# Appendix F

## Chapter 2: Supporting Information

Table D.1 Input parameters for scenario modelling using CORONAScreen

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| **Description** | **Value** | **Source/ Comment** | **Description** | **Value** | **Source/ Comment** |
| **Aquifer Properties** | **Plume Chemistry** |
| Groundwater flow velocity (m/day) | 0.088 | Representative field data from confidential source | Oxygen (mg/L) | 0.01 | Representative field data from confidential source |
| Hydraulic conductivity (m/day) | 4 | Nitrate (mg/L) | 0.3 |
| Hydraulic gradient (m/m) | 0.0055 | Sulphate (mg/L) | 0 |
| Effective porosity (-) | 0.25 | Manganese (mg/L) | 0.92 |
| Bulk density (g/cm3) | 2 | Iron (II) (mg/L) | 2.2 |
| Fraction of organic carbon (-) | 0.0002 |  |  |  |
| Kd for ammonium (ml/g) | 0.4 |  |  |  |
| **Background Groundwater Chemistry** | **Plume Properties** |
| Oxygen (mg/L) | 10 | Representative field data from confidential source | Width (m) | 10 | Representative field data from confidential source |
| Nitrate (mg/L) | 42 | Thickness (m) | 2 |
| Sulphate (mg/L) | 63 | Distance Well - source area (m) | 10 |
| Manganese (mg/L) | 0.0024 | Fringe thickness (m) | 1 | Vertical fringe thickness from Thornton et al., (2001a) |
| Iron (II) (mg/L) | 0.004 | Vertical transverse dispersivity (m) | 0.049 | Vertical dispersivity is calculated from fringe thickness in CORONAScreen |
|  |  |  | Horizontal transverse dispersivity (m) | 0.49 |
|  |  |  | Longitudinal dispersivity (m) | 4.9 |
| **Source Term Composition** |  |  |  |
| Benzene (mg/L) | 3.42 | Representative field data from confidential source |  |  |  |
| Toluene (mg/L) | 62.0 |  |  |  |
| Ethylbenzene (mg/L) | 7.5 |  |  |  |
| Xylene (mg/L) | 29.2 |  |  |  |

Table D.2 EK input parameters for scenario modelling using CORONAScreen

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| **Description** | **Value** | **Source/Comment** |
| Ionic mobility NO3- (m2/V/s) | 7.4 x10-8 | Thevanayagam & Rishindran, (1998) |
| Ionic mobility SO42- (m2/V/s) | 8.25 x10-8 |
| Effective Ionic Mobility (m2/V/s) | 8.14 x10-9 | Calculated from ionic mobility, porosity, tortuosity. Value of electroosmotic conductivity subtracted from total |
| Effective Ionic mobility (m2/V/s) | 9.08 x10-9 |
| Tortuosity (-) | 0.44 | Representative value for sandy aquifer from Wu *et al.* (2012a) |
| Voltage Gradient (V/m) | 100 | Common value of 1 V cm-1 suitable for bioremediation from Wick *et al.,* (2007) |
| Electroosmotic Conductivity (m2/V/s) | 1.16 x10-9 | Representative value for sandy aquifer from Wu *et al.*(2012a) |
| Area of electrode array (m2) | 9.4 | 10 % of calculated plume length from CORONAScreen model |