



# **Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014**

## **The treated drilling mud order 2014**

### **Introduction**

This order, issued by the Environment Protection Authority (EPA) under clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014 (Waste Regulation), imposes the requirements that must be met by suppliers of treated drilling mud to which 'the treated drilling mud exemption 2014' applies. The requirements in this order apply in relation to the supply of treated drilling mud for application to land as engineering fill or for use in earthworks.

### **1. Waste to which this order applies**

- 1.1. This order applies to treated drilling mud. In this order, treated drilling mud means drilling mud that has undergone dewatering such that the resultant solid:
- does not have an angle of repose of less than 5 degrees above horizontal; or
  - does not become free-flowing at or below 60 degrees Celsius or when it is transported; or
  - is generally capable of being picked up by a spade or shovel.

### **2. Persons to whom this order applies**

- 2.1. The requirements in this order apply, as relevant, to any person who supplies treated drilling mud that has been generated, processed or recovered by the person.
- 2.2. This order does not apply to the supply of treated drilling mud to a consumer for land application at a premises for which the consumer holds a licence under the POEO Act that authorises the carrying out of the scheduled activities on the premises under clause 39 'waste disposal (application to land)' or clause 40 'waste disposal (thermal treatment)' of Schedule 1 of the POEO Act.

### **3. Duration**

- 3.1. This order commences on 24 November 2014 and is valid until revoked by the EPA by notice published in the Government Gazette.

## **4. Processor requirements**

The EPA imposes the following requirements on any processor who supplies treated drilling mud.

### **Sampling requirements**

- 4.1. On or before supplying treated drilling mud, the processor must:
  - 4.1.1. Prepare a written sampling plan which includes a description of sample preparation and storage procedures for the treated drilling mud.
  - 4.1.2. Undertake sampling and testing of the treated drilling mud as required under clauses 4.2 and 4.3 below. The sampling must be carried out in accordance with the written sampling plan and Australian Standard 1141.3.1-2012 Methods for sampling and testing aggregates – Sampling – Aggregates (or equivalent).
- 4.2. Where the treated drilling mud is generated as part of a continuous process, the processor must undertake routine sampling of the treated drilling mud by collecting 10 composite samples per 100 tonnes (dry weight) (or part thereof) processed, and testing each sample for the chemicals and other attributes listed in Column 1 of Table 1.
- 4.3. Where the treated drilling mud is not generated as part of a continuous process, the processor must undertake one-off sampling of a batch, truckload or stockpile of the treated drilling mud, by collecting 5 composite samples from every 10 tonnes (dry weight) (or part thereof) processed and testing each sample for the chemicals and other attributes listed in Column 1 of Table 1.
- 4.4. The test results for each composite sample must be validated as compliant with the maximum average concentration or other value listed in Column 2 of Table 1 and the absolute maximum concentration or other value listed in Column 4 of Table 1 prior to the supply of the treated drilling mud.

### **Chemical and other material requirements**

- 4.5. The processor must not supply treated drilling mud to any person if, in relation to any of the chemical and other attributes of the treated drilling mud waste:
  - 4.5.1. The concentration or other value of that attribute of any sample collected and tested as part of the routine or one-off sampling, of the treated drilling mud exceeds the absolute maximum concentration or other value listed in Column 3 of Table 1, or
  - 4.5.2. The average concentration or other value of that attribute from the routine or one-off sampling of the treated drilling mud (based on the arithmetic mean) exceeds the maximum average concentration or other value listed in Column 2 of Table 1.
- 4.6. The absolute maximum concentration or other value of that attribute in any treated drilling mud supplied under this order must not exceed the absolute maximum concentration or other value listed in Column 3 of Table 1.

