Case Study

North Head STP - Biosolids Stabilisation and Storage Facility

Green File

Thiess Services managed the operation and maintenance of this Sydney Water facility for 12 years, including several plant upgrades.

Thiess Services beneficially used 100% of all biosolids produced from North Head STP throughout NSW, supplying markets such as: agricultural use; mine site rehabilitation; and landscaping.

Not one biosolid analysis failed to achieve Stabilisation Grade A classification since the facility was commissioned in 1995.

Location
North Head Sludge Treatment Plant,
Manly NSW

Client
Sydney Water

Value
AU $38 Million

Duration
March 1995 - September 2007

Contract Type
Schedule of Rates

Referee
Ian Bamforth
Sydney Water
Superintendent's Representative
North Head STP - Biosolids Stabilisation and
Storage Facility
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This was the first biosolids facility built in Australia producing a stabilisation Grade A biosolids product using a process plant that pasteurises the sludge by heating it to a temperature of 70°C for 30 minutes. Grade A is the highest pathogen reduction classification given by the NSW EPA Guidelines for the Use and Disposal of biosolids Products.

In 1995, Thiess Services was awarded a three-year contract for the construction and operation of the North Head STP biosolids facility. Thiess Services was responsible for the stabilisation of dewatered sludge, treatment of odours and the transportation of biosolids from the North Head Sewerage Treatment plant.

In 1998, Thiess Services was awarded a five-year contract extension with Sydney Water, which included upgrades to the biosolids facility and Sydney Water sludge transfer equipment resulting in reduced operating costs for Thiess Services and Sydney Water.

Under a further four-year extension awarded in 2003, in addition to continuing to process transport and market biosolids on behalf of Sydney Water, Thiess Services undertake replacement works to the facility to extend its design life for the term of the contract. The facility operated 24 hours a day, seven days a week and processed approximately 100 product tonnes of biosolids per day (30 dry tonnes).

Key elements of the replacement works under the most recent contract extension included: the replacement of the building scrubber ventilation and ducting systems, an innovative approach which resulted in a reduced total life cycle cost and minimised environmental impacts by reducing the use of resources such as chemicals and electricity; and the replacement of the stockpile building roof while continuing to contain odours generated within the building so that the facility could continue to process biosolids without the release of odours into the atmosphere.

Thiess Services took a proactive and innovative approach to progressively developing the standard of operations at North Head, initiatives included:

- a fully enclosed process building maintained under negative pressure by the building scrubber;
- a fully enclosed stockpile (storage) building to store processed biosolids prior to transportation off-site, eliminating odour and dust impacts to the local community;
- the installation of a duty process train consisting of an RDP process that achieved Stabilisation Grade A utilising supplementary electrical heat and quicklime;
- the installation of a stand-by process train consisting of a twin screw mixer process that achieves Stabilisation Grade B through the addition of quicklime;
- the installation of duty/stand-by process scrubbing systems to suppress dust and odours generated as part of the process trains;
- the installation of a building scrubbing system that processes all the air from the stockpile and process building, by maintaining both buildings under negative pressure to eliminate the release of odour to the atmosphere; and
- the supply of specially modified transportation vehicles with a tarpaulin cover system which prevents the release of dust and odour during transportation through sensitive community areas.