

WATER SYSTEM ANNUAL REPORT





WATER SYSTEM

ANNUAL REPORT

2012

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REPORT SUMMARY

In 2012 the City of Surrey purchased all the water that it supplied to City of Surrey residents from Metro Vancouver (i.e. the Greater Vancouver Water District). The City of Surrey's water distribution system is connected to the Metro Vancouver distribution system at the discharge points for six (6) Metro Vancouver water reservoirs and at eleven (11) Metro Vancouver connection chambers located throughout the City.

The City's piped water distribution system includes pipes with a total length of over 1855 km and includes ten (10) pump stations.

Surrey's geography and development pattern is serviced with eight (8) different water pressure zones.

The City's maintenance program for its water system components includes a regular program of unidirectional water main flushing of all mains in the system at least once every five (5) years. This unidirectional approach to flushing ensures that water from non-flushed mains does not flow into recently flushed mains. The City's maintenance program combined with an ongoing program of pipe size upgrades and water supply controls by Metro Vancouver has eliminated the need for any abrasive, mechanical cleaning of the City's water mains.

Monitoring of the quality of the water within the City's water system is undertaken at fifty-one (51) water-sampling sites located strategically across the City. Weekly samples are collected by both City and Metro Vancouver staff and analyzed at Metro Vancouver's testing laboratory in Burnaby. Testing includes Total and E.coli bacteria, chlorine residual, turbidity and temperature.

In 2012 approximately 18% of the City's water operating and maintenance budget was spent on water quality-related work. Three thousand two hundred forty three (3243) water samples were analyzed with none of the samples indicating any presence of E-coli bacteria and all samples meeting the standards contained in the B.C. Drinking Water Protection Regulation (BCDWPR) and the Guidelines for Canadian Drinking Water Quality (GCDWQ). Audit samples taken in 2012 by the Fraser Health Authority throughout the system confirmed Metro Vancouver laboratory test results. This is consistent with previous years' results in relation to water samples taken from the City's water system.

The City has established response procedures to deal with water quality issues and for pipe breaks. The procedures incorporate both agency notification and steps for physical repair. Integral to the response procedures are well-defined communication links between City, Metro Vancouver, and Fraser Health Authority (FHA) staff. The City has developed a response plan for major water emergencies which has been successfully tested in concert with other Metro Vancouver member municipalities.

As in previous years, water in sections of the distribution system has, from time to time, exhibited lower than desirable chlorine residual values. The City continues to work with Metro Vancouver staff and representatives of the Fraser Health Authority to review operational and/or maintenance procedures and to determine if improvements should be considered to address areas where lower than desirable chlorine residuals were revealed in water samples.

Where water sample test results revealed (through the use of heterotrophic plate counts, HPC) bacterial growth beyond acceptable limits, staff took action to flush the related sections of water main to address the problem. These areas of the distribution system also typically exhibit low chlorine residuals, low water demand and/or circulation restrictions.

Metro Vancouver's laboratory technicians perform quarterly tests on water within the City's system for disinfection by-products (Haloacetic Acids and Trihalomethanes), and semi-annual tests for pH and select metal concentrations. Sampling sites for these tests were selected in accordance with a monitoring and reporting plan established between the City and Metro Vancouver staff. The results of these tests demonstrated that water quality remained within acceptable levels, as recommended in the Guidelines for Canadian Drinking Water Quality.

Except for a few circumstances where fire hydrants were opened without authorization or were damaged in accidents, there were no incidences of tampering or vandalism with the City's water system in 2012. System security includes lighting, locks, and alarms at pump stations as well as back flow prevention check valves on service connections. The City also has a cross-connection program to guard against contaminants entering the system due to faulty connections. This is addressed in more detail in the following paragraph. All of these measures provide protection against tampering or vandalism.

The City monitors water service connections to commercial/industrial businesses on an on-going basis through a cross-connection control (CCC) program that includes a database of backflow prevention devices. In 2012, the number of backflow prevention assemblies registered with the City increased by 9% to a total of 8545 assemblies as of December 31, 2012. The City's CCC program requires that the owner test the control device annually to confirm that it is working properly. In 2012, the City achieved over 95% compliance with this requirement.

The City of Surrey remains diligent in maintaining its water distribution system to high quality standards, and in ensuring the delivery of high quality water to the City's residents and businesses.



WATER SYSTEM ANNUAL REPORT for 2012

A. System Makeup

In 2012 the City of Surrey obtained all of its potable water from Metro Vancouver and its impounded reservoirs on the Capilano, Seymour, and Coquitlam Rivers. Metro Vancouver manages the impoundments, treats the water, and transports it to six storage reservoirs in the City. The reservoir water is then discharged into the City-owned distribution system. The City also has eleven source connections made directly to Metro Vancouver supply mains from the reservoirs. Metro Vancouver re-chlorinates all the supply water prior to it entering the City's distribution system.