**Table 1**

<b>Column 1</b>	<b>Column 2</b>	<b>Column 3</b>
<b>Chemicals and other attributes</b>	<b>Maximum average concentration</b> (mg/kg 'dry weight' unless otherwise specified)	<b>Absolute maximum concentration</b> (mg/kg 'dry weight' unless otherwise specified)
1. Mercury	0.5	1
2. Cadmium	0.5	1
3. Lead	50	100
4. Arsenic	20	40
5. Chromium (total)	50	100
6. Copper	50	100
7. Nickel	30	60
8. Zinc	100	200
9. Electrical Conductivity	1.5 dS/m	3 dS/m
10. pH *	6 to 9	5.5 to 10
11. Total Polycyclic Aromatic Hydrocarbons (PAHs)	20	40
12. Benzo(a)pyrene	0.5	1
13. Total Petroleum Hydrocarbons (TPHs)	250	500
14. Total Chlorinated Hydrocarbons	0.5	1

\*Note: The ranges given for pH are for the minimum and maximum acceptable pH values in the treated drilling mud.

### Test methods

- 4.7. The processor must ensure that any testing of samples required by this order is undertaken by analytical laboratories accredited by the National Association of Testing Authorities (NATA), or equivalent.
- 4.8. The processor must ensure that the chemicals and other attributes (listed in Column 1 of Table 1) in the treated drilling mud it supplies are tested in accordance with the test methods specified below or other equivalent analytical methods. Where an equivalent analytical method is used the detection limit must be equal to or less than that nominated for the given method below.
- 4.8.1. Test methods for measuring the mercury concentration:
- 4.8.1.1. Analysis using USEPA SW-846 Method 7471B Mercury in solid or semisolid waste (manual cold vapour technique), or an equivalent analytical method with a detection limit < 20% of the stated absolute maximum concentration in Table 1, Column 3 (i.e. < 0.2 mg/kg dry weight).
- 4.8.1.2. Report as mg/kg dry weight.
- 4.8.2. Test methods for measuring chemicals 2 - 8:
- 4.8.2.1. Sample preparation by digesting using USEPA SW-846 Method 3051A Microwave assisted acid digestion of sediments, sludges, soils, and oils.

- 4.8.2.2. Analysis using USEPA SW-846 Method 6010C Inductively coupled plasma - atomic emission spectrometry, or an equivalent analytical method with a detection limit < 10% of the stated absolute maximum concentration in Table 1, Column 3 (i.e. 10 mg/kg dry weight for lead).
  - 4.8.2.3. Report as mg/kg dry weight.
- 4.8.3. Test methods for measuring electrical conductivity and pH:
- 4.8.3.1. Sample preparation by mixing 1 part treated drilling mud with 5 parts distilled water.
  - 4.8.3.2. Analysis using Method 103 (pH) and 104 (Electrical Conductivity) in Schedule B (3): Guideline on Laboratory Analysis of Potentially Contaminated Soils, National Environment Protection (Assessment of Site Contamination) Measure 1999 (or an equivalent analytical method).
  - 4.8.3.3. Report electrical conductivity in deciSiemens per metre (dS/m).
- 4.8.4. Test method for measuring PAHs and benzo(a)pyrene:
- 4.8.4.1. Analysis using USEPA SW-846 Method 8100 Polynuclear aromatic hydrocarbons (or an equivalent analytical method).
  - 4.8.4.2. Calculate the sum of all 16 PAHs for total PAHs.
  - 4.8.4.3. Report total PAHs as mg/kg dry weight.
  - 4.8.4.4. Report benzo(a)pyrene as mg/kg.
- 4.8.5. Test method for measuring TPHs:
- 4.8.5.1. Method 506 (Petroleum Hydrocarbons) in Schedule B (3): Guideline on Laboratory Analysis of Potentially Contaminated Soils, National Environment Protection (Assessment of Site Contamination) Measure 1999 (or an equivalent analytical method).
  - 4.8.5.2. Report as mg/kg dry weight.
- 4.8.6. Test methods for measuring total chlorinated hydrocarbons:
- 4.8.6.1. Analysis using USEPA SW-846 Method 8021B Aromatic and halogenated volatiles by gas chromatography using photoionization and/or electrolytic conductivity detectors (or an equivalent analytical method).
  - 4.8.6.2. Calculate the total sum of carbon tetrachloride, chlorobenzene, chloroform, 1,2-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichloroethane, 1,1-dichloroethene, 1,2-dichloroethene (2 isomers), dichloromethane (methylene chloride), 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, 1,2,4-trichlorobenzene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethene, vinyl chloride and hexachlorobutadiene concentrations.
  - 4.8.6.3. Report total chlorinated hydrocarbons as mg/kg.

