Section 92 Response Attachments

Attachment 3 - Appendix B chemical treatment management plan main tunnel 12 Dec 12

Central Interceptor Main Project Works

Draft Chemical Treatment Management Plan

December 2012

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DOCUMENT HISTORY AND STATUS

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1. Environmental Quality Safety Manager

An individual shall be appointed (Environmental Quality Safety Manager or EQSM) to be responsible for the safe delivery, storage and use of the chemicals on the sites for the duration of the project.

2. Use of chemicals for sediment removal

The Construction Discharge Management Plan sets out the requirements for erosion and sediment controls during the construction of the main project works. It is proposed to establish SRPs or DEBs at each of the construction sites and that these facilities will be dosed with chemicals where necessary to optimise sediment removal prior to discharge. In addition, chemicals may be used to enhance sediment removal in treatment facilities for groundwater, truck wash runoff and spoil heap runoff. Much of the following will be applicable to these facilities.

3. Chemical Trials

An initial chemical trial will be carried out on a bulk soil sample from each site after the first rainfall, utilising the surface water on the site to identify the optimal dosage of flocculent. If the soil type is observed to vary significantly on a site as excavation proceeds or if the efficiency of sediment removal suddenly drops off, further tests will be carried out to check the optimal dosage rate.

Once the range of soils across the project are determined, the optimal dosage levels for a site may be based on test data from other sites with similar soils types and conditions.

4. Batch Dosing Procedure

Within 24 hours of a rainfall event <5mm any pond will be inspected for water clarity and general condition of decants, forebays and inlet drains etc.

If the water clarity in the sediment retention pond is less than 100mm, the pond will be batch dosed in accordance with the flow chart in Section 7 and the steps outlined below.

4.1 (PAC) Batch Dosing Methodology

1) Take bucket sample of pond water.
2) Pour 100ml of water sample into 200ml Transparent Plastic Graduated Measuring Beaker.
3) Titrate *Polyaluminium chloride, (PAC)* into sample 1ml at a time and stir.
4) Stop titration when sedimentation begins.
5) Determine volume of *(PAC)* dose required for pond.
6) Application can be made by spraying (undiluted) with a knapsack sprayer or thrown across the surface of the pond from a bucket 1 litre at a time, until the total determined quantity of *(PAC)* has been applied.

4.2 (pH Correction) Batch Dosing Methodology

Note that pH correction may be achieved using PAC or concentrated acid (HCl or H_2SO_4)

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1) Take bucket sample of pond water.
2) Pour 100ml of water sample into 200ml Transparent Plastic Graduated Measuring Beaker.
3) Titrate selected pH neutralising chemical into 100ml Transparent Plastic Graduated Measuring Beaker 1ml at a time and stir.
4) Stop titration when the pH of the sample < 7.5.
5) Determine volume of neutralising chemical dose required for pond.
6) Application can be made by spraying neutraliser (undiluted) with a knapsack sprayer or by throwing a pre-mixed quantity of dosage chemical across the surface of the pond from a bucket 1 litre at a time, until the total required quantity of neutraliser has been applied.

5. Spill Contingency Plan

To minimise the potential of a chemical spill the following measures will be taken:

- Limited volumes of chemicals will be stored on site.
- Chemicals will be stored in secure facilities.
- Chemicals will not be stored within 10m of a watercourse, or surface water drain.
- Wheelie bin spill kits will be located at or near the chemical storage area. These kits are designed to be mobile and in the event of a spill they will be moved to that area.

In the event of a spill to ground the following procedures will be followed:

- The source of the spill will be identified and further spillage prevented by stopping the source of the spill, i.e. ceasing chemical handling, plugging burst barrels, standing up overturned containers etc.
- Chemical storage areas will be drained towards the SRP or DEB to control the effects in the event of a spillage.
- Details of the spill and remedial actions will be recorded. The EQSM is to be notified immediately if the spill is in excess of 60 litres.

In the event of a spill to a watercourse the following procedures will be followed:

- The source of the spill will be identified and further spillage prevented, i.e. by ceasing chemical handling, standing up overturned containers etc.
- Details of the spill and remedial actions are to be recorded and the EQSM is to be notified immediately. The EQSM will then notify Watercare and Auckland Council.

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6. Sample Pond Monitoring Check Plan

Date		Time	(24hr)
Rainfall date		Rainfall quantity	(mm)
Pond name			
Pond Volume	(m^3)		
Pond clarity	(mm)	pH	
		Notes	
PAC Titration into 100ml sample	*1ml (1%)*	*Sample clarity no change*	
(PAC dose (ml)/100) x Pond volume (m3)	(L)	pH	
Time Decants lowered (24hr)		Signed	

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7. Typical Pond Dosing Flowchart