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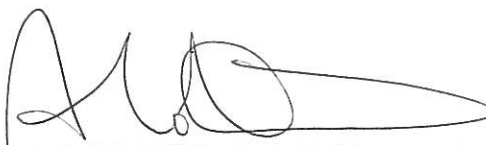
Contract No. EP/SP/58/08

Sludge Treatment Facilities

**Environmental Monitoring and Audit Report
for
December 2010**

MaterialLab Ref No.: 100440EN101012

Certified by :



John K.M. Ho
(Environmental Team Leader)

Date :

5 January 2011

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The logo for MaterialLab, featuring the word "MaterialLab" in a bold, black, sans-serif font. The text is centered between two thick, horizontal black bars, one above and one below the text.

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1. Executive Summary

The baseline environmental monitoring for the Contract No. EP/SP/58/08 Sludge Treatment Facilities was completed on 2 December 2010. 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 was carried out to acquire data for assessing any impact associated with the construction activities.

Marine Water Quality

Pursuant to EM&A manual, marine water quality monitoring is required during the foundation piling. In December 2010, there was only site clearance and GI works in progress and there was no marine water monitoring performed in this month.

Stream Water Quality

As far as the water quality was concerned, two events of non-compliance of Action / Limit levels on various monitored parameters were recorded in this month.

Table 1.1 summarized exceedance events recorded at the monitoring stations in this reporting month. The recorded exceedances are not caused by the construction activities so there was no action taken with regards to the action plan. Details are summarized in Table 1.1

In general, the stream water quality was not significantly deteriorated after the commencement of the construction works.

Ecology Monitoring

Two survey were conducted on 15th and 31st December 2010 at the Middle Lagoon. Total of 305 nos. of birds of 13 species were recorded on 15th December. Coverage water in Middle Lagoon decreased to 10% of original size in October 2010.

Landscape and Visual Monitoring

In the reporting month, two site survey were performed on 22nd and 29th December 2010 to assess the implementation of proposed measures for minimize impact might caused by the construction activities.

Works Undertaken During Reporting Month

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

- Site clearance – vegetation removal in the North of East Lagoon (STF construction area)
- Site office/facilities establishment – Hoarding installation, chemical storage container, chemical waste container, water storage tank and sprinkler system
- GI work

Works area is shown in Figure 1.1

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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.

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 December 2010

Table 1.1 Summary of Exceedances Recorded at the Monitoring Stations in the Reporting Month

Environmental Quality	Parameter	Date of Exceedance	Reason for Exceedance	Any follow-up action required
Water quality (Stream)		Action and Limit Level		
	Dissolved oxygen	-	-	-
	Suspended Solids	-	-	-
	Turbidity	-	-	-
	pH	23/12/2010	Subject to the influence of upstream control station (C1) with high pH level 8.89.	As the source of impact is unrelated to site activities, repeat measurement on next day is cancelled.

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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 in December 2010 and forecasts the activities for January 2011. 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.

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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 handling 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.

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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. Alex Ng	2872 1800
Environmental Protection Department, EIAO	EIAO Officer	Mr. Thomas To	2835 1103
JACOBS	Employer Representative	Mr. Lesile 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 are 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

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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	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Site condition and Bird Monitoring 	Whole Middle Lagoon and 20 m from the boundary of the Lagoon	<ul style="list-style-type: none"> ▪ Monthly monitoring for avifauna. ▪ Habitat monitoring at least twice per month. ▪ Monthly Vegetation monitoring. 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • All measures, including compensatory planting, 	East Lagoon	Biweekly	<ul style="list-style-type: none"> • Ensure compliance with the intended aims of the measures and the

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	undertaken by both the Contractor and the specialist Landscape Sub-Contractor.			effectiveness of the mitigation measures.
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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

Parameter	Action Level	Limit Level
DO in mg/L (mid-depth)	≤ 5.16	≤ 4
SS in mg/L (mid-depth)	≥ 41 or 120% of control station's SS on the same day of measurement	≥ 85 or 130% of control station's SS on the same day of measurement
Turbidity in NTU (mid-depth)	≥ 36.4 or 120% of control station's turbidity on the same day of measurement	≥ 78.9 or 130% of control station's turbidity on the same day of measurement
pH	$\text{pH} \leq 7.55$ or $\text{pH} \geq 8.11$	$\text{pH} \leq 6$ or $\text{pH} \geq 9$
Cadmium	≥ 0.5	≥ 0.5
Chromium	≥ 1	≥ 1
Aluminium	≥ 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.

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4. Construction Phase Environmental Monitoring

The construction phase was commenced on 22/12/2010. 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.

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 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
Cadmium, Chromium and Aluminium	USEPA method 6020A

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 laboratory.

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

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Table 4.2 Method Statements of Laboratory Analysis of Stream Water Quality

Parameters	Method
Suspended solids	APHA, 18 th edition, 2540D

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	Hanna	pH
Dissolved oxygen meter	YSI 58 meter YSI 5739 probe YSI 5795A submersible stirrer	Dissolved oxygen Temperature
Salinity meter	TSI 30 meter/YSI 63 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 the monitoring programme in December 2010 is shown in Table 4.4.

Table 4.4 Monitoring Schedule for December 2010

SUN	MON	TUE	WED	THU	FRI	SAT
			1 December	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22 CC	23 W	24	25
26	27	28	29 W	30	31 W	

Legend: CC – Commencement of Construction Phase

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W - Water quality monitoring at C1, C2, W1, W2 and W3. Three days per week for 2 weeks.

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.

During the course of the monitoring work, site clearance works was observed within the project area.

Table 4.5 Water Quality Monitoring Result

Location	Parameters	Maximum	Minimum	Mean
W1	Dissolved Oxygen (mg/L)	8.03	5.65	6.95
	Turbidity (NTU)	32.80	12.70	19.73
	pH	7.96	7.69	7.86
	Suspended Solids (mg/L)	39	15	24
W2	Dissolved Oxygen (mg/L)	8.72	6.49	7.87
	Turbidity (NTU)	32.00	14.00	21.84
	pH	8.15	7.68	7.85
	Suspended Solids (mg/L)	43	14	28
W3	Dissolved Oxygen (mg/L)	12.21	6.93	9.12
	Turbidity (NTU)	21.60	3.57	15.68
	pH	8.21	7.65	7.94
	Suspended Solids (mg/L)	32	5	19

4.1.5 Summary of Non-compliances of the Environmental Quality Performance Limits for December 2010

Water Quality

Two events of non-compliance regarding pH were recorded on 23/12/2010. Details are summarized in Table 4.6.

Table 4.6 Summary of Exceedances in December 2010

Date	Location	Parameter
23/12/2010 15:42 – 15:59 (Mid-ebb)	W2	pH: 8.14 (exceed Action Level)
23/12/2010 15:42 – 15:59 (Mid-ebb)	W3	pH: 8.21 (exceed Action Level)

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4.1.6 Review of the Events Non-compliance

4.1.6.1 Marine Water Quality Monitoring

No monitoring was carried out in December 2010 as no foundation works has been conducted.

4.1.6.2 Stream Water Quality Monitoring

The exceedance was caused by the high pH (8.89) of the upstream control station C1. Monitoring was carried out at mid-ebb tide, the water level at W2 and W3 were relatively shallow and pH of the water was subjected to the influence of the upstream water. The Incident Report on Action and Limit Level Non-compliance is attached in Appendix 9.

4.2. Ecological Monitoring

- 4.2.1 Two monitoring visits were conducted on 15th and 31st December 2010 to assess these measures in place to minimise the disturbance impact to wildlife. During the sites visits, the erection of 3m high hoarding was underway to reduce disturbance impact of human activities on adjacent areas (namely the Middle Lagoon and other natural habitats). All work crews, equipment and human activities were confined within the designated works area, and no observations of site personnel encroaching or wilfully disturbing any wild animals and their habitats were made.
- 4.2.2 Monthly monitoring of avifauna and their notable behaviour, such as breeding activities in the Middle Lagoon, was conducted on 15th December 2010, following the commencement of construction activities on site. The Monitoring Area included the whole Middle Lagoon and area extended 20 m from the boundary of the Lagoon. All birds seen and heard were identified and counted. 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
- 4.2.3 The list of bird surveys recorded from the survey conducted on 15th December 2010 can be seen in Table 4.7. In addition, the coverage of water in the Middle Lagoon has decreased significantly since the Baseline Surveys were conducted in October 2010; only 10%, approximately, of the Middle Lagoon is now in standing water, restricted to areas to the west and south of the Lagoon. In addition, there are PFA filling activities underway at the southwestern corner of the Middle Lagoon, where materials are being dumped to form a bund parallel, and level, to the existing bund along the southern boundary of the lagoon.

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Table 4.7 Bird Species observed during Monthly Monitoring Surveys in December 2010

Survey date: 15/12/2010			
Species Name	Scientific Name	Middle Lagoon	Notable/Breeding Activity
Little Grebe	<i>Tachybaptus ruficollis</i>	1	None observed
Common Moorhen	<i>Gallinula chloropus</i>	2	None observed
Common Coot	<i>Fulica atra</i>	1	None observed
Common Snipe	<i>Gallinago gallinago</i>	1	None observed
Little Ringed Plover	<i>Charadrius dubius</i>	2	None observed
Kentish Plover	<i>Charadrius alexandrinus</i>	61	None observed
Green Sandpiper	<i>Tringa ochropus</i>	4	None observed
Yellow Wagtail	<i>Motacilla flava</i>	3	None observed
White Wagtail	<i>Motacilla alba</i>	75	None observed
Daurian Redstart	<i>Phoenicurus aureus</i>	2	None observed
White-shouldered Starling	<i>Sturnus sinensis</i>	7	None observed
Crested Myna	<i>Acridotheres cristatellus</i>	145	None observed
Black-faced Bunting	<i>Emberiza spodocephala</i>	1	None observed
Total Numbers		305	
Total Species		13	

4.3. Landscape and Visual Impact Monitoring

- 4.3.1. 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 4.8.
- 4.3.2. Site inspections for the monthly EM & A Record for Landscape and Visual Impact (December 2010) were undertaken on 22nd and 29th of December 2010. Observation of the implementation of proposed landscape and visual mitigation measures are summarized in Table 4.8.

Table 4.8 Record of Implementation of the Proposed Landscape and Visual Mitigation Measures in Construction Phase (December 2010)

ID No.	Nature / Type	Landscape and Visual Mitigation Measures	Status (December 2010)	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.	The topsoil was PFA which is not suitable for re-use in the soft landscape

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ID No.	Nature / Type	Landscape and Visual Mitigation Measures	Status (December 2010)	Remarks
				works. Photographic record of topsoil is shown in Table 4.9.
CM2	Site Practice	Existing trees to be retained on site should be carefully protected during construction.	In general the existing trees have been fenced off. Only a few trees were found with wound on the tree bark or branches.	Mitigation measures have been proposed for proactive protection of existing trees. Photographic record of the tree wound are shown in Table 4.9.
CM3	Design/Construction Planning	Trees unavoidably affected by the works should be transplanted where practical.	In progress.	Trees to be transplanted are proposed in the tree felling application to be submitted to DLO.
CM4	Design/Construction Planning	Compensatory tree planting should be provided to compensate for felled trees	In progress.	Compensatory tree planting is proposed for any trees to be felled in the in the tree felling application.
CM5	Site Practice	Control of night-time lighting	Not applicable.	No night time work was implemented in December 2010.
CM6	Design/Construction Planning	Erection of decorative screen hoarding compatible with the surrounding setting	Completed.	Erection of decorative screen hoarding is being set up along the site boundary. Photographic record is shown in Table 4.9.

CM1 - Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical.

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Topsoil found within the project site is PFA, which consist of heavy metals and toxic contaminants that it is not suitable to be re-used as soil mix for landscape softwork. Photographic record of topsoil is shown in Table 4.9.

CM2 - Existing trees to be retained on site should be carefully protected during construction. In general the existing trees are being fenced off on site and they are in healthy condition. Only a few trees retained on site being found with wounds on the tree bark and branches. As the tree wounds are in general close to the trunk, tree compartmentalization would occur at the wound area, which would limit the spread of decay from the wound to the inner tissue, application of sealing compound is not required and considered not necessary as they cannot stop any decay activities. To avoid further damage on the existing tree, it is recommended to limit the construction activities outside the tree protection zone (dripline of the crown), or taking precaution measure to inspect and conduct minor pruning of tree crown, in particular in area with construction activities and traffic in the close vicinity. In addition, all pruning work should be supervised by landscape field officer to ensure the trees are properly pruned. Photographic records of some of the wounds on trees are shown in Table 4.9.

CM3 - Trees unavoidably affected by the works should be transplanted where practical. A number of trees are identified to be unavoidably affected by the works in the tree survey and some of them are proposed to be transplanted instead of felling in the tree felling application. The tree felling application is under preparation and to be submitted to DLO for approval.

CM4 - Compensatory tree planting should be provided to compensate for felled trees. Compensatory tree planting is proposed for any trees to be felled in the in the tree felling application. The compensatory tree planting has been incorporated with the details of the landscape master plan.

CM5 - Control of night-time lighting

No night time work was implemented in December 2010 and thus no night time lighting was used.

CM6 - Erection of decorative screen hoarding compatible with the surrounding setting. Construction of decorative screen hoarding compatible with the surrounding setting was recorded in December 2010. Photographic record of hoarding is shown in Table 4.9.





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Table 4.9 Photographic Record of Landscape and Visual Impact Survey

1. Photographic Record of Topsoil	2. Photographic Record of Screen Hoarding
 <p data-bbox="188 837 762 902">Topsoil within the site was PFA, which is not suitable to be re-used in landscape softwork.</p>	 <p data-bbox="794 837 1369 902">Screen hoarding is being erected along the site boundary in December 2010.</p>
3. Photographic record of trees	
 <p data-bbox="188 1442 571 1464">Wound on the bark.</p>	 <p data-bbox="794 1397 1401 1464">Tree with minor pruning cut with irregular end</p>

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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;
- Implementation of additional mitigation measures if necessary.

Environmental Site Audit has been conducted on 24 and 31 December 2010.

During December 2010, as far as the site operation was concerned, site clearance, site office/facility establishment and GI work were proceeded.

Regarding the air quality, most of the site area and access road were watered regularly by water truck or water sprinklers. 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, drainage system has not been constructed. Although the surface runoff in dry season is unlikely occur, contractor shall install the drainage system as soon as practical.

Major Observation of Site Audit

▪ Air quality

In general, the Contractor implemented the required measures, such as minimize open surface, covered open stockpiles, regular watering of the uncovered area and access road. There was a few areas at side of access road found to be insufficient watered. Contractor should increase watering efficiency of the water truck by widening the watering area for wider road and reduce the speed of the water truck.

▪ Noise

Quality Powered Mechanical Equipments were employed and located away from the Middle Lagoon.

▪ Water quality

Wastewater generated from drilling machines were recycled and no discharge from the construction site was observed.

Impact Predication Review

Advanced construction works including grass cutting, site clearance and GI works will proceed in January 2011. It is expected that this operation will not impose significant air, noise and stream water impact to the sensitive receivers. Nevertheless, necessary mitigation measures should be deployed when needed.

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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 December 2010.

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The logo for MateriaLab, featuring the word "MateriaLab" in a bold, black, sans-serif font. The text is centered between two thick, horizontal black bars.

7. Works Program for January 2011

Advance construction works including site clearance and facilities establishment will proceed in January 2011.

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8. Monitoring Schedule for January 2011

The monitoring schedule for January 2011 is shown in Table 8.1.

Table 8.1 Monitoring Schedule for January 2011

SUN	MON	TUE	WED	THU	FRI	SAT
						1 January
2	3	4 W	5	6 W	7	8 W
9	10	11 W	12	13 W	14	15 W
16	17	18 W	19	20 W	21	22 W
23	24	25 W	26	27 W	28	29 W

Legend: W - Water quality monitoring at C1, C2, W1, W2 and W3.
Three days per week.

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9. Comments and Conclusions for December 2010

In this reporting month, only minor work, site clearance and GI works in progress. The site activities did not lead to any significant impact to noise, air quality and the stream water quality.

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.

Drainage system for collecting surface runoff shall be installed prior to commencement of the site formation, which is scheduled in February 2011.