The City's water distribution network, approximately 1,855 km long, incorporates water mains, water testing stations, pump stations, service connections, and water meters. The detailed breakdown of the current water main inventory is given in Table 1, "City of Surrey 2012 Water Main Inventory" (pg. 2).

The distribution system utilizes eight different pressure zones. The separation of zones is achieved by the combined use of pressure reducing stations, closed valves, check valves, and dead end pipe runs.

The City has a considerable number of dead end conditions created by the combined effects of pressure zone boundaries, cul-de-sacs, the extension of water mains into sparsely populated rural areas, and by the geographical constraints of ravines, creeks, foreshores, and floodplains. The exact number and classification of these conditions has not been tabulated. To enhance the water quality at the most adversely affected locations, City crews conduct regular flushing of the mains in addition to the annual unidirectional flushing program.

**Table 1:
City of Surrey 2012 Water Main Inventory**

Main Size (mm)	AC	CC	CI	CU	DI	GI	PE	PVC	PVCO	ST	Material Unknown	Total by Size (m)
25				107		309	1,298	24				1,738
50				173		2,817	2,327	3,907		37	8	9,269
75					163			104			64	331
100	8,932		10,537		58,844	20	23,745	11,143		420	20	113,661
125							925					925
150	39,904		64,432		314,737		6,862	91,877	105	395	13	518,325
200	19,870		22,212		173,900			306,686	503	787	56	524,014
250	172		3,571		62,988			71,088		169	19	138,007
300	12,355	2	16,469		239,348		171	103,117		2,165	337	373,964
350					42,074			1,428		668		44,170
400					41,052			36		592		41,680
450		8,633			36,379			353		283	7	45,655
500		3			7,613					41		7,657
525										4,977		4,977
600		8,982			9,022			10		3,666		21,680
750		304			2,454					4,203		6,961
900		33			840					367		1,240
1050										62		62
1200										84		84
Total by Material (m)	81,233	17,957	117,221	280	989,414	3,146	35,328	589,773	608	18,916	524	

Total Main Length (m): 1,854,400

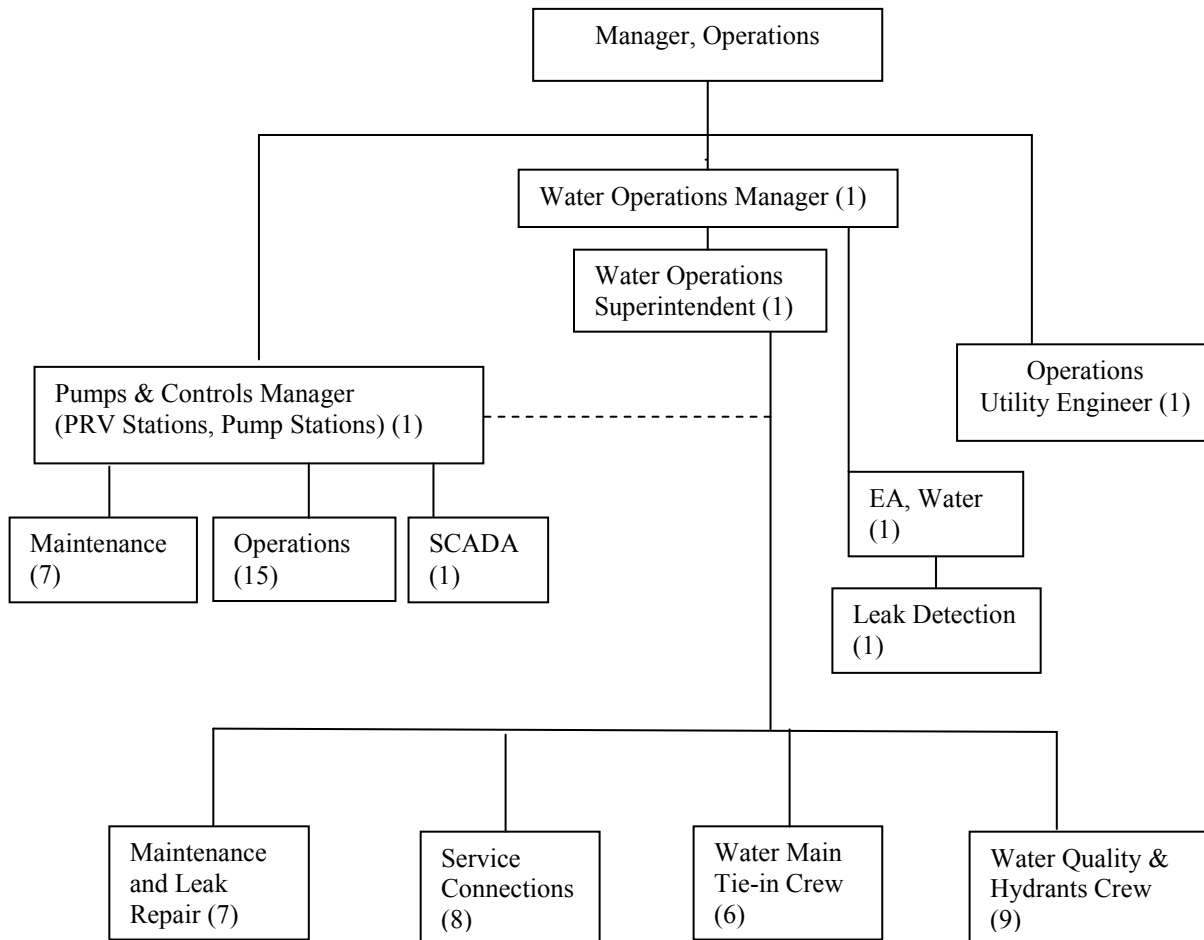
Pipe Material Legend	
AC	Asbestos-Cement
CC	Concrete Cylinder
CI	Cast Iron
CU	Copper
DI	Ductile Iron
GI	Galvanized Iron
PE	Polyethylene
PVC	Polyvinyl Chloride
PVCO	Biaxially Oriented Polyvinyl Chloride
ST	Steel

