FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

Ref No.: 100440EN121145

Contract No. EP/SP/58/08

Sludge Treatment Facilities

Environmental Monitoring and Audit Report

For

September 2012

MateriaLab Ref No.: 100440EN121145

Certified by :

John K. M. Ho
(Environmental Team Leader)

Date : 04 October 2012

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.
Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

CONTENTS

List of Figures:

1. Executive Summary

Construction work commenced on 22 December 2010. It was of main concern to ascertain whether there was any undesirable effect of the construction activities on various environmental parameters over the site area and the surrounding environment. Impact environmental monitoring on water quality, ecology and landscape and visual impact were carried out to acquire data for assessing any impact associated with the construction activities. This report covers the period from 25 August to 24 September 2012 inclusive.

Marine Water Quality

Pursuant to EM&A manual, marine water quality monitoring is required during the foundation piling. Piling work was commenced on 21 February 2011 while marine water quality monitoring was conducted during the foundation piling. The foundation piling work was completed on 13 October 2011 and the pre-bore piling of the STF was completed on 22 February 2012 (the post monitoring for marine water has been completed on 20 March 2012). Although marine water quality monitoring resumed on 03 July 2012 due to the commencement of pre-bore operation for sheet piling, the pre-bore operation as planned was not carry out. Therefore the impact marine water quality monitoring was suspended on 20 August 2012 and post impact monitoring is not required.

Marine water quality monitoring was not required in the reporting period.

Stream Water Quality

As far as the water quality was concerned, 1 event of non-compliance of Action level regarding pH was recorded in the reporting period.

The recorded exceedance is not caused by the construction activities so there was no action taken with regards to the action plan.

In general, the stream water quality was not significantly deteriorated after the commencement of the major construction works on 21 February 2011.

Landfill Gas Monitoring

Excavation works has been carried out within the WENT landfill consultation zone for the following construction activities during the reporting period: (1) Portion 1 (next to Plant B, foundations works for east marshalling area); (2) Portion 3 (next to Canteen, cable ducting) and (3) Portion 3 (next to T758). Landfill gas monitoring was carried out by a competent person during the operation and no exceedance was found.

Ecology Monitoring

Two surveys were conducted on 04 and 24 September 2012 at the Middle Lagoon. Total of 237 nos. of birds of 19 species was recorded on 24 September 2012. None of the birds showed any apparent signs of disturbance arising from the STF construction activities. All measures were followed to minimize the disturbance of the wildlife. No disturbance was observed while construction work in progress.

Landscape and Visual Monitoring

Landscape and visual impact monitoring was conducted on 03 and 21 of September 2012. Details are presented in Section 4.4.

Works Undertaken During Reporting Period

The construction phase commenced on 22 December 2010, major site activities conducted in the reporting period includes:

- Waterproofing;
- Steel Works;
- Strut Erection;
- Substructure Works: Reinforcement, Formwork, Concreting;
- Structure Works: Reinforcement, Formwork, Concreting;
- Assembly of Boiler;
- Structural Steel Erection;
- Roof Installation;
- Mechanical Installation;
- Bridge Construction;
- Heavy Lifting;
- Façade Installation;
- Delivery of Heavy Machineries;
- E & M Installation;
- Curtain Wall Installation;
- Gondola Operation;
- Inter Decoration;
- Precast Installation;
- Road Works;
- Space Truss Installation;
- Glass and Steel Installation;
- Pipe Jacking;
- Cable Laying; and
- Condenser Installation

Works area is shown in Figure 1.1

Reporting Changes and Future Key Issues

It is anticipated that the existing operation should not create significant nuisance and disturbance on the environmental aspects of air quality, noise level and water quality. Foundation piling was started on 21 February 2011 and completed on 13 October 2011. Additional pre-bore operation was completed on 22 February 2012. Contractor should implement proposed measures to minimize potential impact to the noise, air quality, stream and marine water quality, ecology and landscape.

Plenty of site runoff is not anticipated during dry season. However, the drainage systems should be maintained regularly to ensure wastewater could be treated properly prior to discharge. Loose and exposed surfaces should be compacted or covered to minimize soil erosion. Stagnant water should be removed after the rainfall or pesticide should be applied to avoid mosquito breeding.

Complaints, Summons and Successful Prosecutions

As far as complaints, summons and successful prosecutions on the construction work in respect of the environmental protection and pollution control was concerned, there was no documented correspondence received in the reporting period.

2. Introduction

This monthly report reviews the progress of the environmental monitoring and audit work at the site for Contract No. EP/SP/58/08 from 25 August 2012 to 24 September 2012 (the reporting period) and forecasts the activities for October 2012. The monitoring results for water quality are presented in Appendix 3 and the corresponding graphical plots are shown in Appendix 4. Findings of Ecology and Landscape monitoring are presented in Section 4.

3. General Review

3.1 Background

The Contractor, VW-VES (HK) Limited, has been awarded a contract by the Environmental Protection Department of the Government of the Hong Kong Special Administrative Region for the Sludge Treatment Facilities. The location of the site is shown in Figure 3.1.

The program commenced in November 2010 and is anticipated to complete in 2013.

The construction schedule will be based on the major works associated with the project. The major works under this contract include:

Incineration Plant

a) Sludge receiving, storage and feeding system
b) Fluidized bed incinerators
c) Waste heat recovery and power generation system
d) Flue gas treatment system
e) Ash storage and handling system
f) Residue storage and handling system
g) Fluidized bed sand storage and handing system
h) Reagent reception and storage system
i) Process control and monitoring system

Ancillary and supporting Facilities

a) Weighbridge
b) Site security
c) Administration building
d) Vehicle washing facilities
e) Maintenance workshop and utility yard
f) Drainage system
g) Sewerage system
h) Sewage treatment works
i) Water supply system
j) Deodorization system

Construction program for the captioned project is enclosed in Appendix 5.

Fugro Technical Services Ltd. – MateriaLab Division (MateriaLab) has been commissioned by the client as the Environmental Team which comprises the monitoring staff and the environmental auditor to undertake the environmental monitoring and audit work for this project. The project management structure and organization chart is shown in Appendix 6.

The contact person and telephone numbers of key personnel for the captioned project are shown in Table 3.1.

Table 3.1 The Contact Persons and Telephone Numbers of Key Personnel

Company / Department	Role in the Contract	Contact Person	Telephone Number
VW-VES (HK) Limited	Contractor	Mr. Vincent Deleu	2253 2600
Environmental Protection Department	Employer	Mr. Kenneth Chan	2872 1800
Environmental Protection Department, EIAO	EIAO Officer	Mr. Thomas To	2835 1103
JACOBS	Employer Representative	Mr. Leslie Swann	2880 9788
Fugro Technical Services Ltd. – MateriaLab Division	Environmental Team	Mr. John Ho	2450 8233
BMT Asia Pacific Ltd.	Independent Environmental Checker	Ms. Claudine Lee	2241 9847

3.2 Summary of Environmental Monitoring and Audit (EM&A) Requirements

The EM&A program requires the monitoring of water quality prior to the commencement of and during the construction. A baseline report was prepared in December 2010 for the contract based on monitoring data acquired before the commencement of construction works.

Impact monitoring of water quality is to be undertaken at the designated monitoring stations. The monitored parameters are summarized in Table 3.2.

Action and Limit (AL) levels are established based on the data from the baseline report. Should the monitoring results indicate any non-compliance of AL levels, actions according to the Event / Action Plan in Appendix 7 are to be followed and appropriate environmental mitigation measures as in Appendix 8 are to be implemented to rectify the situation. The implementation status of mitigation measures is also shown in Appendix 8.

Impact ecology and visual survey are to be conducted at the construction area on regular basis. Monitoring parameters are tabulated in Table 3.2.

The Contractors (VW-VES (HK) Limited) is responsible for waste control within the construction site, removal of the waste material produced from the site and to implement any mitigation measures to minimize waste or redress problems arising from the waste from the site. The waste material may include any sewage, waste water or effluent containing sand, cement, silt or any other suspended or dissolved material to flow from the site onto any adjoining land, storm sewer, sanitary water, or any waste matter or refuse to be deposited anywhere within the site or onto any adjoining land.

The Contractor shall also pay attention to the Waste Disposal Ordinance, the Dumping at Sea Ordinance, the Public Health and Municipal Services Ordinance and the Water Pollution Control Ordinance, and carry out the appropriate waste management work. The relevant licence / permit, such as the effluent discharge licence, the chemical waste producer registration, etc. shall be obtained. The

Contractor shall refer to the relevant booklets issued by EPD when applying for the licence / permit.

The environmental mitigation measures and status for waste management are summarized in Appendix 8.

Table 3.2 Summary of Monitored Parameters

Parameters	Monitored Items	Number of Stations	Frequency	Requirement
Marine water	▪ Cadmium ▪ Chromium ▪ Aluminium	2 monitoring stations and 1 control station	Three days per week for mid-ebb and mid-flood tides during foundation piling of the STF.	Sampling is taken at three water depths, namely, 1m below water Surface, mid-depth and 1m above sea bed, except where the water depth be less than 6m, in which case the mid-depth station may be omitted. Shall the water depth be less than 3m, only the mid-depth station will be monitored.
Stream water	▪ pH ▪ Turbidity ▪ Suspended solids ▪ Dissolved oxygen	3 monitoring stations and 2 control stations	Three days per week for mid-ebb and mid-flood tides during site formation and foundation piling of the STF and construction of the access road.	▪ Two consecutive measurements of DO concentration, DO saturation, turbidity and pH are taken at mid-depth at each location. ▪ Water samples for SS measurement is collected at the same depth at each location.
Ecology	Site condition and bird monitoring	Whole Middle Lagoon and 20m from the boundary of the Lagoon	▪ Monthly monitoring for avifauna. ▪ Habitat monitoring at least twice per month. ▪ Monthly vegetation monitoring.	▪ Avifauna and their behavior. ▪ All birds seen and heard should be identified and counted. ▪ Signs of breeding of birds. ▪ Coverage of water and PFA filling activities in Middle Lagoon.
Landscape and Visual Impact	All measures, including compensatory planting, undertaken by both the Contractor and the specialist Landscape Sub-Contractor	East Lagoon	Biweekly.	Ensure compliance with the intended aims of the measures and the effectiveness of the mitigation measures.

Table 3.2 (Con't)

Parameters	Monitored Items	Number of Stations	Frequency	Requirement
Landfill gas	▪ Oxygen ▪ Methane ▪ Carbon dioxide	Excavation, operation in chamber and confined space within the WENT Landfill Control Zone. (See Figure 3.2)	During the construction and operation.	▪ Excavation between 300mm to 1m deep: - Directly after the excavation has been completed. - Periodically whilst the excavation remains open. ▪ Excavation deeper than 1m: - At ground surface before excavations commences. - Immediately before any worker enters the excavation. - At the beginning of each working day for the entire period the excavation remains open. - Periodically whilst the excavation remains open.

3.3 Action and Limit Levels

Water Quality Limit

Environmental auditing on the monitoring data is to be undertaken based on the Action and Limit (AL) levels for water quality to check against any non-compliances.

The AL levels for monitored parameters are formulated from the baseline monitoring data. The AL levels for marine and stream water quality are tabulated in Table 3.3.

Table 3.3 Action and Limit Levels for Marine and Stream Water Quality

Parameters	Action Level	Limit Level
DO in mg/L (mid-depth)	≤ 5.16	≤ 4
SS in mg/L (mid-depth)	≥ 41 AND 120% of control station's SS on the same day of measurement	≥ 85 AND 130% of control station's SS on the same day of measurement
Turbidity in NTU (mid-depth)	≥ 36.4 AND 120% of control station's turbidity on the same day of measurement	≥ 78.9 AND 130% of control station's turbidity on the same day of measurement
pH	pH ≤7.55 or pH ≥ 8.11	pH ≤ 6 or pH ≥ 9

Table 3.3 (Con't)

Parameters	Action Level	Limit Level
Cadmium in µg/L	≥ 0.5	≥ 0.5
Chromium in µg/L	≥ 1	≥ 1
Aluminium in µg/L	≥ 20	≥ 20

Notes:
1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For SS and turbidity, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.

Landfill Gas Limit

Depending on the results of the measurements, actions required will be vary and should be set down by the Safety Officer or other appropriately qualified person. The actions shown in Table 3.4 should be referred as the minimum requirements to be encompassed.

Table 3.4 Action Level for Landfill Gas Measurement

Parameter	Measurement	Action
Oxygen	<19 %	▪ Ventilate to restore oxygen to >19 %
	<18 %	▪ Stop works ▪ Evacuate personnel / prohibit entry ▪ Increase ventilation to restore oxygen to >19 %
Methane	>10 % LEL (i.e. >0.5 % by volume)	▪ Prohibit hot works ▪ Ventilate to restore methane to <10 % LEL
	>20 % LEL (i.e. >1 % by volume)	▪ Stop works ▪ Evacuate personnel / prohibit entry ▪ Increase ventilation to restore methane to <10 % LEL
Carbon dioxide	>0.5 %	▪ Ventilate to restore carbon dioxide to <0.5 %
	>1.5 %	▪ Stop works ▪ Evacuate personnel / prohibit entry ▪ Increase ventilation to restore carbon dioxide to <0.5 %

4. Construction Phase Environmental Monitoring

The construction phase was commenced on 22 December 2010. During the construction phase, impact water quality monitoring for marine and stream is required. The monitoring locations are shown in Appendix 1.

4.1 Water Quality Monitoring

4.1.1 Monitoring Methodology

Marine Water Quality

During the course of foundation piling of the STF, the impact conditions of marine water quality are measured at two monitoring stations and one control station with coordinates as shown in Appendix 1. The Environmental Team Leader shall agree with the IEC and EPD on all the monitoring stations.

During the course of foundation piling, impact monitoring shall be undertaken three days per week, at mid-flood and mid-ebb tides, with sampling and measurement at the designated monitoring stations.

The foundation piling of the STF has been completed on 13 October 2011 and the additional pre-bore piling of the STF has been completed on 22 February 2012 (the post monitoring for marine water was completed on 20 March 2012). Although marine water quality monitoring resumed on 03 July 2012 due to the commencement of pre-bore operation for sheet piling, the pre-bore operation as planned was not carry out. Therefore the impact marine water quality monitoring was suspended on 20 August 2012 and post impact monitoring is not required.

Samples are to be taken at three water depths, namely 1m below water surface, mid-water and 1m above seabed at both mid-flood and mid-ebb tides, except where the water depth is less than 6m, the mid-depth station may be omitted. Should the water depth be less than 3m, only mid-depth will be monitored.

Water samples should be kept in chilled condition (~4°C) during delivery to laboratory and before commencement of the analysis. The parameters of laboratory analysis include Cadmium, Chromium and Aluminium. The method statements are shown in Table 4.1.

Table 4.1 Method Statements of Laboratory Analysis of Marine Water Quality

Parameters	Method	Detection limit, µg/L
Cadmium	USEPA method 6020A	0.5
Chromium		1
Aluminium		20

Stream Water Quality

Monitoring of pH, turbidity level (NTU), suspended solids level (mg/L), and dissolved oxygen (mg/L) are conducted at the designated locations including three monitoring stations and two control stations as shown in Appendix 1. The method statements are shown in Table 4.2.

Dissolved oxygen, turbidity and pH are measured *in-situ* while suspended solids content is determined in a HOKLAS accredited laboratory.

Impact monitoring is undertaken three days per week during mid-ebb and mid-flood tides.

Pursuant to Clause 5.7.1.1 of the EM&A Manual, impact water quality monitoring shall be carried out during site formation, piling and construction of the access road. As the above mentioned site construction has been completed on 17 August 2012, four weeks post monitoring is commenced by 20 August 2012 and ended on 14 September 2012 inclusively.

Table 4.2 Method Statements of Laboratory Analysis of Stream Water Quality

Parameters	Method	Detection limit, mg/L
Suspended solids	APHA, 18th edition, 2540D	1

4.1.2 Monitoring Equipment

The equipment employed for the monitoring are presented in Table 4.3 and the calibration certificates are attached in Appendix 2.

Table 4.3 Water Quality Monitoring Equipment

Equipment	Model	Parameters Measured
Fieldwork – Marine Water Quality Monitoring		
Global positioning system (GPS)	Trimble Scout Master / Magellan Colotrak	Positioning
Echo sounder	Eagle Magna 3	Depth
Water sampler	Kahlsico 135WB153	Water sampling
Fieldwork – Surface Water Quality Monitoring		
pH meter	YSI Professional Plus Model: Proplus - 4	pH
Dissolved oxygen meter		Dissolved oxygen Temperature
Salinity meter		Salinity
Turbidity meter	HACH 2100P	Turbidity
Water sampler	Kahlsico 135WB153 / Pitcher	Water sampling
Laboratory Analysis		
Analytical balance	Ohaus AP210S	Suspended solids
Oven	WIB-Binder IP120	Suspended solids
Vacuum pump	GAST DOA-P104-BN	Suspended solids

4.1.3 Review of the Construction Phase Monitoring Programme

The schedule for stream water monitoring programme in the reporting period is shown in Table 4.4.

Table 4.4 Monitoring Schedule of Stream Water from 25 August to 24 September 2012

SUN	MON	TUE	WED	THU	FRI	SAT
19 Aug	20	21	22	23	24	25
26	27 W#	28	29 W#	30	31 W#	01 Sept
02	03 W#	04	05 W#	06	07 W#	08
09	10 W#	11	12 W#	13	14 W#	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

Legend: W – Stream water quality monitoring at C1, C2, W1, W2 and W3. Three days per week.
Note: Marine water quality monitoring was suspended on 20 August 2012 and post impact monitoring is not required.
Four weeks post monitoring for stream water commenced by 20 August 2012 and ended on 14 September 2012 inclusively.

4.1.4 Impact Water Quality Monitoring Result

The impact water quality monitoring data, laboratory results and QC data are shown in Appendix 3. The statistical analysis of the data is shown in Table 4.5. Graphical plot of average measurement is enclosed in Appendix 4.

During the course of the monitoring work, waterproofing, steel works, strut erection, substructure works: (including reinforcement, formwork, concreting), structure works: (including reinforcement, formwork, concreting), assembly of boiler, structural steel erection, roof installation, mechanical installation, bridge construction, heavy lifting, façade installation, delivery of heavy machineries, E & M installation, curtain wall installation, gondola operation, inter decoration, precast installation, road works, space truss installation, glass and steel installation, pipe jacking, cable laying, and condenser installation were observed within the project area.

Table 4.5 Water Quality Monitoring Results (25 August to 24 September 2012)

Location	Parameters	Maximum	Minimum	Mean
Stream Water Quality Result				
W1	Dissolved Oxygen (mg/L)	7.51	5.20	6.00
	Turbidity (NTU)	34.10	2.48	13.86
	pH	7.94	7.59	7.72
	Suspended Solids (mg/L)	44.00	2.00	16.00
W2	Dissolved Oxygen (mg/L)	8.67	5.17	6.35
	Turbidity (NTU)	34.80	7.77	18.20
	pH	8.06	7.56	7.73
	Suspended Solids (mg/L)	40.00	11.00	21.00

Table 4.5 (Con't)

Location	Parameters	Maximum	Minimum	Mean
Stream Water Quality Result				
W3	Dissolved Oxygen (mg/L)	9.59	5.19	6.88
	Turbidity (NTU)	16.80	3.54	9.20
	pH	8.31	7.56	7.83
	Suspended Solids (mg/L)	21.00	2.00	11.00

4.1.5 Summary of Non-compliances of the Environmental Quality Performance Limits from 25 August 2012 to 24 September 2012

Stream Water Quality

1 event of non-compliance regarding pH were recorded on 10 September 2012 (from 25 August 2012 to 24 September 2012). Details are refers to Appendix 9.

Table 4.6 Summary of Exceedances from 25 August 2012 to 24 September 2012

Date & Time	Location	Parameters
10 Sept 2012, 15:54 to 17:07 (Mid-Flood)	W3	pH : 8.30 (Action Level Exceedance) C1 : 8.38 C2 : 8.26

4.1.6 Review of the Events Non-compliance

4.1.6.1 Marine Water Quality Monitoring

Marine Water Quality Monitoring was not required in the reporting period.

4.1.6.2 Stream Water Quality Monitoring

Construction works, include waterproofing, steel works, strut erection, substructure works: (including reinforcement, formwork, concreting), structure works: (including reinforcement, formwork, concreting), assembly of boiler, structural steel erection, roof installation, mechanical installation, bridge construction, heavy lifting, façade installation, delivery of heavy machineries, E & M installation, curtain wall installation, gondola operation, inter decoration, precast installation, road works, space truss installation, glass and steel installation, pipe jacking, cable laying, and condenser installation were in progress throughout the reporting period at the North part of the Lagoon and far away from the Tsang Kok Stream. The stream water quality was at the similar level as that before the piling work.

1 event of exceedance of pH was recorded at mid-flood during September at W3. Since W3 was located at the downstream of C2, so that the exceedance was subject to the influent of the high pH and the natural flow from C2, and not owing to construction activities related.

The exceedance of pH was unrelated to the construction works, hence the ad-hoc monitoring was cancelled.

The Incident Report on Action and Limit Level Non-compliance is attached in Appendix 9.

4.2 Landfill Gas Monitoring

4.2.1 Monitoring methodology

4.2.1.1 Routine monitoring should be carried out in all excavations, manholes, chambers, relocation of monitoring wells and any other confined spaces that may have been created. All measurements in excavations should be made with the extended monitoring tube located not more than 10mm from the exposed ground surface. Monitoring should be performed properly to make sure that the area is free of landfill gas before any man enters into the area.

4.2.1.2 For excavations deeper than 1m measurements should be carried out:

- at the ground surface before excavation commences;
- immediately before any worker enters the excavation;
- at the beginning of each working day for the entire period the excavation remains open; and
- periodically through out the working day whilst workers are in the excavation.

4.2.1.3 For excavations between 300mm and 1m deep, measurements should be carried out:

- directly after the excavation has been completed; and
- periodically whilst the excavation remains open.

4.2.1.4 For excavations less than 300mm and 1m deep, monitoring may be omitted, at the discretion of the Safety Officer or other appropriately qualified person.

4.2.1.5 Depending on the results of the measurements, actions required will vary and should be set down by the Safety Officer or other appropriately qualified person. As a minimum these should encompass those actions specified in Table 3.4.

4.2.2 Monitoring equipment

Table 4.7 Landfill Gas Monitoring Equipment

Equipment	Model	Parameters Measured
Fieldwork – Landfill Gas Monitoring		
Landfill Gas Analyzer	RAE QRAE II Multi-gas Detector	Methane, oxygen, carbon dioxide

4.2.3 Monitoring result

Excavation works has been carried out within the WENT landfill consultation zone for the following construction activities during the reporting period: (1) Portion 1 (next to Plant B, foundations works for east marshalling area); (2) Portion 3 (next to Canteen, cable ducting) and Portion 3 (next to T758). The excavation depth is more than 1m, and landfill gas monitoring was conducted by a competent person according to methodology stated in section 4.2.1. Monitoring results are tabulated in Table 4.8.

Ref No.: 100440EN121145

Table 4.8 Summary of Landfill Gas Monitoring during the Reporting Period

Sample Location	Date of Measurement	Sampling Time	Weather Condition	Oxygen %	Methane %LEL	Carbon Dioxide %
Potion 1 (next to Plant B)	25-Aug-12	08:15	Sunny	20.9	0	0
Potion 1 (next to Plant B)	25-Aug-12	13:16	Sunny	20.9	0	0
Potion 1 (next to Plant B)	27-Aug-12	08:17	Sunny	20.9	0	0
Potion 1 (next to Plant B)	27-Aug-12	17:14	Sunny	20.9	0	0
Potion 1 (next to Plant B)	28-Aug-12	08:16	Sunny	20.9	0	0
Potion 1 (next to Plant B)	28-Aug-12	13:17	Sunny	20.9	0	0
Potion 1 (next to Plant B)	29-Aug-12	08:14	Fine	20.9	0	0
Potion 1 (next to Plant B)	29-Aug-12	13:16	Fine	20.9	0	0
Potion 1 (next to Plant B)	30-Aug-12	08:17	Fine	20.9	0	0
Potion 1 (next to Plant B)	30-Aug-12	13:21	Fine	20.9	0	0
Potion 1 (next to Plant B)	31-Aug-12	08:16	Sunny	20.9	0	0
Potion 1 (next to Plant B)	31-Aug-12	13:22	Sunny	20.9	0	0
Potion 1 (next to Plant B)	01-Sep-12	08:15	Fine	20.9	0	0
Potion 1 (next to Plant B)	01-Sep-12	13:17	Fine	20.9	0	0
Potion 1 (next to Plant B)	03-Sep-12	08:17	Sunny	20.9	0	0
Potion 1 (next to Plant B)	03-Sep-12	13:16	Sunny	20.9	0	0
Potion 1 (next to Plant B)	04-Sep-12	08:17	Sunny	20.9	0	0
Potion 1 (next to Plant B)	04-Sep-12	13:17	Sunny	20.9	0	0
Potion 1 (next to Plant B)	05-Sep-12	08:16	Sunny	20.9	0	0
Potion 1 (next to Plant B)	05-Sep-12	13:17	Sunny	20.9	0	0
Potion 1 (next to Plant B)	06-Sep-12	08:17	Cloudy	20.9	0	0
Potion 1 (next to Plant B)	06-Sep-12	13:21	Cloudy	20.9	0	0
Potion 1 (next to Plant B)	07-Sep-12	08:16	Fine	20.9	0	0
Potion 1 (next to Plant B)	07-Sep-12	13:16	Fine	20.9	0	0
Potion 1 (next to Plant B)	08-Sep-12	08:21	Sunny	20.9	0	0
Potion 1 (next to Plant B)	08-Sep-12	13:21	Sunny	20.9	0	0
Potion 1 (next to Plant B)	10-Sep-12	08:16	Fine	20.9	0	0
Potion 1 (next to Plant B)	10-Sep-12	13:21	Fine	20.9	0	0
Potion 1 (next to Plant B)	11-Sep-12	08:30	Sunny	20.9	0	0
Potion 1 (next to Plant B)	11-Sep-12	13:17	Sunny	20.9	0	0
Potion 1 (next to Plant B)	12-Sep-12	08:24	Sunny	20.9	0	0
Potion 1 (next to Plant B)	12-Sep-12	13:26	Sunny	20.9	0	0
Potion 1 (next to Plant B)	13-Sep-12	08:21	Sunny	20.9	0	0
Potion 1 (next to Plant B)	13-Sep-12	13:19	Sunny	20.9	0	0
Potion 1 (next to Plant B)	14-Sep-12	08:27	Sunny	20.9	0	0
Potion 1 (next to Plant B)	14-Sep-12	13:19	Sunny	20.9	0	0
Potion 1 (next to Plant B)	15-Sep-12	08:21	Cloudy	20.9	0	0
Potion 1 (next to Plant B)	15-Sep-12	13:26	Cloudy	20.9	0	0
Potion 1 (next to Plant B)	17-Sep-12	08:23	Sunny	20.9	0	0
Potion 1 (next to Plant B)	17-Sep-12	13:17	Sunny	20.9	0	0
Potion 1 (next to Plant B)	18-Sep-12	08:34	Sunny	20.9	0	0
Potion 1 (next to Plant B)	18-Sep-12	13:13	Sunny	20.9	0	0
Potion 1 (next to Plant B)	19-Sep-12	08:34	Sunny	20.9	0	0
Potion 1 (next to Plant B)	19-Sep-12	13:14	Sunny	20.9	0	0
Potion 1 (next to Plant B)	20-Sep-12	08:27	Fine	20.9	0	0
Potion 1 (next to Plant B)	20-Sep-12	13:16	Fine	20.9	0	0
Potion 1 (next to Plant B)	21-Sep-12	08:21	Fine	20.9	0	0
Potion 1 (next to Plant B)	21-Sep-12	13:22	Fine	20.9	0	0
Potion 1 (next to Plant B)	22-Sep-12	08:22	Sunny	20.9	0	0
Potion 1 (next to Plant B)	22-Sep-12	13:21	Sunny	20.9	0	0
Potion 1 (next to Plant B)	24-Sep-12	08:22	Cloudy	20.9	0	0
Potion 1 (next to Plant B)	24-Sep-12	13:17	Cloudy	20.9	0	0

Ref No.: 100440EN121145

Table 4.8 (Con't)

Sample Location	Date of Measurement	Sampling Time	Weather Condition	Oxygen %	Methane %LEL	Carbon Dioxide %
Potion 3 (next to canteen)	25-Aug-12	08:24	Sunny	20.9	0	0
Potion 3 (next to canteen)	25-Aug-12	13:27	Sunny	20.9	0	0
Potion 3 (next to canteen)	27-Aug-12	08:26	Sunny	20.9	0	0
Potion 3 (next to canteen)	27-Aug-12	13:36	Sunny	20.9	0	0
Potion 3 (next to canteen)	28-Aug-12	08:29	Sunny	20.9	0	0
Potion 3 (next to canteen)	28-Aug-12	13:28	Sunny	20.9	0	0
Potion 3 (next to canteen)	29-Aug-12	08:27	Fine	20.9	0	0
Potion 3 (next to canteen)	29-Aug-12	13:24	Fine	20.9	0	0
Potion 3 (next to canteen)	30-Aug-12	08:24	Fine	20.9	0	0
Potion 3 (next to canteen)	30-Aug-12	13:33	Fine	20.9	0	0
Potion 3 (next to canteen)	31-Aug-12	08:29	Sunny	20.9	0	0
Potion 3 (next to canteen)	31-Aug-12	13:36	Sunny	20.9	0	0
Potion 3 (next to canteen)	01-Sep-12	08:26	Fine	20.9	0	0
Potion 3 (next to canteen)	01-Sep-12	13:29	Fine	20.9	0	0
Potion 3 (next to canteen)	03-Sep-12	08:29	Sunny	20.9	0	0
Potion 3 (next to canteen)	03-Sep-12	13:24	Sunny	20.9	0	0
Potion 3 (next to canteen)	04-Sep-12	08:26	Sunny	20.9	0	0
Potion 3 (next to canteen)	04-Sep-12	13:29	Sunny	20.9	0	0
Potion 3 (next to canteen)	05-Sep-12	08:28	Sunny	20.9	0	0
Potion 3 (next to canteen)	05-Sep-12	13:26	Sunny	20.9	0	0
Potion 3 (next to canteen)	06-Sep-12	08:29	Cloudy	20.9	0	0
Potion 3 (next to canteen)	06-Sep-12	13:30	Cloudy	20.9	0	0
Potion 3 (next to canteen)	07-Sep-12	08:22	Fine	20.9	0	0
Potion 3 (next to canteen)	07-Sep-12	13:24	Fine	20.9	0	0
Potion 3 (next to canteen)	08-Sep-12	08:32	Sunny	20.9	0	0
Potion 3 (next to canteen)	08-Sep-12	13:30	Sunny	20.9	0	0
Potion 3 (next to canteen)	10-Sep-12	08:24	Fine	20.9	0	0
Potion 3 (next to canteen)	10-Sep-12	13:30	Fine	20.9	0	0
Potion 3 (next to canteen)	11-Sep-12	08:41	Sunny	20.9	0	0
Potion 3 (next to canteen)	11-Sep-12	13:29	Sunny	20.9	0	0
Potion 3 (next to canteen)	12-Sep-12	08:34	Sunny	20.9	0	0
Potion 3 (next to canteen)	12-Sep-12	13:17	Sunny	20.9	0	0
Potion 3 (next to canteen)	13-Sep-12	08:37	Sunny	20.9	0	0
Potion 3 (next to canteen)	13-Sep-12	13:32	Sunny	20.9	0	0
Potion 3 (next to canteen)	14-Sep-12	08:39	Sunny	20.9	0	0
Potion 3 (next to canteen)	14-Sep-12	13:33	Sunny	20.9	0	0
Potion 3 (next to canteen)	15-Sep-12	08:37	Cloudy	20.9	0	0
Potion 3 (next to canteen)	15-Sep-12	13:44	Cloudy	20.9	0	0
Potion 3 (next to canteen)	17-Sep-12	08:39	Sunny	20.9	0	0
Potion 3 (next to canteen)	17-Sep-12	13:29	Sunny	20.9	0	0
Potion 3 (next to canteen)	18-Sep-12	08:49	Sunny	20.9	0	0
Potion 3 (next to canteen)	18-Sep-12	13:29	Sunny	20.9	0	0
Potion 3 (next to canteen)	19-Sep-12	08:47	Sunny	20.9	0	0
Potion 3 (next to canteen)	19-Sep-12	13:29	Sunny	20.9	0	0
Potion 3 (next to canteen)	20-Sep-12	08:39	Fine	20.9	0	0
Potion 3 (next to canteen)	20-Sep-12	13:32	Fine	20.9	0	0
Potion 3 (next to canteen)	21-Sep-12	08:33	Fine	20.9	0	0
Potion 3 (next to canteen)	21-Sep-12	13:40	Fine	20.9	0	0
Potion 3 (next to canteen)	22-Sep-12	08:36	Sunny	20.9	0	0
Potion 3 (next to canteen)	22-Sep-12	13:39	Sunny	20.9	0	0
Potion 3 (next to canteen)	24-Sep-12	08:39	Cloudy	20.9	0	0
Potion 3 (next to canteen)	24-Sep-12	13:32	Cloudy	20.9	0	0

Table 4.8 (Con't)

Sample Location	Date of Measurement	Sampling Time	Weather Condition	Oxygen %	Methane %LEL	Carbon Dioxide %
Potion 3 (next to T758)	25-Aug-12	08:29	Sunny	20.9	0	0
Potion 3 (next to T758)	25-Aug-12	13:32	Sunny	20.9	0	0
Potion 3 (next to T758)	27-Aug-12	08:31	Sunny	20.9	0	0
Potion 3 (next to T758)	27-Aug-12	13:43	Sunny	20.9	0	0
Potion 3 (next to T758)	28-Aug-12	08:35	Sunny	20.9	0	0
Potion 3 (next to T758)	28-Aug-12	13:36	Sunny	20.9	0	0
Potion 3 (next to T758)	29-Aug-12	08:33	Fine	20.9	0	0
Potion 3 (next to T758)	29-Aug-12	13:29	Fine	20.9	0	0
Potion 3 (next to T758)	30-Aug-12	08:29	Fine	20.9	0	0
Potion 3 (next to T758)	30-Aug-12	13:37	Fine	20.9	0	0
Potion 3 (next to T758)	31-Aug-12	08:31	Sunny	20.9	0	0
Potion 3 (next to T758)	31-Aug-12	13:41	Sunny	20.9	0	0
Potion 3 (next to T758)	01-Sep-12	08:31	Fine	20.9	0	0
Potion 3 (next to T758)	01-Sep-12	13:31	Fine	20.9	0	0
Potion 3 (next to T758)	03-Sep-12	08:34	Sunny	20.9	0	0
Potion 3 (next to T758)	03-Sep-12	13:29	Sunny	20.9	0	0
Potion 3 (next to T758)	04-Sep-12	08:33	Sunny	20.9	0	0
Potion 3 (next to T758)	04-Sep-12	13:34	Sunny	20.9	0	0
Potion 3 (next to T758)	05-Sep-12	08:33	Sunny	20.9	0	0
Potion 3 (next to T758)	05-Sep-12	13:29	Sunny	20.9	0	0
Potion 3 (next to T758)	06-Sep-12	08:35	Cloudy	20.9	0	0
Potion 3 (next to T758)	06-Sep-12	13:35	Cloudy	20.9	0	0
Potion 3 (next to T758)	07-Sep-12	08:27	Fine	20.9	0	0
Potion 3 (next to T758)	07-Sep-12	13:29	Fine	20.9	0	0
Potion 3 (next to T758)	08-Sep-12	08:36	Sunny	20.9	0	0
Potion 3 (next to T758)	08-Sep-12	13:33	Sunny	20.9	0	0
Potion 3 (next to T758)	10-Sep-12	08:29	Fine	20.9	0	0
Potion 3 (next to T758)	10-Sep-12	13:34	Fine	20.9	0	0

4.3 Ecological Monitoring

4.3.1 Two monitoring visits were conducted on 04 and 24 September 2012 to assess the measures in place to minimise the disturbance impact to wildlife. The 3m high hoarding to reduce disturbance impact of human activities on adjacent areas (namely the Middle Lagoon and other natural habitats) remains in place. No observations of disturbance through construction operations to wildlife on adjacent habitats were made during this and the other monitoring checks conducted during this period.

