

2. Coal-Tar Contaminated Soil (2003) - TPH, PAH, BTEX

Newcastle Steelworks closure area, Newcastle

Project scope

As part of site demolition works and the handover of former BHP land to the NSW State Government, **INNOVA SOIL TECHNOLOGY** was engaged by BHPBilliton limited to treat a small amount of coal tar contaminated fill, tar coated concrete and tar soaked iron ore fines from previous coke making operations. The aim of the project was to treat the 2040 tonne of “contaminated industrial fill” materials back to a level where they were suitable for re-use under sensitive land use standards (< 20 ppm PAH).

INNOVA SOIL TECHNOLOGY's scope of works for this remediation project included the following:

- Excavation of contaminated materials from concrete bund areas and three tar sump pits*
- Crushing* material to < 2” size, screening and blending a mix suitable for treatment through **INNOVA**'s patented **DFTD** process (direct-heated fast –quenched thermal desorption).
- Thermal Treatment of 2080 tonne of PAH contaminated material back to sensitive land use standards using **INNOVA**'s thermal desorption process (< 20ppm PAH)

Earthworks: excavation, crushing, screening and blending of liquid tar, concrete and industrial fill material



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Plant operations

PAH contaminated soil was treated at 400°C in the rotary dryer for residence times of approximately 12 min. The off-gas conversion chambers operated between 900 and 925 deg.C. CO emissions were very low at 20 -30 ppm and signified the high efficiency of the converters operation. Indeed the destruction and removal efficiencies for PAH's and VOC's was very high and was greater than 99.99995%.

Local environmental consultancy Robert Carr and Associates were engaged by **INNOVA** to conduct post treatment soil sampling and validation reporting on the clean stockpile. A summary of feed and product soil results is shown in the table 1 below. The soil was effectively treated back to sensitive land use standards (< 20 mg/kg BTEX, < 1000 mg/kg TPH and < 20 mg/kg PAH).

Typical soil results summary	FEED SOIL RANGE (mg/kg)	TREATED SOIL RANGE (mg/kg)
BTEX	0 – 10.1	< 0.2
TPH	5104 - 22950	< 125
PAH	1755 - 7887	< 20
BaP	60 - 260	Nd – 5.8

