


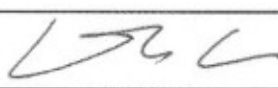
FEP-01/097/2001/B

**Provision of EM&A Services at Water
Recreation Centre**

**Monthly EM&A Report No. 1
[16 August 2005 – 15 September 2005]**

September 2005


Reviewed by (PM):


Checked by:


Approved by:

Report Version: Rev. 0

Date of
Submission: 29 Sep. 2005

The information contained in this report is, to the best of our knowledge, correct at the time of printing. The interpretation and recommendations in the report are based on our experience, using reasonable professional skill and judgment, and based upon the information that was available to us. These interpretations and recommendations are not necessarily relevant to any aspect outside the restricted requirements of our brief. This report has been prepared for the sole and specific use of our client and MEMCL accepts no responsibility for its use by others.

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**Hong Kong Disneyland Theme Park
Water Recreation Centre (Monthly EM&A Report NO.1)**

**Submitted by Maunsell Environmental Management
Consultant Ltd on 29 September 2005**

This is to verify that:

The Water Recreation Centre Monthly EM&A Report No.1

**Submitted by: Maunsell Environmental Management
Consultant Ltd**

On: 29th September 2005

Has been verified by the undersigned.

Signed

Anne F. Watker-Zeris

Ir Dr Anne Watker-Zeris
Independent Environmental Checker (IECK)
Retained by Hong Kong International Theme Parks Ltd
pursuant to FEP No. EP-138/2002/A

Date

29 September 2005

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EXECUTIVE SUMMARY

This is the first monthly Environmental Monitoring and Audit (EM&A) report prepared by Maunsell Environmental Management Consultant Ltd. (MEMCL), the designated Environmental Team (ET), for the project "Provision of EM&A Services at Water Recreation Centre". The Water Recreation Centre (WRC) commenced operation on 16 August 2005.

This report presents the results of EM&A works conducted between 16 August 2005 and 15 September 2005.

Environmental Monitoring Works

Water Quality

For water quality monitoring, no exceedance was recorded for all parameters during the reporting period.

Environmental Licensing and Permitting

Further Environmental permit no. FEP-01/097/2001/B was issued to the Hongkong International Theme Parks Limited (HKITP) for the operation of WRC. HKITP has been registered as chemical waste producer (Waste Producer No. 9499-973-H3095-01). Information on these permits is provided in Table 3.1.

Implementation Status of Environmental Mitigation Measures

Monthly environmental site inspection was carried out on 25 August 2005. Environmental mitigation measures as recommended in the EIA report, Operational EM&A Plan and FEP-01/097/2001/B were properly implemented.

Environmental Complaints and Prosecution

No complaint, summon or prosecution related to environmental issues was made against the Project in the reporting period.

Future Key Issues

The operator of WRC is reminded to continue to implement measures as recommended in the EIA report, Operational EM&A Plan and FEP-01/097/2001/B. Tentative EM&A programme for the next three months is presented in Appendix B.

1. INTRODUCTION

Background

- 1.1 Maunsell Environmental Management Consultants Ltd. (MEMCL) (hereinafter referred as the “ET”) was appointed by Hongkong International Theme Park Ltd. (HKITP) (hereinafter referred as the “Operator”) to carry out operational Environmental Monitoring and Audit at the Water Recreation Centre since its operation on 16 August 2005. Under the requirements of Section 4 of the Further Environmental Permits FEP-01/097/2001/B, EM&A programme is required to be implemented in accordance with the Operational EM&A Plan approved by the Environmental Protection Department (EPD) on 31 August 2005.
- 1.2 The WRC is a portion of the Contract for “Theme Park and Associated Infrastructures at Penny’s Bay”, which encompasses an area of approximately 12 ha and contains a multi-function artificial lake, water-based and land-based recreational facilities and ancillary facilities. Apart from recreation purpose, the lake water is a source of irrigation water for the entire Penny’s Bay. The location of the WRC is given in Figure 1.1.
- 1.3 Following approval of the EIA, an Environmental Permit (EP) was issued to the Civil Engineering Department (CED) (now Civil and Engineering Development Department (CEDD) and the subsequent variation of the permit no. EP-097/2001/B and EP-138/2002/C contain the requirements and obligations on the Environmental Monitoring and Audit (EM&A) during the operation of the WRC. Under the Contract for “Theme Park and Associated Infrastructures at Penny’s Bay”, the WRC and ancillary facilities were designed and constructed under the supervision of CEDD and the WRC would be turned over from CEDD to HKITP for operation upon completion of construction. HKITP applied to EPD for a further environmental permit (FEP) in June 2005 and FEP-01/097/2001/B which supersedes EP-097/2001/B and EP-138/2002/C relevant to the operation of WRC was issued in July 2005 when HKITP assumed the responsibilities to implement the EM&A Plan.
- 1.4 This report summarises the environmental monitoring and audit works for the Project between 16 August 2005 and 15 September 2005.

Project Organisation

- 1.5 The structure of the environmental management team is shown in Figure 1.2. Contacts of key environmental staff of the Project are shown in Appendix A.

Summary of the EM&A Requirements

- 1.6 The EM&A programme requires environmental monitoring for water quality within the WRC. The EM&A requirements for each item are described in subsequent sections, including:
 - Monitoring parameters;
 - Action and Limit Levels;
 - Event-Action Plans;
 - Environmental mitigation measures, as recommended in the EIA report, Operational EM&A Plan and FEP-01/097/2001/B.
- 1.7 Site audits and the status of environmental licensing and permits are described in Section 3.
- 1.8 Advise on the implementation status of environmental protection and pollution control/mitigation measures are summarised in Section 3 of the Report.

2. WATER QUALITY

Monitoring Requirements

- 2.1 Water quality monitoring was conducted at five monitoring stations. Appendix B shows the established Action and Limit Levels (AL Levels) for water quality parameters.

Monitoring Equipment

- 2.2 Water samples were collected at three depths at all sampling locations: (1) 1m below the water surface, (2) mid depth, and (3) 1m above the bottom of the lake. The parameters of water depth, dissolved oxygen (as % saturation), turbidity, temperature, and pH were measured in-situ. Water samples were collected for analysis by a HOKLAS accredited laboratory. The water quality monitoring equipment deployed is described in Table 2.1.

Table 2.1 Water Quality Monitoring Equipment

Equipment	Model and Make
Dissolved Oxygen Measuring Meter	YSI 85D
Turbidimeter	HACH 2100P
pH Meter	Hanna HI9023
Water Sampler	Wildco Alpha Water Bottle (Vertical)
Differential Global Positioning System (DGPS)	MLR FX412
Water depth echo sounder	Cuda 168

Monitoring Parameters, Frequency and Duration

- 2.3 Table 2.2 summarised the monitoring parameters, frequencies and duration of the water quality monitoring.

Table 2.2 Water Quality Monitoring Parameters, Period and Frequency

Monitoring Station	Parameters, unit	Frequency	No. of Depths
WM1-WM5	¹ Dissolved Oxygen Saturation, % ¹ Water depth, m ¹ pH value ¹ Temperature, °C ¹ Turbidity, NTU Dissolved Oxygen, mg/L Conductivity, µS/cm Salinity, g/L Copper (Cu), µg/L Chromium (Cr), µg/L Lead (Pb), µg/L Zinc (Zn), µg/L Tributyl Tin (TBT), ng Sn/L Suspended Solids, mg/L Total Nitrogen, mg/L Total Phosphorous, mg/L Total Silica, mg/L 5-day BOD, mg/L COD, mg/L Ammonia, mg/L Chlorophyll a, mg/L	Once per week	3 (Surface, Mid-Depth, Bottom)

Monitoring Station	Parameters, unit	Frequency	No. of Depths
	<i>E. Coli</i> , cfu/100mL		

Note:

- Parameters to be measured *in-situ*.

Monitoring Locations

- Five stations were designated for water quality monitoring. The locations of these monitoring stations are summarized in Table 2.3 and depicted in Figure 2.1.

Table 2.3 Water Quality Monitoring Locations

Location	HK Metric Grid E	HK Metric Grid N
WM1	821 821.66	820 493.99
WM2	822 034.44	820 369.10
WM3	821 839.52	820 377.60
WM4	821 932.82	820 278.32
WM5	821 915.76	820 184.51

Monitoring Methodology

- Dissolved Oxygen saturation, water depth, pH value, temperature and turbidity were measured in-situ at the designated water quality monitoring stations. General observation, weather conditions, with the sampling time, date and location were marked on a field record sheet.
- Water samples were taken from each monitoring station with a water sampler for laboratory analysis. The sample was then poured into a pre-labelled bottle. The label contained the sample identification number, sample location, date, time, project name and analyses required.
- The samples were placed in a cooler with ice (to 4°C without being frozen) and kept away from sunlight. Samples were submitted to a Hong Kong Accreditation Scheme (HOKLAS) laboratory for analysis within 24 hours of sampling.

Operating/Analytical Procedures

- A Differential Global Positioning System (DGPS) was used to ensure that the correct location was selected prior to sample collection.
- A portable, battery-operated echo sounder was used for the determination of water depth at each designated monitoring station.
- All in-situ measurements and samples for analysis were taken at three water depths, namely 1m below water surface, mid-depth and 1m above lake bottom.
- At each measurement/sampling depth, two consecutive measurements for each in-situ parameters were taken. Where the difference in the value between the first and second readings of each set was more than 25% of the value of the first reading, the reading was discarded and further readings were taken.
- Water samples were collected using the water sampler and the samples were stored in pre-labelled bottles. Water samples collected were well-mixed in the water sampler prior to transferring to sample bottles. The sample bottles were then packed in cool-boxes (cooled at 4°C without being frozen), and delivered to ALS Technichem (HK) Pty Ltd. for the laboratory analysis.

Maintenance and Calibration

- The dissolved oxygen meter, which also measures temperature, was calibrated by the wet bulb method before each monitoring day. Before the routine calibration, the sensor for dissolved oxygen was

thermally equilibrated in water-saturated air. The calibration cup served as a calibration chamber and it was loosened from airtight condition before it was used for the calibration. Calibration was also carried out in a water sample with a known concentration of dissolved oxygen at 3-month intervals. The sensor was immersed in the water and after thermal equilibration, the known mg/L value was keyed in and the calibration was carried out automatically.

- 2.14 The turbidimeter has already been calibrated at 3-month intervals. Before the measurement, a zero check in distilled water was performed with the turbidimeter. The turbidimeter was calibrated with a solution of known NTU.
- 2.15 The pH meter was calibrated at 3-month intervals. Before the measurement, a zero check in distilled water was performed with the meter. The probe was calibrated with a solution of known salinity. A similar procedure was carried out for pH value calibration.
- 2.16 Calibration records are presented in Appendix C.

Laboratory Analysis

- 2.17 All laboratory work was carried out by ALS Technichem Pty. Ltd. The determination work started within 24 hours after collection of the water samples. The analyses followed the standard methods according to Table 2.4 and as described in APHA Standard Methods for the Examination of Water and Wastewater.

Table 2.4 Analytical Methods to be applied to Water Quality Samples

Determinant, unit	Reference Method Used ¹ (APHA 20 th ed)	Reporting Limits
Dissolved Oxygen, mg/L	4500O: G	0.1 mg/L
Conductivity, μ S/cm	2510B	1 μ S/cm
Salinity, g/L	2520B	0.1 g/L
Copper, μ g/L	3125 / ICPMS	1 μ g/L
Chromium, μ g/L		1 μ g/L
Lead, μ g/L		1 μ g/L
Zinc, μ g/L		10 μ g/L
Tributyl Tin, ng Sn/L	UNEP/ICO/IAEA	5 ng Sn/L
Suspended Solids, mg/L	2540D	2 mg/L
Total Nitrogen, mg/L	4500Norg: B 4500NO ₃ : F	0.1 mg/L
Total Phosphorus, mg/L	4500P: B4, F	0.1 mg/L
Total Silica, mg/L	4500Si: F	0.01 mg/L
5-day BOD, mg/L	5210B	2 mg/L
COD, mg/L	5220B	2 mg/L
Ammonia Nitrogen, mg/L	4500NH ₃ : G	0.01 mg/L
Chlorophyll-a, mg/L	10200H2	5 mg/L
<i>E. Coli</i> . cfu/100mL	DoE Section 7.9.4.2 & 4	1 cfu/100mL

Note:

1. All testing conducted by the laboratory are In-House methods based on the method stated in the "Standard Methods for the Testing of Water and Wastewater, 19th & 20th ed" (APHA) or the USEPA SW846.

QA/QC Procedure

- 2.18 ALS Technichem has comprehensive quality assurance and quality control programmes. The QA/QC procedures for each analytical batch:

- At least 1 reagent blank solution was prepared and analyzed;
- At least 1 duplicate sample analysis was performed in every 10 samples;
- At least 1 in every 10 samples was spiked with a known concentration of the analyte to determine the matrix effect of the sample.

Results and Observations

- 2.19 Monitoring of water quality was carried out at the 5 designated monitoring stations on 4 occasions during the reporting period (19 August 2005, 25 August 2005, 31 August 2005 and 12 September 2005). The monitoring schedule is presented in Appendix D. All monitoring data and graphical presentation of the monitoring results are provided in Appendix E and summarised in Table 2.5.

Table 2.5 Summary of Water Quality Monitoring Results

Parameters	Monitoring Data Range				
	WM1	WM2	WM3	WM4	WM5
Temperature, °C	28.5 – 32.7	28.5 – 31.8	28.5 – 31.6	28.5 – 31.0	28.3 – 32.0
Daily Temperature Difference, °C	0.1 – 1.7				
Turbidity, NTU	0.7 – 1.1	0.6 – 1.1	0.7 – 2.5	0.6 – 0.9	0.7 – 0.9
pH	6.7 – 8.2	6.8 – 8.0	6.8 – 7.7	6.8 – 7.6	6.7 – 7.7
Dissolved Oxygen, mg/L	4.8 – 8.4	4.9 – 8.3	5.3 – 6.6	5.5 – 8.2	6.1 – 7.8
Conductivity, µS/cm	99 – 117	99 – 106	98 – 105	99 – 105	99 – 105
Salinity, g/L	all <0.1	all <0.1	all <0.1	all <0.1	all <0.1
Copper, µg/L	all <1	all <1	all <1	all <1	all <1
Chromium, µg/L	all <1	all <1	all <1	all <1	all <1
Lead, µg/L	all <1	all <1	all <1	all <1	all <1
Zinc, µg/L	all <10	all <10	all <10	all <10	all <10
Tributyl Tin, ng Sn/L	all <5	all <5	all <5	all <5	all <5
Suspended Solids ¹ , mg/L	all <2	all <2	all <2	all <2	all <2
Total Nitrogen, mg/L	0.5 – 0.6	0.4 – 0.5	0.4 – 0.5	0.5 – 0.6	0.4 – 0.6
Total Phosphorous, mg/L	all <0.02	all <0.02	all <0.02	all <0.02	all <0.02
Silicate, mg/L	4.07 – 5.41	4.07 – 5.40	4.06 – 5.49	3.92 – 5.53	3.68 – 5.44
Ammonia Nitrogen, mg/L	<0.01 – 0.02	<0.01 – 0.02	<0.01 – 0.02	<0.01 – 0.03	<0.01 – 0.02
Unionised Ammonia ² , mg/L	0.00042 – 0.00117	0.00022 – 0.00039	0.00011 – 0.00023	0.00020 – 0.00031	0.00010 – 0.00020
BOD ₅ , mg/L	all <2	all <2	all <2	all <2	all <2
COD, mg/L	4 – 5	<3 – 6	3 – 4	<3 – 4	<2 – 4
Chlorophyll-a, mg/L	1.1 – 2.6	1.2 – 2.3	1.0 – 2.7	1.1 – 3.0	1.1 – 2.7
<i>E. Coli</i> ³ , cfu/100mL	<1 – 1	<1 – 1	all <1	all <1	all <1

Note: 1. Present as annual median 2. Present as annual median
 3. Present as geometric mean for last 5 measurements

- 2.20 The QA/QC results for laboratory testing in the reporting period were acceptable. The QA/QC results are summarised in Appendix F.
- 2.21 All recorded levels during the reporting period were below the AL Levels. Table 2.6 summarises water quality exceedances in the reporting period.

Table 2.6 Summary of Water Quality Exceedances

Parameters	WM1		WM2		WM3		WM4		WM5		Total	
	Action	Limit	Action	Limit	Action	Limit	Action	Limit	Action	Limit	Action	Limit
Dissolved Oxygen	0	0	0	0	0	0	0	0	0	0	0	0
pH	0	0	0	0	0	0	0	0	0	0	0	0
Temperature	-	0	-	0	-	0	-	0	-	0	-	0
Suspended Solids	0	0	0	0	0	0	0	0	0	0	0	0
Ammonia Nitrogen	0	0	0	0	0	0	0	0	0	0	0	0
<i>E. Coli</i>	0	0	0	0	0	0	0	0	0	0	0	0
BOD ₅	0	0	0	0	0	0	0	0	0	0	0	0
COD	0	0	0	0	0	0	0	0	0	0	0	0

- 2.22 Water temperatures measured ranged from 28.0 – 33.5 °C. The maximum daily variation within the WRC was 1.7 °C on 12 September 2005. The variation was within the AL Levels. Salinity measurements at all stations were below detection limit, indicating no intrusion of saline water was present in WRC. All DO measurements were above the *Theme Park EIA* proposed standard of 4 mg/L.
- 2.23 All measured BOD₅ levels were below the detection limit of 2 mg/L, while COD levels measured ranged from <2 – 6 mg/L, both parameters complied with the standards proposed in the *Theme Park EIA* (5 and 30 mg/L respectively). The medians of SS measurements during the same period also observed the proposed standards (25 mg/L). Low levels of SS measurements (<2 – 2 mg/L) correlate with the low in-situ turbidity measurements (0.6 – 2.5 NTU).
- 2.24 The unionised ammonia levels, derived from Ammonia Nitrogen, temperature, pH and salinity levels, were substantially lower than the proposed standard of 0.021 mg/L. Together with other measurements in terms of Total Nitrogen and Total Phosphorus, nutrient levels within the WRC were relatively low.
- 2.25 For heavy metals (Cu, Ch, Pb, Zn), majority of the readings were below the detection limit. All TBT readings were below the detection limit and AL Levels.
- 2.26 Majority of the *E.Coli* measurements were below the detection limit of 1 cfu/100mL. The geometric mean of last five readings at all monitoring locations were below the AL Levels.

3. ENVIRONMENTAL AUDIT

Implementation Status of Environmental Mitigation Measures

- 3.1 Site audit was carried out on a monthly basis to monitor environmental issues to ensure that all mitigation measures were implemented timely and properly.
- 3.2 Monthly site inspection was carried out on 23 August 2005. Environmental mitigation measures for water quality, waste management, landscape and visual, as recommended in the EIA report, Operational EM&A Plan and FEP-01/097/2001/B were properly implemented. The findings of the site audit include:
- Silt traps were frequently cleaned to prevent a deterioration in performance;
 - Fuel for motorized vessel stored in bunded areas to prevent accidental spills entering into WRC.
 - No floating refuse was observed.
 - Further Environmental Permit was posted at vehicle site entrance.
- 3.3 A summary of the Environmental Mitigation Implementation Schedule (EMIS) is presented in Appendix G.

Status of Environmental Licensing and permitting

- 3.4 All permits/licences/notifications obtained as of the reporting period are summarised in Table 3.1

Table 3.1 Summary of Environmental Notification, Licensing and Permit Status

Permit No.	Valid Period		Description	Status
	From	To		
Environmental Permit				
FEP-01/097/2001 /B	20 Jul. 05	-	1. Operation of an approximately 32 ha water recreation centre with a 12 ha multi-function artificial lake, water-based and land-based recreational facilities and ancillary facilities.	Valid
Chemical Waste Registration				
9499-973-H3095-01	29 Jul. 05	-	Theme Park at Penny's Bay	Valid

Implementation Status of Event and Action Plans

- 3.5 The Event and Action Plans for water quality communities are presented in Appendix H.
- 3.6 No exceedance of AL Levels for water quality was recorded.

Waste Management

- 3.7 Waste management of WRC was implemented as stipulated in the Waste Management Plan.
- 3.8 As Waste Management of WRC was undertaken as part of the overall Theme Park Resort waste management scheme, records of waste handling and disposal would be reported in the Theme Park

EM&A report.

Implementation Status of Environmental Complaint Handling Procedures

- 3.9 Appendix I presents the environmental complaint flow diagram of the Project.
- 3.10 No complaint, summon or prosecution related to environmental issues was received or made against the Project in the reporting period.

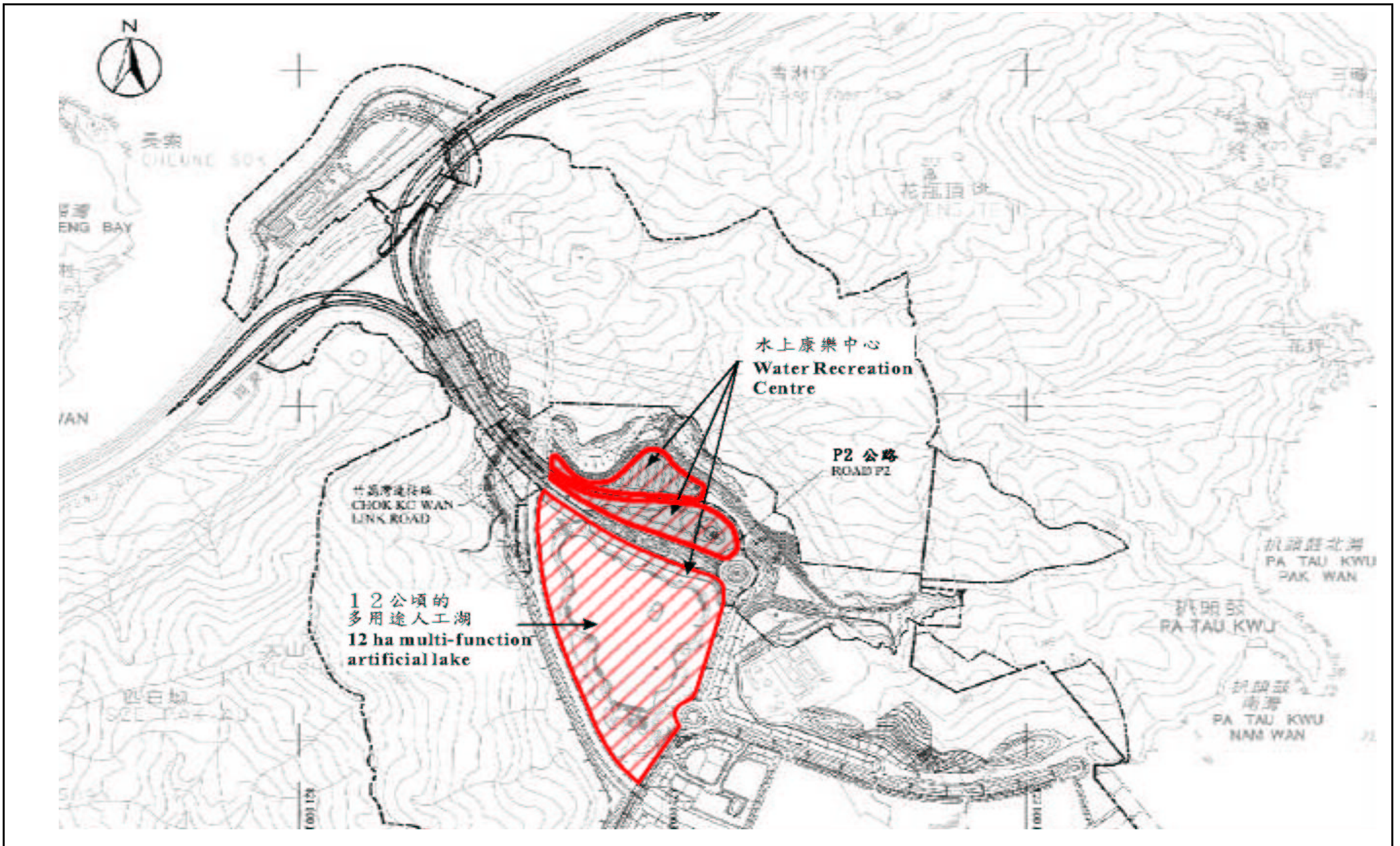
4. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

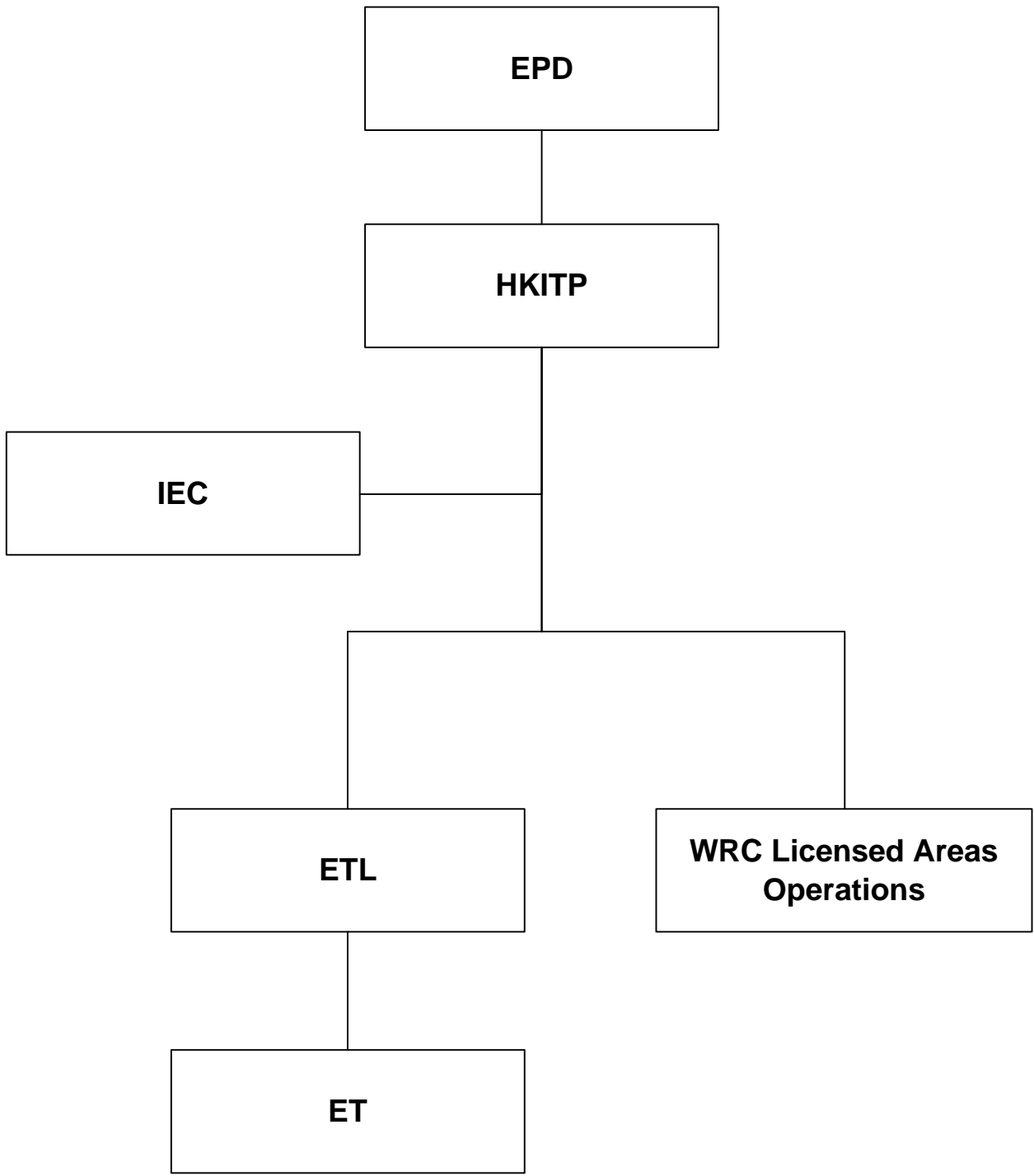
- 4.1 Environmental monitoring was performed between 16 August 2005 and 15 September 2005. All monitoring results in the reporting period were checked and reviewed.
- 4.2 All water quality measurements in the reporting period were below the Action and Limit (AL) Levels.
- 4.3 Environmental mitigation measures as recommended in the EIA report, Operational EM&A Plan and FEP-01/097/2001/B were properly implemented.
- 4.4 No complaint, summon or prosecution related to environmental issues was made against the Project in the reporting period.

Recommendations

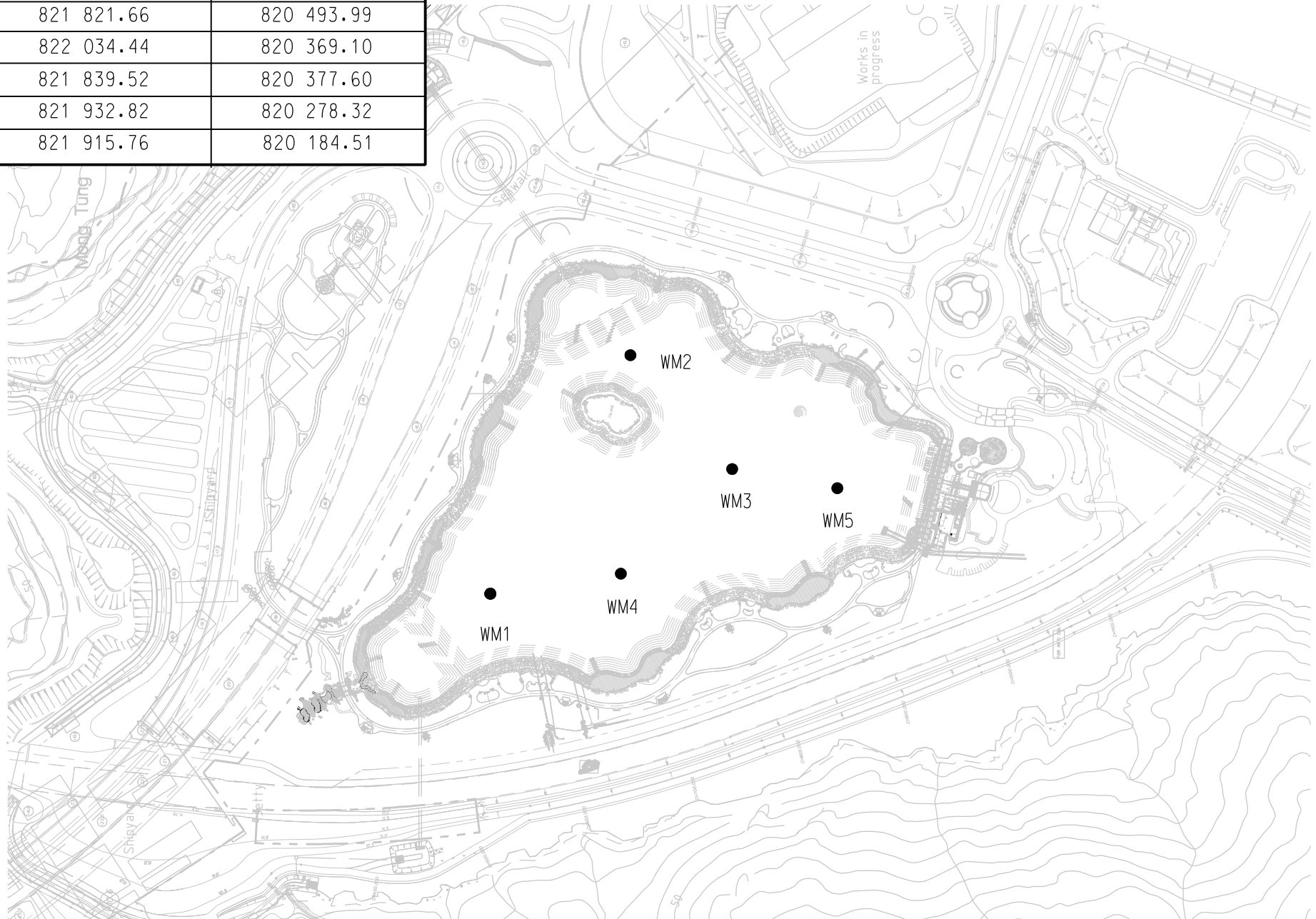
- 4.5 The operator of WRC is reminded to continue to implement measures as recommended in EIA Report and FEP.



SCALE	N.T.S.	DATE	2005
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JOB NO.	S07105	FIGURE NO.	1.1
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Location	HK Metric Grid E	HK Metric Grid N
WM1	821 821.66	820 493.99
WM2	822 034.44	820 369.10
WM3	821 839.52	820 377.60
WM4	821 932.82	820 278.32
WM5	821 915.76	820 184.51



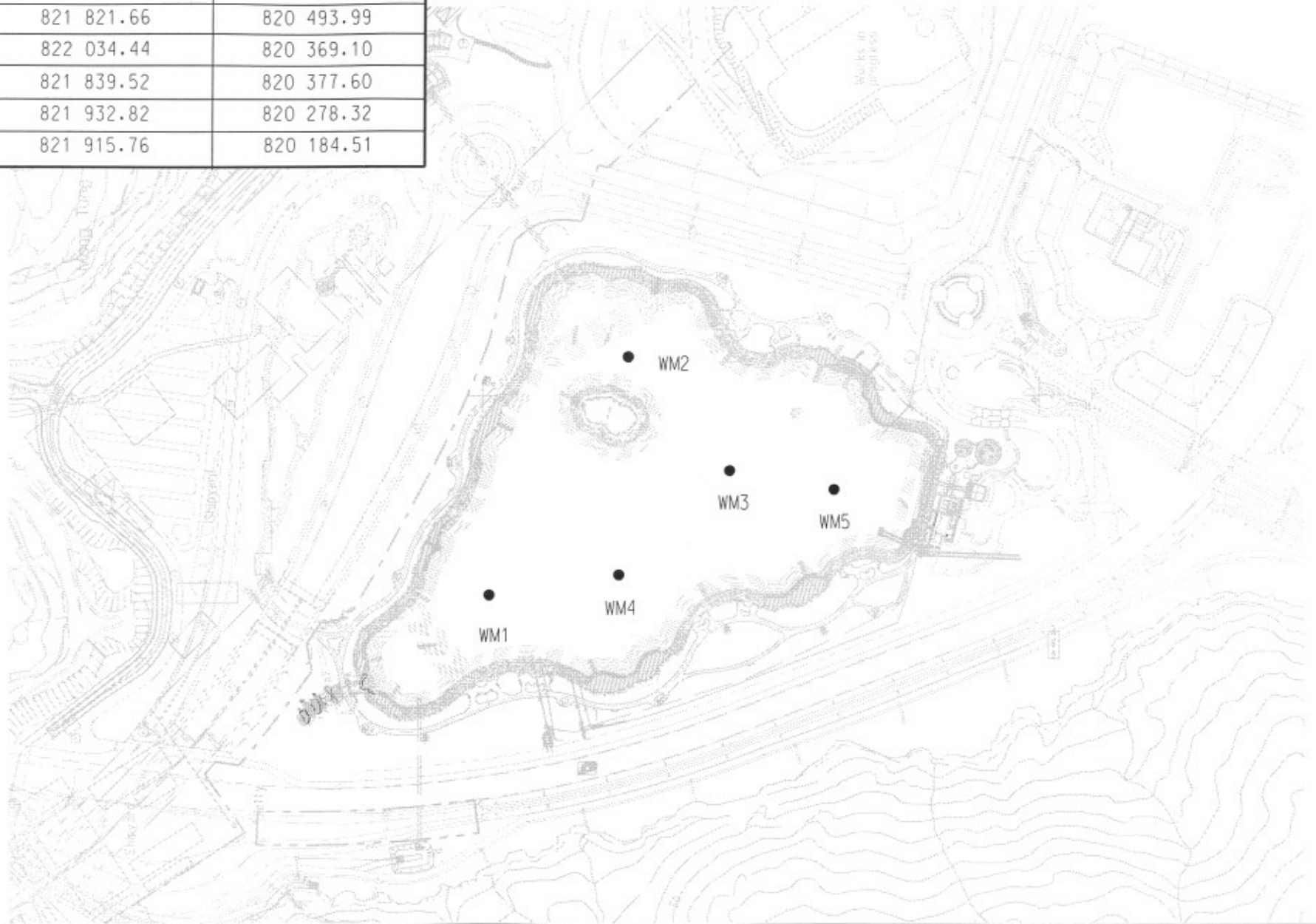
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RFP REF. NO.: HKDLSSP-163
 PROVISION OF ENVIRONMENTAL MONITORING & AUDIT SERVICES FOR WATER RECREATION CENTRE

LOCATIONS OF WATER QUALITY MONITORING STATIONS

SCALE	A4 1:5000	DATE	2005
CHECK	KCHC	DRAWN	YPK
JOB No.	S07105	DRAWING No.	2.1
		REV	-

Location	HK Metric Grid E	HK Metric Grid N
WM1	821 821.66	820 493.99
WM2	822 034.44	820 369.10
WM3	821 839.52	820 377.60
WM4	821 932.82	820 278.32
WM5	821 915.76	820 184.51



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PROVISION OF ENVIRONMENTAL MONITORING & AUDIT SERVICES FOR WATER RECREATION CENTRE

LOCATIONS OF WATER QUALITY MONITORING STATIONS

SCALE	A4 1:5000	DATE	2005
CHECK	KCHC	DRAWN	YPK
JOB No.	S07105	DRAWING No.	2.1
		REV	-

Appendix A: Contacts of Key Environmental Staff

	<u>Name</u>	<u>Telephone</u>	<u>Fax</u>
<u>IEC</u>			
Mott MacDonald			
Independent Environmental Checker	Dr. Anne Watker-Zeris	2828 5757	2827 1823
<u>ET</u>			
Maunsell Environmental Management Consultants Limited			
Environmental Team Leader	Mr. Alan Kwok	2893 1551	2891 0305
Environmental Scientist	Mr. Kenneth Chow	2893 1551	2891 0305

Appendix B – Action and Limit Levels

Action and Limit Levels for Water Quality Monitoring

Parameter, unit	Action	Limit
Dissolved Oxygen	<4.2 mg/L	<2.0 mg/L
pH	<6.3 or >8.5	<6 or >9
Temperature	Not applicable	Within a daily range of 2°C
Suspended Solids	>23.75 mg/L, measured as annual median	>25 mg/L, measured as annual median
Ammonia Nitrogen	>0.01995 mg/L for unionized form, as annual average	>0.021 mg/L for unionized form, as annual average
E. coli	>171 cfu per 100mL, geometric mean for last 5 measurements	>180 cfu per 100mL, geometric mean for last 5 measurements
5-day BOD	>4.75 mg/L	>5 mg/L
COD	>28.5 mg/L	>30 mg/L

Appendix C Calibration Details

Equipment Type	Equipment No.	Calibration Date	Next Calibration Date
HANNA pH Meter HI9023	W.003.05A	30 May 2005	30 Aug. 2005
		25 Aug. 2005	25 Nov. 2005
Turbidimeter HACH 2100P	W.001.08	9 Aug. 2005	9 Nov. 2005
YSI Multimeter YSI 85D	W.015.01	2 Jun. 2005	2 Sep. 2005

**Appendix D: Environmental Monitoring Schedule
EM&A Monitoring Schedule August / September 2005**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
14-Aug	15-Aug	16-Aug	17-Aug	18-Aug	19-Aug	20-Aug
					Weekly Water Quality Monitoring	
21-Aug	22-Aug	23-Aug	24-Aug	25-Aug	26-Aug	27-Aug
				Weekly Water Quality Monitoring Monthly Site Inspection		
28-Aug	29-Aug	30-Aug	31-Aug	1-Sep	2-Sep	3-Sep
			Weekly Water Quality Monitoring			
4-Sep	5-Sep	6-Sep	7-Sep	8-Sep	9-Sep	10-Sep
		Weekly Water Quality Monitoring				
11-Sep	12-Sep	13-Sep	14-Sep	15-Sep	16-Sep	17-Sep
	Weekly Water Quality Monitoring					

Appendix E
Water Quality Monitoring Results at WM1

Date	Weather Condition	Lake Condition	Sampling Time	Depth (m)		In-situ Monitoring										Laboratory Analysis																
						Temperature (°C)		DO Saturation (%)		Turbidity (NTU)			pH		Dissolved Oxygen (mg/L)		Conductivity (mS/cm)		Salinity (g/L)		Copper (mg/L)		Chromium (mg/L)		Lead (mg/L)		Zinc (mg/L)					
						Value	Average	Value	Average	Value	Average	DA	Value	Average	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA				
19-Aug-05	Rainy	Calm	09:00	Surface	1.0	28.7 28.7	28.7	100.2 100.5	100.4	1.2 1.1	1.2	1.1	7.7 7.8	7.7	4.6	4.8	105	106	<0.1	<0.1	<1	<1	<1	<1	<1	<1	<10	<10				
				Middle	2.3	28.8 28.8	28.8	99.7 99.4	99.6	1.1 1.1	1.1		7.6 7.7	7.4	4.8		107		<0.1		<0.1		<1		<1		<1		<1	<1	<1	<10
				Bottom	3.6	28.8 28.8	28.8	98.4 98.8	98.6	1.1 1.1	1.1		7.5 7.5	7.7	5.1		106		<0.1		<0.1		<1		<1		1		<1	<1	<1	<10
25-Aug-05	Sunny	Calm	08:30	Surface	1.0	28.9 28.9	28.9	73.4 73.7	73.6	0.8 0.8	0.8	0.7	7.9 7.9	7.9	7.0	6.2	108	103	<0.1	<0.1	<1	<1	<1	<1	<1	<1	<10	<10				
				Middle	2.3	28.3 28.2	28.3	73.1 73.0	73.1	0.6 0.6	0.6		7.9 7.9	7.4	6.5		102		<0.1		<0.1		<1		<1		<1		<1	<1	<10	
				Bottom	3.6	28.2 28.2	28.2	71.3 70.9	71.1	0.8 0.7	0.8		7.4 7.4	7.7	5.2		100		<0.1		<0.1		<1		<1		1		<1	<1	<10	
31-Aug-05	Sunny	Calm	08:15	Surface	1.0	32.4 32.5	32.5	68.7 68.5	68.6	2.5 2.5	2.5	1.1	8.2 8.2	8.1	6.8	6.7	108	103	<0.1	<0.1	<1	<1	<1	<1	<1	<1	<10	<10				
				Middle	2.3	31.1 31.1	31.1	76.7 75.8	76.3	0.5 0.5	0.5		8.1 8.1	8.0	6.4		100		<0.1		<0.1		<1		<1		<1		<1	<1	<10	
				Bottom	3.6	30.1 30.2	30.2	69.4 68.7	69.1	0.3 0.3	0.3		8.0 8.0	8.1	6.9		100		<0.1		<0.1		<1		<1		<1		<1	<1	<10	
6-Sep-05	Sunny	Calm	08:17	Surface	1.0	31.8 31.7	31.8	68.0 67.4	67.7	0.8 0.7	0.8	0.7	8.1 8.1	7.9	7.3	6.9	98	99	<0.1	<0.1	<1	<1	<1	<1	<1	<1	<10	<10				
				Middle	2.2	30.4 30.4	30.4	69.1 68.4	68.8	0.7 0.7	0.7		7.9 7.9	7.7	6.9		98		<0.1		<0.1		<1		<1		<1		<1	<1	<10	
				Bottom	3.4	30.3 30.4	30.4	64.2 64.8	64.5	0.6 0.6	0.6		7.7 7.7	7.9	6.5		101		<0.1		<0.1		<1		<1		<1		<1	<1	<10	
12-Sep-05	Sunny	Calm	08:15	Surface	1.0	33.5 33.5	33.5	62.4 61.9	62.2	1.2 1.2	1.2	1.1	6.8 6.8	6.7	11.3	8.4	155	117	<0.1	<0.1	<1	<1	<1	<1	<1	<1	<10	<10				
				Middle	2.1	33.1 33.1	33.1	53.7 53.5	53.6	1.0 1.0	1.0		6.8 6.8	6.8	7.3		99		<0.1		<0.1		<1		<1		<1		<1	<1	<10	
				Bottom	3.2	31.5 31.2	31.4	63.7 62.9	63.3	1.0 1.0	1.0		6.7 6.8	6.8	6.6		98		<0.1		<0.1		<1		<1		<1		<1	<1	<10	

Note:
 Lake Condition - Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher
 DA - Depth Average
 AA - Annual Average
 AM - Annual Median
 GM - Geometric Mean for last 5 measurements