4.3.2 Monthly monitoring of avifauna and their notable behaviour, such as breeding activities in the Middle Lagoon, was conducted on 24 September 2012. The Monitoring Area included the whole Middle Lagoon and area extending 20m from the boundary of the Lagoon (see figure 4.1). All birds seen and heard were identified and counted. Any signs of breeding (e.g. nests, recently fledged juveniles) of birds (e.g. Little Grebe) were also recorded. The coverage of water and PFA filling activities in the Middle Lagoon as well as construction activities were also recorded as reference information.

4.3.3 The list of bird surveys recorded from the survey conducted on 24 September 2012 can been seen in Table 4.9. On that date, water coverage in the Middle Lagoon was approximately 75%. No PFA filling activities were recorded in the Middle Lagoon. Thirty-four Little Grebes were recorded in the Middle Lagoon, at least 100m

from the active construction site. Several juvenile grebes and two nests were also observed.

Table 4.9 Bird Species Observed During Monthly Monitoring Surveys in September 2012

Survey Date: 24 September 2012			
Water Levels: 75%			
Species Name	Scientific Name	Middle Lagoon	Breeding Activity
Little Grebe	*Tachybaptus ruficollis*	34	Two active nests. Several juvenile / immature birds recorded.
Great Egret	*Egretta alba*	1	None observed
Intermediate Egret	*Egretta intermedia*	2	None observed
Little Egret	*Egretta garzetta*	73	None observed
Chinese Pond Heron	*Ardeola bacchus*	5	None observed
Black-winged Stilt	*Himantopus himantopus*	3	None observed
Little Ringed Plover	*Charadrius dubius*	15	Several juvenile birds observed.
Marsh Sandpiper	*Tringa stagnatilis*	34	None observed
Common Greenshank	*Tringa nebularia*	15	None observed
Common Sandpiper	*Actitis hypoleucos*	3	None observed
Long-toed Stint	*Calidris subminuta*	2	None observed
Pied Kingfisher	*Ceryle rudis*	3	None observed
Yellow Wagtail	*Motacilla flava*	6	None observed
White Wagtail	*Motacilla alba*	28	None observed
Chinese Bulbul	*Pycnonotus sinensis*	8	None observed
Long-tailed Shrike	*Lanius schach*	1	None observed
Oriental Reed Warbler	*Acrocephalus orientalis*	1	None observed
Yellow-bellied Prinia	*Prinia flaviventris*	1	None observed
Plain Prinia	*Prinia inornata*	2	None observed
Total Numbers		237	3 nests
Total Species		19	

4.4 Landscape and Visual Impact Monitoring

The landscape and visual impact assessment of the EIA Study recommended a series of mitigation measures to ameliorate the landscape and visual impacts of the Project. The measures for the construction phase as recommended in the EIA Report are summarized in Table 4.10.

Site inspections for the monthly EM&A Record for Landscape and Visual Impact (Sept 2012) were undertaken on 03 and 21 of September 2012. Observation of the implementation of proposed landscape and visual mitigation measures are summarized in Table 4.10.

Table 4.10 Record of Implementation of the Proposed Landscape and Visual Mitigation Measures in Construction Phase (September 2012)

ID No.	Nature / Type	Landscape and Visual Mitigation Measures	Status (September 2012)	Remarks
CM1	Design / Construction Planning	Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical.	Not applicable.	Test reports will be submitted by the contractor to explore the suitability of mixing PFA into the planting soil. Suitable topsoil will be imported for planting during landscape planting phase. As per observation on site, the PFA excavated out due to site formation work had been under treatment (dehydration), and is backfilled to its original location inside the site boundary. Capping of the PFA is established to prevent spreading in air. Photographic record of PFA treatment has been shown in Table 4.11.
CM2	Site Practice	Existing trees to be retained on site should be carefully protected during construction.	Tree felling work has commenced since the approval of Phase II tree felling application. Existing trees to be retained have been carefully protected during construction. The contractor has confirmed T758 to be retained on site and proper tree protection would be required for T758. Amendment to the tree felling application will be submitted.	Photographic record of the retained tree T758 is shown in Table 4.11.

Table 4.10 (Con't)

ID No.	Nature / Type	Landscape and Visual Mitigation Measures	Status (September 2012)	Remarks
CM3	Design / Construction Planning	Trees unavoidably affected by the works should be transplanted where practical.	Tree transplant work has been completed. The final transplant locations for the transplant trees will be revised. The transplant trees will be accommodated within the site area. Amendment to the tree felling application will be submitted accordingly.	The compensatory proposal already revised in the amendment to include more compensatory trees for the 3 dead transplant trees. The contractor verified on site to ensure the final location of the transplant trees will be suitable for the remaining 13 transplanted trees.
CM4	Design / Construction Planning	Compensatory tree planting should be provided to compensate for felled trees.	More compensatory trees will be added for the dead transplant trees, which already reflected in the tree felling resubmission. New trees planting is proposed on the either side of the bridge at portion 6 to fulfill the EIA requirements. These shall be reflected in the revised compensatory proposal as well.	Location for the compensatory trees to be verified on site by the contractor. Photographic record is shown in Table 4.11.
CM5	Site Practice	Control of night-time lighting.	In progress.	Night-time work was implemented from 7pm to 11pm for certain period in Sept 2012. The lighting is confined to the construction site without affecting the periphery area. Photographic record of the night-time working is shown in Table 4.11.
CM6	Design / Construction Planning	Erection of decorative screen hoarding compatible with the surrounding setting.	Completed.	Erection of decorative screen hoarding has been set up along the site boundary.

CM1 - Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical.
Topsoil found within the project site is PFA. The contractor will carry out soil test to explore the possibility of reusing PFA as part of the planting media. Suitable topsoil will be imported for planting during landscape planting phase. All PFA excavated during the tree felling works has been retained in the site confinement. The PFA has been under dehydration and concealed properly to prevent spreading in the air. Backfill of PFA to its original location inside site boundary is under progress.

CM2 - Existing trees to be retained on site should be carefully protected during construction.
The Tree felling work approved under the Phase 1 and 2 tree felling application has been completed. Proper procedures of tree felling have been observed. The tree felling works should not cause damages to the existing trees on site. T758 has been confirmed to be retained on site. Proper tree protection should be set up for T758.

CM3 - Trees unavoidably affected by the works should be transplanted where practical.
Tree transplant works for Tree number T332 to T359 has been completed and proper tree transplant procedure has been observed according to the method statement. 3 transplanted trees are destroyed by Typhoon Vincente in nursery. The revised final location of the remaining transplant trees will be reflected in the next tree felling application amendment.

CM4 - Compensatory tree planting should be provided to compensate for felled trees.
Revised compensatory planting plan will be reflected in the tree felling resubmission to DLO. New trees planting is proposed on the either side of the bridge at portion 6.

CM5 - Control of night-time lighting.
Night-time work was implemented from 7pm to 11pm for certain period in Sept 2012. The lighting is confined to the construction site without affecting the periphery area.

CM6 - Erection of decorative screen hoarding compatible with the surrounding setting.
Construction of decorative screen hoarding compatible with the surrounding setting has been set up in January 2011.

Table 4.11 Photographic Record of Landscape and Visual Impact Survey

1. Photographic Record of the PFA Treatment	
	
The PFA excavated has been dehydrated under sunlight, and will be buried back to its original position inside the site boundary.	Capping of the PFA is established to prevent spreading in air.

Ref No.: 100440EN121145

Table 4.11 (Con't)

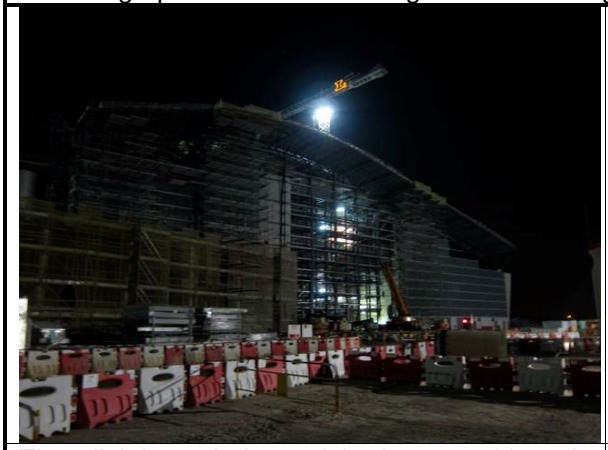
2. Photographic Record of Protection to the Fell / Retained Trees

T758 is confirmed to be retained on site. Proper tree protection should be applied to protect T758. Amendment to the tree felling application will be submitted.
3. Photographic Record of the Original Transplant Trees Location

The new tree plantings will be proposed on the either side of the bridge at portion 6 to fulfil the EIA requirement.

Ref No.: 100440EN121145

Table 4.11 (Con't)

4. Photographic Record of the Compensatory Tree Locations	
	
More compensatory trees will be added for the dead transplant trees, which should be reflected in the tree felling resubmission. Final locations of the compensatory planting to be verified on site by the contractor. These shall be reflected in the revised compensatory proposal as well.	
5. Photographic Record of the Night-Time Working	
	
The lighting during night-time working is confined within the working area within the site boundary. Periphery area and the sensitive receivers are not affected by the lighting during night-time working.	The lighting during night-time working is confined within the working area within the site boundary. Periphery area and the sensitive receivers are not affected by the lighting during night-time working.

5. Construction Site Environmental Audit

Site Audit

Site audit is necessary to ensure:

- No unacceptable practice on site;
- Identification of potential impacts associated with construction activities; and
- Implementation of additional mitigation measures if necessary.

Environmental Site Audit has been conducted on 31 August, 05, 14 and 19 September 2012.

During the reporting period, as far as the site operation was concerned, waterproofing, steel works, strut erection, substructure works: (including reinforcement, formwork, concreting), structure works: (including reinforcement, formwork, concreting), assembly of boiler, structural steel erection, roof installation, mechanical installation, bridge construction, heavy lifting, façade installation, delivery of heavy machineries, E & M installation, curtain wall installation, gondola operation, inter decoration, precast installation, road works, space truss installation, glass and steel installation, pipe jacking, cable laying, and condenser installation were in progress.

Regarding the air quality, access road were watered regularly by water truck or water sprinklers. Most of the site area has been covered by backfill material or coarse asphalt / aggregate. Moisture content of backfill materials and PFA stockpile had to be kept at the designed level before backfilling operation. Contractor should follow the good site practice to minimize the pulverized fuel ash from blowing up from dried surface.

With respect to water quality monitoring, one temporary water detention basin has been constructed at the North of the Lagoon near the ER's office (the east water detention basin has been backfilled). If there is any wastewater generated which will be pumped into the basin and will not be discharged out of the site. Construction of drainage system is in progress.

Major Observation of Site Audit

- The contractor is reminded to increase the frequency of watering on unpaved site roads within the site and properly cover the exposed slope with tarpaulin sheeting.

Waste Management

C&D Waste	Backfill and excavation works were conducted during the reporting period. C&D waste was generated from the current activities and sent to public fill.
General Refuse	Paper / cardboard, metal and plastics were collected by recycling collectors as far as practicable and general refuse was collected and sent to WENT Landfill.

Chemical Waste No chemical waste was generated during the reporting period.

Wastewater Rain water was treated by the silt removal facilities before discharged outside the site. Waste was collected by licensed collector.

Table 5.1 Waste Flow Summary

Type of Waste	Quantity Generated in September 2012	Cumulative quantity during construction period
Inert C&D waste*	4,079.547m^3	17,432.744m^3
Chemical waste (Liquid)	NIL	600.000 L
Chemical waste (Solid)	NIL	24,315.000kg
Metal	43,035.750kg	1,727,244.668kg
Paper / Cardboard Packaging	935.500kg	20,891.500kg
Plastic	960.000kg	2,019.000kg
Others, e.g. general refuse	182.838m^3	2,472.350m^3

Remarks: Density of Inert C&D waste and general refuse is 1.9 tonne/m^3 and 1.6 tonne/m^3 respectively
* The total quantity generated of Insert C&D Waste in April 2012 and May 2012 were revised as the quantities of reused in other projects need to be included

Impact Predication Review

In October 2012, waterproofing, steel works, strut erection, substructure works: (including reinforcement, formwork, concreting), structure works: (including reinforcement, formwork, concreting), assembly of boiler, structural steel erection, roof installation, mechanical installation, bridge construction, heavy lifting, façade installation, delivery of heavy machineries, E & M installation, curtain wall installation, gondola operation, inter decoration, precast installation, road works, space truss installation, glass and steel installation, pipe Jacking, cable laying, and Condenser Installation will be conducted. It is expected that these operations will not impose significant air, noise and water quality impact to the sensitive receivers. Nevertheless, necessary mitigation measures should be deployed when needed.

6. Summary of Complaints, Summons and Successful Prosecutions

No complaints, summons and successful prosecutions in association with the construction activities concerning the environmental protection and pollution control were received in the reporting period.

Table 6.1 Summary of Environmental Complaints and Prosecutions

Complaints Logged		Summons Served		Successful Prosecution	
Sept 2012	Cumulative	Sept 2012	Cumulative	Sept 2012	Cumulative
0	1	0	0	0	0

7. Works Program for October 2012

The following major construction works will be in progress in October 2012:

1. Waterproofing;
2. Steel Works;
3. Strut Erection;
4. Substructure Works: Reinforcement, Formwork, Concreting;
5. Structure Works: Reinforcement, Formwork, Concreting;
6. Assembly of Boiler;
7. Structural Steel Erection;
8. Roof Installation;
9. Mechanical Installation;
10. Bridge Construction;
11. Heavy Lifting;
12. Façade Installation;
13. Delivery of Heavy Machineries;
14. E & M Installation;
15. Curtain Wall Installation;
16. Gondola Operation;
17. Inter Decoration;
18. Precast Installation;
19. Road Works;
20. Space Truss Installation;
21. Glass and Steel Installation;
22. Pipe Jacking;
23. Cable Laying; and
24. Condenser Installation

8. Monitoring Schedule for the Coming Month

Pursuant to Clause 5.7.1.1 of the EM&A Manual, impact water quality monitoring shall be carried out during site formation, piling and construction of the access road. As the above mentioned site construction has been completed on 17 August 2012, four weeks post monitoring was commenced by 20 August 2012 and ended on 14 September 2012 inclusively.

Impact water quality monitoring is not required for the coming month.

9. Comments and Conclusions for the Reporting Period

In this reporting period, i.e. 25 August to 24 September 2012 waterproofing, steel works, strut erection, substructure works: (including reinforcement, formwork, concreting), structure works: (including reinforcement, formwork, concreting), assembly of boiler, structural steel erection, roof installation, mechanical installation, bridge construction, heavy lifting, façade installation, delivery of heavy machineries, E & M installation, curtain wall installation, gondola operation, inter decoration, precast installation, road works, space truss installation, glass and steel installation, pipe Jacking, cable laying, and Condenser Installation were in progress. The site activities did not lead to any significant impact to noise, air quality, stream and marine water quality.

1 event of Action Level exceedance was reported from 25 August to 24 September 2012. 1 event of pH exceedance was reported in the reporting period that was influent by high pH from upstream. The event was not related to the construction activities.

Contractor shall ensure proper site practices to be implemented to avoid any deterioration of the environment around the construction site. Although there is no sensitive receivers for noise and air quality close to the site area, mitigation measures to minimize dust and noise generated from site activities should be enforced.

FUGRO TECHNICAL SERVICES LIMITED
MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Telephone : +852-2450 8233
Telefax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

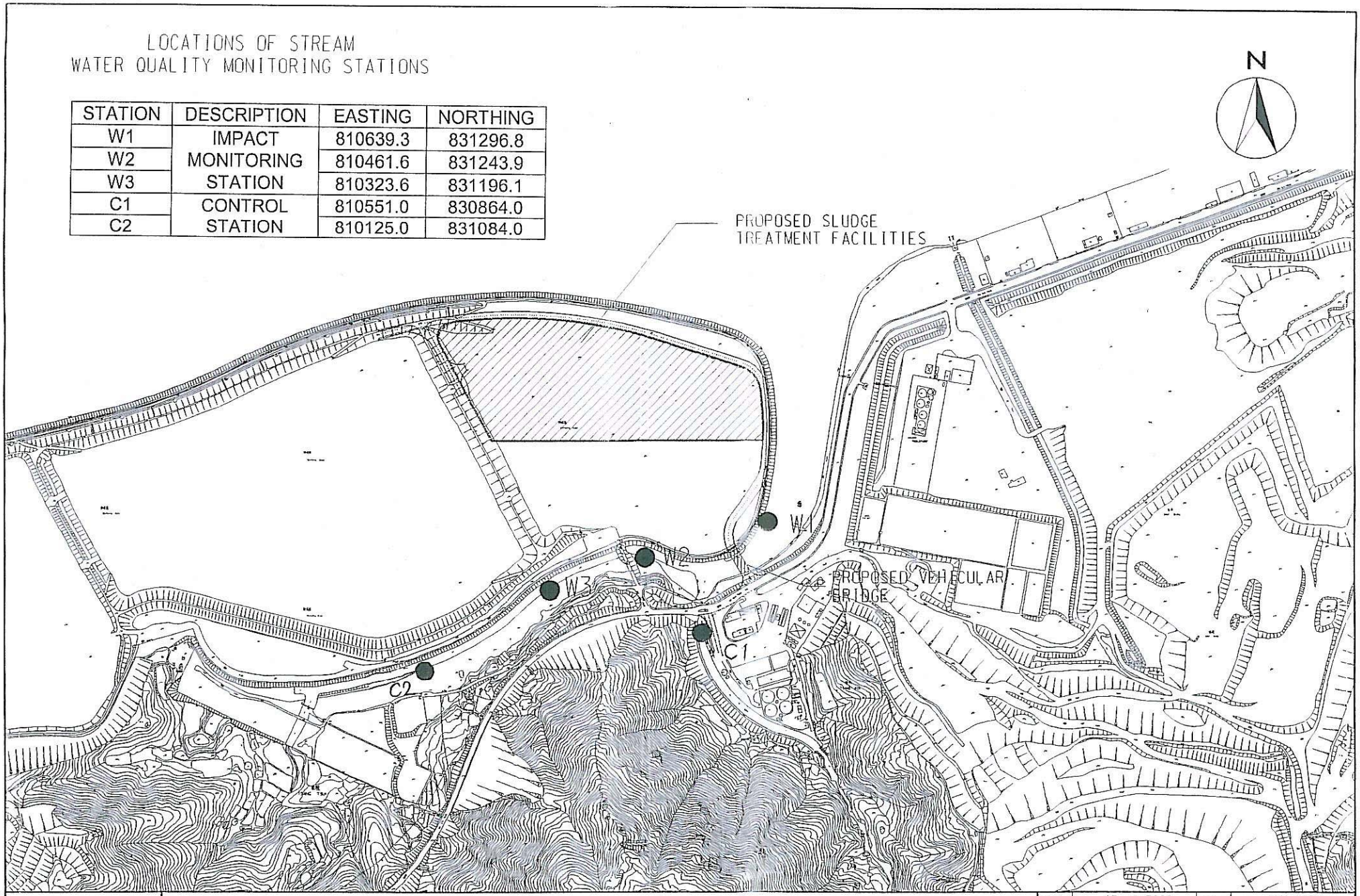
MateriaLab

Appendix 1

Water Quality Monitoring Location

LOCATIONS OF STREAM
WATER QUALITY MONITORING STATIONS

STATION	DESCRIPTION	EASTING	NORTHING
W1	IMPACT MONITORING STATION	810639.3	831296.8
W2		810461.6	831243.9
W3		810323.6	831196.1
C1	CONTROL STATION	810551.0	830864.0
C2		810125.0	831084.0



MAUNSELL | AECOM
Metcalf & Eddy Ltd.

AGREEMENT NO. CE 28/2003 (EP)
SLUDGE TREATMENT FACILITIES - FEASIBILITY STUDY

LOCATION OF WATER QUALITY MONITORING STATIONS (Sheet 1 of 2)

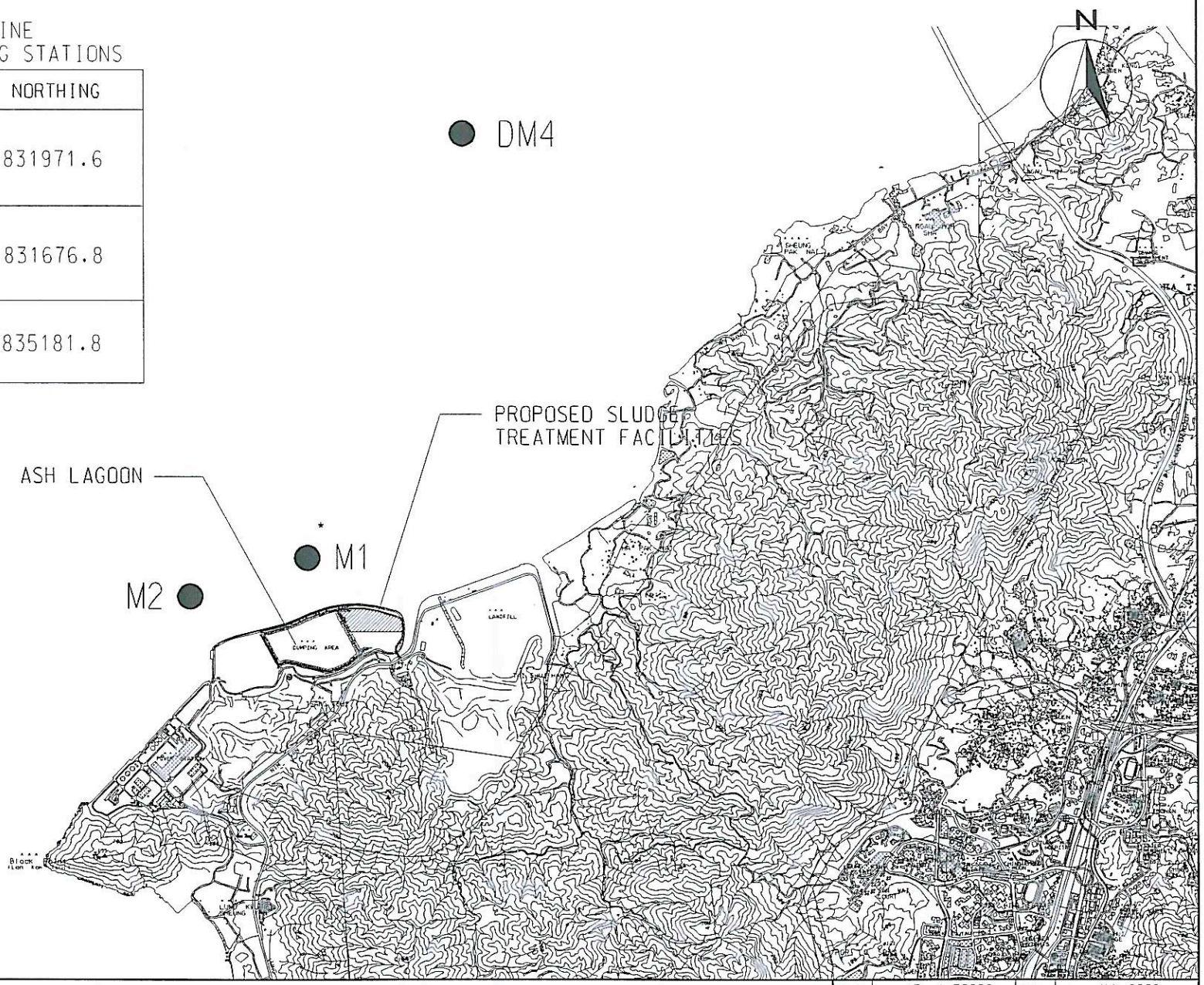
SCALE	A3 1:5000	DATE	JUN 2008
CHECK	AKYC	DRAWN	LMWI
JOB No.	60039510	DRAWING No.	FIGURE 5.1
		REV	-

DATE: $DATE$

P:/60039510/1.01/CAD/Drawing/Report/WQ/Fig5.1_sheet 1.dgn

LOCATIONS OF MARINE
WATER QUALITY MONITORING STATIONS

STATION	EASTING	NORTHING
M1 (IMPACT MONITORING STATION)	809915.3	831971.6
M2 (IMPACT MONITORING STATION)	809026.4	831676.8
DM4 (CONTROL STATION)	811092.2	835181.8



DATE: $DATE$

MAUNSELL | AECOM
Metcalf & Eddy Ltd.

AGREEMENT NO. CE 28/2003 (EP)
SLUDGE TREATMENT FACILITIES - FEASIBILITY STUDY
LOCATION OF WATER QUALITY MONITORING STATIONS
(Sheet 2 of 2)

SCALE	A3 1:30000	DATE	JUN 2008
CHECK	AKYC	DRAWN	LMWI
JOB NO.	60039510	DRAWING NO.	FIGURE 5.1
		REV	-

P:/60039510/1.01/CAD/Drawing/Report/WQ/Fig5.1_sheet 2_v2.dgn

FUGRO TECHNICAL SERVICES LIMITED
MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Telephone : +852-2450 8233
Telefax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

MateriaLab

Appendix 2

Equipment Calibration Certificates

FUGRO TECHNICAL SERVICES LIMITED
MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong
Tel: +852-2450 8233
Fax: +852-2450 6138
E-mail: matlab@fugro.com.hk
Website: www.fugro.com

MateriaLab

Report No. : 921437CA120485(2)

CALIBRATION RECORD OF WHIRLING PSYCHROMETER

Client Supplied Information

Client : Fugro Technical Services Ltd.

Project : Calibration Services

Calibration Item - Description : Whirling psychrometer

Serial no. : 02586 (Dry Bulb)

02010 (Wet Bulb)

Equipment ID. : E-092-10

Specification limit : According to full checking report no.: 921436CA101642 , Correction at 25.0°C.

Shall be Within -0.3 °C and +0.7 °C for dry bulb, -0.3 °C and +0.7 °C for wet bulb.

Laboratory Information

Calibrating Equipment - Description : Reference thermometer

Equipment ID. : R-053-5

Date of Calibration : 22-Mar-2012 Ambient Temperature : 22 °C

Calibration location : **Calibration Laboratory of MateriaLab**

Method used : **In-house Method R-C-076**

In-house testing procedure no. : **R-C-076**

Calibration Results : (All values are in the unit of °C.)

Test temperature		25.0	--	--	--	--
Ref. Thermometer ID.		R-053-5	--	--	--	--
Correction of Ref. Thermometer at test temperature, C		0.06	--	--	--	--
Variation of Ref. Thermometer reading in 20sec.	Maximum	24.96	--	--	--	--
	Minimum	24.93	--	--	--	--
Average between Max. & Min., A		24.95	--	--	--	--
Corrected temperature, (A + C), Ra		25.01	--	--	--	--
Dry Bulb	Indicated temperature, Rd	25.0	--	--	--	--
	Correction, Ra - Rd	0.0	--	--	--	--
Wet Bulb	Indicated temperature, Rw	24.9	--	--	--	--
	Correction, Ra - Rw	0.1	--	--	--	--

Remark :

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The discrimination of the equipment under test is 0.1 °C (1/5 division).
3. The equipment being calibrated does comply with the specification limit.
4. Recommended next calibration date (6 months, In-house specification) 22-Sep-2012

Tested by : Edwin M Date : 22 MAR 2012 Checked by : Date : 22-3-2012

CA-W-182 (30/07/98)

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

Report No. : 921438WA121363

Report on Calibration of Professional Plus Water Quality Instrument

Information Supplied by Client

Client	:	Fugro Technical Services Limited – MateriaLab Division – Environmental
Client's address	:	Fugro Development Centre, 5 Lok Yi St., 17 M.S. Castle Peak Road, Tuen Mun, N.T.
Project	:	Routine Calibration
Sample description	:	One Professional Plus Water Quality Instrument
Client sample ID	:	Serial No. 10J100270 (E-109-1)
Test required	:	Calibration of the submitted Professional Plus Water Quality Instrument

Laboratory Information

Lab. sample ID	:	WA121363/1
Date sample received	:	08/08/2012
Date of calibration	:	15/08/2012
Next calibration date	:	15/11/2012
Test method used	:	In-house comparison method

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

Report No. : 921438WA121363

Results :

A. Salinity calibration

Salinity, ‰			
Theoretical	Measured	Deviation	Maximum acceptable Deviation
10	10.00	0.00	± 0.5
20	20.11	+0.11	± 1.0
30	30.06	+0.06	± 1.5
40	40.12	+0.12	± 2.0

B. Dissolved Oxygen calibration

Trial No.	Dissolved oxygen content, mg/L	
	By Titration	By D.O. meter
1	7.82	7.63
2	7.82	7.60
3	7.82	7.64
Average	7.82	7.62

C. Temperature calibration

Thermometer reading, °C	Meter reading, °C
23.1	23.1

D. pH calibration

pH reading at 22°C for Q.C. solution(6.86) and at 22°C for Q.C. solution(9.18)		
Theoretical	Measured	Deviation
9.18	9.25	+0.07
6.86	6.86	0.00

Supervised by : Y. M. Chung

Certified by :
Approved Signatory : HO Kin Man, John
Manager – Chemistry Department

Date : 21/8/2012

** End of Report **

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MateriaLab

Report No. : 921438WA121151

REPORT ON CALIBRATION OF TURBIDIMETER

Information Supplied by Client

Client	:	Fugro Technical Services Limited – MateriaLab Division – Environmental
Client's address	:	Fugro Development Centre, 5 Lok Yi St., 17 M.S. Castle Peak Road, Tuen Mun, N.T.
Project	:	Routine Calibration
Sample description	:	One Turbidimeter, HACH Model 2100P
Client sample ID	:	Serial No. 911000304 (E-047- 1)
Test required	:	Calibration of the submitted Turbidimeter

Laboratory Information

Lab. sample ID	:	WA121151/1
Date sample received	:	04/07/2012
Date of calibration	:	06/07/2012
Next calibration date	:	06/10/2012
Test method used	:	1. Three standard turbidity solutions with 20 NTU, 100 NTU and 800 NTU were prepared. 2. After the blank zero was set, the meter was calibrated against the standard solutions. 3. The gelex secondary standard with 0.00 – 9.99 NTU was inserted and the reading of this gelex standard was recorded. Same steps were repeated for 10 – 99.9 NTU and 100 – 1000 NTU gelex standards.

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.
Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MaterialLab

Report No. : 921438WA121151

Results:

Calibrated Values of Secondary Gelex Standards

Auto-programmed Turbidity Standard Range	0.00-9.99 NTU, Gelex Vial	10-99.9 NTU, Gelex Vial	100-1000 NTU, Gelex Vial
Calibrated Value of the Secondary Standard, N.T.U.	5.54	56.1	511

Checking of sample cell condition using filtered ultra-pure water

Turbidity of procedural blank, NTU	
Our sample cell	Client's sample cell
0.13	0.37

Remarks: 1. Procedural blank of client's sample cell >0.2 NTU, the cell is no longer for low turbidity (<1 NTU) measurement
2. If the reading of secondary standard was not within ±5% of the calibrated value, the instrument should be recalibrated with formazin primary standards.

Supervised by : Y. M. Chung

Certified by : _____
Approved Signatory : HO Kin Man, John
Manager – Chemistry Department

Date : 17/7/2012

** End of Report **

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MaterialLab

Report No. : 921438WA121083

REPORT ON CALIBRATION OF TURBIDIMETER

Information Supplied by Client

Client	:	Fugro Technical Services Limited – MateriaLab Division – Environmental
Client's address	:	Fugro Development Centre, 5 Lok Yi St., 17 M.S. Castle Peak Road, Tuen Mun, N.T.
Project	:	Routine Calibration
Sample description	:	One Turbidimeter, HACH Model 2100P
Client sample ID	:	Serial No. 010800023055 (E-047- 3)
Test required	:	Calibration of the submitted Turbidimeter

Laboratory Information

Lab. sample ID	:	WA121083/1
Date sample received	:	04/07/2012
Date of calibration	:	04/07/2012
Next calibration date	:	04/10/2012
Test method used	:	1. Three standard turbidity solutions with 20 NTU, 100 NTU and 800 NTU were prepared. 2. After the blank zero was set, the meter was calibrated against the standard solutions. 3. The gelex secondary standard with 0.00 – 9.99 NTU was inserted and the reading of this gelex standard was recorded. Same steps were repeated for 10 – 99.9 NTU and 100 – 1000 NTU gelex standards.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MateriaLab

Report No. : 921438WA121083

Results:

Calibrated Values of Secondary Gelex Standards

Auto-programmed Turbidity Standard Range	0.00-9.99 NTU, Gelex Vial	10-99.9 NTU, Gelex Vial	100-1000 NTU, Gelex Vial
Calibrated Value of the Secondary Standard, N.T.U.	5.16	45.3	497

Checking of sample cell condition using filtered ultra-pure water

Turbidity of procedural blank, NTU	
Our sample cell	Client's sample cell
0.25	0.47

Remarks:
1. Procedural blank of client's sample cell >0.2 NTU, the cell is no longer for low turbidity (<1 NTU) measurement
2. If the reading of secondary standard was not within ±5% of the calibrated value, the instrument should be recalibrated with formazin primary standards.

Supervised by : Y. M. Chung

Certified by : _____
Approved Signatory : HO Kin Man, John
Manager – Chemistry Department

Date : 9/7/2012

** End of Report **

FUGRO TECHNICAL SERVICES LIMITED
MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MateriaLab

Appendix 3

Stream Water Quality Monitoring Data

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MateriaLab

Our Ref. No. : 100440EN120710

Client : VW-VES (HK) Ltd.