## Notification

- 4.9. On or before each transaction, the processor must provide the following to each person to whom the processor supplies the treated drilling mud:
- a written statement of compliance certifying that all the requirements set out in this order have been met;
  - a copy of the treated drilling mud exemption, or a link to the EPA website where the treated drilling mud exemption can be found; and
  - a copy of the treated drilling mud order, or a link to the EPA website where the treated drilling mud order can be found.

## Record keeping and reporting

- 4.10. The processor must keep a written record of the following for a period of six years:
- the sampling plan required to be prepared under clause 4.1.1;
  - all routine or one-off sampling results in relation to the treated drilling mud supplied;
  - the quantity of the treated drilling mud supplied; and
  - the name and address of each person to whom the processor supplied the treated drilling mud.
- 4.11. The processor must provide, on request, the most recent sampling (whether routine or one-off or both) results for treated drilling mud supplied to any consumer of the treated drilling mud.
- 4.12. The processor must notify the EPA within seven days of becoming aware that it has not complied with any requirement in clause 4.1 to 4.8.

## 5. Definitions

In this order:

**application or apply to land** means applying to land by:

- spraying, spreading or depositing on the land; or
- ploughing, injecting or mixing into the land; or
- filling, raising, reclaiming or contouring the land.

**composite sample** means a sample that combines five discrete sub-samples of equal size into a single sample for the purpose of analysis.

**consumer** means a person who applies, or intends to apply, treated drilling mud to land.

**continuous process** means a process that produces treated drilling mud on an ongoing basis.

**drilling fluid** means a mixture of water and chemical additives including but not limited to bentonite, soda ash (sodium carbonate), sodium hydroxide, lime and polymers.

**drilling mud** means a mixture of naturally occurring rock and soil, including but not limited to materials such as sandstone, shale and clay, and drilling fluid generated during drilling operations such as horizontal directional drilling or potholing. This does not include drilling mud that has been generated by:

- (a) deep drilling for mineral, gas or coal exploration, or
- (b) drilling through contaminated soils, acid sulphate soils (ASS) or potential acid sulphate soils (PASS).

**processor** means a person who generates, processes, mixes, blends, or otherwise incorporates treated drilling mud into a material in its final form for supply to a consumer.

**transaction** means:

- in the case of a one-off supply, the supply of a batch, truckload or stockpile of treated drilling mud that is not repeated.
- in the case where the supplier has an arrangement with the recipient for more than one supply of treated drilling mud, the first supply of treated drilling mud as required under the arrangement.

**Manager Waste Strategy and Innovation**  
**Environment Protection Authority**  
**(by delegation)**

## Notes

The EPA may amend or revoke this order at any time. It is the responsibility of each of the processor and processor to ensure it complies with all relevant requirements of the most current order. The current version of this order will be available on ' [www.epa.nsw.gov.au](http://www.epa.nsw.gov.au)

In gazetting or otherwise issuing this order, the EPA is not in any way endorsing the supply or use of this substance or guaranteeing that the substance will confer benefit.

The conditions set out in this order are designed to minimise the risk of potential harm to the environment, human health or agriculture, although neither this order nor the accompanying exemption guarantee that the environment, human health or agriculture will not be harmed.

Any person or entity which supplies treated drilling mud should assess whether the material is fit for the purpose the material is proposed to be used for, and whether this use may cause harm. The supplier may need to seek expert engineering or technical advice.

Regardless of any exemption or order provided by the EPA, the person who causes or permits the application of the substance to land must ensure that the action is lawful and consistent with any other legislative requirements including, if applicable, any development consent(s) for managing operations on the site(s).

The supply of treated drilling mud remains subject to other relevant environmental regulations in the POEO Act and Waste Regulation. For example, a person who pollutes land (s. 142A) or water (s. 120), or causes air pollution through the emission of odours (s. 126), or does not meet the special requirements for asbestos waste (Part 7 of the Waste Regulation), regardless of this order, is guilty of an offence and subject to prosecution.

This order does not alter the requirements of any other relevant legislation that must be met in supplying this material, including for example, the need to prepare a Safety Data Sheet.

Failure to comply with the conditions of this order constitutes an offence under clause 93 of the Waste Regulation.