Appendix E
Water Quality Monitoring Results at WM1

Date	Weather Condition	Lake Condition	Sampling Time	Depth (m)		Laboratory Analysis																						
						Tributyltin (ng Sn/L)		Suspended Solid (mg/L)			Total Nitrogen (mg/L)		Total Phosphorous (mg/L)		Silica (mg/L)		5-day BOD (mg/L)		COD (mg/L)		Ammonia Nitrogen (mg/L)		Unionised Ammonia (mg/L)	chlorophyll-a (mg/L)		E.Coli (cfu/100mL)		
						Value	DA	Value	DA	AM	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	AA	Value	DA	Value
19-Aug-05	Rainy	Calm	09:00	Surface	1.0	<5		2			0.6		<0.02		5.42		<2		3		<0.01			2.7		1		
				Middle	2.3	<5	<5	<2	<2.0	<2.00	0.5	0.5	<0.02	<0.02	5.38	5.41	<2	<2	5	4	<0.01	<0.01	<0.00042	2.7	2.6	1	1	<1
				Bottom	3.6	<5		<2			0.5		<0.02		5.43		<2		3		0.01			2.4		1		
25-Aug-05	Sunny	Calm	08:30	Surface	1.0	<5		<2			0.5		<0.02		4.12		<2		3		0.02			1.5		<1		
				Middle	2.3	<5	<5	<2	<2.0	<2.00	0.5	0.5	<0.02	<0.02	4.04	4.07	<2	<2	4	4	0.03	0.02	<0.00083	1.8	1.7	<1	<1	<1
				Bottom	3.6	<5		<2			0.6		<0.02		4.04		<2		4		0.02			1.7		<1		
31-Aug-05	Sunny	Calm	08:15	Surface	1.0	<5		2			0.6		<0.02		4.51		<2		3		0.01			2.4		<1		
				Middle	2.3	<5	<5	<2	<2.0	<2.00	0.6	0.6	<0.02	<0.02	4.11	4.30	<2	<2	5	5	0.02	<0.01	<0.00110	2.4	2.4	<1	<1	<1
				Bottom	3.6	<5		<2			0.5		<0.02		4.28		<2		6		<0.01			2.4		<1		
6-Sep-05	Sunny	Calm	08:17	Surface	1.0	<5		<2			0.6		<0.02		4.38		<2		3		0.02			1.2		<1		
				Middle	2.2	<5	<5	<2	<2.0	<2.00	0.5	0.5	<0.02	<0.02	4.18	4.22	<2	<2	5	5	<0.01	<0.02	<0.00117	1.2	1.1	1	<1	<1
				Bottom	3.4	<5		<2			0.4		<0.02		4.10		<2		6		0.02			1.0		<1		
12-Sep-05	Sunny	Calm	08:15	Surface	1.0	<5		<2			0.5		<0.02		4.46		<2		4		<0.01			2.6		<1		
				Middle	2.1	<5	<5	<2	<2.0	<2.00	0.5	0.5	<0.02	<0.02	4.55	4.63	<2	<2	4	4	<0.01	<0.01	<0.00095	2.5	2.6	<1	<1	<1
				Bottom	3.2	<5		<2			0.4		<0.02		4.87		<2		4		<0.01			2.7		<1		

Note:
 Lake Condition - Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher
 DA - Depth Average
 AA - Annual Average
 AM - Annual Median
 GM - Geometric Mean for last 5 measurements

Appendix E
Water Quality Monitoring Results at WM2

Date	Weather Condition	Lake Condition	Sampling Time	Depth (m)		In-situ Monitoring										Laboratory Analysis													
						Temperature (°C)		DO Saturation (%)		Turbidity (NTU)			pH		Dissolved Oxygen (mg/L)		Conductivity (mS/cm)		Salinity (g/L)		Copper (mg/L)		Chromium (mg/L)		Lead (mg/L)		Zinc (mg/L)		
						Value	Average	Value	Average	Value	Average	DA	Value	Average	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	
19-Aug-05	Rainy	Calm	09:10	Surface	1.0	28.9 29.0	29.0	98.3 98.5	98.4	1.1 1.1	1.1		7.6 7.6	7.3	5.1		108		<0.1		<1		<1		1		<10		
				Middle	2.7	28.9 28.9	28.9	97.7 97.4	97.6	1.1 1.1	1.1	1.1		7.3 7.3	7.1	4.3	4.9	105	106	<0.1	<0.1	<1	<1	<1	<1	<1	<1	<10	<10
				Bottom	4.5	28.8 28.8	28.8	95.8 95.7	95.8	1.0 1.0	1.0			7.2 7.2	7.4	5.2		105		<0.1		<1		<1		<1		<10	
25-Aug-05	Sunny	Calm	08:50	Surface	1.0	28.4 28.4	28.4	71.8 70.6	71.2	0.7 0.7	0.7		7.3 7.3	7.2	7.9		100		<0.1		<1		<1		<1		<10		
				Middle	2.2	28.6 28.6	28.6	73.9 73.3	73.6	0.8 0.8	0.8	0.9		7.2 7.2	7.1	5.4	6.3	100	100	<0.1	<0.1	<1	<1	<1	<1	<1	<1	<10	<10
				Bottom	3.4	28.6 28.6	28.6	71.1 70.5	70.8	1.1 1.1	1.1			7.1 7.1	7.2	5.6		100		<0.1		<1		<1		<1		<10	
31-Aug-05	Sunny	Calm	08:28	Surface	1.0	29.8 29.9	29.9	62.3 62.5	62.4	0.8 0.9	0.9		7.9 7.9	7.7	7.0		103		<0.1		<1		<1		<1		<10		
				Middle	2.1	30.2 30.2	30.2	67.7 67.4	67.6	0.8 0.8	0.8	0.7		7.7 7.7	7.5	6.0	6.4	100	101	<0.1	<0.1	<1	<1	<1	<1	<1	<1	<10	<10
				Bottom	3.2	30.6 30.6	30.6	67.2 66.7	67.0	0.4 0.4	0.4			7.5 7.5	7.7	6.1		101		<0.1		<1		<1		<1		<10	
6-Sep-05	Sunny	Calm	08:33	Surface	1.0	30.5 30.5	30.5	68.5 67.9	68.2	0.6 0.7	0.7		8.0 8.0	7.5	5.8		104		<0.1		<1		<1		<1		<10		
				Middle	2.1	30.3 30.3	30.3	62.0 61.6	61.8	0.6 0.6	0.6	0.6		7.5 7.5	7.4	6.8	6.8	99	101	<0.1	<0.1	<1	<1	<1	<1	<1	<1	<10	<10
				Bottom	3.3	30.3 30.4	30.4	66.5 65.7	66.1	0.5 0.5	0.5			7.4 7.4	7.6	7.9		99		<0.1		<1		<1		<1		<10	
12-Sep-05	Sunny	Calm	08:25	Surface	1.0	32.1 32.2	32.2	63.4 62.8	63.1	1.2 1.2	1.2		6.8 6.8	6.8	6.7		99		<0.1		<1		<1		<1		<10		
				Middle	2.1	31.7 31.7	31.7	62.4 63.0	62.7	1.3 1.3	1.3	1.0		6.8 6.8	6.8	8.4	8.3	99	99	<0.1	<0.1	<1	<1	<1	<1	<1	<1	<10	<10
				Bottom	3.2	31.6 31.6	31.6	65.5 66.3	65.9	0.6 0.6	0.6			6.8 6.8	6.8	9.8		100		<0.1		<1		<1		<1		<10	

Note:
Lake Condition - Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher
DA - Depth Average
AA - Annual Average
AM - Annual Median
GM - Geometric Mean for last 5 measurements

Appendix E
Water Quality Monitoring Results at WM2

Date	Weather Condition	Lake Condition	Sampling Time	Depth (m)		Laboratory Analysis																						
						Tributyltin (ng Sn/L)		Suspended Solid (mg/L)			Total Nitrogen (mg/L)		Total Phosphorous (mg/L)		Silica (mg/L)		5-day BOD (mg/L)		COD (mg/L)		Ammonia Nitrogen (mg/L)		Unionised Ammonia (mg/L)	chlorophyll-a (mg/L)		E.Coli (cfu/100mL)		
						Value	DA	Value	DA	AM	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	AA	Value	DA	Value
19-Aug-05	Rainy	Calm	09:10	Surface	1.0	<5		<2			0.6		<0.02		5.39		<2		<2		<0.01			1.8		2		
				Middle	2.7	<5	<5	<2	<2.0	<2.00	0.4	0.5	<0.02	<0.02	5.39	5.40	<2	<2	3	<3	0.01	<0.01	<0.00022	2.6	2.3	1	1	<1
				Bottom	4.5	<5		<2			0.4		<0.02		5.42		<2		3		<0.01			2.4		1		
25-Aug-05	Sunny	Calm	08:50	Surface	1.0	<5		<2			0.5		<0.02		4.10		<2		4		0.02			1.4		<1		
				Middle	2.2	<5	<5	<2	<2.0	<2.00	0.6	0.5	<0.02	<0.02	4.16	4.07	<2	<2	<2	<3	0.03	0.02	<0.00027	1.2	1.3	<1	<1	<1
				Bottom	3.4	<5		<2			0.5		<0.02		3.96		<2		3		0.02			1.3		<1		
31-Aug-05	Sunny	Calm	08:28	Surface	1.0	<5		<2			0.6		<0.02		4.18		<2		5		<0.01			2.3		<1		
				Middle	2.1	<5	<5	<2	<2.0	<2.00	0.6	0.5	<0.02	<0.02	4.30	4.25	<2	<2	6	6	<0.01	<0.01	<0.00035	2.1	2.2	<1	<1	<1
				Bottom	3.2	<5		<2			0.4		<0.02		4.28		<2		6		<0.01			2.2		<1		
6-Sep-05	Sunny	Calm	08:33	Surface	1.0	<5		<2			0.5		<0.02		4.12		<2		3		<0.01			1.1		<1		
				Middle	2.1	<5	<5	<2	<2.0	<2.00	0.4	0.5	<0.02	<0.02	4.00	4.08	<2	<2	4	4	<0.01	<0.01	<0.00039	1.1	1.2	<1	<1	<1
				Bottom	3.3	<5		<2			0.5		<0.02		4.12		<2		6		<0.01			1.3		<1		
12-Sep-05	Sunny	Calm	08:25	Surface	1.0	<5		<2			0.4		<0.02		4.25		<2		<2		<0.01			2.4		<1		
				Middle	2.1	<5	<5	<2	<2.0	<2.00	0.4	0.4	<0.02	<0.02	4.28	4.21	<2	<2	4	<3	0.01	<0.01	<0.00032	2.0	2.2	<1	<1	<1
				Bottom	3.2	<5		<2			0.3		<0.02		4.10		<2		2		0.01			2.3		<1		

Note:
 Lake Condition - Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher
 DA - Depth Average
 AA - Annual Average
 AM - Annual Median
 GM - Geometric Mean for last 5 measurements

Appendix E
Water Quality Monitoring Results at WM3

Date	Weather Condition	Lake Condition	Sampling Time	Depth (m)		In-situ Monitoring										Laboratory Analysis																				
						Temperature (°C)		DO Saturation (%)		Turbidity (NTU)			pH		Dissolved Oxygen (mg/L)		Conductivity (mS/cm)		Salinity (g/L)		Copper (mg/L)		Chromium (mg/L)		Lead (mg/L)		Zinc (mg/L)									
						Value	Average	Value	Average	Value	Average	DA	Value	Average	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA								
19-Aug-05	Rainy	Calm	09:20	Surface	1.0	28.9 28.9	28.9	97.1 97.4	97.3	1.1 1.1	1.1	1.2	7.2 7.2	7.1	5.4	5.5	105	105	<0.1	<1	<1	<1	<1	<1	<1	<10	<10									
				Middle	2.2	28.9 28.8	28.9	99.7 99.7	99.7	1.2 1.2	1.2		7.0 7.1	6.9	5.8		104		<0.1									<0.1	<1	<1	<1	<1	<1	<1	<10	<10
				Bottom	3.5	28.7 28.8	28.8	99.6 99.5	99.6	1.3 1.3	1.3		6.9 6.9	7.1	5.4		105		<0.1									<1	<1	<1	<1	<1	<1	<1	<10	<10
25-Aug-05	Sunny	Calm	09:12	Surface	1.0	28.4 28.5	28.5	70.8 70.3	70.6	0.7 0.6	0.7	0.8	7.3 7.3	7.2	5.4	5.3	100	101	<0.1	<1	<1	<1	<1	<1	<1	<10	<10									
				Middle	2.3	28.5 28.5	28.5	70.0 69.5	69.8	0.9 0.8	0.9		7.1 7.2	7.0	5.8		102		<0.1									<0.1	<1	<1	<1	<1	<1	<1	<10	<10
				Bottom	3.6	28.5 28.6	28.6	71.5 71.0	71.3	0.8 0.8	0.8		7.0 7.0	7.2	4.6		100		<0.1									<1	<1	<1	<1	<1	<1	<1	<10	<10
31-Aug-05	Sunny	Calm	08:45	Surface	1.0	30.2 30.1	30.2	70.8 70.6	70.7	2.1 2.0	2.1	4.1	7.7 7.7	7.4	6.6	5.9	102	101	<0.1	<1	<1	<1	<1	<1	<10	<10										
				Middle	2.3	30.5 30.5	30.5	68.6 67.9	68.3	4.2 4.2	4.2		7.4 7.4	7.4	4.4		100		<0.1								<0.1	<1	<1	<1	<1	<1	<10	<10		
				Bottom	3.6	30.2 30.1	30.2	68.3 67.8	68.1	1.1 10.9	6.0		7.4 7.4	7.5	6.7		100		<0.1								<1	<1	<1	<1	<1	<1	<10	<10		
6-Sep-05	Sunny	Calm	08:50	Surface	1.0	31.9 31.8	31.9	64.0 63.7	63.9	0.8 0.8	0.8	0.7	7.5 7.5	7.2	5.6	6.0	99	99	<0.1	<1	<1	<1	<1	<1	<10	<10										
				Middle	2.2	30.8 30.9	30.9	63.0 62.6	62.8	0.7 0.7	0.7		7.2 7.2	7.1	6.1		99		<0.1								<0.1	<1	<1	<1	<1	<1	<10	<10		
				Bottom	3.4	30.5 30.7	30.6	64.4 63.7	64.1	0.6 0.6	0.6		7.1 7.1	7.3	6.4		100		<0.1								<1	<1	<1	<1	<1	<1	<10	<10		
12-Sep-05	Sunny	Calm	08:40	Surface	1.0	31.5 31.5	31.5	65.2 64.6	64.9	0.6 0.6	0.6	0.8	6.8 6.8	6.8	6.5	6.6	98	98	<0.1	<1	<1	<1	<1	<1	<10	<10										
				Middle	2.1	31.9 31.9	31.9	64.1 63.4	63.8	0.9 0.9	0.9		6.8 6.8	6.8	6.6		98		<0.1								<0.1	<1	<1	<1	<1	<1	<10	<10		
				Bottom	3.2	31.5 31.4	31.5	63.4 62.7	63.1	1.0 1.0	1.0		6.8 6.8	6.8	6.8		99		<0.1								<1	<1	<1	<1	<1	<1	<10	<10		

Note:
 Lake Condition - Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher
 DA - Depth Average
 AA - Annual Average
 AM - Annual Median
 GM - Geometric Mean for last 5 measurements

Appendix E
Water Quality Monitoring Results at WM3

Date	Weather Condition	Lake Condition	Sampling Time	Depth (m)		Laboratory Analysis																						
						Tributyltin (ng Sn/L)		Suspended Solid (mg/L)			Total Nitrogen (mg/L)		Total Phosphorous (mg/L)		Silica (mg/L)		5-day BOD (mg/L)		COD (mg/L)		Ammonia Nitrogen (mg/L)		Unionised Ammonia (mg/L)	chlorophyll-a (mg/L)		E.Coli (cfu/100mL)		
						Value	DA	Value	DA	AM	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	AA	Value	DA	Value
19-Aug-05	Rainy	Calm	09:20	Surface	1.0	<5		<2			0.5		<0.02		5.52		<2		3		<0.01			2.6		1		
				Middle	2.2	<5	<5	<2	<2.0	<2.00	0.4	0.4	<0.02	<0.02	5.49	5.49	<2	<2	3	3	0.01	<0.01	<0.00011	2.7	2.7	<1	<1	<1
				Bottom	3.5	<5		<2			0.4		<0.02		5.47		<2		3		<0.01			2.8		<1		
25-Aug-05	Sunny	Calm	09:12	Surface	1.0	<5		<2			0.6		<0.02		4.03		<2		2		0.02			1.7		<1		
				Middle	2.3	<5	<5	<2	<2.0	<2.00	0.6	0.5	<0.02	<0.02	4.12	4.06	<2	<2	3	3	0.02	0.02	<0.00019	1.8	1.7	<1	<1	<1
				Bottom	3.6	<5		<2			0.4		<0.02		4.02		<2		3		0.02			1.6		<1		
31-Aug-05	Sunny	Calm	08:45	Surface	1.0	<5		2			0.6		<0.02		4.22		<2		6		<0.01			1.8		<1		
				Middle	2.3	<5	<5	<2	<2.0	<2.00	0.6	0.5	<0.02	<0.02	4.30	4.24	<2	<2	3	4	<0.01	<0.01	<0.00023	1.7	1.7	<1	<1	<1
				Bottom	3.6	<5		<2			0.4		<0.02		4.19		<2		4		0.01			1.6		<1		
6-Sep-05	Sunny	Calm	08:50	Surface	1.0	<5		<2			0.4		<0.02		4.02		<2		6		<0.01			1.1		<1		
				Middle	2.2	<5	<5	<2	<2.0	<2.00	0.4	0.4	<0.02	<0.02	4.10	4.07	<2	<2	3	4	<0.01	<0.01	<0.00023	0.8	1.0	<1	<1	<1
				Bottom	3.4	<5		<2			0.4		<0.02		4.09		<2		3		<0.01			1.1		<1		
12-Sep-05	Sunny	Calm	08:40	Surface	1.0	<5		<2			0.4		<0.02		4.48		<2		5		<0.01			2.6		<1		
				Middle	2.1	<5	<5	<2	<2.0	<2.00	0.3	0.4	<0.02	<0.02	4.36	4.50	<2	<2	3	3	<0.01	<0.01	<0.00019	2.3	2.5	<1	<1	<1
				Bottom	3.2	<5		<2			0.4		<0.02		4.65		<2		2		<0.01			2.7		<1		

Note:
 Lake Condition - Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher
 DA - Depth Average
 AA - Annual Average
 AM - Annual Median
 GM - Geometric Mean for last 5 measurements

Appendix E
Water Quality Monitoring Results at WM4

Date	Weather Condition	Lake Condition	Sampling Time	Depth (m)		In-situ Monitoring										Laboratory Analysis														
						Temperature (°C)		DO Saturation (%)		Turbidity (NTU)			pH		Dissolved Oxygen (mg/L)		Conductivity (mS/cm)		Salinity (g/L)		Copper (mg/L)		Chromium (mg/L)		Lead (mg/L)		Zinc (mg/L)			
						Value	Average	Value	Average	Value	Average	DA	Value	Average	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA		
19-Aug-05	Rainy	Calm	09:35	Surface	1.0	28.9 28.9	28.9	96.6 96.2	96.4	0.8 0.9	0.9	0.9	7.6 7.6	7.1	5.1	5.6	106	105	<0.1	<1	<1	1	<1	<1	<1	<10	<10			
				Middle	2.3	28.9 28.9	28.9	95.0 95.3	95.2	0.8 0.8	0.8		7.2 7.2	7.1	5.6		104		<0.1			<0.1		<1		<1		<1	<1	<10
				Bottom	3.6	28.6 28.8	28.7	98.5 98.1	98.3	0.9 0.9	0.9		7.1 7.1	7.3	6.2		106		<0.1			<1		<1		<1		<10		
25-Aug-05	Sunny	Calm	09:28	Surface	1.0	28.4 28.3	28.4	72.6 72.0	72.3	0.6 0.7	0.7	0.6	7.5 7.5	7.0	9.1	8.0	102	101	<0.1	<1	<1	<1	<1	<1	<1	<10	<10			
				Middle	2.3	28.4 28.5	28.5	70.6 69.6	70.1	0.5 0.5	0.5		7.0 7.0	6.9	9.4		101		<0.1			<0.1		<1		<1		<1	<1	<10
				Bottom	3.6	28.5 28.5	28.5	71.6 71.1	71.4	0.7 0.7	0.7		7.0 7.0	7.2	5.6		101		<0.1			<1		<1		<1		<1	<10	
31-Aug-05	Sunny	Calm	08:57	Surface	1.0	30.3 30.3	30.3	68.4 67.9	68.2	1.1 1.1	1.1	0.7	7.5 7.5	7.2	8.6	8.2	106	101	<0.1	<1	<1	<1	<1	<1	<1	<10	<10			
				Middle	2.1	30.5 30.5	30.5	67.1 67.6	67.4	0.7 0.7	0.7		7.2 7.2	7.2	9.0		98		<0.1			<0.1		<1		<1		<1	<1	<10
				Bottom	3.3	30.6 30.6	30.6	67.8 67.1	67.5	0.3 0.3	0.3		7.2 7.2	7.3	7.1		100		<0.1			<1		<1		<1		<1	<10	
6-Sep-05	Sunny	Calm	09:02	Surface	1.0	30.5 30.4	30.5	68.4 68.9	68.7	0.5 0.5	0.5	0.6	7.3 7.3	7.0	6.6	5.8	100	99	<0.1	<1	<1	<1	<1	<1	<1	<10	<10			
				Middle	2.2	30.3 30.4	30.4	66.5 65.7	66.1	0.6 0.6	0.6		7.1 7.1	6.9	5.1		100		<0.1			<0.1		<1		<1		<1	<1	<10
				Bottom	3.4	30.3 30.4	30.4	66.9 66.1	66.5	0.7 0.6	0.7		6.9 6.9	7.1	5.6		98		<0.1			<1		<1		<1		<1	<10	
12-Sep-05	Sunny	Calm	09:00	Surface	1.0	31.1 31.1	31.1	68.1 67.7	67.9	0.8 0.9	0.9	0.7	6.8 6.8	6.8	6.7	5.5	100	99	<0.1	<1	<1	<1	<1	<1	<1	<10	<10			
				Middle	2.3	31.0 31.1	31.1	68.2 67.6	67.9	0.4 0.4	0.4		6.8 6.8	6.8	5.0		99		<0.1			<0.1		<1		<1		<1	<1	<10
				Bottom	3.6	30.8 30.8	30.8	61.9 61.3	61.6	0.8 0.8	0.8		6.8 6.8	6.8	4.8		99		<0.1			<1		<1		<1		<1	<10	

Note:
 Lake Condition - Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher
 DA - Depth Average
 AA - Annual Average
 AM - Annual Median
 GM - Geometric Mean for last 5 measurements

Appendix E
Water Quality Monitoring Results at WM4

Date	Weather Condition	Lake Condition	Sampling Time	Depth (m)		Laboratory Analysis																						
						Tributyltin (ng Sn/L)		Suspended Solid (mg/L)			Total Nitrogen (mg/L)		Total Phosphorous (mg/L)		Silica (mg/L)		5-day BOD (mg/L)		COD (mg/L)		Ammonia Nitrogen (mg/L)		Unionised Ammonia (mg/L)	chlorophyll-a (mg/L)		E.Coli (cfu/100mL)		
						Value	DA	Value	DA	AM	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	AA	Value	DA	Value
19-Aug-05	Rainy	Calm	09:35	Surface	1.0	<5		<2			0.6		<0.02		5.52		<2		3		<0.01			2.6		<1		
				Middle	2.3	<5	<5	<2	<2.0	<2.00	0.5	0.6	<0.02	<0.02	5.55	5.53	<2	<2	5	4	<0.01	<0.01	<0.00020	3.4	3.0	2	<1	<1
				Bottom	3.6	<5		<2			0.6		<0.02		5.53		<2		4		0.01			2.9		<1		
25-Aug-05	Sunny	Calm	09:28	Surface	1.0	<5		<2			0.4		<0.02		4.00		<2		2		0.03			1.6		<1		
				Middle	2.3	<5	<5	<2	<2.0	<2.00	0.4	0.5	<0.02	<0.02	4.12	4.06	<2	<2	3	3	0.02	0.03	<0.00031	0.8	1.1	<1	<1	<1
				Bottom	3.6	<5		<2			0.6		<0.02		4.05		<2		3		0.03			1.0		<1		
31-Aug-05	Sunny	Calm	08:57	Surface	1.0	<5		<2			0.4		<0.02		4.20		<2		5		<0.01			1.5		<1		
				Middle	2.1	<5	<5	<2	<2.0	<2.00	0.5	0.5	<0.02	<0.02	4.26	4.22	<2	<2	<2	<4	0.03	<0.02	<0.00031	2.0	1.7	<1	<1	<1
				Bottom	3.3	<5		<2			0.5		<0.02		4.20		<2		4		<0.01			1.7		<1		
6-Sep-05	Sunny	Calm	09:02	Surface	1.0	<5		<2			0.6		<0.02		4.00		<2		5		<0.01			1.2		<1		
				Middle	2.2	<5	<5	2	<2.0	<2.00	0.6	0.6	<0.02	<0.02	3.98	3.92	<2	<2	4	4	<0.01	<0.01	<0.00027	1.2	1.2	<1	<1	<1
				Bottom	3.4	<5		<2			0.5		<0.02		3.78		<2		3		<0.01			1.2		<1		
12-Sep-05	Sunny	Calm	09:00	Surface	1.0	<5		<2			0.5		<0.02		4.13		<2		4		<0.01			2.4		<1		
				Middle	2.3	<5	<5	<2	<2.0	<2.00	0.5	0.5	<0.02	<0.02	3.92	4.03	<2	<2	<2	<3	<0.01	<0.01	<0.00023	2.3	2.4	<1	<1	<1
				Bottom	3.6	<5		<2			0.4		<0.02		4.04		<2		3		<0.01			2.4		<1		

Note:
 Lake Condition - Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher
 DA - Depth Average
 AA - Annual Average
 AM - Annual Median
 GM - Geometric Mean for last 5 measurements

Appendix E
Water Quality Monitoring Results at WM5

Date	Weather Condition	Lake Condition	Sampling Time	Depth (m)		In-situ Monitoring										Laboratory Analysis															
						Temperature (°C)		DO Saturation (%)		Turbidity (NTU)			pH		Dissolved Oxygen (mg/L)		Conductivity (mS/cm)		Salinity (g/L)		Copper (mg/L)		Chromium (mg/L)		Lead (mg/L)		Zinc (mg/L)				
						Value	Average	Value	Average	Value	Average	DA	Value	Average	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA			
19-Aug-05	Rainy	Calm	09:50	Surface	1.0	28.8 28.9	28.9	99.8 99.6	99.7	1.0 1.0	1.0	0.9	7.1 7.1	7.1	5.8	6.1	105	105	<0.1	<1	<1	<1	<1	<1	<1	<10					
				Middle	2.3	28.8 28.8	28.8	100.1 100.2	100.2	0.8 0.8	0.8	7.1 7.1	7.0	5.4	105		<0.1		<0.1								<1	<1	<1	<1	<10
				Bottom	3.7	28.9 28.9	28.9	100.3 100.0	100.2	1.0 1.0	1.0	7.0 7.0	7.1	7.0	105		<0.1		<1								<1	<1	<1	<10	
25-Aug-05	Sunny	Calm	09:45	Surface	1.0	28.1 28.0	28.1	70.7 70.0	70.4	0.7 0.6	0.7	0.8	7.1 7.1	6.9	5.6	6.6	101	100	<0.1	<1	<1	<1	<1	<1	<10						
				Middle	2.2	28.4 28.3	28.4	71.5 71.0	71.3	0.8 0.8	0.8	6.9 6.9	6.8	7.8	100		<0.1		<0.1							<1	<1	<1	<1	<10	
				Bottom	3.4	28.4 28.6	28.5	70.3 69.8	70.1	0.8 0.9	0.9	6.8 6.8	6.9	6.5	100		<0.1		<1							<1	<1	<1	<10		
31-Aug-05	Sunny	Calm	09:12	Surface	1.0	30.5 30.5	30.5	68.7 68.2	68.5	0.8 0.9	0.9	0.7	7.7 7.7	7.3	9.0	7.8	102	99	<0.1	<1	<1	<1	<1	<1	<10						
				Middle	2.2	30.3 30.3	30.3	68.3 68.0	68.2	0.5 0.4	0.5	7.3 7.3	7.2	7.1	100		<0.1		<0.1							<1	<1	<1	<1	<10	
				Bottom	3.5	30.6 30.6	30.6	66.2 65.5	65.9	0.8 0.8	0.8	7.2 7.2	7.4	7.3	96		<0.1		<1							<1	<1	<1	<10		
6-Sep-05	Sunny	Calm	09:15	Surface	1.0	30.9 31.0	31.0	64.3 64.5	64.4	1.1 1.1	1.1	0.9	7.0 7.1	7.0	5.2	5.5	100	99	<0.1	<1	<1	<1	<1	<1	<10						
				Middle	2.4	30.4 30.5	30.5	66.8 66.2	66.5	0.9 0.8	0.9	7.0 7.0	6.9	5.6	99		<0.1		<0.1							<1	<1	<1	<10		
				Bottom	3.8	30.4 30.4	30.4	63.8 63.2	63.5	0.6 0.6	0.6	6.9 6.9	7.0	5.6	99		<0.1		<1							<1	<1	<1	<10		
12-Sep-05	Sunny	Calm	09:13	Surface	1.0	32.1 32.0	32.1	63.6 62.6	63.1	0.9 0.9	0.9	0.8	6.8 6.8	6.8	7.8	7.3	100	100	<0.1	<1	<1	<1	<1	<1	<10						
				Middle	2.3	31.9 32.0	32.0	64.1 63.2	63.7	0.8 0.8	0.8	6.7 6.8	6.8	6.8	100		<0.1		<0.1							<1	<1	<1	<1	<10	
				Bottom	3.6	31.7 31.8	31.8	61.6 60.6	61.1	0.6 0.6	0.6	6.8 6.8	6.8	7.4	99		<0.1		<1							<1	<1	<1	<10		

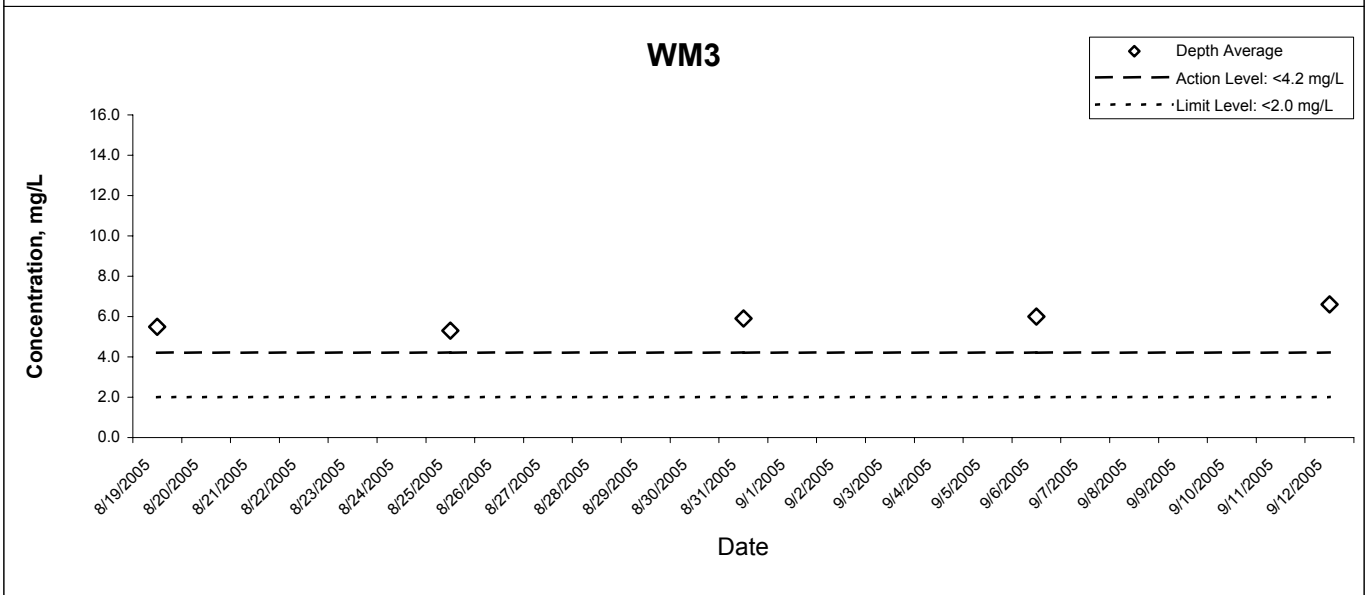
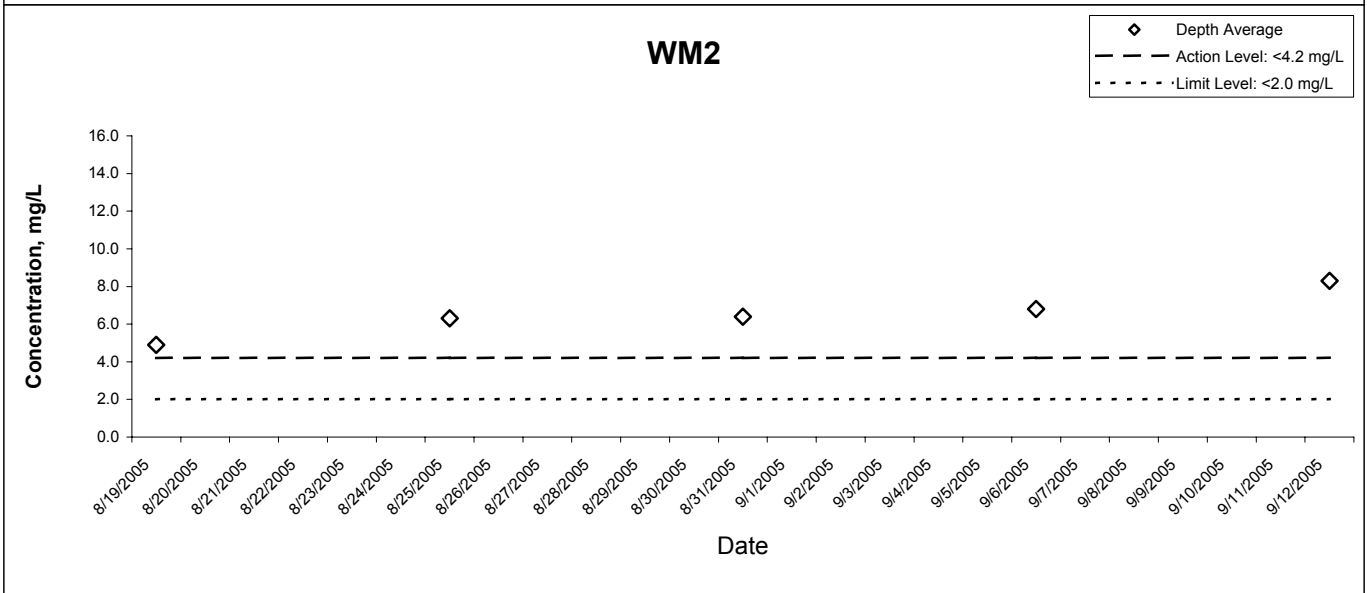
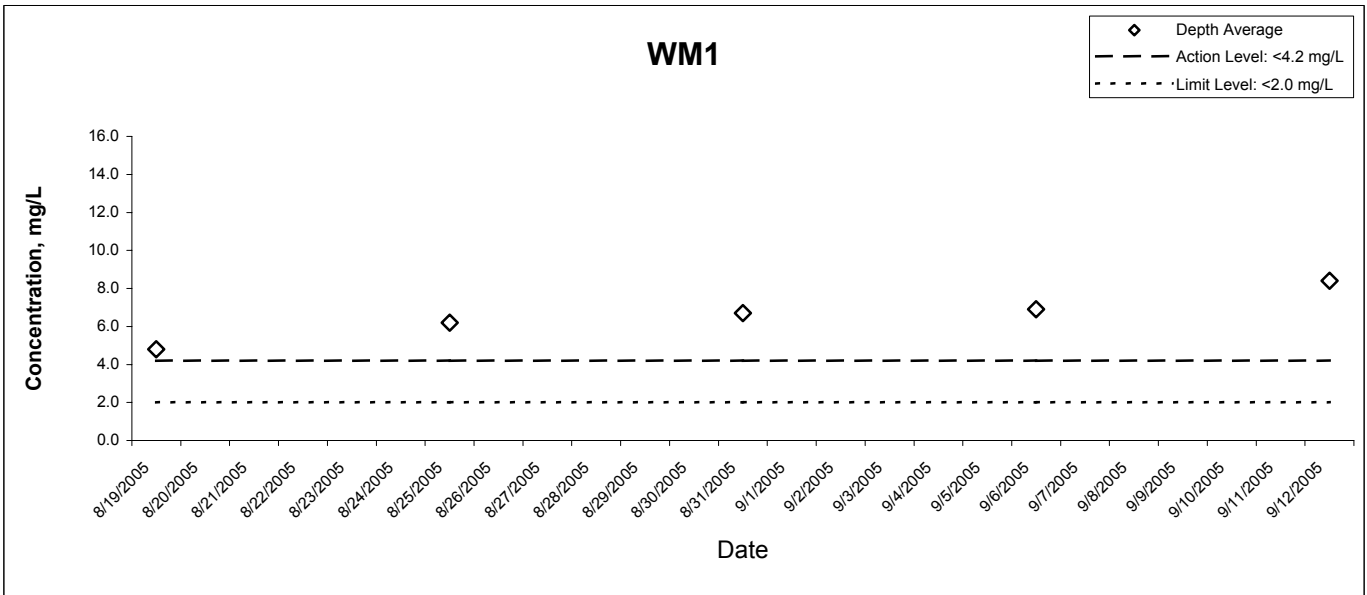
Note:
 Lake Condition - Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher
 DA - Depth Average
 AA - Annual Average
 AM - Annual Median
 GM - Geometric Mean for last 5 measurements

Appendix E
Water Quality Monitoring Results at WM5

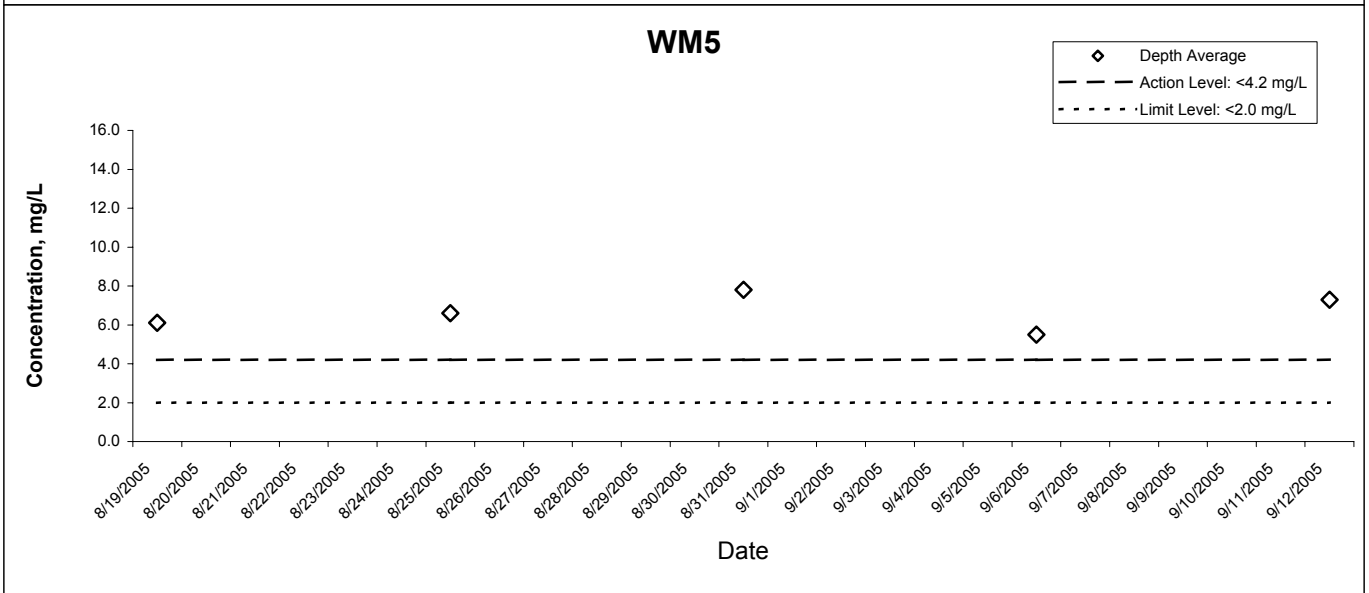
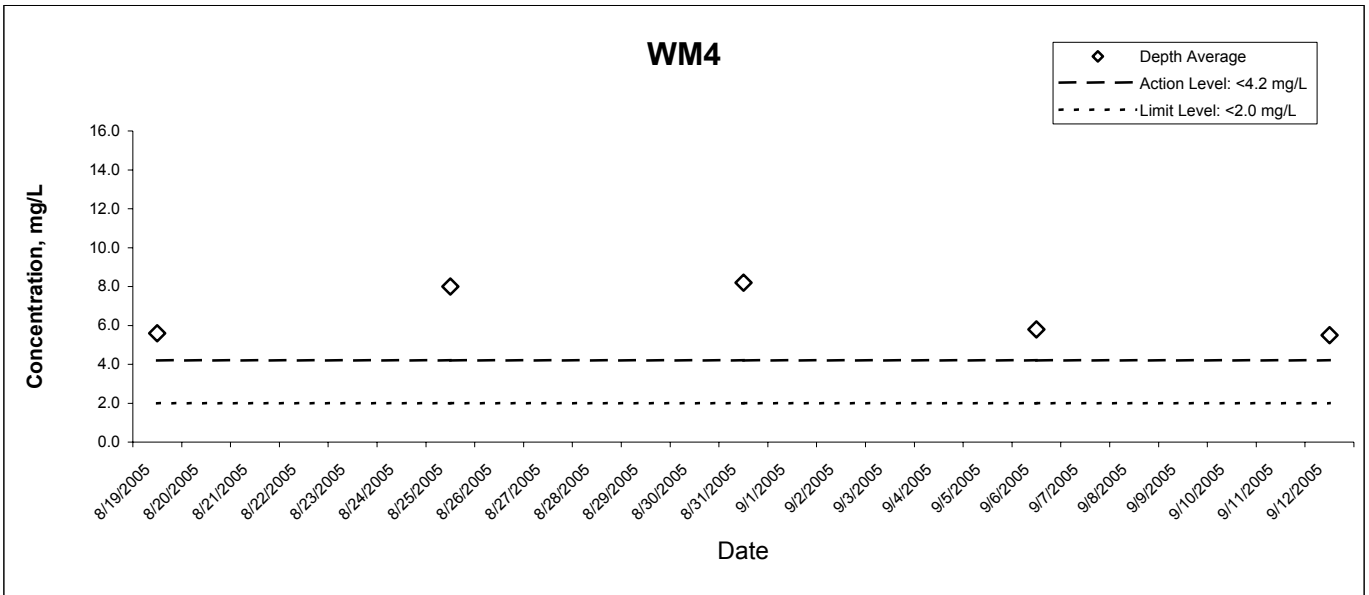
Date	Weather Condition	Lake Condition	Sampling Time	Depth (m)		Laboratory Analysis																						
						Tributyltin (ng Sn/L)		Suspended Solid (mg/L)			Total Nitrogen (mg/L)		Total Phosphorous (mg/L)		Silica (mg/L)		5-day BOD (mg/L)		COD (mg/L)		Ammonia Nitrogen (mg/L)		Unionised Ammonia (mg/L)	chlorophyll-a (mg/L)		E.Coli (cfu/100mL)		
						Value	DA	Value	DA	AM	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	AA	Value	DA	Value
19-Aug-05	Rainy	Calm	09:50	Surface	1.0	<5		<2			0.4		<0.02		5.51		<2		3		<0.01			2.7		1		
				Middle	2.3	<5	<5	<2	<2.0	<2.00	0.6	0.6	<0.02	<0.02	5.41	5.44	<2	<2	3	<3	<0.01	<0.01	<0.00010	3.0	2.7	<1	<1	<1
				Bottom	3.7	<5		<2			0.7		<0.02		5.41		<2		<2		<0.01			2.5		<1		
25-Aug-05	Sunny	Calm	09:45	Surface	1.0	<5		<2			0.6		<0.02		4.04		<2		3		0.01			1.0		<1		
				Middle	2.2	<5	<5	<2	<2.0	<2.00	0.4	0.5	<0.02	<0.02	4.03	4.04	<2	<2	4	4	0.03	0.02	<0.00013	1.9	1.5	<1	<1	<1
				Bottom	3.4	<5		<2			0.5		<0.02		4.05		<2		4		0.03			1.6		<1		
31-Aug-05	Sunny	Calm	09:12	Surface	1.0	<5		<2			0.4		<0.02		4.24		<2		<2		<0.01			1.6		<1		
				Middle	2.2	<5	<5	<2	<2.0	<2.00	0.4	0.4	<0.02	<0.02	4.25	4.25	<2	<2	3	<2	<0.01	<0.01	<0.00020	1.7	1.7	<1	<1	<1
				Bottom	3.5	<5		<2			0.5		<0.02		4.26		<2		2		0.02			1.7		<1		
6-Sep-05	Sunny	Calm	09:15	Surface	1.0	<5		<2			0.4		<0.02		3.68		<2		5		<0.01			1.1		<1		
				Middle	2.4	<5	<5	<2	<2.0	<2.00	0.4	0.4	<0.02	<0.02	3.66	3.68	<2	<2	4	4	<0.01	<0.01	<0.00018	0.9	1.1	<1	<1	<1
				Bottom	3.8	<5		<2			0.4		<0.02		3.69		<2		4		0.01			1.2		<1		
12-Sep-05	Sunny	Calm	09:13	Surface	1.0	<5		<2			0.6		<0.02		3.93		<2		4		<0.01			2.3		<1		
				Middle	2.3	<5	<5	<2	<2.0	<2.00	0.4	0.5	<0.02	<0.02	3.78	3.79	<2	<2	<2	<3	<0.01	<0.01	<0.00015	2.4	2.3	<1	<1	<1
				Bottom	3.6	<5		<2			0.4		<0.02		3.65		<2		<2		<0.01			2.2		<1		

Note:
 Lake Condition - Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher
 DA - Depth Average
 AA - Annual Average
 AM - Annual Median
 GM - Geometric Mean for last 5 measurements

