cornelsen

Water Treatment ♦ PFAS Treatment ♦ Remediation Technologies

Case Study

MPE System + Heat Exchangers

Water Treatment Plant

Vapour Phase / Installation

bb AWARDS

Brownfield Briefing 2017
Winner
"Best In-Situ Treatment"
Sustainable Low Temperature In-Situ Thermal Remediation of Pesticides

Steam Enhanced NAPL Recovery

Pesticides & Kerosene Contamination—ERM

The Challenge

- **Dieldrin entrained in Kerosene Risk**
  - ⇒ Risk to nearby river
  - ⇒ Long term vertical migration risk to chalk aquifer
  - ⇒ High Temperatures required to volatilise dieldrin (>350°C) with commensurate high costs & CO_2 impact.
- **The Solution**
  - ⇒ ERM remediation options appraisal used a holistic sustainability approach.
  - ⇒ Evaluated in line with UK guidance and the EA's Remedial Targets Methodology as well as UK sustainable Remediation Forum (SuRF-UK).
  - ⇒ Bench test indicated mobilisation of the kerosene and entrained dieldrin between 70°C & 100°C
  - ⇒ Thermally enhanced NAPL mobilisation employing steam injection offered a lower energy and lower cost approach than volatilisation by traditional thermal conduction heating
  - ⇒ 19 Steam injection wells
  - ⇒ 19 Recovery wells
  - ⇒ 90 temperature monitoring points across the 1500m^2 treatment area
  - ⇒ Suitably placed thermocouple temperature monitoring.
- **Cornelsen's Role**
  - ⇒ Design, install & commission steam enhanced extraction system to ERM's specification.
  - ⇒ Design included all pipework, pressure regulation and safety systems.
  - ⇒ Operation & maintenance of system.
- **Results**
  - ⇒ 70°C reached within 4 weeks
  - ⇒ Operation time = 20 weeks
  - ⇒ Remediation target achieved
  - ⇒ >95% operational uptime

Process Plant

- Steam Boiler
- Insulated steel pipework, pressure regulators, pressure relief & condensate drains
- Cooling condensation plant
- 2000 m^3/hr ATEX Rated MPE System
- Vapour & Aqueous Treatment Plant

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