B. System Maintenance

The City of Surrey has a team of thirty-two personnel assigned specifically to the operation and maintenance of the underground pipe system, and utilizes the shared services of a Utility Engineer. An additional twenty-four personnel operate and maintain the City’s pump stations and pressure reducing stations.

The maintenance organization structure is shown in Figure 1 (below).

**Figure 1:
2011 City of Surrey
Water Works Operation & Maintenance Organizational Chart**



() No. of assigned personnel

The duties and responsibilities of the various crews and staff members are as follows:

- a) **Water Services and Renewals Crew:**
Install and renew services throughout the City
- b) **Maintenance & Leak Repair Crew:**
Provide maintenance of services, mains, and appurtenances. Provide emergency repairs to the water system as required. Conduct both proactive and reactive leak detection work using acoustic leak detection equipment and other detection methods. Assist in accurately locating known leaks.
- c) **Water Main Tie-in Crew:**
Provide construction of old main to new main tie-ins, monitoring of private contractor's tie-in construction, record keeping of tie-in details, chlorine residual testing prior to main activation, construction of new pressure reducing stations.
- d) **Water Quality & Hydrants Crew:**
Provide scheduled and on-demand flushing of City mains, on-demand testing for chlorine residuals of City mains and new construction, water sampling collection for quality analysis, hydrant maintenance.
- e) **Pumps & Control Maintenance Crew:**
Provide scheduled and emergency repairs and upkeep on the mechanical components of water pump stations, and pressure reducing stations.
- f) **Pumps & Control Operations Crew:**
Provide daily operational and, as required, emergency adjustments to the mechanical and electrical controls on the water pump stations, and pressure reducing stations.
- g) **Pumps & Controls SCADA:**
Provide monitoring of pump station operations, coordinate alarm responses with maintenance crews, assess and develop upgrade projects for more efficient pump stations.
- h) **Water Operations Superintendent:**
Supervise and provide technical assistance to Operations Crews, provide input and technical assistance on distribution system expansions and upgrades.
- i) **Utility Engineer:**
Provide technical assistance with water quality issues, water meters, and distribution system expansions.
- j) **Engineering Assistant (Water):**
Provide technical and organizational assistance and support to Operations Crews and Management. Assist in work programming, data management, quality control and department planning.

C. **Scheduled Maintenance**

To maintain the quality of the water throughout the distribution system, the City has an annual unidirectional flushing program which aims to flush all mains at least once every five years. “On demand” flushing also occurs, as needed, in conjunction with water quality testing results, and with line repairs. Flushing removes stagnant water and sediment from the pipes in support of the drinking water quality objectives.

Figure 2, “Unidirectional Flushing Program” (pg. 6), shows the five major zones and sub-areas of the unidirectional flushing program. Each year’s program originates near the discharge of a Metro Vancouver storage reservoir, and extends in a unidirectional pattern from there. This ensures that water from non-flushed mains does not flow into recently flushed mains. A reduction in crew availability resulted in a flushing area smaller than projected goals.

The scheduled flushing program is carried out during the low demand season of the year. All flushed water is treated with Sodium Thiosulphate to ensure compliance with Ministry of Environment guidelines for water entering streams.

The City does not carry out any abrasive cleaning, pigging, swabbing, etc. of the water system as neither quality assessments nor pipeline flow restrictions have justified such procedures. The City has, over the past thirty-five years, replaced and upgraded much of its earlier installed mains to meet current fire flow standards and pipe material specifications. In doing so, the City has avoided the need for more elaborate cleaning methods.