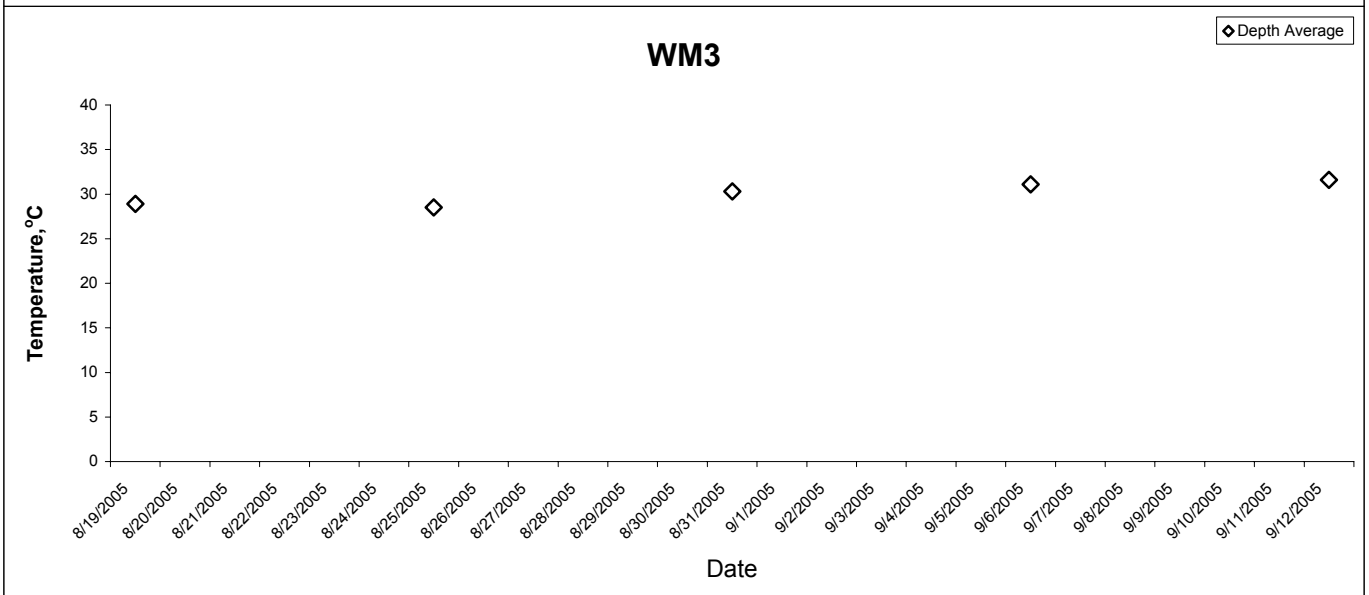
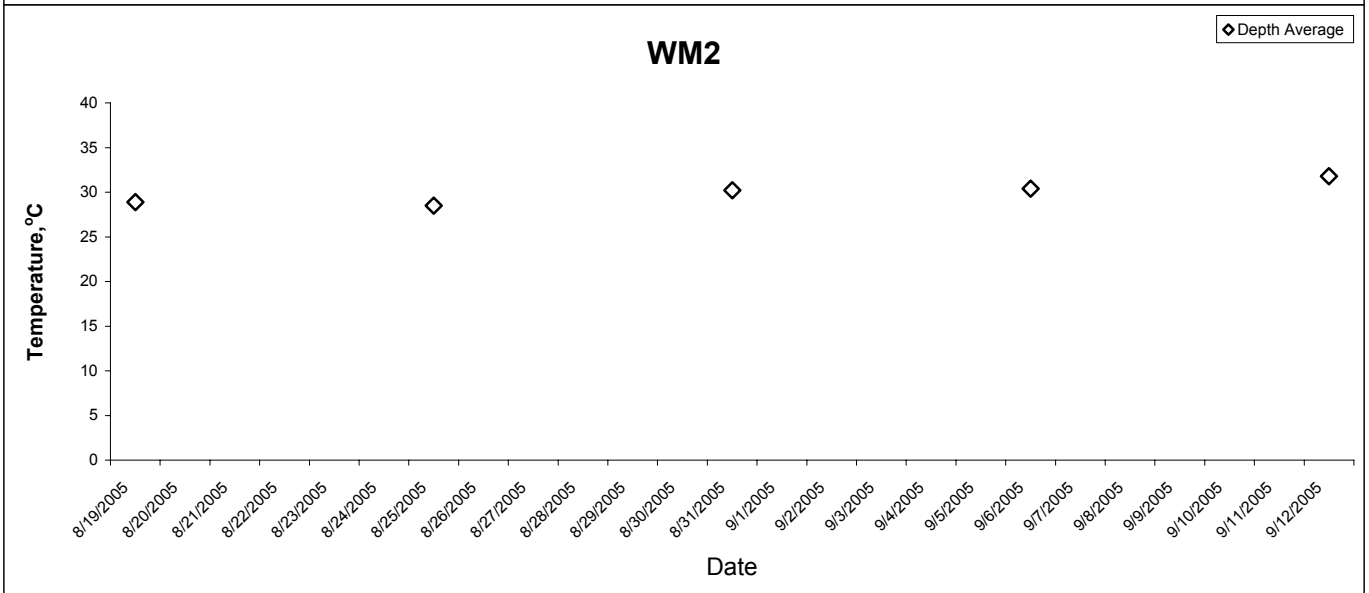
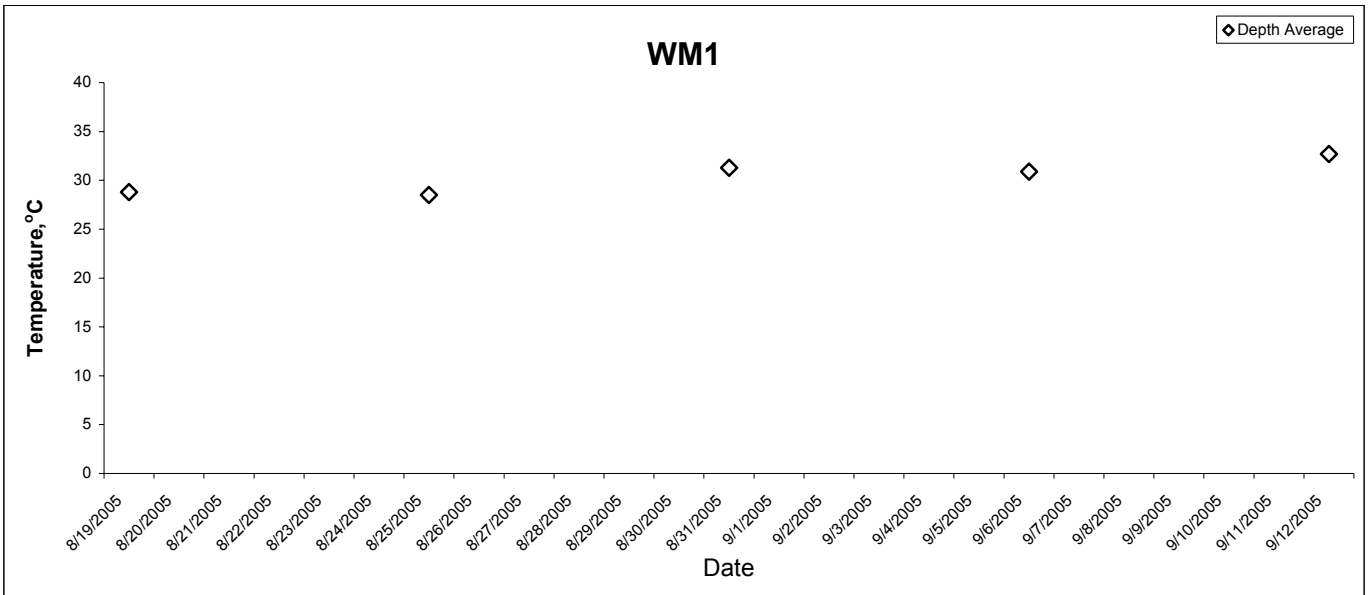
Dissoved Oxygen



