

GENERAL APPROVAL OF THE IMMOBILISATION OF CONTAMINANTS IN WASTE

Pursuant to the provisions in Clause 28 of the *Protection of the Environment Operations (Waste) Regulation 1996* the New South Wales Environment Protection Authority ('the EPA') has made the following general approval for the immobilisation of the following contaminants in waste. The EPA is part of the Department of Environment and Conservation (NSW).

DEFINITIONS

SCC - Specific Contaminant Concentration, see Waste Guidelines for details.

SCC2 & SCC3 - see Table A4 of the Waste Guidelines

TCLP - Leachable Concentration assessed by the Toxicity Characteristics Leaching Procedure, see Waste Guidelines for details.

Unconfined Compressive Strength - for details, refer to the standard methods for determining Unconfined Compressive Strength specified in condition 3.5.

Waste Guidelines - *Environmental Guidelines: Assessment, Classification & Management of Liquid & Non-Liquid Wastes* issued by the EPA and in force as at 1 July 1999.

A) APPROVAL NUMBER

2005/14

B) PERIOD OF VALIDITY

This approval commences on the 29 July 2005 and is effective until revoked or varied by the EPA.

C) WASTE TO WHICH THIS APPROVAL APPLIES

This approval applies to coal tar contaminated soil from former gasworks sites which has been treated in accordance with the conditions of this approval.

In this approval:

- untreated waste is coal tar contaminated soil from former gasworks sites.
- treated waste is the untreated waste which has been stabilised by treatment with calcium or magnesium oxide based cement in accordance with the conditions of this approval.

D) CONTAMINANTS TO WHICH THIS APPROVAL APPLIES ("THE CONTAMINANTS")

The following contaminants are covered by this Approval, provided that the concentration in the untreated waste does not exceed the following limits:

- Polycyclic aromatic hydrocarbons (PAHs) – 13,000 mg/kg
- Benzo(a)pyrene (BaP) – 500 mg/kg
- Non-halogenated phenols – 2,000 mg/kg
- Total cyanide – 4,000 mg/kg

All other contaminants must be assessed in accordance with the procedures specified in the Waste Guidelines.

E) RESPONSIBLE PERSON

The persons or class of persons to whom this general approval applies are the persons who carry out the assessment and classification of the treated waste for the purpose of this approval. Responsible persons must comply with all of the conditions of this approval.

F) CONDITIONS OF APPROVAL

The responsible person may only use this approval to classify treated waste for disposal if all of the conditions of the approval have been satisfied.

1. Treatment Requirements

- 1.1. The treatment of the untreated waste must be carried out so as not to cause adverse impacts on human health or amenity or pollution of the environment.

- 1.2. The reagents which must be used to immobilise the Contaminants are calcium or magnesium oxide based cement. Enhancers, substances designed to enhance the set/cure time and/or the compressive strength of the stabilised matrix or substances designed to reduce the leachability of contaminants from the matrix, may be added to the reagent provided that those substances do not affect the classification of the treated waste within the meaning of the Waste Guidelines.
- 1.3. The ratio of reagent (including any enhancers) to untreated waste must not exceed 2:1 (ie 2 parts by mass of the reagent to one part by mass of the untreated waste).
- 1.4. The mixing of the untreated waste and the reagents must be sufficient to ensure that all of the Contaminants become microencapsulated.

NOTE: The waste may only be treated at a premises which is lawfully able to treat the waste.
- 1.5. The Unconfined Compressive Strength of the treated waste must be 1 MPa or greater prior to disposal.

2. *Quality Control*

- 2.1. The responsible person must implement a quality control program to ensure compliance with the conditions of this approval. The program must include a sampling program appropriate to the quantity of treated waste generated and a testing plan for the analysis of the samples. The procedures used by the responsible person for the acceptance and rejection of treated waste must be appropriate to ensure that once treatment has taken place, only treated waste which satisfies all of the requirements of this approval is disposed of off-site to a landfill that can lawfully receive that type of waste.
- 2.2. All testing must be undertaken by analytical laboratories accredited by the National Association of Testing Authorities to perform the particular test.
- 2.3. The following parameters must be monitored and recorded as part of the testing plan:
 - 2.3.1. total concentration of each of the Contaminants in the untreated waste;
 - 2.3.2. total concentration of each of the Contaminants in the treated waste;
 - 2.3.3. leachable concentration of each of the Contaminants in the treated waste;
 - 2.3.4. Unconfined Compressive Strength of the treated waste;
 - 2.3.5. the composition of the reagent(s) used; and
 - 2.3.6. the ratio of reagent to untreated waste (mass/mass) used in treatment.

3. *Sampling and test methods to be used under condition 2*

- 3.1. Sampling of untreated waste in order to comply with condition 2 must be in accordance with the National Environment Protection (Assessment of Site Contamination) Measure 1999 ('the Contaminated Sites NEPM').

