

TABLE 2-8. OIL AND GAS PRODUCTION OPERATIONS SCREENING RANGES  
EMISSION FACTORS

| Equipment type      | Service <sup>b</sup> | ≥10,000 ppmv                                   | <10,000 ppmv                                   |
|---------------------|----------------------|--|--|
|                     |                      | Emission factor<br>(kg/hr/source) <sup>a</sup> | Emission factor<br>(kg/hr/source) <sup>a</sup> |
| Valves              | Gas                  | 9.8E-02  | 2.5E-05  |
|                     | Heavy Oil            | NA   | 8.4E-06  |
|                     | Light Oil            | 8.7E-02  | 1.9E-05  |
|                     | Water/Oil            | 6.4E-02  | 9.7E-06  |
| Pump seals          | Gas                  | 7.4E-02  | 3.5E-04  |
|                     | Heavy Oil            | NA   | NA   |
|                     | Light Oil            | 1.0E-01  | 5.1E-04  |
|                     | Water/Oil            | NA   | 2.4E-05  |
| Others <sup>c</sup> | Gas                  | 8.9E-02  | 1.2E-04  |
|                     | Heavy Oil            | NA   | 3.2E-05  |
|                     | Light Oil            | 8.3E-02  | 1.1E-04  |
|                     | Water/Oil            | 6.9E-02  | 5.9E-05  |
| Connectors          | Gas                  | 2.6E-02  | 1.0E-05  |
|                     | Heavy Oil            | NA   | 7.5E-06  |
|                     | Light Oil            | 2.6E-02  | 9.7E-06  |
|                     | Water/Oil            | 2.8E-02  | 1.0E-05  |
| Flanges             | Gas                  | 8.2E-02  | 5.7E-06  |
|                     | Heavy Oil            | NA   | 3.9E-07  |
|                     | Light Oil            | 7.3E-02  | 2.4E-06  |
|                     | Water/Oil            | NA   | 2.9E-06  |
| Open-ended lines    | Gas                  | 5.5E-02  | 1.5E-05  |
|                     | Heavy Oil            | 3.0E-02  | 7.2E-06  |
|                     | Light Oil            | 4.4E-02  | 1.4E-05  |
|                     | Water/Oil            | 3.0E-02  | 3.5E-06  |

<sup>a</sup>These factors are for total organic compound emission rates (including non-VOC's such as methane and ethane) and apply to light crude, heavy crude, gas plant, gas production, and offshore facilities. "NA" indicates that not enough data were available to develop the indicated emission factor.

<sup>b</sup>Water/Oil emission factors apply to water streams in oil service with a water content greater than 50%, from the point of origin to the point where the water content reaches 99%. For water streams with a water content greater than 99%, the emission rate is considered negligible.

<sup>c</sup>The "other" equipment type was derived from compressors, diaphragms, drains, dump arms, hatches, instruments, meters, pressure relief valves, polished rods, relief valves, and vents. This "other" equipment type should be applied for any equipment type other than connectors, flanges, open-ended lines, pumps, or valves.