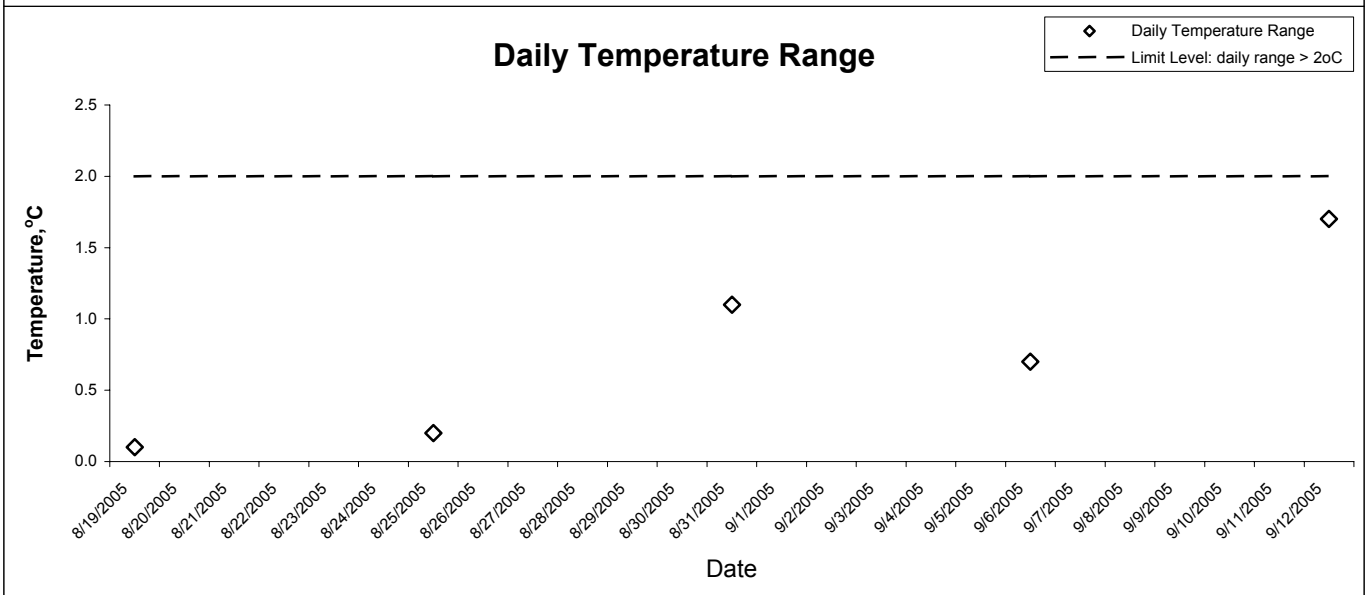
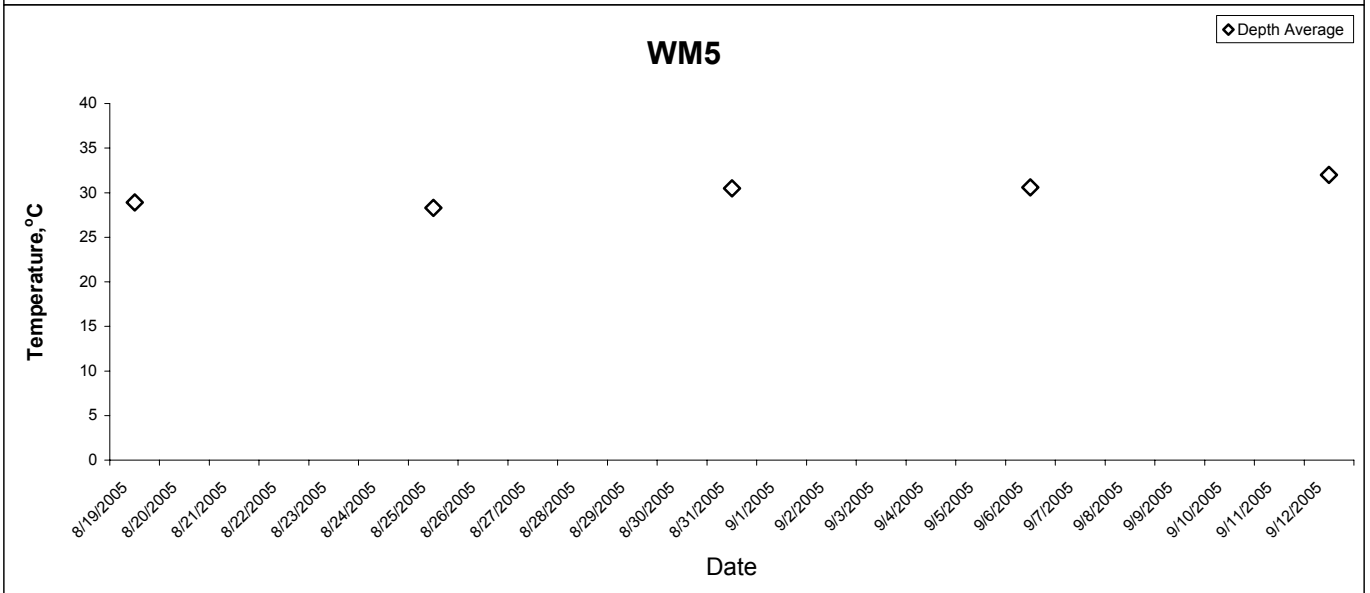
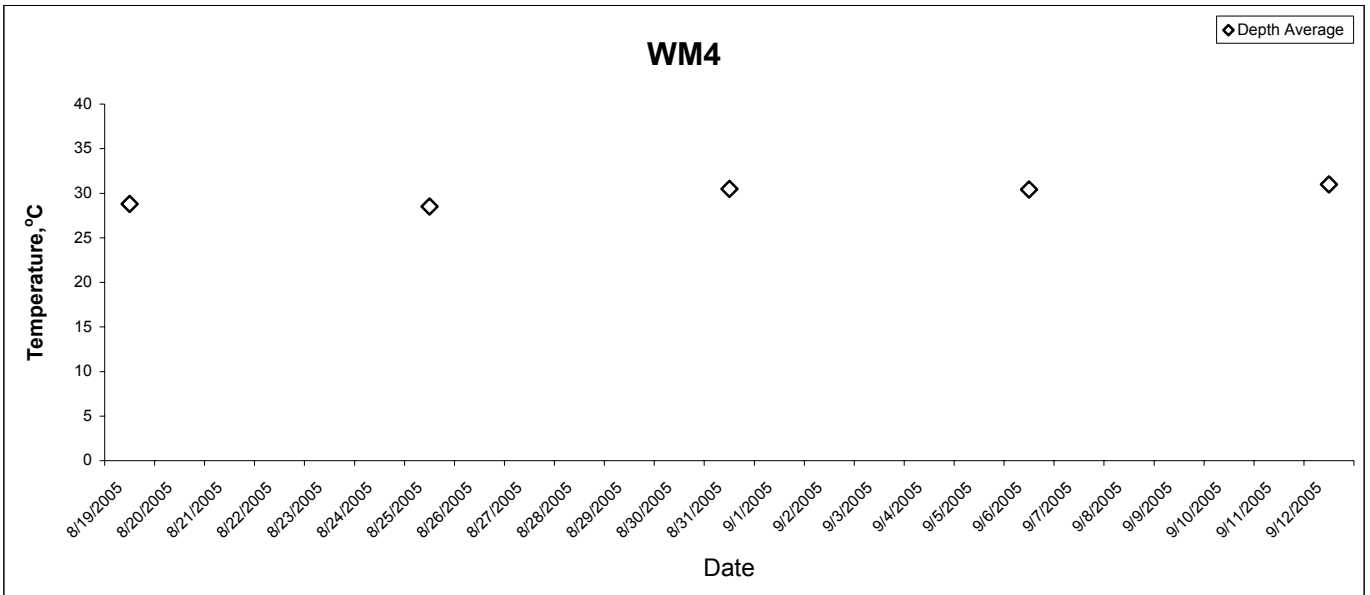
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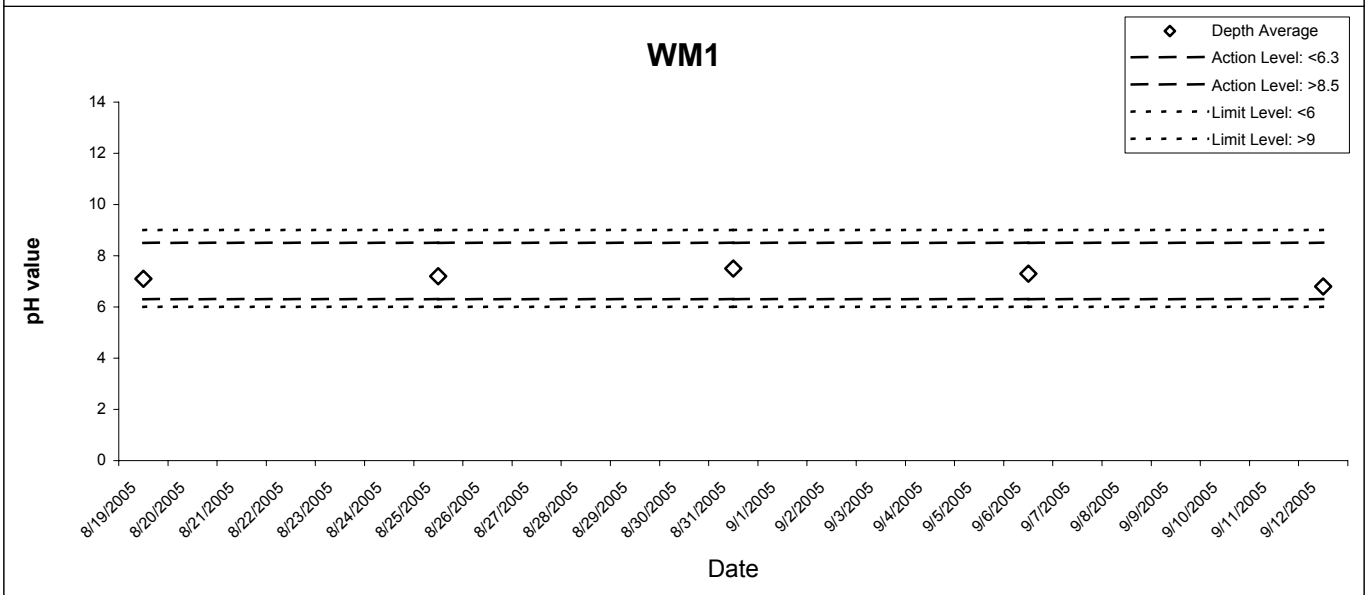
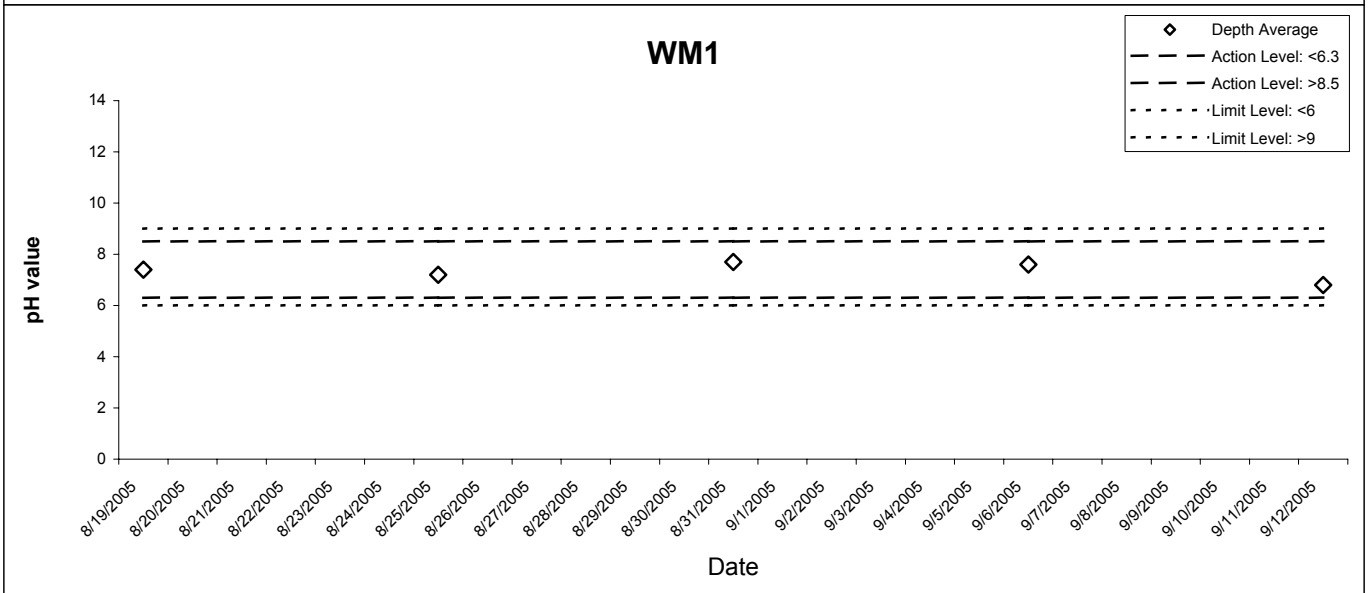
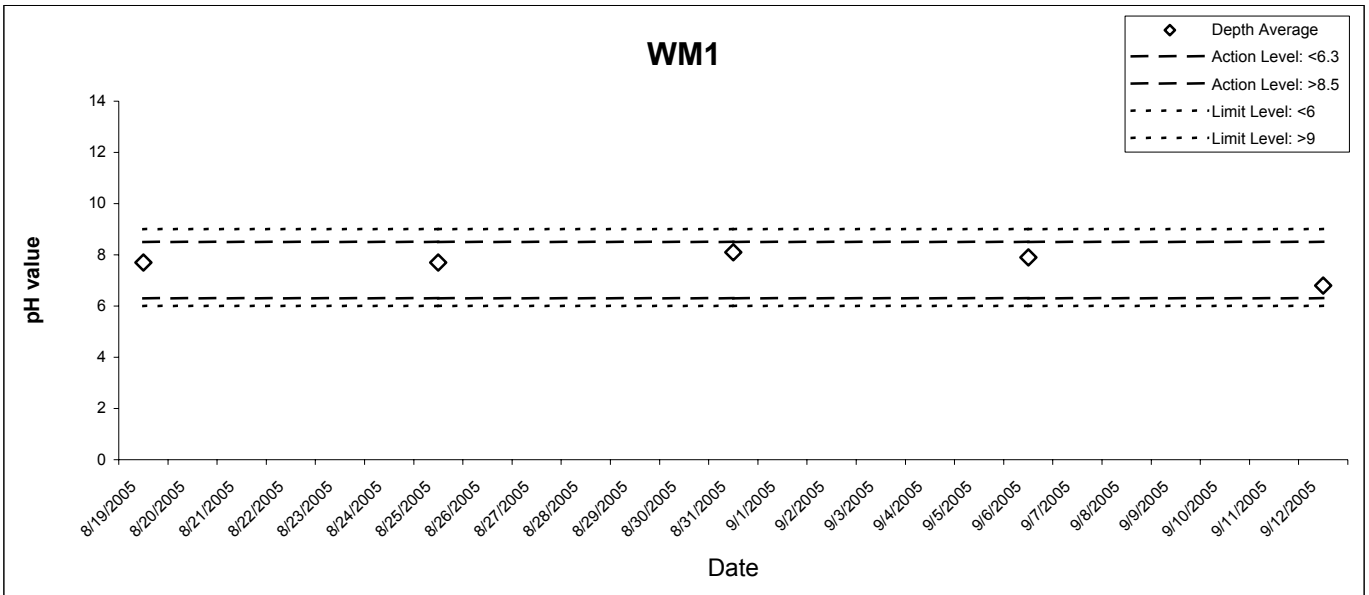
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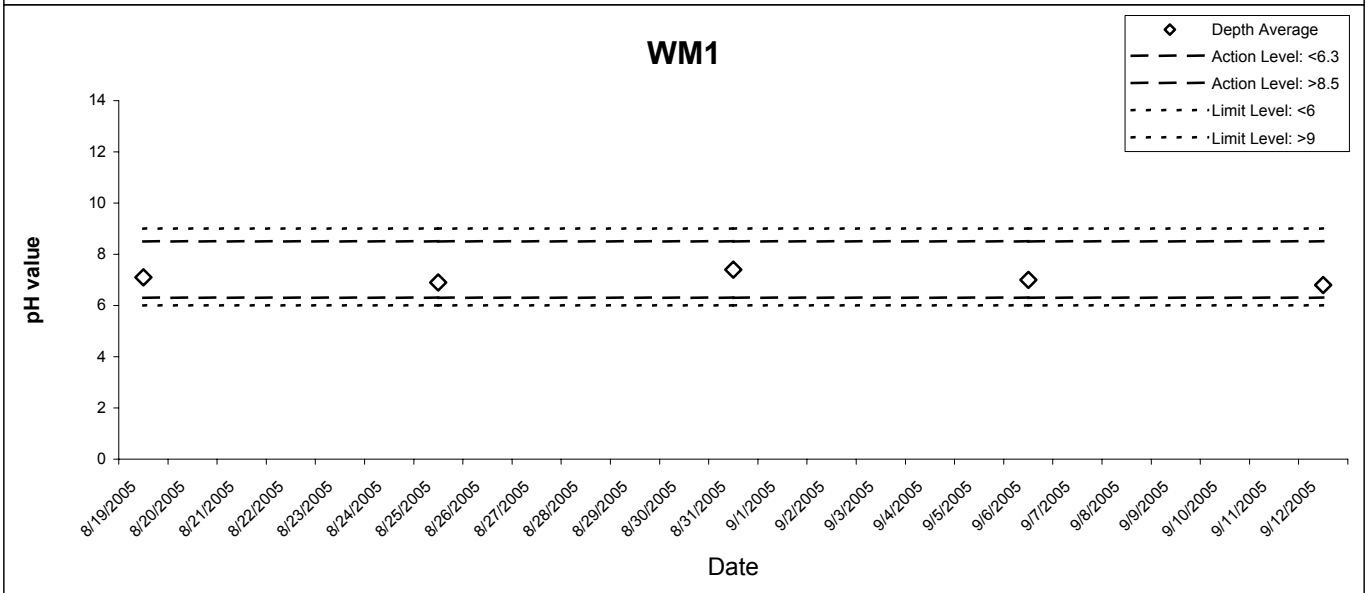
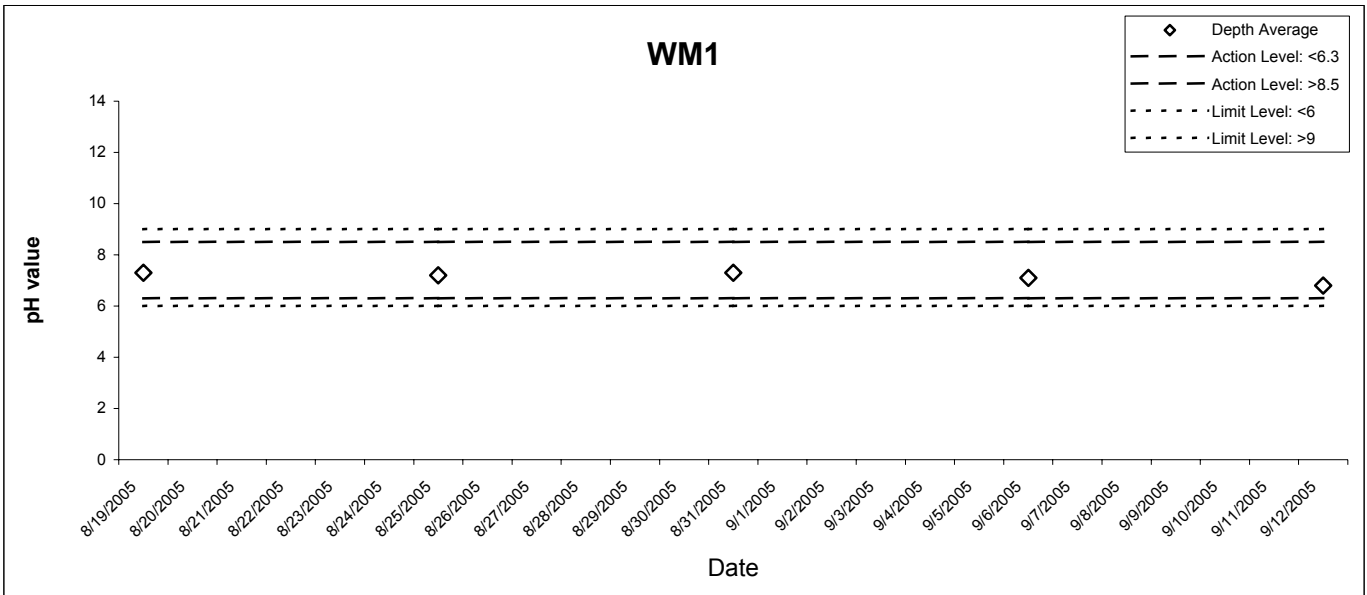
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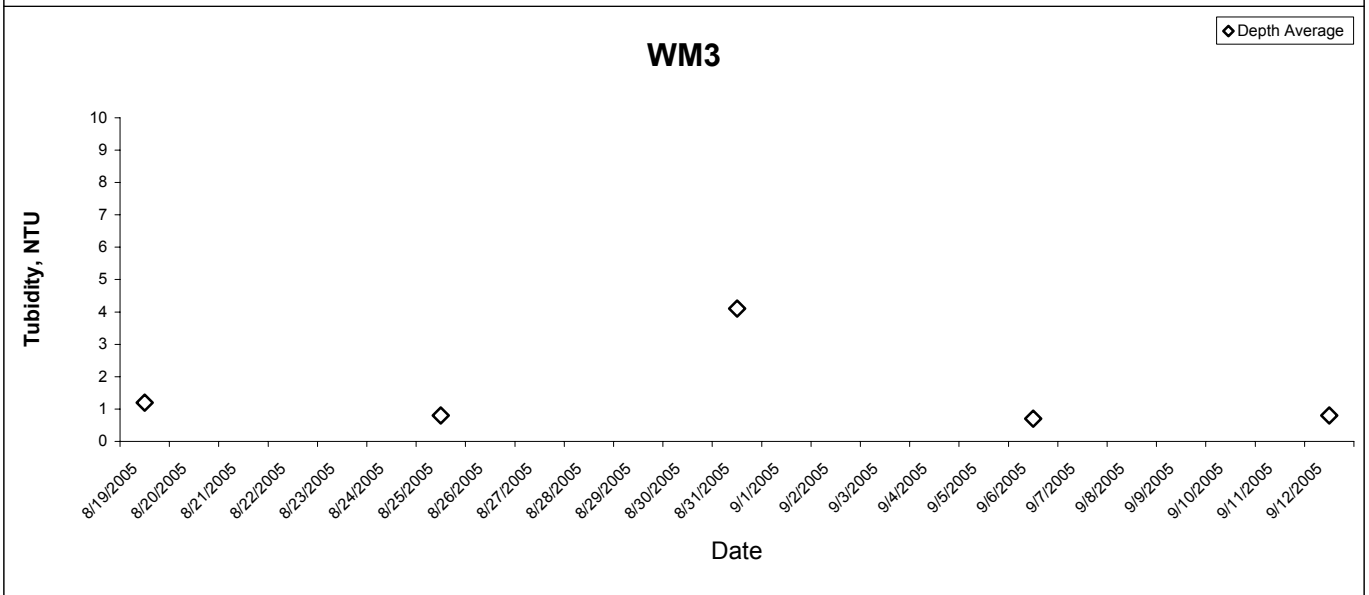
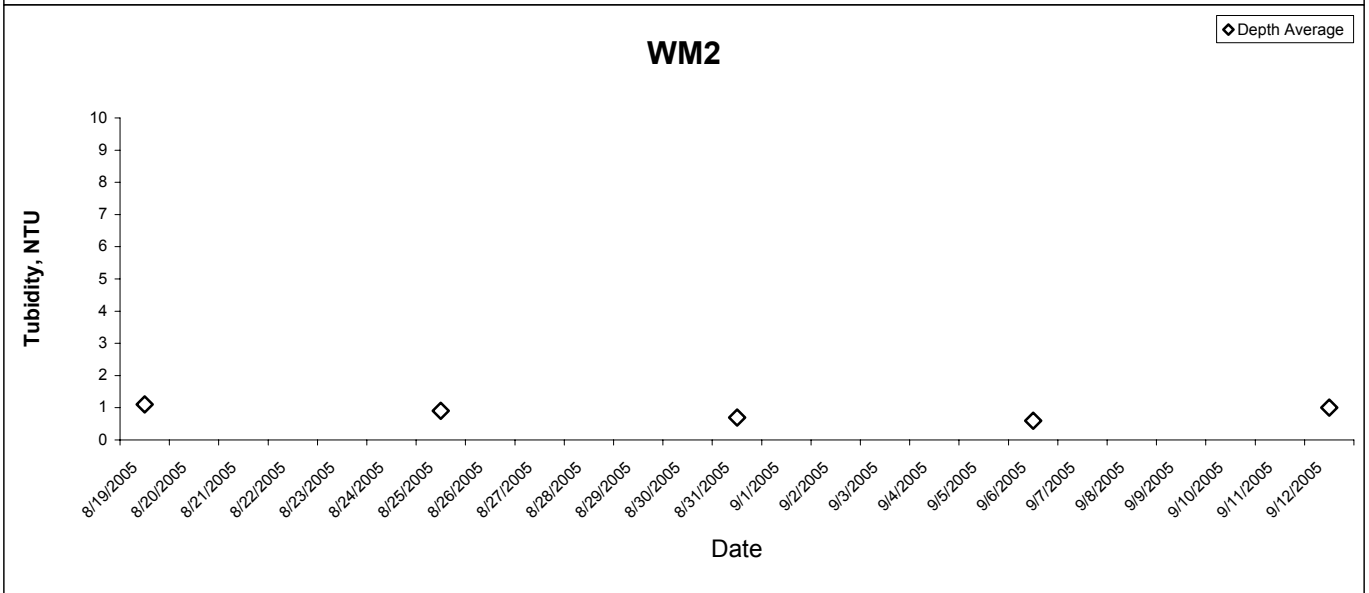
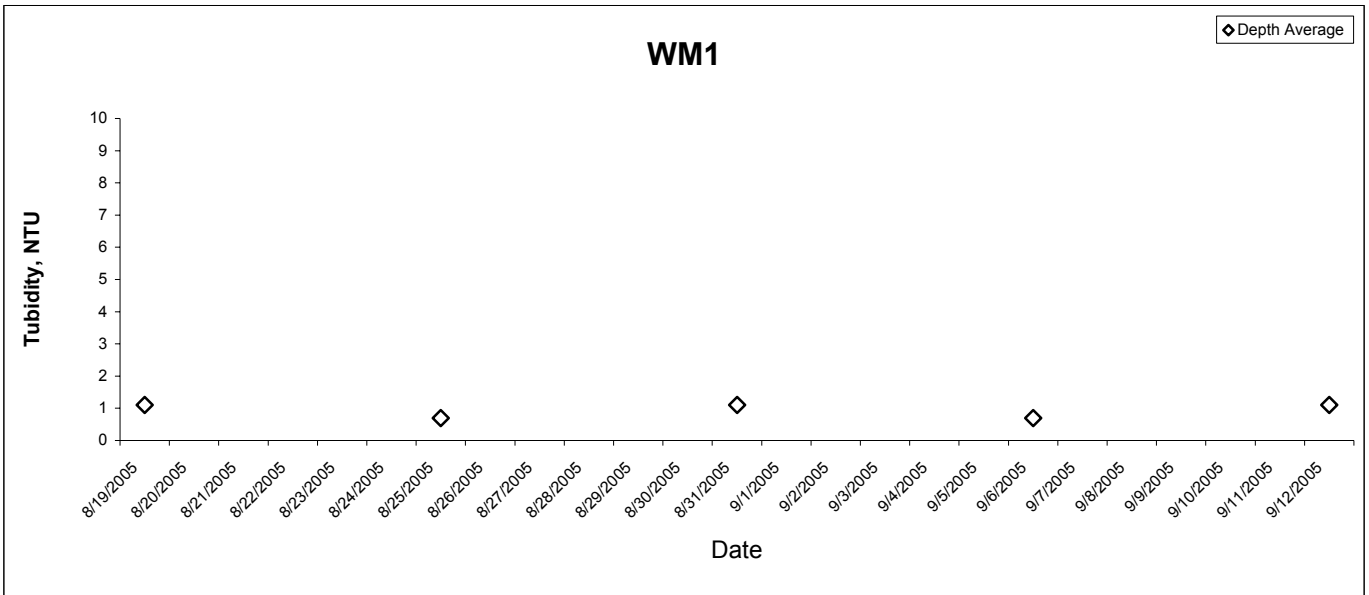
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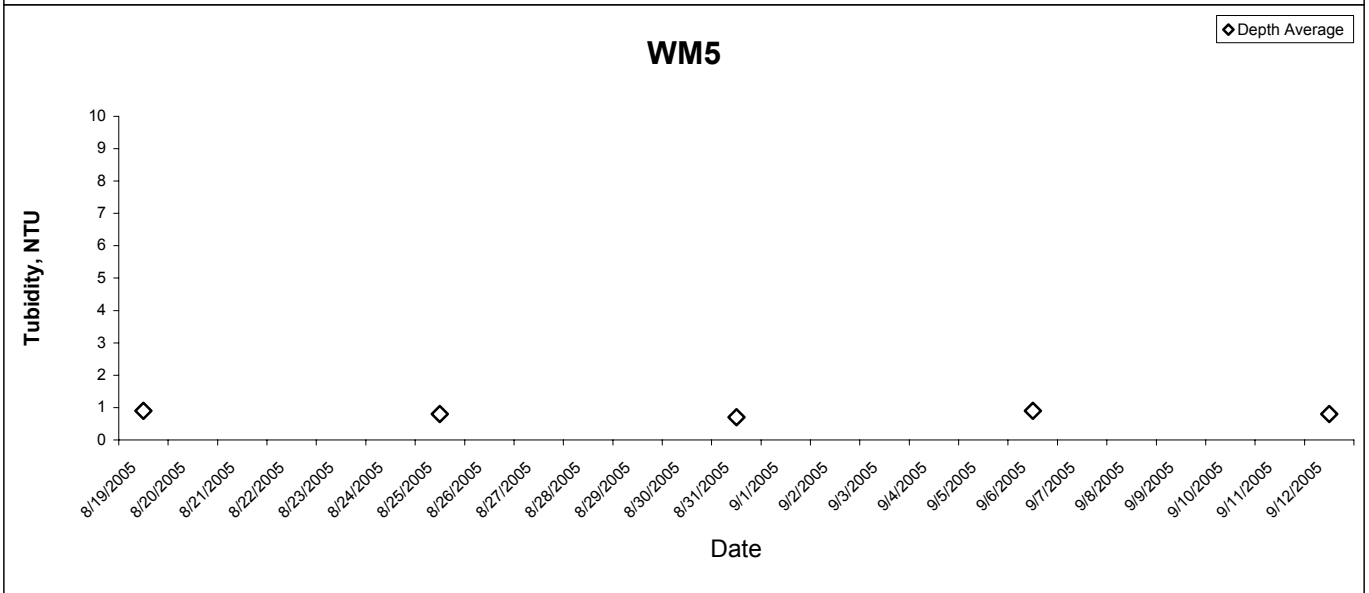
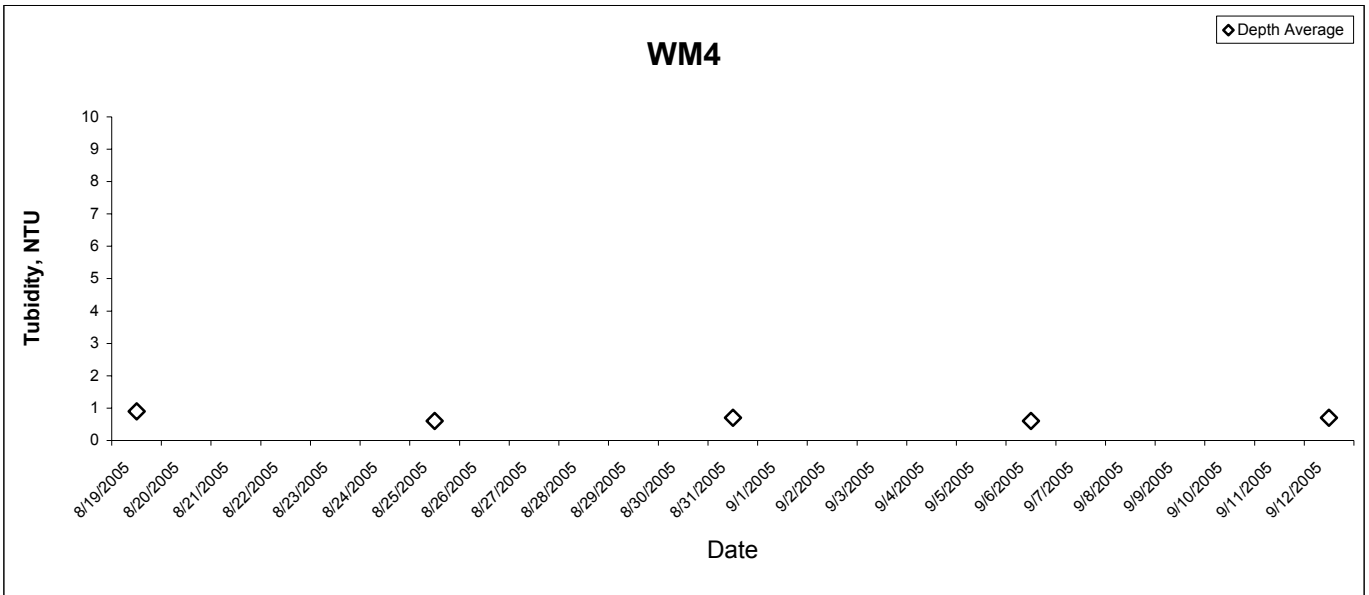
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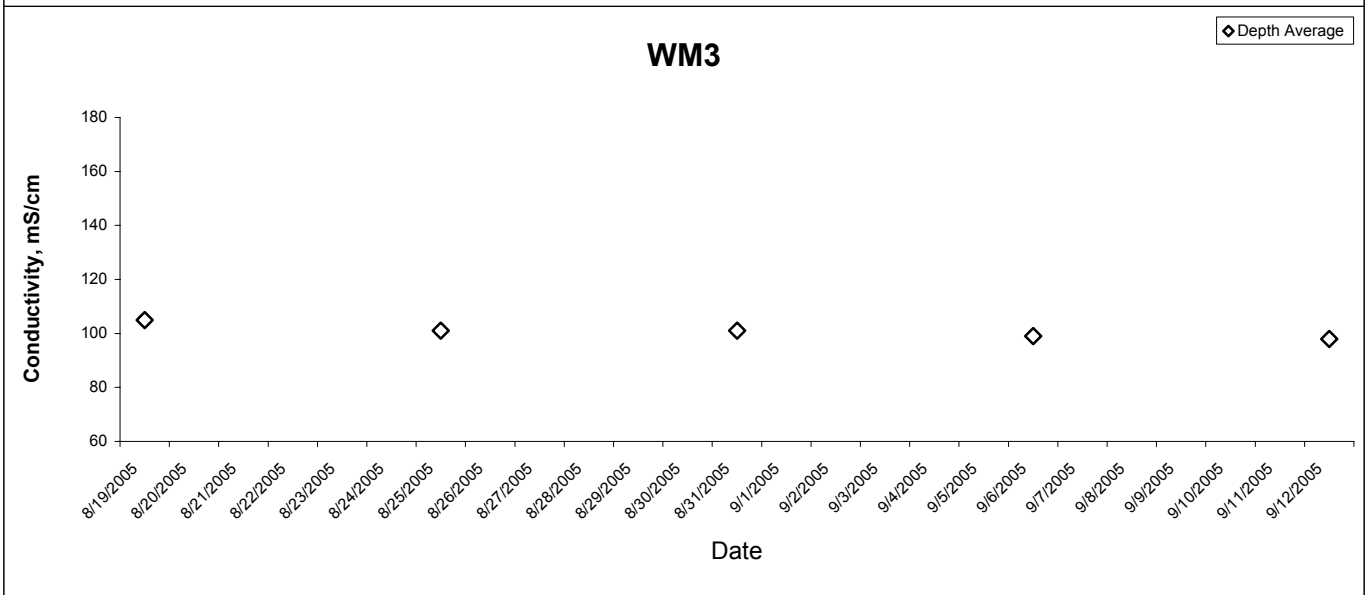
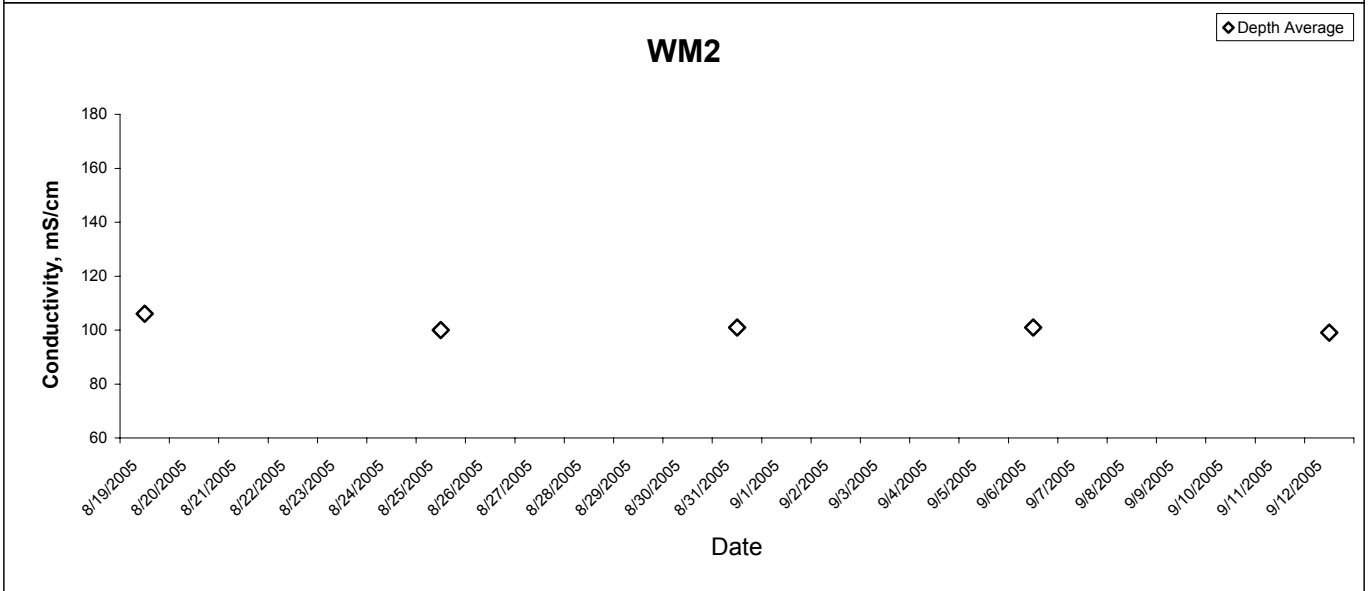
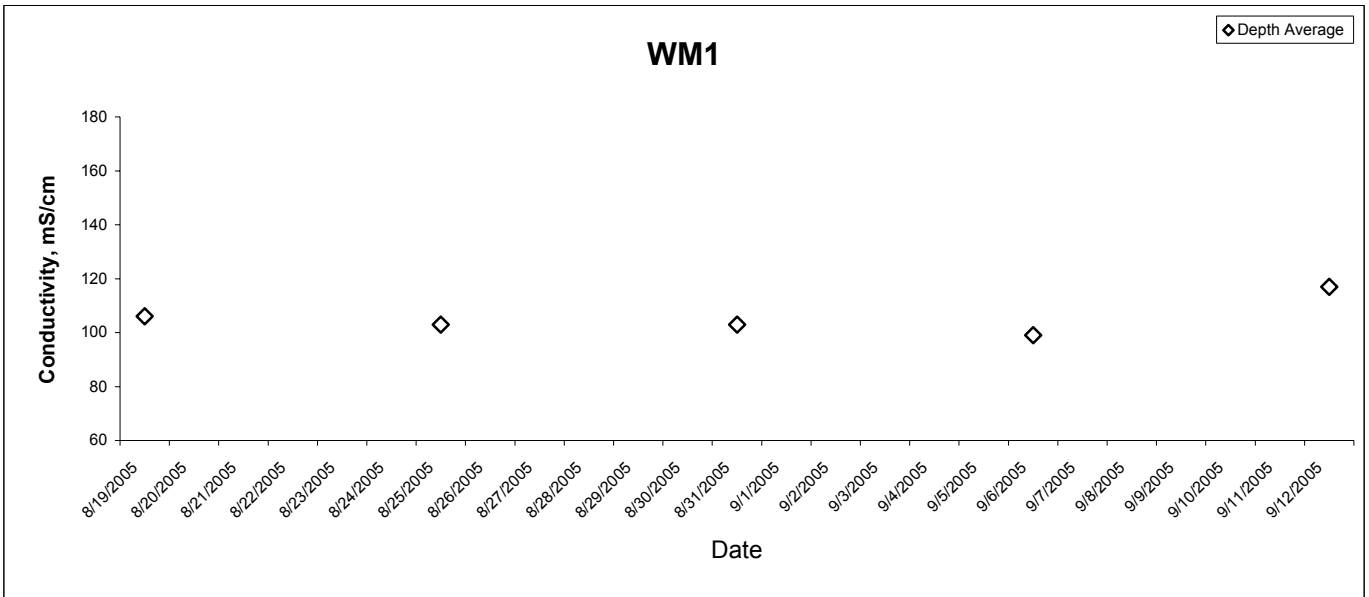
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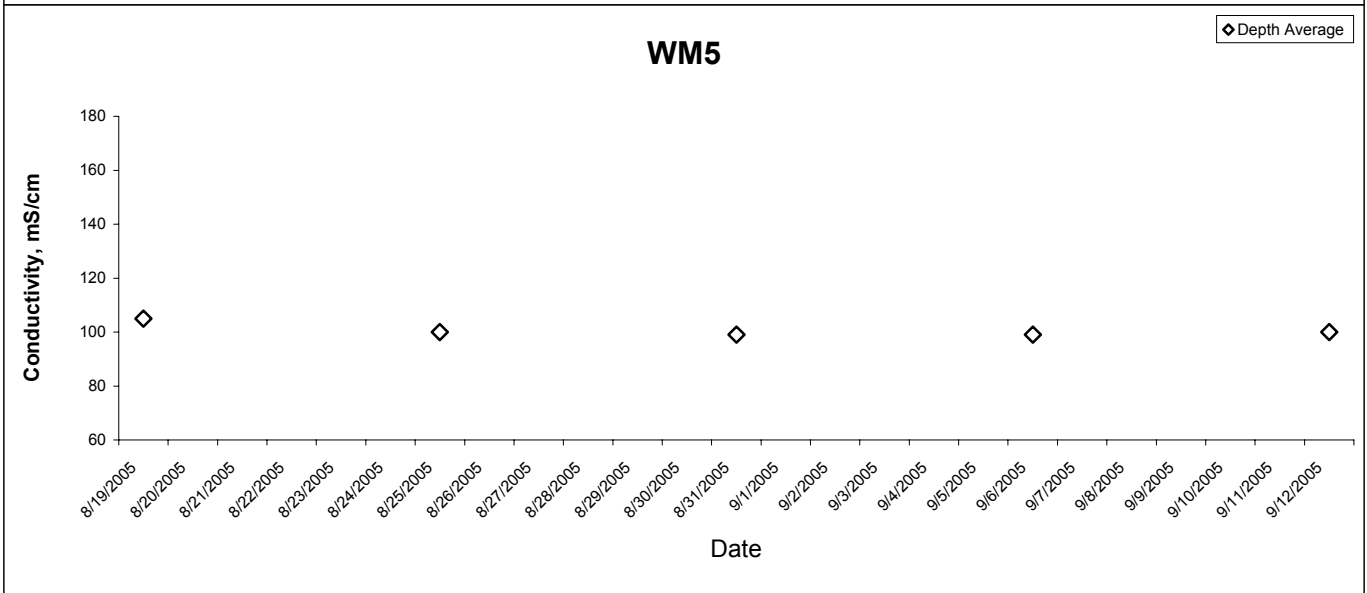
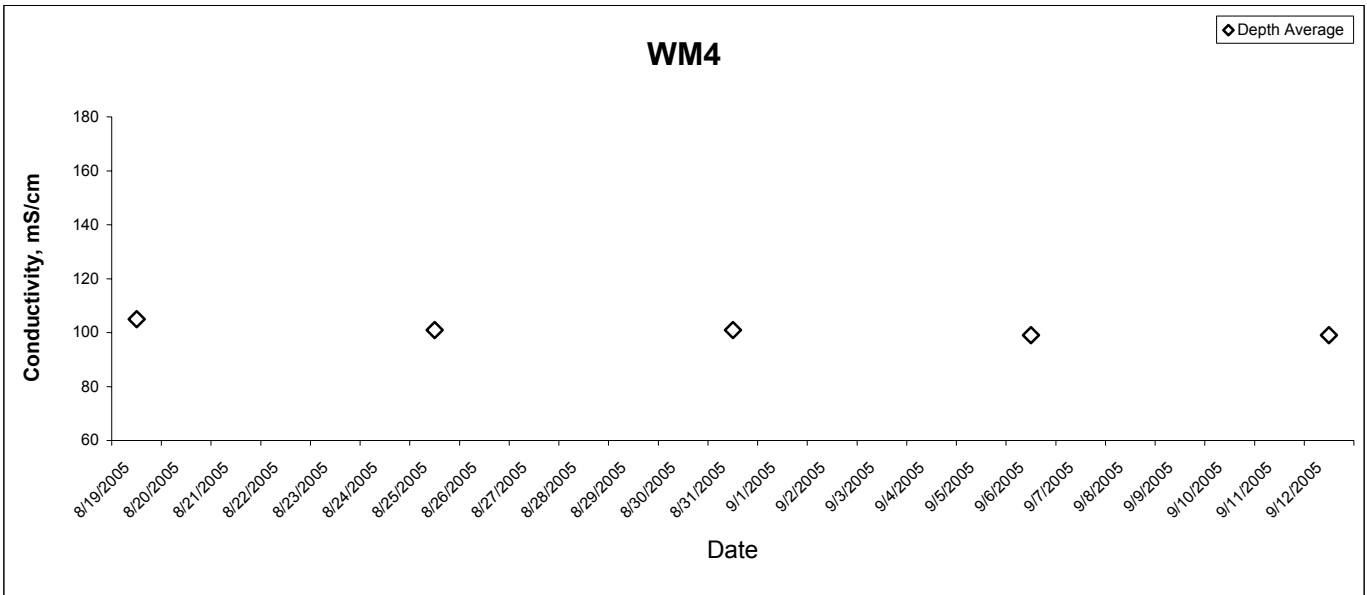
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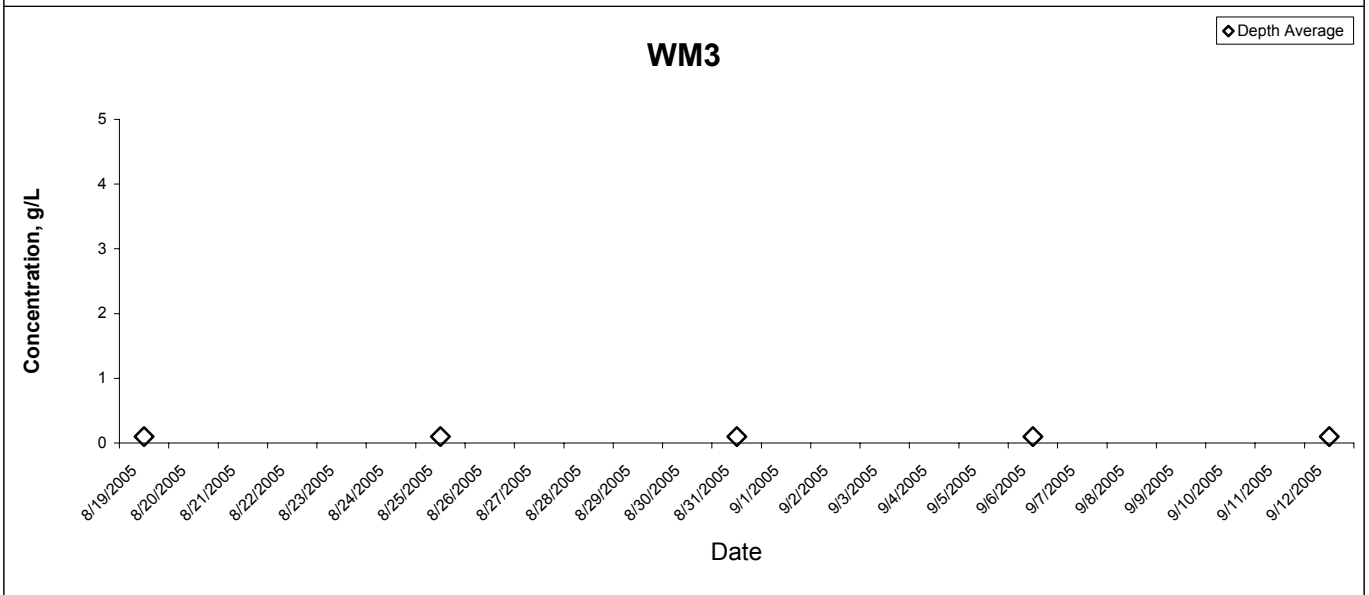
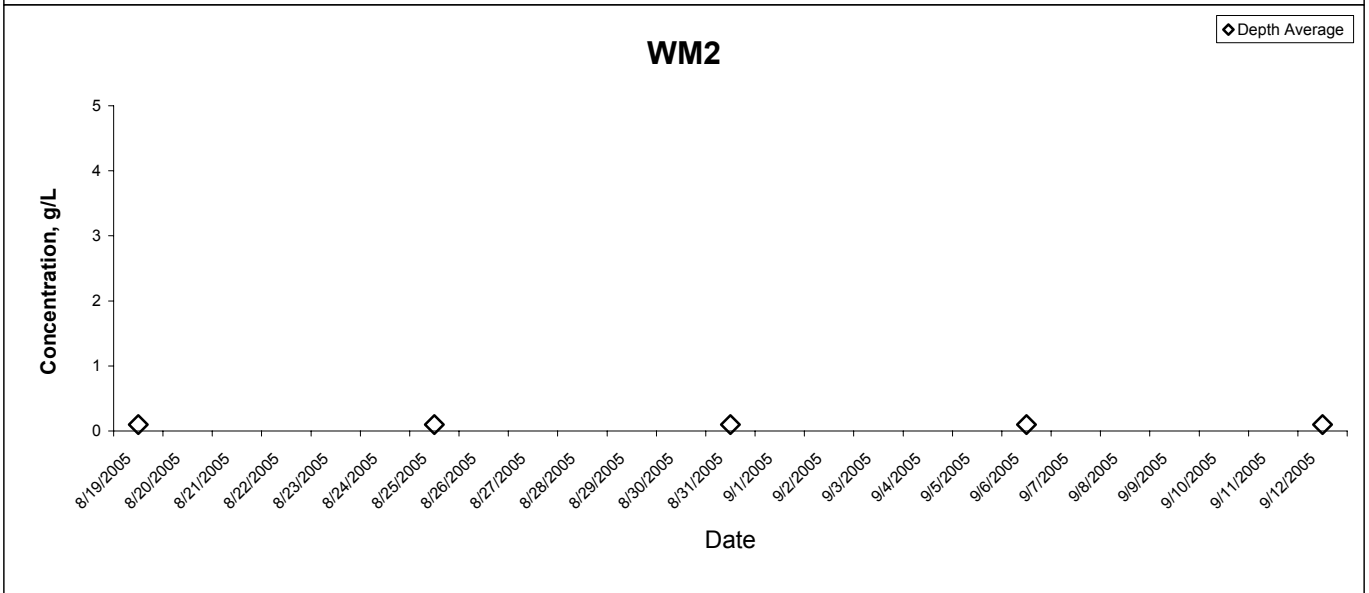
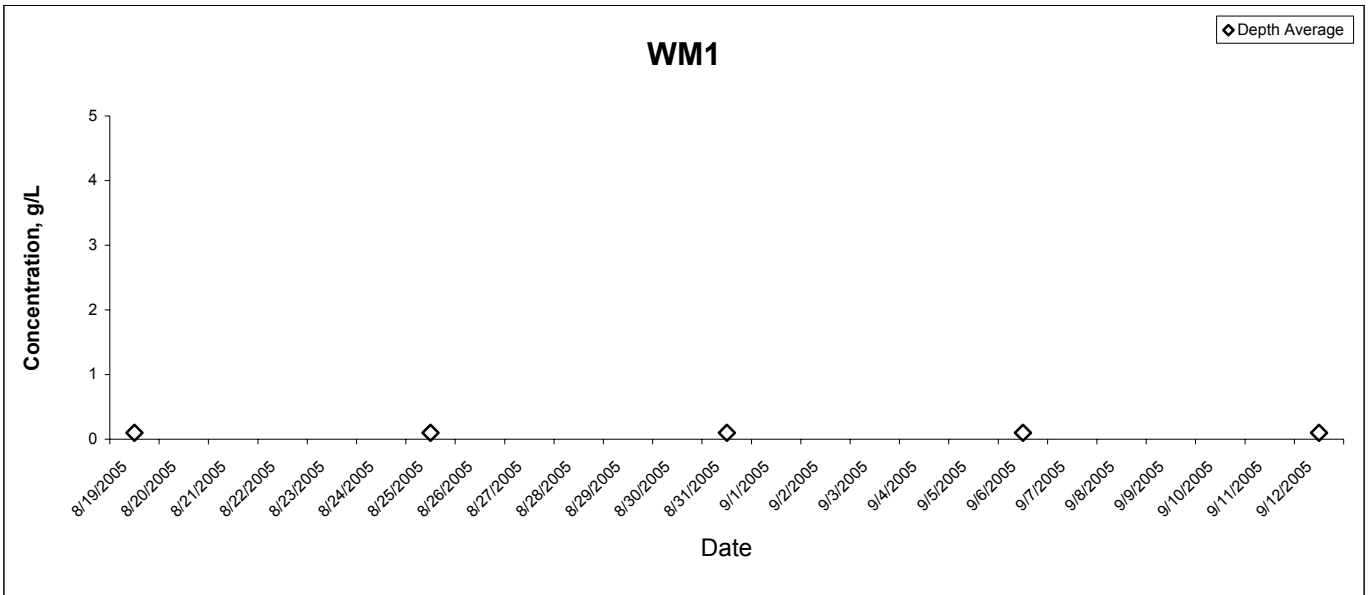
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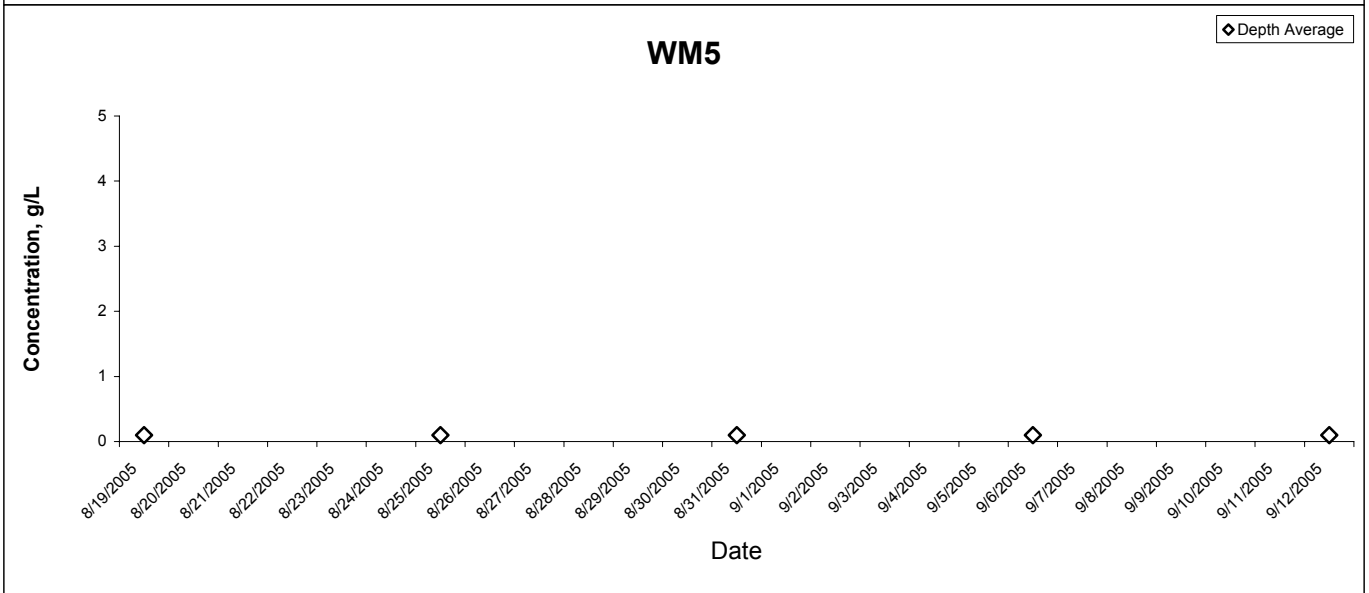
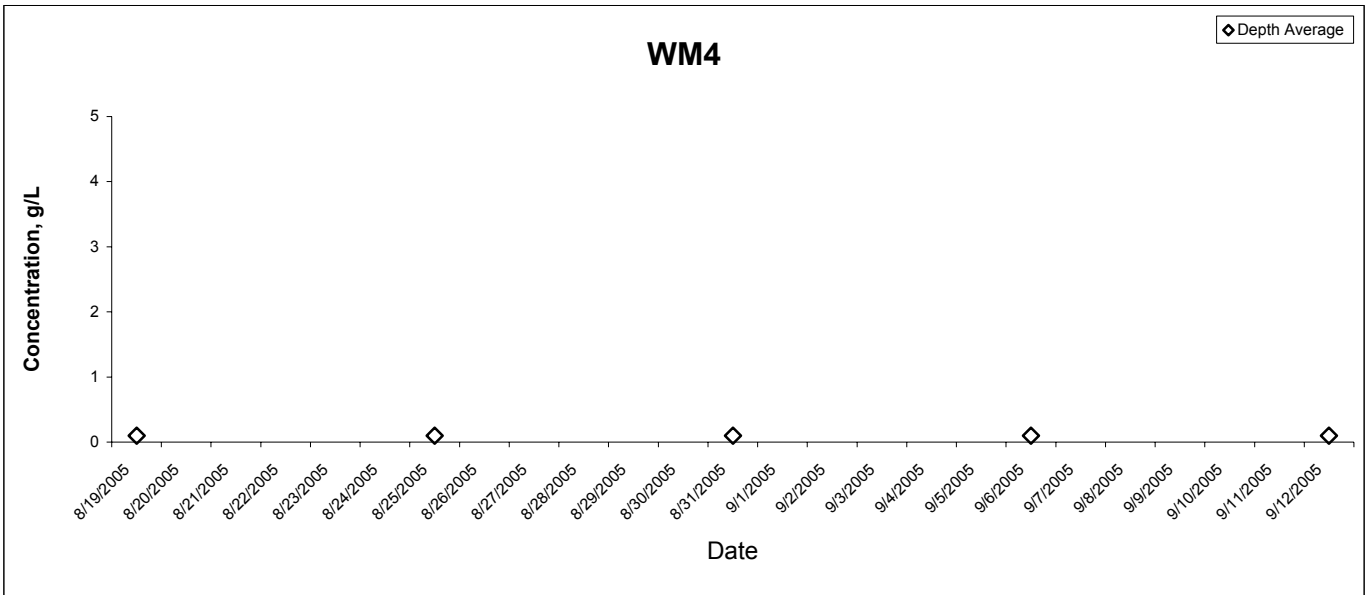
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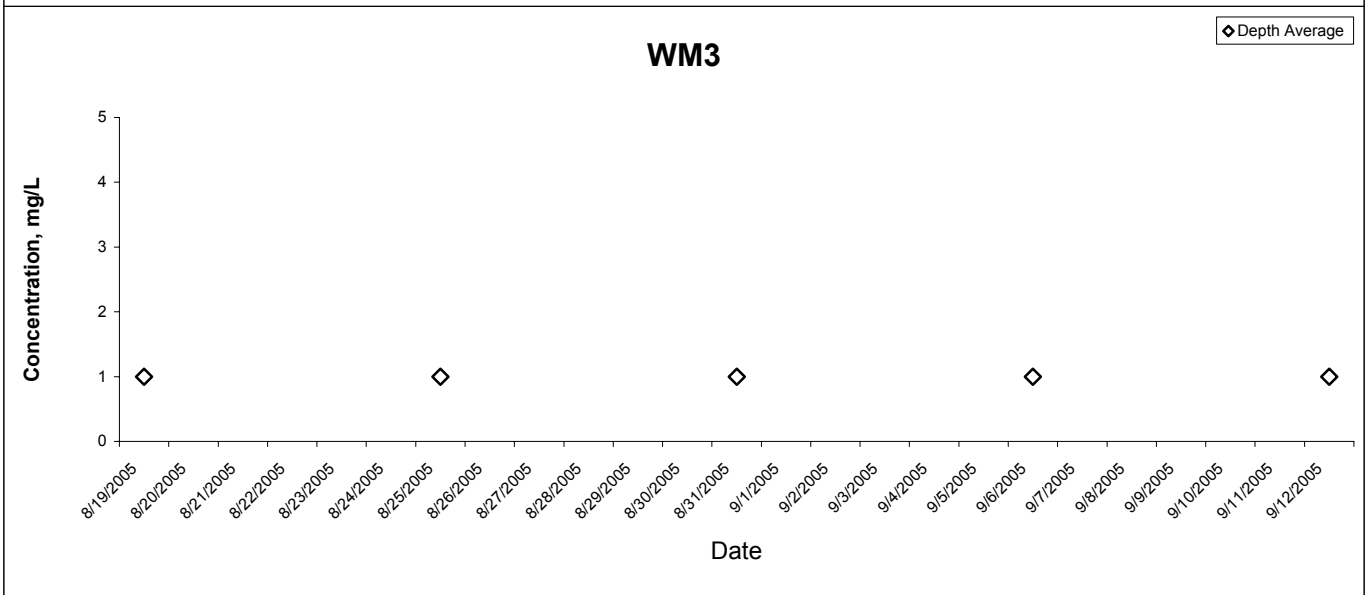
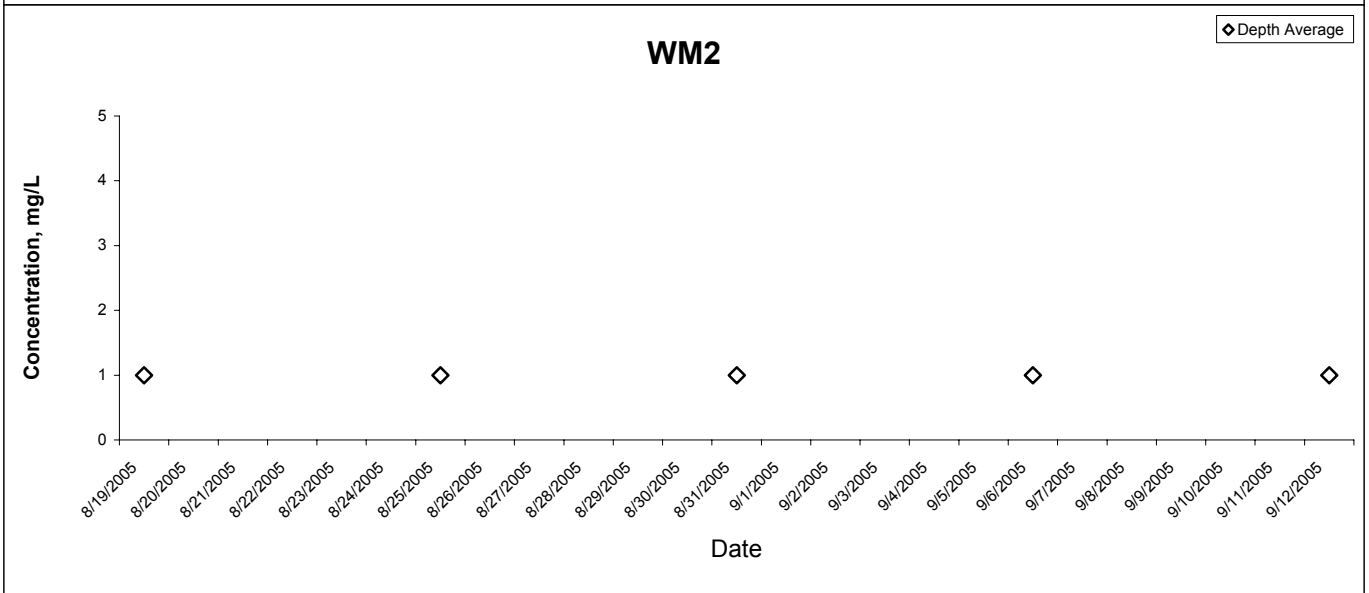
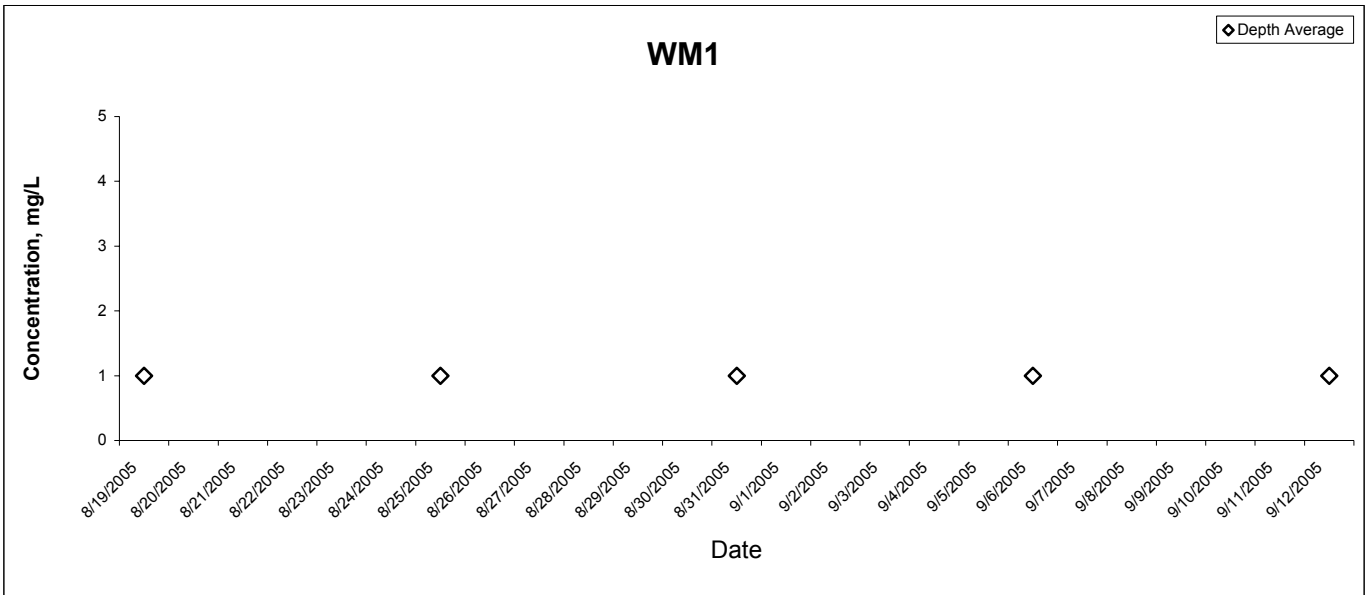
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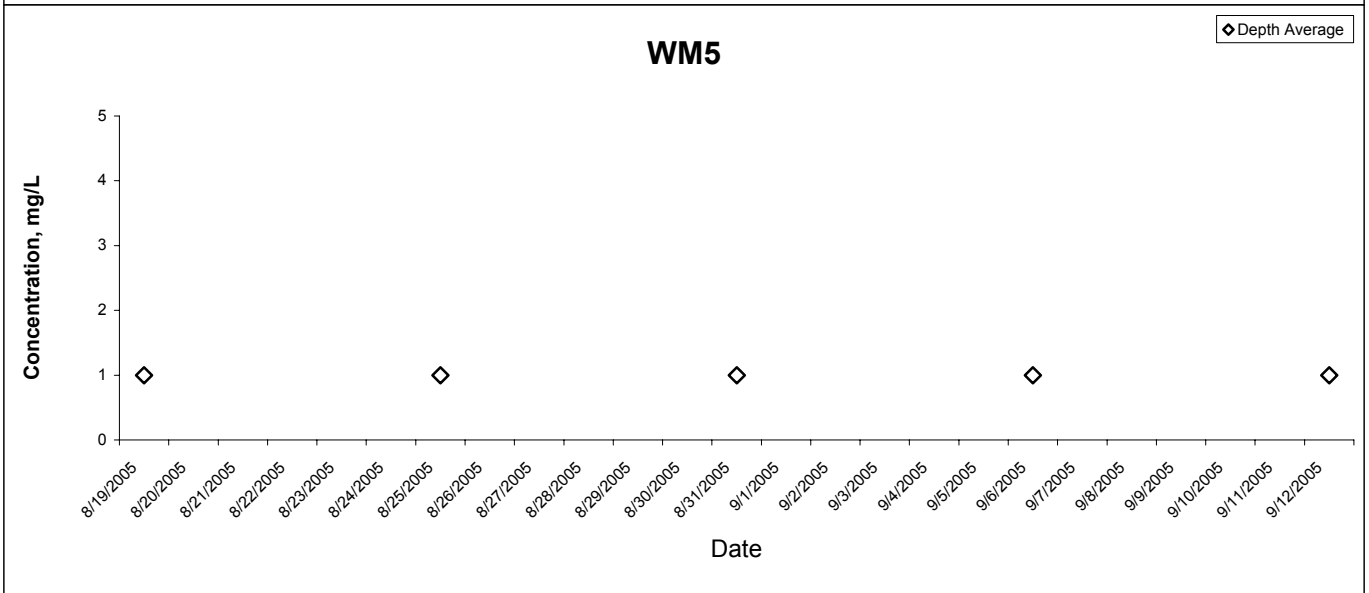
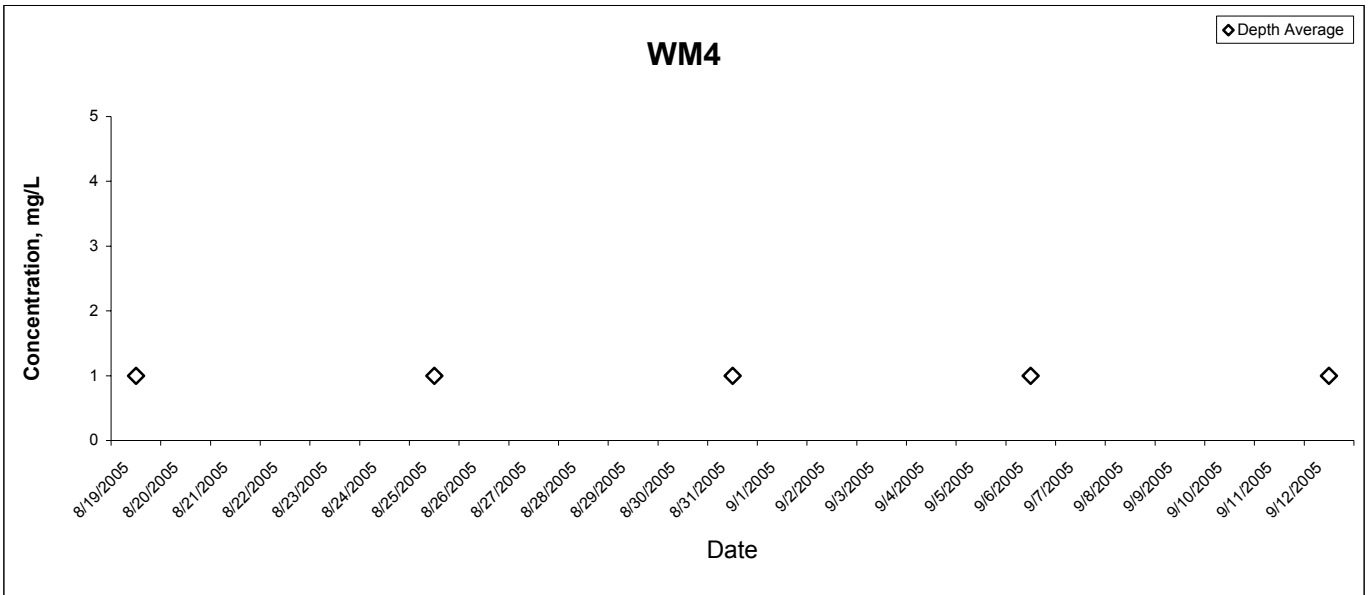
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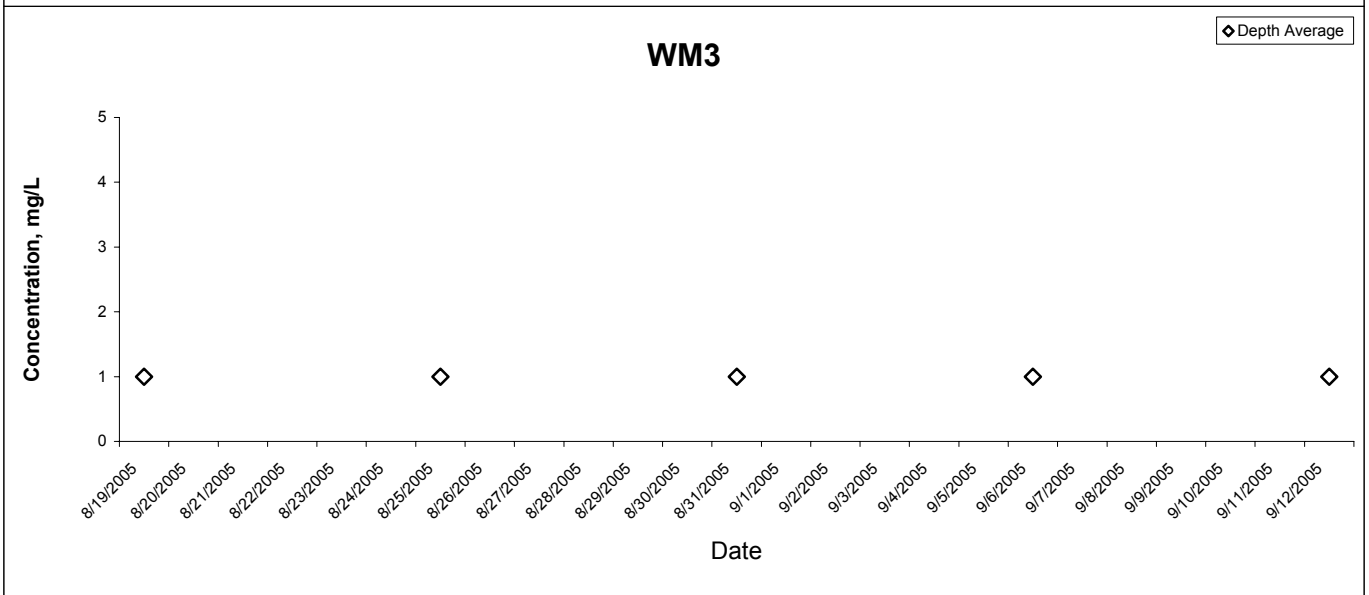
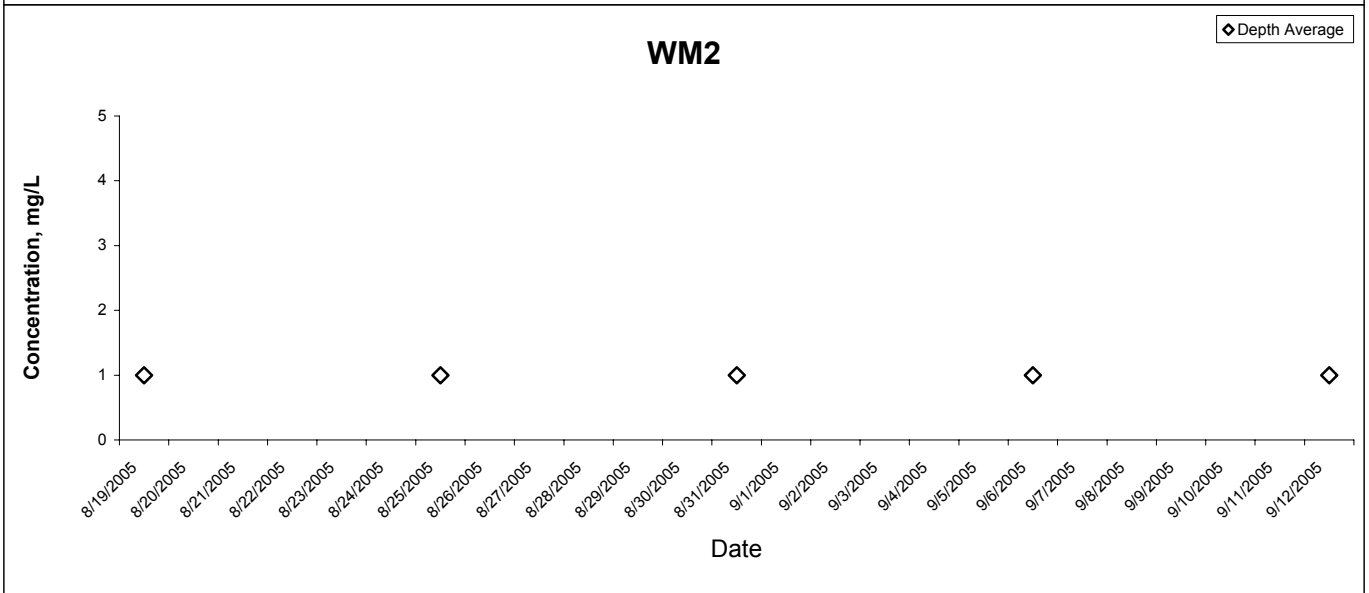
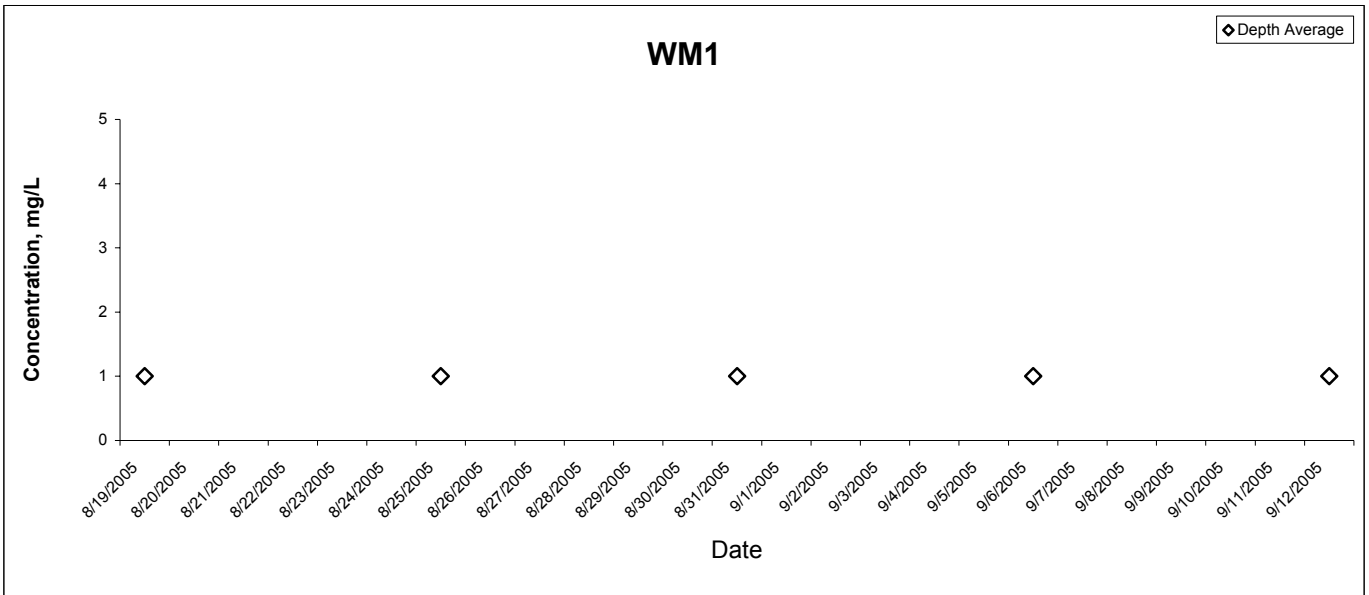
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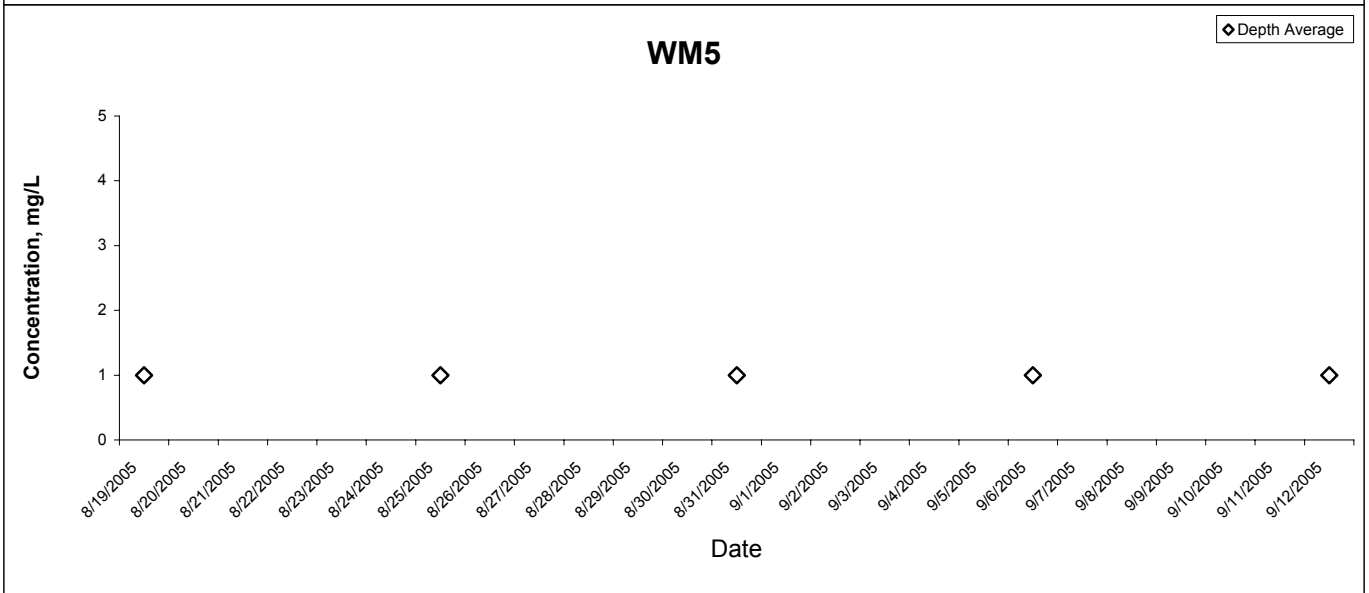
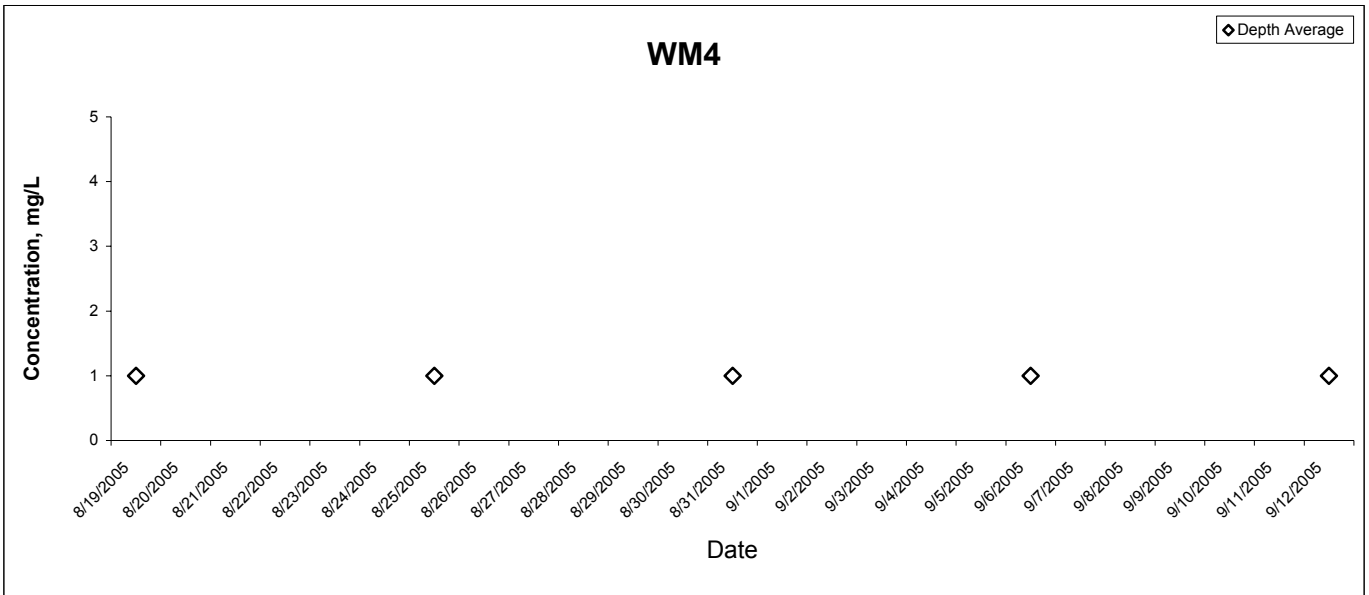
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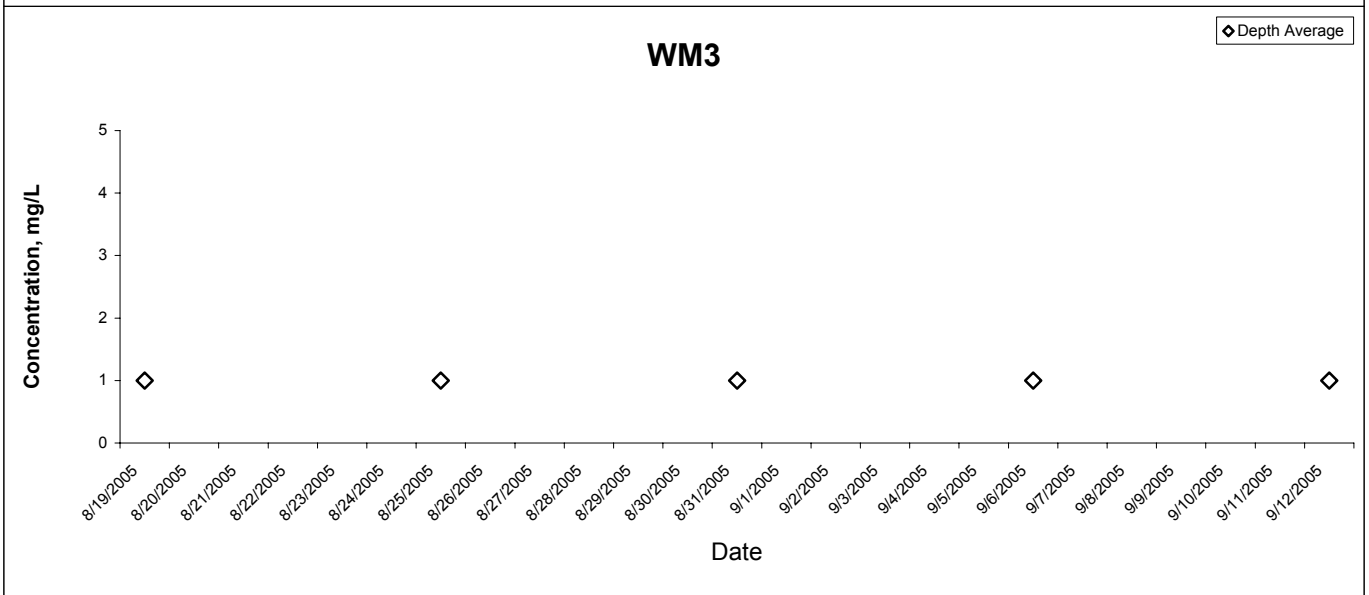
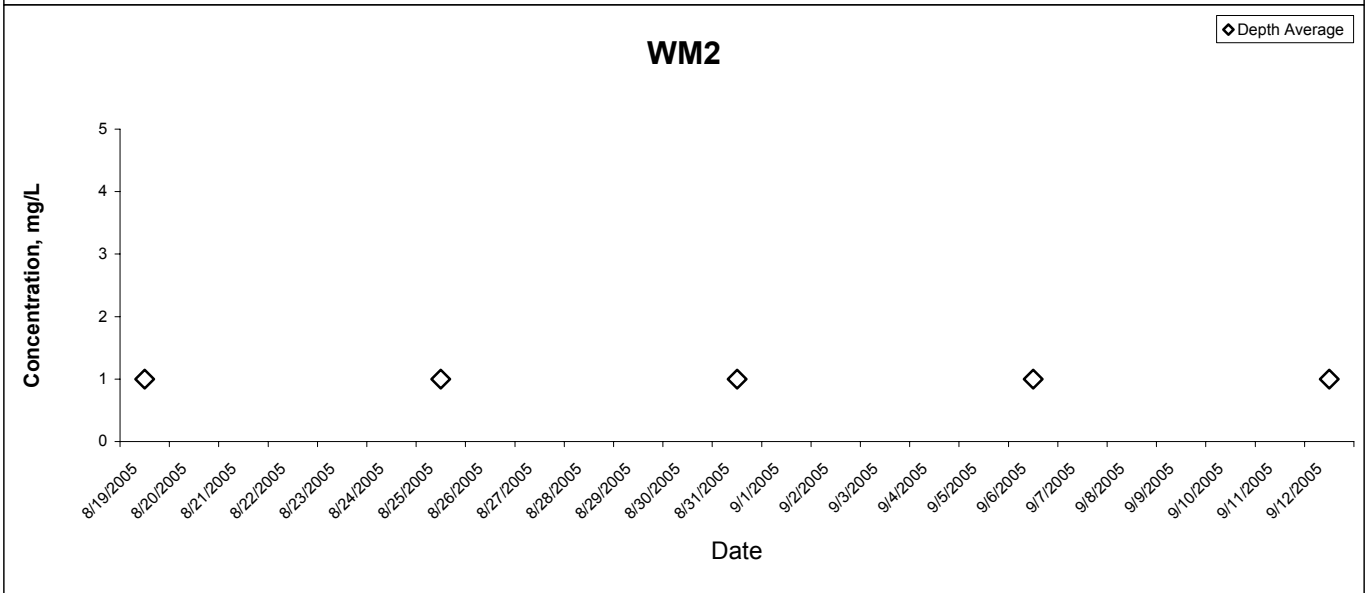
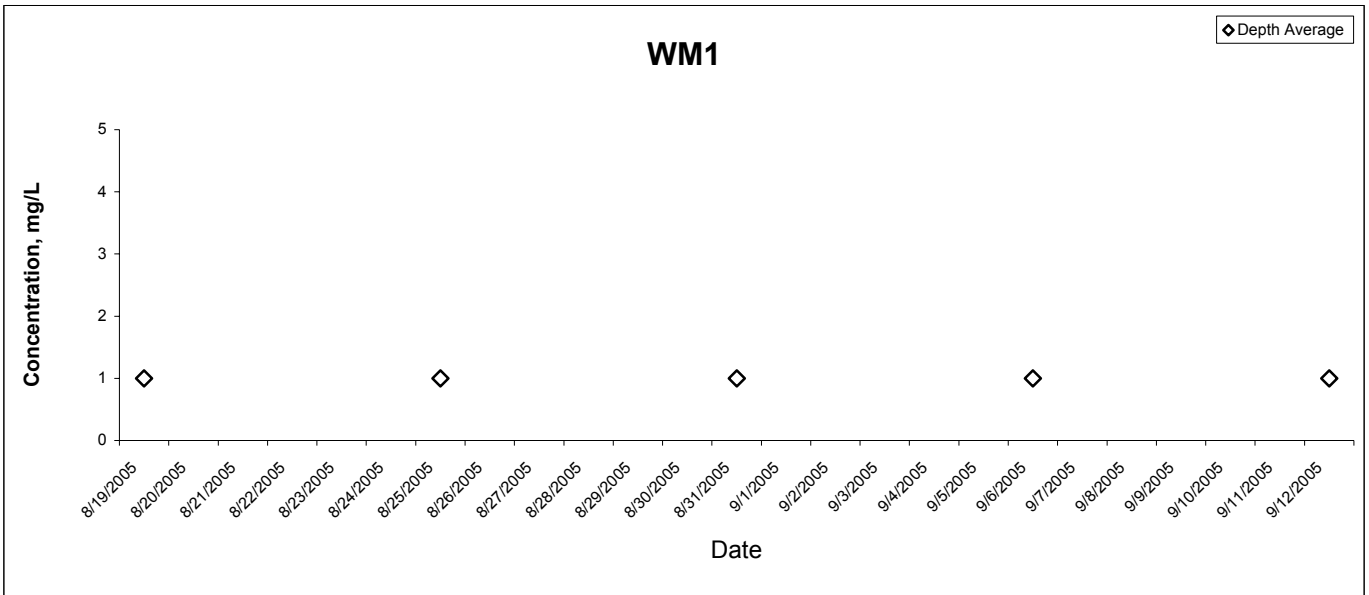
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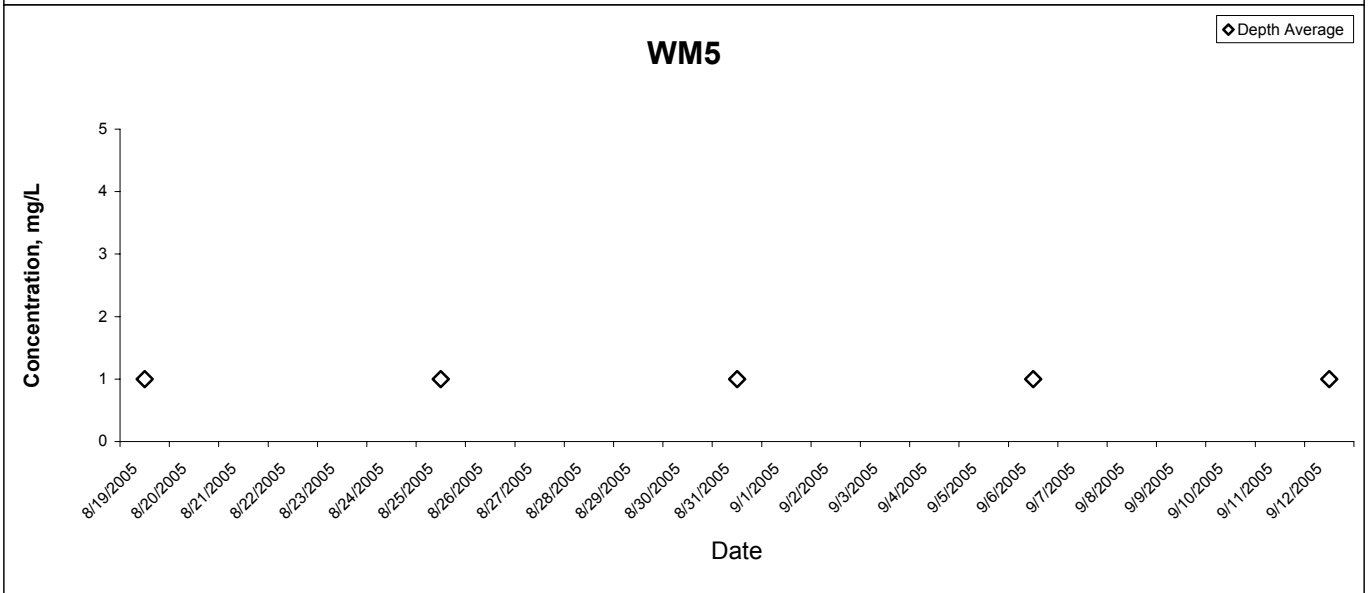
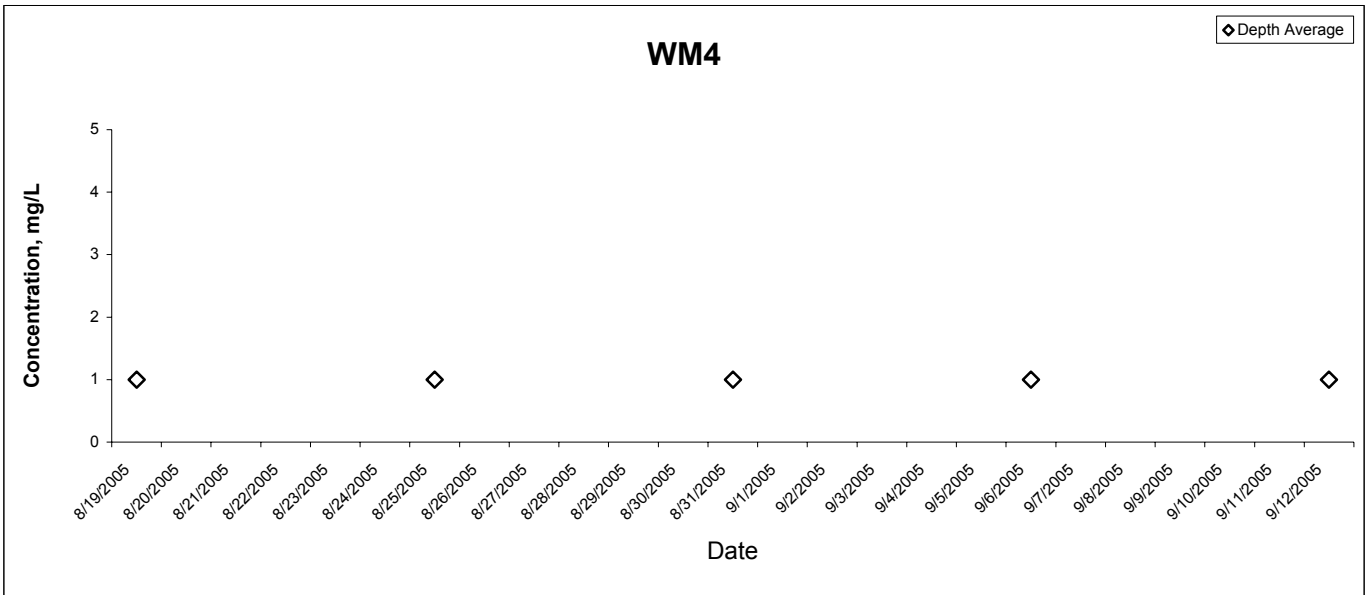
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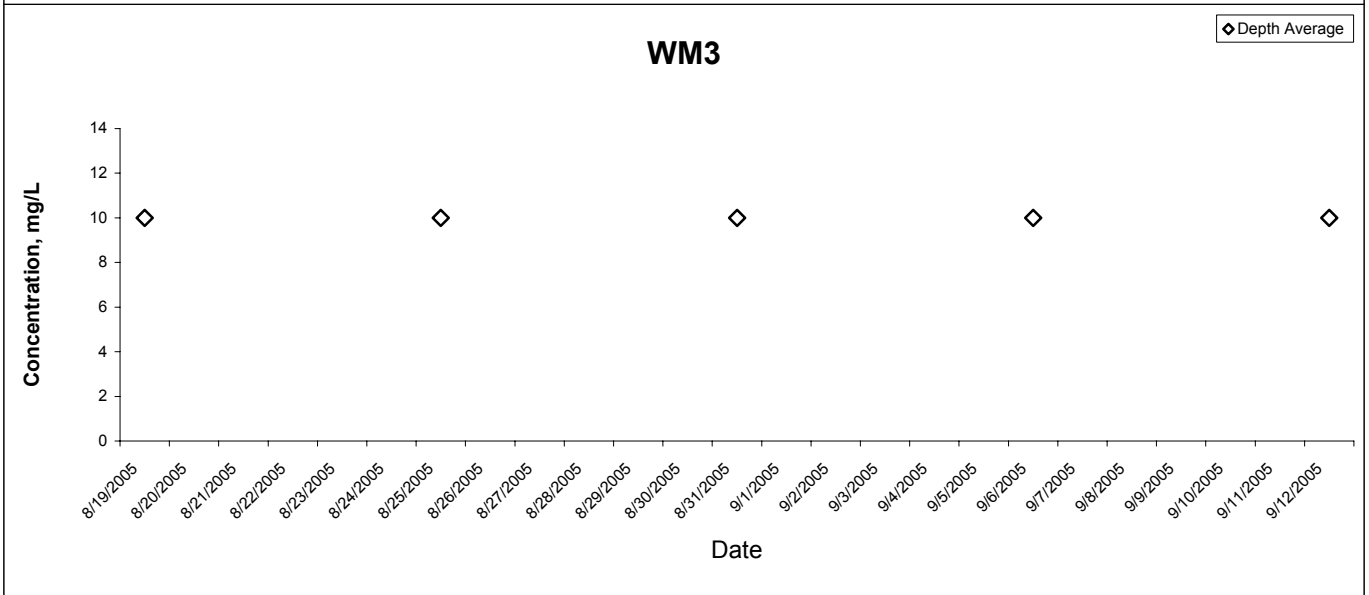
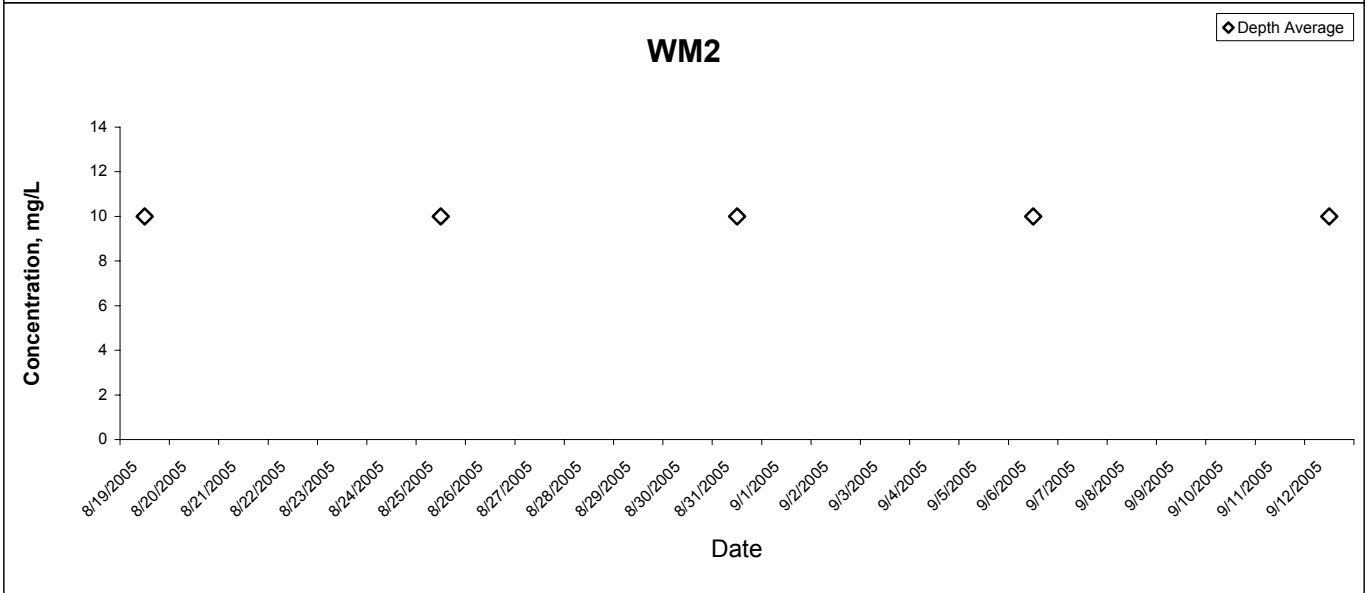
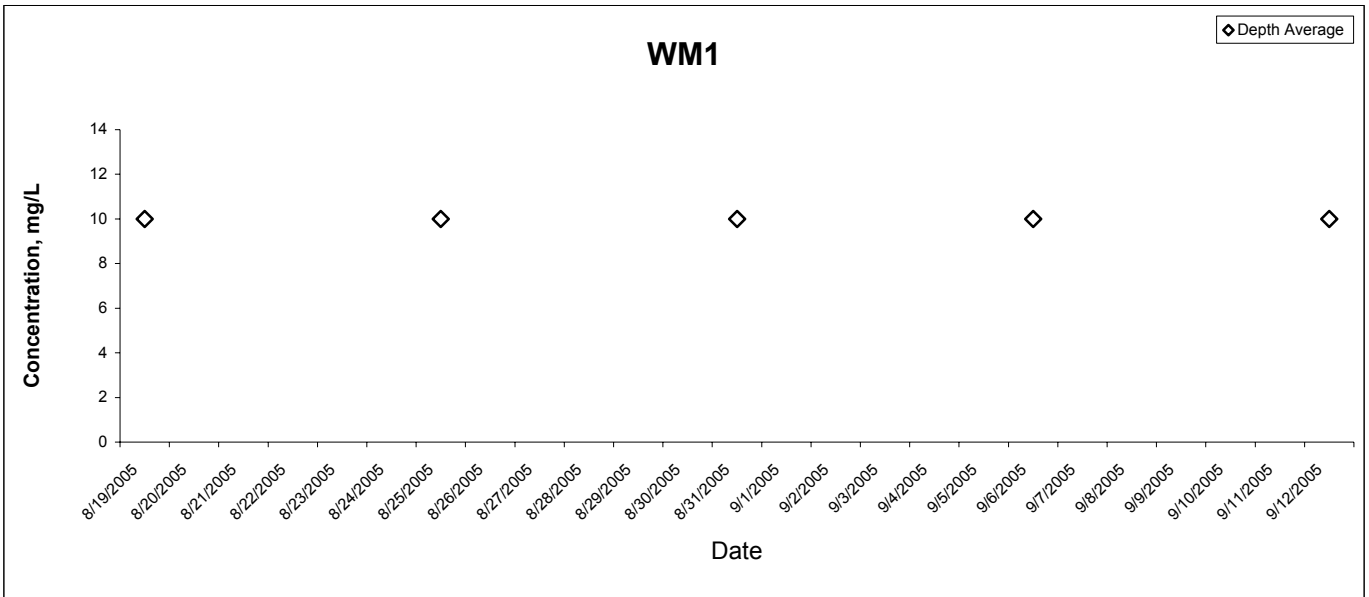
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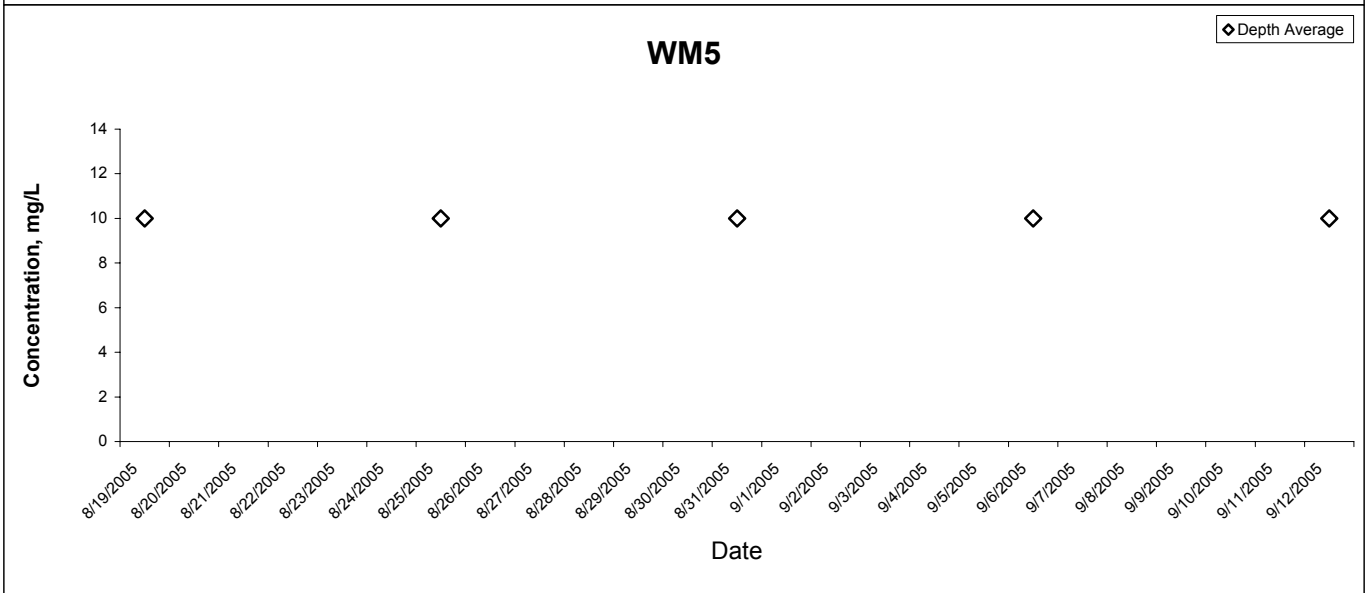
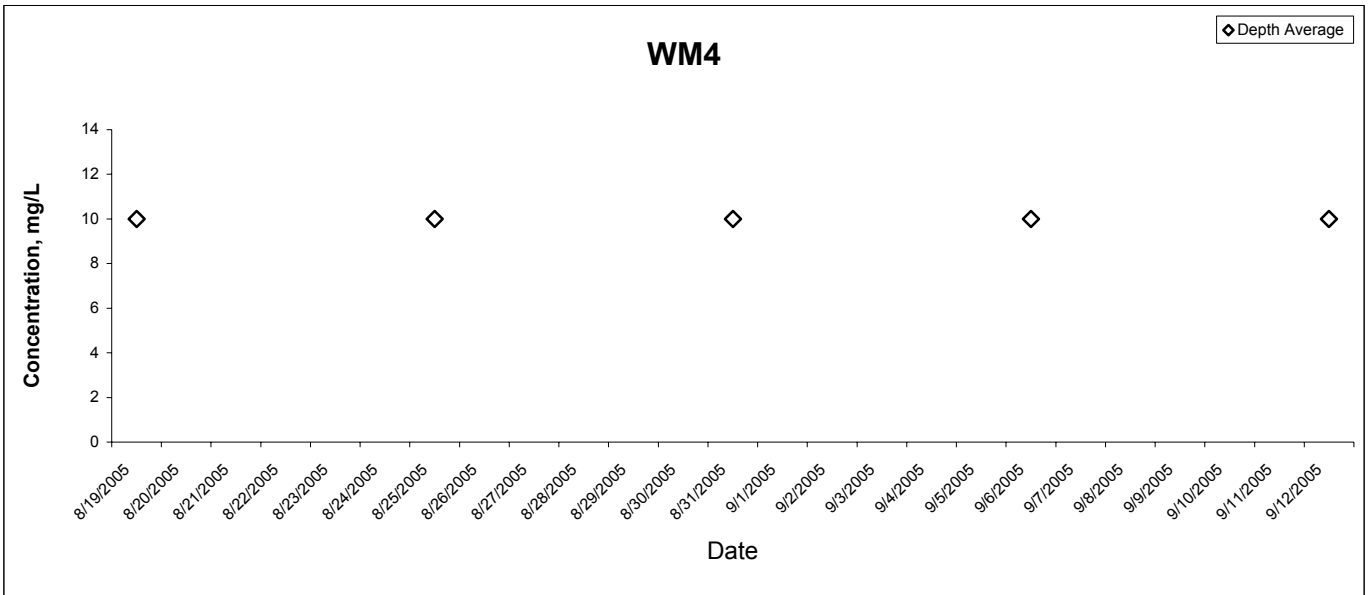
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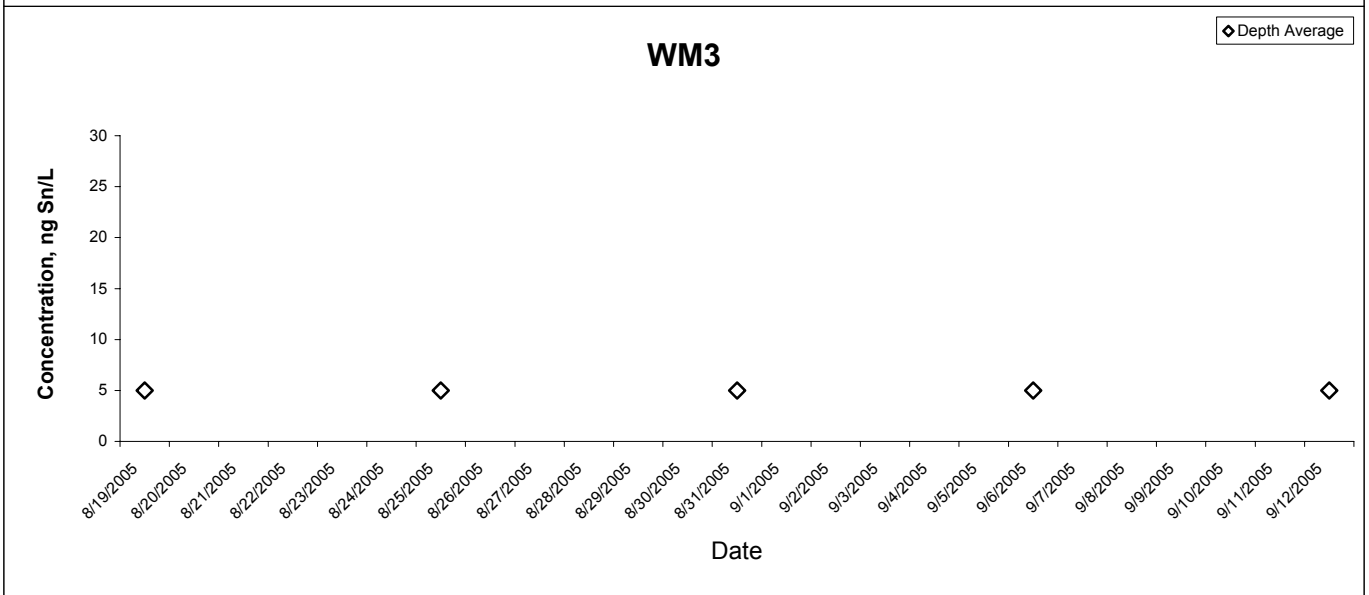
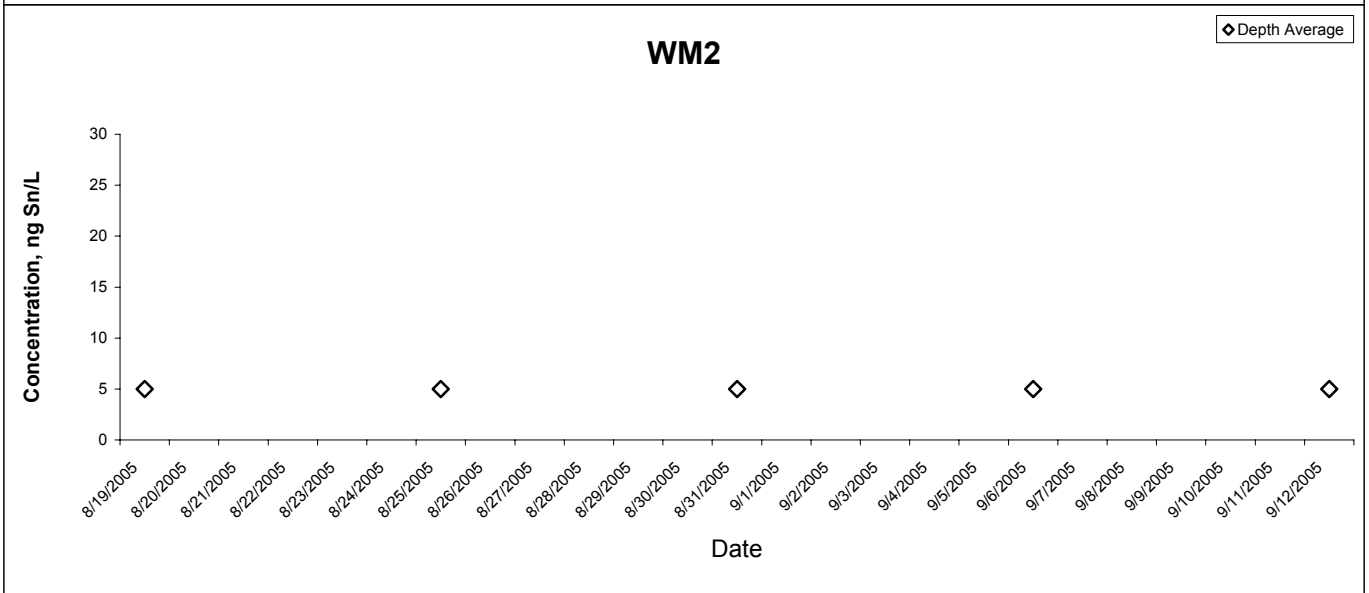
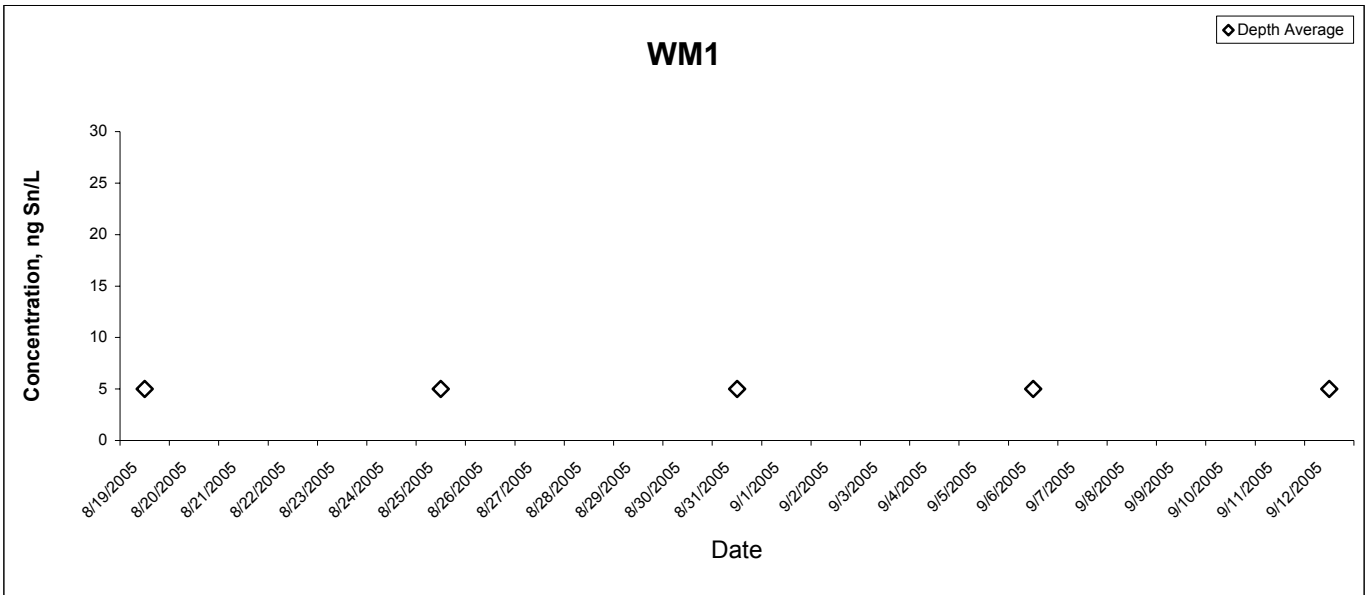
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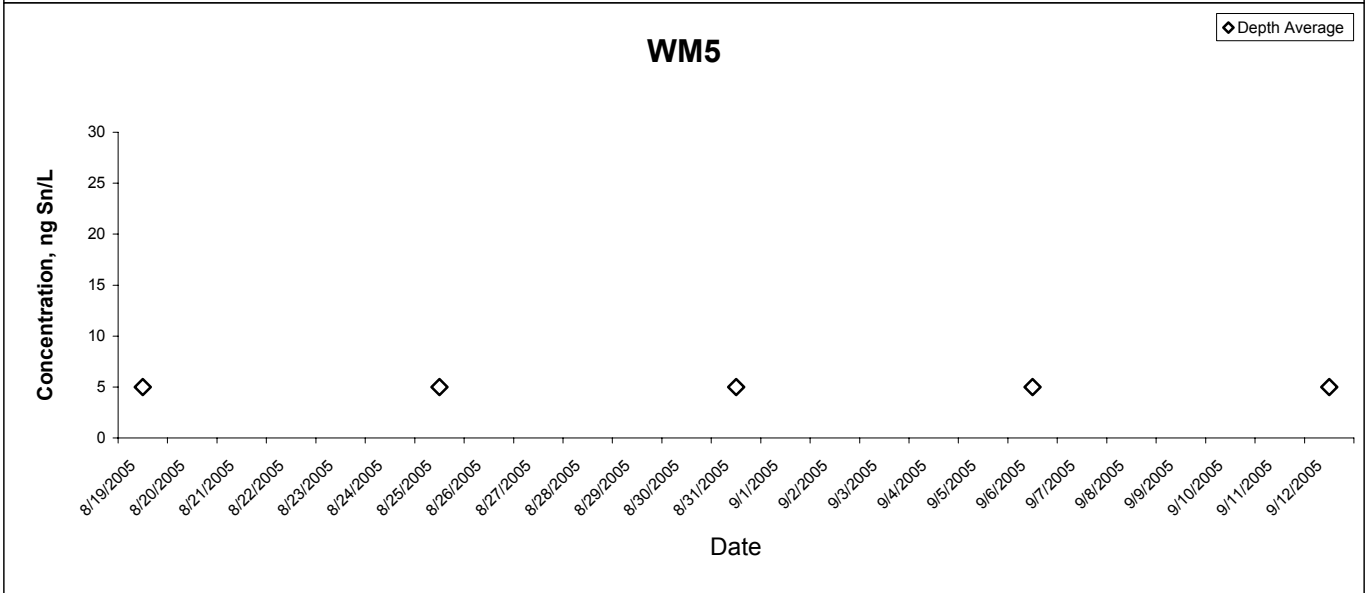
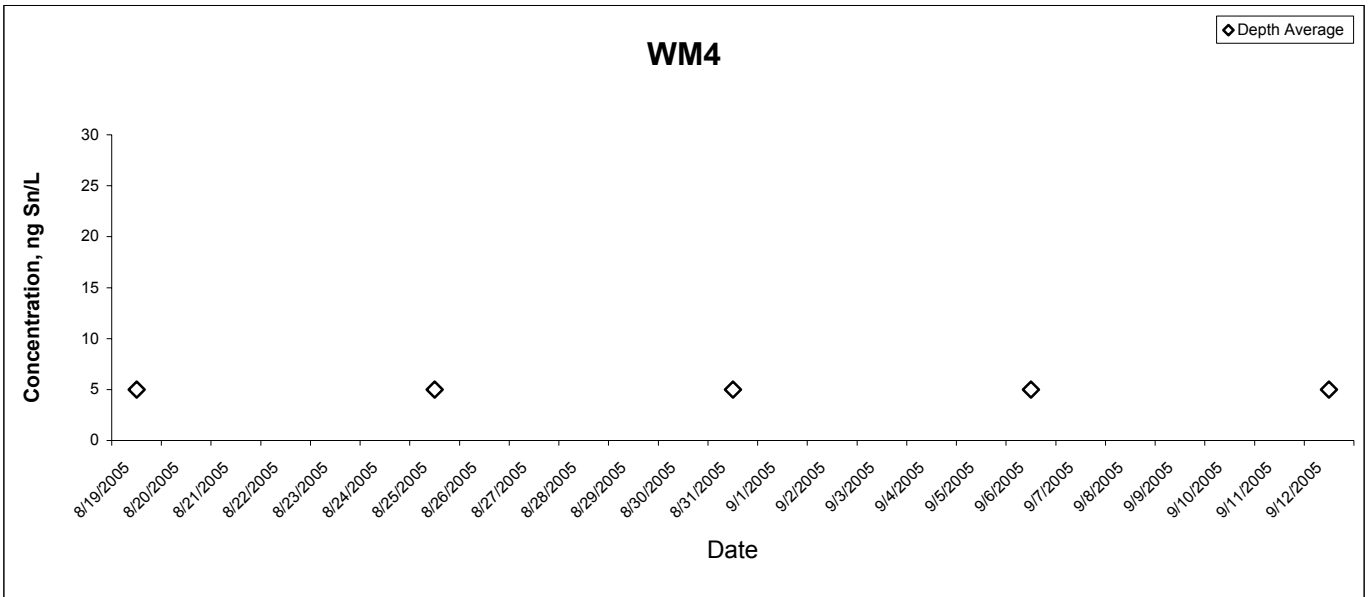
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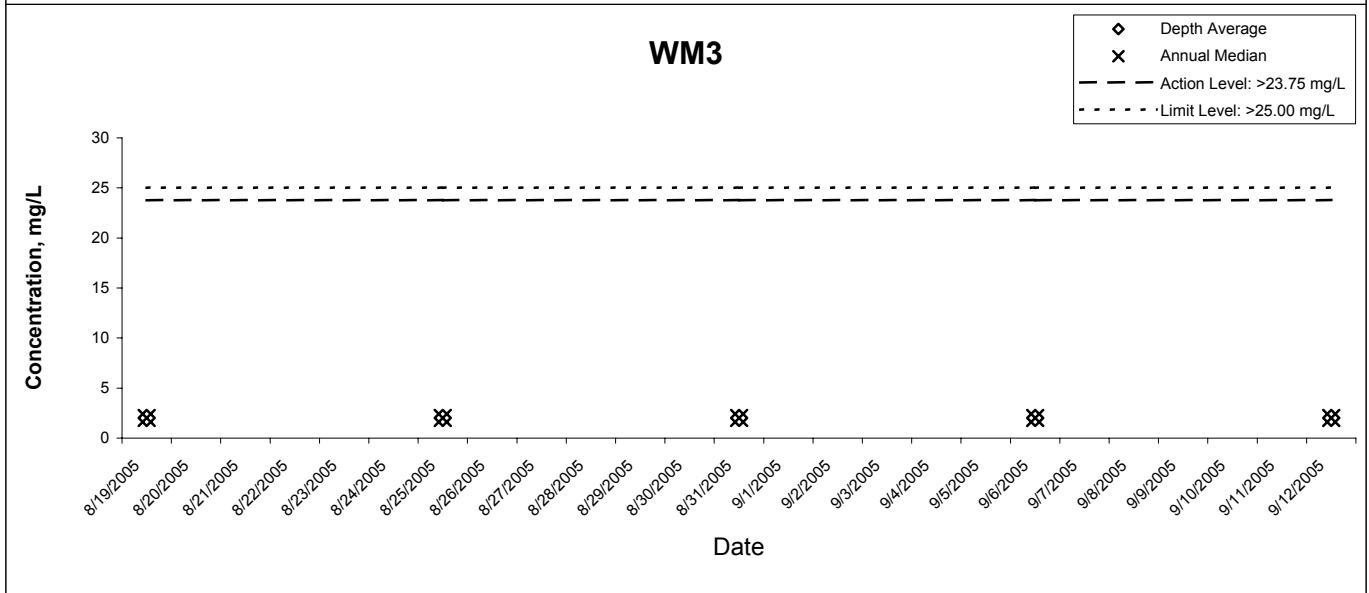
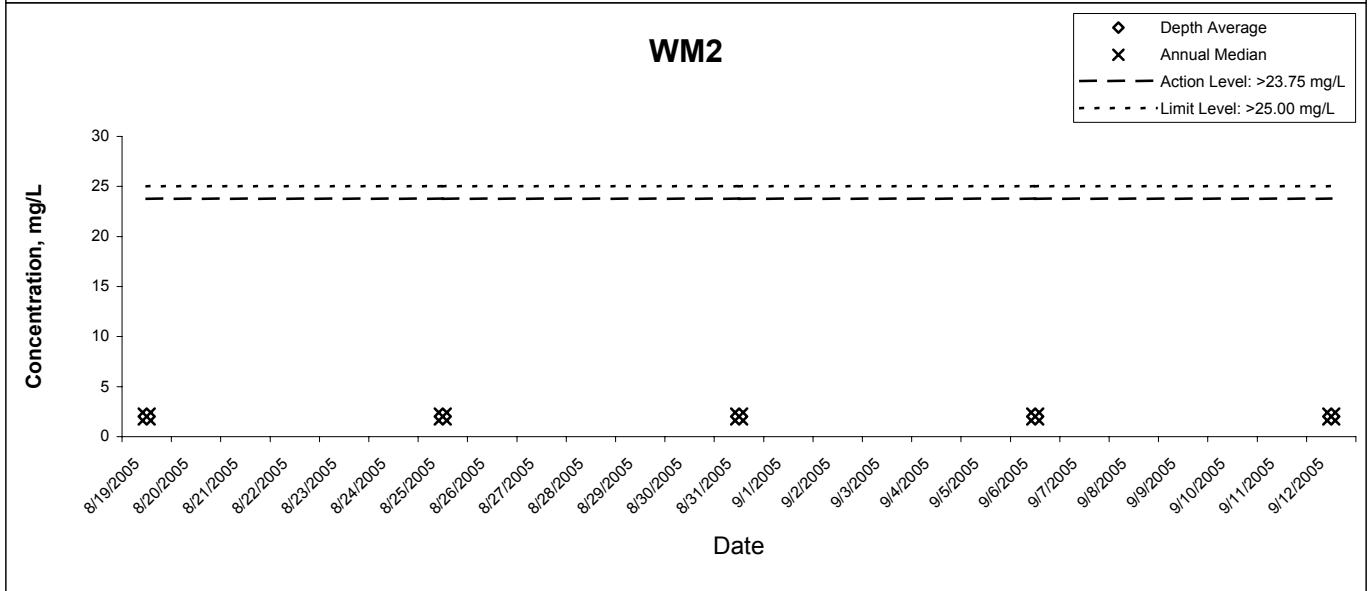
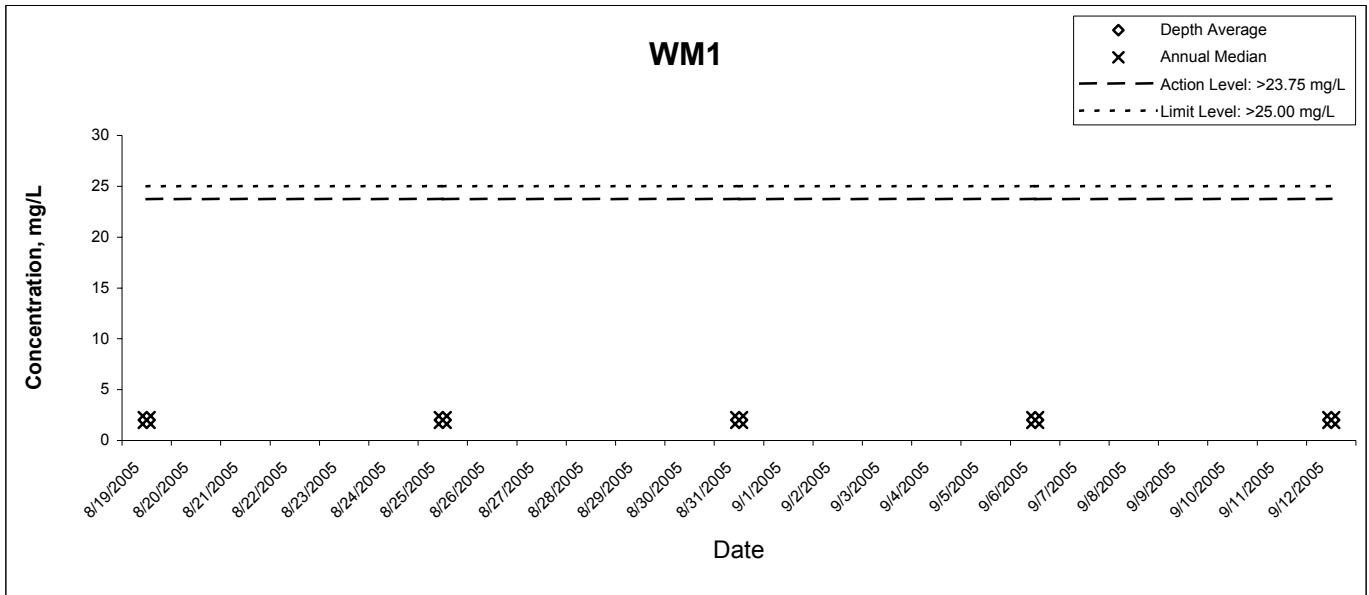
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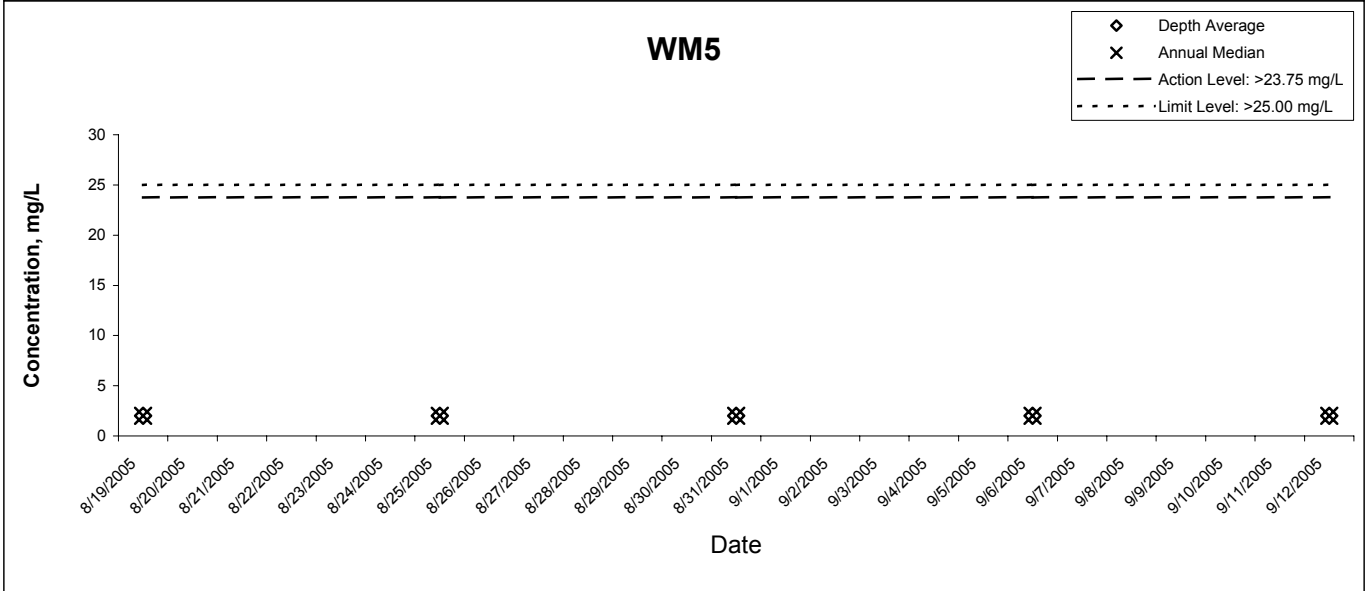
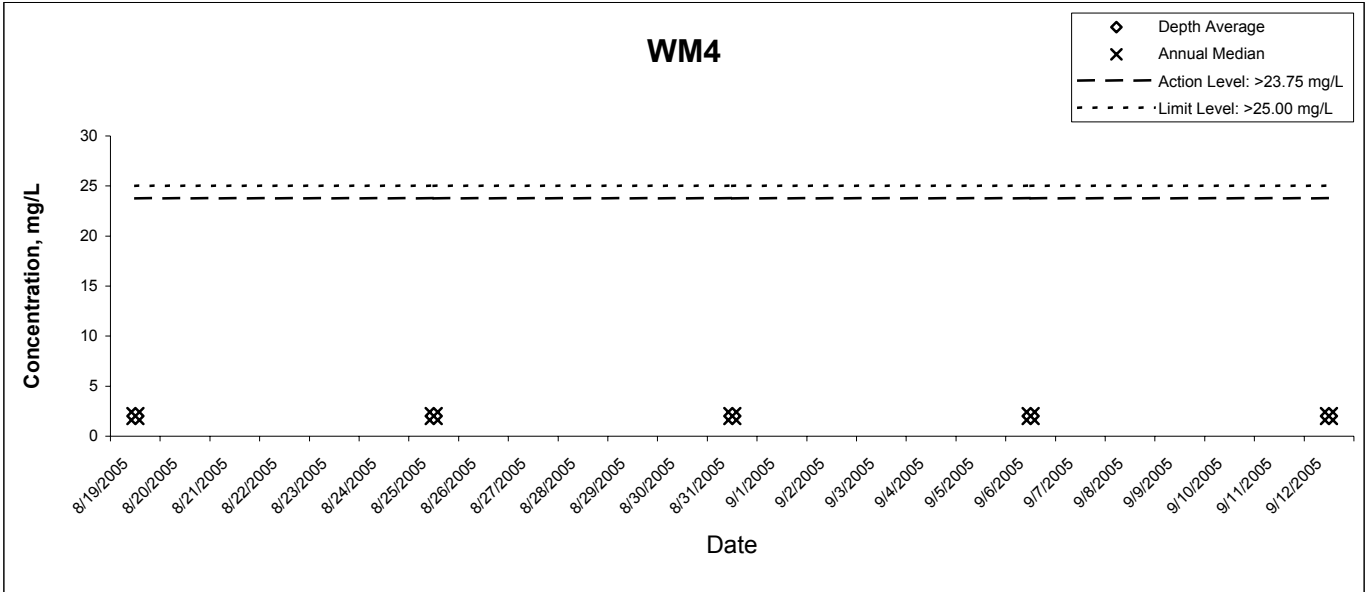
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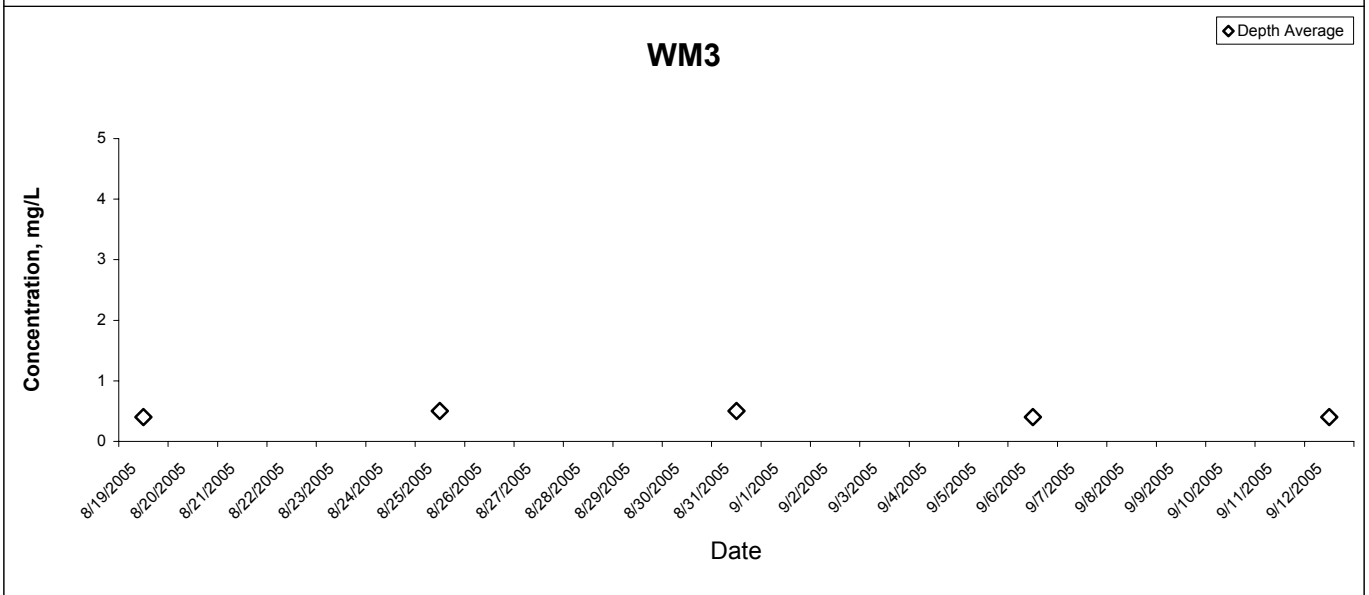
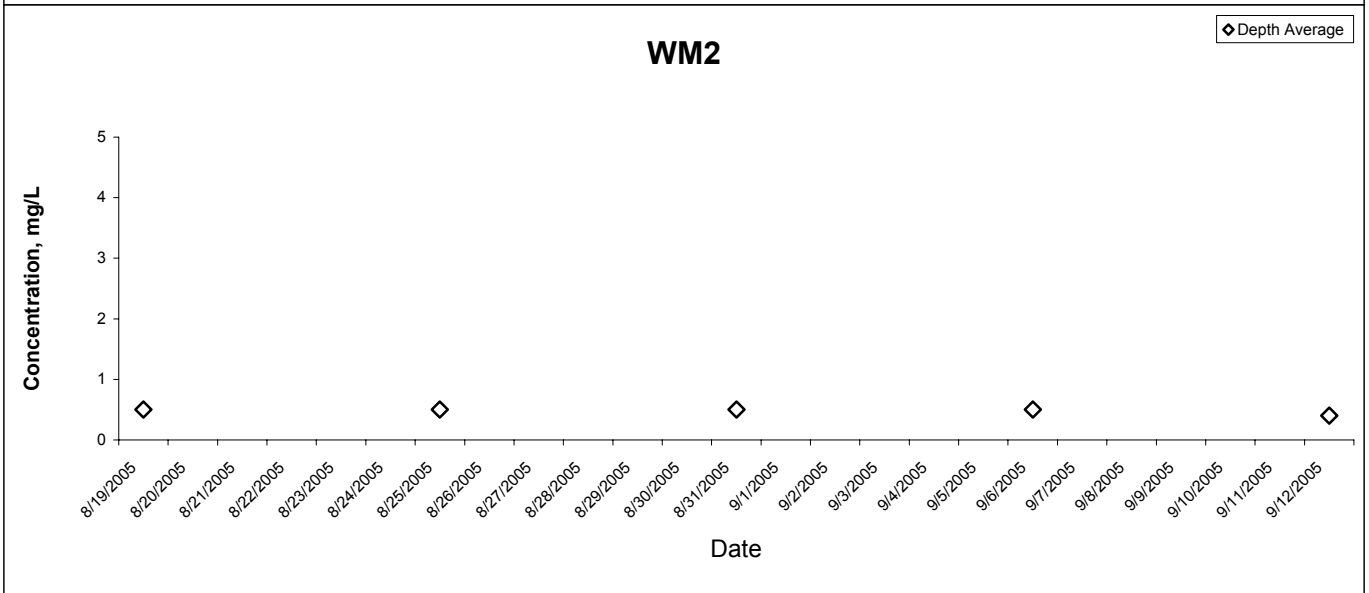
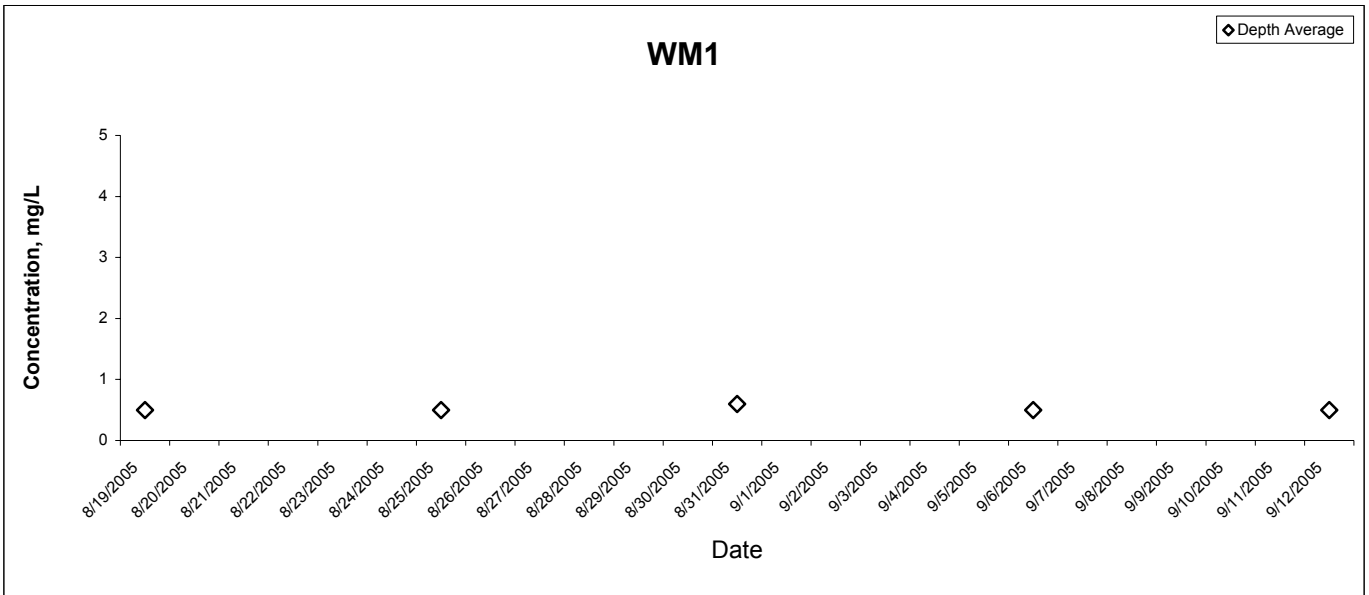
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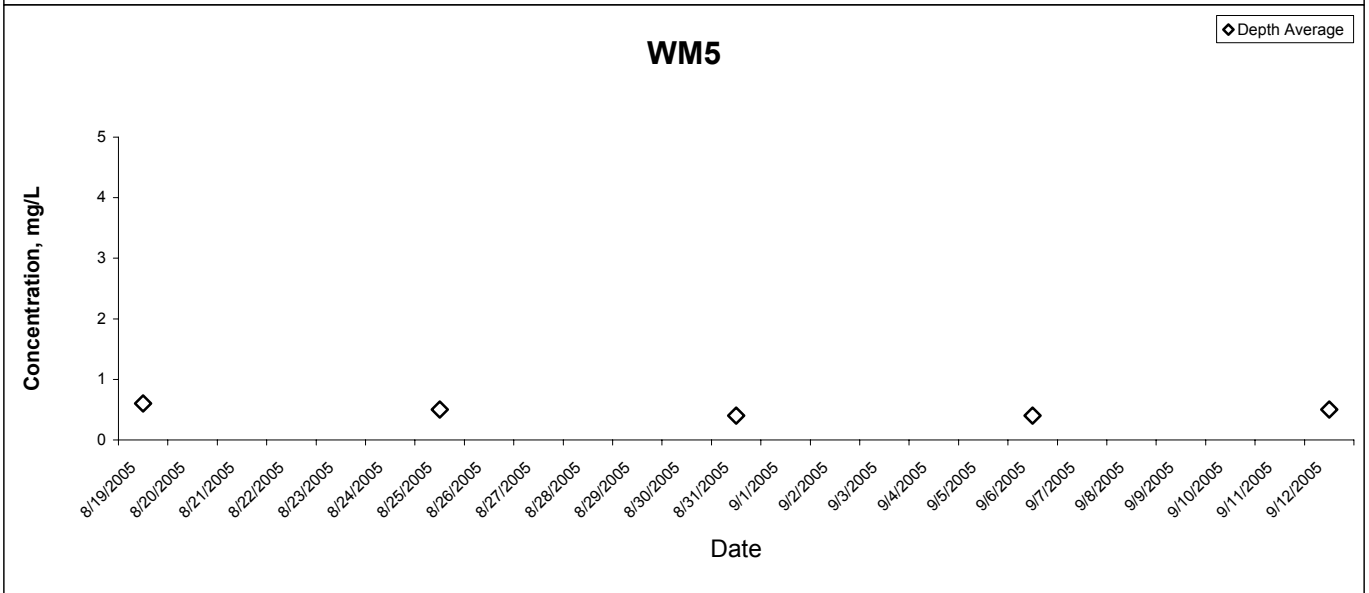
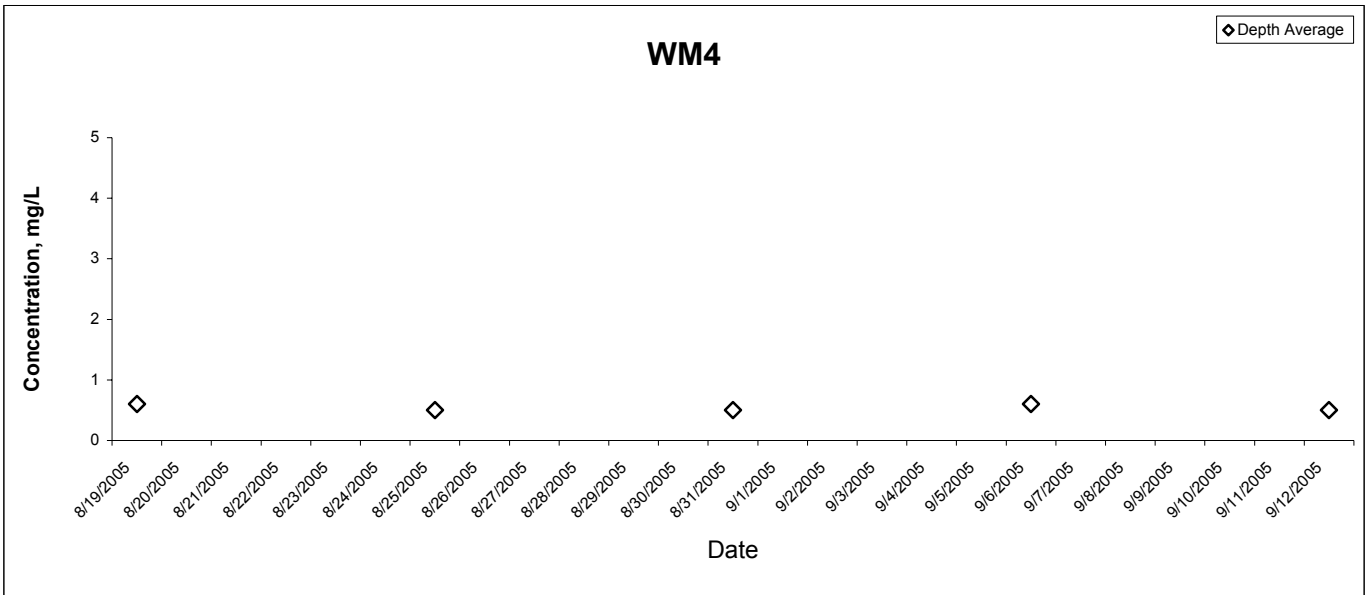
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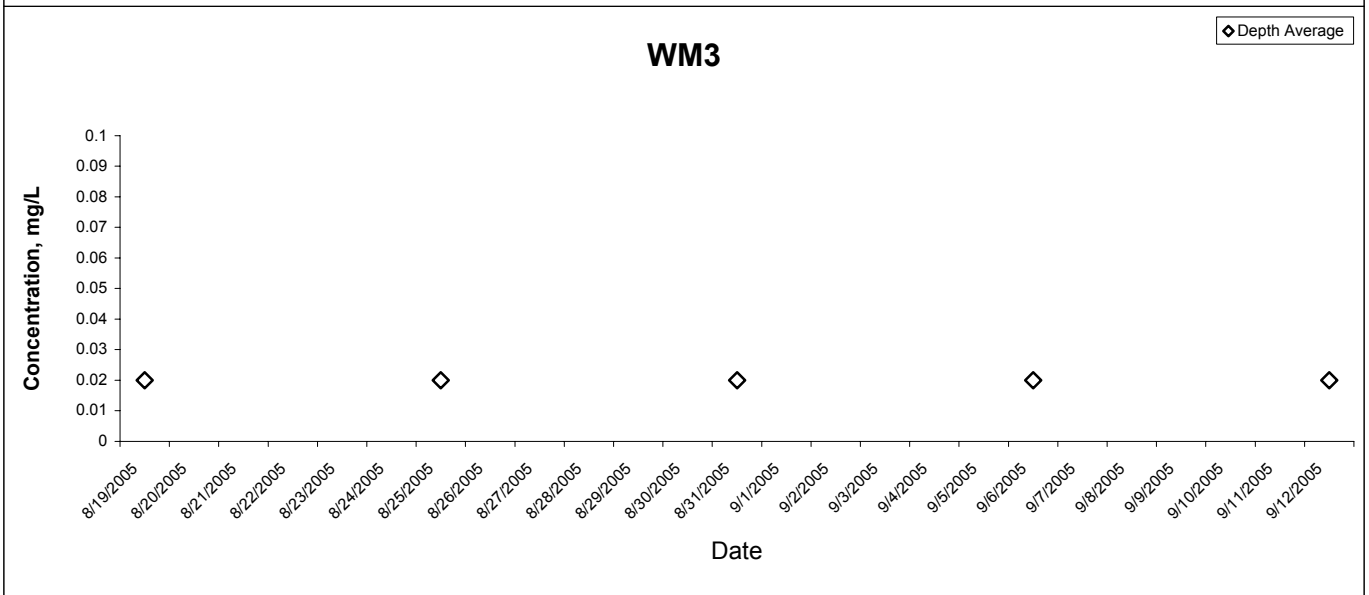
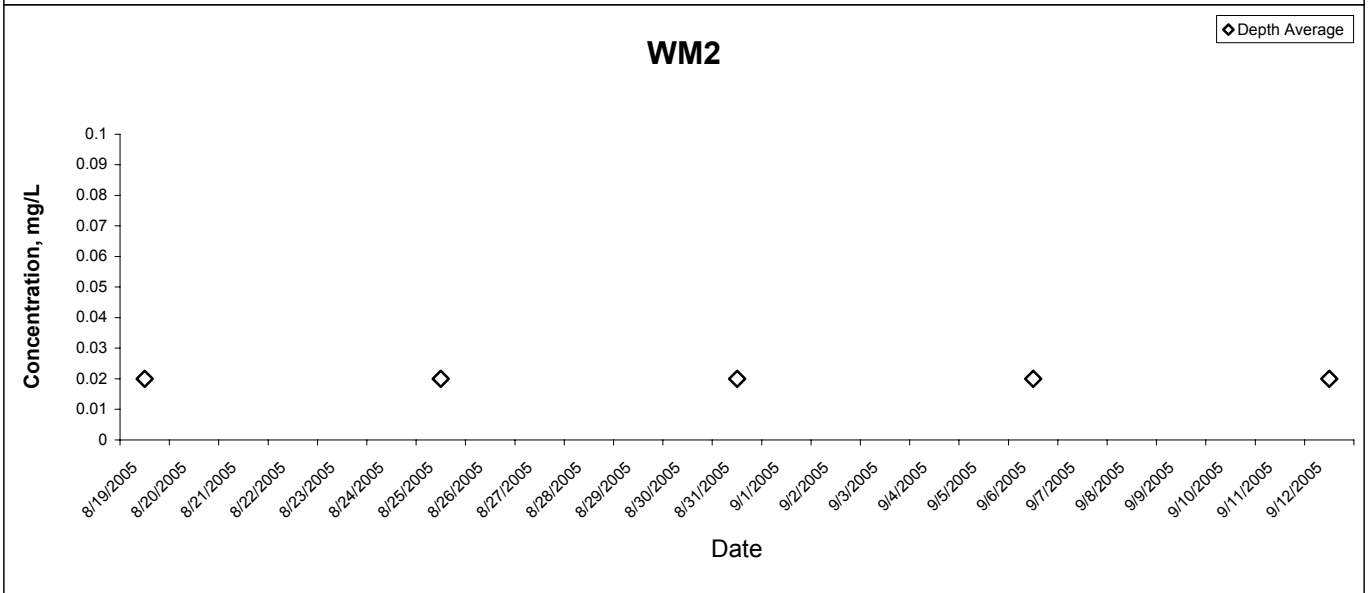
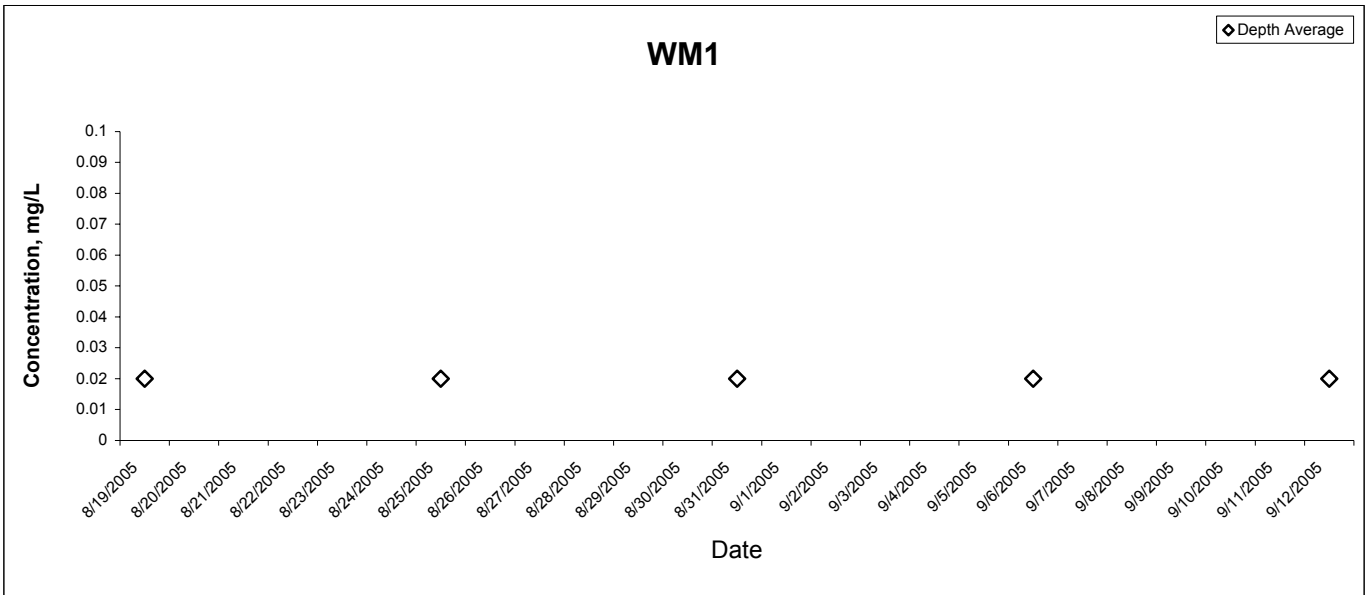
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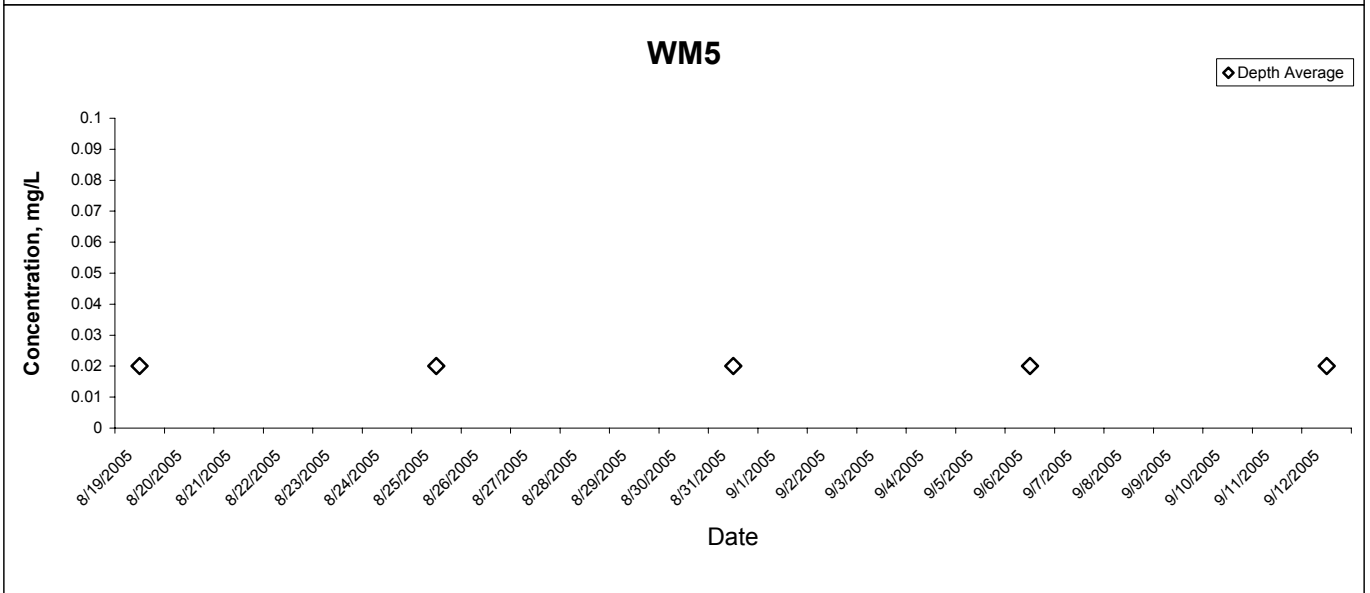
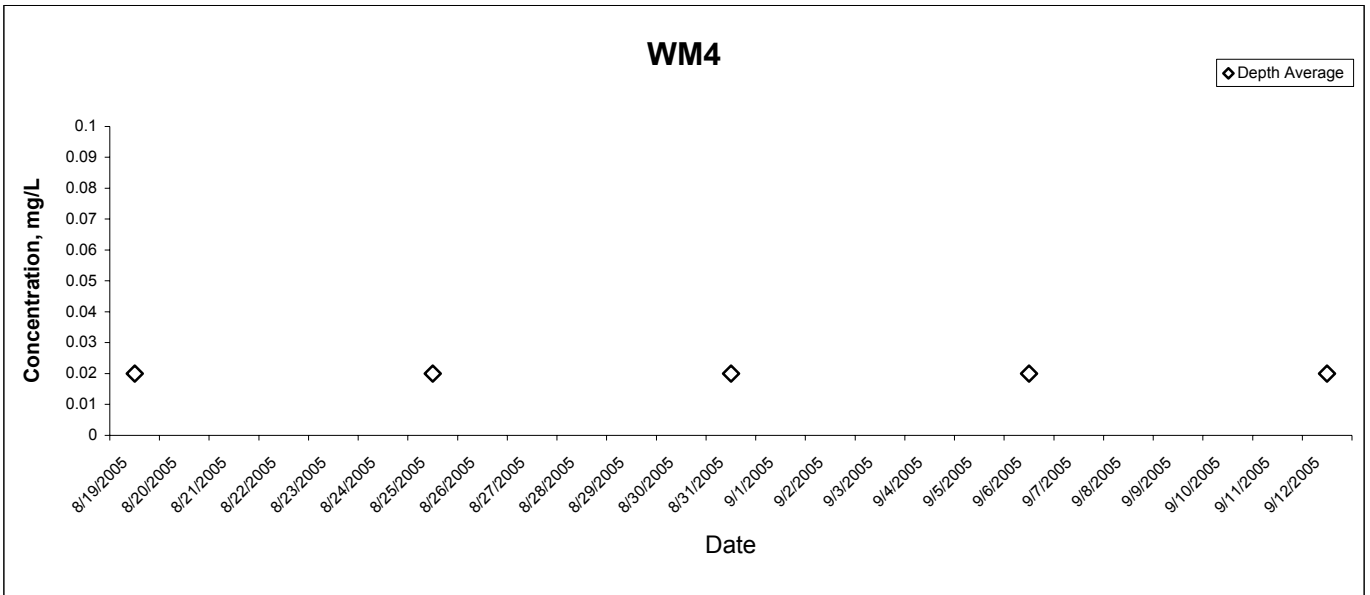
Total Nitrogen



