Landfill – successful surrender on non compliant sites (development sites)

Site 1

- Inert fill
- Non compliance – monitoring wells penetrated liner
- Gas monitoring results exceeded EA surrender criteria
- Peripheral wells <0.1% CH_4 and 9.0% CO_2
- Internal wells 63% CH_4 and generally less than 5% CO_2 (one well up to 14%)
- Flow rate up to 80l/h (demonstrated this was artificial)

Site 2

- Excess volumes of fill materials
- Very high back ground gas concentrations – surrounded on three sides by old unlined domestic landfills
- Gas monitoring results exceeded EA surrender criteria

Key success factors - gas

- Data quality review and address issues
- Multiple lines of evidence – flux chambers, surface emissions tests, soil descriptions, TOC tests, geotechnical tests
- Do things differently
- Gas taps left open during part of monitoring period to demonstrate flows are artificial due to groundwater pumping in sealed well
- Visual conceptual site models
- Well written reports that tell a story
- Cost – benefit. The success of these sites was partly because they were valuable development sites and clients were prepared to launch legal challenges to EA
- Key EA officers involved were reasonable and pragmatic

Key factors industry needs to consider or address

- Poor and old monitoring installations
- Lack of borehole records for wells
- First step to surrender is comprehensive data review
- Likely to need additional targeted investigation and monitoring (not necessarily in boreholes) – cost
- Quality of waste acceptance records – how much confidence?
- The approach we have used is only for low risk sites - ie inert or sites with low putrescible content (that can be proven)
- Lack of baseline data outside the site to identify background concentrations – especially CO_2