NOTE: *Schedule B(2) to the Contaminated Sites NEPM (Guideline on Data Collection, Sample Design and Reporting)* provides relevant guidance for sampling soil from former gaswork sites.
- 3.2. Sampling of treated waste in order to comply with condition 2 must be by means of a statistically valid sampling program which is consistent with the acceptance/rejection procedures adopted for treated waste.

NOTE: The sampling program for the treated waste will depend on a number of factors including the quantity and variability of material to be treated.
- 3.3. The total concentration of each contaminant must be measured as Specific Contaminant Concentration (SCC) in accordance with the method specified in the Waste Guidelines.

- 3.4. The leachable concentration of each contaminant must be measured using the Toxicity Characteristics Leaching Procedure (TCLP) as specified in the Waste Guidelines.
- 3.5. The Unconfined Compressive Strength (UCS) must be measured in accordance with the NSW Roads & Traffic Authority Test Method T131, *Determination of Unconfined Compressive Strength of Road Materials Stabilised or Modified with Proportions of Cement, Lime or Other Cementitious Materials*, or Test Method T116, *Determination of Unconfined Compressive Strength of Remoulded Road Materials which are Self Cementing*. An equivalent method may be used provided that prior written approval is obtained from the EPA.
- 3.6. SCC and TCLP test results used for assessing compliance with the conditions of this approval must be at the 95% upper confidence limit (UCL). UCS test results used for assessing compliance with the conditions of this approval should be at the 95% lower confidence limit (LCL).

4. Waste Assessment Requirements

Note: Refer to Technical Appendices 1 and 2 of the Waste Guidelines for more information about waste classification including SCC and TCLP limit values for the Contaminants.

- 4.1. The untreated waste must be classified in accordance with the procedures in the Waste Guidelines.
- 4.2. The total concentration (SCC) limits for the Contaminants do not apply to the classification of the treated waste provided that the treatment complies with all of the conditions of this Approval.
- 4.3. With respect to BaP, non-halogenated phenols and cyanide, treated waste which complies with all of the conditions of this Approval may be classified according to the leachable concentration (TCLP) value alone.
- 4.4. With respect to PAH, treated waste which complies with all of the conditions of this Approval may be classified as solid waste.
- 4.5. All other contaminants in the treated waste apart from the Contaminants must be assessed in accordance with the procedure in Technical Appendix 1 of the Waste Guidelines, namely that both total concentrations and leachable concentrations (where specified) apply.

5. Disposal Restrictions

- 5.1. Treated waste that complies with all of the conditions of this approval and that satisfies the requirements of the Waste Guidelines for classification as inert waste or solid waste may only be disposed of at solid waste landfills or industrial waste landfills which have currently operating leachate management systems and which are licensed by the EPA to accept that particular type of waste.
- 5.2. Treated waste that complies with all of the conditions of this Approval and that satisfies the requirements of the Waste Guidelines for classification as industrial waste may only be disposed of at industrial waste landfills which have currently operating leachate management systems and which are licensed by the EPA to accept that particular type of waste
- 5.3. The responsible person must ensure that the landfill receiving the treated waste:
 - 5.3.1. has a licence that allows the landfill to receive waste subject to immobilisation approvals with this type of disposal restriction; and
 - 5.3.2. monitors landfill leachate and groundwater for PAH (or BaP as an indicator of PAH), if the total concentration of the PAH/BaP in the treated waste exceeds SCC2, for solid waste landfills, or SCC3, for industrial waste landfills.

5.4. The responsible person must advise the disposal facility in writing that the treated waste to be disposed of has been treated and classified in accordance with all of the conditions of this approval.

6. *Notification and record keeping requirements*

6.1. The responsible person must notify the EPA in writing of its intention to have the coal tar contaminated soil treated for disposal under this approval at least 28 days before it commences treatment of the waste. The notification must include details of the reagent to be used, any substances to be added to the reagent, the amount of coal tar contaminated soil proposed to be treated and the premises at which treatment will take place.

6.2. For treated waste disposed of under this approval, the responsible person is required to keep all test results and disposal documentation for a period of at least 3 years from the date on which the treated waste is disposed of off site.

6.3. The responsible person is required to notify the EPA in writing within 48 hours of becoming aware of a test result which shows that the treated waste does not meet the requirements for disposal under this approval.

NOTIFICATIONS OR REPORTS AS REQUIRED BY THIS APPROVAL MUST BE SENT TO:

Manager, Hazardous Waste Regulatory Unit
Department of Environment and Conservation
PO Box A290
Sydney South NSW 1232
Fax: 902) 9995 5930

NOTES

It is an offence for the responsible person not to comply with the conditions to which the approval is subject [clause 28 [11] of the Waste Regulation]. Maximum penalty for a corporation is 200 penalty units and for individuals 100 penalty units.

This approval may be amended or revoked by the EPA by way of written notice in the Gazette.

The responsible person must also ensure that all other legislative requirements relating to the waste are complied with including, for example, the use of a licensed waste transporter in circumstances where one must be used.

Environment Protection Authority

Per: Mark Gorta
Director Waste Management
By Delegation