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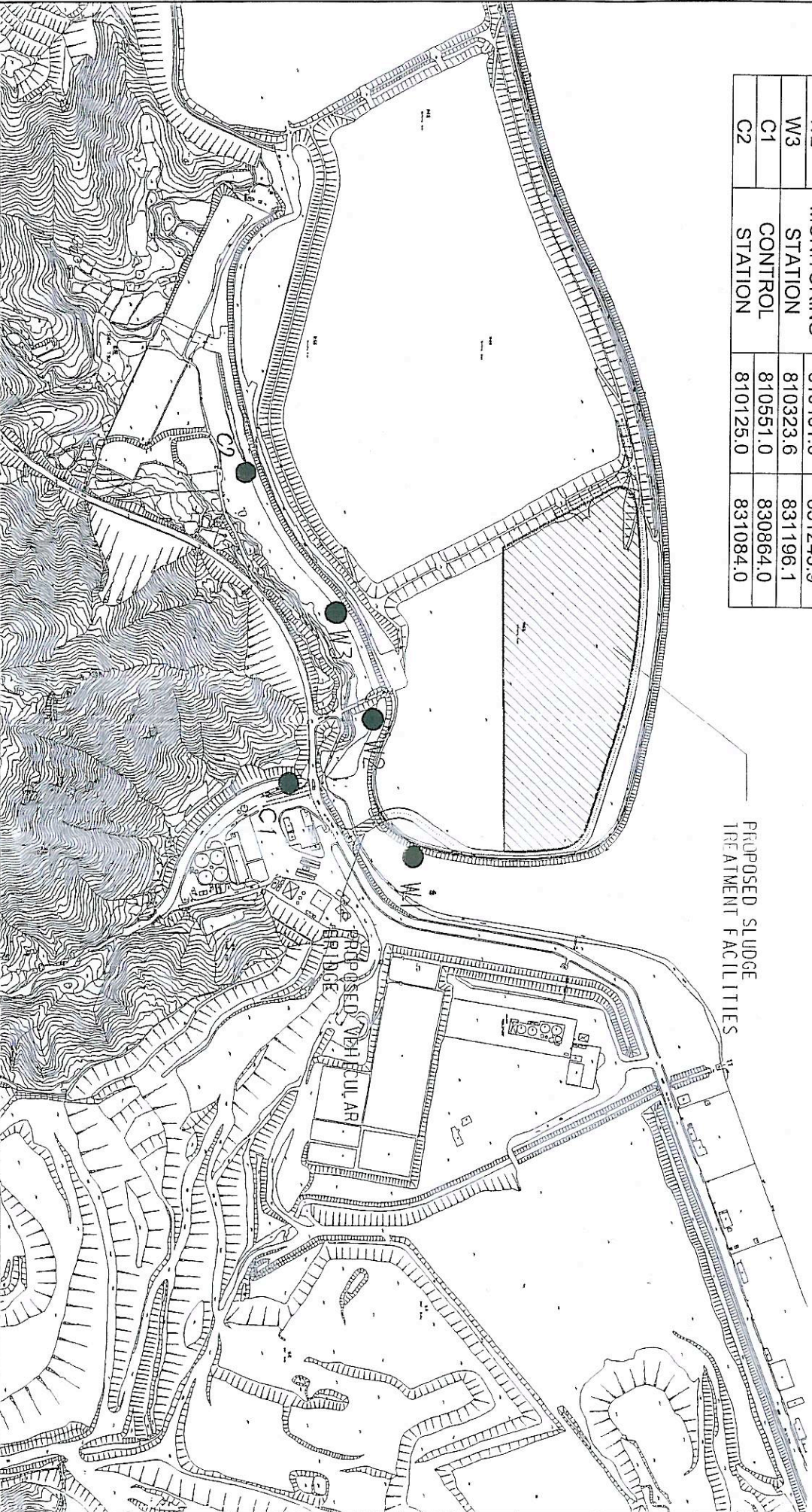
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Appendix 1

Water Quality Monitoring Location

LOCATIONS OF STREAM
WATER QUALITY MONITORING STATIONS

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



DATE: 9/2008

MAUNSELL | **AECOM**
Medical & Eddy Ltd

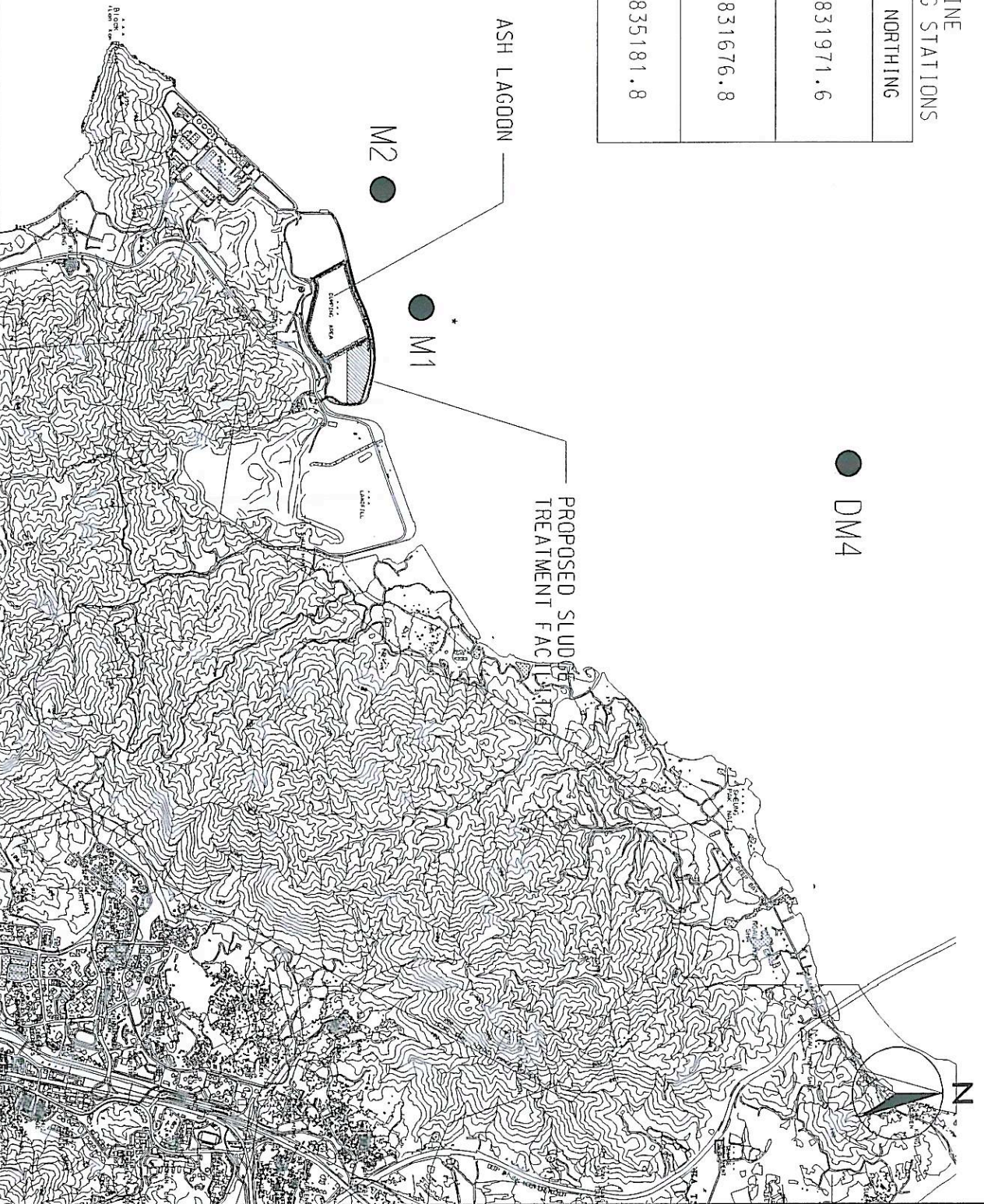
AGREEMENT NO. CE 28/2003 (EP)
SLUDGE TREATMENT FACILITIES - FEASIBILITY STUDY
LOCATION OF WATER QUALITY MONITORING STATIONS

(Sheet 1 of 2)

SCALE	DATE	DATE
A3 1:5000	AKYC	JUN 2008
JOB NO. 60039510	DRAWN	LMW
	FIGURE NO. 5.1	REV -

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



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

MAUNSELL | **AECOM**
Meredith & Eddy Ltd.

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

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Appendix 2

Equipment Calibration Certificates

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Report No. : 921438WA102185



Page 1 of 2

REPORT ON CALIBRATION OF SALINITY/CONDUCTIVITY METER

Information Supplied by Client

Client : Fugro Technical Services Limited – MaterialLab 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 salinity/conductivity meter YSI model 30

Client sample ID : Serial No. 00H1322 AC (E-001-12)

Test required : Calibration of the submitted salinity/conductivity meter

Laboratory Information

Lab. sample ID : WA102185/1

Date sample received : 03/11/2010

Date of calibration : 03/11/2010

Next calibration date : 03/02/2011

Test method used : Ref. Operation Manual of YSI model 30

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

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Report No. : 921438WA102185

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Results:**A. Calibration of Conductivity Meter**

Temperature, °C	Conductivity, µmhos/cm			
	Theoretical	Measured	Deviation	Maximum acceptable deviation
25	-	-	-	± 70
25	-	-	-	±400
25	-	-	-	±700
25	-	-	-	±1200

B. Calibration of Salinity Meter

Salinity, ‰			
Theoretical	Measured	Deviation	Maximum acceptable deviation
10	10.1	0.1	± 0.5
20	20.2	0.2	± 1.0
30	30.5	0.5	± 1.5
40	40.1	0.1	± 2.0

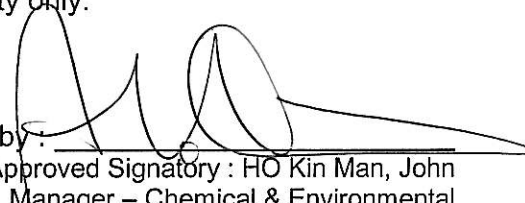
C. Calibration of Temperature Sensor

Thermometer Reading, °C	Meter Reading, °C	Maximum acceptable deviation, °C
21.0	21.3	± 0.5

D. Conclusion

The instrument is found to be acceptable for use of salinity only.

Supervised by : Y. M. Chung

Certified by : 
Approved Signatory : HO Kin Man, John
Manager – Chemical & Environmental

Date : 10/11/2010

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

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Report No. : 921438WA101936



Page 1 of 2

REPORT ON CALIBRATION OF SALINITY/CONDUCTIVITY METER

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 salinity/conductivity meter YSI model 63

Client sample ID : Serial No. 01B0112 AA (E-001-14)

Test required : Calibration of the submitted salinity/conductivity meter

Laboratory Information

Lab. sample ID : WA101936/1

Date sample received : 27/09/2010

Date of calibration : 28/09/2010

Next calibration date : 28/12/2010

Test method used : Ref. Operation Manual of YSI model 63

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

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Report No. : 921438WA101936

Page 2 of 2

Results:**A. Calibration of Conductivity Meter**

Temperature, °C	Conductivity, µmhos/cm			
	Theoretical	Measured	Deviation	Maximum acceptable deviation
25	-	-	-	± 70
25	-	-	-	±400
25	-	-	-	±700
25	-	-	-	±1200

B. Calibration of Salinity Meter

Salinity, ‰			
Theoretical	Measured	Deviation	Maximum acceptable deviation
10	10.5	0.5	± 0.5
20	21.0	1.0	± 1.0
30	30.9	0.9	± 1.5
40	40.9	0.9	± 2.0

C. Calibration of Temperature Sensor

Thermometer Reading, °C	Meter Reading, °C	Maximum acceptable deviation, °C
23.4	23.5	± 0.5

D. Conclusion

The instrument is found to be acceptable for use.

Supervised by : Y. M. Chung

Certified by : 
Approved Signatory : HO Kin Man, John
Manager – Chemical & Environmental

Date : 5/10/2010

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

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Report No. : 921438WA101936(1)



Page 1 of 2

REPORT ON CALIBRATION OF D.O. METER

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 Dissolved Oxygen Meter YSI model 58

Client sample ID : Serial No. 99B0937 (E-004-21)

Test required : Calibration of the submitted D.O. meter

Laboratory Information

Lab. sample ID : WA101936/2

Date sample received : 27/09/2010

Date of calibration : 28/09/2010

Next calibration date : 28/12/2010

Test method used : Ref. Operation Manual of D.O. meter YSI model 58

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

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Page 2 of 2

Results:1. Dissolved Oxygen Meter Calibration Data

Trial No.	Dissolved oxygen content, mg/L	
	By Titration	By D.O. meter
1	7.49	7.45
2	7.62	7.59
3	7.62	7.57
Average	7.58	7.54

2. Temperature

Thermometer reading, °C	Meter reading, °C
23.0	23.4

Remark : Dissolved oxygen content measured by the D.O. meter was found to comply with that determined by Winkler Titration. Therefore, the meter is found to be acceptable for use.

Supervised by : Y. M. ChungCertified by : Approved Signatory : HO Kin Man, John
Manager – Chemical & EnvironmentalDate : 5/10/2010*Note : This report refers only to the sample(s) tested.*

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Report No. : 921438WA102185(1)



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REPORT ON CALIBRATION OF D.O. METER**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 Dissolved Oxygen Meter YSI model 58

Client sample ID : Serial No. 00E0283 (E-004-27)

Test required : Calibration of the submitted D.O. meter

Laboratory Information

Lab. sample ID : WA102185/2

Date sample received : 03/11/2010

Date of calibration : 05/11/2010

Next calibration date : 05/02/2011

Test method used : Ref. Operation Manual of D.O. meter YSI model 58

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

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Page 2 of 2

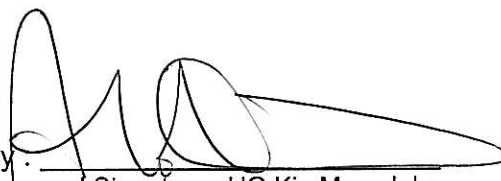
Results:1. Dissolved Oxygen Meter Calibration Data

Trial No.	Dissolved oxygen content, mg/L	
	By Titration	By D.O. meter
1	7.62	7.80
2	7.62	7.80
3	7.69	7.81
Average	7.64	7.80

2. Temperature

Thermometer reading, °C	Meter reading, °C
20.6	20.5

Remark : Dissolved oxygen content measured by the D.O. meter was found to comply with that determined by Winkler Titration. Therefore, the meter is found to be acceptable for use.

Supervised by : Y. M. Chung
 Certified by : 
 Approved Signatory : HO Kin Man, John
 Manager – Chemical & Environmental
Date : 15/11/2010*Note : This report refers only to the sample(s) tested.*

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Report No. : 921438WA102052



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REPORT ON CALIBRATION OF TURBIDIMETER

Information Supplied by Client

Client : Fugro Technical Services Limited – MaterialLab 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. 961200012790 (E-047- 4)

Test required : Calibration of the submitted Turbidimeter

Laboratory Information

Lab. sample ID : WA102052/1

Date sample received : 14/10/2010

Date of calibration : 14/10/2010

Next calibration date : 14/01/2011

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.

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Report No. : 921438WA102052

Page 2 of 2

Results:

Calibrated Values of Secondary Gelex Standards

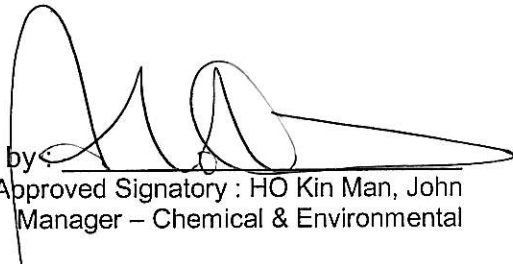
Auto-programmed Turbidity Standard Range	0.00-9.99 NTU, Gelex Vial	10-99.9 NTU, Gelex Vial	100-1000 NTU, Gelex Vial
Calibrated Value of the Secondary Standard, N.T.U.	4.56	47.5	442

Checking of sample cell condition using filtered ultra-pure water

Turbidity of procedural blank, NTU	
Our sample cell	Client's sample cell
0.14	0.22

- 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 $\pm 5\%$ 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 – Chemical & Environmental

Date : 21/10/2010*Note : This report refers only to the sample(s) tested.*

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Appendix 3

Stream Water Quality Monitoring Data

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Our Ref. No. : 100440EN101012

Client : VW-VES (HK) Ltd.


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

Field Data Record (Stream Water)

Date : 23/12/2010 (p.m.) Test No. : 13
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	15:17	21	0.1	20.9	23.1	6.44	83.1	17.2	7.91	21	
				20.9	23.3	6.77	87.4	16.6	7.92	23	
W2	15:42	22	0.6	20.6	21.4	8.17	103.6	20.0	8.13	27	
				20.7	21.5	8.01	101.6	18.1	8.15	24	
W3	15:59	22	0.1	21.0	15.9	8.35	103.2	14.7	8.20	17	
				20.8	16.0	8.29	102.3	14.2	8.21	15	
C1	14:56	21	0.1	21.0	0.2	9.28	104.4	9.57	8.87	12	
				21.0	0.1	9.32	104.7	9.58	8.90	20	
C2	14:37	20	0.1	19.6	4.0	9.36	105.3	6.69	8.02	11	
				19.8	4.1	9.73	109.2	7.54	8.01	12	

Certified by :



Approved Signatory : K.M. Ho

Date :

5/1/2011

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Website : www.materialab.com.hk

Materialab

Our Ref. No. : 100440EN101012

Client : VW-VES (HK) Ltd.

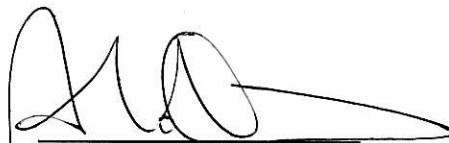
Project : Contract No. EP/SP/58/08

Field Data Record (Stream Water)

Date : 23/12/2010 (a.m.) Test No. : 13
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	10:51	20	0.1	19.7	26.4	6.65	85.1	19.1	7.96	19	
				19.7	26.4	6.80	87.1	18.7	7.96	23	
W2	10:23	20	0.7	18.8	21.3	6.49	78.9	21.4	7.73	30	
				18.9	21.4	6.61	80.3	24.0	7.70	27	
W3	10:02	19	0.1	18.3	20.0	7.02	84.5	21.4	7.65	22	
				18.2	19.9	6.93	83.5	21.6	7.66	25	
C1	11:39	21	0.1	24.4	0.1	8.76	106.0	23.4	8.72	27	
				24.3	0.1	8.81	106.6	24.4	8.75	24	
C2	11:14	21	0.1	18.3	4.0	9.65	105.8	2.95	7.79	5	
				18.4	4.0	9.78	107.3	3.60	7.74	4	

Certified by


 Approved Signatory : K.M. Ho

Date :

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Client : VW-VES (HK) Ltd.

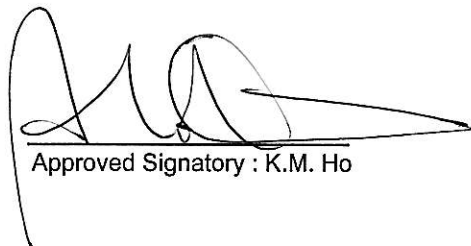
Project : Contract No. EP/SP/58/08

Field Data Record (Stream Water)

Date : 29/12/2010 (p.m.) Test No. : 14
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	14:25	21	0.1	20.7	26.3	7.96	102.7	17.9	7.89	29	
				20.7	26.4	8.03	103.7	17.5	7.90	19	
W2	15:07	22	1.1	19.7	23.8	7.24	92.7	26.2	8.04	34	
				19.8	23.9	7.52	98.1	25.9	8.05	39	
W3	14:50	21	0.1	21.5	22.1	8.89	114.5	19.3	8.02	21	
				21.5	22.0	8.75	112.8	19.4	8.03	21	
C1	13:45	21	0.1	23.3	0.0	9.00	105.1	19.8	8.95	41	
				23.3	0.0	9.08	106.1	23.7	9.00	27	
C2	14:02	22	0.1	17.0	6.5	14.81	160.4	2.99	8.21	5	
				16.9	6.4	15.07	163.1	3.62	8.31	2	

Certified by :



Approved Signatory : K.M. Ho

Date :

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Client : VW-VES (HK) Ltd.