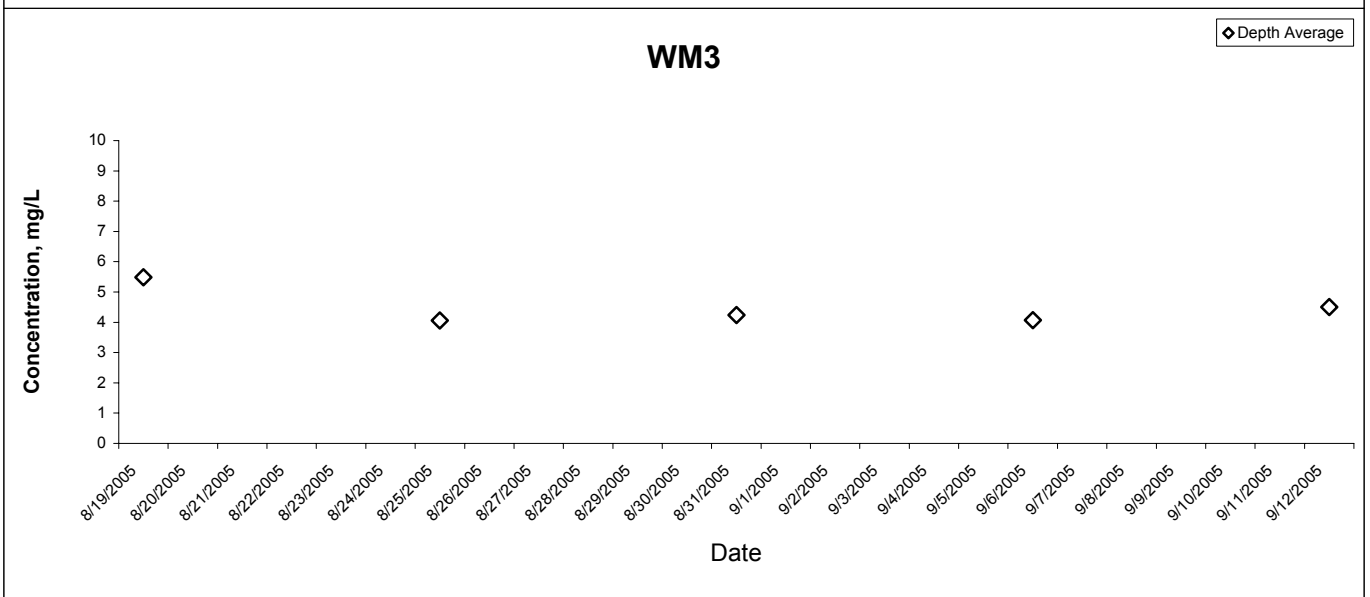
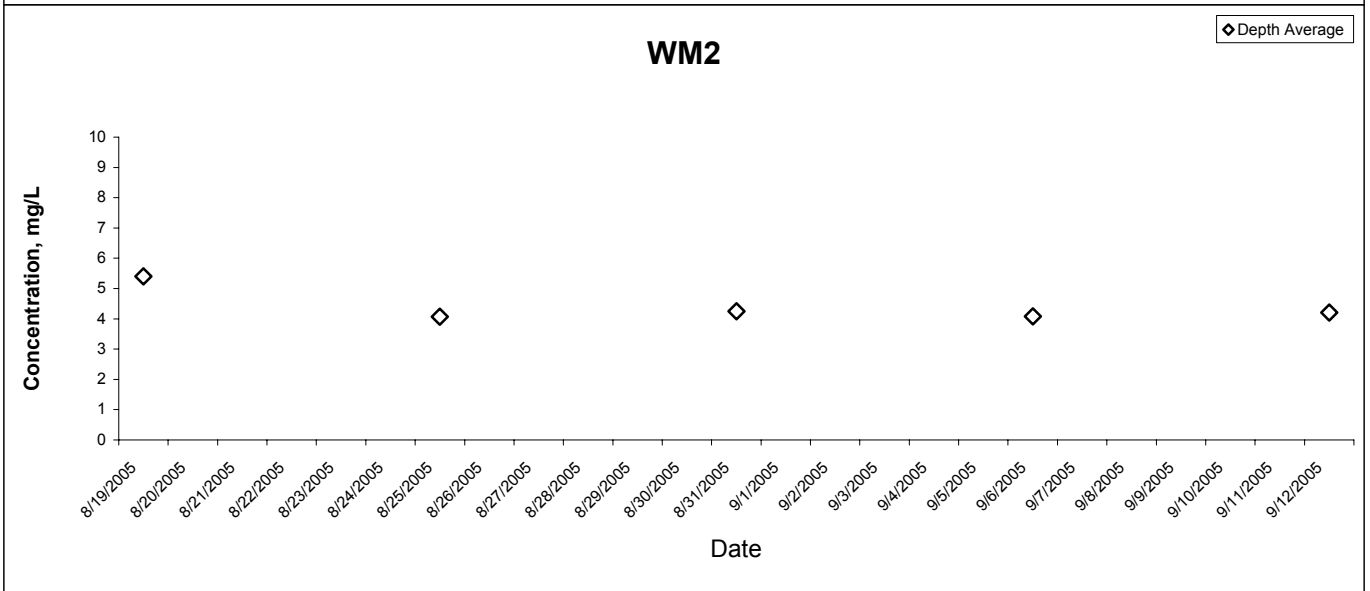
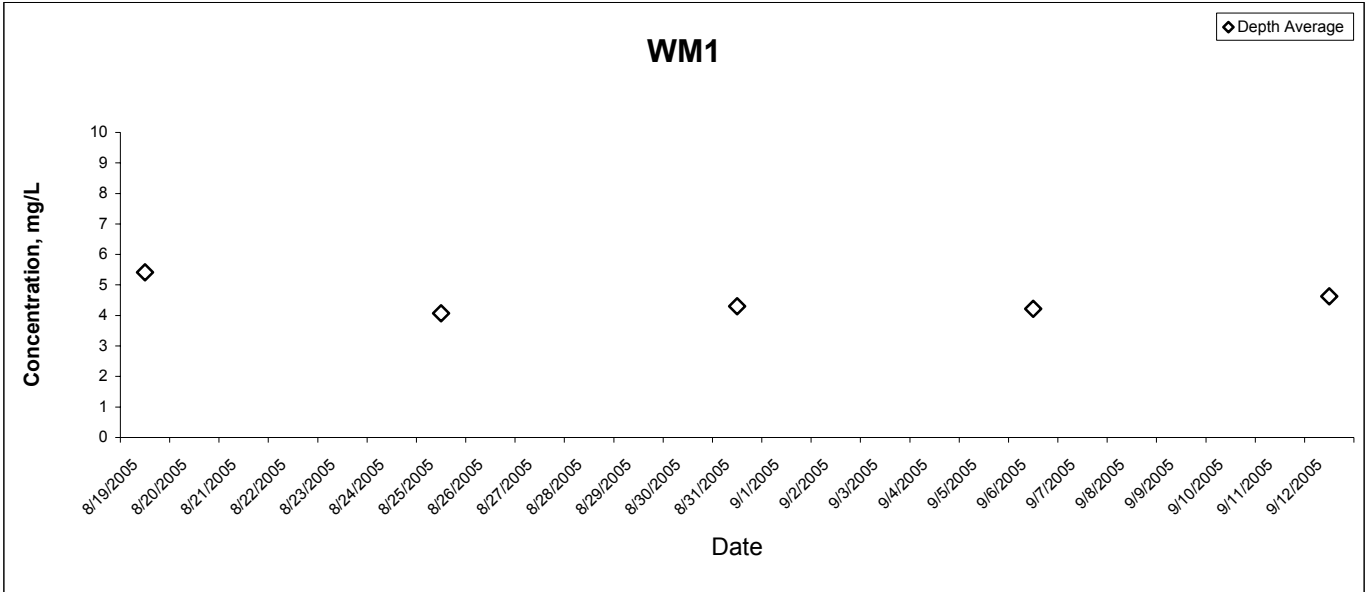
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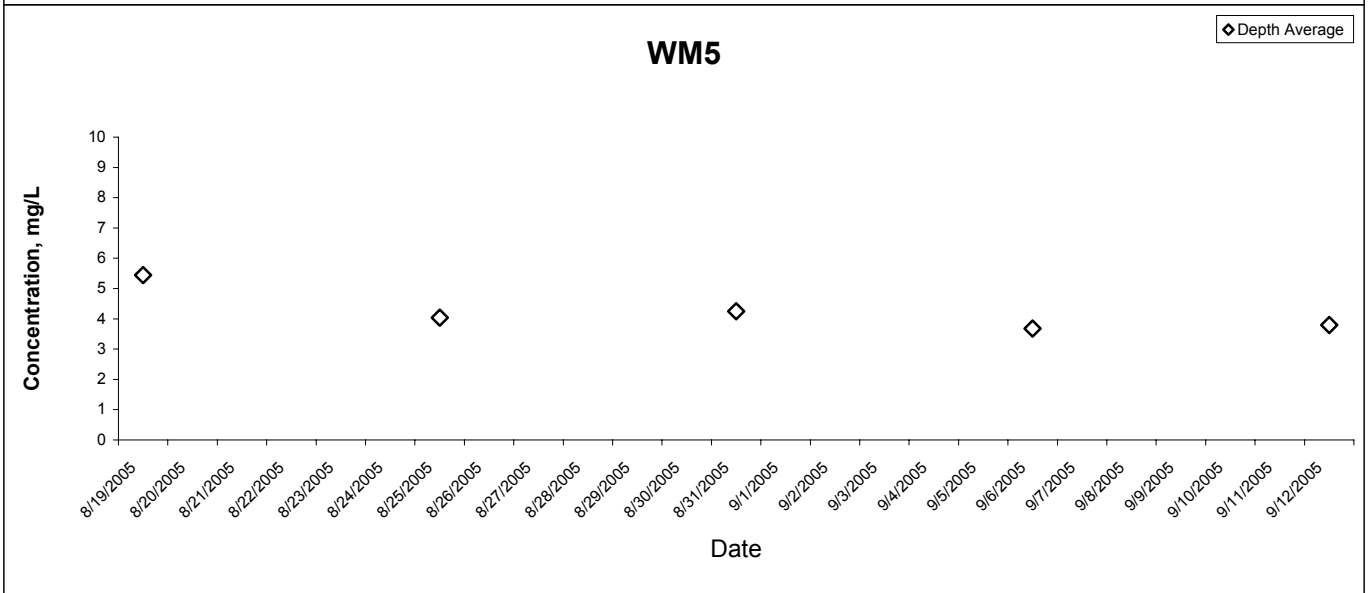
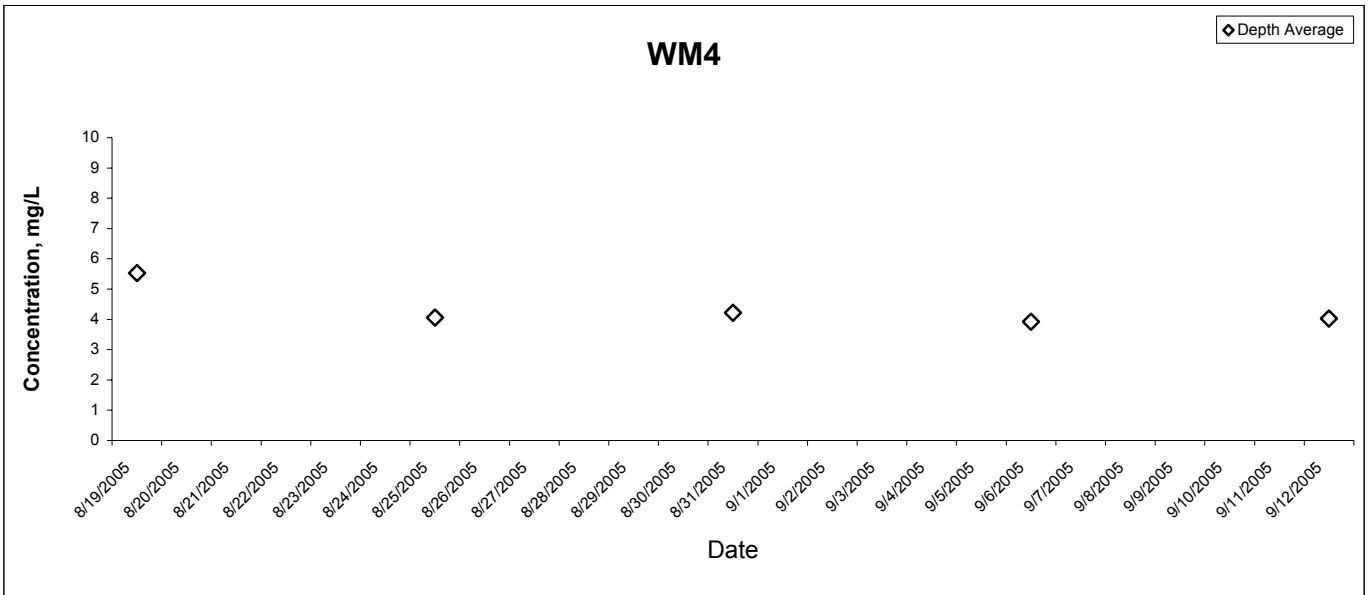
Total Phosphorous



