

**Table S1.** Characteristics of the crude oil contaminated water collected from a pit resulting from oil and gas exploitation in Chakwal, Pakistan

| Parameter  | Value       | NEQS |
|--|-------------|------|
| pH   | 7.49 (0.1)  | 6-9  |
| Chemical oxygen demand (COD) (mg/l)                  | 1440 (73.5) | 150  |
| Biochemical oxygen demand (BOD <sub>5</sub> ) (mg/l) | 645 (15.4)  | 80   |
| Hydrocarbons (mg/l)                                  | 300 (9.7)   | 10   |
| Dissolved oxygen (mg/l)                              | 0.83 (0.03) | NG   |
| Total dissolved solids (TDS) (mg/l)                  | 8250 (113)  | 3500 |
| Chlorides (Cl <sup>-</sup> ) (mg/l)                  | 1370 (73)   | 1000 |
| Sulphates (SO <sub>4</sub> <sup>2-</sup> ) (mg/l)    | 465 (9.3)   | 600  |
| Nitrogen (mg/l)                                      | 0.85 (0.04) | NG   |
| Phosphorous (P) (mg/l)                               | 0.63 (0.02) | NG   |
| Sodium (Na <sup>+</sup> ) (mg/l)                     | 2467 (143)  | NG   |
| Potassium (K <sup>+</sup> ) (mg/l)                   | 1356 (64)   | NG   |
| Cadmium (Cd) (mg/l)                                  | 1.05 (0.06) | 0.1  |
| Chromium (Cr) (mg/l)                                 | 0.83 (0.03) | 1.0  |
| Copper (Cu) (mg/l)                                   | 0.23 (0.01) | 1.0  |
| Iron (Fe) (mg/l)                                     | 1.38 (0.08) | 8    |
| Nickel (Ni) (mg/l)                                   | 0.56 (0.03) | 1.0  |
| Lead (Pb) (mg/l)                                     | 0.65 (0.02) | 0.5  |

NG = not given in NEQS list, NEQS = National environmental quality standards. Each value is a mean of three replicates; standard deviations are presented in parentheses.