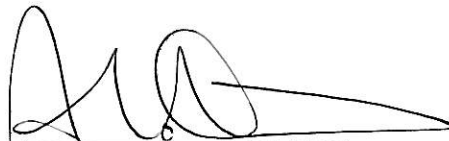
Project : Contract No. EP/SP/58/08

Field Data Record (Stream Water)

Date : 29/12/2010 (a.m.) Test No. : 14
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	08:28	15	0.1	17.6	25.2	5.67	70.9	30.3	7.69	39	
				17.6	25.3	5.65	69.8	32.8	7.71	36	
W2	09:15	16	0.2	17.3	14.4	8.65	98.5	29.4	7.68	43	
				17.4	14.5	8.72	99.2	32.0	7.71	40	
W3	08:59	15	0.1	15.9	10.9	10.37	112.0	4.13	7.87	5	
				16.0	11.0	10.74	115.8	3.57	7.84	5	
C1	10:01	16	0.1	19.4	0.1	11.59	125.3	18.8	8.39	39	
				19.3	0.0	11.45	124.2	22.1	8.31	27	
C2	09:35	16	0.1	13.2	3.7	12.67	123.9	3.98	7.64	8	
				13.2	3.6	12.48	127.7	4.86	7.65	7	

Certified by :



Approved Signatory : K.M. Ho

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5/1/2011

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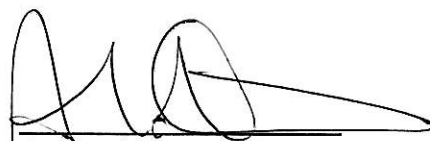
Project : Contract No. EP/SP/58/08

Field Data Record (Stream Water)

Date : 31/12/2010 (a.m.) Test No. : 15
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	10:02	17	0.1	15.4	26.1	7.29	86.3	20.7	7.81	15	
				15.5	26.3	7.38	87.5	20.3	7.81	15	
W2	10:54	17	0.5	14.8	17.3	8.47	91.4	17.6	7.71	15	
				14.8	17.4	8.55	91.9	19.2	7.73	14	
W3	10:36	17	0.1	16.5	11.9	12.08	133.1	17.2	8.07	20	
				16.5	12.0	12.21	134.2	14.1	8.09	21	
C1	11:16	18	0.1	19.7	0.1	9.07	98.4	28.4	9.06	26	
				19.8	0.1	8.92	96.7	29.7	8.99	15	
C2	11:30	18	0.1	13.0	4.1	10.57	103.5	2.54	8.30	19	
				13.0	4.1	10.41	101.9	3.05	8.31	18	

Certified by :



Approved Signatory : K.M. Ho

Date : 5/1/2011

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MateriaLab

Our Ref. No. : 100440EN101012

Client : VW-VES (HK) Ltd.

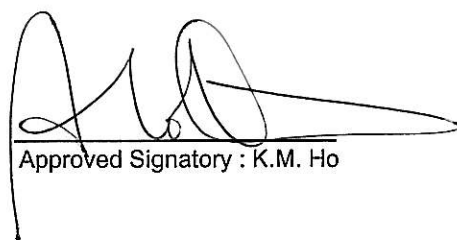
Project : Contract No. EP/SP/58/08

Field Data Record (Stream Water)

Date : 31/12/2010 (p.m.) Test No. : 15
 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	15:01	19	0.1	18.0	27.5	7.31	90.7	12.7	7.89	23	
				17.9	27.6	7.45	92.5	12.9	7.89	23	
W2	15:40	20	1.0	18.1	21.6	7.95	95.7	14.0	7.80	22	
				18.1	21.7	8.02	96.6	14.3	7.79	24	
W3	15:27	19	0.1	18.5	23.7	7.83	97.9	19.2	7.83	29	
				18.5	23.7	7.94	99.7	19.4	7.81	32	
C1	16:14	18	0.1	15.6	0.1	8.60	86.7	14.8	8.08	41	
				15.6	0.1	8.66	87.0	17.1	8.04	45	
C2	15:59	19	0.1	19.9	16.4	10.39	122.8	17.5	8.44	5	
				19.8	16.3	10.82	130.3	18.5	8.41	3	

Certified by :



Approved Signatory : K.M. Ho

Date :

5/1/2011

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MaterialLab

Report No. : 100440WA102586



Page 1 of 2

TEST REPORT ON ANALYSIS OF WATER

Information Supplied by Client

Client : Leighton Contractors (Asia) Ltd

Client's address : 39/F, Sun Hung Kai Centre, 30 Harbour Road, 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 MaterialLab on 23/12/2010

Client sample ID :

1. C1F	11. C1F
2. C1E	12. C1E
3. C2F	13. C2F
4. C2E	14. C2E
5. W1F	15. W1F
6. W1E	16. W1E
7. W2F	17. W2F
8. W2E	18. W2E
9. W3F	19. W3F
10. W3E	20. W3E

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

Laboratory Information

Lab. sample ID : WA102586/1 – WA102586/20

Date of receipt of sample : 23/12/2010

Date test commenced : 28/12/2010

Date test completed : 29/12/2010

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.

The Hong Kong Accreditation Service (HKAS) has accredited Fugro Technical Services Limited under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this report were determined by this laboratory in accordance with its terms of accreditation. The copyright of this report is owned by Fugro Technical Services Limited. It may not be reproduced except with prior written approval from the issuing laboratory.

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MaterialLab

Report No. : 100440WA102586

Page 2 of 2

**Results:**

Sample identification	Test parameters
	Total suspended solids dried at 103°C - 105°C, mg/L
1. C1F	27
2. C1E	12
3. C2F	5
4. C2E	11
5. W1F	19
6. W1E	21
7. W2F	30
8. W2E	27
9. W3F	22
10. W3E	17
11. C1F	24
12. C1E	20
13. C2F	4
14. C2E	12
15. W1F	23
16. W1E	23
17. W2F	27
18. W2E	24
19. W3F	25
20. W3E	15

Supervised by : Y. M. Chung
 Certified by : 
 Approved Signatory : HO Kin Man, John
 Manager – Chemical & Environmental
Date : 4/1/2011*Note : This report refers only to the sample(s) tested.*

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Materialab

Report No. : 100440WA102586

Laboratory Duplicate Result

Sample ID	Original Result, mg/L	Duplicate Result, mg/L
C1F	28	26

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.

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MaterialLab

Report No. : 100440WA102586(1)



Page 1 of 2

TEST REPORT ON ANALYSIS OF WATER

Information Supplied by Client

Client : Leighton Contractors (Asia) Ltd

Client's address : 39/F, Sun Hung Kai Centre, 30 Harbour Road, 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 MaterialLab on 29/12/2010

Client sample ID :

1. C1 29AF	11. C1 29AF
2. C1 29PE	12. C1 29PE
3. C2 29AF	13. C2 29AF
4. C2 29PE	14. C2 29PE
5. W1 29AF	15. W1 29AF
6. W1 29PE	16. W1 29PE
7. W2 29AF	17. W2 29AF
8. W2 29PE	18. W2 29PE
9. W3 29AF	19. W3 29AF
10. W3 29PE	20. W3 29PE

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

Laboratory Information

Lab. sample ID : WA102586(1)/1 – WA102586(1)/20

Date of receipt of sample : 29/12/2010

Date test commenced : 30/12/2010

Date test completed : 31/12/2010

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.

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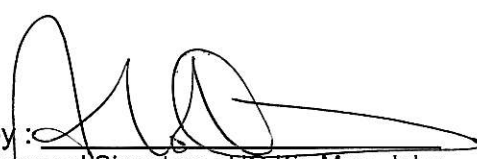
MaterialLab

Report No. : 100440WA102586(1)

Page 2 of 2

**Results:**

Sample identification	Test parameters
	Total suspended solids dried at 103°C - 105°C, mg/L
1. C1 29AF	39
2. C1 29PE	41
3. C2 29AF	8
4. C2 29PE	5
5. W1 29AF	39
6. W1 29PE	29
7. W2 29AF	43
8. W2 29PE	34
9. W3 29AF	5
10. W3 29PE	21
11. C1 29AF	27
12. C1 29PE	27
13. C2 29AF	7
14. C2 29PE	2
15. W1 29AF	36
16. W1 29PE	19
17. W2 29AF	40
18. W2 29PE	39
19. W3 29AF	5
20. W3 29PE	21

Supervised by : Y. M. Chung
 Certified by : 
 Approved Signatory : HO Kin Man, John
 Manager – Chemical & Environmental
Date : 5/1/2011*Note : This report refers only to the sample(s) tested.*

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MaterialLab

Report No. : 100440WA102586(1)

Laboratory Duplicate Result

Sample ID	Original Result, mg/L	Duplicate Result, mg/L
W1F	36	36

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

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

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MaterialLab

Report No. : 100440WA102586(2)



Page 1 of 2

TEST REPORT ON ANALYSIS OF WATER

Information Supplied by Client

Client : Leighton Contractors (Asia) Ltd

Client's address : 39/F, Sun Hung Kai Centre, 30 Harbour Road, 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 MaterialLab on 31/12/2010

Client sample ID :

1. C1 31AF	11. C1 31AF
2. C1 31PE	12. C1 31PE
3. C2 31AF	13. C2 31AF
4. C2 31PE	14. C2 31PE
5. W1 31AF	15. W1 31AF
6. W1 31PE	16. W1 31PE
7. W2 31AF	17. W2 31AF
8. W2 31PE	18. W2 31PE
9. W3 31AF	19. W3 31AF
10. W3 31PE	20. W3 31PE

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

Laboratory Information

Lab. sample ID : WA102586(2)/1 – WA102586(2)/20

Date of receipt of sample : 31/12/2010

Date test commenced : 03/01/2011

Date test completed : 04/01/2011

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.

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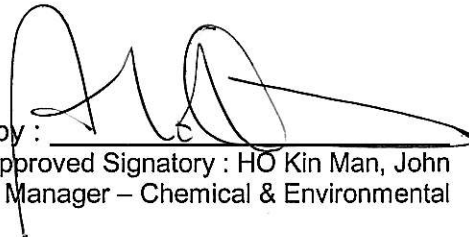
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Report No. : 100440WA102586(2)

Page 2 of 2

**Results:**

Sample identification	Test parameters
	Total suspended solids dried at 103°C - 105°C, mg/L
1. C1 31AF	41
2. C1 31PE	26
3. C2 31AF	5
4. C2 31PE	19
5. W1 31AF	23
6. W1 31PE	15
7. W2 31AF	22
8. W2 31PE	15
9. W3 31AF	29
10. W3 31PE	20
11. C1 31AF	45
12. C1 31PE	15
13. C2 31AF	3
14. C2 31PE	18
15. W1 31AF	23
16. W1 31PE	15
17. W2 31AF	24
18. W2 31PE	14
19. W3 31AF	32
20. W3 31PE	21

Supervised by : Y. M. Chung
 Certified by : 
 Approved Signatory : HO Kin Man, John
 Manager – Chemical & Environmental
Date : 5/1/2011*Note : This report refers only to the sample(s) tested.*

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MateriaLab

Report No. : 100440WA102586(2)

Laboratory Duplicate Result

Sample ID	Original Result, mg/L	Duplicate Result, mg/L
W2E	24	23

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	95

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

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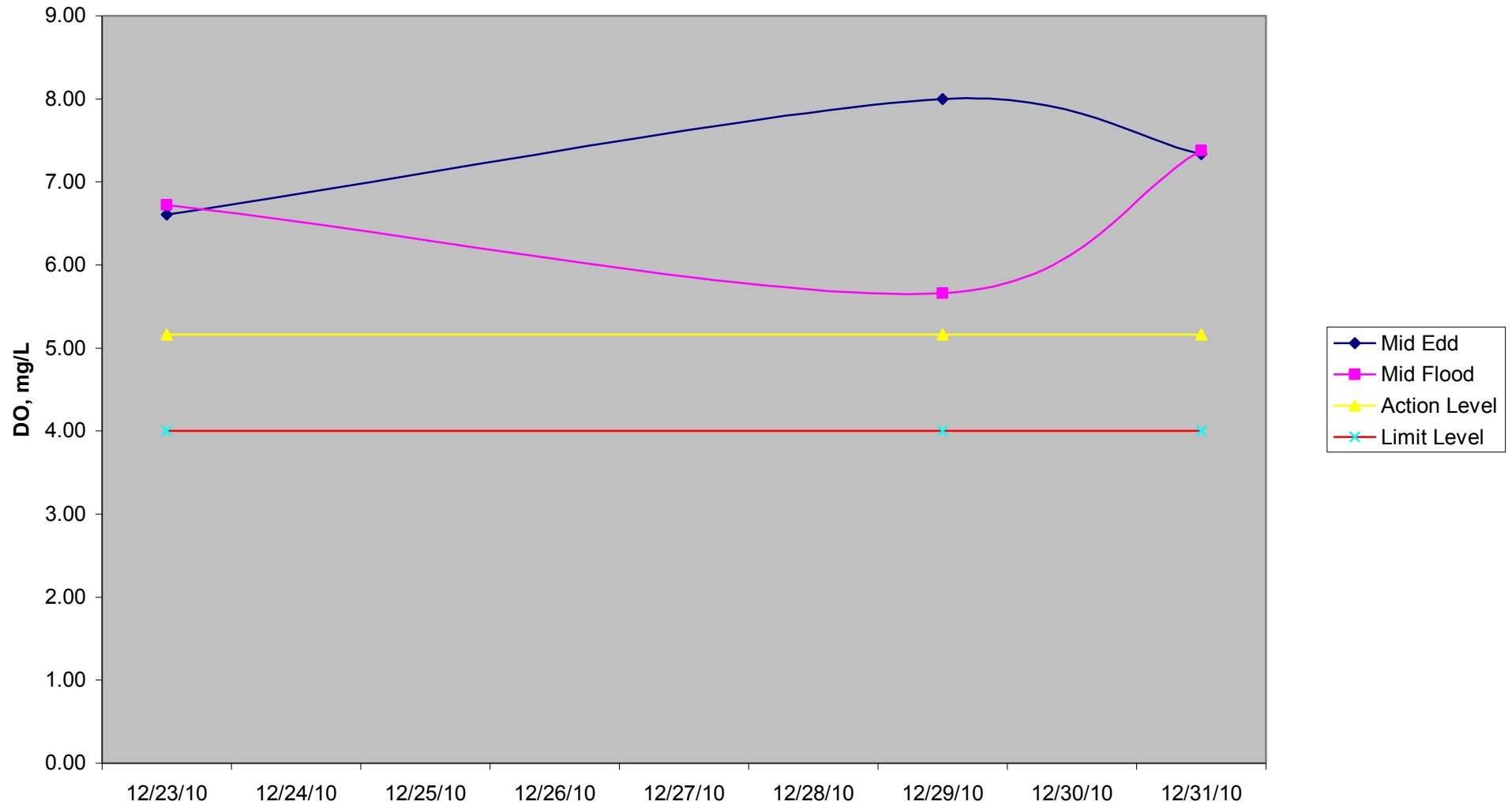
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The logo for MateriaLab, featuring the word "MateriaLab" in a bold, black, sans-serif font. The text is centered between two thick, horizontal black bars, one above and one below the text.