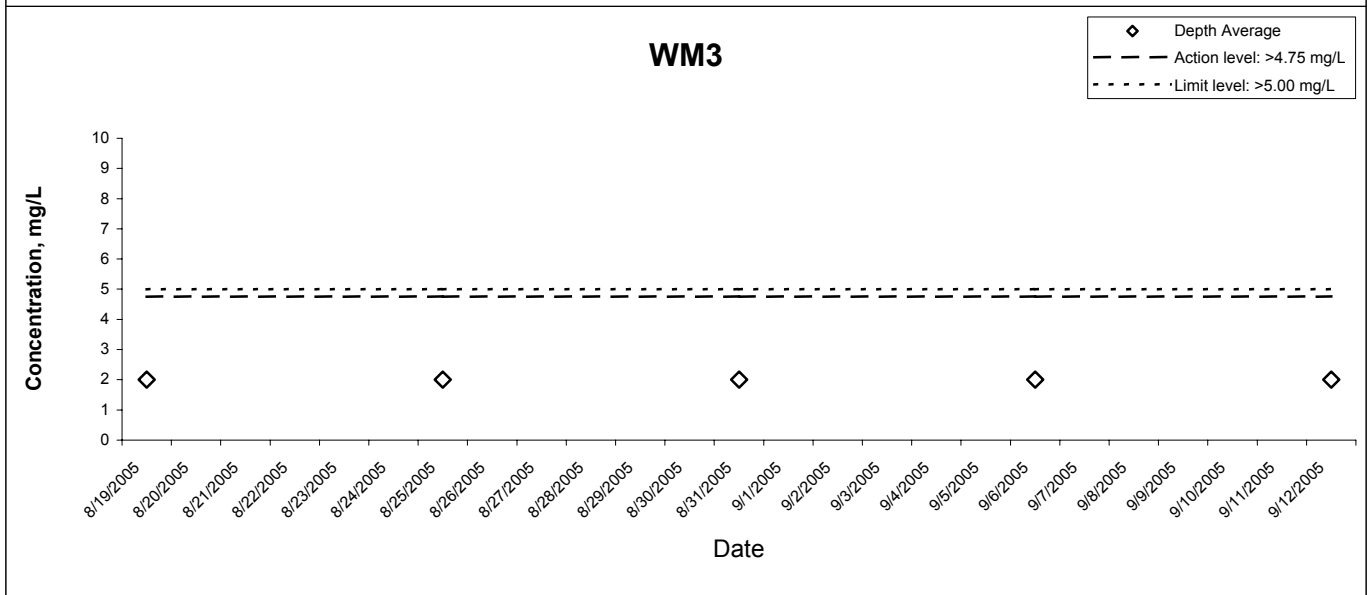
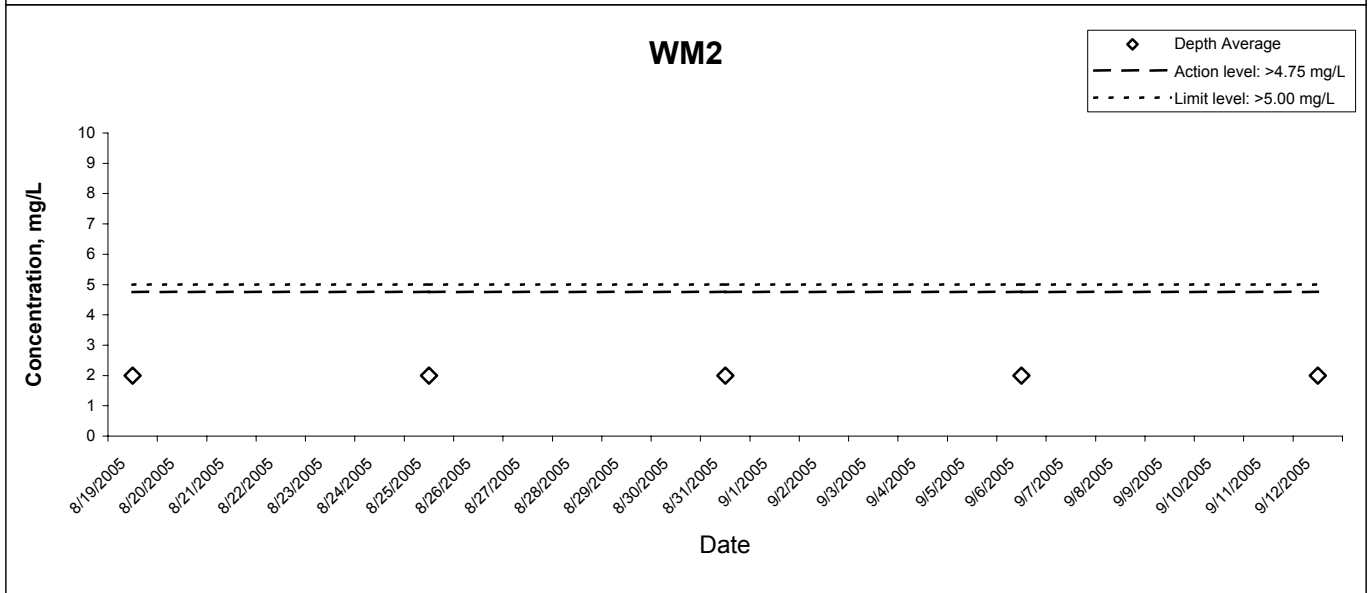
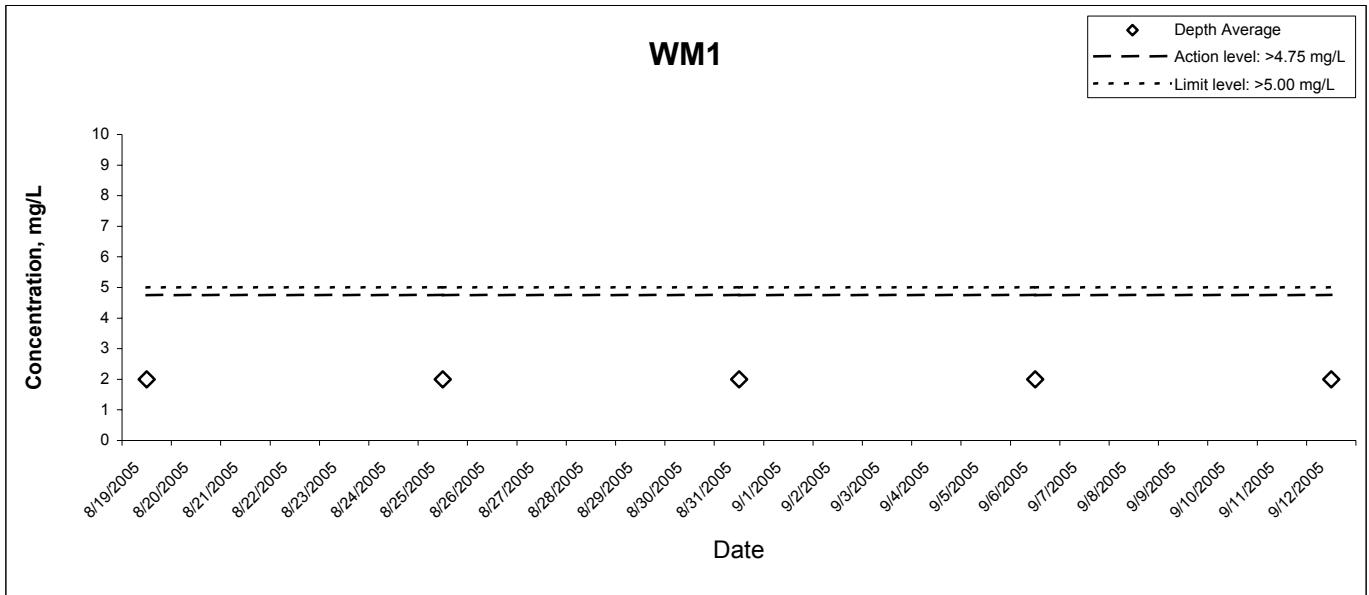
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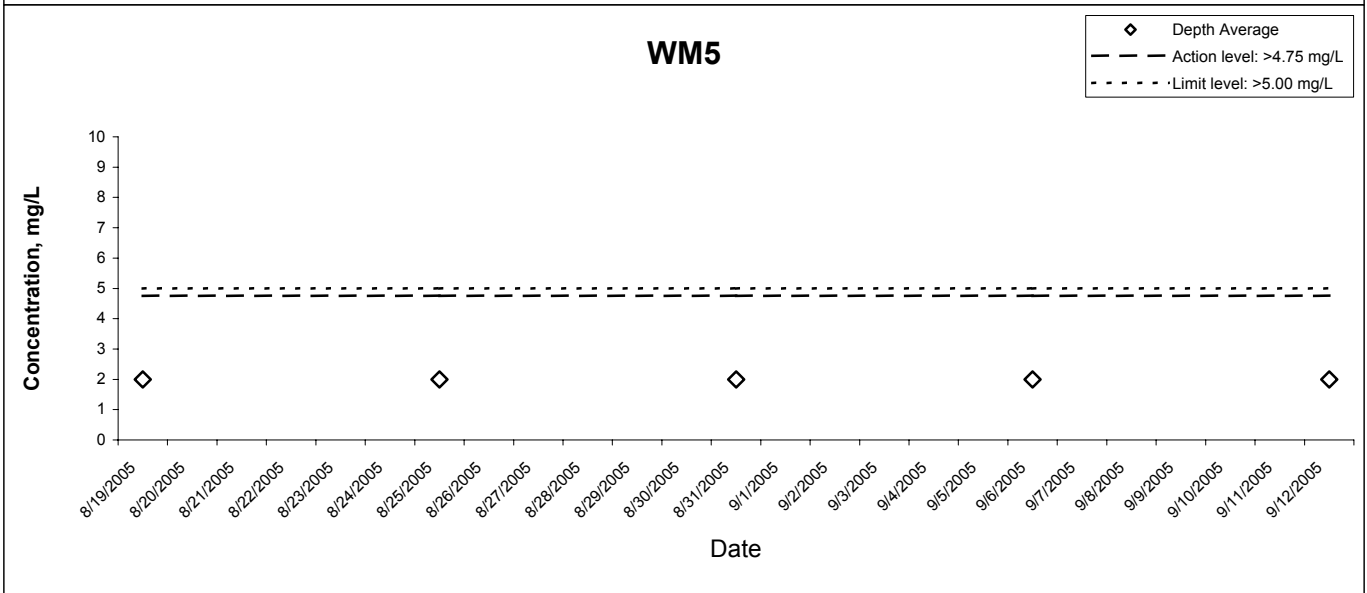
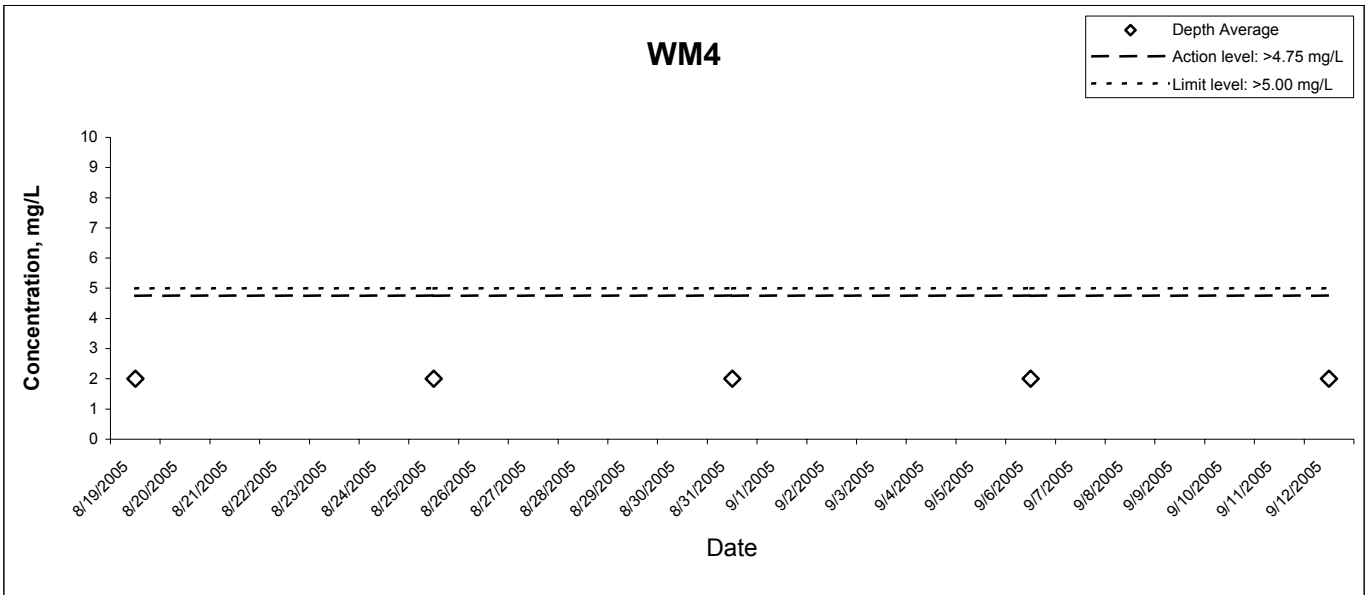
Silica



