

Table 4-4 - Comparison of DDTs in Water
First MNR Report
Palos Verdes Shelf (OU 5 of the Montrose Chemical Corp. Superfund Site)
Los Angeles County, California

| Nominal sample depth (m) | | Near-surface (-5 m) | | | Mid-column (~1/2 total depth) | | | | Near-bottom (+5 m) | | | | | Bottom (+2 m) | | Bottom (+1 m) |
|--------------------------|-----------------|---------------------|------|------------|-------------------------------|-------|------|------|--------------------|-------|--------|-------|-------------|---------------|------------|---------------|
| Sample type | | PED | SPME | Grab | Pump | PED | SPME | Grab | Pump | PED | SPME | Grab | | Pump | Grab | Pump |
| Location | Total depth (m) | 2013 | 2013 | 2015 | 1997 | 2013 | 2013 | 2015 | 1997 | 2010 | 2013 | 2013 | 2015 | 1997 | 2015 | 1997 |
| BA1C | 60 | 117 | | 87.0 | | 1,780 | | 219 | | 2,170 | 4,290 | | 434 | | 256 | |
| BA3C | 60 | 196 | | 76.0 (223) | | 2,250 | | 419 | | NA | 4,330 | | 178 | | 248 | 3,650 |
| BA4C | 60 | 162 | 157 | 44.0 | | 1,940 | 826 | 63.0 | | 4,960 | 10,500 | 2,139 | 170 | | 1,590 | |
| | | | | | | | | | | | | | | | 1,000 | |
| BA5C | 60 | 135 | | 33.3 | | 2,610 | | 128 | | 4,700 | 7,010 | | 560 | | (1,200) | 4,350 |
| | | | | | | | | | | | | | | | 1,100 | |
| BA5DC | 40 | 196 | | 21.8 | | 1,490 | | 13.5 | | 3,490 | 4,300 | | 430 | | (972) | |
| BA6B | 150 | | | 36.1 | | | | 86.9 | | | | | 196 | | | 3,050 |
| BA6C | 60 | | | 44.8 | 550 | | | 381 | 4,500 | | | | 690 | 5,350 | | 6,400 |
| BA6DC | 40 | | | 46.9 | | | | 160 | | | | | 1,030 | | | |
| BA6D | 30 | | | | | | | | | | | | | | | 2,850 |
| BA7C | 60 | 135 | 154 | 14 | | 1,740 | 973 | 949 | | NA | 6,620 | 2,669 | 7.40 | | ND | 4,500 |
| BA7DC | 40 | 136 | | 37.1 | | 1,000 | | 151 | | 3,640 | 2,990 | | 1,040 | | 700 (803)* | |
| BA8C | 60 | NA | 142 | 25.9 | | 1,420 | 841 | 7.40 | | 3,110 | 1,520 | 2,053 | 292 | | 234 (383)* | |
| BA8DC | 40 | 77.5 | | 23.3 | | 561 | | 104 | | 2,860 | 3,370 | | 490 | | 510 | |
| BA9C | 60 | NA | 114 | 0.87 | | 517 | 426 | 103 | | 1,440 | 1,240 | 1,013 | 130 | | 200 | 3,150 |
| | | | | | | | | | | | | | | | 45.6 | |
| BA9DC | 40 | 105 | | 4.10 | | 564 | | 154 | | 2,130 | 1,330 | | 168 | | (141)* | |
| W1 | 60 | 84.3 | | NA | | 854 | | 142 | | | 1,530 | | 99.2 | | 240 | |
| OC | 60 | | | | | | | | | | | | | | | 2,050 |
| W2 | 200 | 73.4 | | 41.0 | | 335 | | 88.6 | | | 1,190 | | 261 | | 231 | |
| W3 | 200 | 76.4 | 127 | ND | | 409 | 550 | 167 | | | 1,890 | 2,151 | 500 | | 1,270 | |
| W4 | 200 | 41.2 | | 103 | | 354 | | 141 | | | 1,250 | | 540 | | 107 | |
| W5 | 60 | NA | | 15.4 | | NA | | 48.3 | | | NA | | 12.8 (17.0) | | 23.6 | |
| T11 | 60 | ND | 72 | ND | | 24.6 | 93 | 30.8 | | 81.8 | 38.6 | ND | ND | | ND | |

Abbreviations

AWQC - Ambient Water Quality Criteria
DDD - dichlorodiphenyldichloroethane
DDE - dichlorodiphenyldichloroethene
DDT - dichlorodiphenyltrichloroethane
EDL - estimated detection limit (sample-specific)
IROD - Interim Record of Decision
m - meter(s)
MNR - monitored natural recovery
NA - not available, planned for but not reported due to various sampling or analytical reasons
ND - not detected
o,p - ortho or para position of chlorine on phenyl groups
PED - polyethylene device
pg/L - picograms per liter
SPME - solid-phase microextraction fibers

Notes

1. Analytical results for DDTs are shown in **picograms per liter (pg/L)**, parts per quadrillion).
2. "DDTs" is the sum of six target DDT isomers (o,p'-DDD, o,p'-DDE, o,p'-DDT, p,p'-DDD, p,p'-DDE, and p,p'-DDT).
3. Results in parentheses (223) are replicate sample results. Parentheses with an asterisk (803)* are the higher of two triplicate results.
4. Shaded cells show DDTs greater than the IROD AWQC (ecological) of 1 nanogram per liter (ng/L) = 1,000 pg/L. The protectiveness of the 2009 IROD DDTs limits may be re-evaluated at the next 5-year review, as AWQC for individual DDT isomers were updated in 2015.
5. In calculating summations of DDTs, **non-detects were assumed to have a value of zero**.
6. Pumped samples were collected via tubing from selected depths; minimum sample volumes were 1,100 liters; samples were filtered; results were derived for both the dissolved-phase (filtrate) and the filter residue. DDTs were collected on a XAD-II resin column.

Sampling Events

1997 - Average of dissolved winter and summer sampling results from *In Situ Measurements of Chlorinated Hydrocarbons in the Water Column off the Palos Verdes Peninsula, California* (Zeng, 1999).
2010 - Passive sampling to measure background dissolved persistent organic pollutant concentrations in the water column of the Palos Verdes Shelf Superfund site (Fernandez et al., 2012). Results were recalculated using updated PED-water partitioning coefficients (K_{pew}) derived in the 2013 study (Appendix D of this report).
2013 - *Palos Verdes Shelf Water Column Passive Samplers Deployment: Data Summary* (Appendix D of this report)
2015 - High resolution grab water sampling