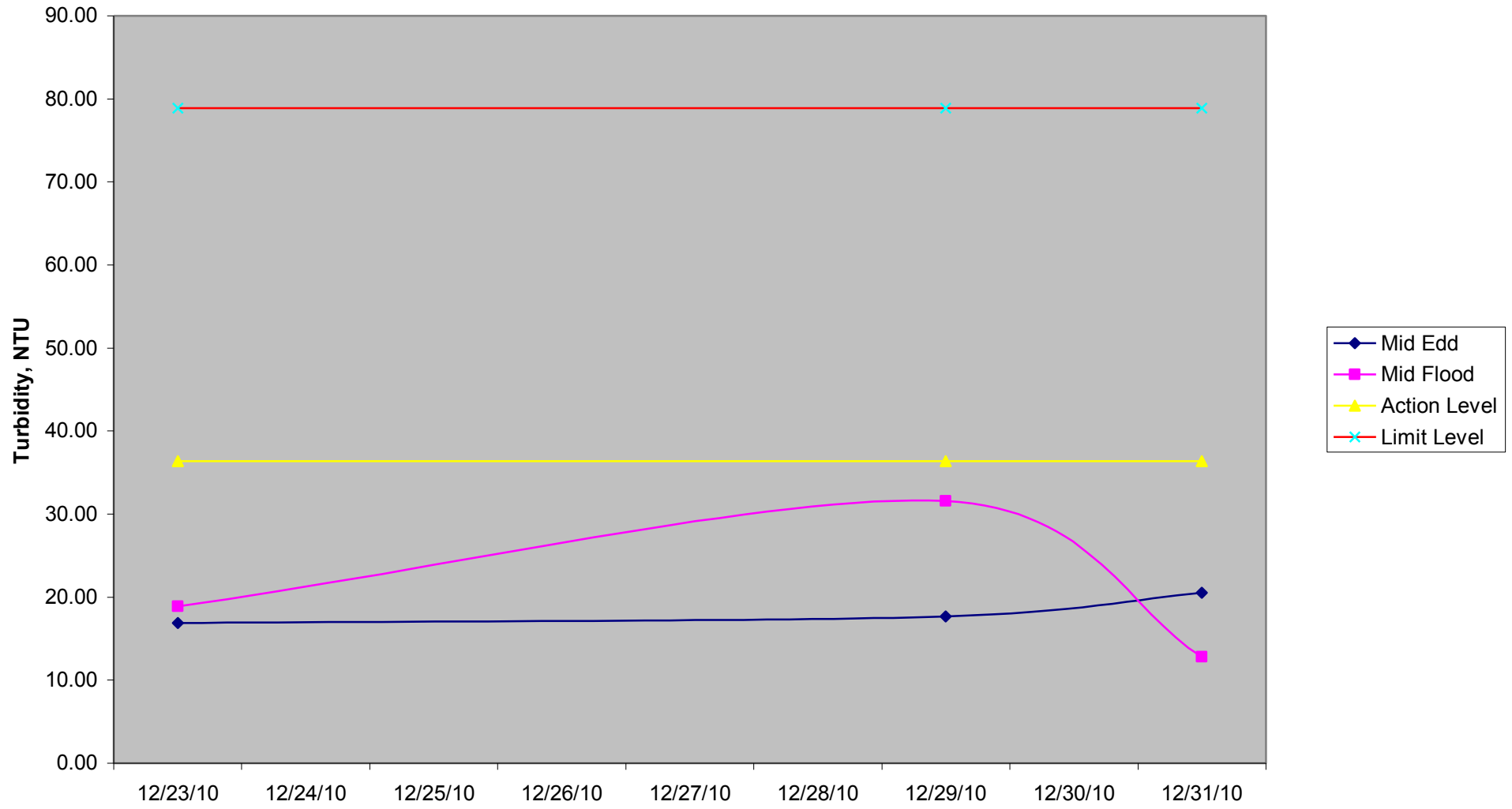
Appendix 4

Graphical Presentation of Monitoring Data

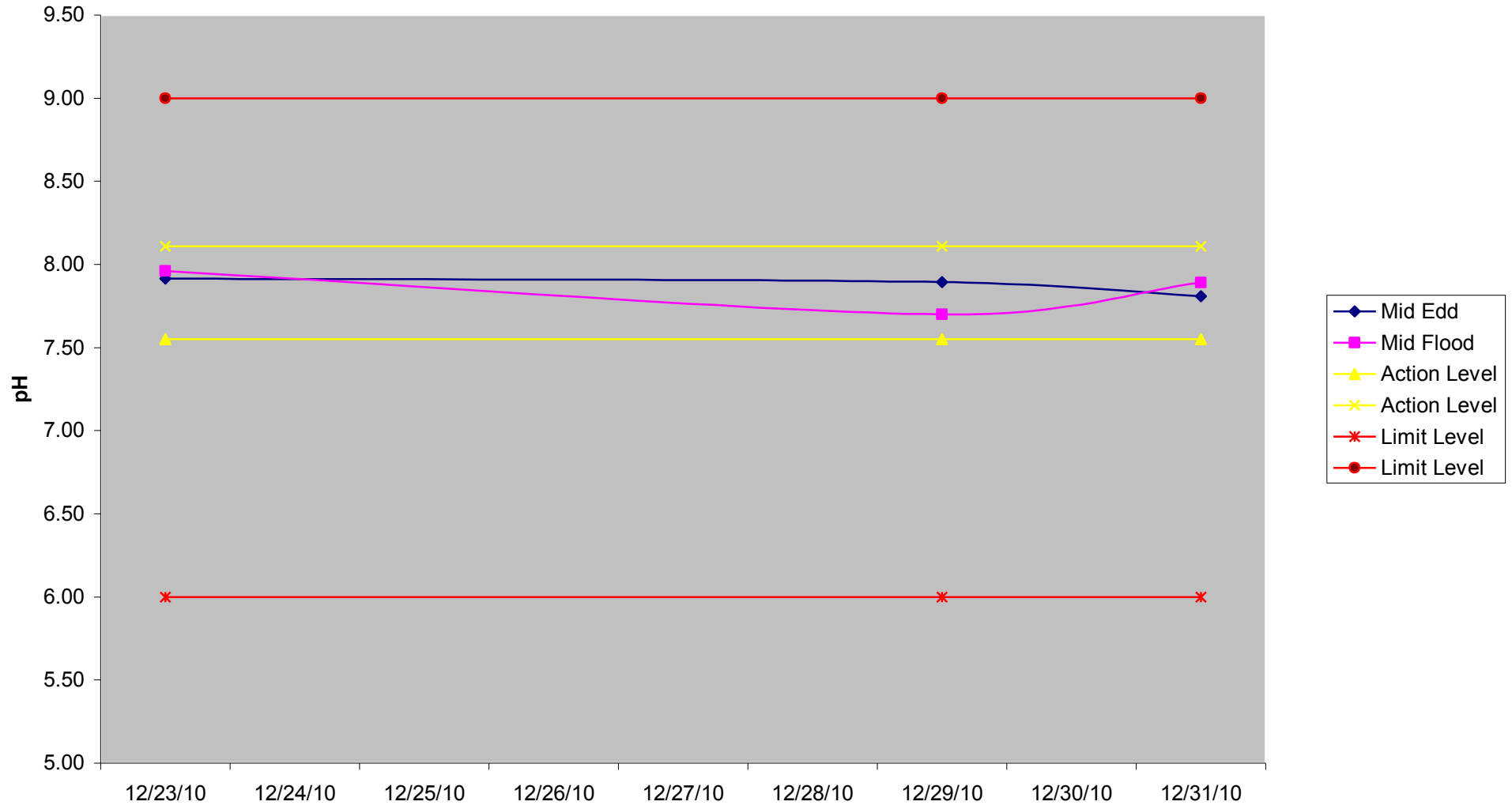
W1 - Dissolved Oxygen Content



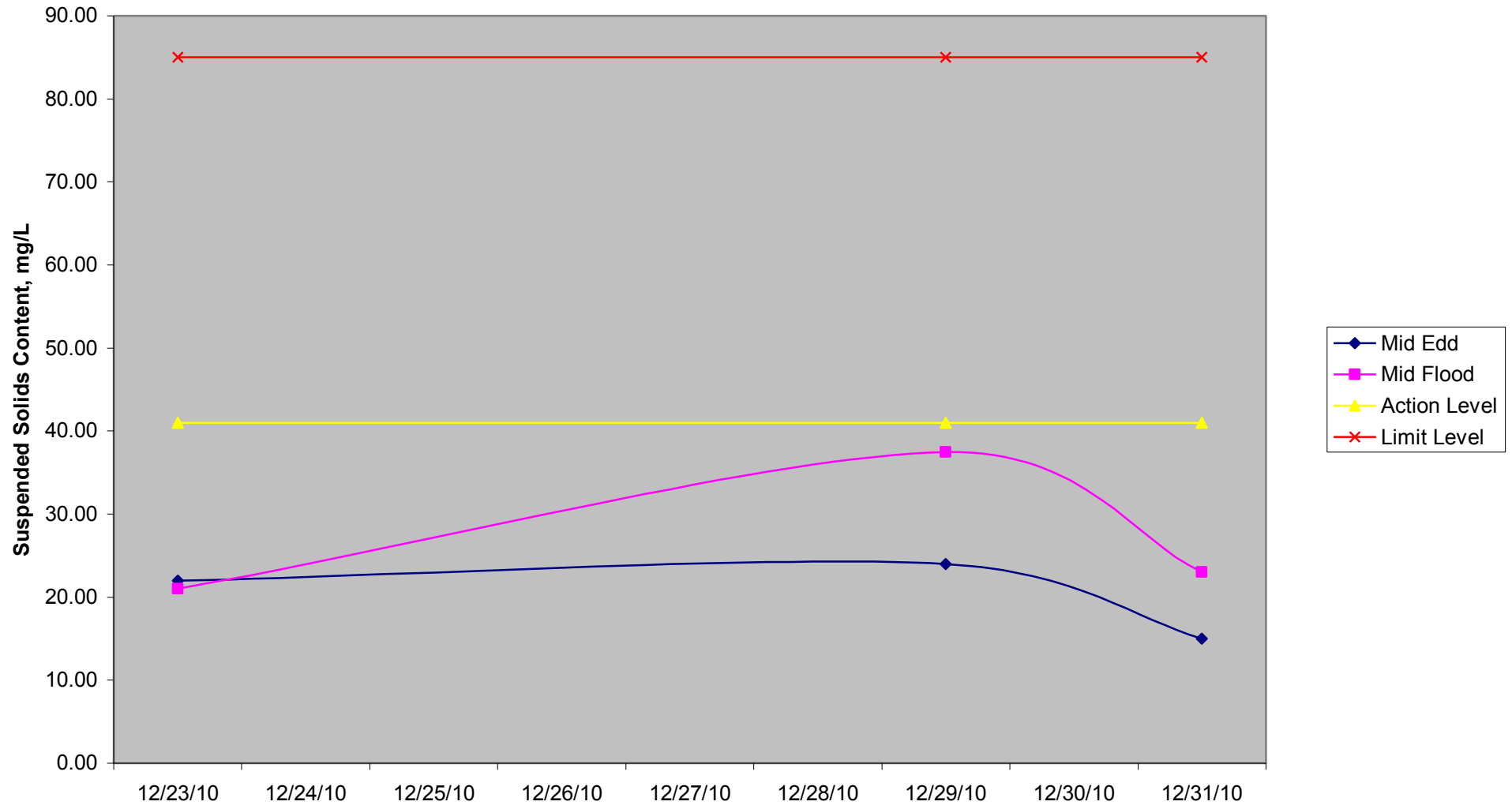
W1 - Turbidity



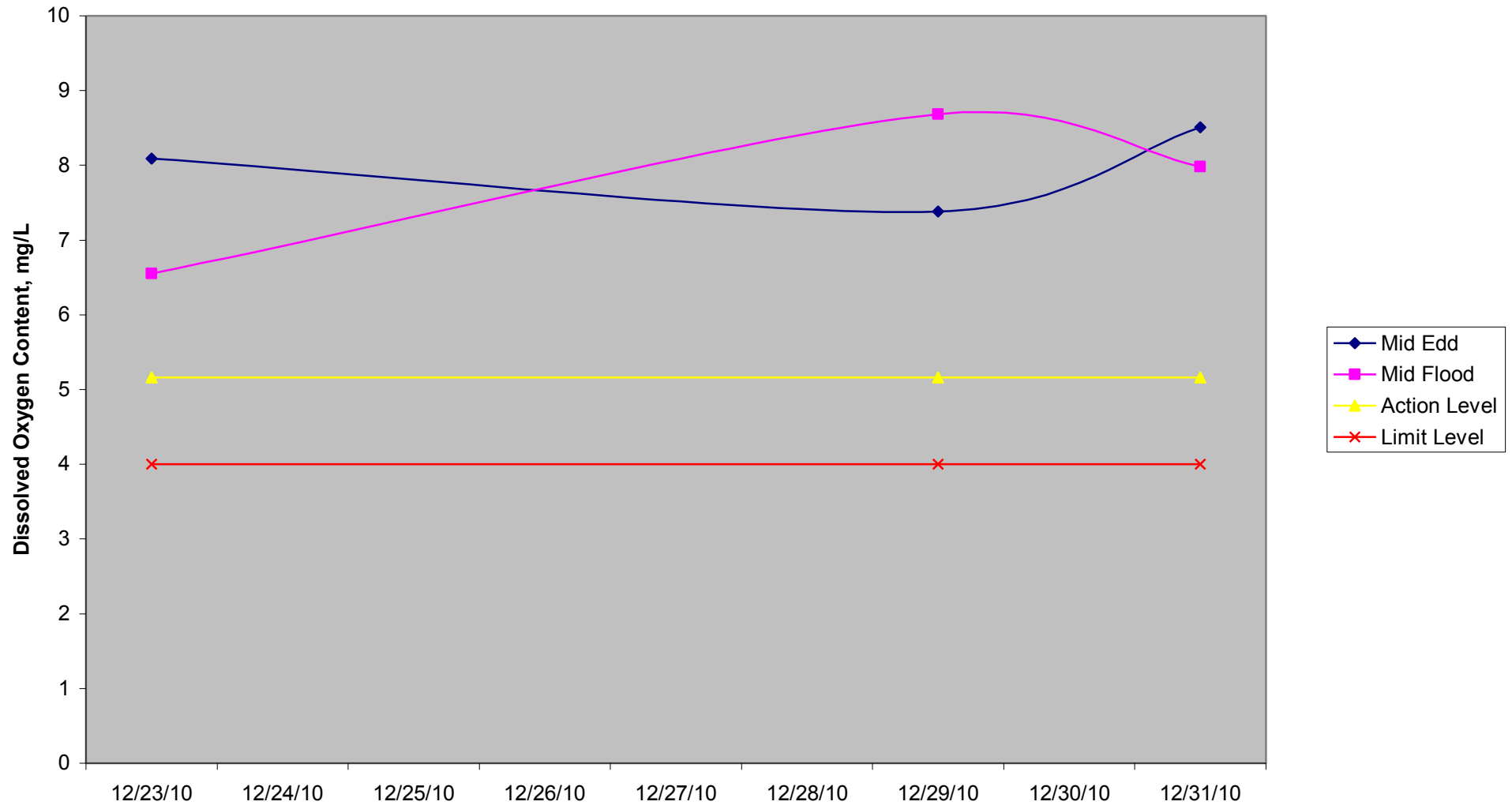
W1 - pH



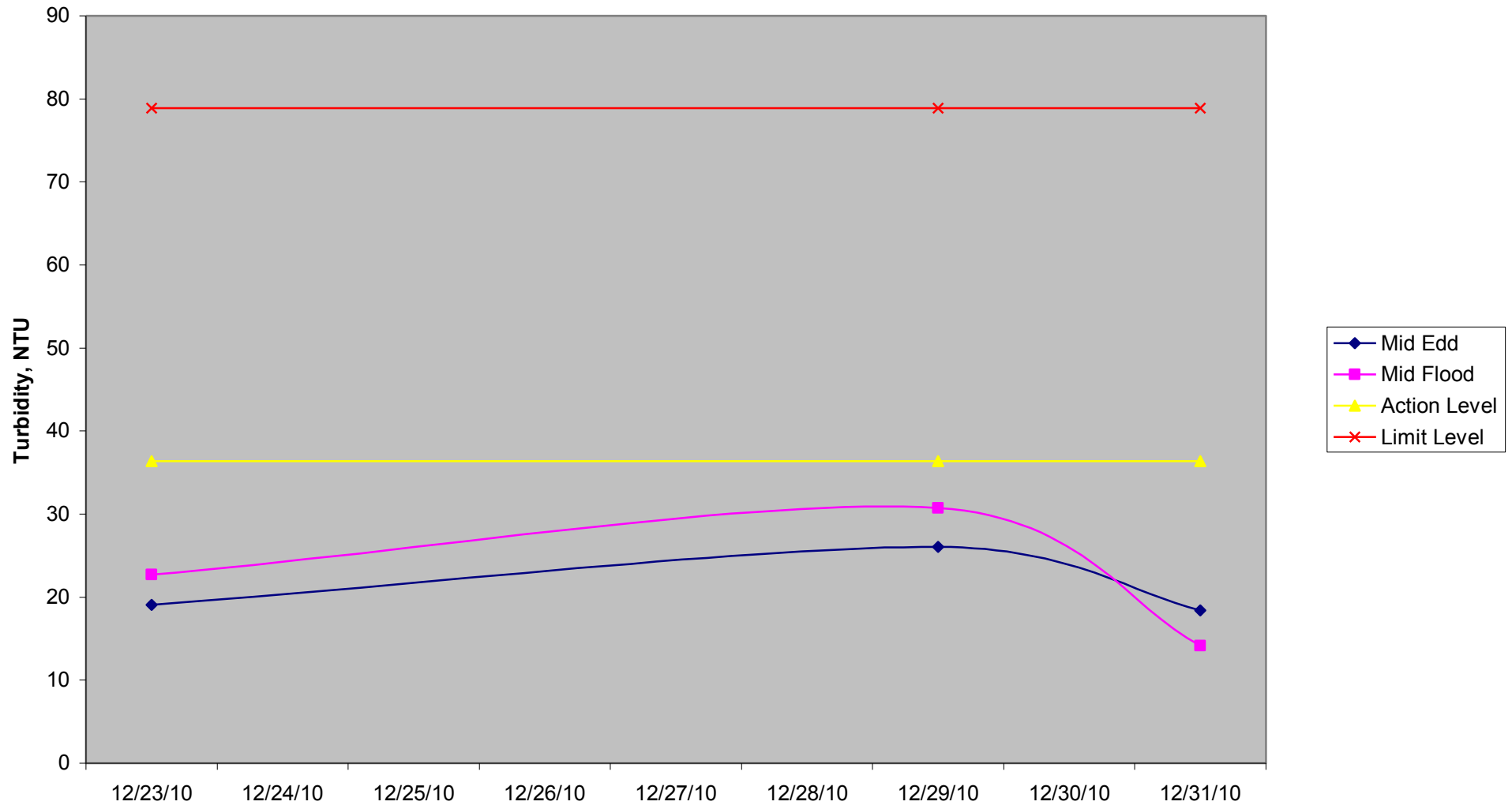
W1 - Suspended Solid Content