5-day BOD



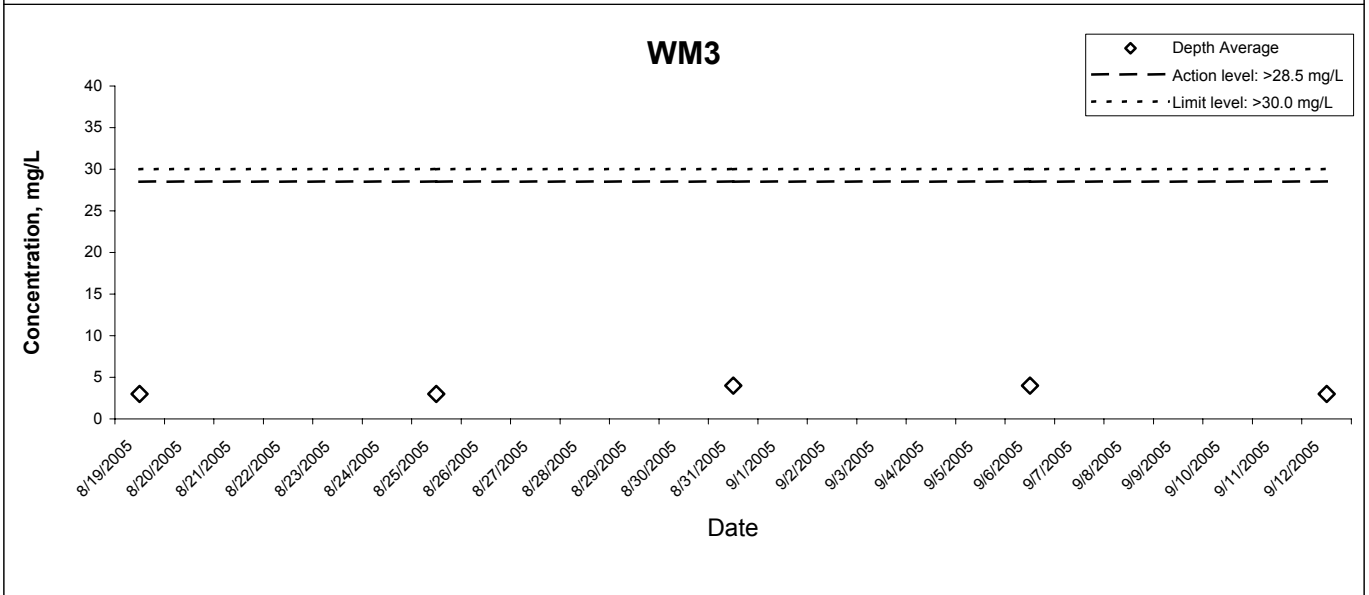
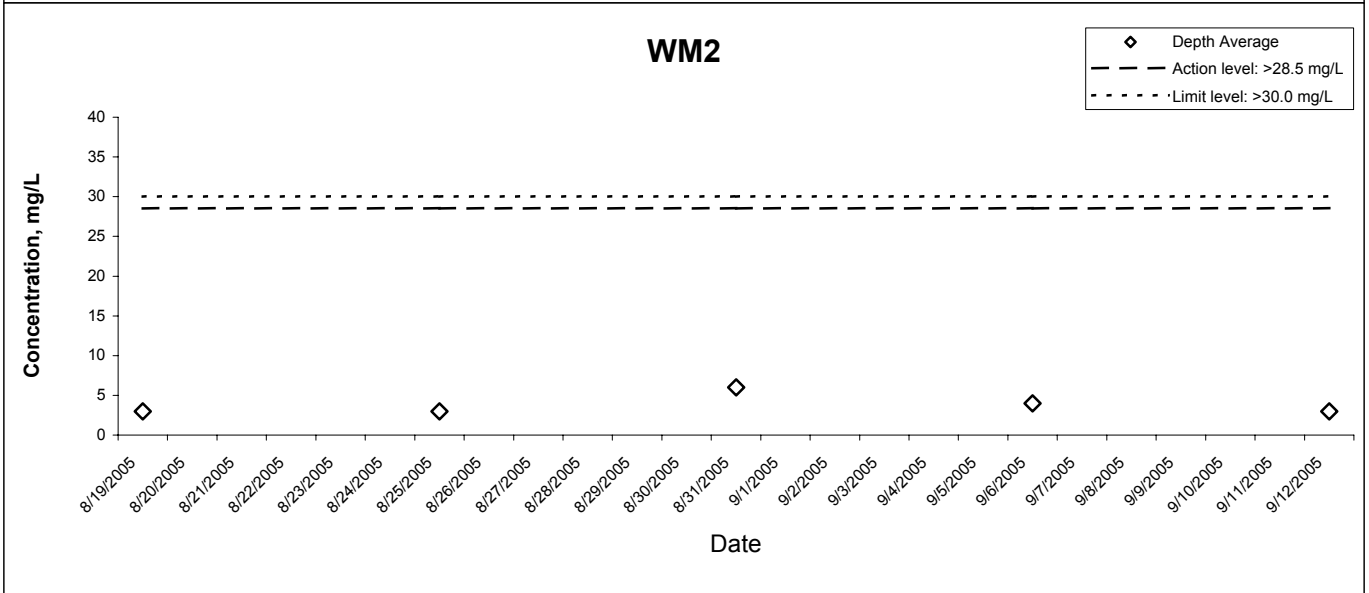
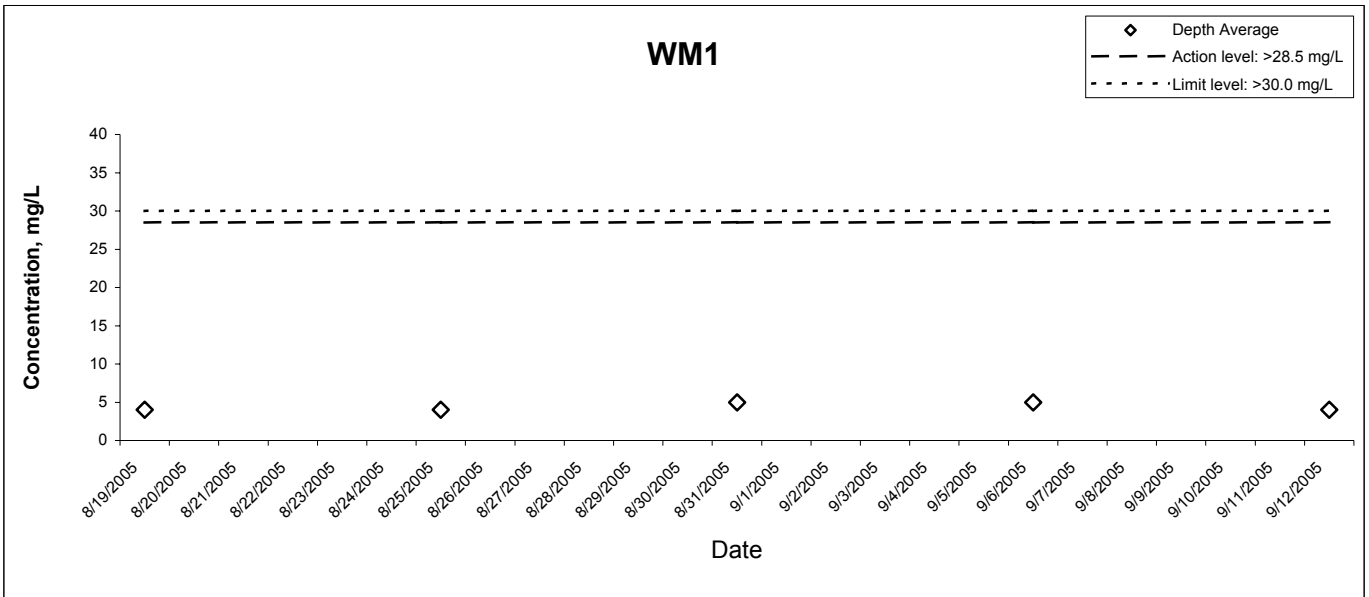
5-day BOD



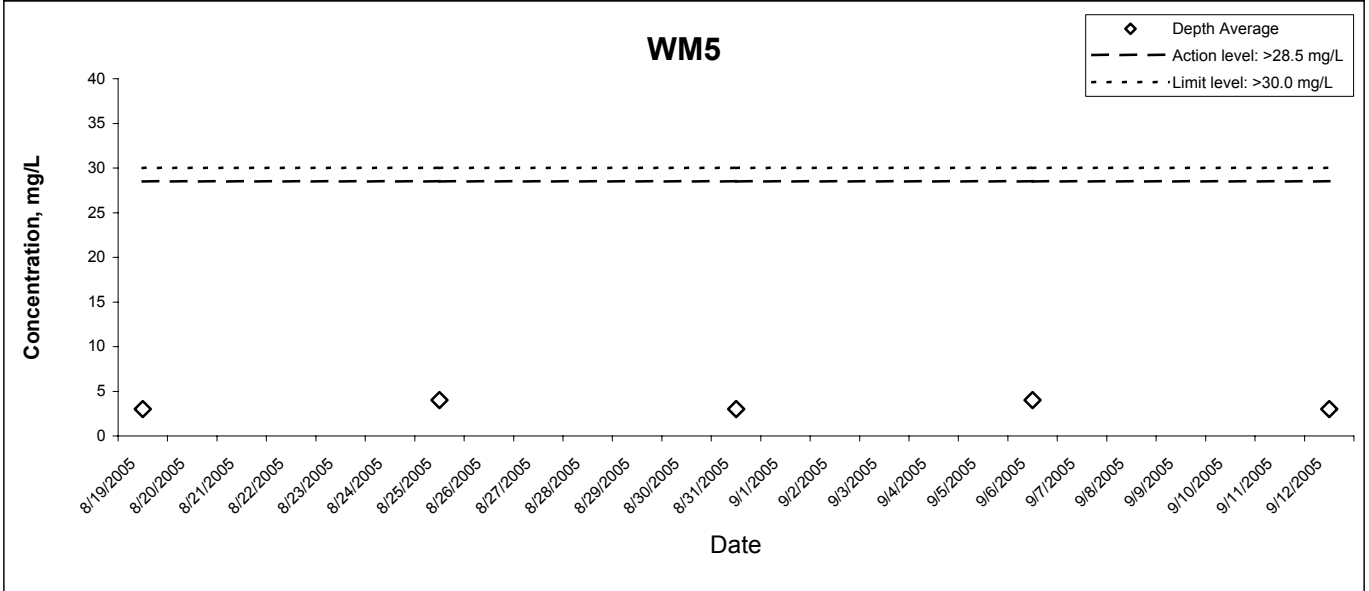
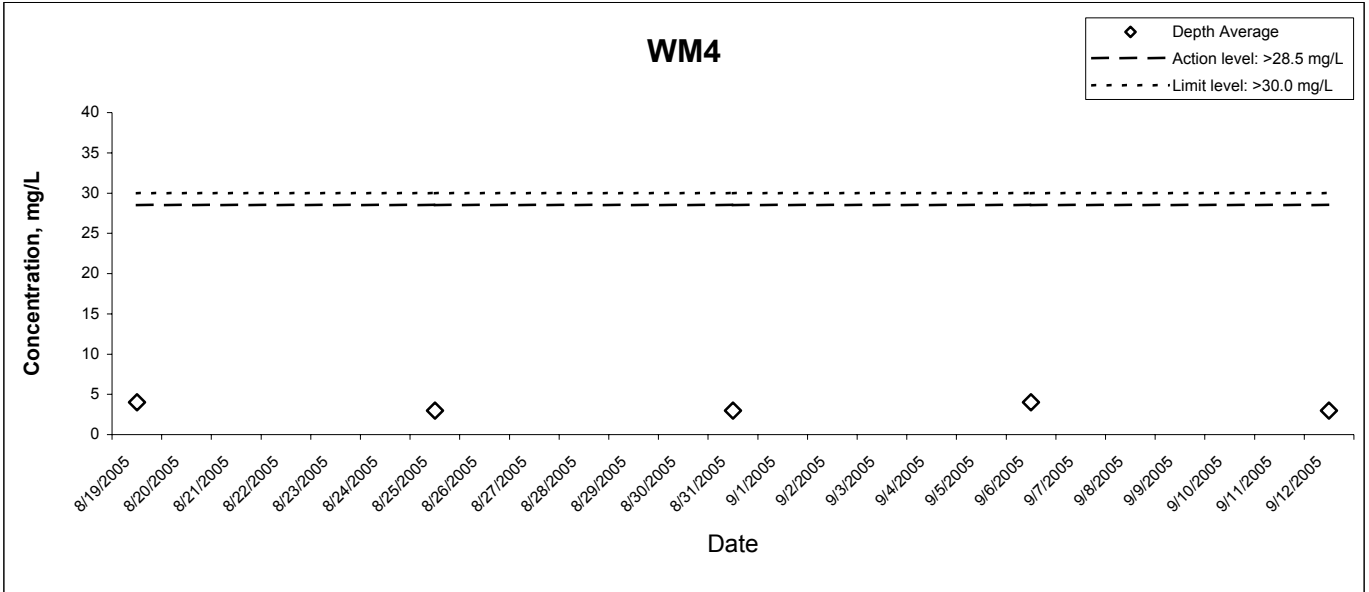
FEP-01/097/2001/B

SCALE	N.T.S.	DATE	Sep 05
CHECK	KCHC	DRAWN	LLMC
JOB NO.	S05803	APPENDIX	Rev
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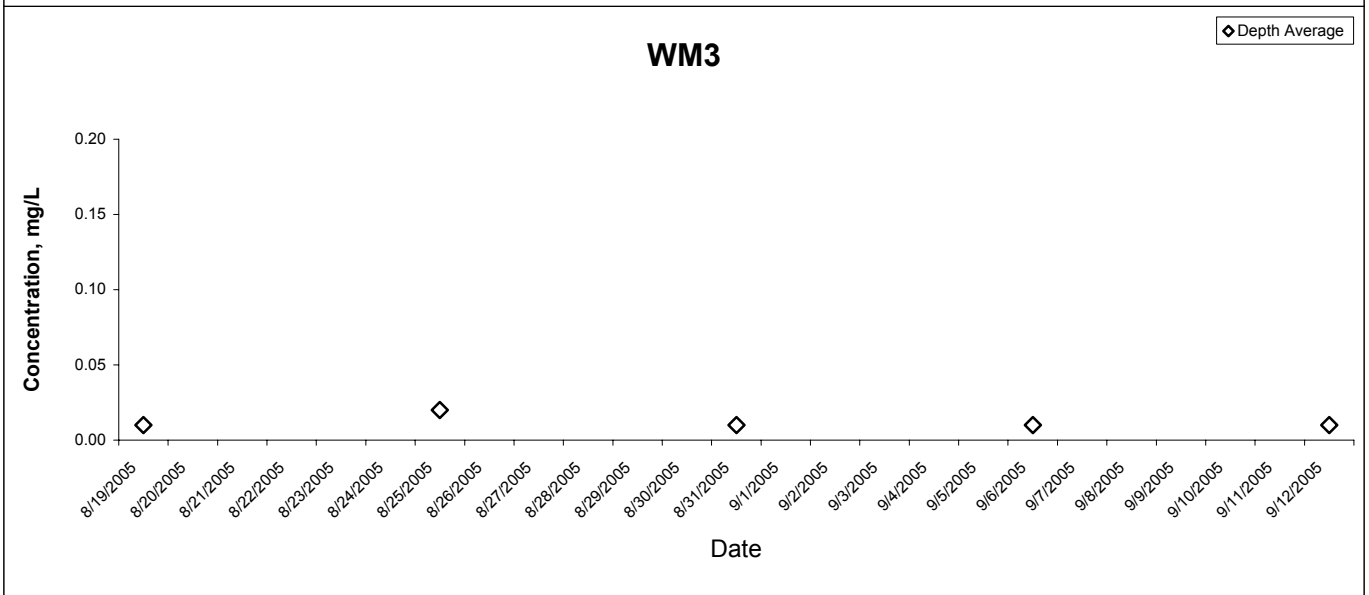
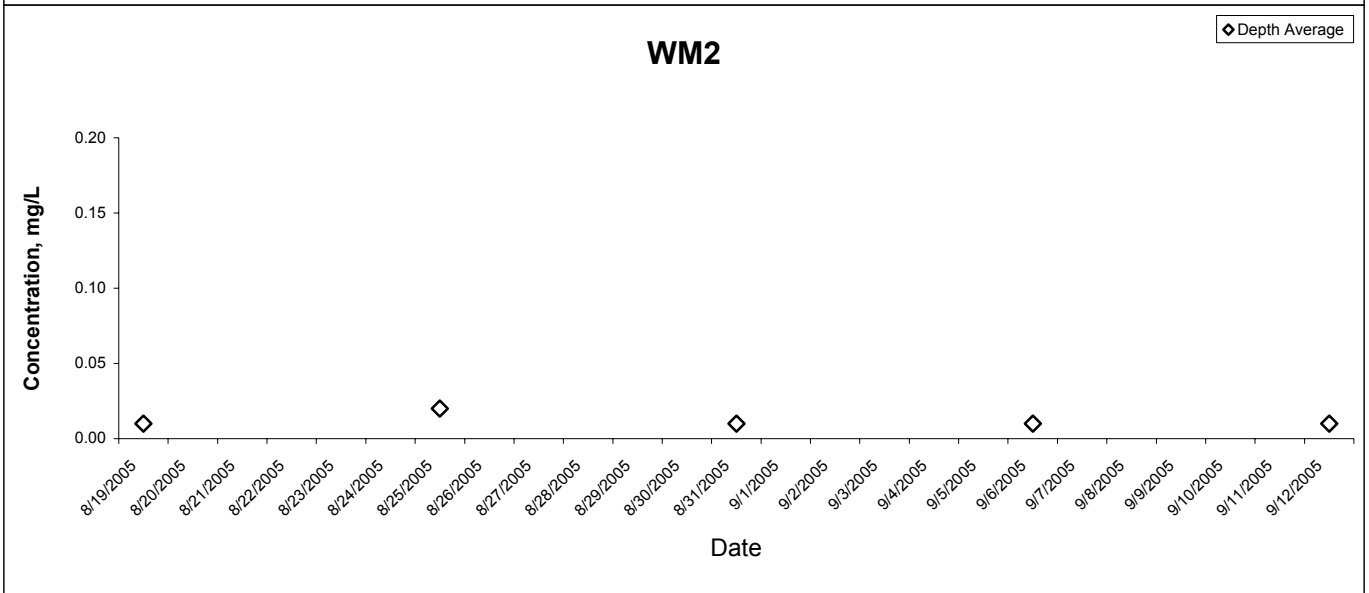
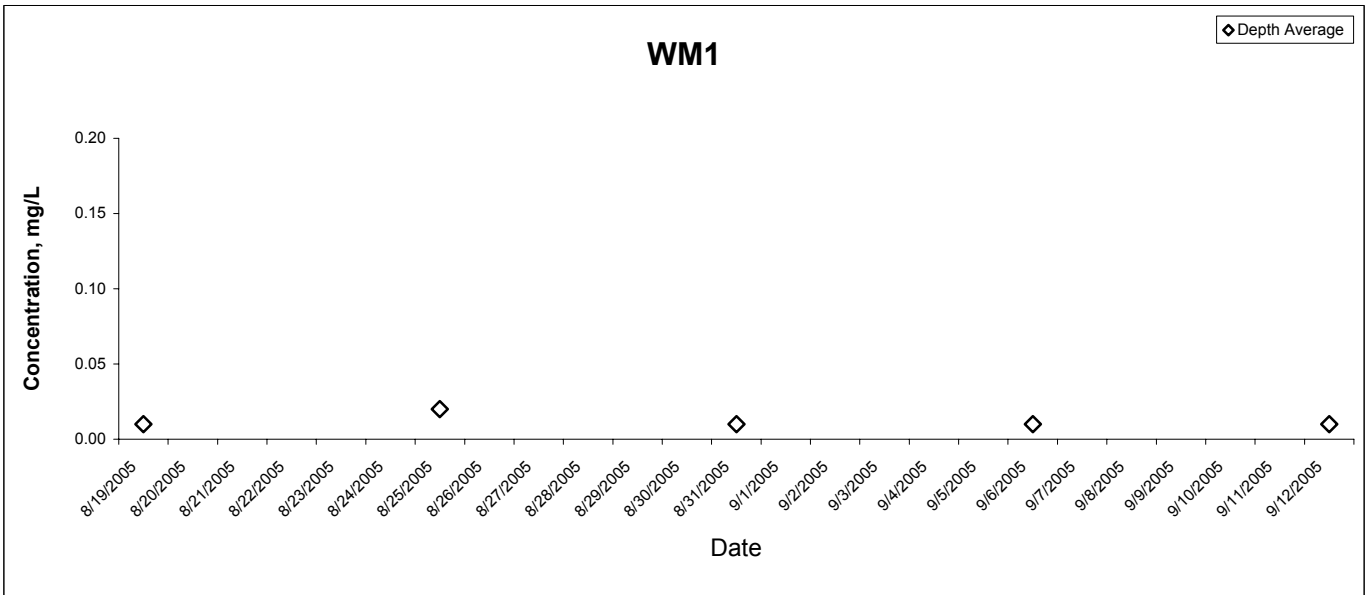
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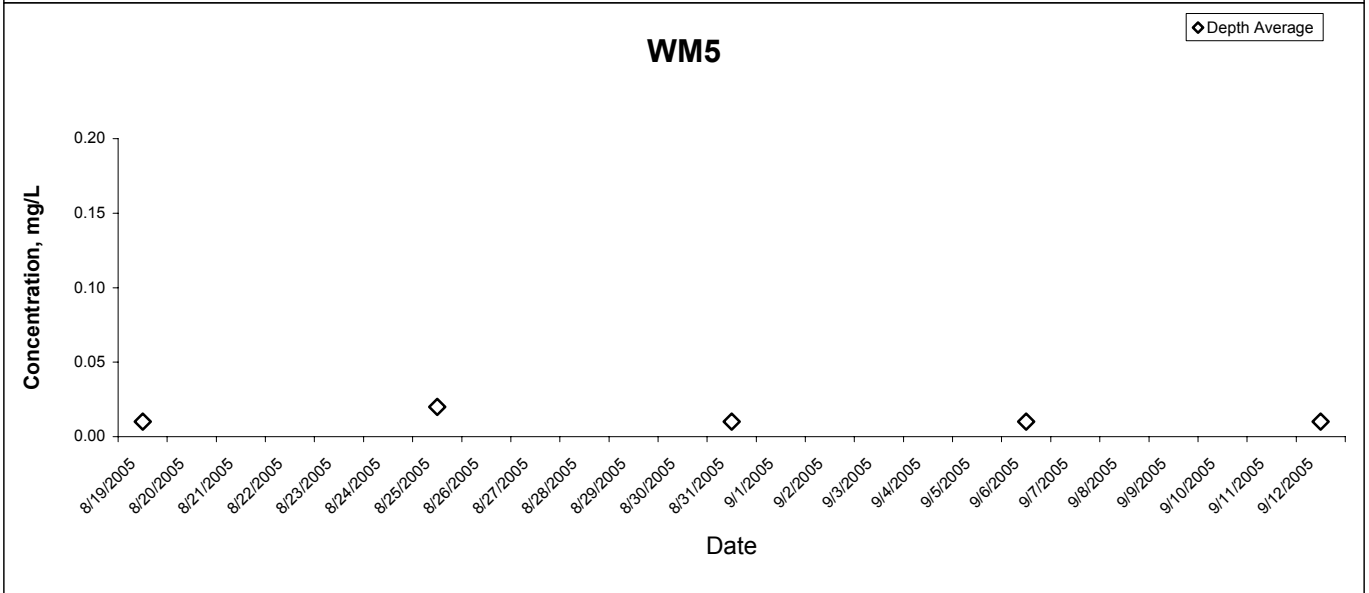
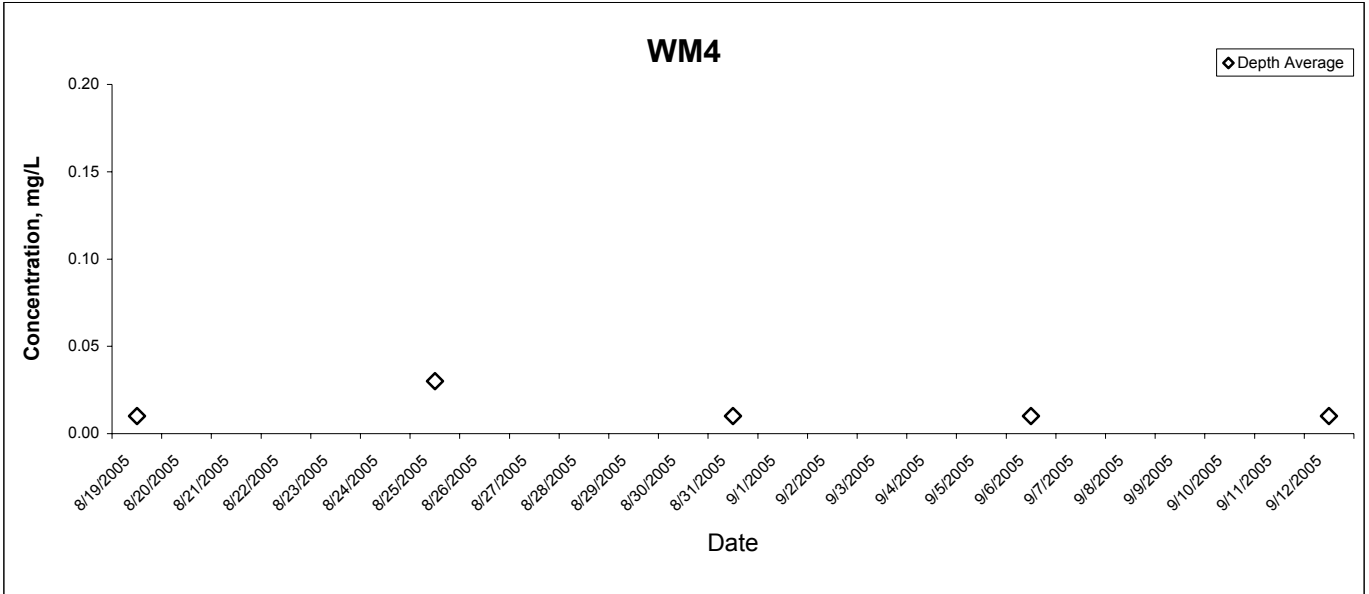
Chemical Oxygen Demand



