

3. AGL Clyde St Trial (2005) - TPH, PAH, BTEX

Newcastle Steelworks closure area, Newcastle (NSW)

INNOVA SOIL TECHNOLOGY was engaged by the Australian Gas Light company (AGL) to undertake a 500 T treatment trial of PAH contaminated soils from the former Clyde St gasworks site in Hamilton North, Newcastle - NSW. Newcastle based earthworks firms, Daracon and Enviropacific Services were subcontracted to assist with earthworks operations. The trial involved:

- Notification of the trial (Category 2 Remediation works) to Newcastle City Council (NCC) and consultation with the Hamilton Nth Community as per NSW SEPP 55 and NCC LCP 43 guidelines.
- Permissions and agreement with the Regional Land Management Corporation (RLMC) for the treatment activities to take place on the BHP steelworks site whom they manage for the NSW State Government.
- Initial excavation of soils from the former Clyde St gasworks site,
- Transportation of soils to the Innova site on the former BHP Steelworks site (Mayfield);
- Screening, mixing and blending of the contaminated soils, and
- Processing of the soil through **INNOVA's DFTD** process

Clyde St Trial: Earthworks – excavation of 500T PAH impacted sandy soil, loading and transport of soil under license and screening of soils prior to DFTD processing.



INNOVA's treatment operations commenced on Friday 25th February 2005 and were completed on Thursday 3rd March 2005. In addition to treatment operations, **INNOVA** performed the following: Collected soil samples for analysis, Monitored and recorded process emissions, and logged key observations. All information collected was to be used as part of future development approvals and environmental impact assessments for the full scale site remediation. Additionally, independent environmental consultants were engaged by Innova and AGL to report on the effectiveness of the soil treatment operations, specifically through the following: Collection and analysis of contaminated and treated soil samples (RCA – Australia), Monitoring the main stack gas emissions (HLA – Envirosiences), and Monitoring process noise levels as per NSW EPA requirements (HLA – Envirosiences).

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Plant operations

PAH contaminated soils were treated in 4 trial batches over a range of temperatures from 400°C to 500°C in the rotary dryer for residence times of approx 12 – 15 min. The off-gas conversion chambers operated between 900 and 950 deg.C. CO emissions were low at 20 - 30 ppm.

Local environmental consultancy, Robert Carr and Associates were engaged by INNOVA and AGL to conduct post trial treatment soil sampling and validation reporting on the clean stockpile. A summary of feed and product soil results is shown in the table below. INNOVA's DFTD process was able to significantly reduce the magnitude of organic contamination with TPH, PAH, BTEX and Benzo(a)pyrene levels consistently reduced to meet sensitive land reuse criteria. Several results obtained early in the trial gave slightly raised BaP levels due to soil being processed during the plant start-up phase. Although the elevated BaP concentration still met commercial/industrial land use criteria (5mg/kg), future treatment practises were conducted in accordance with an agreed cleanup level with re-processing of soil not meeting this specification.

Typical soil results summary	FEED SOIL RANGE (mg/kg)	TREATED SOIL RANGE (mg/kg)
BTEX	nd 26.3	nd
TPH	410 10,175	< 100*
PAH	263.2 845.3	< 20*
CYANIDE	nd 417	nd 12
BaP	14.1 40.1	nd 5