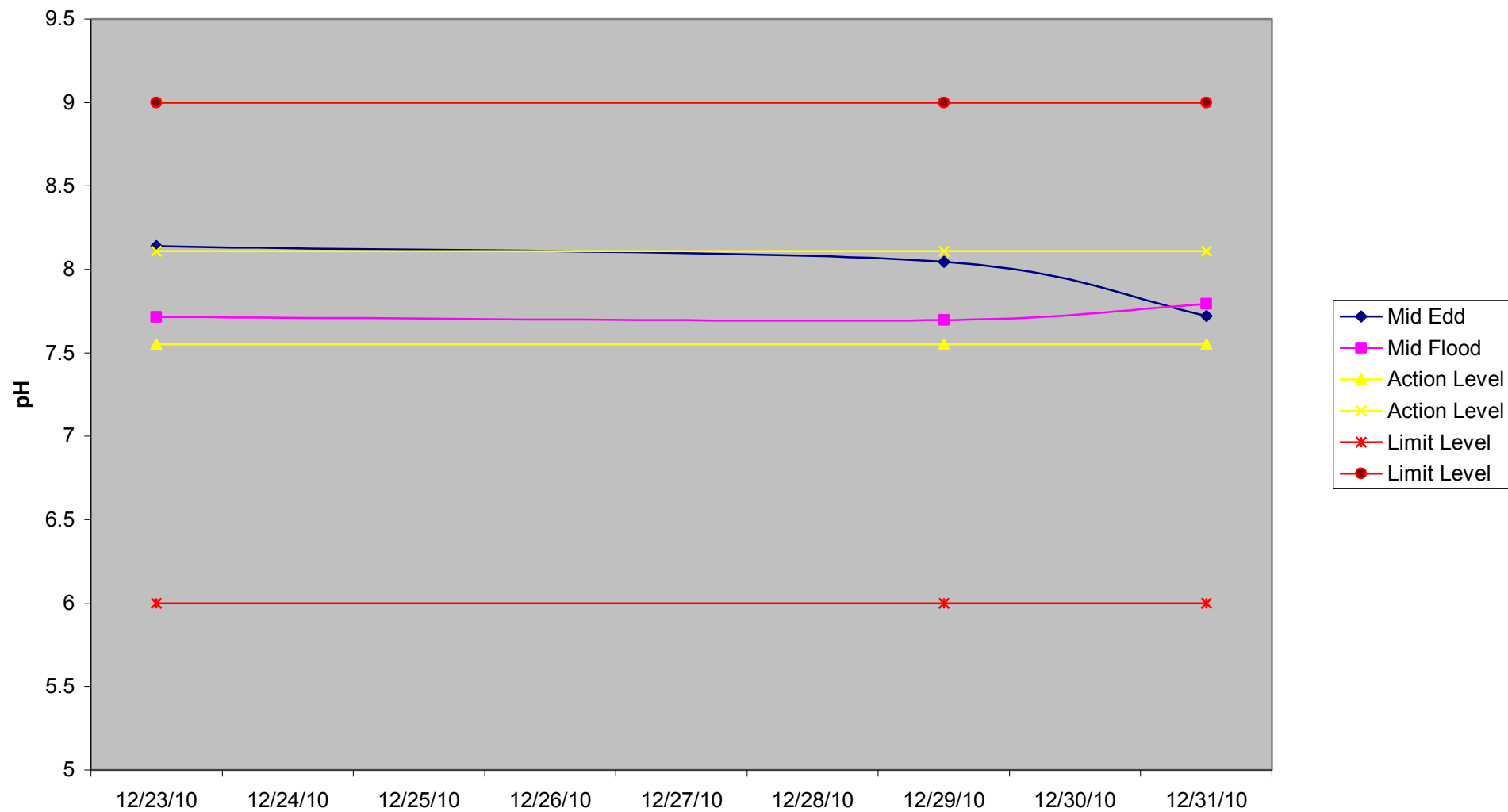
W2 - Dissolved Oxygen Content



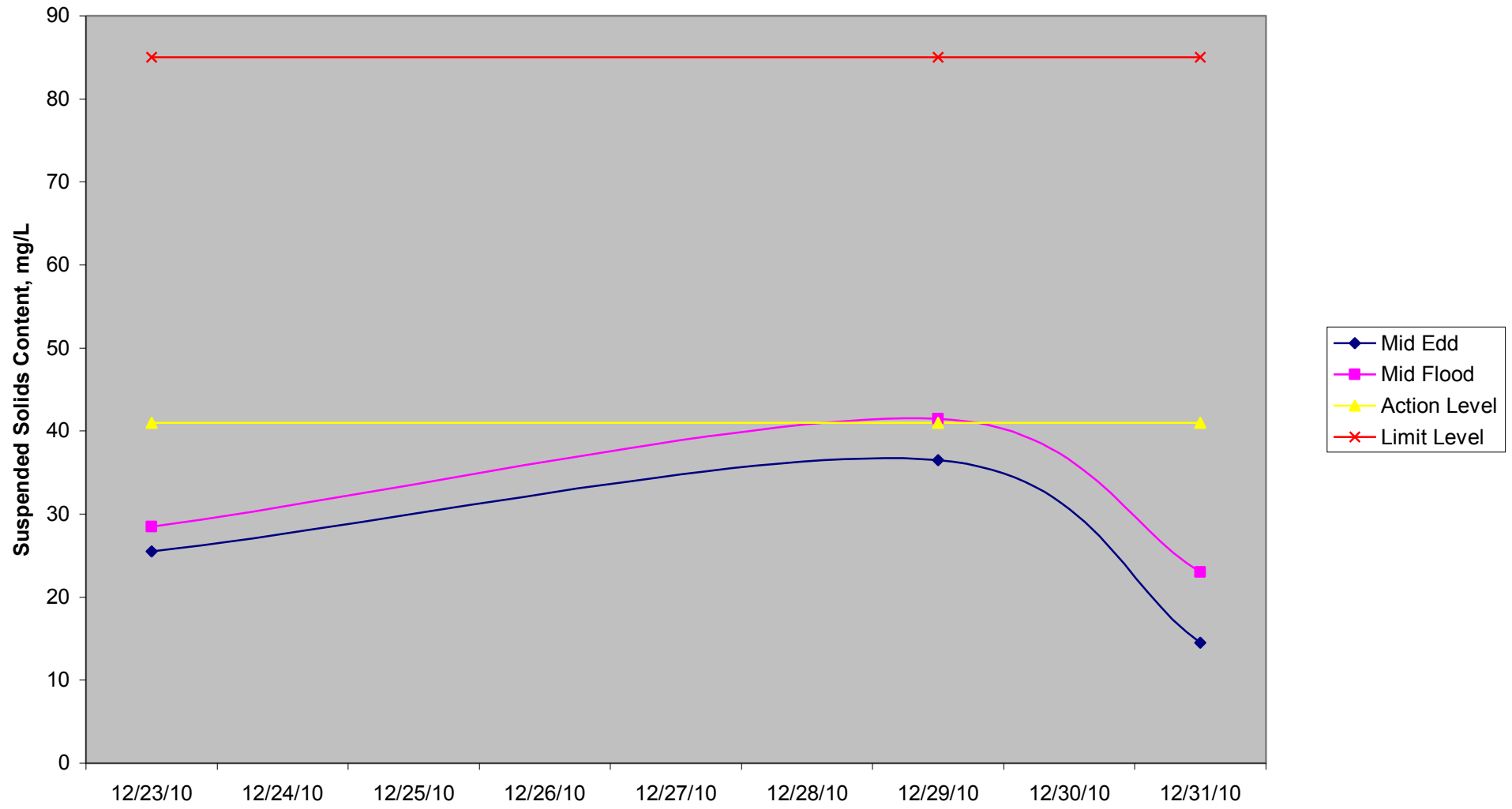
W2 - Turbidity



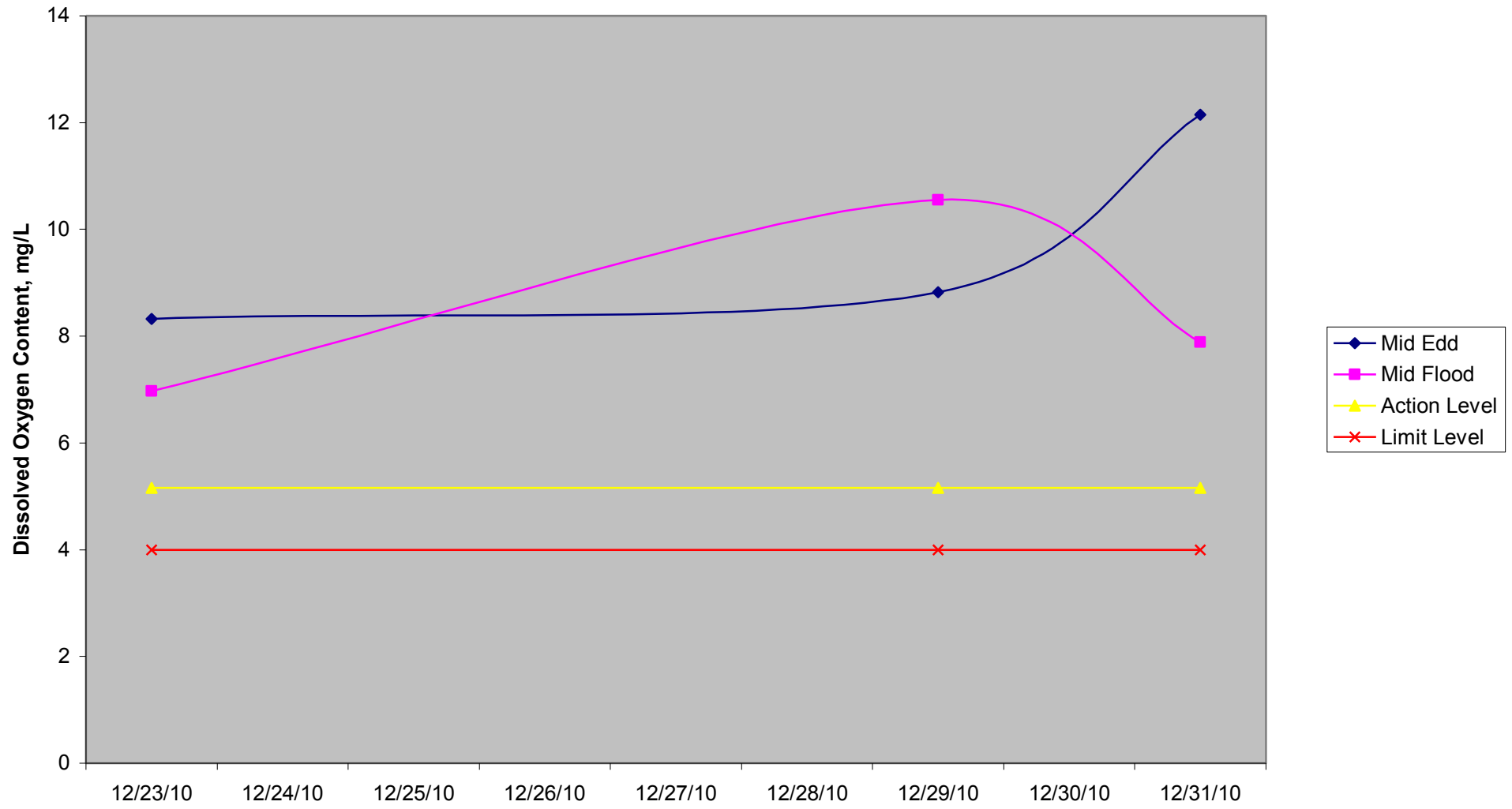
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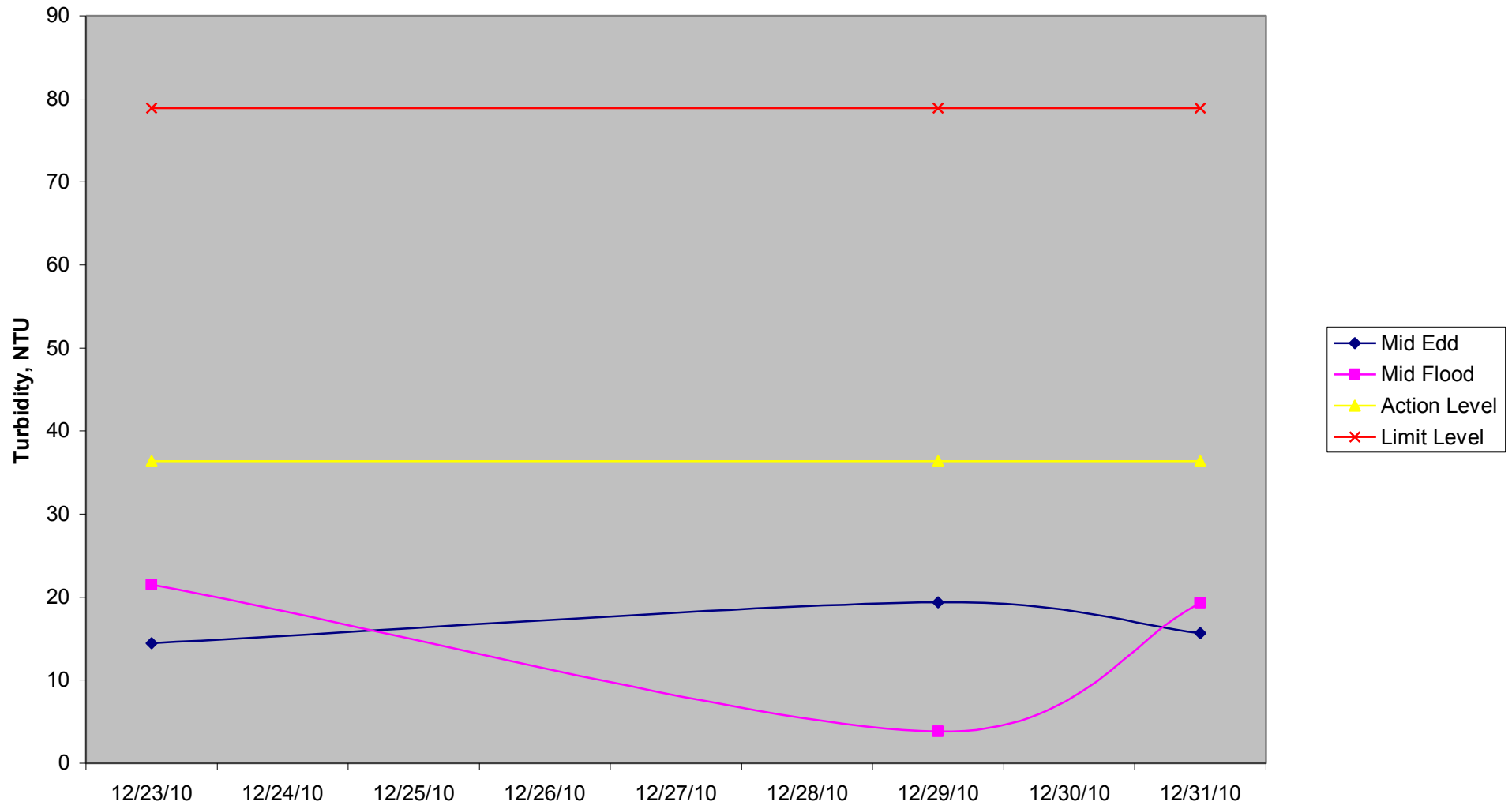
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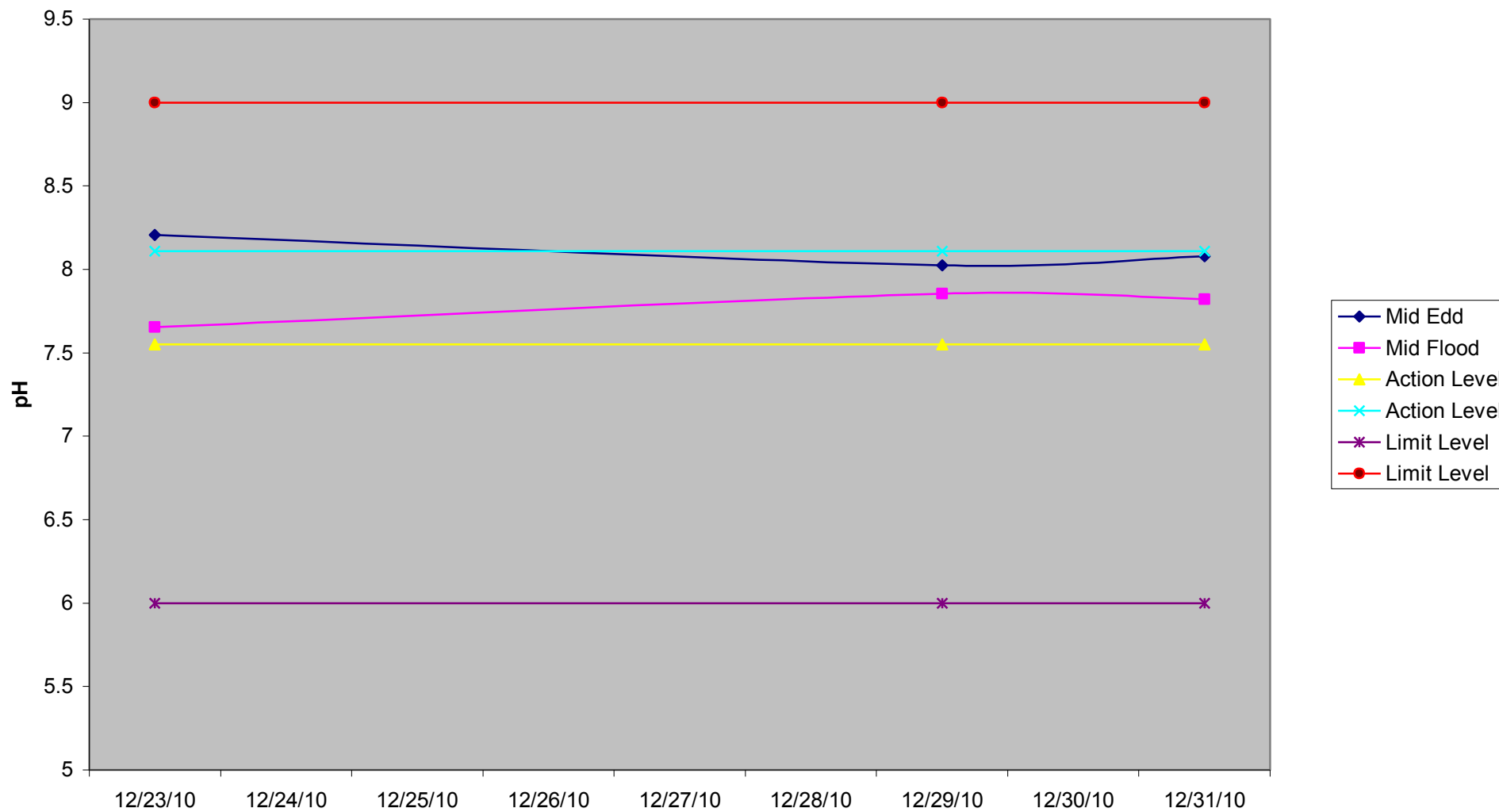
W3 - Dissolved Oxygen Content