Project : Contract No. EP/SP/58/08

Field Data Record (Stream Water)

Date : 27/08/2012 (a.m.) **Test No.** : 271

Tide State : MID-EBB **Weather** : HAZY

Site Condition : NORMAL

Location	Time	Ambient Temp. °C	Depth of water m	Water Temp. °C	Salinity ppt	D.O. mg/L	D.O.S. %	Turbidity NTU	pH Unit	Suspended Solids Content, mg/L	Remarks
W1	9:31	31	0.7	28.9	21.7	5.23	75.2	2.48	7.63	2	
				28.8	21.6	5.20	74.8	2.62	7.66	3	
W2	9:54	32	0.1	28.7	15.5	5.17	72.4	8.01	7.60	11	
				28.8	15.6	5.21	72.9	7.77	7.58	12	
W3	10:10	31	0.6	29.0	12.3	5.85	81.4	3.67	7.57	4	
				28.9	12.3	5.76	80.1	4.16	7.59	5	
C1	10:44	31	0.1	29.8	0.1	8.25	108.7	38.1	8.40	32	
				29.7	0.1	8.23	108.4	37.4	8.37	35	
C2	10:28	30	0.1	28.4	7.5	7.25	97.1	2.63	7.39	3	
				28.4	7.5	7.05	94.8	2.65	7.36	3	

Certified by : Approved Signatory : K.M. Ho Date : 7/9/2012

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MaterialLab

Our Ref. No. : 100440EN120710

Client : VW-VES (HK) Ltd.

Project : Contract No. EP/SP/58/08

Field Data Record (Stream Water)

Date : 27/08/2012 (p.m.) **Test No.** : 271

Tide State : MID-FLOOD **Weather** : HAZY

Site Condition : NORMAL

Location	Time	Ambient Temp. °C	Depth of water m	Water Temp. °C	Salinity ppt	D.O. mg/L	D.O.S. %	Turbidity NTU	pH Unit	Suspended Solids Content, mg/L	Remarks
W1	17:25	34	0.5	31.3	19.1	6.98	104.9	28.2	7.78	36	
				31.1	19.0	6.91	103.6	28.8	7.82	31	
W2	17:45	33	0.1	32.0	19.4	6.89	104.7	19.7	7.86	25	
				32.0	19.4	6.87	104.4	21.2	7.87	25	
W3	18:02	32	0.5	30.3	6.3	7.58	104.3	10.6	7.98	16	
				30.3	6.3	7.38	101.6	12.5	7.97	14	
C1	16:51	34	0.1	30.5	0.1	8.01	106.9	18.5	7.88	14	
				30.4	0.1	7.99	106.6	16.8	7.87	9	
C2	17:09	33	0.1	29.2	2.7	7.65	101.1	4.20	7.44	3	
				29.1	2.7	7.60	100.6	3.94	7.44	4	

Certified by : Approved Signatory : K.M. Ho Date : 7/9/2012

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MaterialLab

Our Ref. No. : 100440EN120710

Client : VW-VES (HK) Ltd.

Project : Contract No. EP/SP/58/08

Field Data Record (Stream Water)

Date : 29/08/2012 (a.m.) **Test No.** : 272

Tide State : MID-EBB **Weather** : HAZY

Site Condition : NORMAL

Location	Time	Ambient Temp. °C	Depth of water m	Water Temp. °C	Salinity ppt	D.O. mg/L	D.O.S. %	Turbidity NTU	pH Unit	Suspended Solids Content, mg/L	Remarks
W1	12:00	33	0.6	29.9	18.3	5.24	75.7	21.3	7.60	22	
				29.9	18.3	5.20	75.1	19.6	7.64	21	
W2	11:25	32	0.1	29.4	10.9	5.55	76.9	17.7	7.57	17	
				29.3	10.8	5.57	77.2	17.1	7.60	15	
W3	11:42	32	0.5	29.2	5.8	6.34	85.3	16.8	7.60	16	
				29.2	5.8	6.28	84.6	14.0	7.59	17	
C1	12:20	32	0.1	29.2	0.1	7.54	98.2	47.1	7.82	32	
				29.1	0.1	7.36	96.0	48.3	7.83	27	
C2	12:38	31	0.1	28.3	2.6	6.70	87.1	11.5	7.09	8	
				28.2	2.6	6.75	87.8	10.6	7.06	8	

Certified by : Approved Signatory : K.M. Ho Date : 7/9/2012

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MateriaLab

Our Ref. No. : 100440EN120710

Client : VW-VES (HK) Ltd.

Project : Contract No. EP/SP/58/08

Field Data Record (Stream Water)

Date : 29/08/2012 (p.m.) **Test No.** : 272

Tide State : MID-FLOOD **Weather** : HAZY

Site Condition : NORMAL

Location	Time	Ambient Temp. °C	Depth of water m	Water Temp. °C	Salinity ppt	D.O. mg/L	D.O.S. %	Turbidity NTU	pH Unit	Suspended Solids Content, mg/L	Remarks
W1	19:00	29	0.4	29.5	18.8	5.30	76.5	33.8	7.59	35	
				29.5	18.8	5.36	77.4	34.1	7.61	36	
W2	18:35	30	0.1	29.3	18.6	5.44	78.6	33.5	7.62	33	
				29.1	18.7	5.41	78.2	32.9	7.63	34	
W3	18:16	30	0.1	28.4	3.1	5.60	73.1	6.29	7.58	8	
				28.3	3.0	5.65	73.7	7.12	7.58	7	
C1	19:15	29	0.1	27.8	0.1	6.89	87.2	17.3	7.63	11	
				27.7	0.1	6.98	88.6	17.4	7.59	11	
C2	18:00	30	0.1	28.2	1.3	6.19	79.6	13.8	7.08	19	
				28.0	1.3	6.35	81.7	11.7	7.08	17	

Certified by : Approved Signatory : K.M. Ho Date : 7/9/2012

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MaterialLab

Our Ref. No. : 100440EN120710

Client : VW-VES (HK) Ltd.

Project : Contract No. EP/SP/58/08

Field Data Record (Stream Water)

Date : 31/08/2012 (a.m.) **Test No.** : 273

Tide State : MID-FLOOD **Weather** : CLOUDY

Site Condition : NORMAL

Location	Time	Ambient Temp. °C	Depth of water m	Water Temp. °C	Salinity ppt	D.O. mg/L	D.O.S. %	Turbidity NTU	pH Unit	Suspended Solids Content, mg/L	Remarks
W1	6:56	28	1.1	29.1	18.2	5.29	75.5	6.29	7.63	6	
				29.2	18.3	5.23	74.8	6.43	7.66	6	
W2	7:17	29	0.1	29.3	17.4	5.22	74.5	11.7	7.60	11	
				29.3	17.4	5.33	76.0	11.4	7.60	12	
W3	7:34	29	0.9	29.4	18.0	5.40	76.7	12.1	7.61	14	
				29.2	18.0	5.47	77.5	11.4	7.57	11	
C1	8:08	29	0.1	26.7	0.1	7.33	91.5	10.9	7.42	6	
				26.6	0.1	7.44	92.7	11.2	7.40	5	
C2	7:52	29	0.1	29.3	17.0	4.10	58.8	6.98	7.45	8	
				29.4	17.0	4.36	61.4	7.95	7.43	7	

Certified by : Approved Signatory : K.M. Ho Date : 7/9/2012

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MaterialLab

Our Ref. No. : 100440EN120710

Client : VW-VES (HK) Ltd.

Project : Contract No. EP/SP/58/08

Field Data Record (Stream Water)

Date : 31/08/2012 (p.m.) **Test No.** : 273

Tide State : MID-EBB **Weather** : CLOUDY

Site Condition : NORMAL

Location	Time	Ambient Temp. °C	Depth of water m	Water Temp. °C	Salinity ppt	D.O. mg/L	D.O.S. %	Turbidity NTU	pH Unit	Suspended Solids Content, mg/L	Remarks
W1	12:55	32	0.7	30.8	16.8	5.78	84.9	6.97	7.67	8	
				30.6	17.2	5.42	79.5	8.01	7.68	7	
W2	13:16	33	0.1	30.1	13.3	6.46	92.1	18.2	7.62	23	
				30.3	13.3	6.36	90.7	19.5	7.60	26	
W3	13:36	33	0.3	30.4	9.0	7.50	104.7	9.22	7.75	21	
				30.3	8.9	7.74	106.8	10.9	7.73	18	
C1	14:11	33	0.1	30.6	0.1	8.04	107.6	11.4	8.24	6	
				30.6	0.1	8.07	108.0	11.1	8.26	8	
C2	13:56	32	0.1	29.8	5.1	7.75	104.2	4.94	7.54	5	
				29.7	5.1	7.63	102.8	5.89	7.49	5	

Certified by : Approved Signatory : K.M. Ho Date : 7/9/2012

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MateriaLab

Our Ref. No. : 100440EN120710

Client : VW-VES (HK) Ltd.

Project : Contract No. EP/SP/58/08

Field Data Record (Stream Water)

Date : 03/09/2012 (a.m.) **Test No.** : 274

Tide State : MID-FLOOD **Weather** : FINE / RAINY

Site Condition : NORMAL

Location	Time	Ambient Temp. °C	Depth of water m	Water Temp. °C	Salinity ppt	D.O. mg/L	D.O.S. %	Turbidity NTU	pH Unit	Suspended Solids Content, mg/L	Remarks
W1	10:19	30	1.0	29.7	18.8	5.83	85.1	6.61	7.68	7	
				29.7	18.8	5.80	84.6	6.20	7.68	7	
W2	9:49	29.5	0.1	29.4	18.7	5.56	80.7	12.8	7.59	12	
				29.4	18.7	5.47	79.4	13.5	7.60	14	
W3	10:04	29.5	1.0	29.3	17.8	5.61	80.9	11.5	7.60	13	
				29.3	17.8	5.54	79.8	12.2	7.60	11	
C1	9:18	29	0.1	28.2	0.0	9.47	121.4	117	7.62	72	
				28.2	0.0	9.30	119.3	102	7.63	85	
C2	9:34	29.5	0.1	28.4	12.3	5.94	81.8	7.75	7.39	8	
				28.3	12.3	5.90	81.2	7.39	7.45	7	

Certified by : Approved Signatory : K.M. Ho Date : 7/9/2012

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MaterialLab

Our Ref. No. : 100440EN120710

Client : VW-VES (HK) Ltd.

Project : Contract No. EP/SP/58/08

Field Data Record (Stream Water)

Date : 03/09/2012 (p.m.) **Test No.** : 274

Tide State : MID-EBB **Weather** : FINE

Site Condition : NORMAL

Location	Time	Ambient Temp. °C	Depth of water m	Water Temp. °C	Salinity ppt	D.O. mg/L	D.O.S. %	Turbidity NTU	pH Unit	Suspended Solids Content, mg/L	Remarks
W1	15:31	34	0.4	31.0	16.9	5.60	82.6	10.4	7.74	11	
				31.0	16.9	5.50	81.1	10.0	7.74	11	
W2	15:16	33	0.1	30.6	13.6	7.14	102.8	12.5	7.78	14	
				30.6	13.6	7.04	101.3	11.0	7.78	13	
W3	15:02	33	0.5	30.8	9.4	8.62	121.8	3.65	7.95	3	
				30.8	9.4	8.51	120.1	3.98	7.96	3	
C1	14:30	34	0.1	31.6	0.1	8.53	116.0	21.4	8.24	12	
				31.6	0.0	8.43	114.7	21.7	8.23	13	
C2	14:45	32	0.1	29.9	6.1	7.81	106.7	4.17	7.62	2	
				29.9	6.1	7.72	105.4	3.94	7.65	3	

Certified by : Approved Signatory : K.M. Ho Date : 7/9/2012

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MateriaLab

Our Ref. No. : 100440EN120710

Client : VW-VES (HK) Ltd.

Project : Contract No. EP/SP/58/08

Field Data Record (Stream Water)

Date : 05/09/2012 (a.m.) **Test No.** : 275

Tide State : MID-FLOOD **Weather** : CLOUDY/RAINY

Site Condition : NORMAL

Location	Time	Ambient Temp. °C	Depth of water m	Water Temp. °C	Salinity ppt	D.O. mg/L	D.O.S. %	Turbidity NTU	pH Unit	Suspended Solids Content, mg/L	Remarks
W1	10:07	29.5	0.7	29.5	19.8	5.66	82.7	16.9	7.60	22	
				29.4	19.8	5.56	81.2	18.3	7.61	17	
W2	10:56	30	0.1	29.0	13.1	6.26	87.5	20.7	7.56	19	
				29.0	13.1	6.30	88.0	19.8	7.57	19	
W3	11:10	29	0.9	29.0	15.5	5.75	81.5	13.2	7.56	14	
				29.0	15.4	5.70	80.9	13.9	7.58	14	
C1	10:41	29.5	0.1	28.1	0.0	9.52	121.9	7.59	8.27	1	
				28.1	0.0	9.40	120.3	7.56	8.20	2	
C2	10:25	29.5	0.1	27.6	2.2	8.67	111.2	5.25	8.32	5	
				27.5	2.2	8.60	110.2	5.02	8.30	5	

Certified by : Approved Signatory : K.M. Ho Date : 12/9/2012

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MateriaLab

Our Ref. No. : 100440EN120710

Client : VW-VES (HK) Ltd.

Project : Contract No. EP/SP/58/08

Field Data Record (Stream Water)

Date : 05/09/2012 (p.m.) **Test No.** : 275

Tide State : MID-EBB **Weather** : FINE

Site Condition : NORMAL

Location	Time	Ambient Temp. °C	Depth of water m	Water Temp. °C	Salinity ppt	D.O. mg/L	D.O.S. %	Turbidity NTU	pH Unit	Suspended Solids Content, mg/L	Remarks
W1	16:31	32	0.3	29.3	12.7	6.76	94.8	8.57	7.94	7	
				29.2	12.7	6.69	93.7	8.08	7.94	10	
W2	16:16	32	0.1	29.2	11.4	6.85	95.1	14.7	7.78	19	
				29.2	11.4	6.76	93.8	14.5	7.79	17	
W3	16:02	31	0.4	29.2	6.5	7.88	106.5	5.76	8.00	5	
				29.2	6.5	7.70	104.1	5.26	8.02	4	
C1	15:29	32	0.1	29.1	0.1	8.62	112.4	257	8.27	120	
				29.2	0.0	8.52	111.1	230	8.30	120	
C2	15:44	31	0.1	28.1	2.5	6.97	90.5	4.40	7.44	6	
				28.1	2.5	6.90	89.5	4.61	7.40	4	

Certified by : Approved Signatory : K.M. Ho

Date : 12/9/2012

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MaterialLab

Our Ref. No. : 100440EN120710

Client : VW-VES (HK) Ltd.

Project : Contract No. EP/SP/58/08

Field Data Record (Stream Water)

Date : **07/09/2012 (a.m.)** **Test No.** : **276**

Tide State : **MID-FLOOD** **Weather** : **CLOUDY**

Site Condition : **NORMAL**

Location	Time	Ambient Temp. °C	Depth of water m	Water Temp. °C	Salinity ppt	D.O. mg/L	D.O.S. %	Turbidity NTU	pH Unit	Suspended Solids Content, mg/L	Remarks
W1	11:47	33	0.5	31.9	19.6	6.27	95.2	15.7	7.60	20	
				31.9	19.6	6.19	94.1	17.1	7.68	18	
W2	12:41	31.5	0.1	31.6	14.6	6.67	98.2	22.3	7.72	24	
				31.6	14.6	6.58	96.8	22.9	7.75	23	
W3	12:54	31	0.7	31.9	7.5	6.62	137.1	13.2	7.84	15	
				31.9	7.5	9.49	135.5	13.7	7.83	15	
C1	12:27	33	0.1	30.8	0.0	9.27	124.5	10.7	8.39	5	
				30.9	0.0	9.15	122.9	10.9	8.32	5	
C2	12:14	33.5	0.1	29.5	2.7	10.69	142.3	7.59	8.18	11	
				29.5	2.7	10.47	139.4	6.92	8.17	9	

Certified by : Approved Signatory : K.M. Ho Date : 13/9/2012

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MaterialLab

Our Ref. No. : 100440EN120710

Client : VW-VES (HK) Ltd.

Project : Contract No. EP/SP/58/08

Field Data Record (Stream Water)

Date : 07/09/2012 (p.m.) **Test No.** : 276

Tide State : MID-EBB **Weather** : CLOUDY

Site Condition : NORMAL

Location	Time	Ambient Temp. °C	Depth of water m	Water Temp. °C	Salinity ppt	D.O. mg/L	D.O.S. %	Turbidity NTU	pH Unit	Suspended Solids Content, mg/L	Remarks
W1	17:33	30	0.3	29.8	16.2	5.77	83.2	12.6	7.69	16	
				29.8	16.2	5.70	82.2	10.9	7.69	12	
W2	17:18	30	0.1	30.4	12.5	6.01	85.7	25.5	7.74	36	
				30.3	12.5	6.04	86.1	24.0	7.75	28	
W3	17:04	30	0.4	29.5	6.1	6.95	94.3	5.62	7.89	7	
				29.5	6.1	6.90	93.7	5.13	7.92	7	
C1	16:48	29.5	0.1	28.8	0.0	8.35	108.3	10.9	7.61	5	
				28.8	0.0	8.22	106.6	10.5	7.64	5	
C2	18:09	29	0.1	28.2	2.6	5.93	79.4	5.16	7.36	5	
				28.2	2.5	5.82	78.2	5.34	7.34	7	

Certified by : Approved Signatory : K.M. Ho Date : 13/9/2012

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MaterialLab

Our Ref. No. : 100440EN120710

Client : VW-VES (HK) Ltd.

Project : Contract No. EP/SP/58/08

Field Data Record (Stream Water)

Date : 10/09/2012 (a.m.) **Test No.** : 277

Tide State : MID-EBB **Weather** : SUNNY

Site Condition : NORMAL

Location	Time	Ambient Temp. °C	Depth of water m	Water Temp. °C	Salinity ppt	D.O. mg/L	D.O.S. %	Turbidity NTU	pH Unit	Suspended Solids Content, mg/L	Remarks
W1	7:47	30	0.5	28.5	16.2	5.20	72.3	2.96	7.65	3	
				28.6	16.1	5.36	73.9	2.76	7.64	3	
W2	8:10	30	0.1	29.3	14.9	5.41	74.8	9.12	7.56	14	
				29.3	14.9	5.32	73.3	10.8	7.59	11	
W3	8:26	30	0.4	28.8	8.0	5.92	80.1	3.78	7.81	5	
				28.9	7.8	5.87	79.4	3.54	7.81	2	
C1	9:05	30	0.1	28.4	0.1	8.34	107.3	6.47	7.61	4	
				28.4	0.1	8.43	108.5	6.50	7.62	4	
C2	8:48	29	0.1	27.5	2.4	8.54	109.4	4.30	7.91	5	
				27.4	2.4	8.60	110.0	4.57	7.92	6	

Certified by : Approved Signatory : K.M. Ho Date : 13/9/2012

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MaterialLab

Our Ref. No. : 100440EN120710

Client : VW-VES (HK) Ltd.

Project : Contract No. EP/SP/58/08

Field Data Record (Stream Water)

Date : 10/09/2012 (p.m.) **Test No.** : 277

Tide State : MID-FLOOD **Weather** : SUNNY

Site Condition : NORMAL

Location	Time	Ambient Temp. °C	Depth of water m	Water Temp. °C	Salinity ppt	D.O. mg/L	D.O.S. %	Turbidity NTU	pH Unit	Suspended Solids Content, mg/L	Remarks
W1	16:25	32	0.3	33.9	13.8	6.34	97.0	24.8	7.82	26	
				33.9	13.6	6.29	96.2	23.5	7.83	28	
W2	16:50	32	0.1	33.0	12.4	6.74	100.3	34.8	7.97	36	
				33.0	12.4	6.70	99.7	33.4	7.97	40	
W3	17:07	32	0.3	30.8	4.1	7.50	102.7	11.1	8.29	13	
				30.8	4.1	7.43	101.7	10.5	8.31	15	
C1	15:54	32	0.1	31.3	0.1	8.19	110.4	6.40	8.39	3	
				31.4	0.1	8.28	111.9	7.35	8.37	4	
C2	16:08	32	0.1	30.6	1.7	9.21	124.1	4.20	8.25	4	
				30.6	1.6	9.08	122.4	4.56	8.26	3	

Certified by : Approved Signatory : K.M. Ho

Date : 13/9/2012

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MaterialLab

Our Ref. No. : 100440EN120710

Client : VW-VES (HK) Ltd.

Project : Contract No. EP/SP/58/08

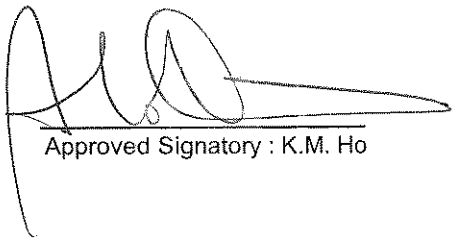
Field Data Record (Stream Water)

Date : 12/09/2012 (a.m.) **Test No.** : 278

Tide State : MID-EBB **Weather** : FINE

Site Condition : NORMAL

Location	Time	Ambient Temp. °C	Depth of water m	Water Temp. °C	Salinity ppt	D.O. mg/L	D.O.S. %	Turbidity NTU	pH Unit	Suspended Solids Content, mg/L	Remarks
W1	11:37	32	0.1	30.6	13.0	7.51	107.7	30.5	7.76	44	
				30.6	13.0	7.40	106.2	30.2	7.76	43	
W2	11:06	32	0.1	30.4	11.1	8.10	114.6	13.8	7.72	13	
				30.4	11.1	7.95	112.6	12.0	7.75	16	
W3	11:20	32	0.2	29.6	7.1	9.59	131.4	4.93	8.00	5	
				29.7	7.2	9.53	130.6	5.24	8.01	8	
C1	11:51	31	0.1	30.5	0.0	10.06	134.3	24.5	8.53	140	
				30.5	0.0	9.90	132.2	23.5	8.52	150	
C2	10:32	30.5	0.1	28.2	3.7	9.88	129.2	4.10	7.55	4	
				28.2	3.7	9.64	126.6	4.49	7.58	4	

Certified by : 
Approved Signatory : K.M. Ho

Date : 18/9/2012

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MaterialLab

Our Ref. No. : 100440EN120710

Client : VW-VES (HK) Ltd.

Project : Contract No. EP/SP/58/08

Field Data Record (Stream Water)

Date : 12/09/2012 (p.m.) **Test No.** : 278

Tide State : MID-FLOOD **Weather** : FINE

Site Condition : NORMAL

Location	Time	Ambient Temp. °C	Depth of water m	Water Temp. °C	Salinity ppt	D.O. mg/L	D.O.S. %	Turbidity NTU	pH Unit	Suspended Solids Content, mg/L	Remarks
W1	17:51	31	0.2	30.6	17.5	6.76	99.3	8.82	7.82	12	
				30.6	17.5	6.70	98.4	8.53	7.80	13	
W2	18:25	30	0.1	31.0	16.1	7.25	106.7	29.8	8.02	34	
				31.0	16.2	7.15	105.2	26.7	8.04	33	
W3	18:11	30	0.3	30.3	8.2	6.01	83.6	16.3	7.97	17	
				30.3	8.2	5.88	81.8	15.8	7.95	18	
C1	17:16	30	0.1	29.1	0.1	7.51	97.7	123	8.04	60	
				29.1	0.0	7.35	95.7	136	8.10	73	
C2	17:31	30	0.1	28.3	1.9	6.40	83.1	4.05	7.63	4	
				28.3	1.9	6.34	82.5	3.92	7.60	5	

Certified by : Approved Signatory : K.M. Ho

Date : 18/9/2012

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MaterialLab

Our Ref. No. : 100440EN120710

Client : VW-VES (HK) Ltd.

Project : Contract No. EP/SP/58/08

Field Data Record (Stream Water)

Date : 14/09/2012 (a.m.) **Test No.** : 279

Tide State : MID-FLOOD **Weather** : FINE

Site Condition : NORMAL

Location	Time	Ambient Temp. °C	Depth of water m	Water Temp. °C	Salinity ppt	D.O. mg/L	D.O.S. %	Turbidity NTU	pH Unit	Suspended Solids Content, mg/L	Remarks
W1	6:54	25	1.1	27.9	17.2	5.62	78.8	10.7	7.74	14	
				28.0	17.2	5.58	78.4	12.1	7.78	13	
W2	7:14	25	0.1	26.9	14.5	5.25	71.3	11.0	7.76	11	
				26.9	14.5	5.28	71.7	10.7	7.75	11	
W3	7:32	25	0.9	27.0	14.6	5.19	70.6	11.4	7.78	11	
				26.9	14.7	5.23	71.0	13.0	7.76	17	
C1	8:08	26	0.1	25.6	0.1	7.29	89.0	9.44	7.75	3	
				25.6	0.1	7.37	90.1	9.96	7.71	2	
C2	7:54	25	0.1	25.9	11.5	5.00	65.7	6.35	7.68	7	
				25.8	11.4	5.06	66.3	6.40	7.67	6	

Certified by : Approved Signatory : K.M. Ho Date : 20/9/2012

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MaterialLab

Our Ref. No. : 100440EN120710

Client : VW-VES (HK) Ltd.

Project : Contract No. EP/SP/58/08

Field Data Record (Stream Water)

Date : 14/09/2012 (p.m.) **Test No.** : 279

Tide State : MID-EBB **Weather** : SUNNY

Site Condition : NORMAL

Location	Time	Ambient Temp. °C	Depth of water m	Water Temp. °C	Salinity ppt	D.O. mg/L	D.O.S. %	Turbidity NTU	pH Unit	Suspended Solids Content, mg/L	Remarks
W1	12:12	30	0.5	28.7	12.3	6.38	88.2	6.63	7.85	7	
				28.6	12.3	6.35	87.8	6.58	7.87	7	
W2	12:29	29	0.1	29.1	9.4	8.67	118.6	16.0	8.06	19	
				29.0	9.4	8.50	116.9	14.2	8.06	18	
W3	12:44	29	0.3	30.1	7.1	8.95	123.2	4.87	8.09	5	
				30.0	7.2	8.87	122.0	5.05	8.09	6	
C1	13:19	30	0.1	31.3	0.1	8.18	111.1	53.0	8.82	36	
				31.3	0.1	8.14	110.6	52.5	8.80	34	
C2	13:04	30	0.1	28.3	3.3	8.99	117.4	4.52	8.23	5	
				28.3	3.3	8.85	115.6	5.11	8.22	5	

Certified by : Approved Signatory : K.M. Ho Date : 20/9/2012

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MaterialLab

Report No. : 100440WA121280(11)

TEST REPORT ON ANALYSIS OF WATER

Information Supplied by Client

Client	:	Veolia Water-Leighton-John Holland Joint Venture
Client's address	:	P.O. Box 45, General Post Office, Hong Kong
Project	:	STF Environmental Team and Independent Environmental Checker and EM&A Programme
Sample description	:	Twenty samples of stream water taken by the staff of MateriaLab on 27/08/2012
Client sample ID	:	1. C1 AE 2. C1 AE 3. C2 AE 4. C2 AE 5. W1 AE 6. W1 AE 7. W2 AE 8. W2 AE 9. W3 AE 10. W3 AE 11. C1 PF 12. C1 PF 13. C2 PF 14. C2 PF 15. W1 PF 16. W1 PF 17. W2 PF 18. W2 PF 19. W3 PF 20. W3 PF
Test required	:	Total suspended solids dried at 103°C – 105°C

Laboratory Information

Lab. sample ID	:	WA121280(11)/1 – WA121280(11)/20
Date of receipt of sample	:	27/08/2012
Date test commenced	:	28/08/2012
Date test completed	:	28/08/2012
Test method used	:	Total suspended solids dried at 103°C – 105°C *APHA 17ed. 2540D*

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MateriaLab

Report No. : 100440WA121280(11)

HKAS 015 TEST

Results:

Sample identification	Test parameters
	Total suspended solids dried at 103°C - 105°C, mg/L
1. C1 AE	32
2. C1 AE	35
3. C2 AE	3
4. C2 AE	3
5. W1 AE	2
6. W1 AE	3
7. W2 AE	11
8. W2 AE	12
9. W3 AE	4
10. W3 AE	5
11. C1 PF	14
12. C1 PF	9
13. C2 PF	3
14. C2 PF	4
15. W1 PF	36
16. W1 PF	31
17. W2 PF	25
18. W2 PF	25
19. W3 PF	16
20. W3 PF	14

Supervised by : Y. M. Chung

Certified by : _____
Approved Signatory : HO Kin Man, John
Manager – Chemistry Department

Date : 31/8/12

End of Report

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MaterialLab

Report No. : 100440WA121280(11)

Laboratory Duplicate Result

Sample ID	Original Result, mg/L	Duplicate Result, mg/L
W1 PF	30	32

Laboratory Blank

Sample ID	Result, mg/L	Detection Limit, mg/L
Pro Blank	<1	1

Laboratory QC sample

Sample ID	Assigned value, mg/L	Recovery, %
QC	50	101.8

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MaterialLab

Report No. : 100440WA121280(12)

TEST REPORT ON ANALYSIS OF WATER

Information Supplied by Client

Client	:	Veolia Water-Leighton-John Holland Joint Venture
Client's address	:	P.O. Box 45, General Post Office, Hong Kong
Project	:	STF Environmental Team and Independent Environmental Checker and EM&A Programme
Sample description	:	Twenty samples of stream water taken by the staff of MateriaLab on 29/08/2012
Client sample ID	:	1. C1 AE 2. C1 AE 3. C2 AE 4. C2 AE 5. W1 AE 6. W1 AE 7. W2 AE 8. W2 AE 9. W3 AE 10. W3 AE 11. C1 PF 12. C1 PF 13. C2 PF 14. C2 PF 15. W1 PF 16. W1 PF 17. W2 PF 18. W2 PF 19. W3 PF 20. W3 PF
Test required	:	Total suspended solids dried at 103°C – 105°C

Laboratory Information

Lab. sample ID	:	WA121280(12)/1 – WA121280(12)/20
Date of receipt of sample	:	29/08/2012
Date test commenced	:	30/08/2012
Date test completed	:	31/08/2012
Test method used	:	Total suspended solids dried at 103°C – 105°C *APHA 17ed. 2540D*

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MateriaLab

Report No. : 100440WA121280(12)

HKAS 016 TEST

Results:

Sample identification	Test parameters
	Total suspended solids dried at 103°C - 105°C, mg/L
1. C1 AE	32
2. C1 AE	27
3. C2 AE	8
4. C2 AE	8
5. W1 AE	22
6. W1 AE	21
7. W2 AE	17
8. W2 AE	15
9. W3 AE	16
10. W3 AE	17
11. C1 PF	11
12. C1 PF	11
13. C2 PF	19
14. C2 PF	17
15. W1 PF	35
16. W1 PF	36
17. W2 PF	33
18. W2 PF	34
19. W3 PF	8
20. W3 PF	7

Supervised by : Y. M. Chung

Certified by : _____
Approved Signatory : HO Kin Man, John
Manager – Chemistry Department

Date : 6/9/12

End of Report

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MateriaLab

Report No. : 100440WA121280(12)

Laboratory Duplicate Result

Sample ID	Original Result, mg/L	Duplicate Result, mg/L
W2 AE	14	15

Laboratory Blank

Sample ID	Result, mg/L	Detection Limit, mg/L
Pro Blank	<1	1

Laboratory QC sample

Sample ID	Assigned value, mg/L	Recovery, %
QC	50	98.6

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MateriaLab

Report No. : 100440WA121280(13)

TEST REPORT ON ANALYSIS OF WATER

Information Supplied by Client

Client	:	Veolia Water-Leighton-John Holland Joint Venture
Client's address	:	P.O. Box 45, General Post Office, Hong Kong
Project	:	STF Environmental Team and Independent Environmental Checker and EM&A Programme
Sample description	:	Twenty samples of stream water taken by the staff of MateriaLab on 31/08/2012

Client sample ID :

1. C1 AF	11. C1 PE
2. C1 AF	12. C1 PE
3. C2 AF	13. C2 PE
4. C2 AF	14. C2 PE
5. W1 AF	15. W1 PE
6. W1 AF	16. W1 PE
7. W2 AF	17. W2 PE
8. W2 AF	18. W2 PE
9. W3 AF	19. W3 PE
10. W3 AF	20. W3 PE

Test required : Total suspended solids dried at 103°C – 105°C

Laboratory Information

Lab. sample ID	:	WA121280(13)/1 – WA121280(13)/20
Date of receipt of sample	:	31/08/2012
Date test commenced	:	03/09/2012
Date test completed	:	03/09/2012
Test method used	:	Total suspended solids dried at 103°C – 105°C *APHA 17ed. 2540D*

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MateriaLab

Report No. : 100440WA121280(13)

HKAS TEST

Results:

Sample identification	Test parameters
	Total suspended solids dried at 103°C - 105°C, mg/L
1. C1 AF	6
2. C1 AF	5
3. C2 AF	8
4. C2 AF	7
5. W1 AF	6
6. W1 AF	6
7. W2 AF	11
8. W2 AF	12
9. W3 AF	14
10. W3 AF	11
11. C1 PE	6
12. C1 PE	8
13. C2 PE	5
14. C2 PE	5
15. W1 PE	8
16. W1 PE	7
17. W2 PE	23
18. W2 PE	26
19. W3 PE	21
20. W3 PE	18

Supervised by : Y. M. Chung

Certified by : _____
Approved Signatory : HO Kin Man, John
Manager – Chemistry Department

Date : 7/9/2012

End of Report

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MateriaLab

Report No. : 100440WA121280(13)

Laboratory Duplicate Result

Sample ID	Original Result, mg/L	Duplicate Result, mg/L
W3 AF	14	14

Laboratory Blank

Sample ID	Result, mg/L	Detection Limit, mg/L
Pro Blank	<1	1

Laboratory QC sample

Sample ID	Assigned value, mg/L	Recovery, %
QC	50	102.4

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MaterialLab

Report No. : 100440WA121465

HOKLAS 015 TEST

TEST REPORT ON ANALYSIS OF WATER

Information Supplied by Client

Client	:	Veolia Water-Leighton-John Holland Joint Venture
Client's address	:	P.O. Box 45, General Post Office, Hong Kong
Project	:	STF Environmental Team and Independent Environmental Checker and EM&A Programme
Sample description	:	Twenty samples of stream water taken by the staff of MateriaLab on 03/09/2012
Client sample ID	:	1. C1 AF 2. C1 AF 3. C2 AF 4. C2 AF 5. W1 AF 6. W1 AF 7. W2 AF 8. W2 AF 9. W3 AF 10. W3 AF 11. C1 PE 12. C1 PE 13. C2 PE 14. C2 PE 15. W1 PE 16. W1 PE 17. W2 PE 18. W2 PE 19. W3 PE 20. W3 PE
Test required	:	Total suspended solids dried at 103°C – 105°C

