pressure = 14.33 psia)

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**Liquid Contents of Storage Tank**

**Anadarko Water Tank - Vertical Fixed Roof Tank**

| Mixture/Component | Month | Daily Liquid Surf.<br>Temperature (deg F) |       |       | Liquid<br>Bulk<br>Temp<br>(deg F) | Vapor Pressure (psia) |        |        | Vapor<br>Mol.<br>Weight | Liquid<br>Mass<br>Fract. | Vapor<br>Mass<br>Fract. | Mol.<br>Weight | Basis for Vapor Pressure<br>Calculations |
|-------------------|-------|-------------------------------------------|-------|-------|-----------------------------------|-----------------------|--------|--------|-------------------------|--------------------------|-------------------------|----------------|------------------------------------------|
|                   |       | Avg.                                      | Min.  | Max.  |                                   | Avg.                  | Min.   | Max.   |                         |                          |                         |                |                                          |
| Crude Oil (RVP 9) | All   | 76.56                                     | 66.71 | 86.42 | 70.86                             | 8.4713                | 7.2176 | 9.8855 | 50.0000                 |                          |                         | 207.00         | Option 4: RVP=9                          |

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**Emissions Report - Detail Format**  
**Detail Calculations (AP-42)**

**Anadarko Water Tank - Vertical Fixed Roof Tank**

|                                                                    |                |
|--------------------------------------------------------------------|----------------|
| <b>Annual Emission Calculations</b>                                |                |
| Standing Losses (lb):                                              | 2,878.7760     |
| Vapor Space Volume (cu ft):                                        | 1,145.1105     |
| Vapor Density (lb/cu ft):                                          | 0.0736         |
| Vapor Space Expansion Factor:                                      | 0.5189         |
| Vented Vapor Saturation Factor:                                    | 0.1803         |
| <b>Tank Vapor Space Volume:</b>                                    |                |
| Vapor Space Volume (cu ft):                                        | 1,145.1105     |
| Tank Diameter (ft):                                                | 12.0000        |
| Vapor Space Outage (ft):                                           | 10.1250        |
| Tank Shell Height (ft):                                            | 20.0000        |
| Average Liquid Height (ft):                                        | 10.0000        |
| Roof Outage (ft):                                                  | 0.1250         |
| <b>Roof Outage (Cone Roof)</b>                                     |                |
| Roof Outage (ft):                                                  | 0.1250         |
| Roof Height (ft):                                                  | 0.0000         |
| Roof Slope (ft/ft):                                                | 0.0625         |
| Shell Radius (ft):                                                 | 6.0000         |
| <b>Vapor Density</b>                                               |                |
| Vapor Density (lb/cu ft):                                          | 0.0736         |
| Vapor Molecular Weight (lb/lb-mole):                               | 50.0000        |
| Vapor Pressure at Daily Average Liquid Surface Temperature (psia): | 8.4713         |
| Daily Avg. Liquid Surface Temp. (deg. R):                          | 536.2339       |
| Daily Average Ambient Temp. (deg. F):                              | 68.6167        |
| Ideal Gas Constant R (psia cuft / (lb-mol-deg R):                  | 10.731         |
| Liquid Bulk Temperature (deg. R):                                  | 530.5267       |
| Tank Paint Solar Absorptance (Shell):                              | 0.5400         |
| Tank Paint Solar Absorptance (Roof):                               | 0.5400         |
| Daily Total Solar Insulation Factor (Btu/sqft day):                | 1,568.8737     |
| <b>Vapor Space Expansion Factor</b>                                |                |
| Vapor Space Expansion Factor:                                      | 0.5189         |
| Daily Vapor Temperature Range (deg. R):                            | 39.4054        |
| Daily Vapor Pressure Range (psia):                                 | 2.6680         |
| Breather Vent Press. Setting Range (psia):                         | 0.0600         |
| Vapor Pressure at Daily Average Liquid Surface Temperature (psia): | 8.4713         |
| Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia): | 7.2176         |
| Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia): | 9.8855         |
| Daily Avg. Liquid Surface Temp. (deg R):                           | 536.2339       |
| Daily Min. Liquid Surface Temp. (deg R):                           | 526.3825       |
| Daily Max. Liquid Surface Temp. (deg R):                           | 546.0852       |
| Daily Ambient Temp. Range (deg. R):                                | 21.7833        |
| <b>Vented Vapor Saturation Factor</b>                              |                |
| Vented Vapor Saturation Factor:                                    | 0.1803         |
| Vapor Pressure at Daily Average Liquid Surface Temperature (psia): | 8.4713         |
| Vapor Space Outage (ft):                                           | 10.1250        |
| <b>Working Losses (lb):</b>                                        |                |
| Working Losses (lb):                                               | 9,609.6428     |
| Vapor Molecular Weight (lb/lb-mole):                               | 50.0000        |
| Vapor Pressure at Daily Average Liquid Surface Temperature (psia): | 8.4713         |
| Annual Net Throughput (gal/yr.):                                   | 4,599,000.0000 |
| Annual Turnovers:                                                  | 273.7500       |
| Turnover Factor:                                                   | 0.2763         |
| Maximum Liquid Volume (gal):                                       | 16,800.0000    |
| Maximum Liquid Height (ft):                                        | 19.0000        |
| Tank Diameter (ft):                                                | 12.0000        |
| Working Loss Product Factor:                                       | 0.7500         |
| <b>Total Losses (lb):</b>                                          |                |
| Total Losses (lb):                                                 | 12,488.4188    |

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Individual Tank Emission Totals**

**Emissions Report for: Annual**

**Anadarko Water Tank - Vertical Fixed Roof Tank**

|                   | Losses(lbs)  |                |                 |
|-------------------|--------------|----------------|-----------------|
| Components        | Working Loss | Breathing Loss | Total Emissions |
| Crude Oil (RVP 9) | 9,609.64     | 2,878.78       | 12,488.42       |