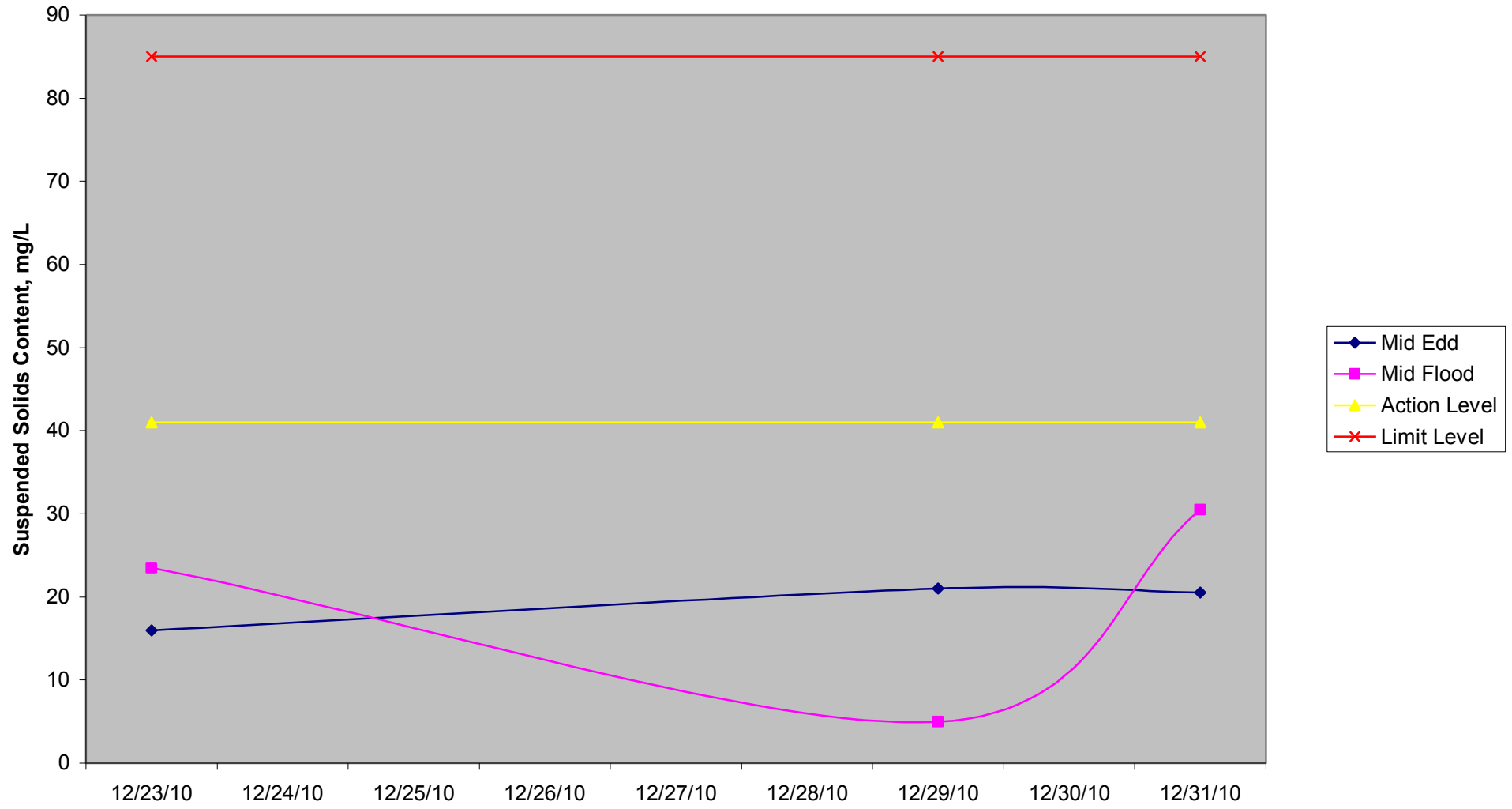
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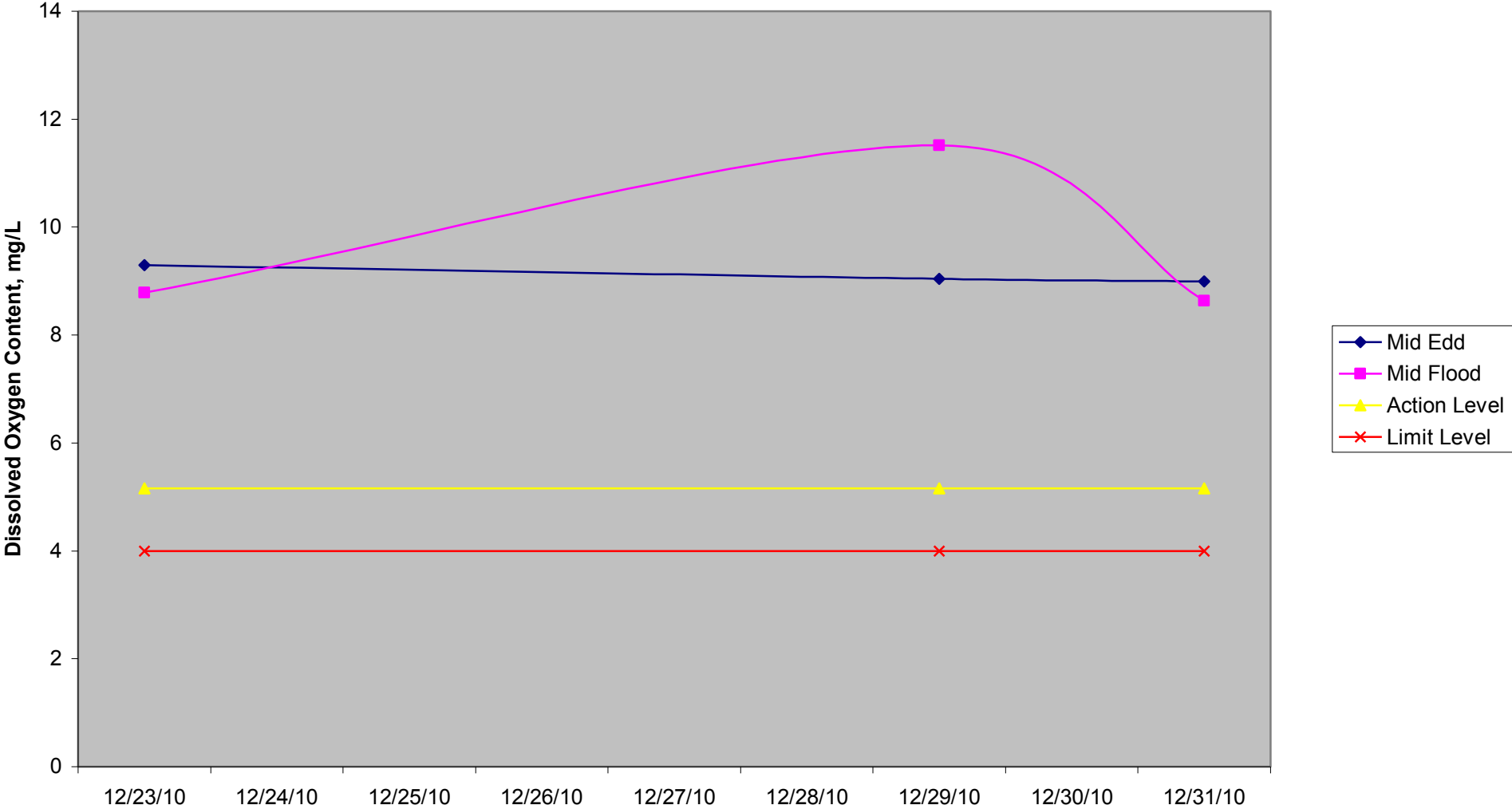
W3 - pH