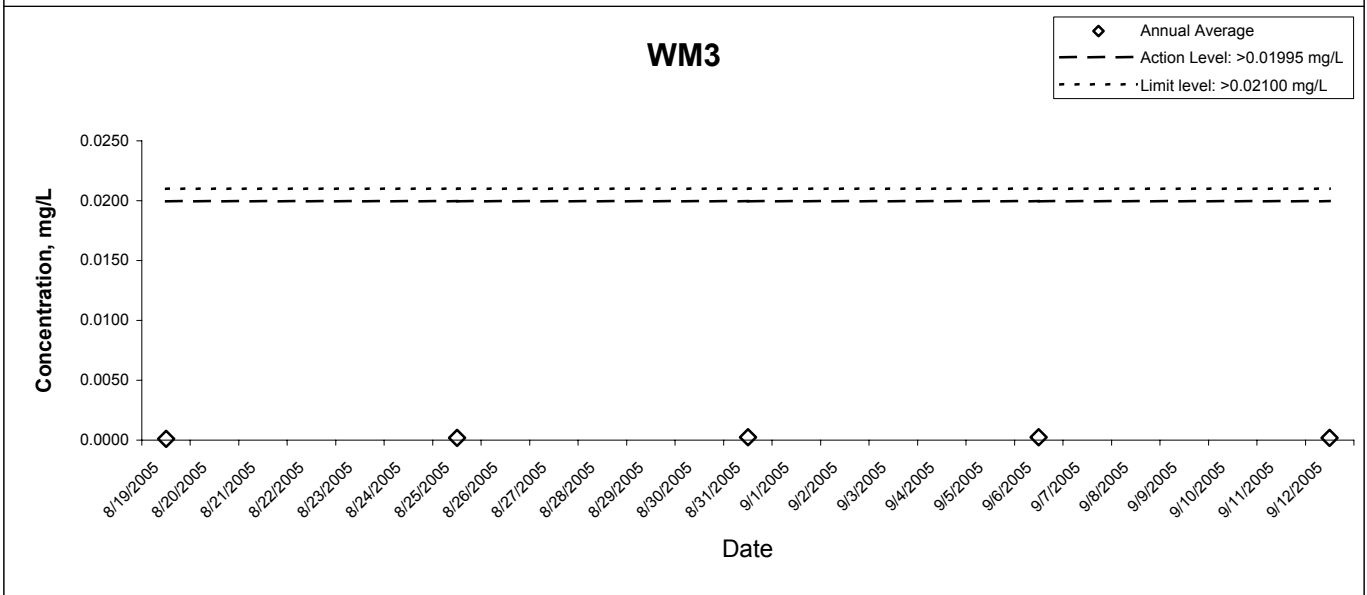
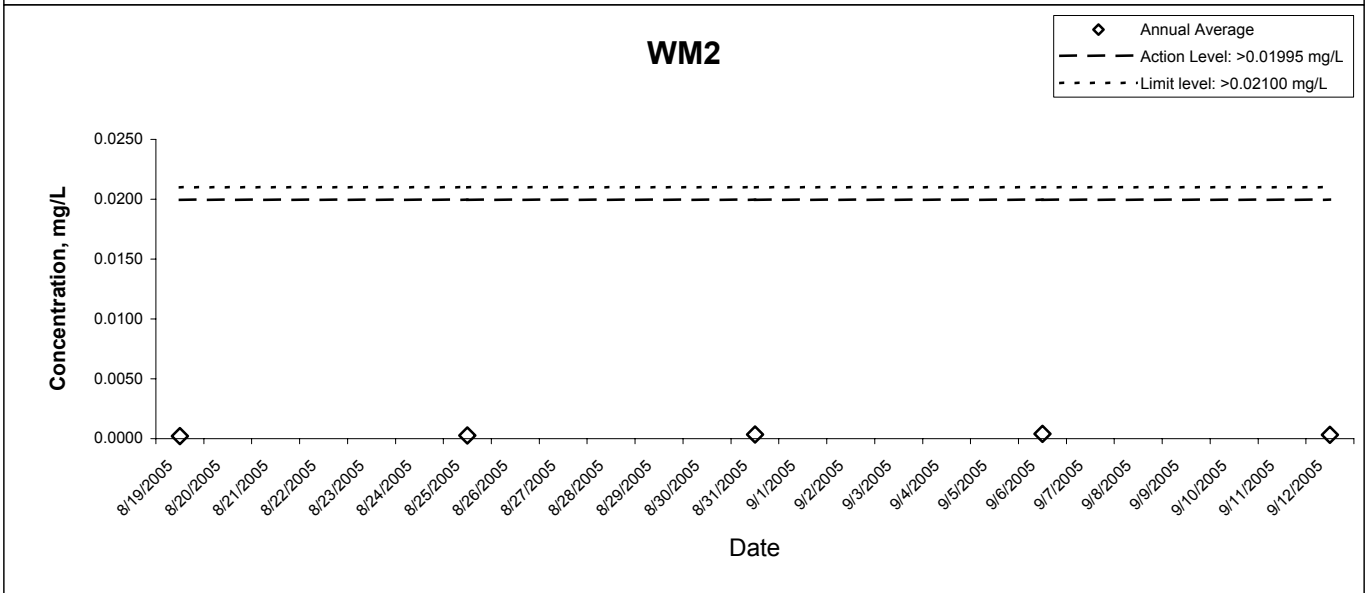
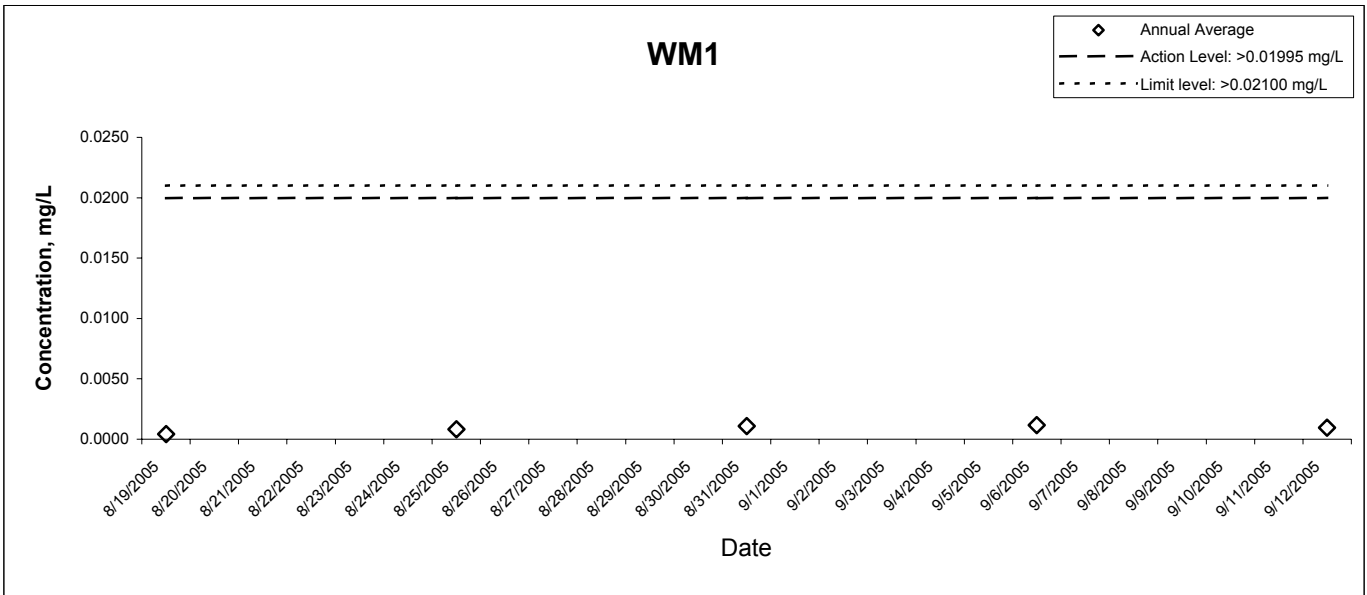
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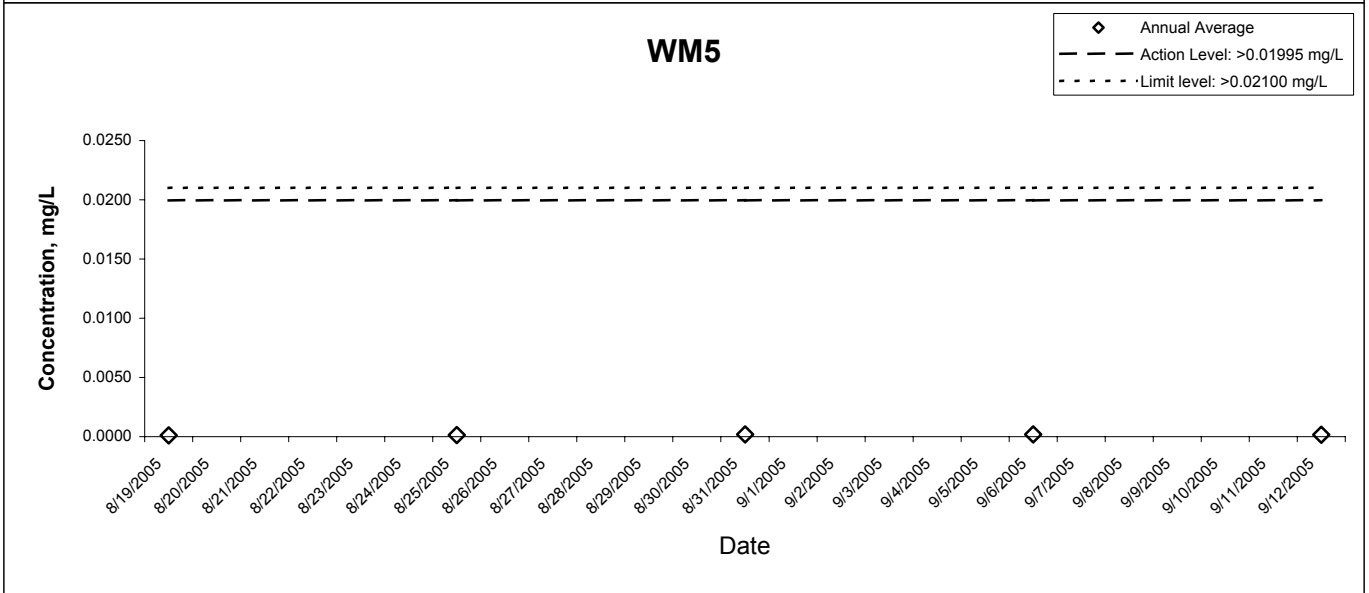
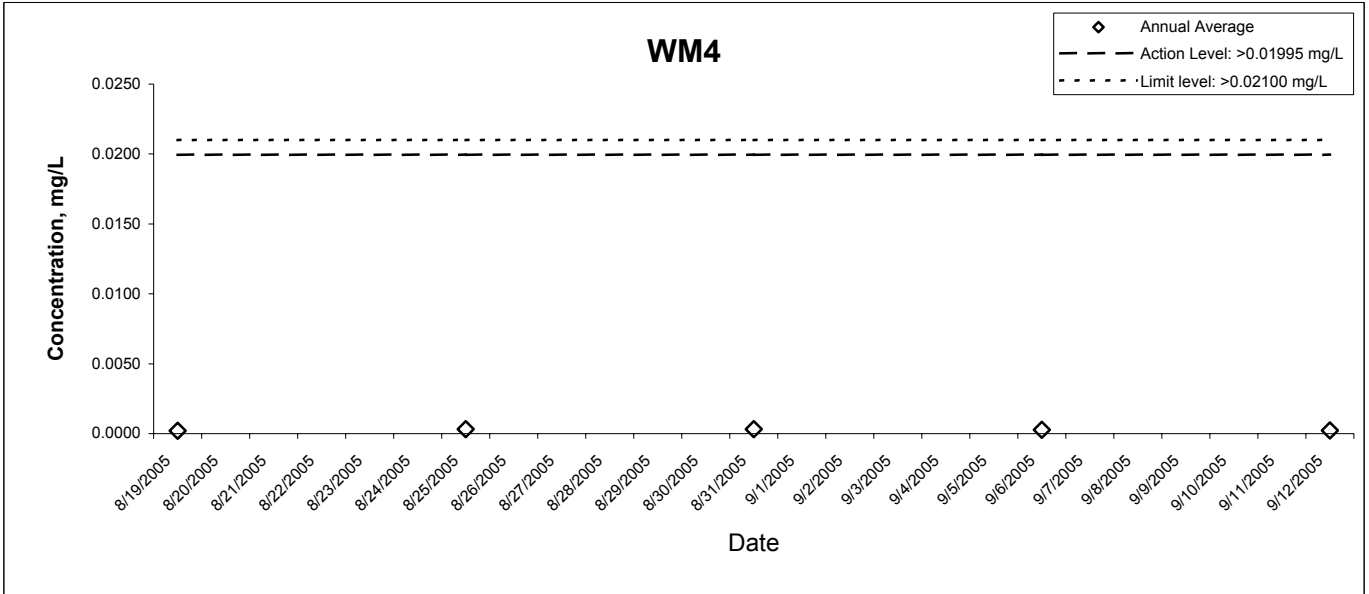
Ammonia Nitrogen



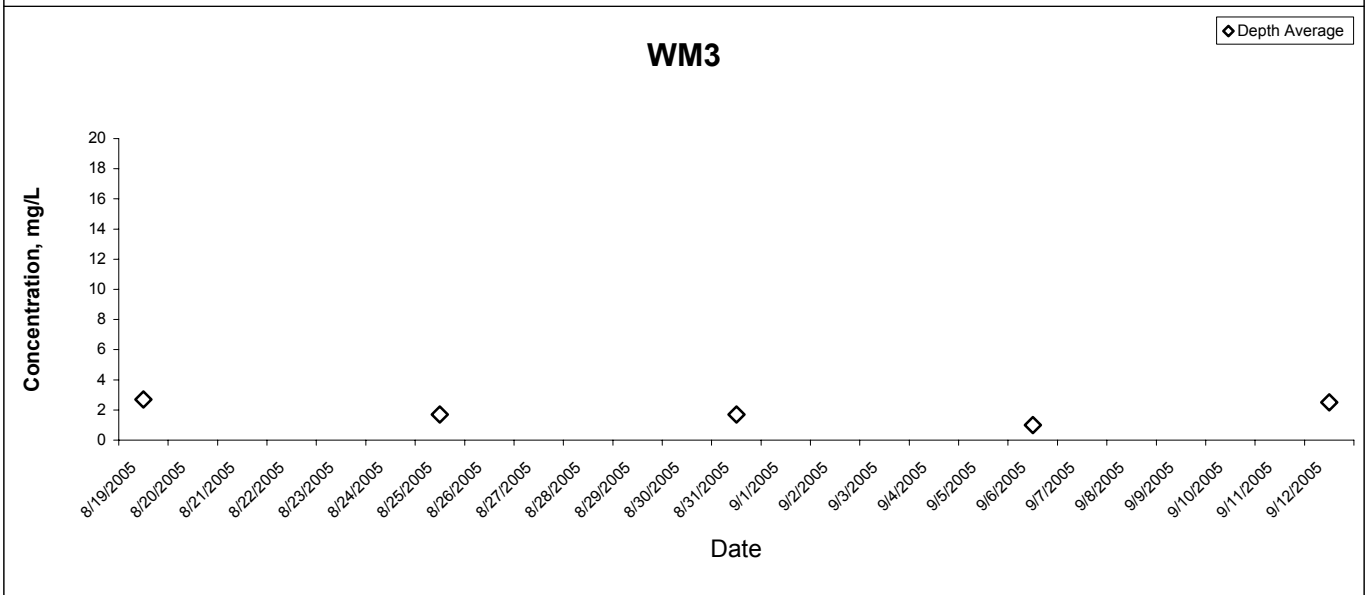
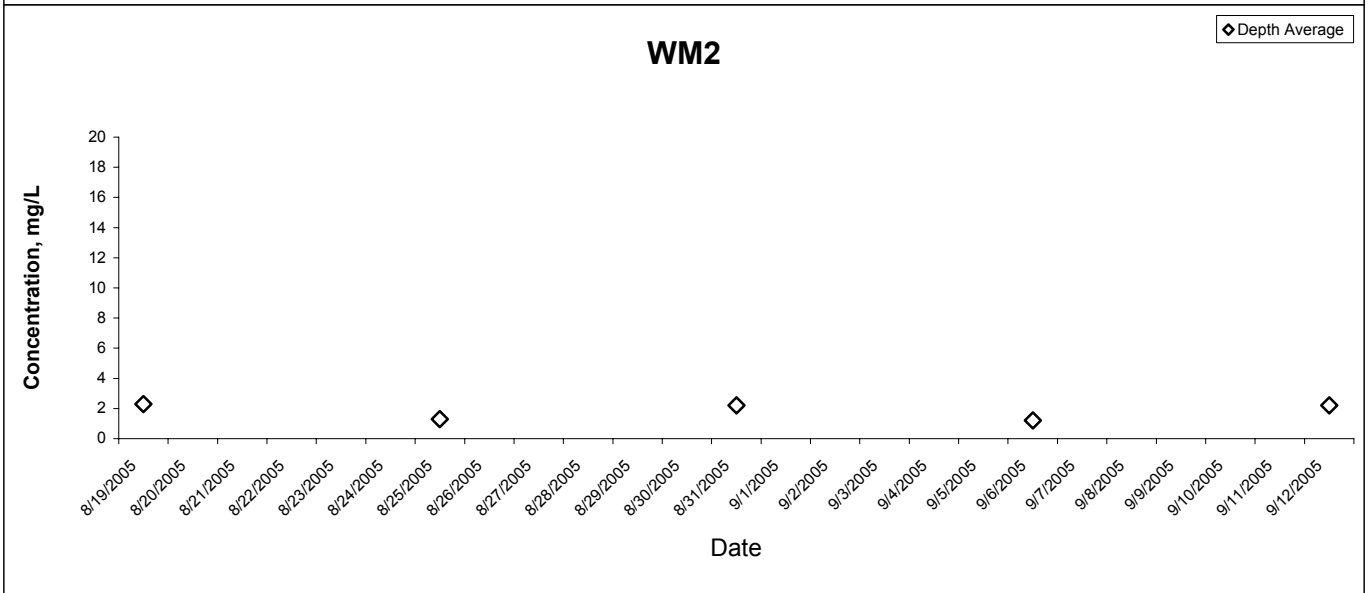
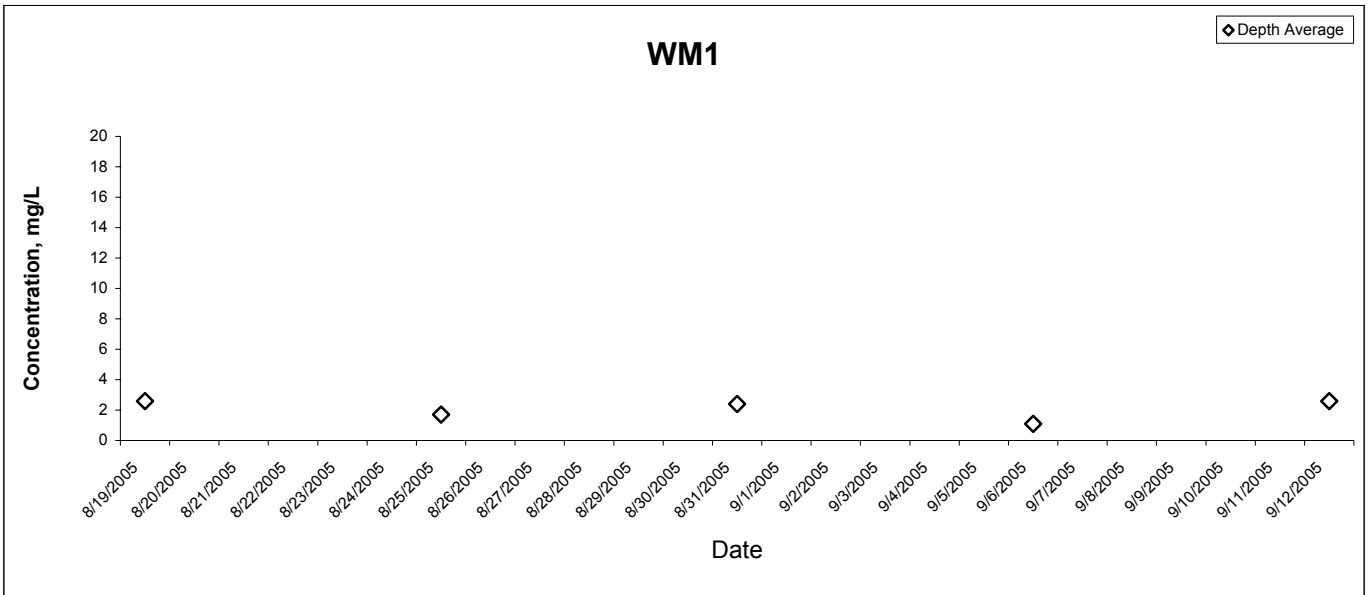
Unionised Nitrogen (Annual Average)



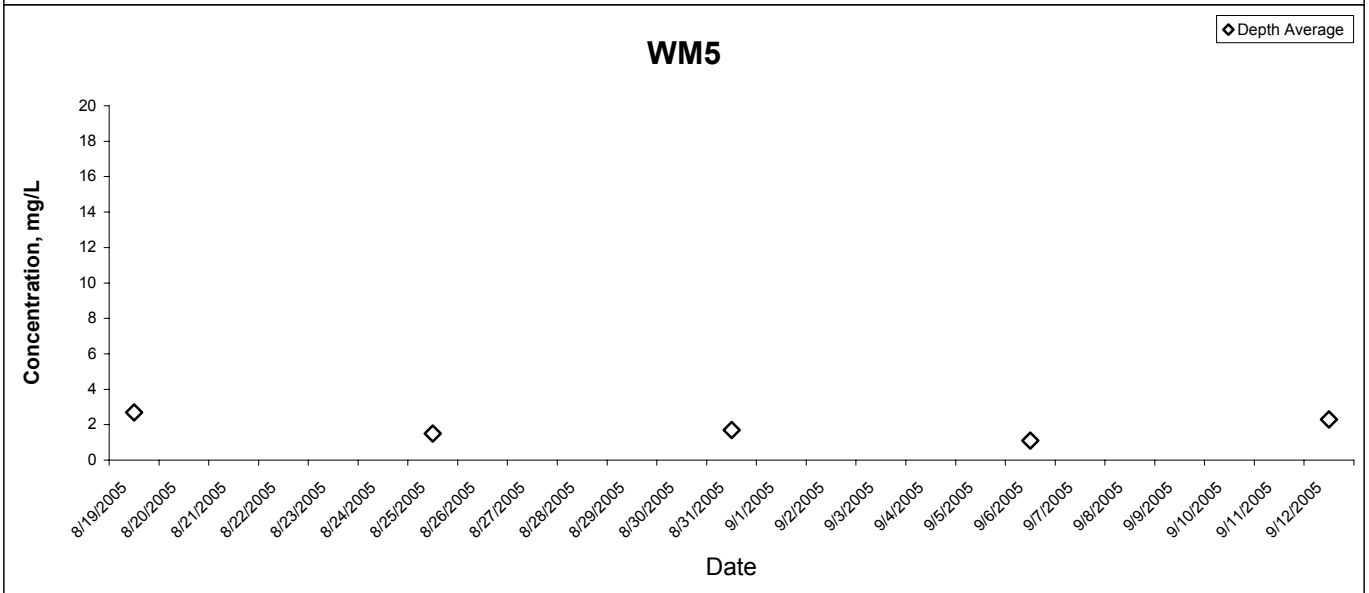
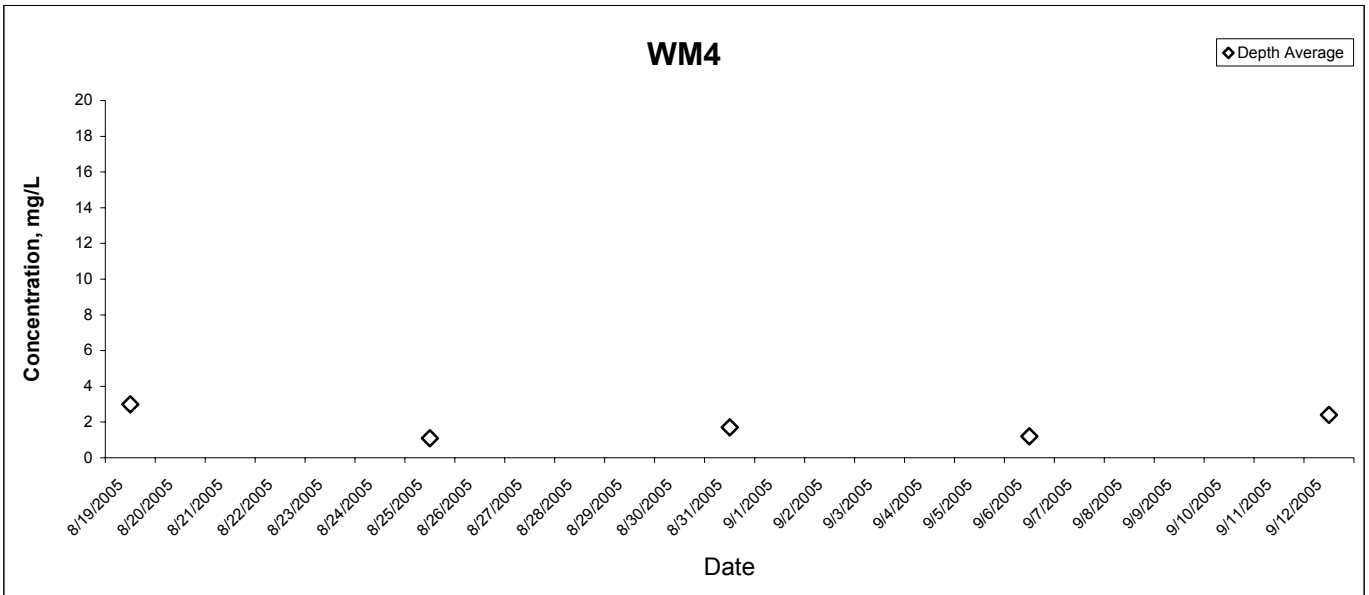
Unionised Nitrogen (Annual Average)



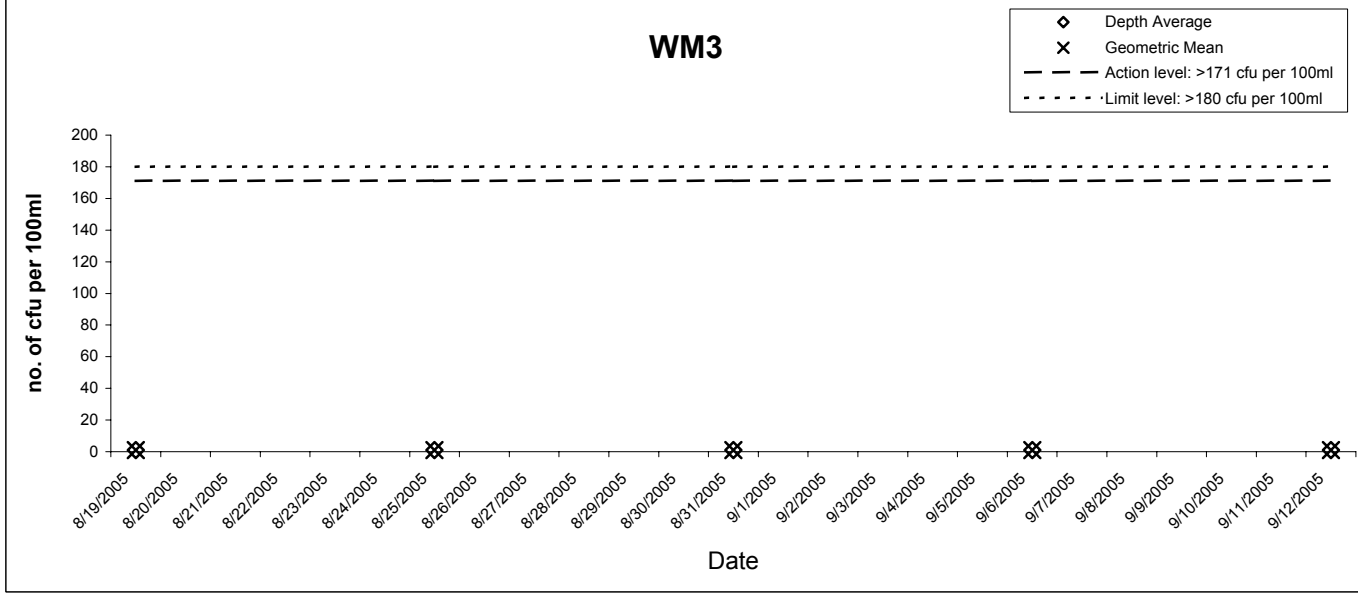
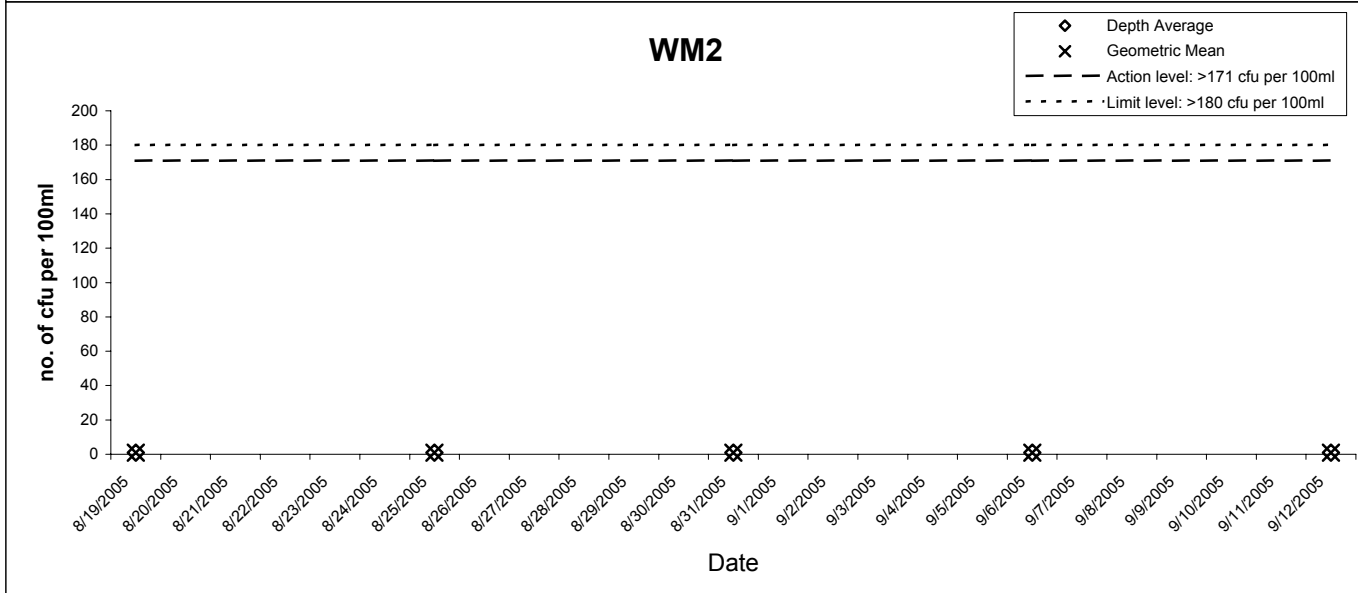
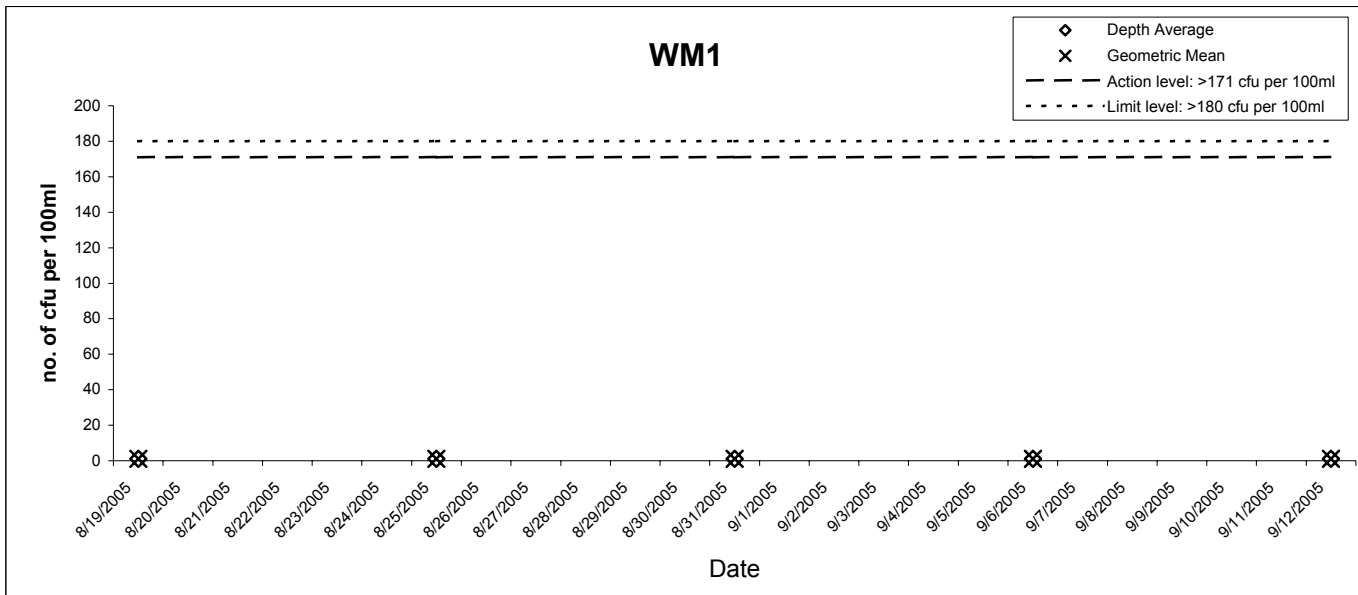
Chlorophyll-a



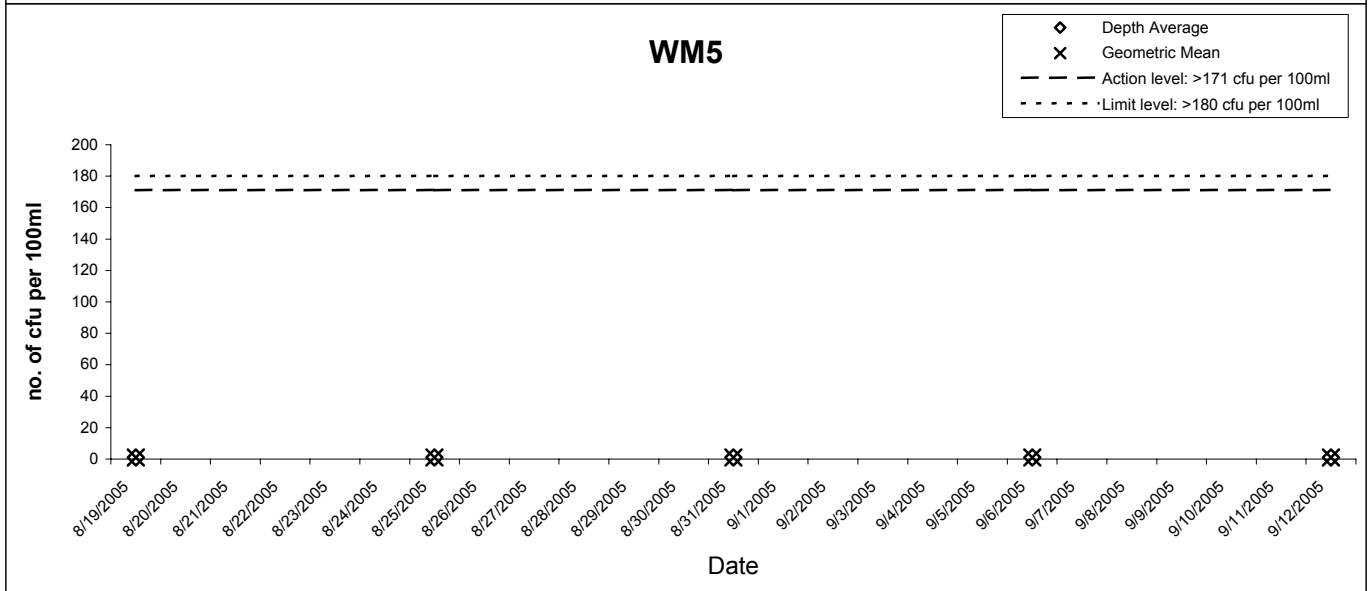
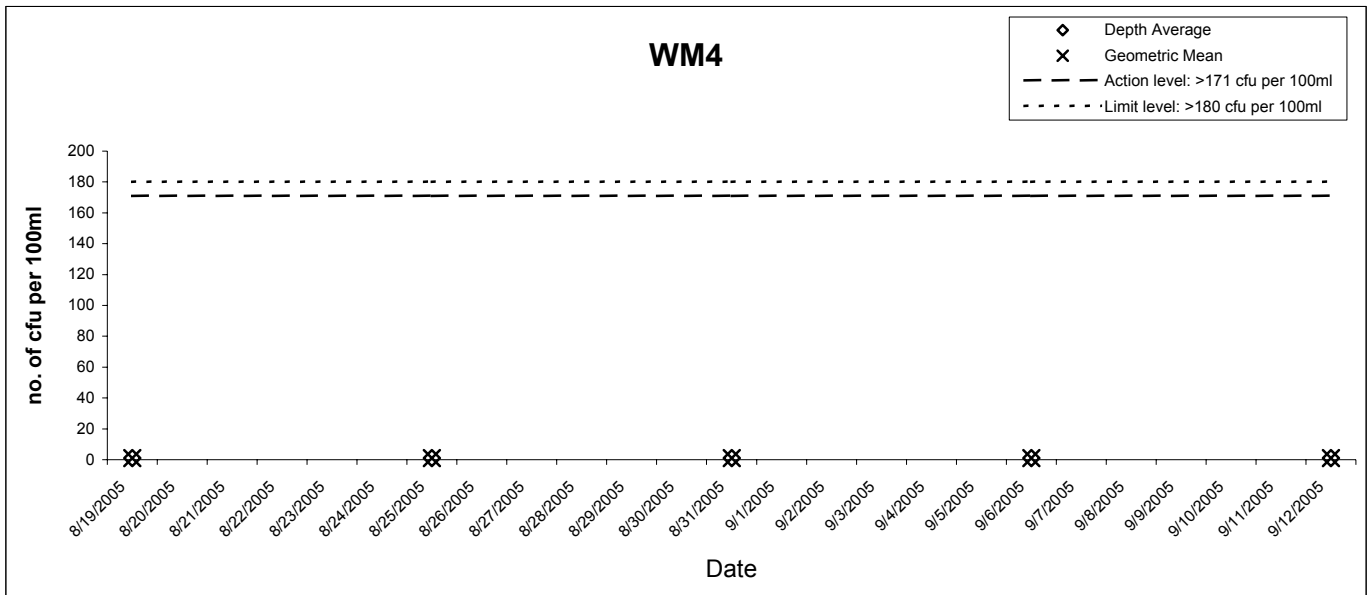
Chlorophyll-a



E.coli



E.coli



**Appendix F:
Quality Control Reports**

Date		08/19/05	08/19/05	08/19/05	08/19/05	08/19/05	08/19/05	08/19/05	08/25/05	08/25/05	08/25/05	08/25/05	08/25/05	08/25/05	08/25/05	08/31/05	08/31/05	08/31/05
Id		200	201	1	11	10	15	200	201	3	1	11	10	15	200	201	1	
Monitoring Location				WM 1S	WM 4M	WM 4S	WM 5B			WM 1B	WM 1S	WM 4M	WM 4S	WM 5B			WM1-S	
		BLANK	LCS % REC	% SPK REC	% SPK REC	CHK	CHK	BLANK	LCS % REC	CHK	% SPK REC	% SPK REC	CHK	CHK	BLANK	LCS % REC	% SPK REC	
Conductivity @ 25°C	uS/cm	<1	100%	----	----	105	105	<1	102%	----	----	----	102	100	<1	100%	----	
Salinity	g/L	----	----	----	----	<0.1	<0.1	----	----	----	----	----	<0.1	<0.1	----	----	----	
Suspended Solids (SS)	mg/L	<2	105%	----	----	<2	<2	<2	90%	----	----	----	<2	<2	<2	105%	----	
Chromium	ug/L	<1	104%	102%	101%	<1	<1	<1	94%	<1	100%	101%	----	<1	<1	103%	101%	
Copper	ug/L	<1	106%	108%	105%	<1	<1	<1	100%	<1	103%	104%	----	<1	<1	100%	99%	
Lead	ug/L	<1	95%	101%	100%	<1	<1	<1	93%	1	97%	104%	----	<1	<1	104%	97%	
Zinc	ug/L	<10	96%	106%	103%	<10	<10	<10	101%	<10	108%	102%	----	<10	<10	96%	99%	
Silica	mg/L	<0.01	99%	101%	99%	5.07	5.01	<0.01	92%	----	110%	94%	3.87	3.98	<0.01	95%	81%	
Ammonia as N	mg/L	<0.01	99%	94%	94%	<0.01	<0.01	<0.01	100%	----	88%	96%	0.02	----	<0.01	99%	95%	
Nitrite + Nitrate as N	mg/L	<0.1	95%	105%	109%	0.4	0.4	<0.1	105%	----	107%	112%	0.4	0.4	<0.1	105%	106%	
Total Kjeldahl Nitrogen as N	mg/L	<0.1	96%	98%	109%	0.2	0.3	<0.1	95%	----	114%	115%	<0.1	0.1	<0.1	110%	94%	
Total Nitrogen	mg/L	----	----	----	----	0.6	0.7	----	----	----	----	----	0.4	0.5	----	----	----	
Total Phosphorus	mg/L	<0.02	96%	99%	102%	<0.02	<0.02	<0.02	94%	----	90%	99%	<0.02	<0.02	<0.02	94%	88%	
Reactive Phosphorus as P	mg/L	<0.005	96%	88%	93%	<0.005	<0.005	<0.005	98%	----	102%	101%	<0.005	<0.005	<0.005	98%	101%	
E. coli	cfu/100ml	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	
Chlorophyll a	ug/L	<0.5	104%	----	----	2.3	----	<0.5	112%	----	----	----	1.4	1.7	<0.5	109%	----	
Dissolved Oxygen	mg/L	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	7.1	
Chemical Oxygen Demand	mg/L	----	96%	----	----	----	----	----	100%	----	----	----	----	----	----	109%	----	
Biochemical Oxygen Demand	mg/L	----	104%	----	----	----	----	----	105%	----	----	----	----	----	----	99%	----	
ORGANOTIN COMPOUNDS -																		
Tributyltin - Soluble	ng Sn/L	<5	*****	*****	*****	*****	*****	<5	*****	*****	*****	*****	*****	*****	*****	<5	*****	*****
ORGANOTIN COMPOUND SURROGATE -																		
Tripropyltin- Soluble	%	112	*****	*****	*****	*****	*****	105	*****	*****	*****	*****	*****	*****	*****	113	*****	*****

Appendix G ¾ Summary of Environmental Mitigation Implementation Schedule

Types of Impacts	Mitigation Measures	Status
<i>Water Quality</i>	<ul style="list-style-type: none"> The lake shall be lined with an impermeable liner. However, as such liners may have a limited life span, beyond which the performance may deteriorates, the liner shall be replaced once the manufacturer's specified lifespan is reached. 	√
	<ul style="list-style-type: none"> Stormwater run-off from surrounding hillsides shall pass through silt traps prior to entering the artificial lake to prevent siltation. The silt traps shall be designed to have adequate capacity to retain any silt/sediment contained within the stormwater. The silt traps shall be frequently maintained/cleaned to prevent a deterioration in performance. 	√
	<ul style="list-style-type: none"> Should the quality of the water in the Tai Lam Chung Reservoir deteriorate below the present levels an alternate supply of water, of a quality at least as good as that within the Tai Lam Chung Reservoir, shall be used to 'top up' the water within the lake. 	√
	<ul style="list-style-type: none"> If it becomes necessary to add an algicide to the lake to control algal growth, the algicide shall be biodegradable with a short half life of three days or less.. During use of the algicide discharge of the lake water to the marine waters shall be prohibited, until the algicide has decayed. The algicide shall not be used during periods of heavy rainfall when overflow of the lake is possible. 	√
	<ul style="list-style-type: none"> Stormwater from any urban/developed areas shall not be allowed to enter the lake as they may contain pollutants. Sewage effluent from the water recreation centre shall be transported to the sewerage mains for conveyance to the Siu Ho Wan STW. 	√
	<ul style="list-style-type: none"> Any fuel for motorised water sports vessels shall be stored in bunded areas, of at least 110% capacity of the largest fuel storage container to prevent any accidental spills entering the lake. 	√
	<ul style="list-style-type: none"> Servicing of any water sports vessels shall be undertaken at suitable facilities away from the artificial lake. In the event that fuel or other petroleum products enter the lake, a suitable clean-up plan shall be implemented. The clean-up plan being devised by the operators of the water recreation centre and approved by EPD prior to the commencement of operations at the water sports centre. 	√
<i>Waste</i>	<ul style="list-style-type: none"> To minimise the potential adverse impacts to aesthetics and odour impacts, the HKITP should maintain floating refuse collection initiatives at both the coast of the Theme Park and within the artificial lake of the Water Recreation Centre. 	√

Note:

- √ Compliance of mitigation measure
- × Non-compliance of mitigation measures
- Non-compliance but rectified
- N/A Not applicable

Appendix H ³/₄ Event and Action Plans

Event and Action Plan for Water Quality

Exceedance	ETL	HKITP	IEC
Action Level			
1. Exceedance for one sample	<ol style="list-style-type: none"> 1. Repeat in-situ measurement to confirm findings. 2. Identify the source(s) of impact (e.g. intake water). 3. Inform HKITP and IEC. 4. Check monitoring data, all monitoring equipment and monitoring methods; consider changes of monitoring methods. 5. Discuss mitigation measures with HKITP and IEC. 6. Repeat measurement on next day of exceedance. 	<ol style="list-style-type: none"> 1. Discuss with IEC and ETL on WRC operations or any changes to the operations that may have an impact on the water quality. 2. Rectify unacceptable practice and propose mitigation measures. 3. Make agreement on the mitigation measures to be implemented. 4. Implement the agreed mitigation measures. 	<ol style="list-style-type: none"> 1. Discuss with ETL and HKITP on WRC operations or any changes to the operations that may have an impact on the water quality, and discuss possible mitigation measures. 2. Review proposals on mitigation measures by HKITP. 3. Assess the effectiveness of the implemented mitigation measures.
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Repeat in-situ measurement to confirm findings. 2. Identify the source(s) of impact (eg intake water). 3. Inform HKITP and IEC. 4. Check monitoring data, all monitoring equipment and monitoring methods; consider changes of monitoring methods 5. Discuss mitigation measures with HKITP and IEC. 6. Ensure mitigation measures are implemented. 7. Prepare to increase monitoring frequency to assess efficacy of remedial measures. 8. Repeat measurement on next day of exceedance. 	<ol style="list-style-type: none"> 1. Discuss with IEC and ETL on WRC operations or any changes to the operations that may have an impact on the water quality. 2. Rectify unacceptable practice and propose mitigation measures. 3. Make agreement on the mitigation measures to be implemented. 4. Implement the agreed mitigation measures 5. Assess the effectiveness of the implemented mitigation measures 	<ol style="list-style-type: none"> 1. Discuss with HKITP and ETL on WRC operations or any changes to the operations that may have an impact on the water quality, and discuss possible mitigation measures. 2. Review proposals on mitigation measures by HKITP. 3 .Assess the effectiveness of the implemented mitigation measures

Exceedance	ETL	HKITP	IEC
Limit Level			
1. Exceedance for one sample	<ol style="list-style-type: none"> 1. Repeat measurement to confirm findings. 2. Identify the source(s) of impact (eg intake water). 3. Inform HKITP and IEC. 4. Check monitoring data, all monitoring equipment and monitoring methods; consider changes of monitoring methods 5. Discuss mitigation measures with HKITP and IEC. 6. Ensure mitigation measures are implemented. 7. Increase monitoring frequency to daily until no exceedance of Limit Level. 	<ol style="list-style-type: none"> 1. Inform EPD of exceedance. 2. Discuss with IEC and ETL on WRC operations or any changes to the operations that may have an impact on the water quality. 3. Rectify unacceptable practice and propose mitigation measures. 4. Make agreement on the mitigation measures to be implemented. 5. Implement the agreed mitigation measures 6. Assess the effectiveness of the implemented mitigation measures 	<ol style="list-style-type: none"> 1. Discuss with HKITP and ETL on WRC operations or any changes to the operations that may have an impact on the water quality, and discuss possible mitigation measures. 2. Review proposals on mitigation measures by HKITP. 3. Assess the effectiveness of the implemented mitigation measures
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Repeat measurement to confirm findings. 2. Identify the source(s) of impact (eg intake water). 3. Inform HKITP and IEC. 4. Check monitoring data, all monitoring equipment and monitoring methods; consider changes of monitoring methods 5. Discuss mitigation measures with HKITP and IEC. 6. Ensure mitigation measures are implemented. 7. Increase monitoring frequency to daily until no exceedance of Limit Level for two consecutive days. 	<ol style="list-style-type: none"> 1. Inform EPD of exceedance. 2. Discuss with IEC and ETL on WRC operations or any changes to the operations that may have an impact on the water quality. 3. Rectify unacceptable practice and propose mitigation measures. 4. Make agreement on the mitigation measures to be implemented. 5. Implement the agreed mitigation measures 6. Assess the effectiveness of the implemented mitigation measures 7. Consider to slow down or to stop all or part of the water-based activities until no exceedance of Limit level. 	<ol style="list-style-type: none"> 1. Discuss with HKITP and ETL on WRC operations or any changes to the operations that may have an impact on the water quality, and discuss possible mitigation measures. 2. Review proposals on mitigation measures by HKITP. 3. Assess the effectiveness of the implemented mitigation measures