Laboratory Information

Lab. sample ID	:	WA121465/1 – WA121465/20
Date of receipt of sample	:	03/09/2012
Date test commenced	:	04/09/2012
Date test completed	:	04/09/2012
Test method used	:	Total suspended solids dried at 103°C – 105°C *APHA 17ed. 2540D*

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.
Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MaterialLab

Report No. : 100440WA121465

HKAS HOKLAS 016 TEST

Results:

Sample identification	Test parameters
	Total suspended solids dried at 103°C - 105°C, mg/L
1. C1 AF	72
2. C1 AF	85
3. C2 AF	8
4. C2 AF	7
5. W1 AF	7
6. W1 AF	7
7. W2 AF	12
8. W2 AF	14
9. W3 AF	13
10. W3 AF	11
11. C1 PE	12
12. C1 PE	13
13. C2 PE	2
14. C2 PE	3
15. W1 PE	11
16. W1 PE	11
17. W2 PE	14
18. W2 PE	13
19. W3 PE	3
20. W3 PE	3

Supervised by : Y. M. Chung

Certified by :
Approved Signatory : HO Kin Man, John
Manager – Chemistry Department

Date : 7/9/2012

End of Report

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MaterialLab

Report No. : 100440WA121465

Laboratory Duplicate Result

Sample ID	Original Result, mg/L	Duplicate Result, mg/L
W2 PE	13	12

Laboratory Blank

Sample ID	Result, mg/L	Detection Limit, mg/L
Pro Blank	<1	1

Laboratory QC sample

Sample ID	Assigned value, mg/L	Recovery, %
QC	50	99.2

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MateriaLab

Report No. : 100440WA121465(1)

TEST REPORT ON ANALYSIS OF WATER

Information Supplied by Client

Client	:	Veolia Water-Leighton-John Holland Joint Venture
Client's address	:	P.O. Box 45, General Post Office, Hong Kong
Project	:	STF Environmental Team and Independent Environmental Checker and EM&A Programme
Sample description	:	Twenty samples of stream water taken by the staff of MateriaLab on 05/09/2012
Client sample ID	:	1. C1 AF 2. C1 AF 3. C2 AF 4. C2 AF 5. W1 AF 6. W1 AF 7. W2 AF 8. W2 AF 9. W3 AF 10. W3 AF 11. C1 PE 12. C1 PE 13. C2 PE 14. C2 PE 15. W1 PE 16. W1 PE 17. W2 PE 18. W2 PE 19. W3 PE 20. W3 PE
Test required	:	Total suspended solids dried at 103°C – 105°C

Laboratory Information

Lab. sample ID	:	WA121465(1)/1 – WA121465(1)/20
Date of receipt of sample	:	05/09/2012
Date test commenced	:	06/09/2012
Date test completed	:	07/09/2012
Test method used	:	Total suspended solids dried at 103°C – 105°C *APHA 17ed. 2540D*

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MaterialLab

Report No. : 100440WA121465(1)

HKAS 015 Test

Results:

Sample identification	Test parameters
	Total suspended solids dried at 103°C - 105°C, mg/L
1. C1 AF	1
2. C1 AF	2
3. C2 AF	5
4. C2 AF	5
5. W1 AF	22
6. W1 AF	17
7. W2 AF	19
8. W2 AF	19
9. W3 AF	14
10. W3 AF	14
11. C1 PE	120
12. C1 PE	120
13. C2 PE	6
14. C2 PE	4
15. W1 PE	7
16. W1 PE	10
17. W2 PE	19
18. W2 PE	17
19. W3 PE	5
20. W3 PE	4

Supervised by : Y. M. Chung

Certified by :
Approved Signatory : HO Kin Man, John
Manager – Chemistry Department

Date : 6/9/2012

End of Report

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MaterialLab

Report No. : 100440WA121465(1)

Laboratory Duplicate Result

Sample ID	Original Result, mg/L	Duplicate Result, mg/L
W2 AF	20	19

Laboratory Blank

Sample ID	Result, mg/L	Detection Limit, mg/L
Pro Blank	<1	1

Laboratory QC sample

Sample ID	Assigned value, mg/L	Recovery, %
QC	50	100

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MateriaLab

Report No. : 100440WA121465(2)

TEST REPORT ON ANALYSIS OF WATER

Information Supplied by Client

Client	:	Veolia Water-Leighton-John Holland Joint Venture
Client's address	:	P.O. Box 45, General Post Office, Hong Kong
Project	:	STF Environmental Team and Independent Environmental Checker and EM&A Programme
Sample description	:	Twenty samples of stream water taken by the staff of MateriaLab on 07/09/2012
Client sample ID	:	1. C1 AF 2. C1 AF 3. C2 AF 4. C2 AF 5. W1 AF 6. W1 AF 7. W2 AF 8. W2 AF 9. W3 AF 10. W3 AF 11. C1 PE 12. C1 PE 13. C2 PE 14. C2 PE 15. W1 PE 16. W1 PE 17. W2 PE 18. W2 PE 19. W3 PE 20. W3 PE
Test required	:	Total suspended solids dried at 103°C – 105°C

Laboratory Information

Lab. sample ID	:	WA121465(2)/1 – WA121465(2)/20
Date of receipt of sample	:	07/09/2012
Date test commenced	:	09/09/2012
Date test completed	:	11/09/2012
Test method used	:	Total suspended solids dried at 103°C – 105°C *APHA 17ed. 2540D*

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.
Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MaterialLab

Report No. : 100440WA121465(2)

Results:

Sample identification	Test parameters
	Total suspended solids dried at 103°C - 105°C, mg/L
1. C1 AF	5
2. C1 AF	5
3. C2 AF	11
4. C2 AF	9
5. W1 AF	20
6. W1 AF	18
7. W2 AF	24
8. W2 AF	23
9. W3 AF	15
10. W3 AF	15
11. C1 PE	5
12. C1 PE	5
13. C2 PE	5
14. C2 PE	7
15. W1 PE	16
16. W1 PE	12
17. W2 PE	36
18. W2 PE	28
19. W3 PE	7
20. W3 PE	7

Supervised by : Y. M. Chung

Certified by : _____
Approved Signatory : HO Kin Man, John
Manager – Chemistry Department

Date : 13/9/2012

End of Report

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MaterialLab

Report No. : 100440WA121465(2)

Laboratory Duplicate Result

Sample ID	Original Result, mg/L	Duplicate Result, mg/L
W2 AF	20	25

Laboratory Blank

Sample ID	Result, mg/L	Detection Limit, mg/L
Pro Blank	<1	1

Laboratory QC sample

Sample ID	Assigned value, mg/L	Recovery, %
QC	50	100.2

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MaterialLab

Report No. : 100440WA121465(3)

TEST REPORT ON ANALYSIS OF WATER

Information Supplied by Client

Client	:	Veolia Water-Leighton-John Holland Joint Venture
Client's address	:	P.O. Box 45, General Post Office, Hong Kong
Project	:	STF Environmental Team and Independent Environmental Checker and EM&A Programme
Sample description	:	Twenty samples of stream water taken by the staff of MateriaLab on 10/09/2012
Client sample ID	:	1. C1 AE 2. C1 AE 3. C2 AE 4. C2 AE 5. W1 AE 6. W1 AE 7. W2 AE 8. W2 AE 9. W3 AE 10. W3 AE 11. C1 PF 12. C1 PF 13. C2 PF 14. C2 PF 15. W1 PF 16. W1 PF 17. W2 PF 18. W2 PF 19. W3 PF 20. W3 PF
Test required	:	Total suspended solids dried at 103°C – 105°C

Laboratory Information

Lab. sample ID	:	WA121465(3)/1 – WA121465(3)/20
Date of receipt of sample	:	10/09/2012
Date test commenced	:	11/09/2012
Date test completed	:	12/09/2012
Test method used	:	Total suspended solids dried at 103°C – 105°C *APHA 17ed. 2540D*

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.
Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MaterialLab

Report No. : 100440WA121465(3)

HOKLAS 076 TEST

Results:

Sample identification	Test parameters
	Total suspended solids dried at 103°C - 105°C, mg/L
1. C1 AE	4
2. C1 AE	4
3. C2 AE	5
4. C2 AE	6
5. W1 AE	3
6. W1 AE	3
7. W2 AE	14
8. W2 AE	11
9. W3 AE	5
10. W3 AE	2
11. C1 PF	3
12. C1 PF	4
13. C2 PF	4
14. C2 PF	3
15. W1 PF	26
16. W1 PF	28
17. W2 PF	36
18. W2 PF	40
19. W3 PF	13
20. W3 PF	15

Supervised by : Y. M. Chung

Certified by : _____
Approved Signatory : HO Kin Man, John
Manager – Chemistry Department

Date : 13/9/2012

End of Report

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MaterialLab

Report No. : 100440WA121465(3)

Laboratory Duplicate Result

Sample ID	Original Result, mg/L	Duplicate Result, mg/L
W1 PF	28	28

Laboratory Blank

Sample ID	Result, mg/L	Detection Limit, mg/L
Pro Blank	<1	1

Laboratory QC sample

Sample ID	Assigned value, mg/L	Recovery, %
QC	50	99.8

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MateriaLab

Report No. : 100440WA121465(4)

TEST REPORT ON ANALYSIS OF WATER

Information Supplied by Client

Client	:	Veolia Water-Leighton-John Holland Joint Venture
Client's address	:	P.O. Box 45, General Post Office, Hong Kong
Project	:	STF Environmental Team and Independent Environmental Checker and EM&A Programme
Sample description	:	Twenty samples of stream water taken by the staff of MateriaLab on 12/09/2012
Client sample ID	:	1. C1 AE 2. C1 AE 3. C2 AE 4. C2 AE 5. W1 AE 6. W1 AE 7. W2 AE 8. W2 AE 9. W3 AE 10. W3 AE 11. C1 PF 12. C1 PF 13. C2 PF 14. C2 PF 15. W1 PF 16. W1 PF 17. W2 PF 18. W2 PF 19. W3 PF 20. W3 PF
Test required	:	Total suspended solids dried at 103°C – 105°C

Laboratory Information

Lab. sample ID	:	WA121465(4)/1 – WA121465(4)/20
Date of receipt of sample	:	12/09/2012
Date test commenced	:	13/09/2012
Date test completed	:	13/09/2012
Test method used	:	Total suspended solids dried at 103°C – 105°C *APHA 17ed. 2540D*

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.
Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MaterialLab

Report No. : 100440WA121465(4)

HKAS 015 TEST

Results:

Sample identification	Test parameters
	Total suspended solids dried at 103°C - 105°C, mg/L
1. C1 AE	140
2. C1 AE	150
3. C2 AE	4
4. C2 AE	4
5. W1 AE	44
6. W1 AE	43
7. W2 AE	13
8. W2 AE	16
9. W3 AE	5
10. W3 AE	8
11. C1 PF	60
12. C1 PF	73
13. C2 PF	4
14. C2 PF	5
15. W1 PF	12
16. W1 PF	13
17. W2 PF	34
18. W2 PF	33
19. W3 PF	17
20. W3 PF	18

Supervised by : Y. M. Chung

Certified by : _____
Approved Signatory : HO Kin Man, John
Manager – Chemistry Department

Date : 18/9/2012

End of Report

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MateriaLab

Report No. : 100440WA121465(4)

Laboratory Duplicate Result

Sample ID	Original Result, mg/L	Duplicate Result, mg/L
W1 AE	43	43

Laboratory Blank

Sample ID	Result, mg/L	Detection Limit, mg/L
Pro Blank	<1	1

Laboratory QC sample

Sample ID	Assigned value, mg/L	Recovery, %
QC	50	97.2

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MateriaLab

Report No. : 100440WA121465(5)

TEST REPORT ON ANALYSIS OF WATER

Information Supplied by Client

Client	:	Veolia Water-Leighton-John Holland Joint Venture
Client's address	:	P.O. Box 45, General Post Office, Hong Kong
Project	:	STF Environmental Team and Independent Environmental Checker and EM&A Programme
Sample description	:	Twenty samples of stream water taken by the staff of MateriaLab on 14/09/2012
Client sample ID	:	1. C1 AF 2. C1 AF 3. C2 AF 4. C2 AF 5. W1 AF 6. W1 AF 7. W2 AF 8. W2 AF 9. W3 AF 10. W3 AF 11. C1 PE 12. C1 PE 13. C2 PE 14. C2 PE 15. W1 PE 16. W1 PE 17. W2 PE 18. W2 PE 19. W3 PE 20. W3 PE
Test required	:	Total suspended solids dried at 103°C – 105°C

Laboratory Information

Lab. sample ID	:	WA121465(5)/1 – WA121465(5)/20
Date of receipt of sample	:	14/09/2012
Date test commenced	:	17/09/2012
Date test completed	:	17/09/2012
Test method used	:	Total suspended solids dried at 103°C – 105°C *APHA 17ed. 2540D*

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.
Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MateriaLab

Report No. : 100440WA121465(5)

HKAS HOKLAS 015 TEST

Results:

Sample identification	Test parameters
	Total suspended solids dried at 103°C - 105°C, mg/L
1. C1 AF	3
2. C1 AF	2
3. C2 AF	7
4. C2 AF	6
5. W1 AF	14
6. W1 AF	13
7. W2 AF	11
8. W2 AF	11
9. W3 AF	11
10. W3 AF	17
11. C1 PE	36
12. C1 PE	34
13. C2 PE	5
14. C2 PE	5
15. W1 PE	7
16. W1 PE	7
17. W2 PE	19
18. W2 PE	18
19. W3 PE	5
20. W3 PE	6

Supervised by : Y. M. Chung

Certified by : _____
Approved Signatory : HO Kin Man, John
Manager – Chemistry Department

Date : 2019/2012

End of Report

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
Tuen Mun, N.T.,
Hong Kong.

Tel : +852 2450 8233
Fax : +852 2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

MateriaLab

Report No. : 100440WA121465(5)

Laboratory Duplicate Result

Sample ID	Original Result, mg/L	Duplicate Result, mg/L
W2 PE	18	18

Laboratory Blank

Sample ID	Result, mg/L	Detection Limit, mg/L
Pro Blank	<1	1

Laboratory QC sample

Sample ID	Assigned value, mg/L	Recovery, %
QC	50	100.6

Note : This report refers only to the sample(s) tested.

FUGRO TECHNICAL SERVICES LIMITED
MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Telephone : +852-2450 8233
Telefax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

MateriaLab

Appendix 4

Graphical Presentation of Monitoring Data

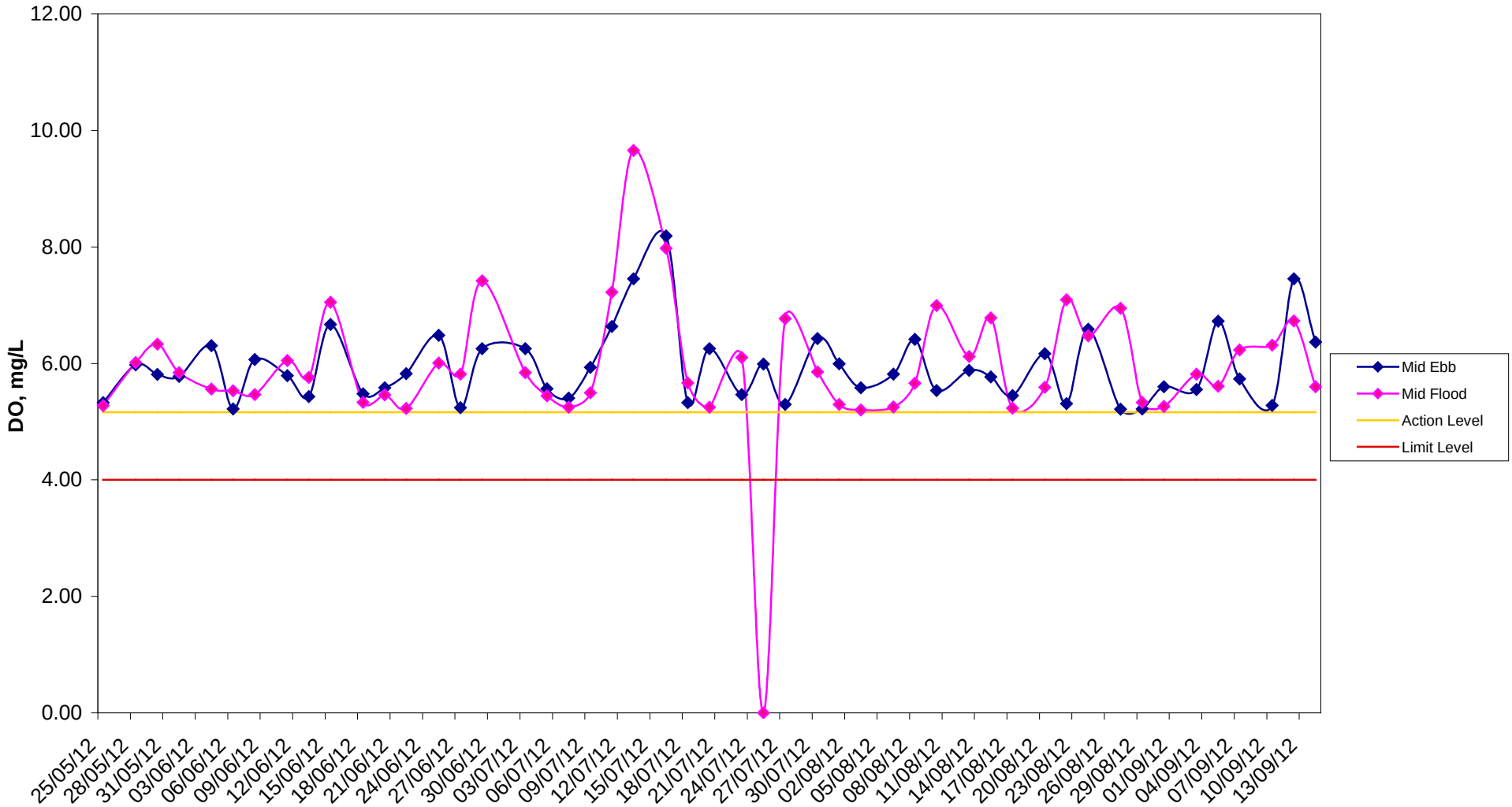
FUGRO TECHNICAL SERVICES LIMITED

MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.

Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

MateriaLab

W1 - Dissolved Oxygen Content



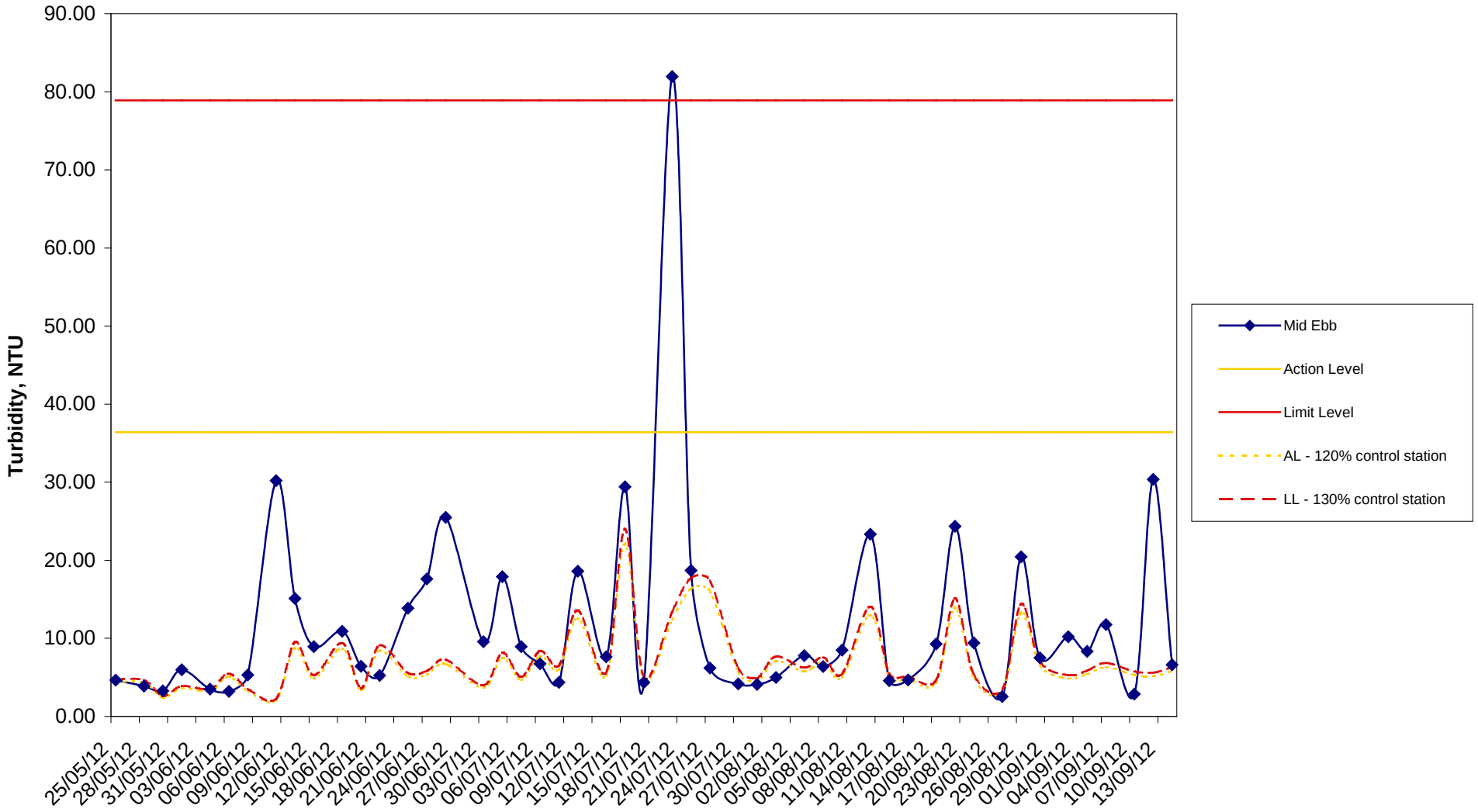
FUGRO TECHNICAL SERVICES LIMITED

MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.

Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

MateriaLab

W1 - Turbidity (Mid-Ebb)



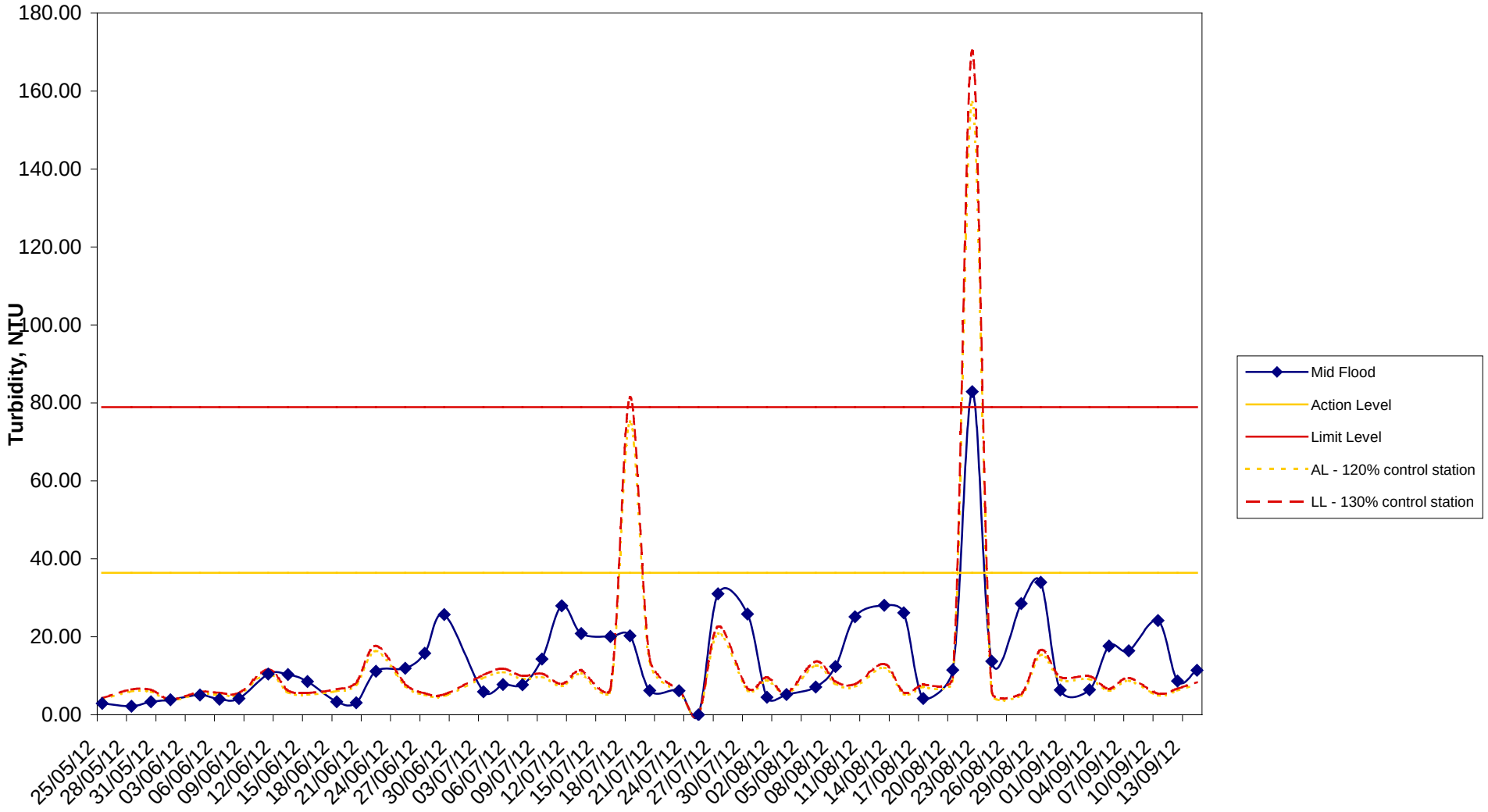
FUGRO TECHNICAL SERVICES LIMITED

MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.

Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

MateriaLab

W1 - Turbidity (Mid-Flood)



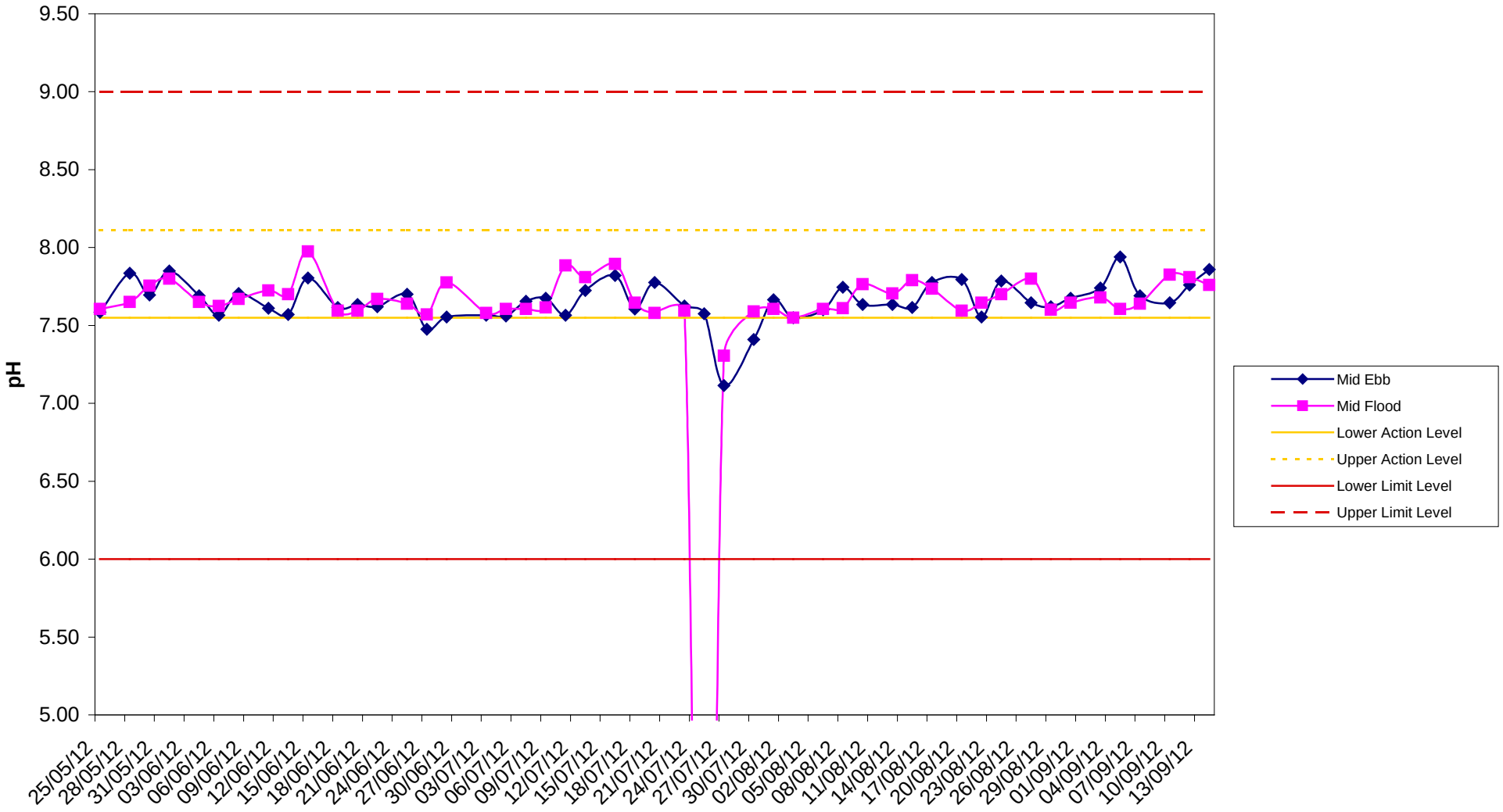
FUGRO TECHNICAL SERVICES LIMITED

MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.

Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

MateriaLab

W1 - pH



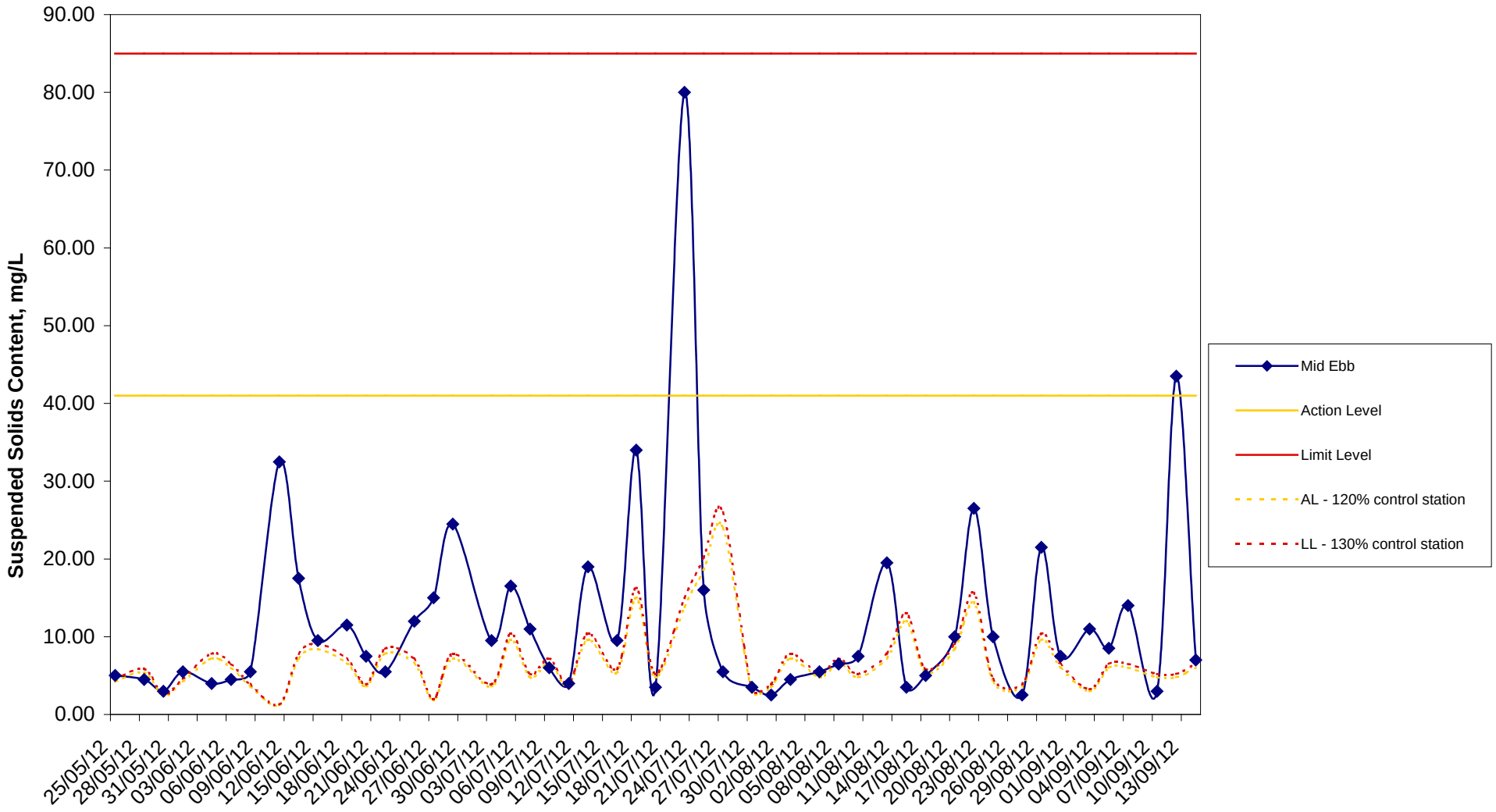
FUGRO TECHNICAL SERVICES LIMITED

MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.

Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

MateriaLab

W1 - Suspended Solid Content (Mid-Ebb)



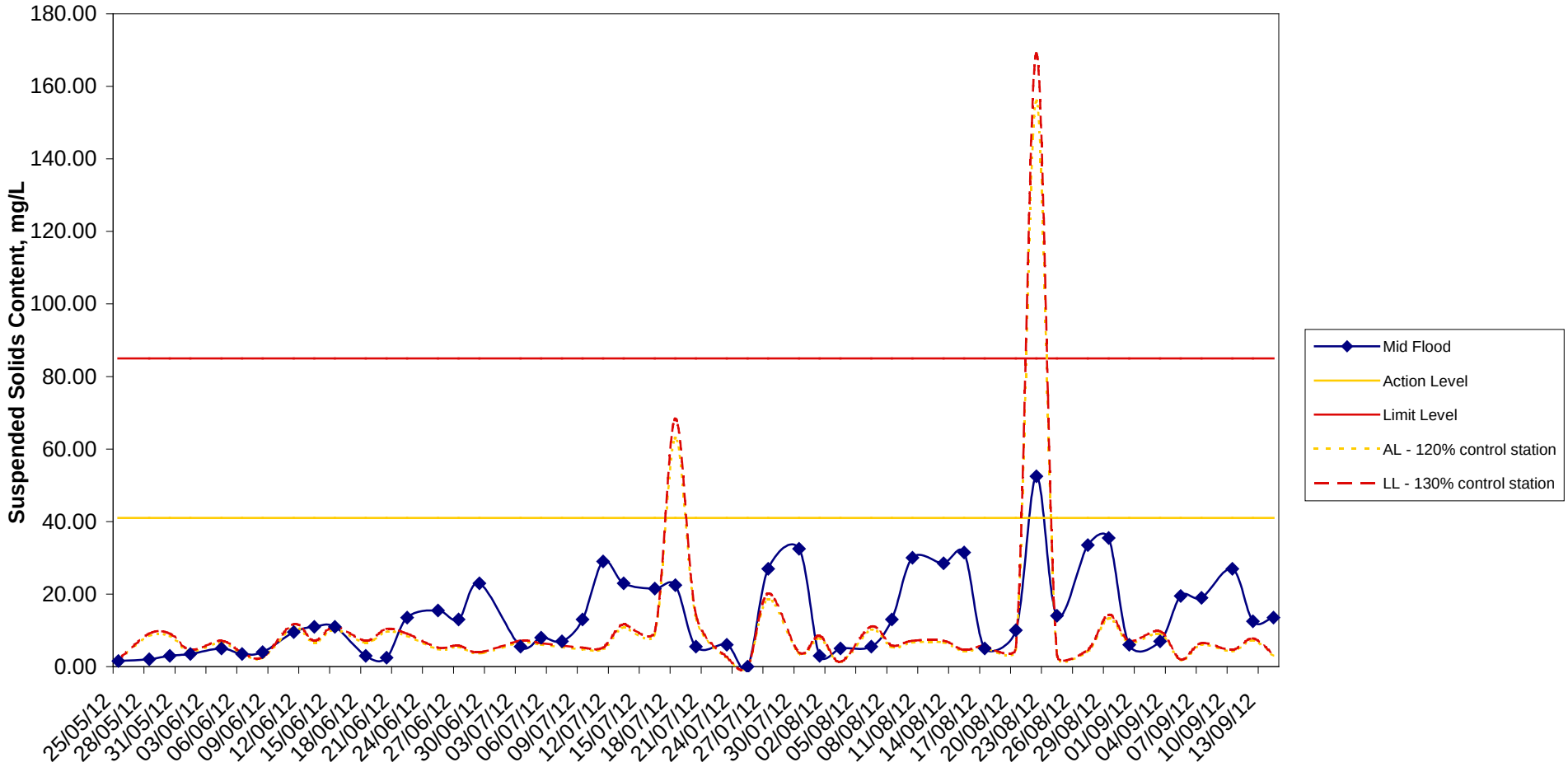
FUGRO TECHNICAL SERVICES LIMITED

MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.

Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

MateriaLab

W1 - Suspended Solids Content (Mid-Flood)

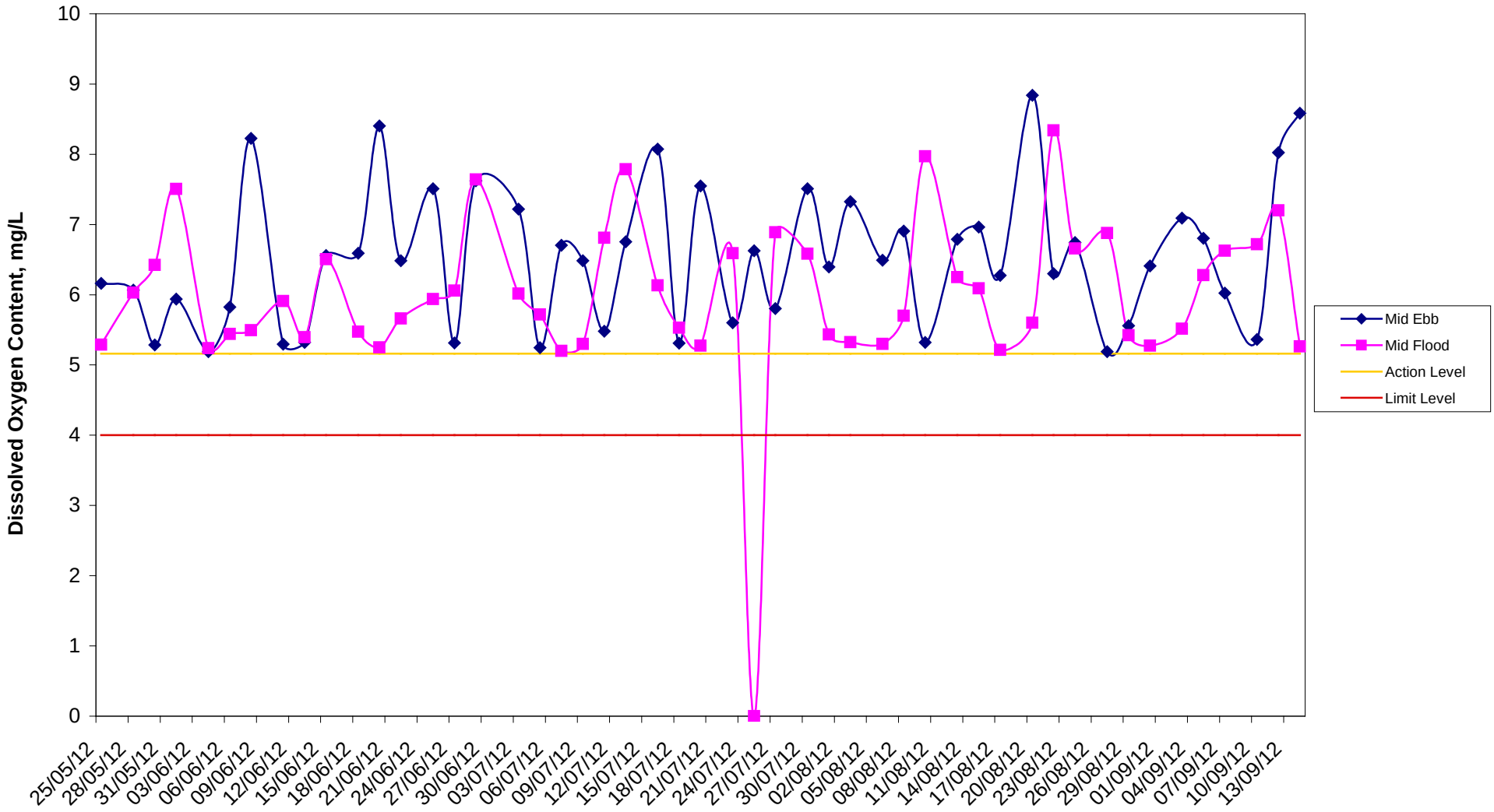


FUGRO TECHNICAL SERVICES LIMITED

MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.

Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

W2 - Dissolved Oxygen Content



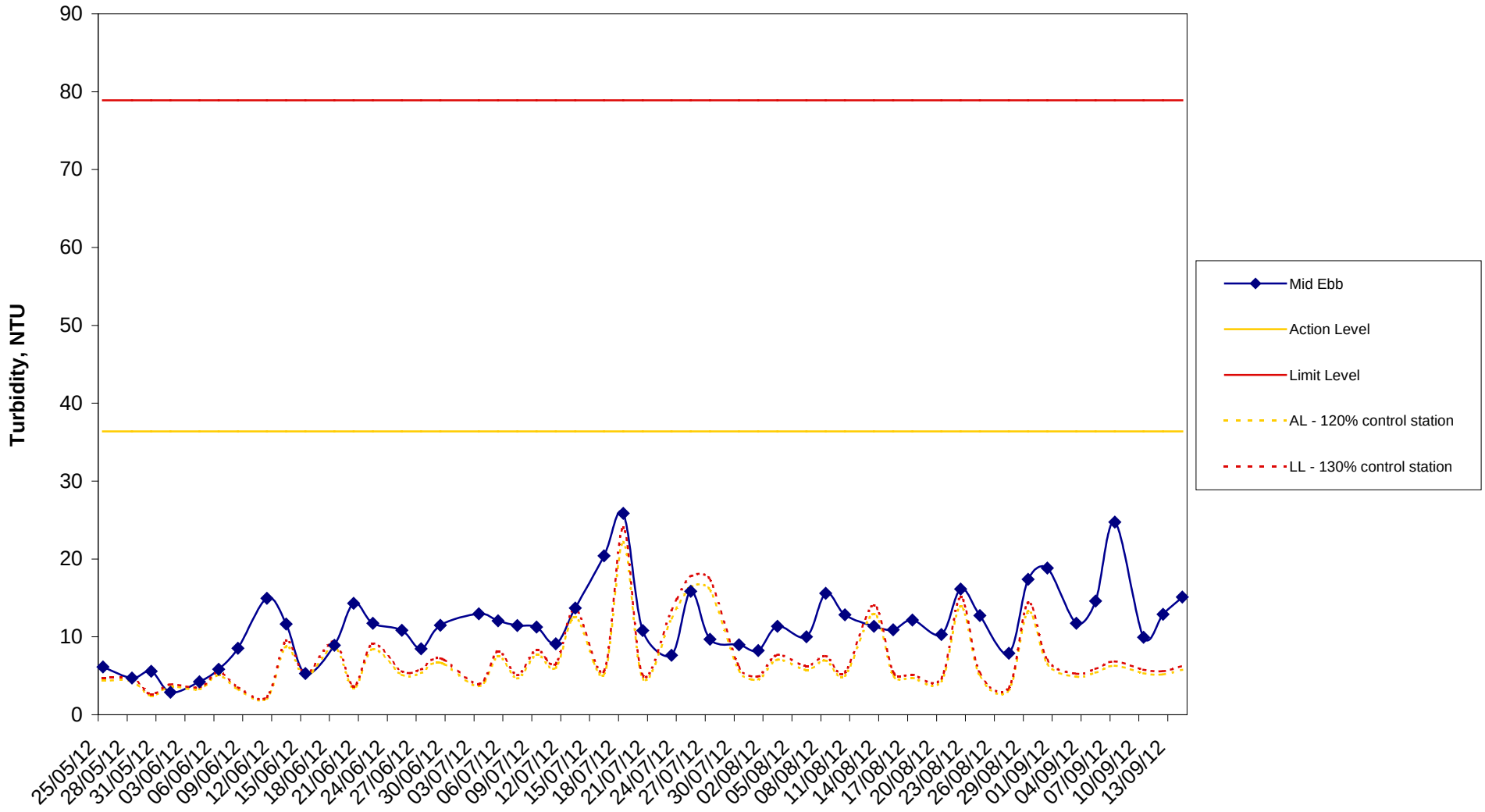
FUGRO TECHNICAL SERVICES LIMITED

MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.

Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

MateriaLab

W2 - Turbidity (Mid-Ebb)



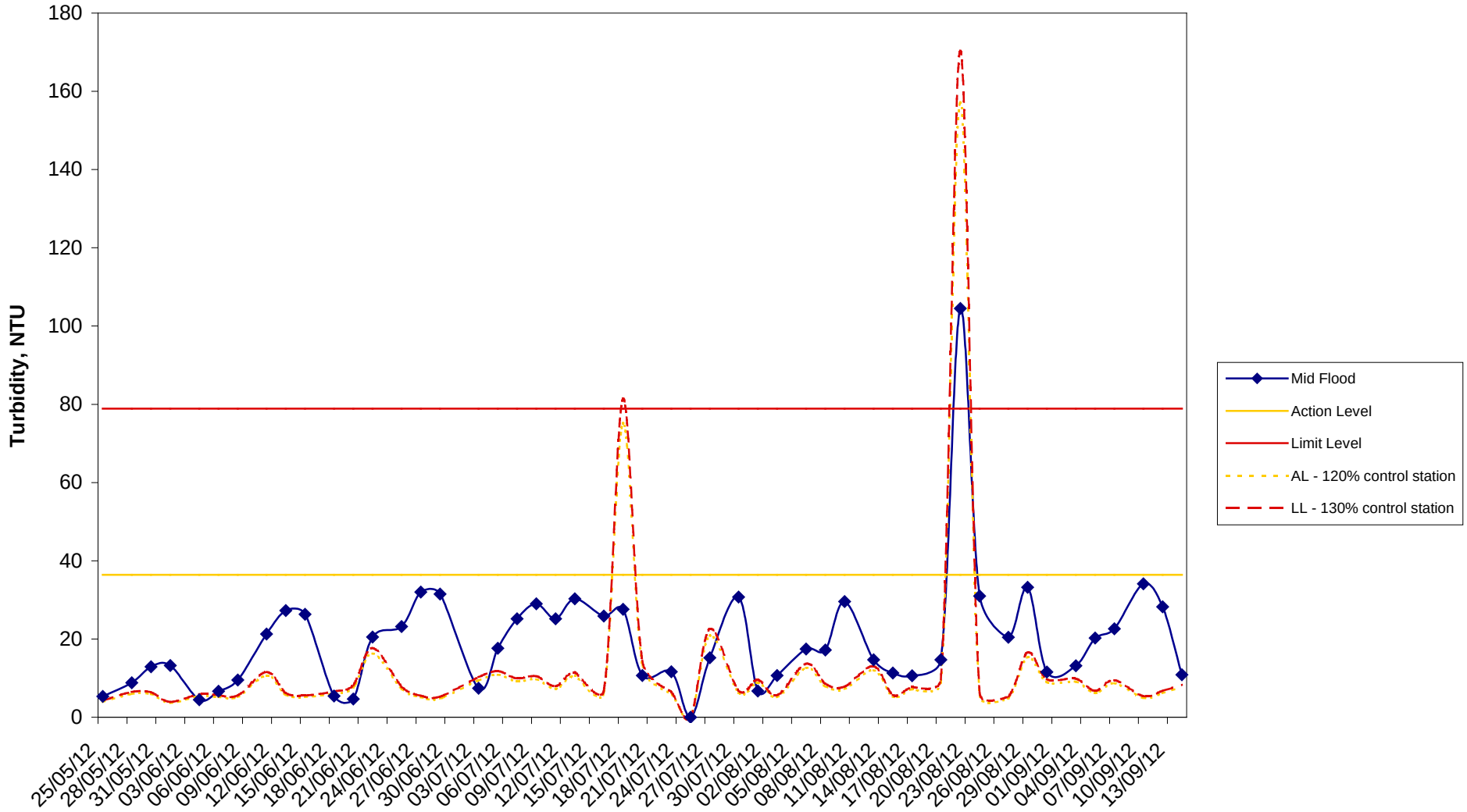
FUGRO TECHNICAL SERVICES LIMITED

MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.

Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

MateriaLab

W2 - Turbidity (Mid-Flood)



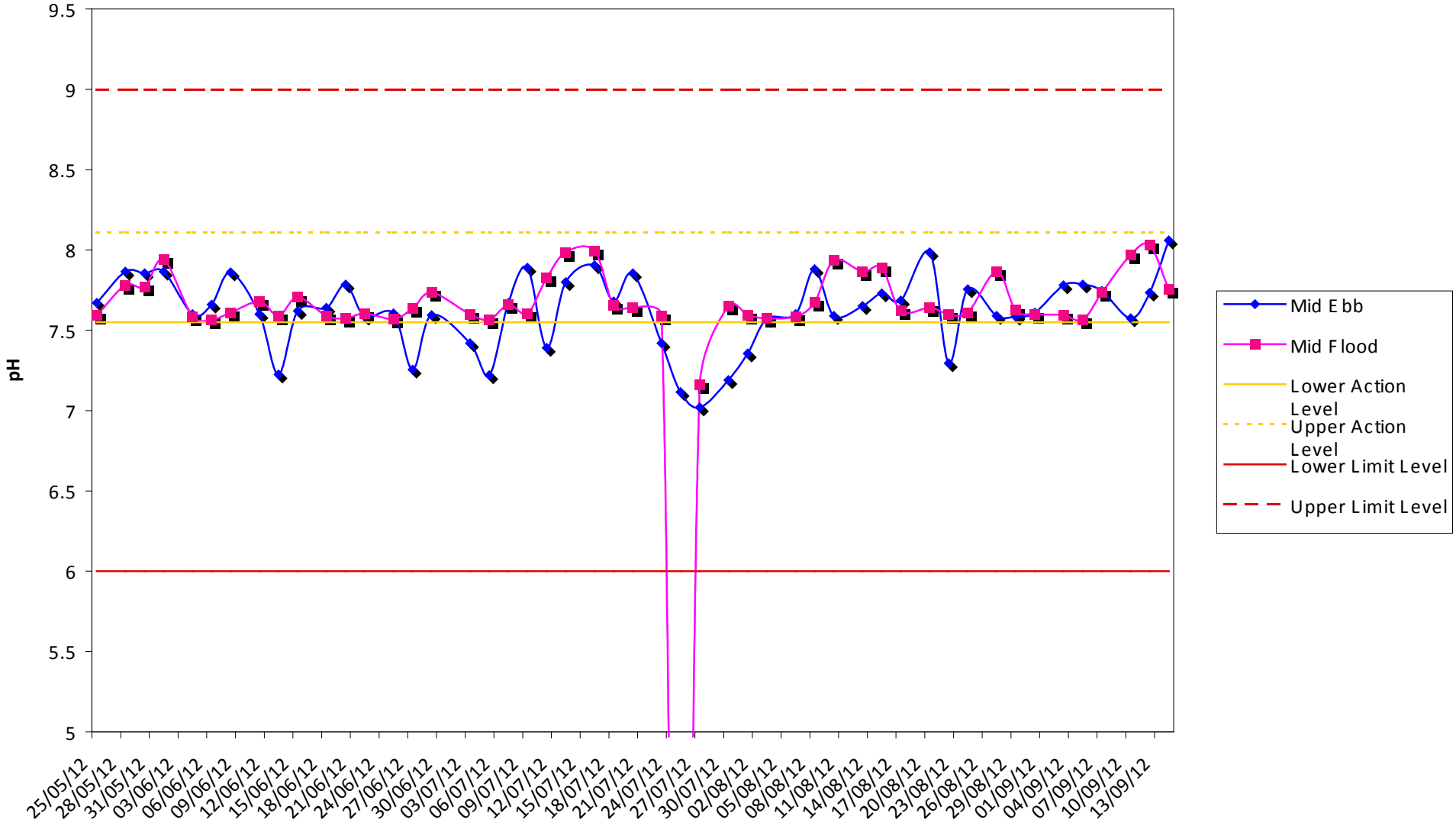
FUGRO TECHNICAL SERVICES LIMITED

MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.

Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

MateriaLab

W2 - pH



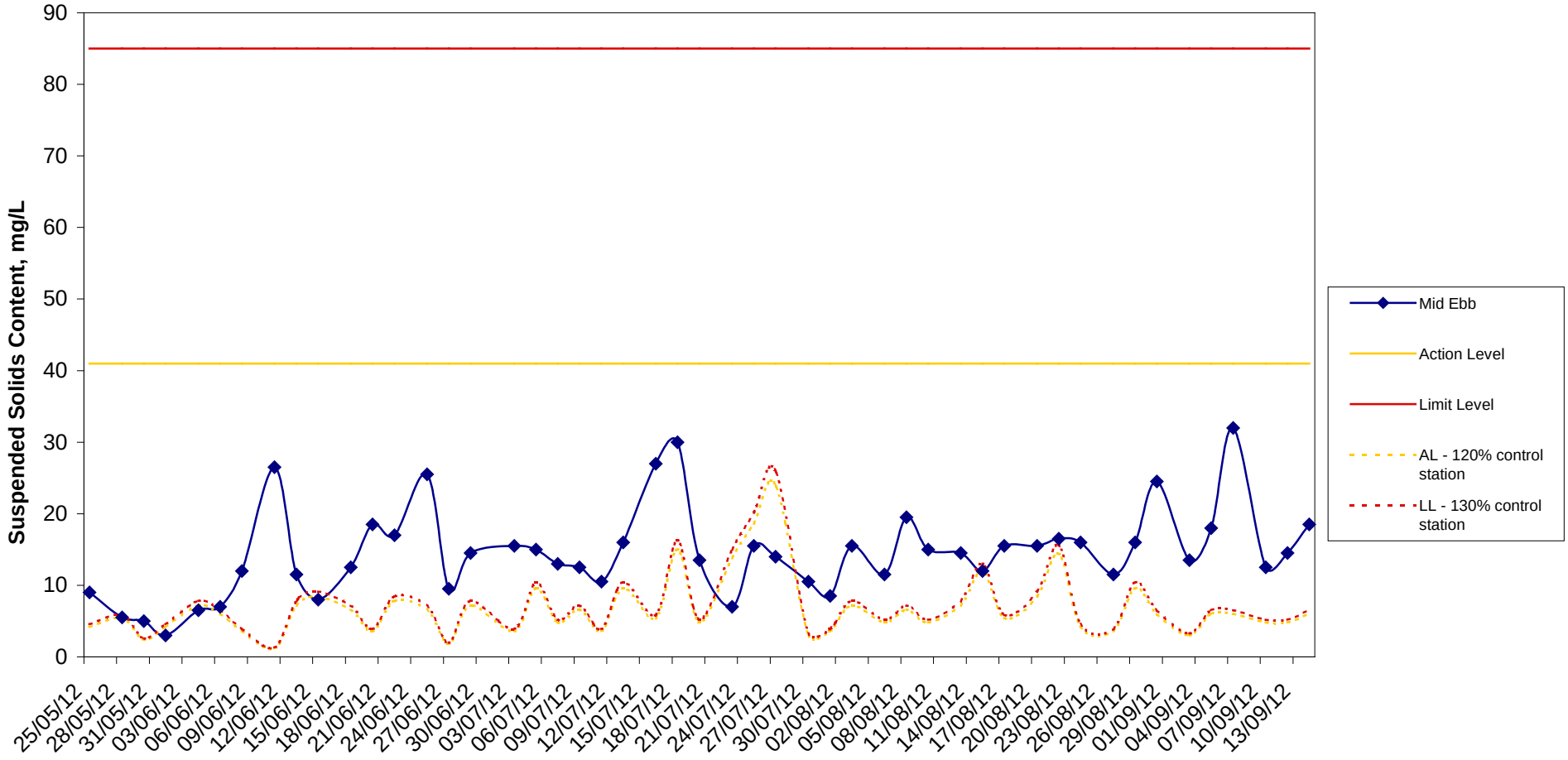
FUGRO TECHNICAL SERVICES LIMITED

MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.

Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

MateriaLab

W2 - Suspended Solids Content (Mid-Ebb)



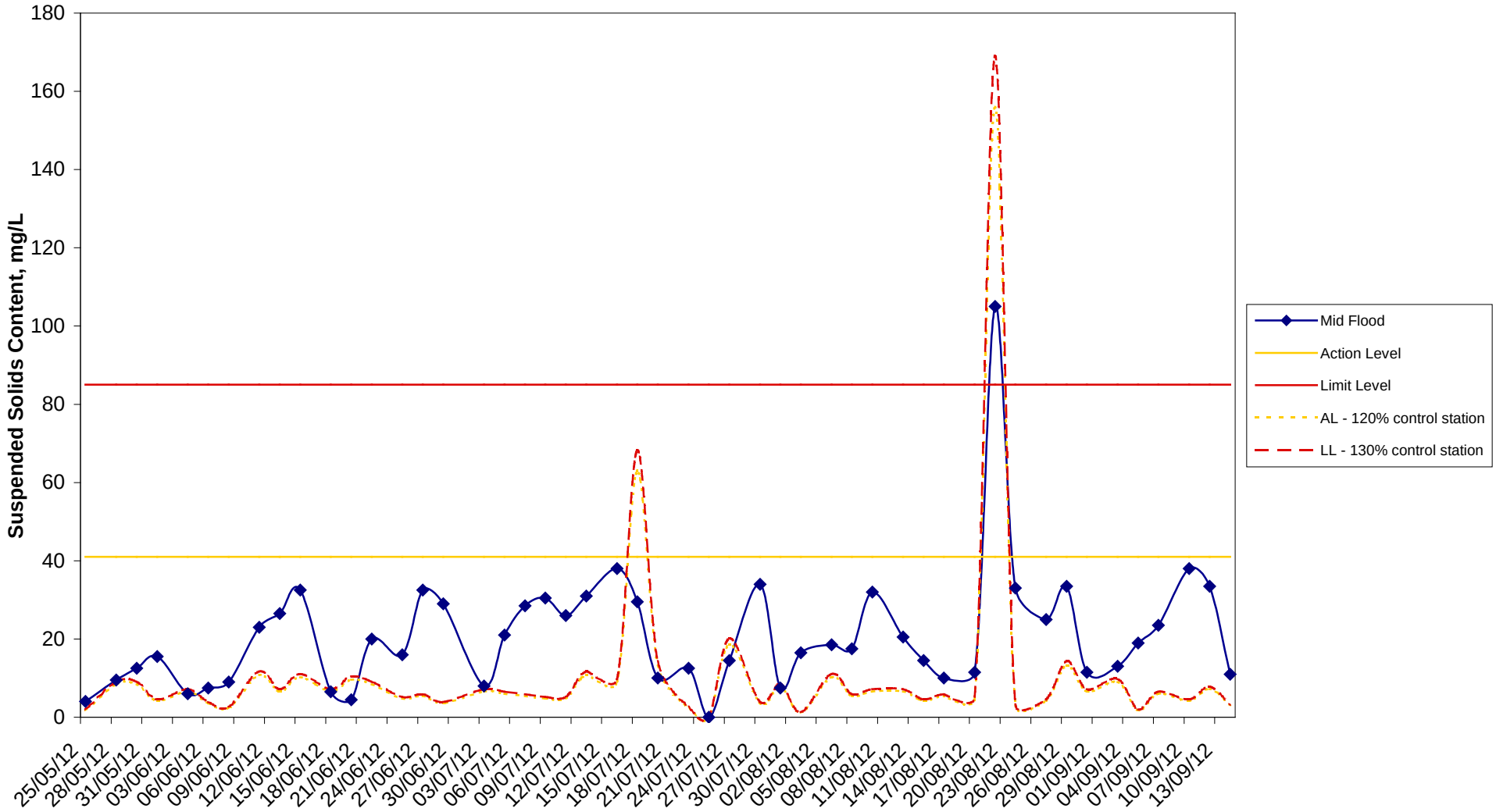
FUGRO TECHNICAL SERVICES LIMITED

MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.

Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

MateriaLab

W2 - Suspended Solids Content (Mid-Flood)



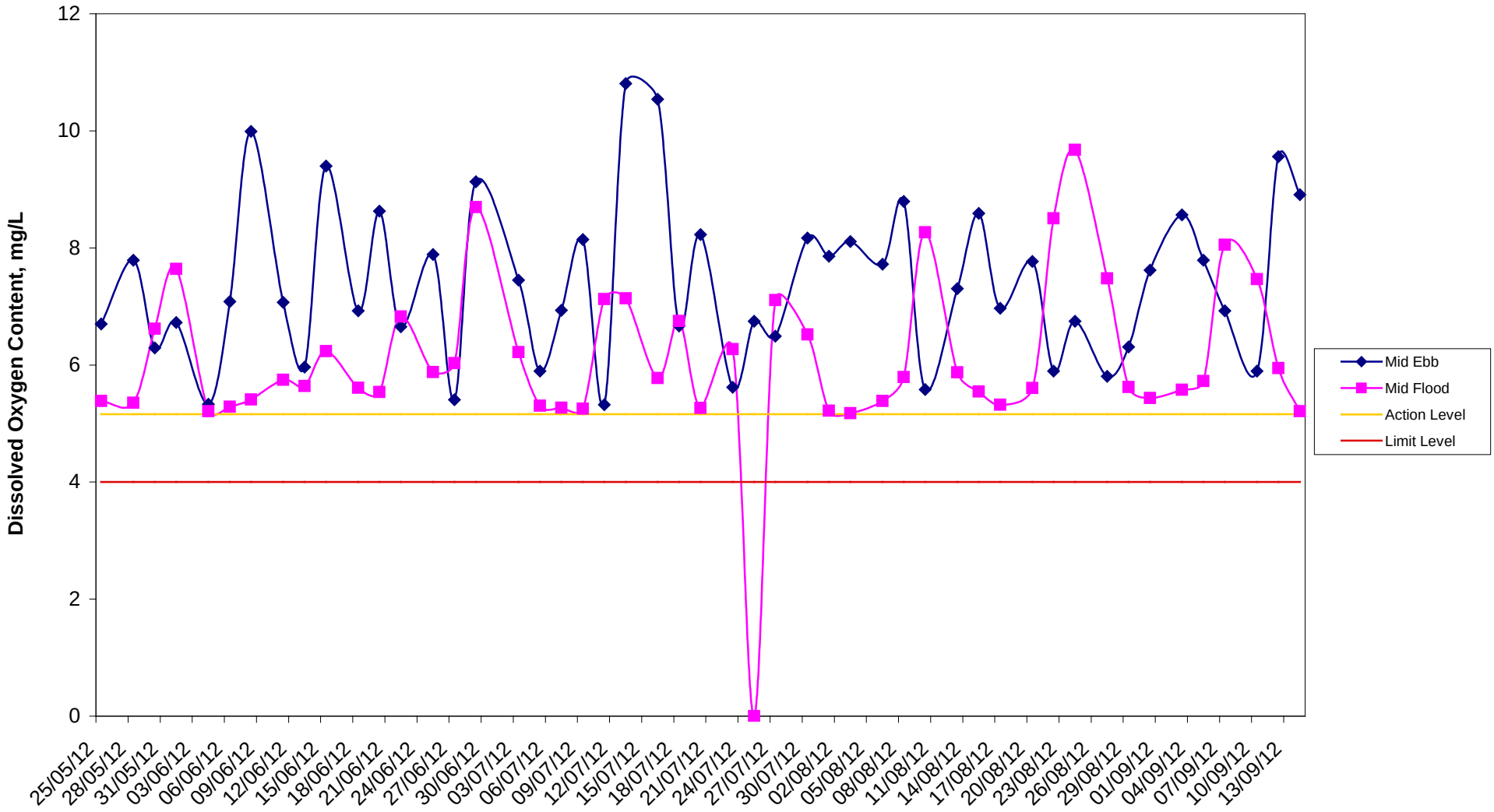
FUGRO TECHNICAL SERVICES LIMITED

MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.

Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

MateriaLab

W3 - Dissolved Oxygen Content



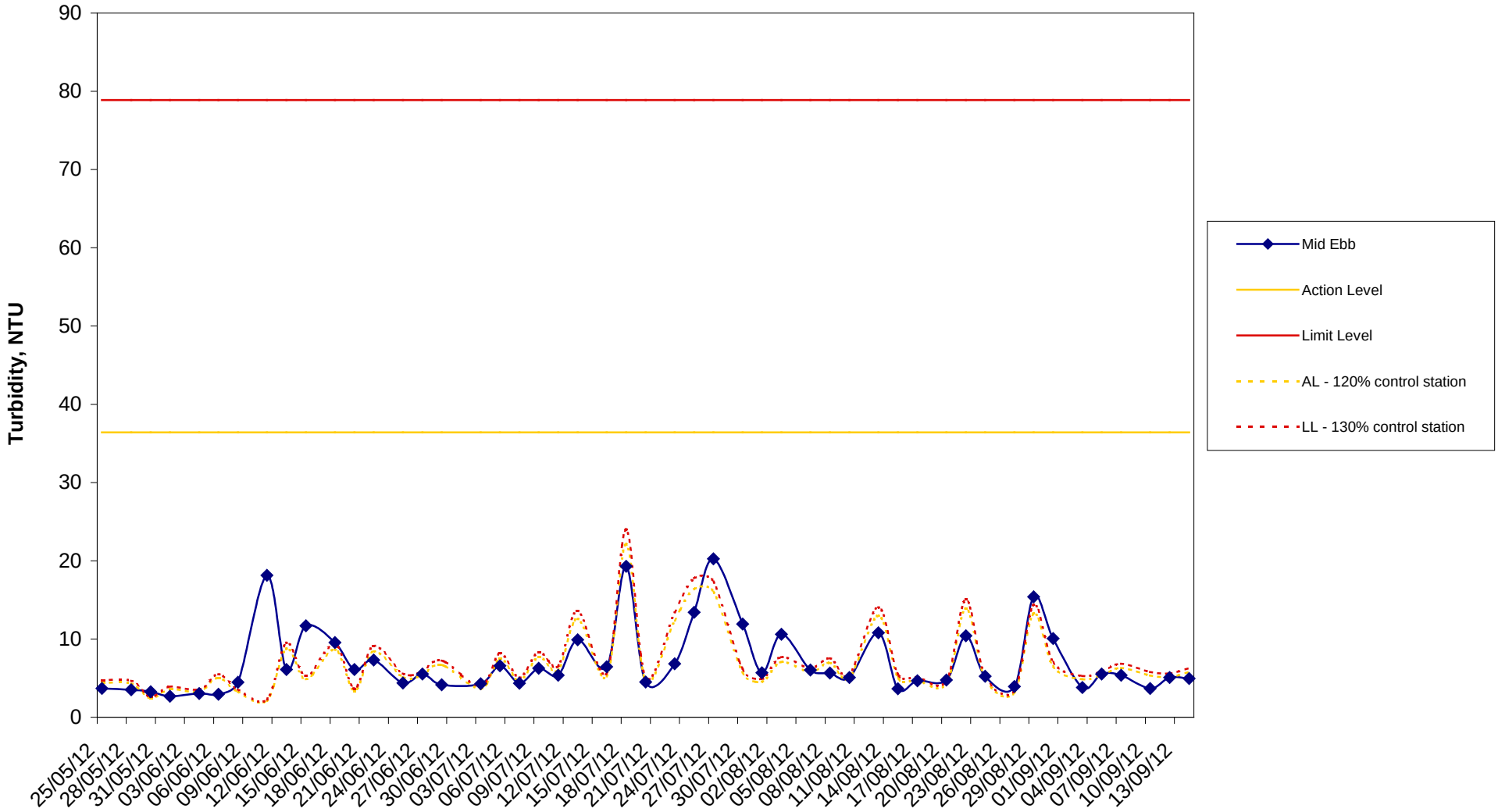
FUGRO TECHNICAL SERVICES LIMITED

MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.

Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

MateriaLab

W3 - Turbidity (Mid-Ebb)

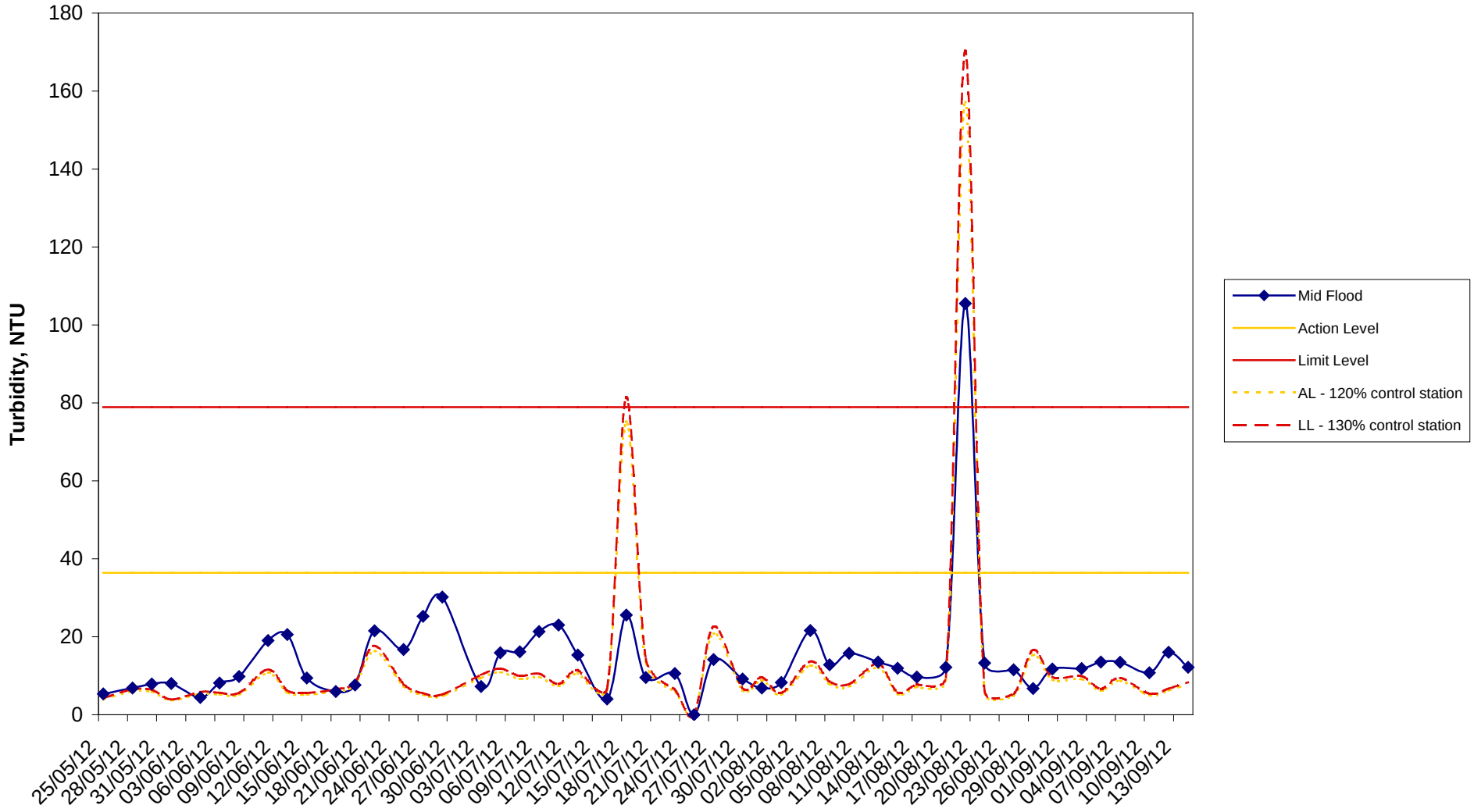


FUGRO TECHNICAL SERVICES LIMITED

MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.

Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

W3 - Turbidity (Mid-Flood)



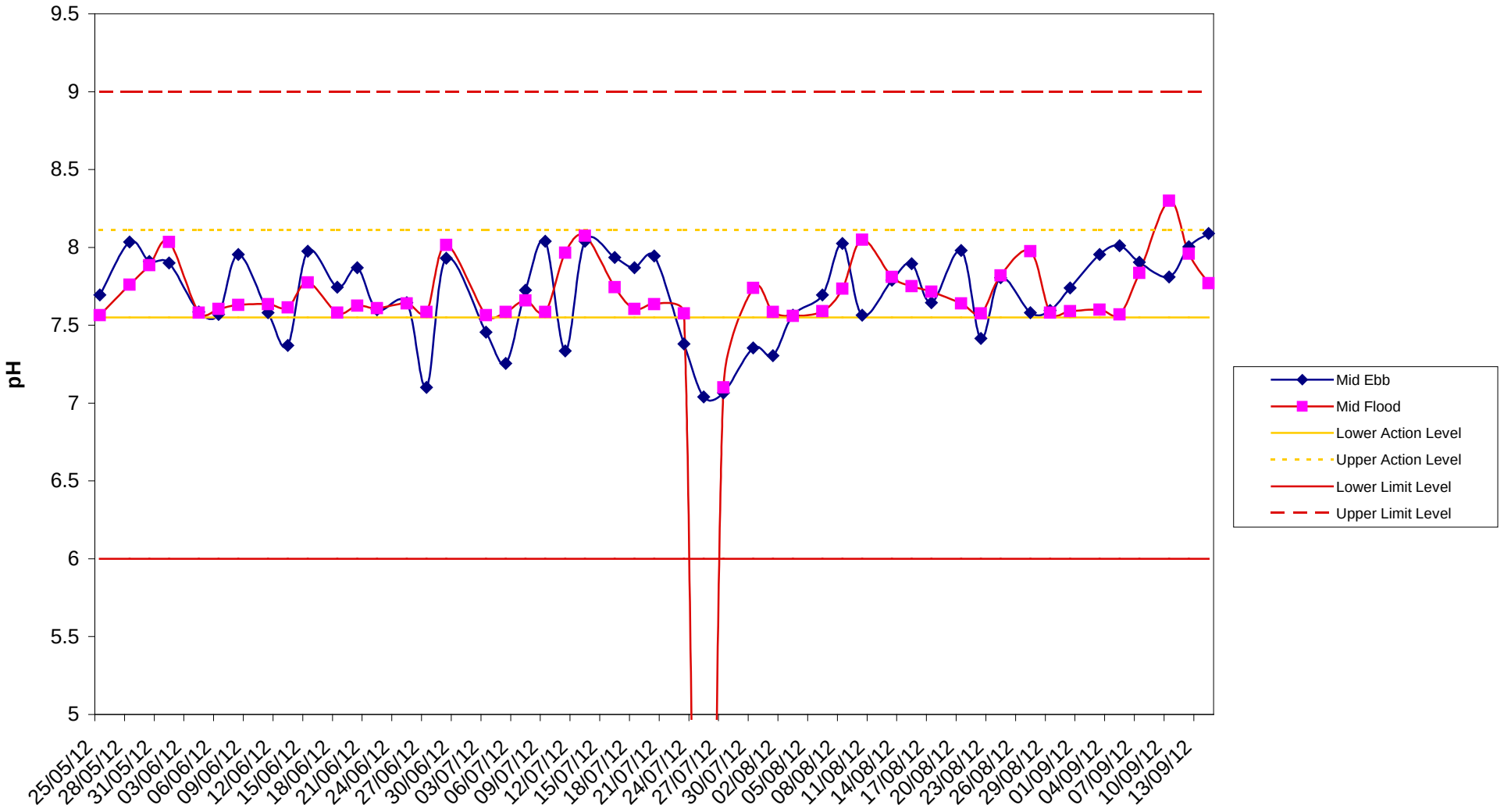
FUGRO TECHNICAL SERVICES LIMITED

MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.

Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

MateriaLab

W3 - pH



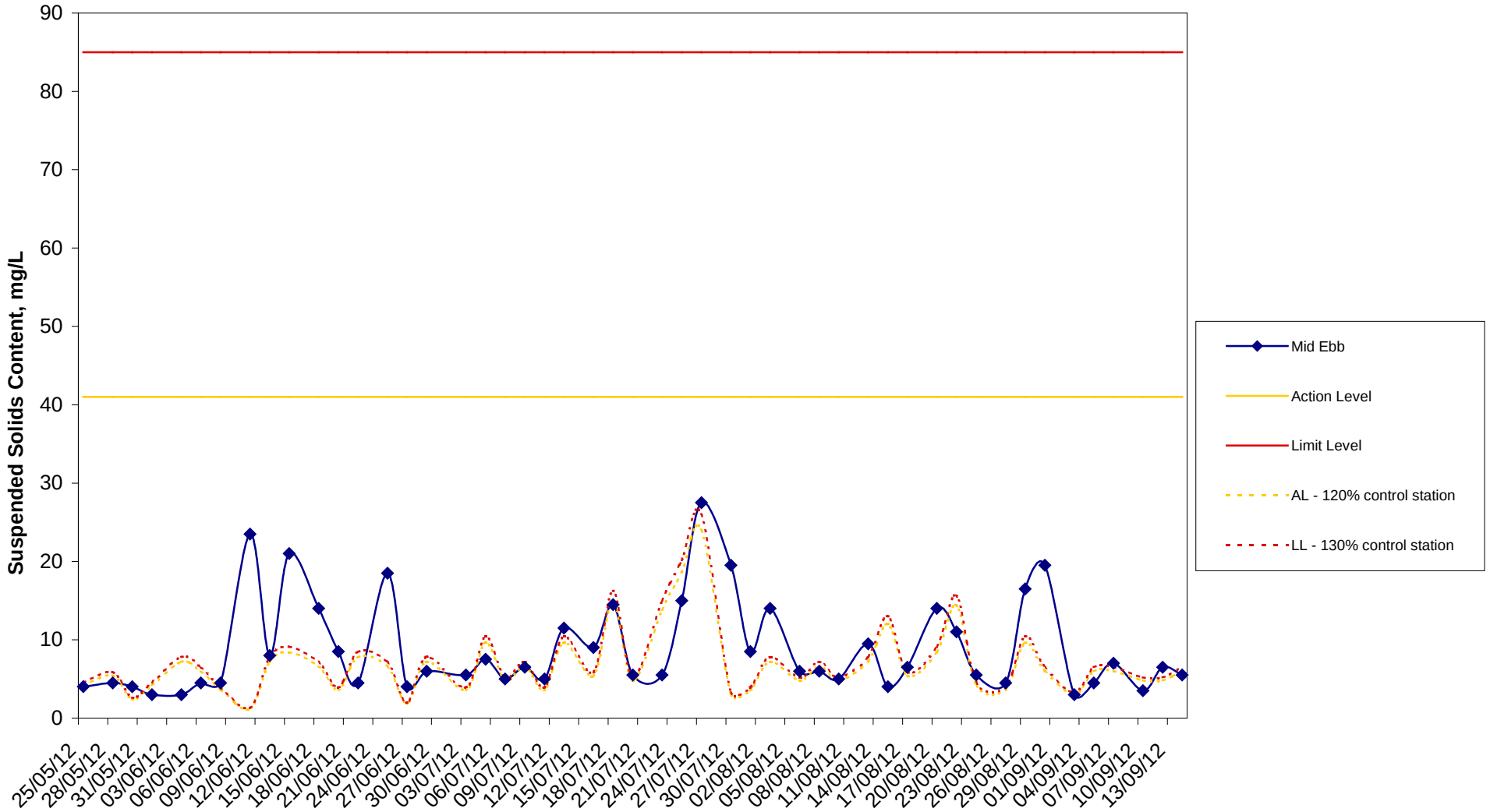
FUGRO TECHNICAL SERVICES LIMITED

MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.

Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

MateriaLab

W3 - Suspended Solids Content (Mid-Ebb)



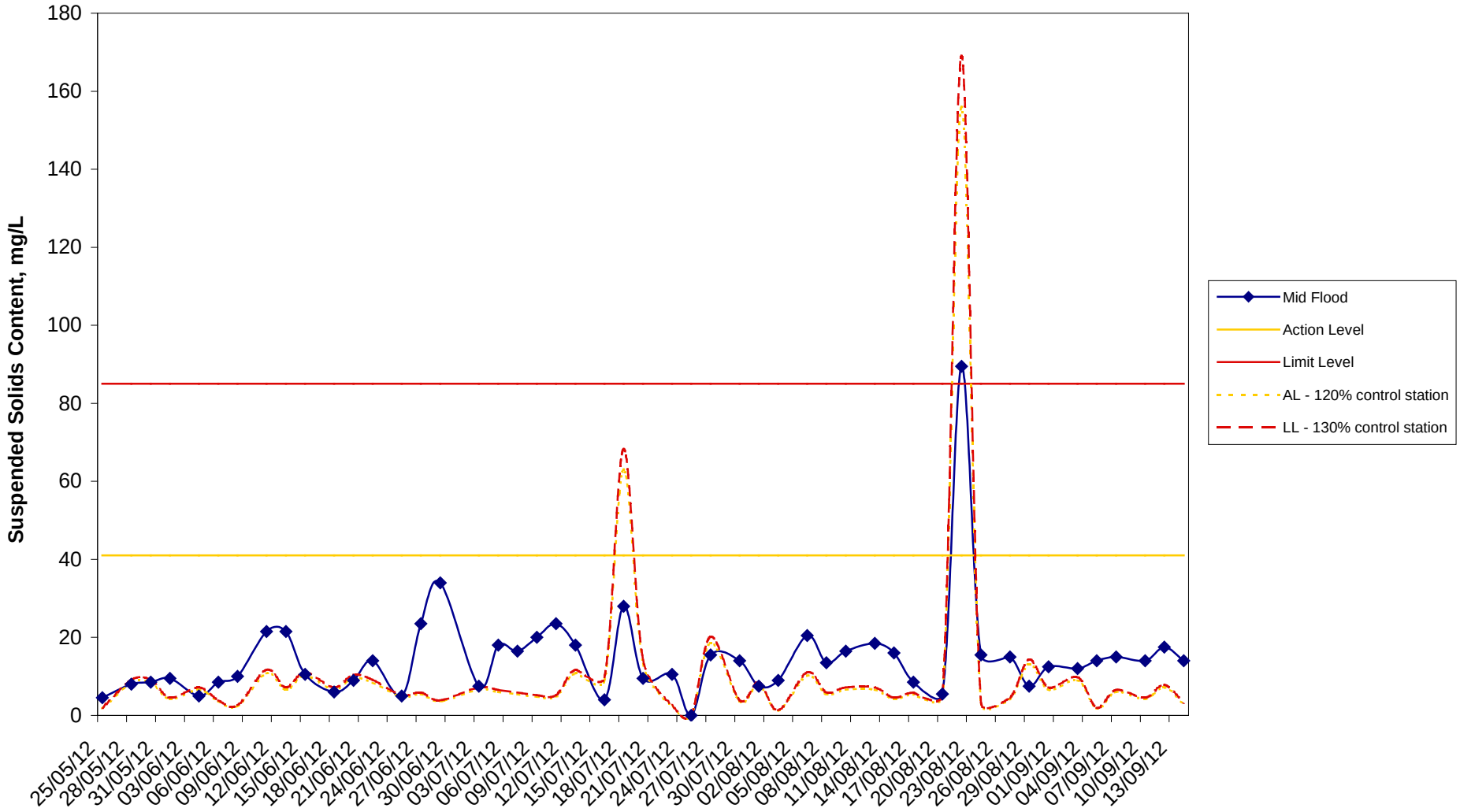
FUGRO TECHNICAL SERVICES LIMITED

MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.

Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

MateriaLab

W3 - Suspended Solids Content (Mid-Flood)



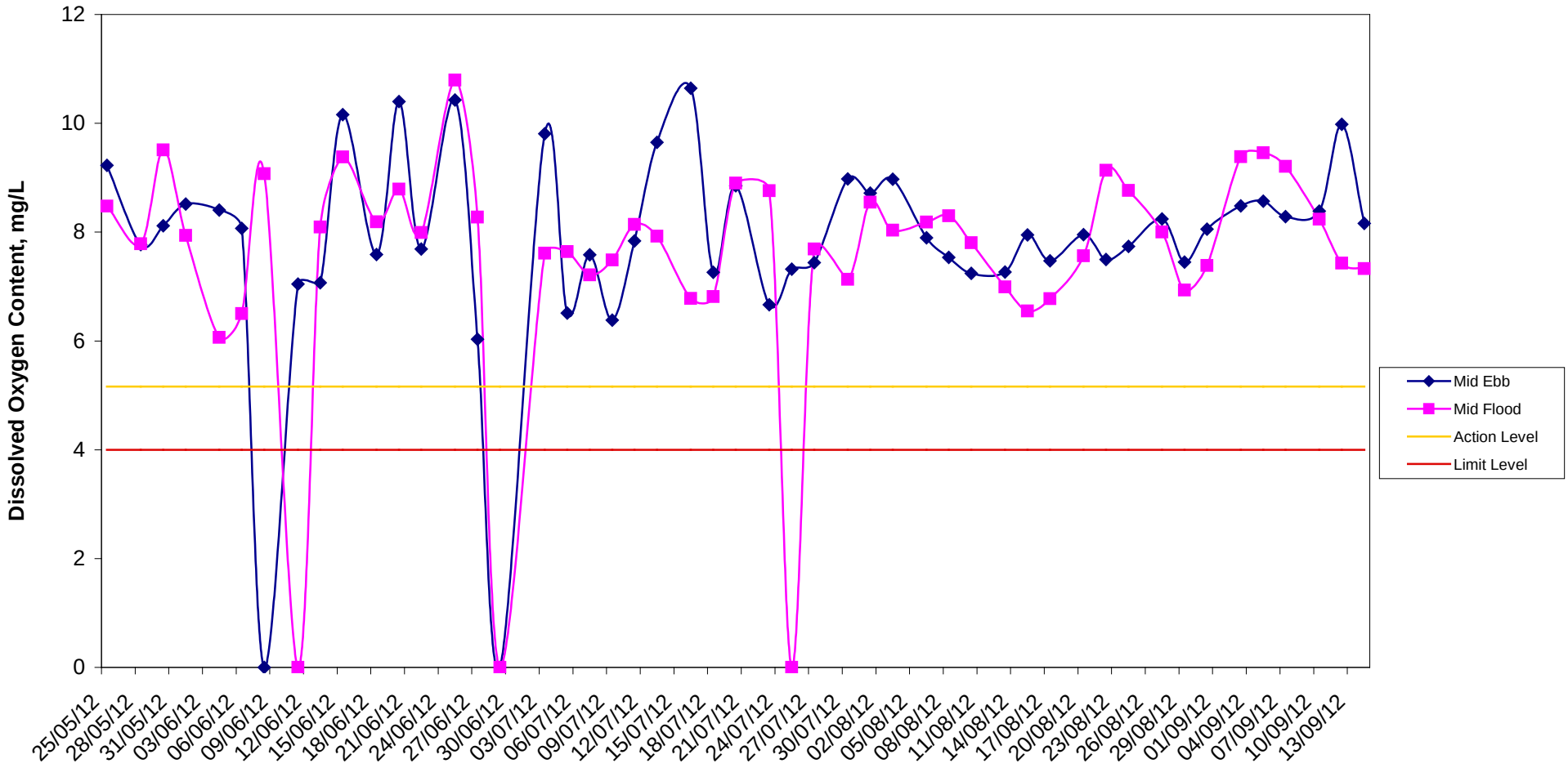
FUGRO TECHNICAL SERVICES LIMITED

MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.

Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

MateriaLab

C1 - Dissolved Oxygen Content



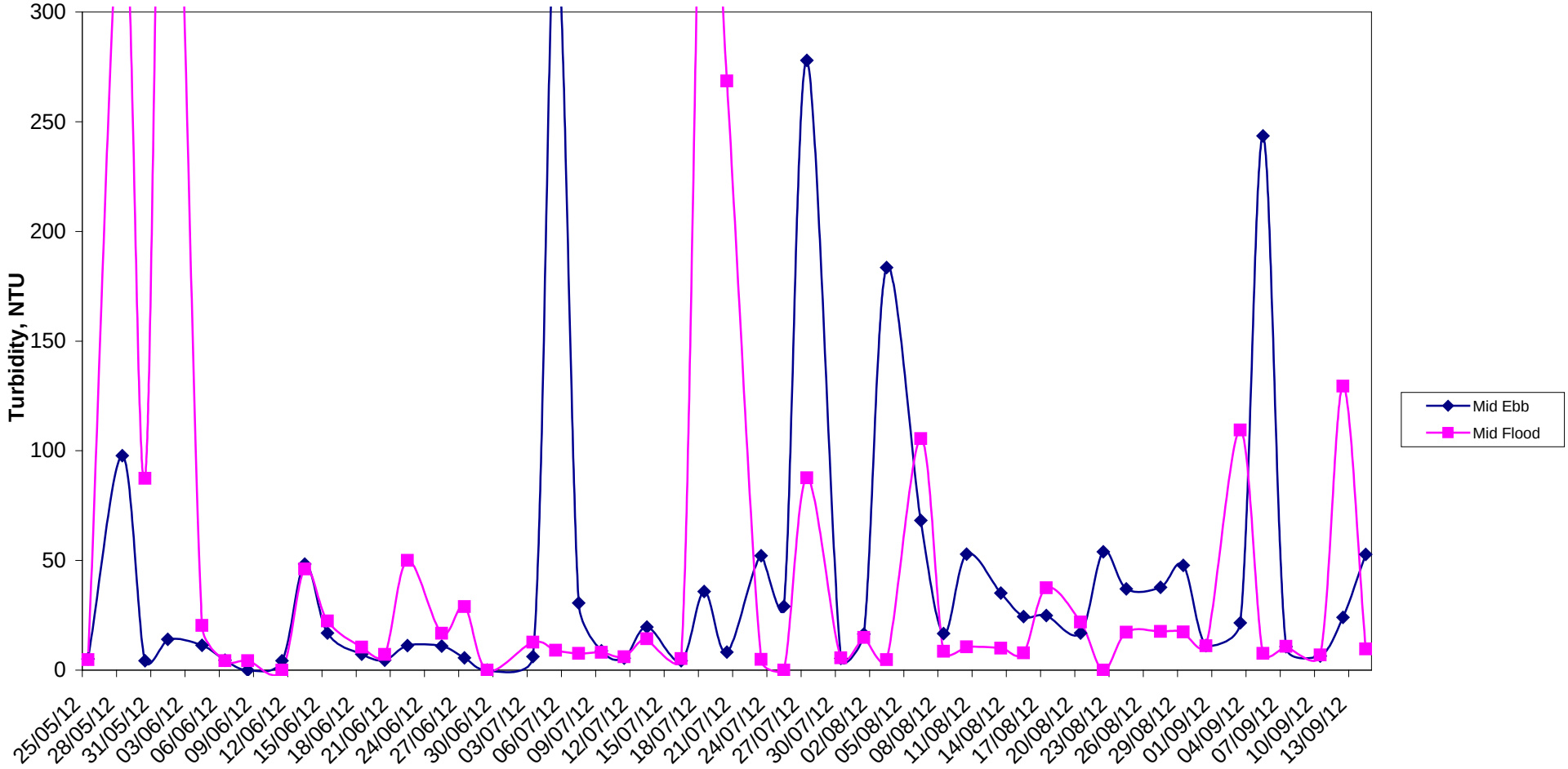
Remark: No water at C1 occasionally after 17/02/2011. Zero values are shown in the graph

FUGRO TECHNICAL SERVICES LIMITED

MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.

Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

C1 - Turbidity



Remark: No water at C1 occasionally after 17/02/2011. Zero values are shown in the graph

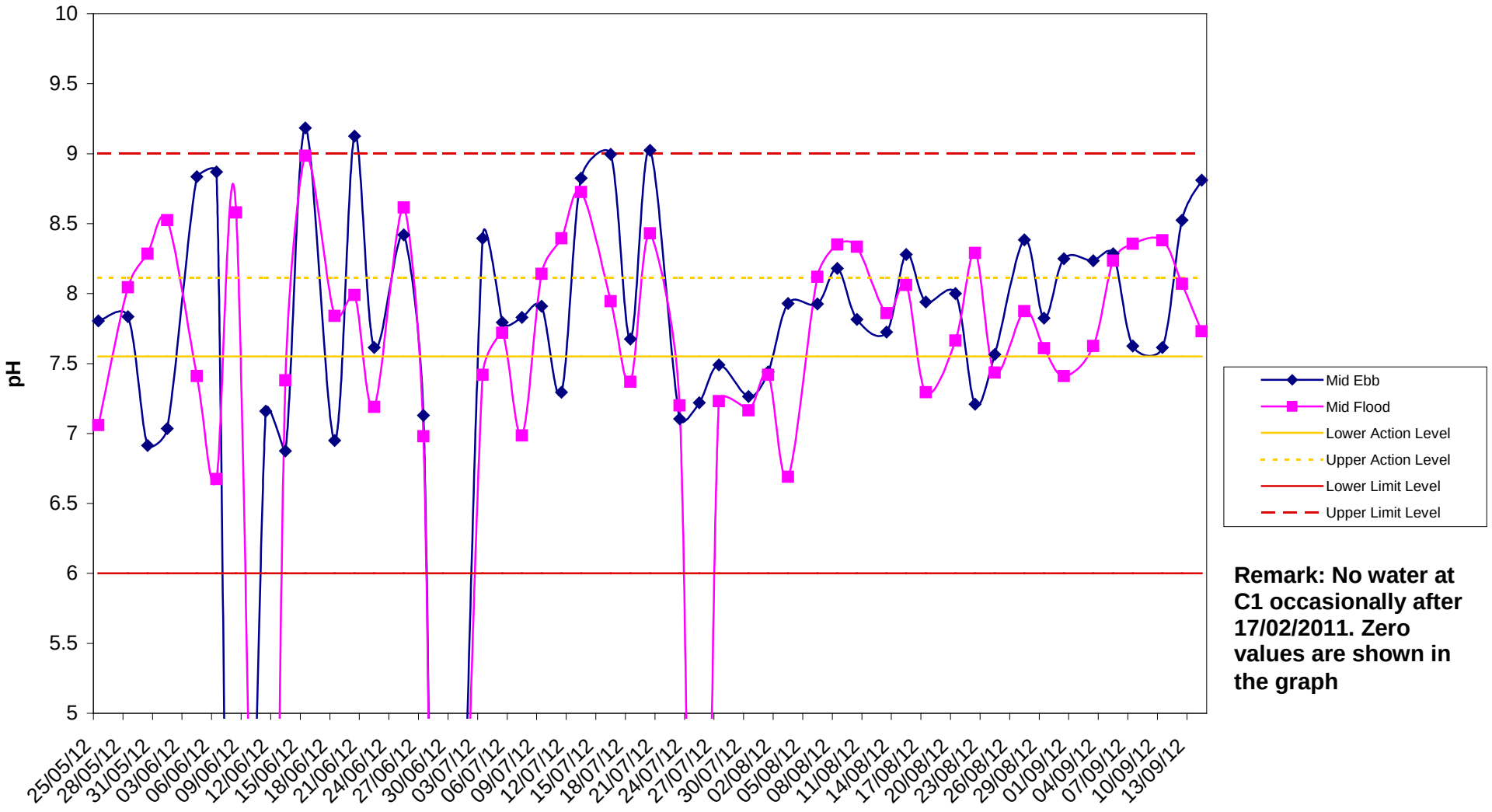
FUGRO TECHNICAL SERVICES LIMITED

MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.

Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

MateriaLab

C1 - pH



Remark: No water at C1 occasionally after 17/02/2011. Zero values are shown in the graph

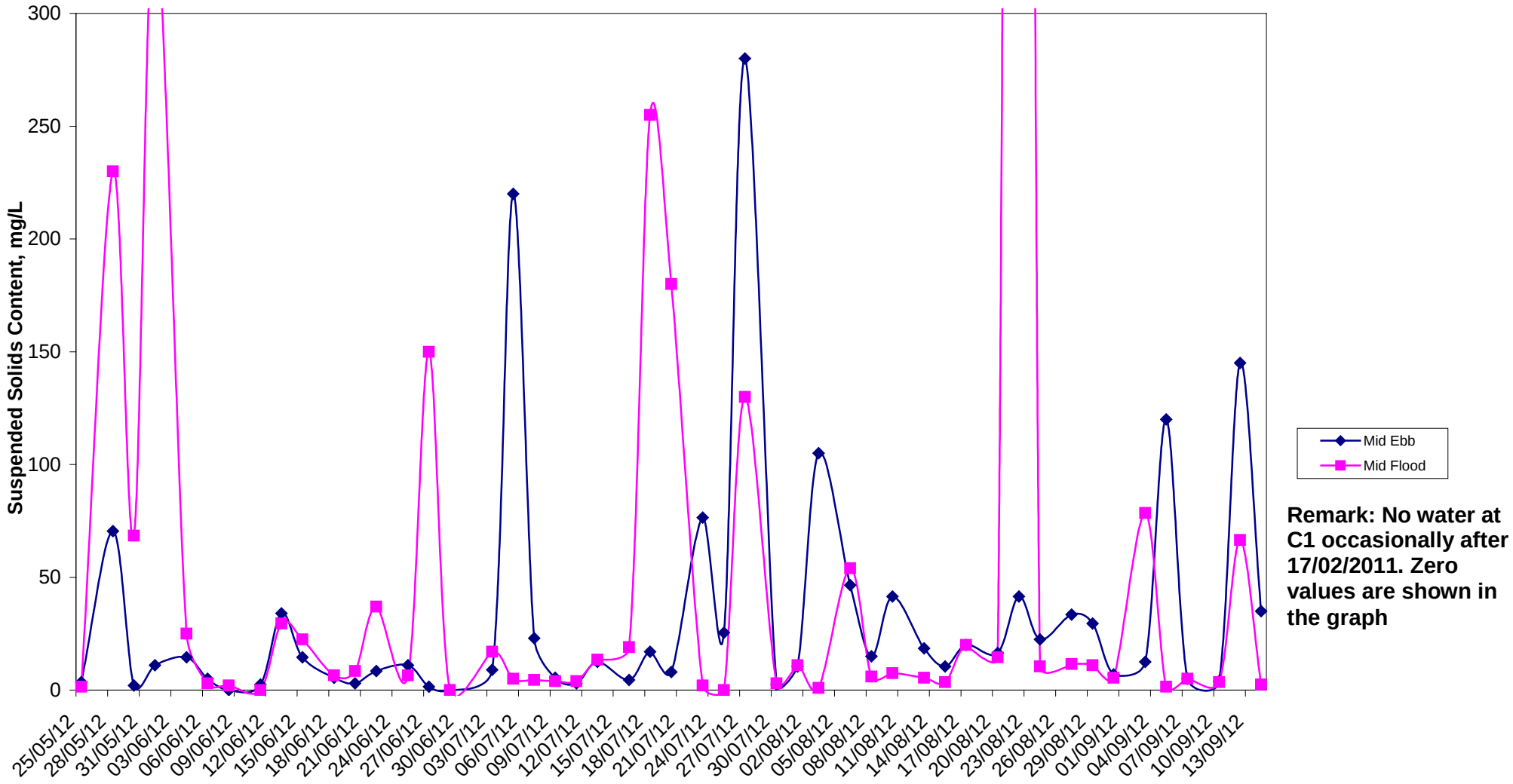
FUGRO TECHNICAL SERVICES LIMITED

MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.

Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

MateriaLab

C1 - Suspended Solids Content



Remark: No water at C1 occasionally after 17/02/2011. Zero values are shown in the graph

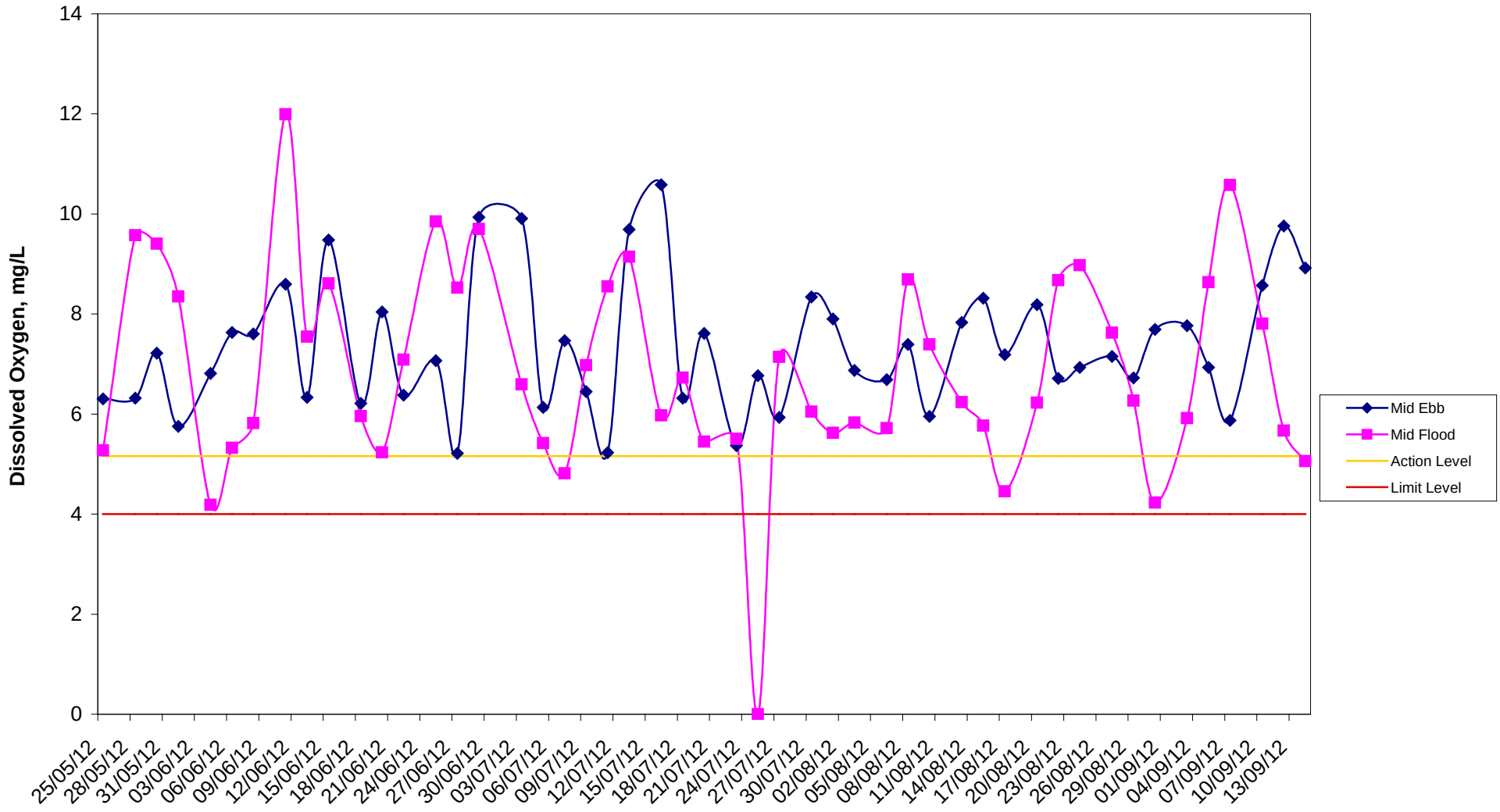
FUGRO TECHNICAL SERVICES LIMITED

MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.

Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

MateriaLab

C2 - Dissolved Oxygen Content

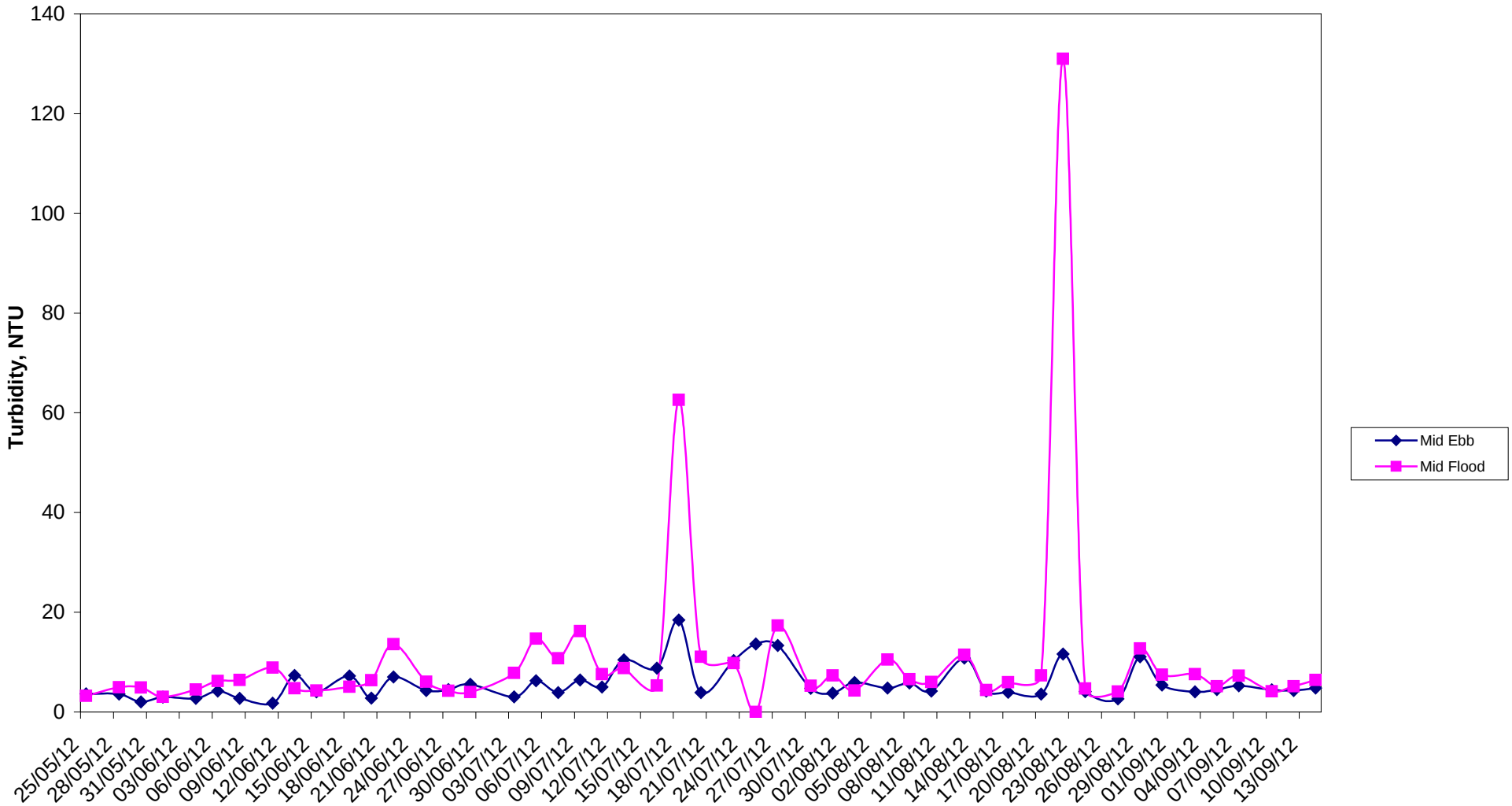


FUGRO TECHNICAL SERVICES LIMITED

MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.

Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

C2 - Turbidity



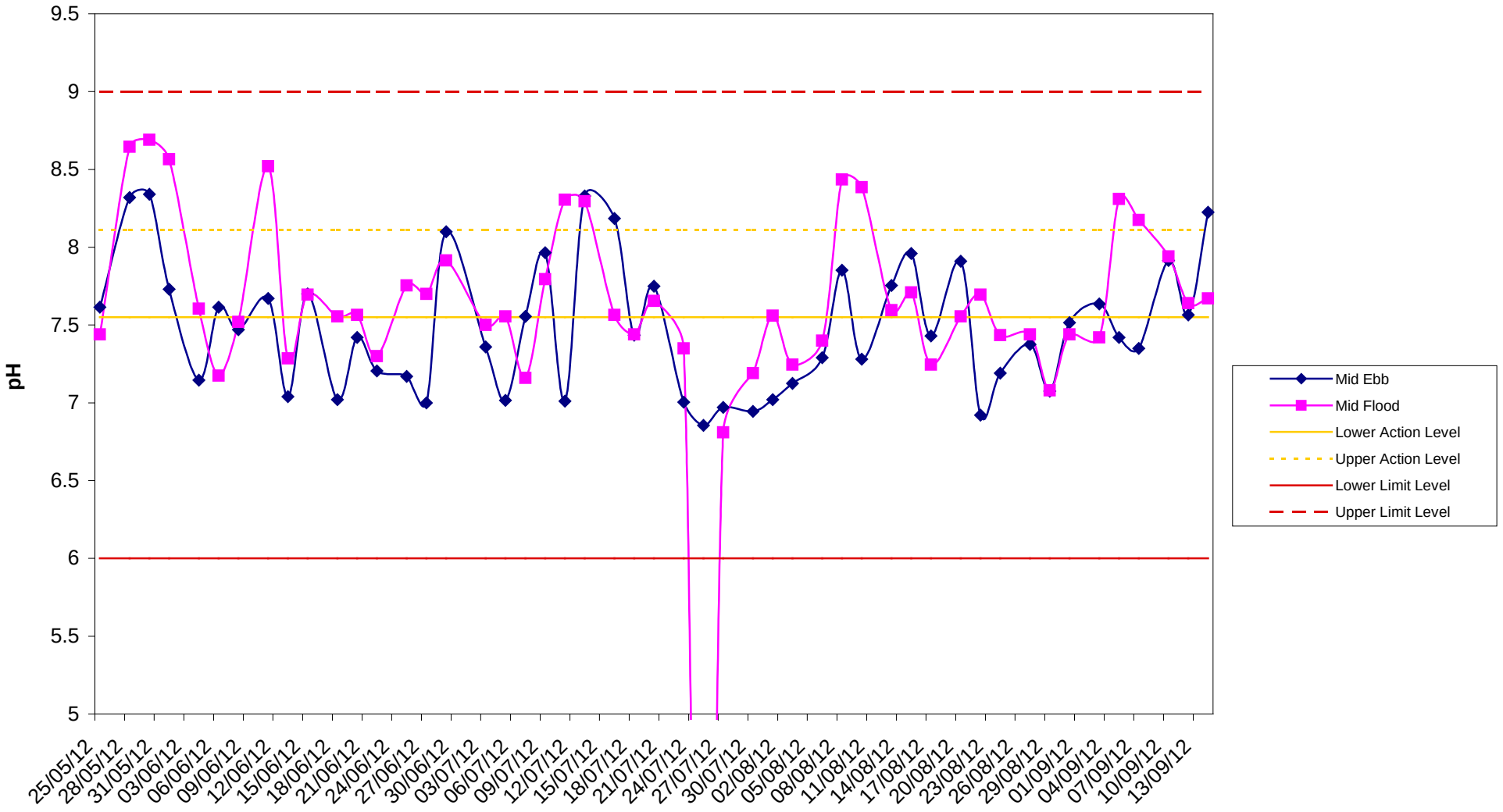
FUGRO TECHNICAL SERVICES LIMITED

MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.

Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

MateriaLab

C2 - pH



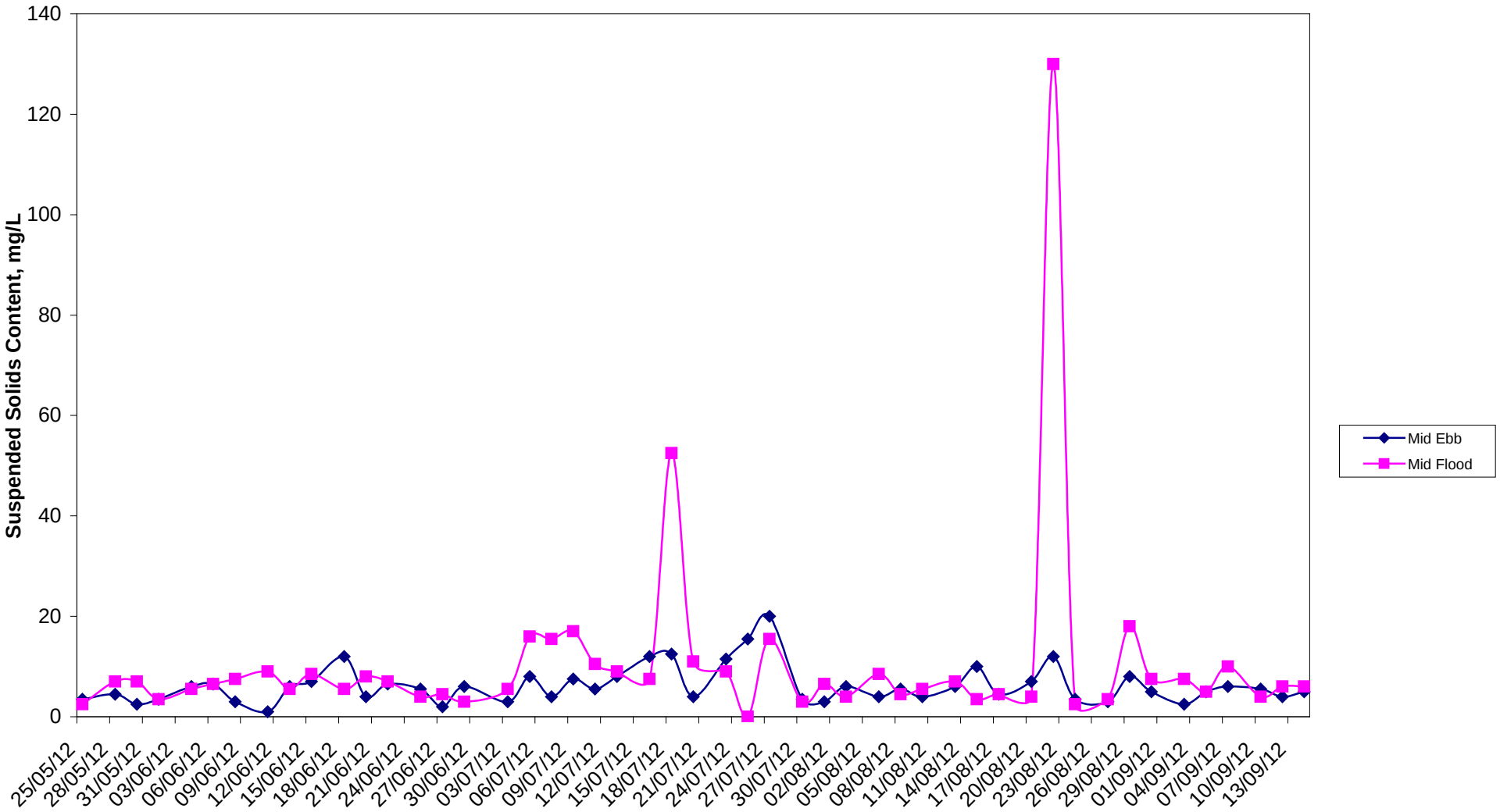
FUGRO TECHNICAL SERVICES LIMITED

MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.

Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

MateriaLab

C2 - Suspended Solids Content



FUGRO TECHNICAL SERVICES LIMITED
MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Telephone : +852-2450 8233
Telefax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

MateriaLab

Appendix 5

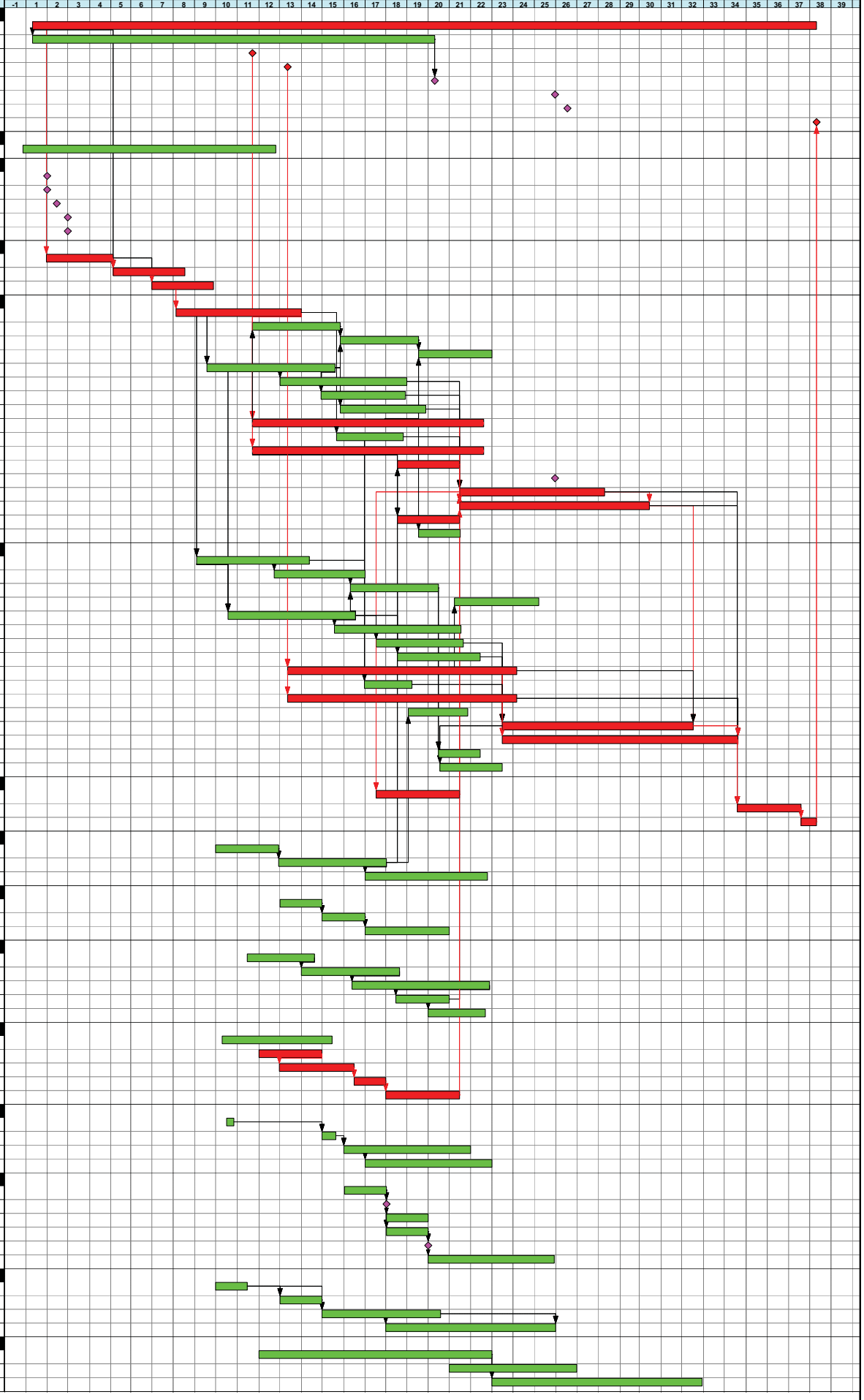
Construction Program

Printed On : 02DEC10

HONG KONG SLUDGE TREATMENT FACILITY
Project Overview

Date	Revision	Checked	Approved
02DEC10	VLJH-W-PT-ZZ-0002-D01	RGU	NPR

Activity ID	Activity Description
KEYDATES	
50	SPECIFIED CONTRACT PERIOD 37 MONTHS
60	Ancillary Power from CLP
90	Commence Boiler Install A
140	Commence Boiler Install B
80	Energization
70	First Fire Sludge
150	First Steam
170	Complete Section I & II
DESIGN & APPROVALS	
100	Design Submissions & Approvals
MAJOR PROCUREMENT AWARDS	
190	Main Structural Steelwork
200	Main Building Facade
180	Flue Gas Treatment
110	Incinerator/Boilers
160	Turbine
SITE WORKS	
115	Advanced Works
120	Site Formation
130	Foundations Plant A & B
PLANT A	
2010	Substructure + UG Utilities
2040	Superstr (Roof) inc Glazing/Cladding - Area 1
2080	Superstr (Roof) Inc Glazing/Cladding - Area 3
2070	Superstr (Roof) Inc Glazing /Cladding - Area 2
2015	Sub - Superstructure Common Plant Area 3
2016	Main Plant Elect & Chillers
2017	Sludge Receiving / Storage / Feeder
2018	Deoderisation Plant
2020	Process Train 1 Installation - Incin / Boiler
2025	Process Train 1 - 2 Installation - FGT
2030	Process Train 2 Installation - Incin / Boiler
2035	Ash / Additives Handling / Storage
2038	1st Fire Sludge
2050	Process Train 1 Commissioning
2060	Process Train 2 Commissioning
2090	Steam Loop Complete - Plant A
2100	Superstr (Roof) - Area 4
PLANT B	
3010	Substructure + UG Utilities
3040	Superstr (Roof) inc Glazing/Cladding - Area 1
3070	Superst (Roof) Inc Glazing / Cladding Area 3
3080	Superstr (Roof) Inc Glazing/Cladding - Area 2
3015	Sub - Superstructure Common Plant Area 3
3016	Main Plant Elect & Chillers
3017	Sludge Receiving / Storage / Feeding
3018	Deoderisation Plant
3020	Process Train 3 - Installation - Incin / Boiler
3025	Process Train 3 - 4 - Installation - FGT
3030	Process Train 4 Installation - Incin / Boiler
3035	Ash / Additives Handling / Storage
3050	Process Train 3 Commissioning
3060	Process Train 4 Commssioning
3100	Superstr (Roof) - Area 4
3090	Steam Loop Complete
SYSTEM & PLANT COMMISSIONING	
4030	Training
4010	System & Plant Commissioning, Report & Consent
4020	Request / Issue Cert of Subst Completion
ADMINISTRATION TOWER	
5010	Substructure (Basement)
5020	Superstructure & Facade
5030	Fitout including MEP
ANCILLARY BUILDING - MAINTENANCE BLG	
6010	Foundations / Substructure
6020	Superstructure
6030	BW & MEP Fitout
ANCILLARY BUILDINGS - TURBINE A & B	
7010	Foundations / Substructure
7020	Superstructure
7030	BW & MEP Fitout
7040	Process Equipment Installation Plant A
7050	Process Equipment Installation Plant B
ANCILLARY BUILDING - WATER TREATMENT	
8005	Intake / Outfall
8010	Foundations / Substructure
8020	Superstructure
8030	BW & MEP Fitout
8040	Process Equipment Installation
ANCILLARY BUILDING - CONDENSER A & B	
7500	Foundations - Condenser A & B
7510	Substructure - Plant A & B
7520	Installation Condenser Plant A
7530	Installation Condenser Plant B
VISITOR GALLERY	
8500	Steelwork Erection Plant A
8520	Access Cabling & Pipework Plant A
8510	Ext Facade/CladdingGallery Plant A
8550	Steelwork Erection Plant B
8570	Access Cabling & Pipework Plant B
8560	Ext Facade & Fitout Gallery Plant B
EEC BUILDING	
9010	Foundations
9040	Substructure
9020	Superstructure + Facade
9030	Fitout including MEP
EXTERNAL WORKS	
10010	Roads & U/G Utilities
10030	Habitat
10020	Site Landscaping



FUGRO TECHNICAL SERVICES LIMITED
MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Telephone : +852-2450 8233
Telefax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

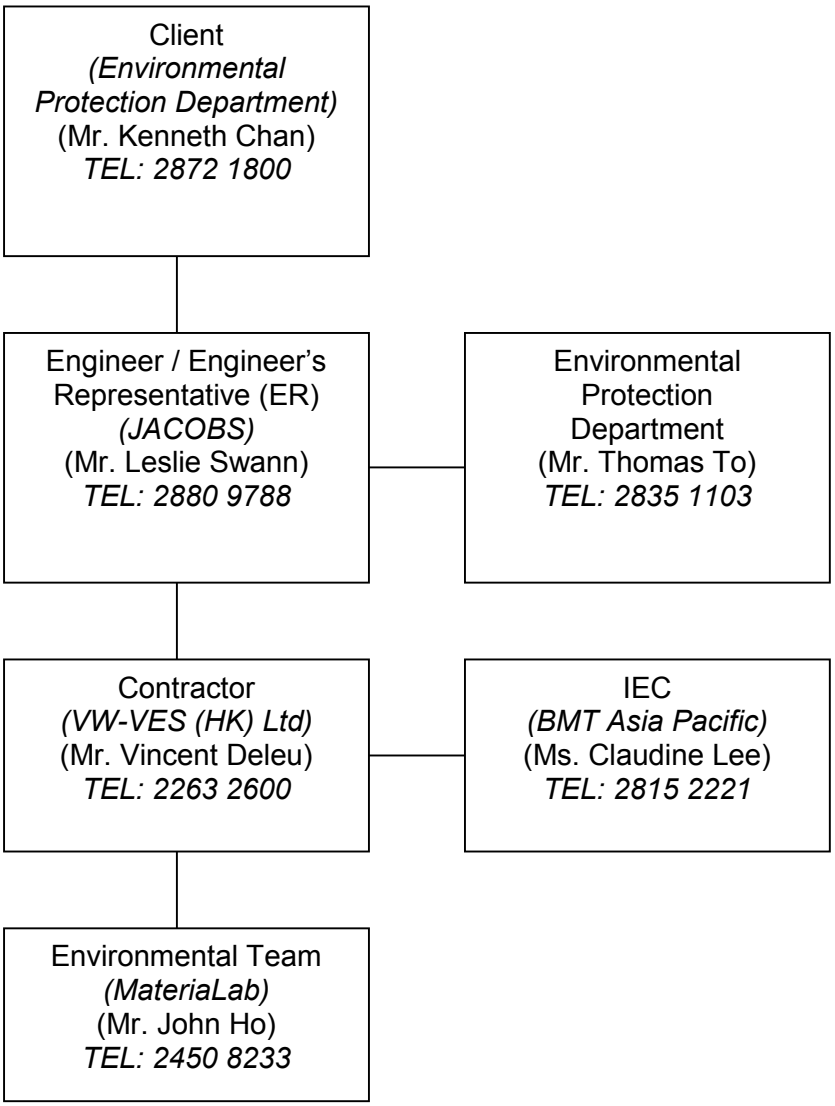
MateriaLab

Appendix 6

Management Structure and Organization Chart

FUGRO TECHNICAL SERVICES LIMITED
MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

Management Structure and Organization Chart



FUGRO TECHNICAL SERVICES LIMITED
MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Telephone : +852-2450 8233
Telefax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

MateriaLab

Appendix 7

Event / Action Plan for Water Quality

FUGRO TECHNICAL SERVICES LIMITED
MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Telephone : +852-2450 8233
Telefax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

Event/Action Plan for Water Quality

Event	ET Leader	IEC	SOR	Contractor
Action level being exceeded by one sampling day	• Repeat *in situ* measurement to confirm findings; • Identify reasons for non-compliance and source(s) of impact; • Inform IEC and Contractor; • Check monitoring data, all plant, equipment and Contractor's working methods; • Discuss mitigation measures with IEC and Contractor; • Repeat measurement on next day of exceedance.	• Discuss with ET and Contractor on the mitigation measures; • Review proposals on mitigation measures submitted by Contractor and advise the SOR accordingly; • Assess the effectiveness of the implemented mitigation measures.	• Discuss with IEC on the proposed mitigation measures; • Make agreement on the mitigation measures to be implemented. • Assess the effectiveness of the implemented mitigation measures.	• Inform the SOR and confirm notification of the non-compliance in writing; • Rectify unacceptable practice; • Check all plant and equipment; • Consider changes of working methods; • Discuss with ET and IEC and propose mitigation measures to IEC and SOR; • Implement the agreed mitigation measures.
Action level being exceeded by more than one consecutive sampling day	• Repeat *in situ* measurement to confirm findings; • Identify reasons for non-compliance and source(s) of impact; • Inform IEC and Contractor; • Check monitoring data, all plant, equipment and Contractor's working methods; • Discuss mitigation measures with IEC and Contractor; • Ensure mitigation measures are implemented; • Prepare to	• Discuss with ET and Contractor on the mitigation measures; • Review proposals on mitigation measures submitted by Contractor and advise the SOR accordingly; • Assess the effectiveness of the implemented mitigation measures.	• Discuss with IEC on the Proposed mitigation measures; • Make agreement on the mitigation measures to be implemented; • ♦ Assess the effectiveness of the implemented mitigation measures.	• Inform the SOR and confirm notification of the non-compliance in writing; • Rectify unacceptable practice; • Check all plant and equipment; Consider changes of working methods; • Discuss with ET and IEC and propose mitigation measures to IEC and SOR within three working days; • Implement the agreed mitigation measures.

	increase the monitoring frequency to daily; • Repeat measurement on next day of exceedance.			
Limit level being exceeded by one sampling day	• Repeat *in situ* measurement to confirm findings; • Identify reasons for non-compliance and source(s) of impact; • Inform IEC Contractor and EPD; • Check monitoring data, all plant, equipment and Contractor's working methods; • Discuss mitigation measures with IEC, SOR and Contractor; • Ensure mitigation measures are implemented; • Increase the monitoring frequency to daily until no exceedance of Limit level.	• Discuss with ET and Contractor on the mitigation measures; • Review proposals on mitigation measures submitted by Contractor and advise the SOR accordingly; • Assess the effectiveness of the implemented mitigation measures.	• Discuss with IEC, ET and Contractor on the proposed mitigation measures; • Request Contractor to critically review the working methods; • Make agreement on the mitigation measures to be implemented; • Assess the effectiveness of the implemented mitigation measures.	• Inform the SOR and confirm notification of the non-compliance in writing; • Rectify unacceptable practice; • Check all plant and equipment; • Consider changes of working methods; • Discuss with ET, IEC and SOR and propose mitigation measures to IEC and SOR within three working days; • Implement the agreed mitigation measures.
Limit level being exceeded by more than one consecutive sampling day	• Repeat *in situ* measurement to confirm findings; • Identify reasons for non-compliance and source(s) of impact; Inform IEC Contractor and EPD; • Check monitoring data, all plant, equipment and Contractor's working methods;	• Discuss with ET and • Contractor on the mitigation measures; • Review proposals on mitigation measures submitted by Contractor and advise the SOR accordingly; • Assess the effectiveness of the implemented mitigation measures.	• Discuss with IEC, ET and Contractor on the proposed mitigation measures; • Request Contractor to critically review the working methods; • Make agreement on the mitigation measures to be implemented; • Assess the effectiveness	• Inform the SOR and confirm notification of the non-compliance in writing; • Rectify unacceptable practice; • Check all plant and equipment; • Consider changes of working methods; • Discuss with ET, IEC and SOR and

	• Discuss mitigation measures with IEC, SOR and Contractor; • Ensure mitigation measures are implemented; • Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days.		of the implemented mitigation measures; • Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the construction activities until no exceedance of Limit level.	propose mitigation measures to IEC and SOR within three working days; • Implement the agreed mitigation measures; • As directed by the SOR, to slow down or to stop all or part of the construction activities.

FUGRO TECHNICAL SERVICES LIMITED
MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Telephone : +852-2450 8233
Telefax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

MateriaLab

Appendix 8

Implementation Schedule of Mitigation Measures

FUGRO TECHNICAL SERVICES LIMITED
MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materialab.com.hk

Table 1. Implementation Schedule and Status of Proposed Air Quality Mitigation Measures

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S3.8.1	Implementation of the Air Pollution Control (Construction Dust) Regulation and good site practices: • Use of regular watering, with complete coverage, to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. • Use of frequent watering for particularly dusty construction areas and areas close to ASRs. • Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines. • Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs. • Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations. • Establishment and use of vehicle wheel and body washing facilities at the exit points of the site. • Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading points, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in dry seasons/ periods.	Work site / During the construction period	Contractor		√ √ √ √ √ √ √			Air Pollution Control (Construction Dust) Regulation

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	• Imposition of speed controls for vehicles on unpaved site roads. Ten kilometers per hour is the recommended limit.				√			
	• Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs.				√			
	• Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise.				√			

All recommendations and requirements resulted during the course of EIA/EA Process, including ACE and / or accepted public comment to the proposed project.

- Des - Design, C - Construction, O – Operation, and Dec – Decommissioning
- N/A – The associated activities are not in progress during the monitoring month, √ - The proposed mitigation measures is implemented

Table 2. Implementation Schedule of Proposed Human Health Risk Mitigation Measures

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	Human Health Risk Associated with Radon							
	Prevention of radon influx from the PFA to the STF buildings • A soil cover can be provided beneath the buildings on top of ash lagoon prior to construction works because it reduces the level of radon influx significantly	STF buildings / During the design, construction and operation of the STF.	Contractor / STF Operator		N/A			EPD's ProPECC Note PN 1/99 Control of Radon Concentration in New Buildings Appendix 2
	• Slab-on-grade can be an option on foundation design				N/A			
	• Soil suction can also prevent radon from entering the building by drawing the radon from below the building and venting it through a pipe, or pipes, to the air above the building.				N/A			
	Provision of Sufficient ventilation of the interior of the STF buildings • Forced and natural ventilation should be introduced properly to enhance air exchange rate in the STF buildings.				N/A			
	• Basement areas should be pressurized by using a fan to blow air into the basement areas from outdoors is suggested. This would create enough pressure at the lowest level indoors to prevent radon from entering into the STF buildings.				N/A			
	Regular maintenance for the floor slabs and walls • Cracks and other openings in the foundation should be properly sealed to reduce radon ingress. Sealing the cracks limits the flow of radon into the building thereby making other radon reduction techniques more effective and cost-efficient. It also reduces the loss of conditioned air.				N/A			

All recommendations and requirements resulted during the course of EIA/EA Process, including ACE and / or accepted public comment to the proposed project.

- Des - Design, C - Construction, O – Operation, and Dec – Decommissioning
- N/A – The associated activities are not in progress during the monitoring month, √ - The proposed mitigation measures is implemented

Table 3. Implementation Schedule of Proposed Waste Management Measures

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S5.5.1	*Good Site Practices* Recommendations for good site practices during the construction activities include: • Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site • Training of site personnel in proper waste management and chemical handling procedures • Provision of sufficient waste disposal points and regular collection of waste • Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.	Work site / During the construction period	Contractor		√ √ √ √ √			Waste Disposal Ordinance (Cap.354) ETWB TCW No. 19/2005
S5.5.1	*Waste Reduction Measures* • Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include:	Work site / During planning & design stage, and construction stage	Contractor		√			

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	• The design of the foundation works should minimize the amount of excavated material to be generated.				√			
	• Excavated soil should be reused on site as far as possible, e.g. for landscape works, in order to minimize the amount of public fill to be disposed off-site.				√			
	• Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal.				√			
	• Encourage collection of aluminium cans by individual collectors by providing separate labelled bins to enable this waste to be segregated from other general refuse generated by the work force				√			
	• Proper storage and site practices to minimize the potential for damage or contamination of construction materials.				√			
	• Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste.				√			
S5.5.1	*General Refuse* General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Preferably an enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material.	Work site / During the construction period	Contractor		√			Public Health and Municipal Services Ordinance (Cap. 132)

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S5.5.1	*Construction and Demolition Material* In order to minimize the impact resulting from collection and transportation of C&D material for off-site disposal, the excavated material arising from site formation and foundation works should be reused on-site as backfilling material and for landscaping works as far as practicable. Other mitigation requirements are listed below: • A Waste Management Plan, which becomes part of the Environmental Management Plan, should be prepared in accordance with ETWB TCW No.19/2005. • A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be proposed. • In order to monitor the disposal of C&D material at public filling facilities and landfills and to control fly-tipping, a trip-ticket system should be included. One may make reference to ETWB TCW No. 31/2004 for details.	Work site / During design stage & construction period	Contractor	√	√ √ √ √			ETWB TCW No. 33/2002 ETWB TCW No. 19/2005 ETWB TCW No. 31/2004
S5.5.1	*Chemical Waste* If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a Chemical Waste Producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible	Work site / During the construction period	Contractor		√			Waste Disposal (Chemical Waste)(General) Regulation)

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the Chemical Waste Treatment Centre at Tsing Yi, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.							

All recommendations and requirements resulted during the course of EIA/EA Process, including ACE and / or accepted public comment to the proposed project.

- Des – Design, C – Construction, O – Operation, and Dec – Decommissioning
- N/A – The associated activities are not in progress during the monitoring month, √ - The proposed mitigation measures is implemented

Table 4. Implementation Schedule of Proposed Land Contamination Preventive Measures

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S5.6.3	*Fuel Oil Tank Construction and Test* • The fuel tank to be installed should be of specified durability • Double skin tanks are preferable • Underground fuel storage tank to be installed should be placed within a concrete pit • The concrete pit shall be accessible to allow regular tank integrity tests to be carried out at regular intervals • The tank integrity tests should be conducted by an independentqualified surveyor or structural engineer • Any potential problems identified in the test should be rectified as soon as possible	Fuel Oil Storage Tank /	Contractor/ STF Operator	√	√ √ N/A √ √ √			
S5.6.3	*Fuel Oil Pipeline Construction and Test* • Installation of aboveground fuel oil pipelines is preferable; if underground pipelines are unavoidable, concrete lined trenches should be constructed to contain the pipelines • Double skin pipelines are preferable • Distance between the fuel oil refuelling points and the fuel oil storage tank shall be minimized • The integrity tests for the pipelines should be conducted by an independent qualified surveyor or structural engineer at regular intervals • Any potential problems identified in the test should be rectified as soon as possible	Fuel Oil Pipelines/ Design, Construction and Operation Phase	Contractor/ STF Operator	√	√ √ √ √ √			
S5.6.3	*Fuel Oil Leakage Detection* • Installation of leak detection device at storage tank and pipelines	Fuel Oil Storage Tank	Contractor/ STF Operator	N/A	N/A			

\# All recommendations and requirements resulted during the course of EIA/EA Process, including ACE and / or accepted public comment to the proposed project.