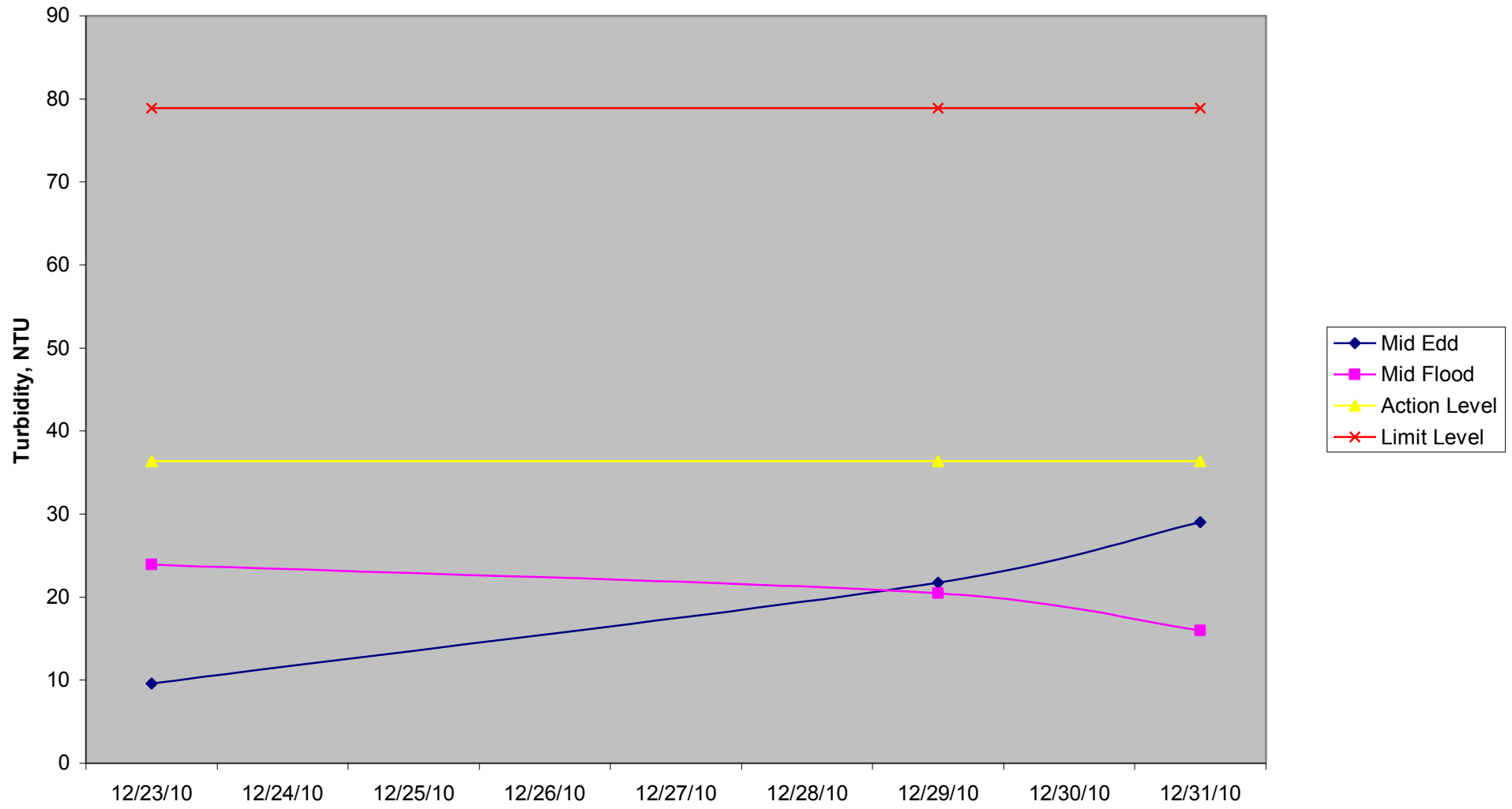
W3 - Suspended Solids Content



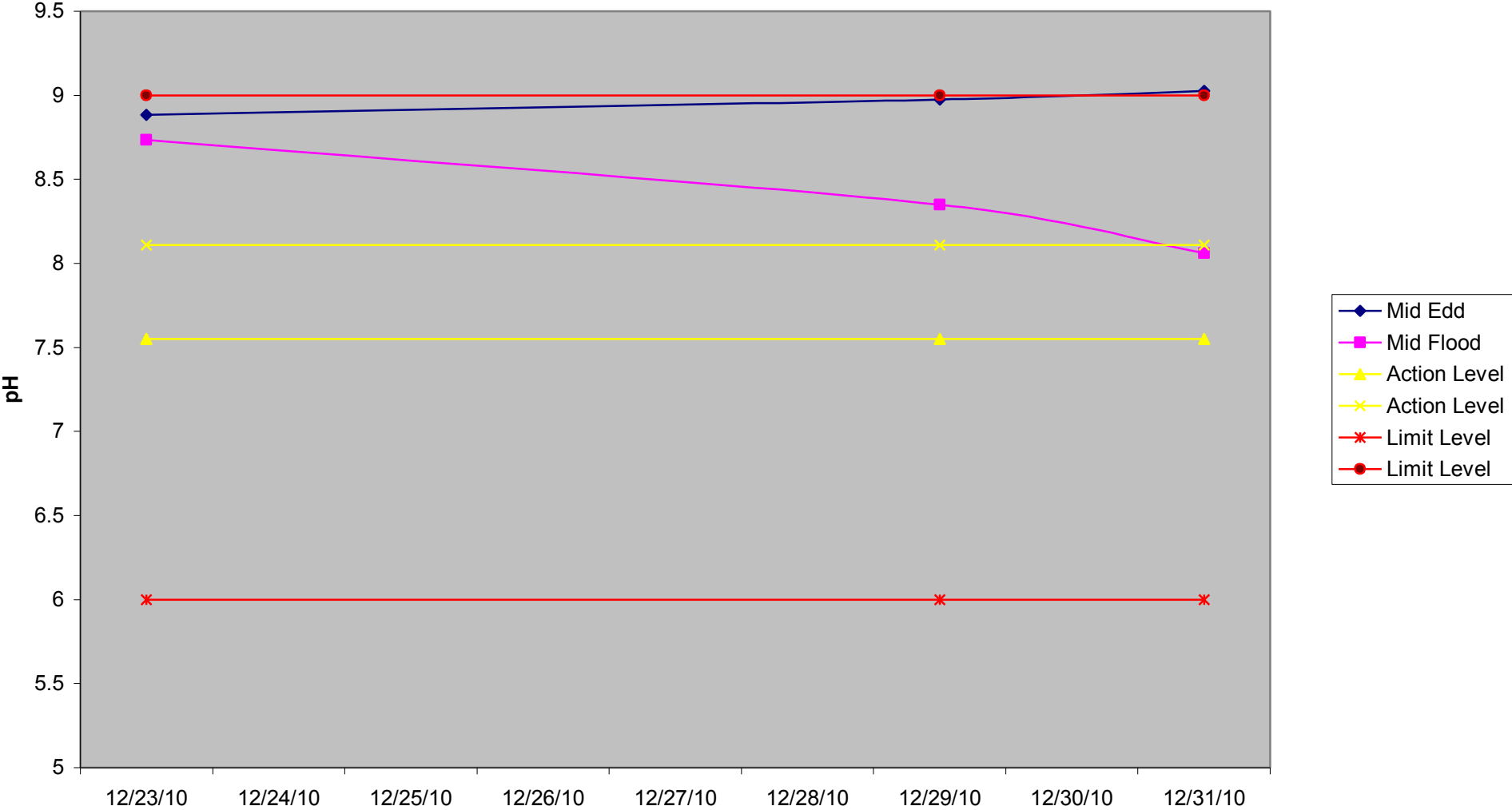
C1 - Dissolved Oxygen Content



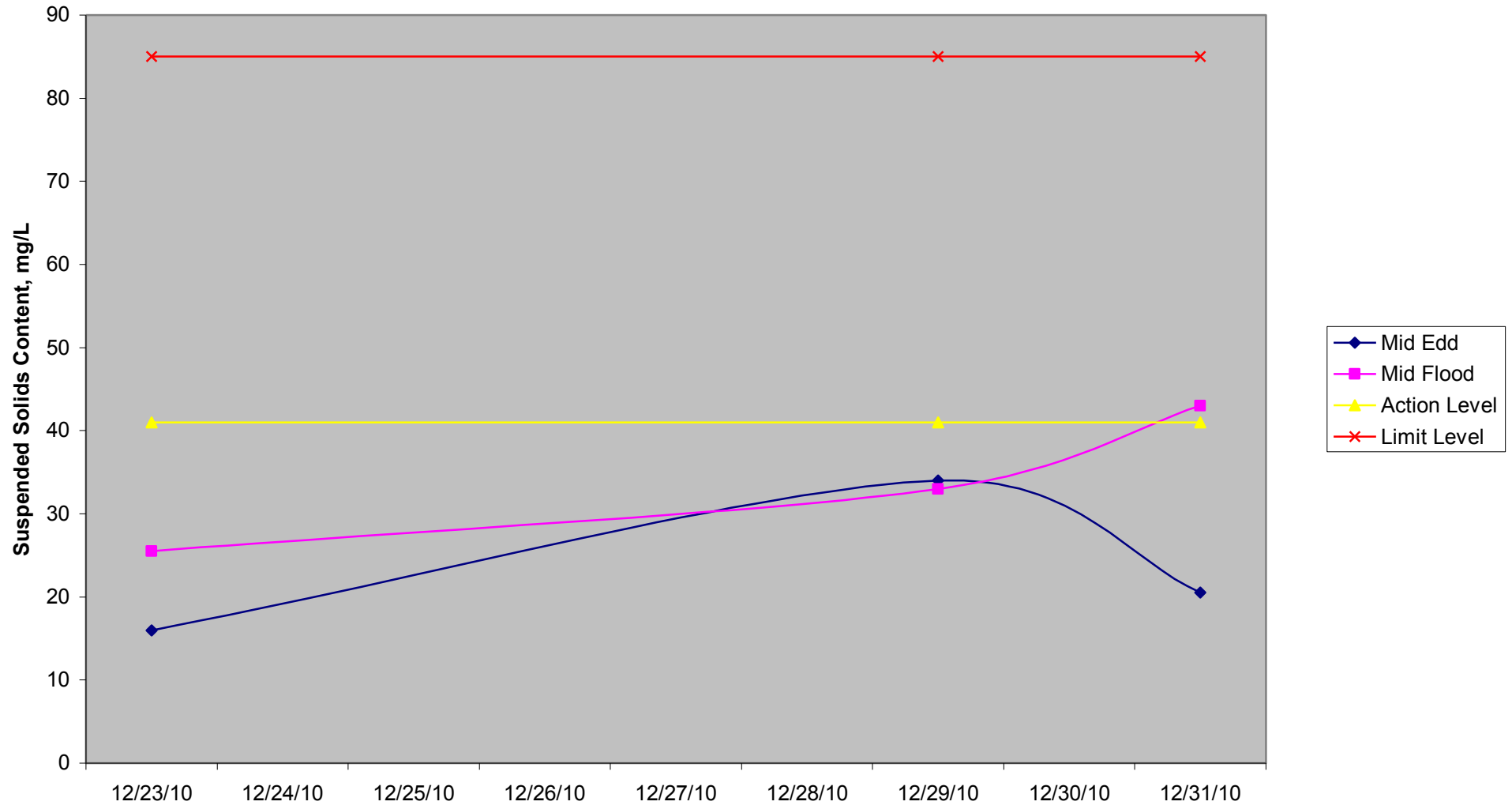
C1 - Turbidity



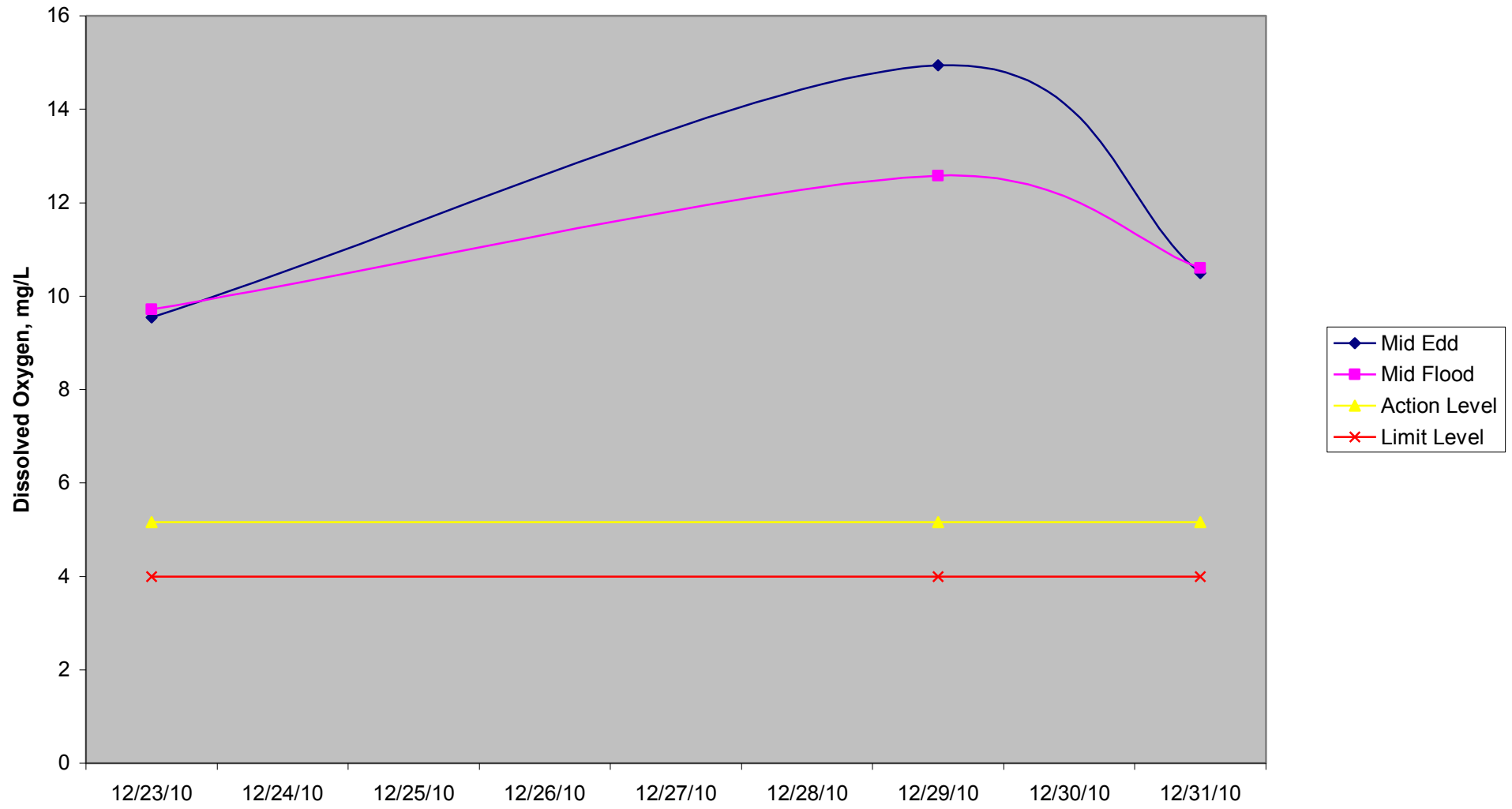
C1 - pH



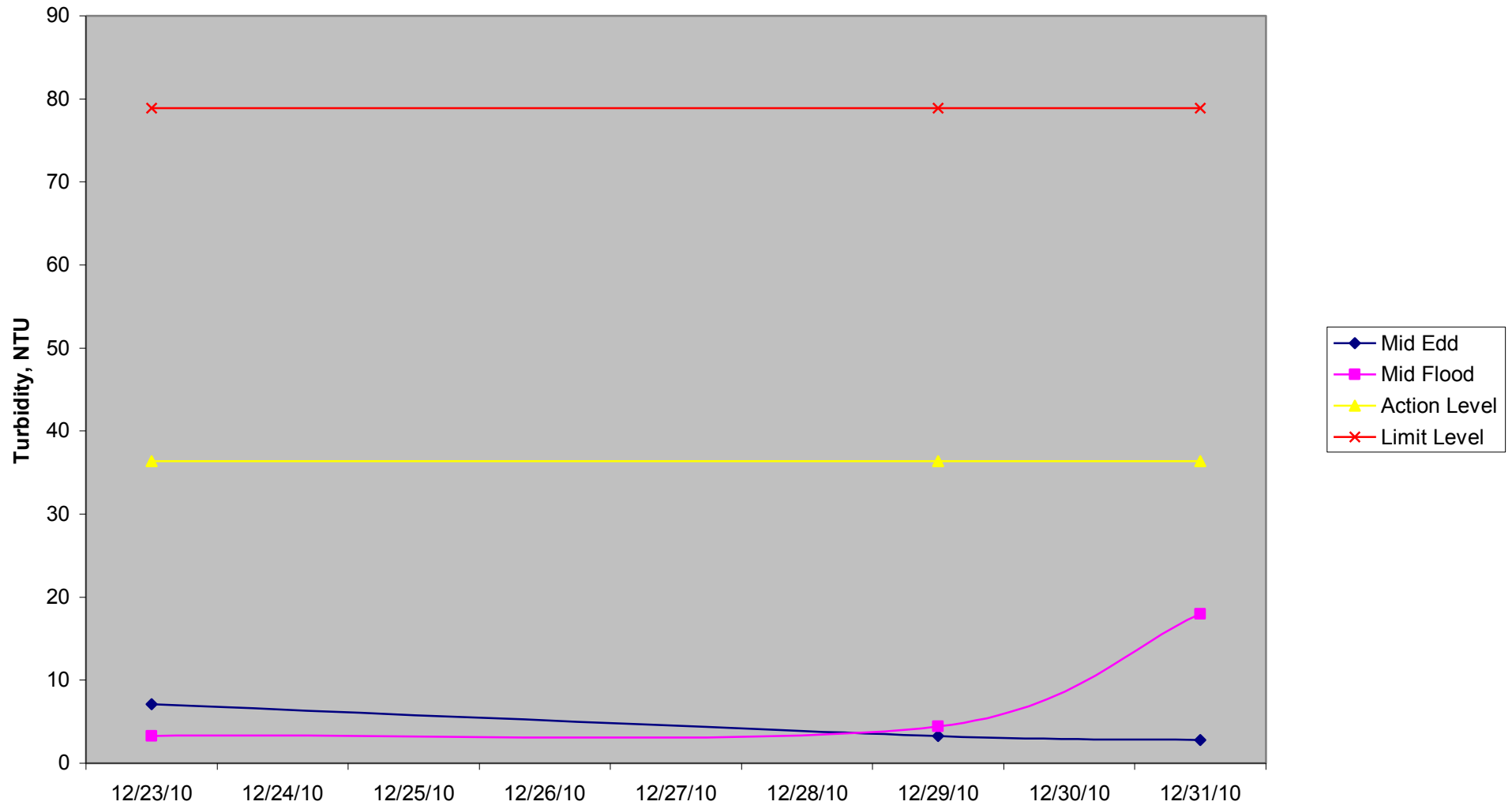
C1 - Suspended Solids Content



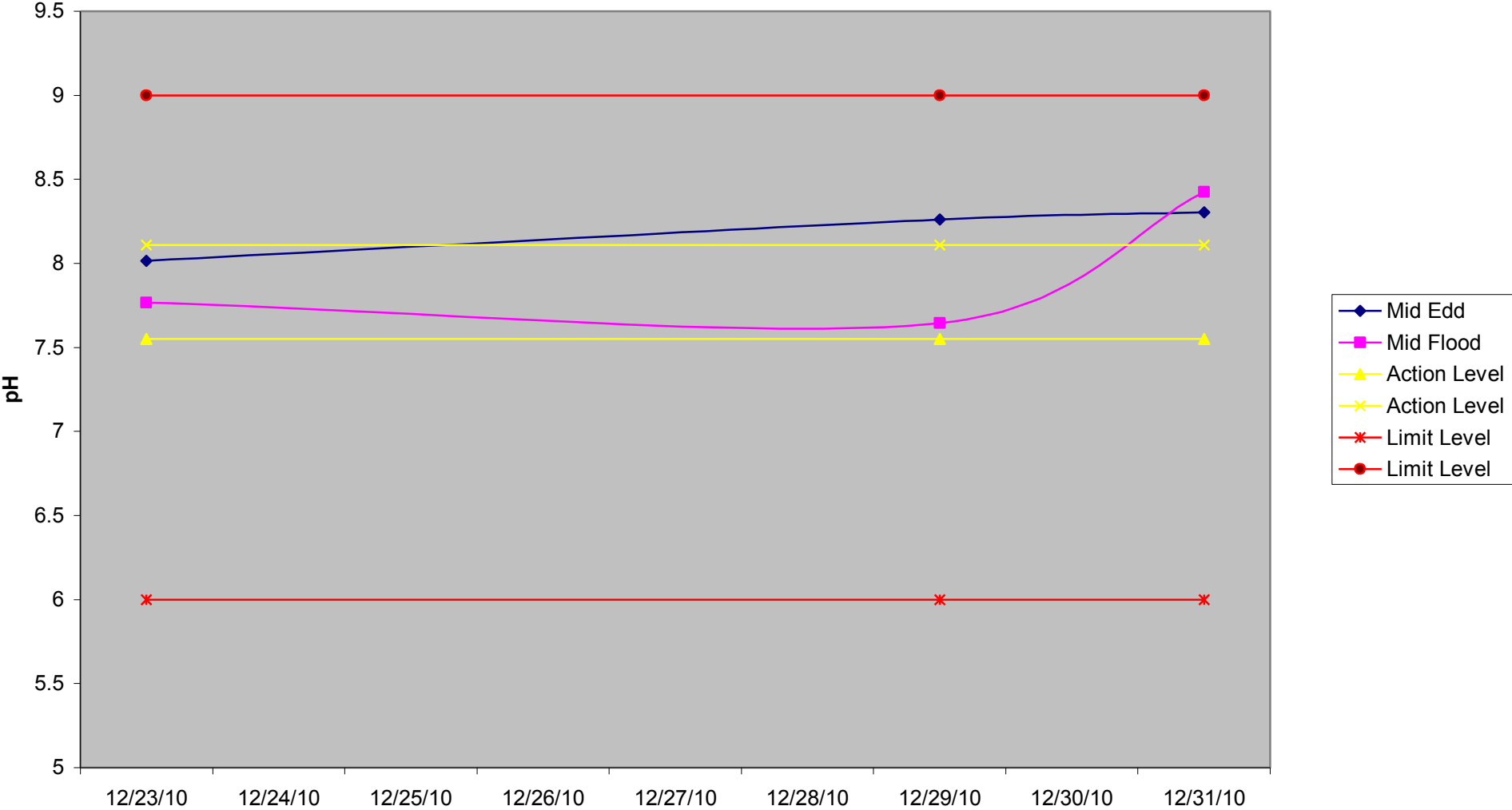
C2 - Dissolved Oxygen Content



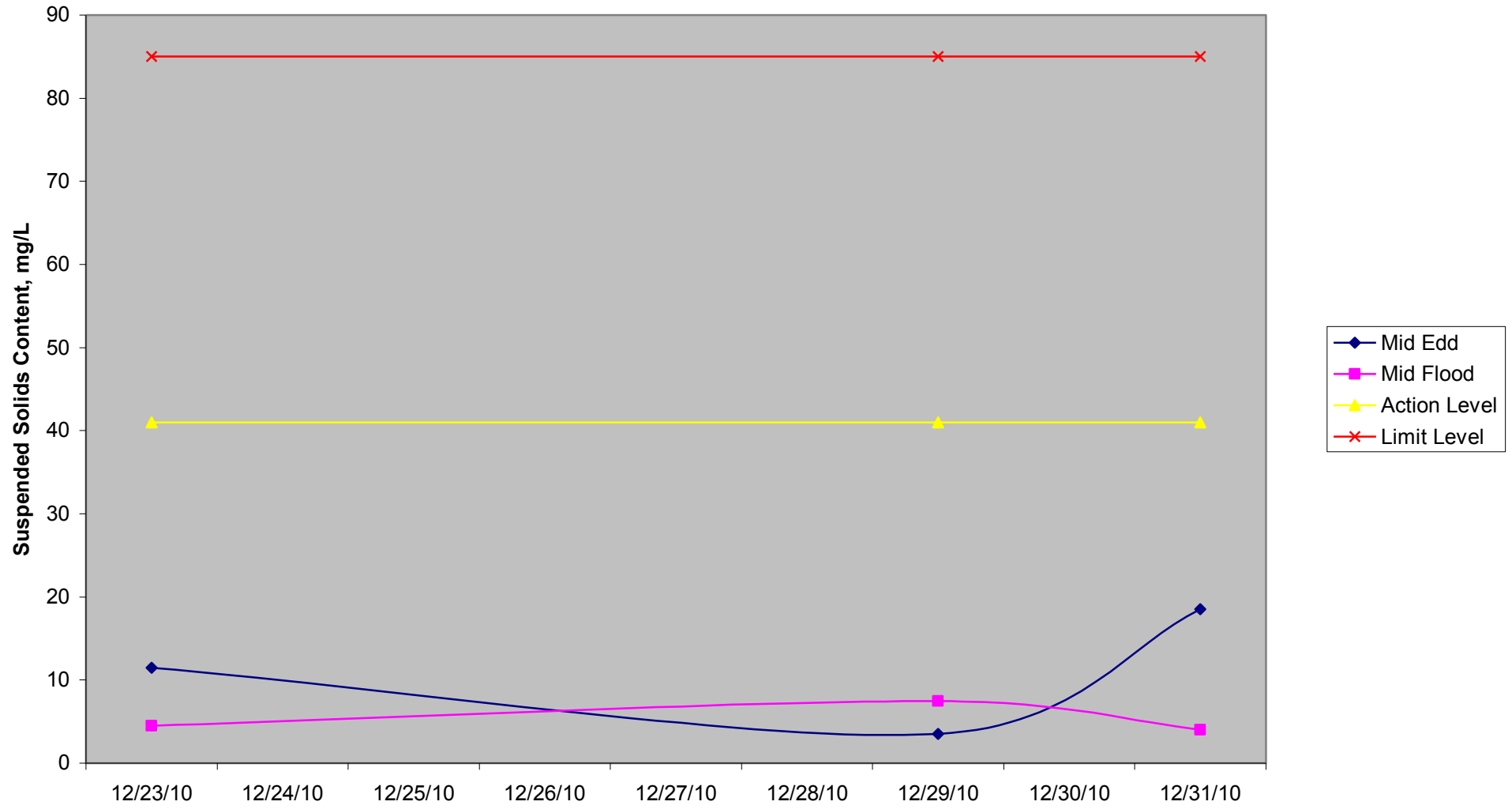
C2 - Turbidity



C2 - pH



C2 - Suspended Solids Content



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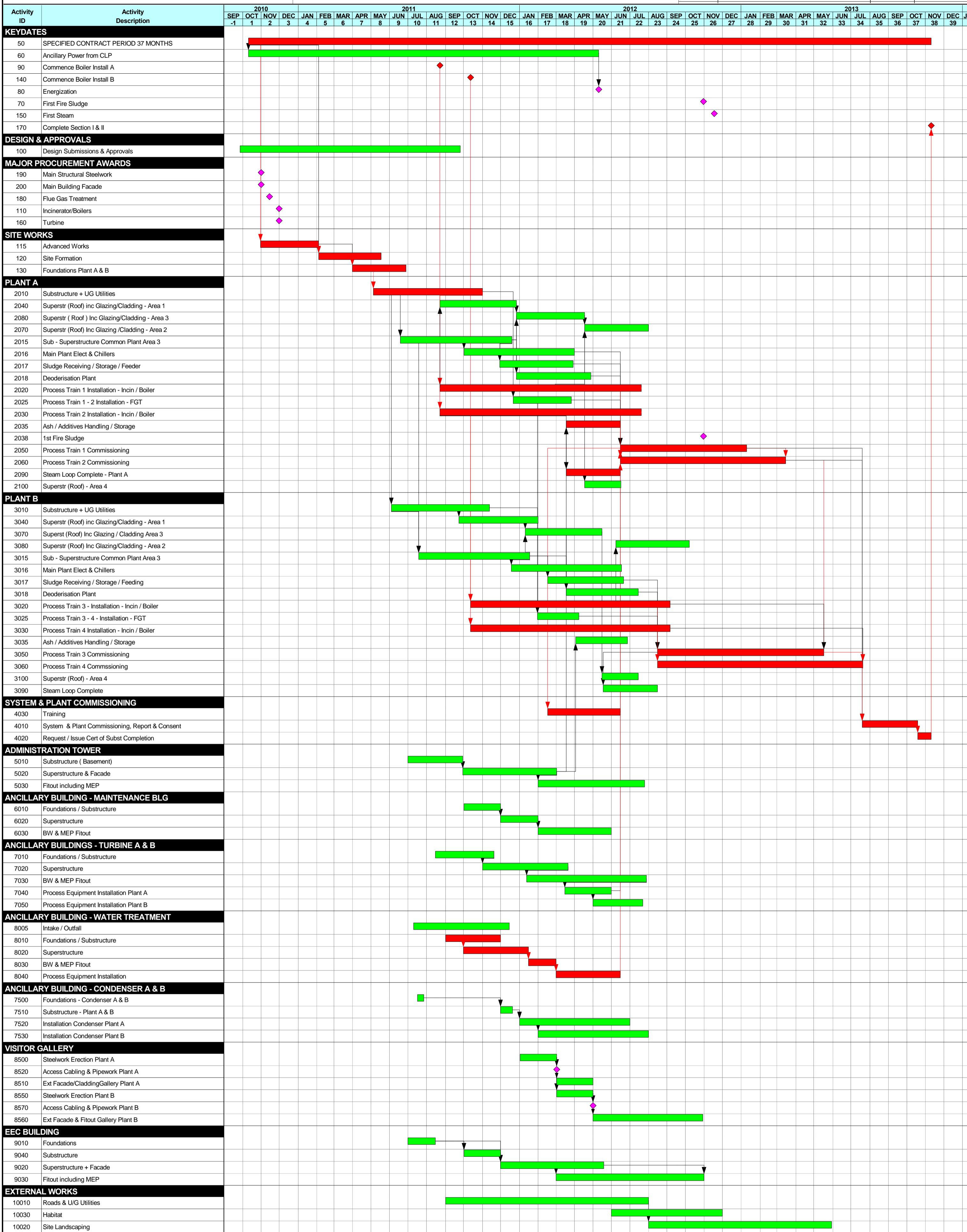
MaterialLab

