**Supplement to "Update of Comparative Occurrence Rates for Offshore Oil Spills" (Anderson & LaBelle, 2000)**

**MEAN** – The average value. The mean is the mathematical expectation of the spill rate. It is the best single statistical estimate of the rate. The means for the Confidence Intervals vary slightly from the Spill Rates in Anderson & LaBelle (2000) due to the difference in which they were calculated.

**CONFIDENCE INTERVALS** – Define a range of values within which the true mean rate is likely to lie. In this table, 95-percent confidence intervals are quoted, which implies that there is a 95-percent probability that the true mean rate will lie somewhere between the UPPER and LOWER Limits.

**CALCULATIONS** – The 95-percent Confidence Intervals were calculated for OCS pipeline spills using observations of the number of spills for fixed production amount. OCS pipelines during the 1964-1999 time period produced 12 billion barrels of oil. This production was split into 12 one-billion-barrel increments of production. The spills associated with these 12 increments represented 12 observations of the spill rate from which the mean, upper, and lowers bounds were calculated in the standard statistical process. The Confidence Intervals for the other spill rates were also calculated using a fixed volume of oil handled. The other spill sources' exposure volumes were not evenly divided by one billion barrels. For these other cases, a size of the fixed volume amount increment was found such that the number of increments for both time horizons was very near a whole number.

# 95-Percent Confidence Intervals for Anderson & LaBelle (2000) Spill Rates

| Spill Source | Anderson & LaBelle (2000) | | | 95-Percent Confidence Interval Calculations | |
|---|---|---|---|---|---|
| | Number of Spills | Volume (Bbbl) | Spill Rate | Mean | Lower-Upper Limits |
| **OCS Platforms** [1] | | | | | |
| Last 3 Spills (in 1973) - 1999 | 3 | 9.50 | 0.32 | 0.31 | 0.00 - 0.66 |
| Last Spill (in 1980) – 1999 | 1 | 7.41 | <0.13 | 0.14 | 0.00 - 0.40 |
| 1985-1999 | 0 | 5.81 | 0.00 | 0.00 | -- |
| **OCS Pipelines** | | | | | |
| 1964 - 1999 | 16 | 12.00 | 1.33 | 1.33 | 0.54 - 2.12 |
| 1985 - 1999 | 8 | 5.81 | 1.38 | 1.33 | 0.00 - 2.77 |
| **Worldwide Tankers** | | | | | |
| 1974 - 1999 All Spills | 278 | 239.67 | 1.16 | 1.16 | 0.91 - 1.41 |
| In Port | 117 | | 0.49 | 0.49 | 0.38 - 0.60 |
| At Sea | 161 | | 0.67 | 0.67 | 0.50 - 0.84 |
| 1985 - 1999 All Spills | 113 | 138.31 | 0.82 | 0.81 | 0.53 - 1.10 |
| In Port | 50 | | 0.36 | 0.36 | 0.22 - 0.51 |
| At Sea | 63 | | 0.46 | 0.45 | 0.26 - 0.64 |
| **Tankers U.S. Waters** | | | | | |
| 1974 - 1999 All Spills | 46 | 44.50 | 1.03 | 1.03 | 0.50 - 1.57 |
| In Port | 30 | | 067 | 0.67 | 0.30 - 1.04 |
| At Sea | 16 | | 0.36 | 0.36 | 0.13 - 0.59 |
| 1985 - 1999 All Spills | 20 | 27.57 | 0.73 | 0.73 | 0.10 - 1.35 |
| In Port | 12 | | 0.44 | 0.44 | 0.07 - 0.81 |
| At Sea | 8 | | 0.29 | 0.29 | 0.00 - 0.64 |
| **Alaska N. Slope Tankers** | | | | | |
| 1977 - 1999 All Spills | 11 | 12.60 | 0.88 | 0.87 | 0.40 - 1.35 |
| In Port | 4 | | 0.32 | 0.32 | 0.01 - 0.62 |
| At Sea | 7 | | 0.56 | 0.55 | 0.13 - 0.98 |
| 1985 - 1999 All Spills | 8 | 8.72 | 0.92 | 0.92 | 0.25 - 1.59 |
| In Port | 4 | | 0.46 | 0.46 | 0.04 - 0.88 |
| At Sea | 4 | | 0.46 | 0.46 | 0.00 - 1.03 |
| **Barges U.S. Waters** | | | | | |
| **All Petroleum Products** | | | | | |
| 1974 - 1999 | 187 | 43.48 | 4.30 | 4.32 | 3.18 - 5.45 |
| 1985 - 1999 | 77 | 25.02 | 3.08 | 3.11 | 1.87 - 4.35 |
| **Crude Oil Only** | | | | | |
| 1974 - 1999 | 26 | 7.32 | 3.55 | 3.55 | 1.35 - 5.74 |
| 1985 – 1999 | 5 | 4.08 | 1.23 | 1.25 | 0.00 - 2.52 |

Spill Rate = Spills per billion barrels (Bbbl) handled; Bbbl = $10^9$ bbl

[1] OCS Platform Spill Rates were based on a discerned trend–so the 1964-1999 rate was not presented in the paper. There were zero OCS platform spills in the last 15 years of the data series–rather than proclaim a spill rate of 0.00, MMS chose to calculate this rate from the last observed platform spill, 1980, and noted that the rate for 1985-1999 would be something less than this value (< 0.13 but greater than 0.00).