- Des - Design, C - Construction, O – Operation, and Dec – Decommissioning
- N/A – The associated activities are not in progress during the monitoring month, √ - The proposed mitigation measures is implemented

Table 5. Implementation Schedule of Proposed Water Pollution Control Measures

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S6.7.2	Construction Runoff and Drainage • Site practices outlined in ProPECC PN 1/94 "Construction Site Drainage" shall be followed as far as practicable in order to minimize surface runoff and the chance of erosion: • At the start of site establishment, internal drainage works and erosion and sedimentation control facilities shall be implemented. Channels, earth bunds or sand bag barriers shall be provided on site to direct stormwater to silt removal facilities. The detailed design and installation of the temporary on-site drainage system shall be undertaken by the contractor prior to the commencement of construction. • Before commencing any site formation work, all sewer and drainage connections shall be sealed to prevent debris, soil, sand etc. from entering public sewers/drains. • Boundaries of earthworks shall be surrounded by dykes or embankments for flood protection, as necessary. • Sand/silt removal facilities such as sand traps, silt traps and sediment basins shall be provided to remove sand/silt particles from runoff to meet the standards of the Technical	Work site / During the construction period	Contractor		√ N/A √ √ √			ProPECC PN 1/94; WPCO

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	Memorandum under the Water Pollution Control Ordinance. The design of silt removal facilities shall be based on the guidelines provided in ProPECC PN 1/94. All drainage facilities and erosion and sediment control structures shall be inspected monthly and maintained to ensure proper and efficient operation at all times and particularly during rainstorms.							
	• Water pumped out from foundation piles shall be discharged into silt removal facilities.				N/A			
	• During rainstorms, exposed slope/soil surfaces shall be covered by a tarpaulin or other means, as far as practicable. Other measures that need to be implemented before, during and after rainstorms are summarized in ProPECC PN 1/94.				√			
	• Exposed soil areas shall be minimized to reduce potential for increased siltation and contamination of runoff.				√			
	• Earthwork final surfaces shall be well compacted and subsequent permanent work or surface protection shall be immediately performed. Open stockpiles of construction materials or construction wastes on- site of more than 50m3 shall be covered with tarpaulin or similar fabric during rainstorms.				√			
	• All vehicles shall be cleaned before leaving the works area to ensure no earth, mud and debris is deposited on roads. An adequately designed and				√			

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	sited wheel washing bay shall be provided at every site exit. The wheel washing facility shall be designed to minimize the intake of surface water (rainwater). Wash-water shall have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process.							
S6.7.2	*General Construction Activities* • Debris and refuse generated on-site shall be collected, handled and disposed of properly to avoid entering the nearby water bodies and public drainage system. Stockpiles of cement and other construction materials shall be kept covered when not being used. • Oils and fuels shall only be used and stored in designated areas which have pollution prevention facilities. To prevent spillage of fuels and solvents to nearby water bodies and public drains, all fuel tanks and storage areas shall be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. The bund shall be drained of rainwater after a rain event.	Work site / During the construction period	Contractor		√ √			ProPECC PN 1/94;
S6.7.2	*Sewage Effluents* • Temporary sanitary facilities, such as portable chemical toilets, shall be employed on-site where necessary to handle sewage from the workforce. A licensed contractor would be responsible for appropriate disposal and maintenance of these facilities.	Work site / During the construction period	Contractor		√			ProPECC PN 1/94; WPCO

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S6.7.2	*Release of PFA Leachate from Ash Lagoon into the Aquatic Environment* • Environmental monitoring and audit (EM&A) should be included to ensure that the foundation construction would not cause an unacceptable release of PFA leachate into the Deep Bay waters. The parameters to be measured should include the heavy metals such as cadmium, chromium and aluminium, which have the greatest tendency to leach from the lagooned PFA into the seawater. Details of the measurement requirements are presented in the EM&A manual	Deep Bay Water outside the Ash Lagoon / During the construction period	Contractor		√			WPCO

All recommendations and requirements resulted during the course of EIA/EA Process, including ACE and/or accepted public comment to the proposed project.
- Des - Design, C - Construction, O – Operation, and Dec – Decommissioning
- N/A – The associated activities are not in progress during the monitoring month, √ - The proposed mitigation measures is implemented

Table 6. Implementation Schedule of Proposed Ecological Mitigation Measures

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S7.8.2	Measures to Minimize Disturbance Impact to Wildlife							
	• Hoarding of 3m high shall be set up along the boundary of the works areas and associated site access to shield the fauna and breeding population of Little Grebe in the Middle Lagoon from the disturbance impact of machinery.	Boundary of works areas/ Construction Phase	Contractor		√			
	• The works boundaries shall not go beyond the proposed Project Area. All work crews, equipment and human activities shall be confined within the designated works area only. No personnel should encroach or wilfully disturb any wild animals and their habitats. Traffic and human access from the western side of the Project Area should be avoided.	Boundary of works areas/ Construction Phase	Contractor		√			
	• Fencing with climbers or plantation shall be provided, where appropriate, along the STF site boundary and the two sides of access road to screen the surrounding habitats from the STF works areas.	Boundary of works areas/ Operation Phase	Contractor		√			

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S7.8.2	Measures to Minimize Impact to natural habitats							
	• Where practicable, all proposed works shall be conducted in existing built up area to minimize impact to natural habitats.	Works areas/ Design and Construction Phase	STF Designer/ Contractor	√	√			
	• The abutment (permanent structure) for the vehicular bridge shall avoid streambed. The number and size of the temporary supporting structures to be installed over the streambed during construction shall be minimized as far as practicable.	Vehicular bridge/ Design and Construction Phase	STF Designer/ Contractor	√	√			ETWB TC (Works)
	• The temporarily affected natural habitats, including streambed, shall be reinstated after the completion of works.	Works Area/ Operation Phase	Contractor		N/A			No. 5/2005 Protection of natural streams/ rivers from adverse impacts arising from construction works
	• For affected natural stream section, placement of substrates of similar size and composition to those of original streambed shall be considered to encourage colonization.	Works Area/ Operation Phase	Contractor		N/A			
S7.8.2	*Minimise sedimentation/water quality impacts to waterbodies* • Measures to control potential sedimentation/ water quality impacts during the construction phase shall be implemented. • T o minimize the potential water quality impacts from the construction works located at any river channels, natural streams or seafront, the practices outlined in	Whole Site/ Construction Phase	Contractor		√ √			ETWB TC (Works) No. 5/2005 Protection of natural streams/ rivers from adverse impacts arising from construction works

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	ETWB TC (Works) No. 5/2005 "Protection of natural streams/rivers from adverse impacts arising from construction works" shall be adopted where applicable.							
S7.8.2	*Minimize noise disturbance* • Noise mitigation measures including the use of quieter piling machinery and construction plants shall be implemented to lower the noise level due to construction works. • Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction programme. • Machines and plant which may be in intermittent use shall be shut down to a minimum. • Plant known to emit noise strongly in one direction, shall be oriented so that the noise is directed away from the Middle Lagoon, where possible. • Silencers or mufflers on construction equipment shall be utilized and shall be properly maintained during the construction period. • Mobile plant (such as generator) shall be sited as far away from the Middle Lagoon as possible. • Material stockpiles and other structures shall be effectively utilized, where practicable, to screen noise from on-site construction activities.	Whole Site/ Construction Phase	Contractor		√ √ √ √ N/A √ √			ETWB TC (Works) No. 5/2005 Protection of natural streams/ rivers from adverse impacts arising from construction works

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S7.8.3	*Measures to Mitigate the Loss of Vegetation* • All vegetation located within the work areas shall be preserved as far as practicable. • To compensate for the loss of the vegetation and habitats, tree planting shall be provided in the site area where possible. Species chosen for planting shall be similar to the species identified in the survey and be native to Hong Kong or the Southern China.	Whole Site / Design, Construction and Operation Phase	Contractor / STF Operator	√	√ √			
S7.8.4	Enhancement Measures to Create Additional Habitat for Little Grebe • An additional habitat for Little Grebe shall be created in a less disturbed area located at the northeastern part of the proposed STF. • The created habitat shall be provided in form of shallow pond(s) incorporating suitable habitat characteristics for Little Grebe. The water level of the created pond shall be kept between 1.5 m to 2 m. • Emergent vegetation shall be planted and fish population shall be controlled to allow development of aquatic invertebrate populations as prey of Little Grebe. • To screen the created habitat from disturbance due to nearby landfill traffic, planting of native plants shall be provided on the boundary of the pond(s) as appropriate. • Prior to construction of the pond(s), detailed Habitat Creation and Management Plan (HCMP) of the created habitat prepared by experienced ecologist(s) with over seven year experience in relevant field shall be circulated to relevant departments including AFCD for comment.	Within Project Area/ Design Phase, Construction and Operation Phase	Contractor / STF Operator	√	N/A N/A N/A N/A N/A			

\# All recommendations and requirements resulted during the course of EIA Process, including ACE and / or accepted public comment to the proposed project.

- Des - Design, C - Construction, O - Operation and Dec – Decommissioning
- N/A – The associated activities are not in progress during the monitoring month, √ - The proposed mitigation measures is implemented

Table 7. Implementation Schedule for Landscape and Visual Impact

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
T able 9.4 CM-01	*Contaminant/ Sediment Control* – Suitable temporary barriers, covers and drainage provisions shall be provided around construction works to avoid discharge of contaminants (such as bleeding from in-situ concrete works) and sediments into sensitive water-based habitats, especially the tidal streams and the mangrove.	Work site / During the construction period	Contractor		√			
T able 9.4 CM-02	Early Planting of Tall Trees – Tall trees proposed under mitigation measure OM-02 shall be planted early, providing visual effect also during construction.	Work site / During the construction period	Contractor		N/A			
T able 9.4 CM-03	Good Site Practice – Construction activities should be restricted to works areas and should be clearly demarcated onsite. Piling of construction materials onsite shall be carefully considered for possible impacts before carrying out.	Work site / During the construction period	Contractor		√			
T able 9.4 CM-04	Existing Trees within Works Areas – All existing trees within work sites shall be properly maintained and protected for their crowns, trunks and roots.	Work site / During the construction period	Contractor	√	√			
T able 9.4 OM-01	Sensitive Bridge Design – The bridge of the proposed access road shall be sensitively designed to minimize impact to the tidal stream and mangrove. It shall be constructed with minimal use of in-situ concreting and with maximum use of precast or prefabricated elements. No pile or support shall be erected within the stream channel.	Bridge of access road / During the design & construction phases	Contractor	√	N/A			

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
T able 9.4 OM-02	Tall trees for Chimney – Fast-growing tall trees shall be planted along the east side of the ash-lagoon to counterbalance possible exotic silhouettes, such as from the chimney, of the proposed sludge treatment facilities for sensitive viewers in Pak Nai. The trees shall be planted during the early stage of the construction to ensure effectiveness during operation. They will also help to lessen the visual impact during construction, as already suggested in mitigation measure CM-02.	East side of ash lagoon / During the design & construction phases	Contractor	√	N/A			
Table 9.4 OM-03	Suitable Reinstatement at Ash-lagoon – Affected perimeter of the proposed works area within the ash-lagoon shall be reinstated with suitable planting materials. Traditional reinstatement planting approach for construction projects may not work well for this project. Certain existing grasses and small shrubs have self-seeded the ash- lagoon, demonstrating their tolerance to salts, alkalinity and possible trace metals in the ash. Therefore the same or similar species of vegetation shall be used.	Perimeter of works area / During the design & construction phases	Contractor	√	N/A			
Table 9.4 OM-04	Existing Tree Transplanting – The proposed access roadworks may affect few existing trees, which shall be transplanted as far as practical. A comprehensive tree survey is recommended to locate these trees.	Access road / During the design & operation phases	Contractor	√	N/A			
Table 9.4 OM-05	Planting at Road Intersection – Suitable planting of woodland trees and shrubs shall be provided for the proposed access roadworks at the junction with Nim Wan Road.	Junction of access road with Nim Wan Road / During the design & operation phases	Contractor	√	N/A			

All recommendations and requirements resulted during the course of EIA Process, including ACE and / or accepted public comment to the proposed project.

- Des - Design, C - Construction, O - Operation and Dec – Decommissioning
- N/A – The associated activities are not in progress during the monitoring month, √ - The proposed mitigation measures is implemented

Table 8. Implementation Schedule of Proposed Landfill Gas Hazard Protection Measures

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S10.7.2	**Appointment of Safety Officer** Appoint a properly trained safety officer and provide with appropriate equipment to measure and monitor LFG hazard.	Work Site / During the construction phase	Contractor		√			
S10.7.2	**Safety Measures - Excavation** Staff should receive appropriate training on working in areas susceptible to landfill gas, fire and explosion hazards. Excavation procedures and code of practice should be implemented.	Work Site / During the construction phase	Contractor		√			
S10.7.2	*Safety Measures – Welding, Flame-Cutting and Hot works* Hot works should be confined to open areas away from any trench or excavation. Should hot works must be carried out in trenches or confined space, "permit to work" procedures should be followed.	Work Site / During the construction phase	Contractor		√			
S10.7.2	**Safety Measures – Enclosed Spaces** Site offices or buildings located within WENT Landfill Consultation Zone which have the capacity to accumulate landfill gas, then they should either be located in an area which has been proven to be free of landfill gas; or be raised clear of the ground by a minimum of 500mm.	Enclosed Spaces within WENT Consultant Zone / During the construction phase	Contractor		N/A			
S10.7.2	**Safety Measures – Electrical Equipment** Any electrical equipment, such as motors and extension cords, should be intrinsically safe.	Work Site / During the construction phase	Contractor		N/A			

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S10.7.2	**Safety Measures – Piping** During piping assembly or conduiting construction, all valves/seals should be closed immediately after installation. As construction progresses, all valves/seals should be closed as installed to prevent the migration of gases through the pipeline/conduit. All piping/conduiting should be capped at the end of each working day.	Work Site / During the construction phase	Contractor		N/A			
S10.7.2	**Safety Measures – Fire Safety** Adequate fire safety equipments should be provided on site. Workers and visitors should be notified of the potential fire hazards. Safety notices should be posted around the site warning the anger and potential hazards.	Work Site / During the construction phase	Contractor		√			
S10.7.2	**Safety Measures – Confined Spaces** Precautionary measures should include ensuring that staff members are aware of the potential hazards of working in confined spaces, and that appropriate monitoring procedures are in place to prevent hazards in confined spaces.	Confined Spaces at Work Site / During the construction phase	Contractor		N/A			
S10.7.2	**Monitoring** Periodically during ground-works within the Consultation Zone, the works area should be monitored for methane, carbon dioxide and oxygen using appropriately calibrated portable gas detection equipment. The monitoring frequency and areas to be monitored shall be set down prior to commencement of ground-works. Depending on the results of the measurements, actions required will vary. As a minimum these should encompass those actions specified in Table 10.6 of the EIA Report.	Work Site / During the construction phase	Contractor		N/A			

All recommendations and requirements resulted during the course of EIA Process, including ACE and / or accepted public comment to the proposed project.

- Des - Design, C - Construction, O - Operation and Dec – Decommissioning
- N/A – The associated activities are not in progress during the monitoring month, √ - The proposed mitigation measures is implemented

FUGRO TECHNICAL SERVICES LIMITED
MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Telephone : +852-2450 8233
Telefax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

MateriaLab

Appendix 9

Incident Report on Action Level or Limit Level Non-compliance

FUGRO TECHNICAL SERVICES LIMITED

MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.

Telephone : +852-2450 8233
Telefax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

MateriaLab

Our Ref. No. : 100440
Client : VW-VES (HK) Ltd.
Project : Contract No. EP/SP/58/08

Incident Report on Action Level or Limit Level Non-compliance

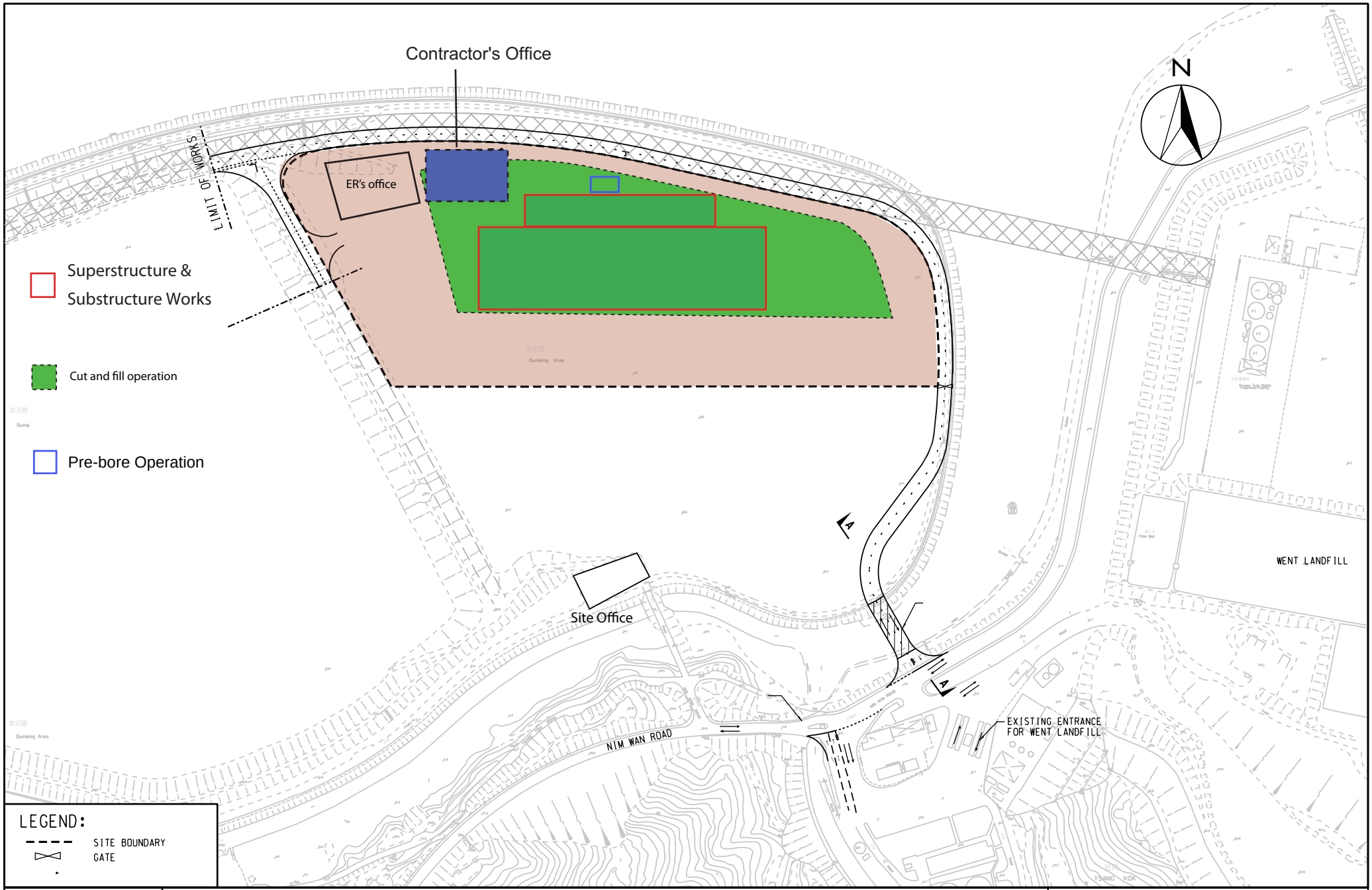
Project	Sludge Treatment Facilities
Date	10 September 2012
Time	15:54 to 17:07 (Mid-Flood)
Monitoring Location	W3
Parameter	pH
Action & Limit Levels	Action Level : ≤7.55 or ≥ 8.11 Limit Level : ≤ 6 or ≥ 9
Measured Level	W3: 8.30 (exceed Action Level) C1 : 8.38 C2 : 8.26
Possible reason for Action or Limit Level Non-compliance	Since W3 was located at the downstream of C2, so that the exceedance was subject to the influent of the high pH and the natural flow from C2.
Actions taken / to be taken	Exceedance was not related to site activities. Ad-hoc monitoring is cancelled.
Remarks	

Prepared by : John Ho (ET Leader)
Signature :
Date : 11 September 2012

FUGRO TECHNICAL SERVICES LIMITED
MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Telephone : +852-2450 8233
Telefax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

Figure 1.1

Construction Works Area



MAUNSELL | AECOM
Metcalf & Eddy Ltd.

AGREEMENT NO. CE 28/2003 (EP)
SLUDGE TREATMENT FACILITIES - FEASIBILITY STUDY

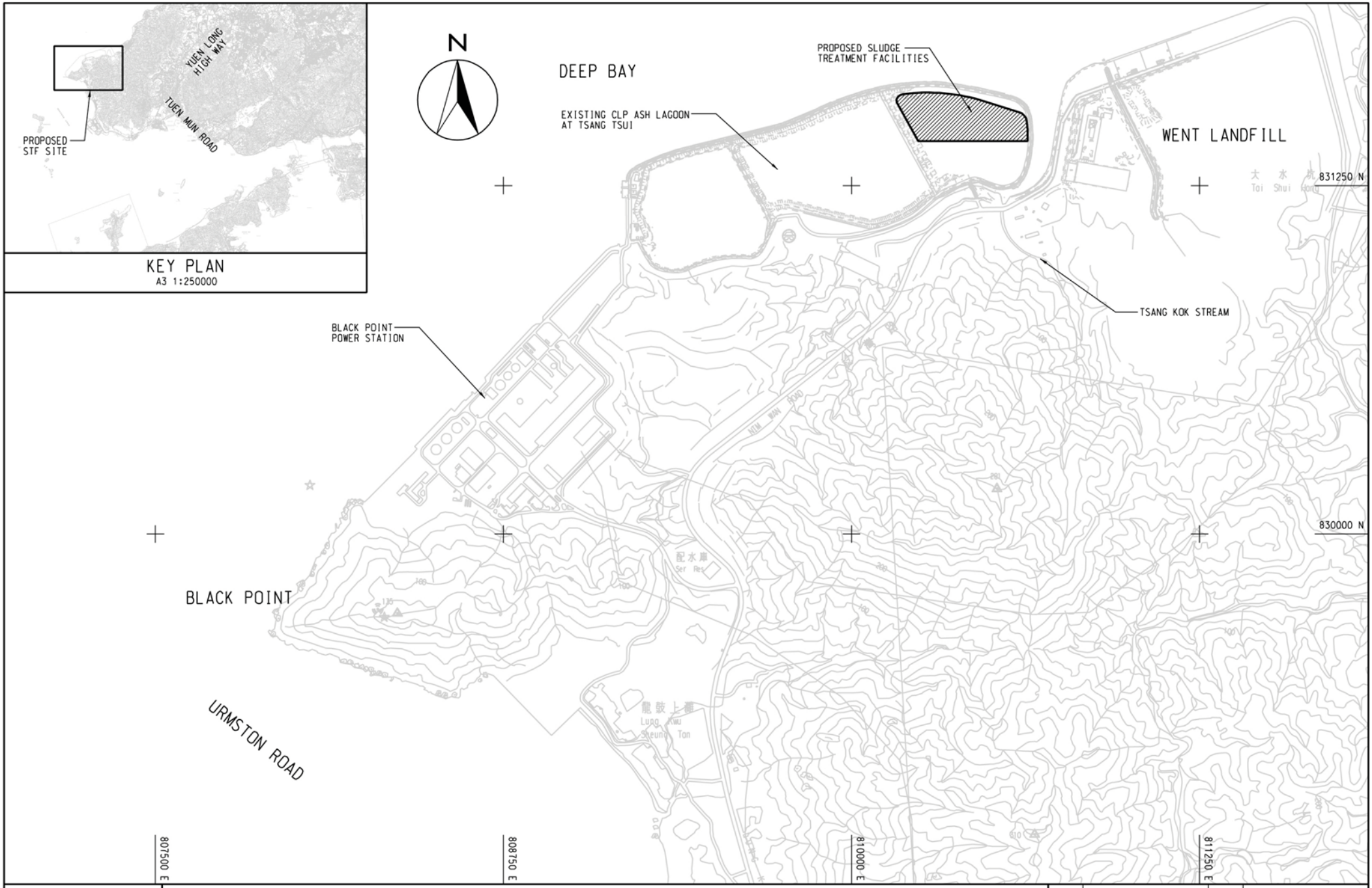
GENERAL LAYOUT OF PROPOSED SLUDGE TREATMENT FACILITIES (STF)

SCALE	A3 1:2500	DATE	JAN. 2008
CHECK	-	DRAWN	MJM
JOB No.	60015756	DRAWING No.	FIGURE 1.1
		REV	-

FUGRO TECHNICAL SERVICES LIMITED
MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Telephone : +852-2450 8233
Telefax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

Figure 3.1

Site Layout Plan



MAUNSELL | AECOM
Metcalf & Eddy Ltd.

AGREEMENT NO. CE 28/2003 (EP)
SLUDGE TREATMENT FACILITIES - FEASIBILITY STUDY

LOCATION PLAN OF PROPOSED SLUDGE TREATMENT FACILITIES

SCALE	A3 1:12500	DATE	SEP. 2008
CHECK	PPMY	DRAWN	XCF
JOB No.	60015756	DRAWING No.	FIGURE 1.1
		REV	-

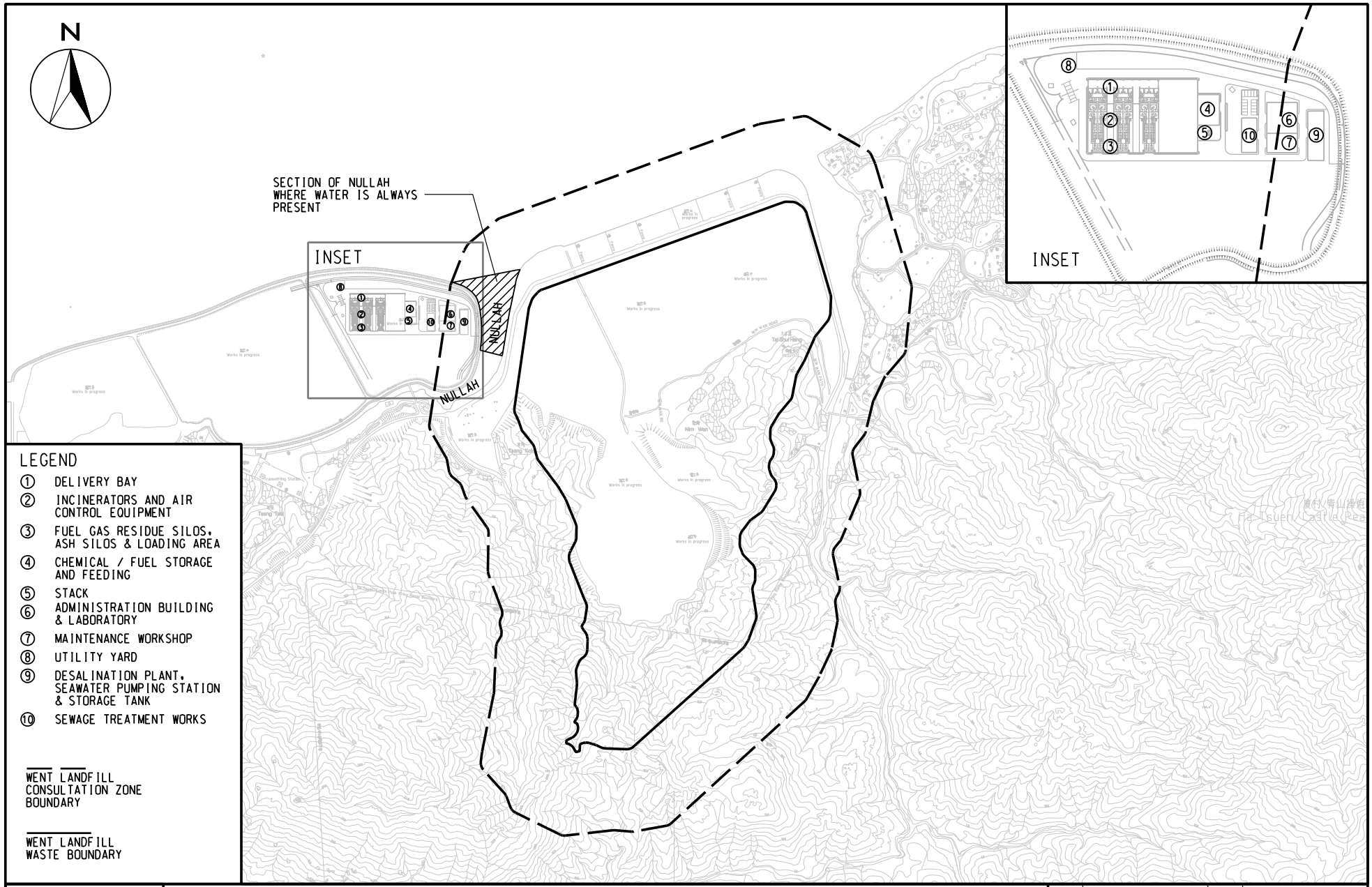
DATE: GUOXH 2008-9-30

p:\projects\60015756\DRAWING\REPORT\ES REPORT\FIGURE 1-1.dgn

FUGRO TECHNICAL SERVICES LIMITED
MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Telephone : +852-2450 8233
Telefax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

Figure 3.2

WENT Landfill Gas Control Zone



MAUNSELL AECOM
Metcalf & Eddy Ltd.

AGREEMENT NO. CE 28/2003 (EP)
SLUDGE TREATMENT FACILITIES - FEASIBILITY STUDY

WENT LANDFILL CONSULTATION ZONE

SCALE	1:11000	DATE	APR. 2008
CHECK	TCYC	DRAWN	ALFA
JOB No.	60039510	DRAWING No.	FIGURE 10.1
		REV	-

DATE: $DATE$

P:/60039510/1.01/CAD/DRAWING/REPORT/FIGURE 10.1.DGN

INSET

BUNKERFFERDAM

831540.261 N
810555.162 E

Portion 1 (next to Plant B)

Portion 1 (next to Plant B)
-concreting on 08 August 2012

831408.992 N
810534.890 E

Portion 3 (next to Canteen)

Portion 3 (next to Canteen) - backfilled on 15 August 2012,

Backfilled on 01 August 2012

Portion 3 (next to T758)

831251.868 N
810511.028 E

WENTNDFILL
CONSULTATIONNE
BOUNDARY

Fence

NULLAH

P

INSET

September 2012

BUNKERFFERDAM

831540.261 N
810555.162 E

Portion 1 (next to Plant B)

Portion 1 (next to Plant B)
-concreting on 08 August 2012

831408.992 N
810534.890 E

Portion 3 (next to Canteen)

Portion 3 (next to Canteen) - backfilled on 15 August 2012,

Backfilled on 01 August 2012

Portion 3 (next to T758) - backfilled on 11 Sep 2012

831251.868 N
810511.028 E

WENTNDFILL
CONSULTATIONNE
BOUNDARY

Fence

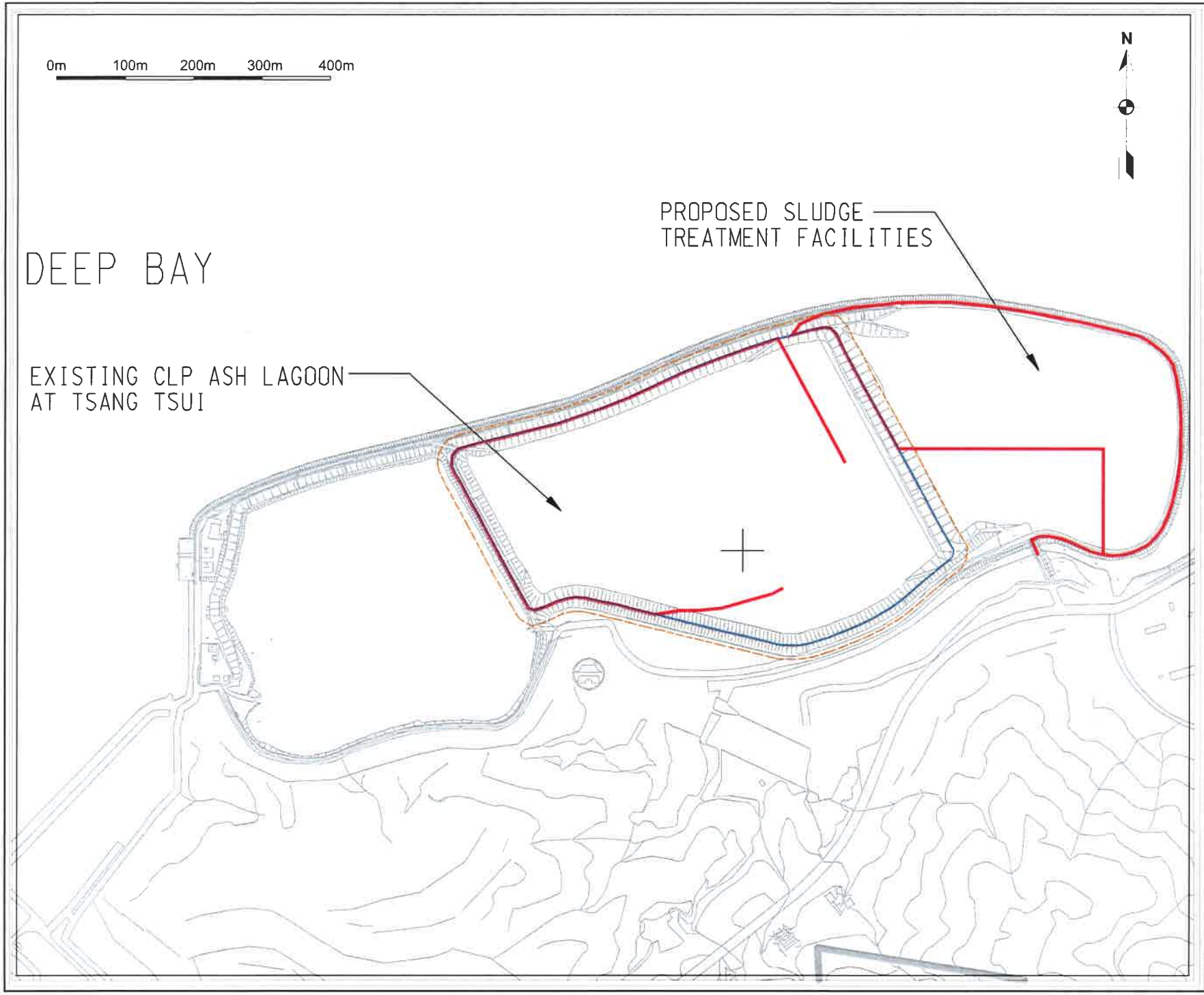
NULLAH

P

FUGRO TECHNICAL SERVICES LIMITED
MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Telephone : +852-2450 8233
Telefax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

Figure 4.1

Ecological Transect Route



Notes:

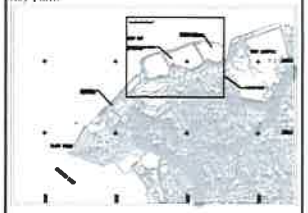
- Survey Route
- Middle Lagoon Boundary
- 20m from Middle Lagoon Boundary

Asia Ecological Consultants Ltd

Project Title:

Contract No. EP/SP/58/08
Sludge Treatment Facilities

Key Plan:



Drawing Title:

Ecological Transect Route

Drawn:	SK	Scale:	As shown
Checked:	DJS	Date:	May 2011
Approved:	DJS	File:	--

Drawing Number: --

Revision: 1