Appendix 5

Construction Program

HONG KONG SLUDGE TREATMENT FACILITY Project Overview

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



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Appendix 6

Management Structure and Organization Chart

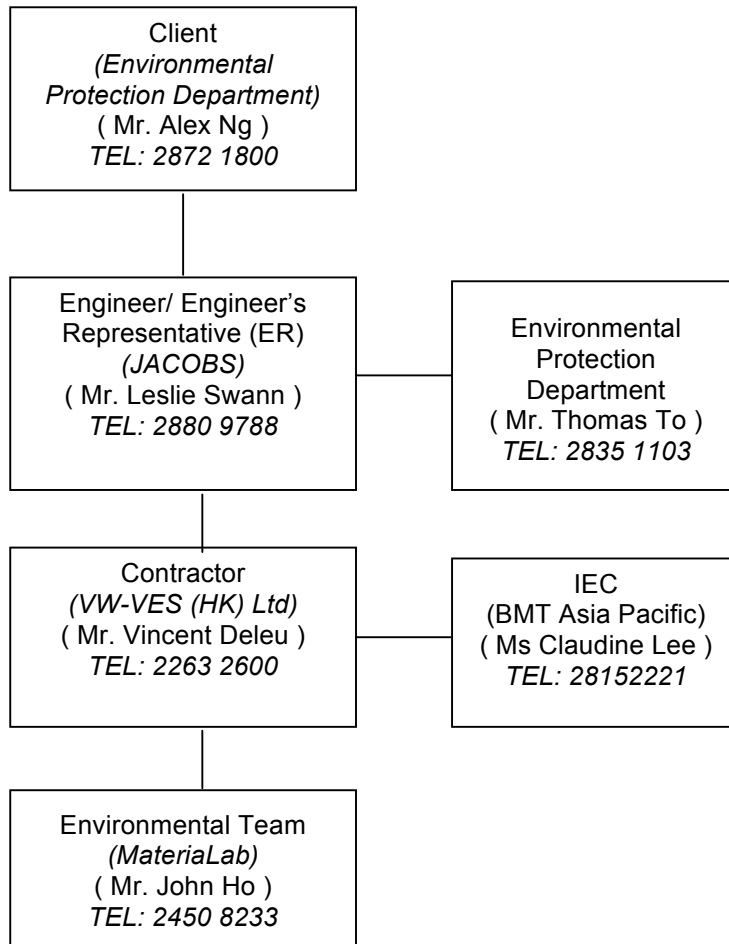
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Management Structure and Organization Chart



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Appendix 7

Event / Action Plan for Water Quality

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Event/Action Plan for Water Quality

Event	ET Leader	IEC	SOR	Contractor
Action level being exceeded by one sampling day	<ul style="list-style-type: none"> Repeat <i>in situ</i> 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. 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Repeat <i>in situ</i> 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 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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.

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	<ul style="list-style-type: none"> increase the monitoring frequency to daily; Repeat measurement on next day of exceedance. 			
Limit level being exceeded by one sampling day	<ul style="list-style-type: none"> Repeat <i>in situ</i> 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. 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Repeat <i>in situ</i> 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; 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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

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	<ul style="list-style-type: none"> • 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. 		<p>of the implemented mitigation measures;</p> <ul style="list-style-type: none"> • 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. 	<p>propose mitigation measures to IEC and SOR within three working days;</p> <ul style="list-style-type: none"> • Implement the agreed mitigation measures; • As directed by the SOR, to slow down or to stop all or part of the construction activities.
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Appendix 8

Implementation Schedule of Mitigation Measures

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	<p>Implementation of the Air Pollution Control (Construction Dust) Regulation and good site practices:</p> <ul style="list-style-type: none"> • 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	
	<ul style="list-style-type: none"> 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	
	<p><u>Human Health Risk Associated with Radon</u></p> <p><i>Prevention of radon influx from the PFA to the STF buildings</i></p> <ul style="list-style-type: none"> • 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 • Slab-on-grade can be an option on foundation design • 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. <p><i>Provision of Sufficient ventilation of the interior of the STF buildings</i></p> <ul style="list-style-type: none"> • Forced and natural ventilation should be introduced properly to enhance air exchange rate in the STF buildings. • 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. <p><i>Regular maintenance for the floor slabs and walls</i></p> <ul style="list-style-type: none"> • Cracks and other openings in the foundation should be properly sealed to reduce radon ingress. <p>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</p>	STF buildings / During the design, construction and operation of the STF.	Contractor / STF Operator	√	√ N/A N/A N/A N/A	√		EPD's ProPECC Note PN 1/99 Control of Radon Concentration in New Buildings Appendix 2

	conditioned air.							
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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	<p><i>Good Site Practices</i></p> <p>Recommendations for good site practices during the construction activities include:</p> <ul style="list-style-type: none"> • 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		√			<p>Waste Disposal Ordinance (Cap.354)</p> <p>ETWB TCW No. 19/2005</p>
S5.5.1	<p><i>Waste Reduction Measures</i></p> <ul style="list-style-type: none"> • 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	
	<ul style="list-style-type: none"> 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. 				N/A √ √ √ √ N/A			
S5.5.1	<p><i>General Refuse</i></p> <p>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.</p>	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	<p><i>Construction and Demolition Material</i></p> <p>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:</p> <ul style="list-style-type: none"> • 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	<p><i>Chemical Waste</i></p> <p>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</p>	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.							

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- 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	<p><i>Fuel Oil Tank Construction and Test</i></p> <ul style="list-style-type: none"> 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 independent qualified 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	<p><i>Fuel Oil Pipeline Construction and Test</i></p> <ul style="list-style-type: none"> 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	<i>Fuel Oil Leakage Detection</i> <ul style="list-style-type: none"> Installation of leak detection device at storage tank and pipelines 	Fuel Oil Storage Tank	Contractor/ STF Operator	√	√	√		
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- 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	<p>Construction Runoff and Drainage</p> <ul style="list-style-type: none"> • 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		√			ProPECC PN 1/94; WPCO
					√			
					N/A			
					√			
					√			
					√			

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	<p>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.</p> <ul style="list-style-type: none"> • Water pumped out from foundation piles shall be discharged into silt removal facilities. • 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	<p><i>General Construction Activities</i></p> <ul style="list-style-type: none"> 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	<p><i>Sewage Effluents</i></p> <ul style="list-style-type: none"> 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	<p><i>Release of PFA Leachate from Ash Lagoon into the Aquatic Environment</i></p> <ul style="list-style-type: none"> 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 	<p>Deep Bay</p> <p>Water outside the Ash Lagoon / During the construction period</p>	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
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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	<p>Measures to Minimize Disturbance Impact to Wildlife</p> <ul style="list-style-type: none"> • 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. • 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. • 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. 	<p>Boundary of works areas/ Construction Phase</p>	Contractor		√			
		<p>Boundary of works areas/ Construction Phase</p>	Contractor		√			
		<p>Boundary of works areas/ Operation Phase</p>	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	<p>Measures to Minimize Impact to natural habitats</p> <ul style="list-style-type: none"> Where practicable, all proposed works shall be conducted in existing built up area to minimize impact to natural habitats. 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. The temporarily affected natural habitats, including streambed, shall be reinstated after the completion of 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. 	<p>Works areas/ Design and Construction Phase</p> <p>Vehicular bridge/ Design and Construction Phase</p> <p>Works Area/ Operation Phase</p> <p>Works Area/ Operation Phase</p>	<p>STF Designer/ Contractor</p> <p>STF Designer/ Contractor</p> <p>Contractor</p> <p>Contractor</p>	<p>√</p> <p>√</p> <p></p> <p></p>	<p>√</p> <p>√</p> <p>N/A</p> <p>N/A</p>			<p>ETWB TC (Works)</p> <p>No. 5/2005 Protection of natural streams/ rivers from adverse impacts arising from construction works</p>
S7.8.2	<p><i>Minimise sedimentation/water quality impacts to waterbodies</i></p> <ul style="list-style-type: none"> Measures to control potential sedimentation/ water quality impacts during the construction phase shall be implemented. To minimize the potential water quality impacts from the construction works located at any river channels, natural streams or seafront, the practices outlined in 	<p>Whole Site/ Construction Phase</p>	<p>Contractor</p>		<p>√</p> <p>√</p>			<p>ETWB TC (Works)</p> <p>No. 5/2005 Protection of natural streams/ rivers from adverse impacts arising from construction works</p>

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	<p><i>Minimize noise disturbance</i></p> <ul style="list-style-type: none"> 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		√			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	<p><i>Measures to Mitigate the Loss of Vegetation</i></p> <ul style="list-style-type: none"> 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	<p>Enhancement Measures to Create Additional Habitat for Little Grebe</p> <ul style="list-style-type: none"> 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 	Within Project Area/ Design Phase, Construction and Operation Phase	Contractor / STF Operator	√	N/A			

	be circulated to relevant departments including AFCD for comment.							
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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	
Table 9.4 CM-01	<u>Contaminant/ Sediment Control</u> – 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		√			
Table 9.4 CM-02	<u>Early Planting of Tall Trees</u> – 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			
Table 9.4 CM-03	<u>Good Site Practice</u> – 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		√			
Table 9.4 CM-04	<u>Existing Trees within Works Areas</u> – 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	√	√			
Table 9.4 OM-01	<u>Sensitive Bridge Design</u> – 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	
Table 9.4 OM-02	<u>Tall trees for Chimney</u> – 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	<u>Suitable Reinstatement at Ash-lagoon</u> – 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	<u>Existing Tree Transplanting</u> – 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	<u>Planting at Road Intersection</u> – 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			

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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	<i>Safety Measures – Welding, Flame-Cutting and Hot works</i> 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		√			
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		√			

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		√			
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		√			
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		√			

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The logo for MateriaLab, featuring the word "MateriaLab" in a bold, black, sans-serif font. The text is centered between two thick, horizontal black bars, one above and one below the text.

Appendix 9

Incident Report on Action Level or Limit Level Non-compliance

FUGRO TECHNICAL SERVICES LIMITED

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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	23 December 2010
Time	15:42 – 15:59 (Mid-ebb)
Monitoring Location	W2, W3
Parameter	pH
Action & Limit Levels	Action Level : pH \leq 7.55 or pH \geq 8.11 Limit Level : pH \leq 6 or pH \geq 9
Measured Level	W2 : 8.14 (exceed action Level) W3 : 8.21 (exceed action Level)
Possible reason for Action or Limit Level Non-compliance	Subject to the influence of upstream control station (C1) with high pH level 8.89.
Actions taken / to be taken	As the source of impact is unrelated to site activities, repeat measurement on next day is cancelled.
Remarks	Since the water level at stations W2, W3 and C1 is shallow, tidal impact is relatively insignificant.

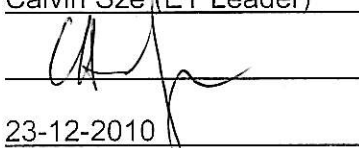
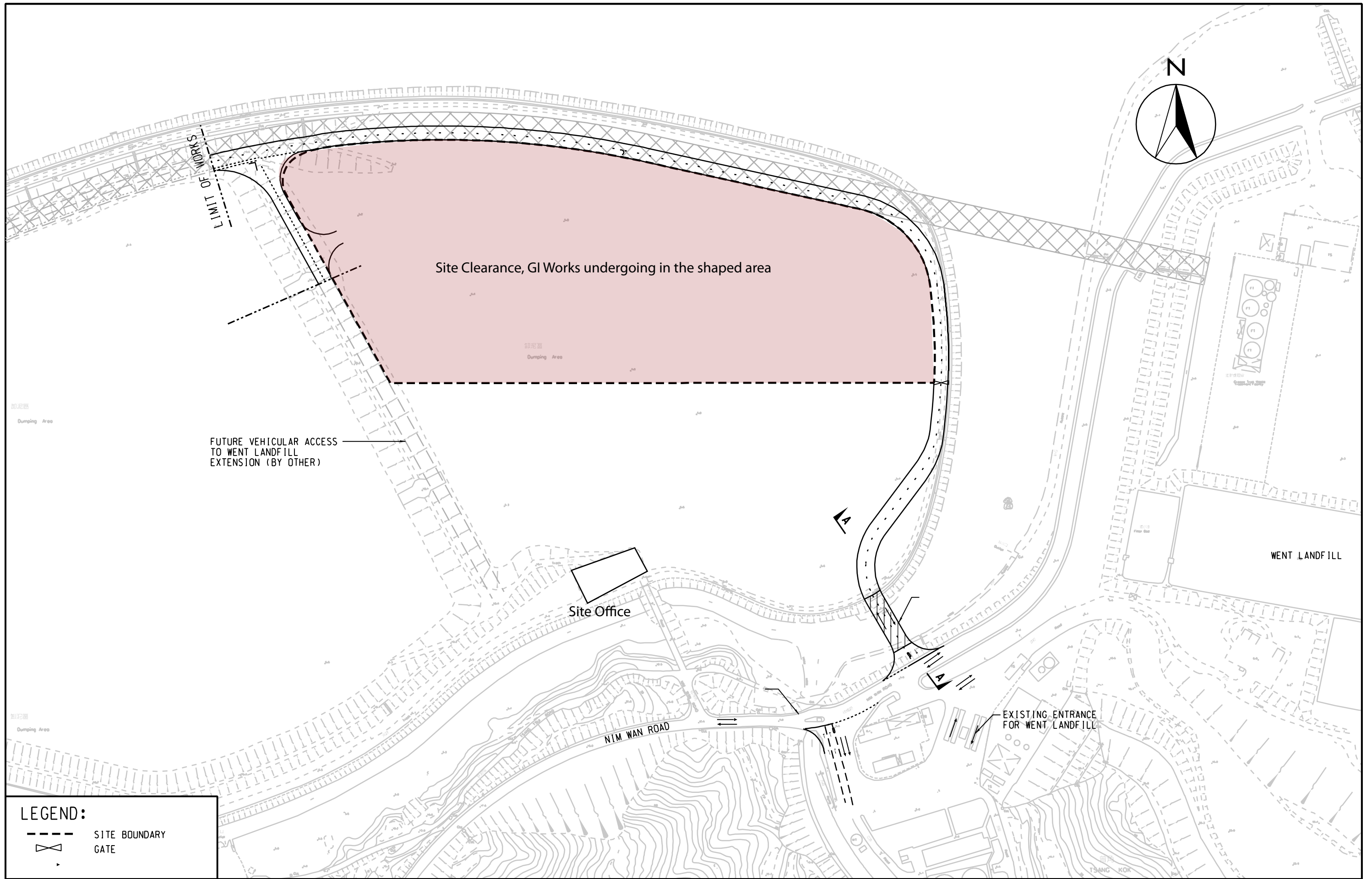
Prepared by : Calvin Sze (ET Leader)
Signature : 
Date : 23-12-2010

Figure 1.1

Construction Works Area



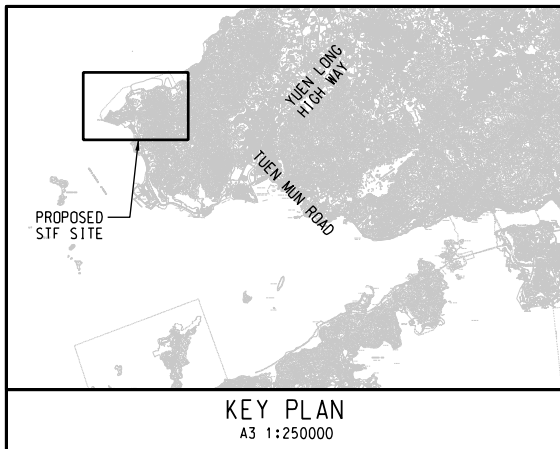
LEGEND:
 - - - - - SITE BOUNDARY
 X GATE

MAUNSELL | AECOM
 Metcalf & Eddy Ltd.

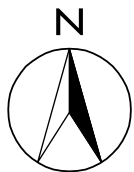
AGREEMENT NO. CE 28/2003 (EP)
 SLUDGE TREATMENT FACILITIES - FEASIBILITY STUDY
GENERAL LAYOUT OF PROPOSED SLUDGE TREATMENT FACILITIES (STF)

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

Figure 3.1
Site Layout Plan



KEY PLAN
A3 1:250000



DEEP BAY

PROPOSED SLUDGE TREATMENT FACILITIES

EXISTING CLP ASH LAGOON AT TSANG TSUI

WENT LANDFILL

大 水 坑 831250 N
Tai Shui Hong

BLACK POINT POWER STATION

TSANG KOK STREAM

BLACK POINT

830000 N

URMSTON ROAD

配水庫
Ser Res

龍鼓上灘
Lung Au
Sheung Tan

807500 E

808750 E

810000 E

811250 E

DATE: GUOXH 2008-9-30

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	-