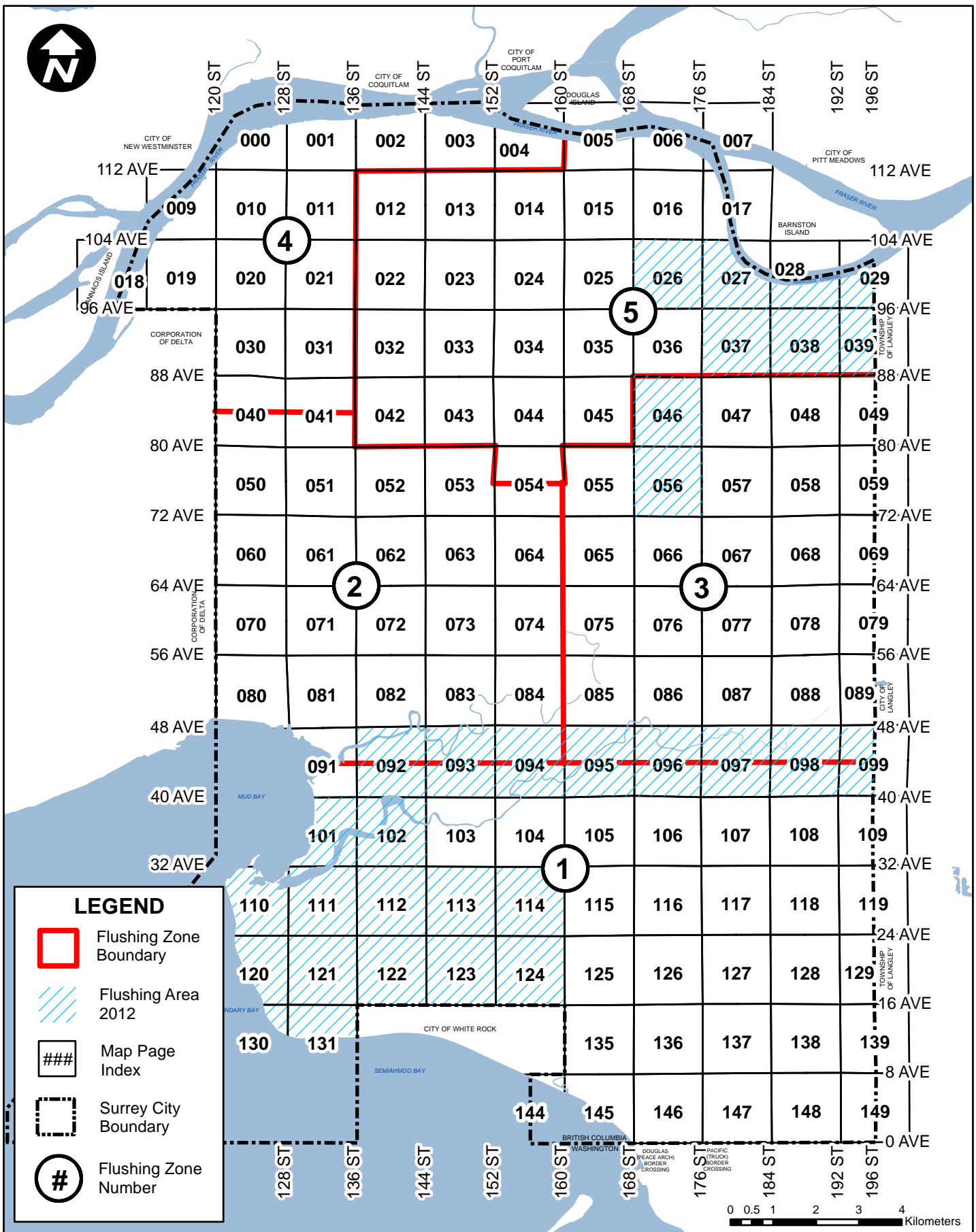


FIG 2: UNIDIRECTIONAL FLUSHING PROGRAM - 2012

D. System Budget

A summary of activities and annual budgets related to water quality preservation is shown in Table 2 (below). These budgets represent approximately 18% of the City's annual Water Utility Operations & Maintenance budget. The remaining 82% is utilized for the operation and maintenance of the City's water valves, meters, and service connections, for the provision of related operational support services, and for electrical power for the water pump stations.

**Table 2:
City of Surrey Water Distribution System
2012 and 2013 Water Quality Maintenance Budgets**

Description	2012 Budget	2013 Budget
Main Line Repairs	\$371,000	\$379,900
Line Flushing (370 km/yr)	\$243,400	\$249,300
Hydrant Maintenance	\$432,700	\$445,600
PRV Maintenance	\$259,700	\$270,100
Pump Stations Maintenance	\$395,800	\$411,600
Water Quality Monitoring	\$83,900	87,300
TOTALS*	\$1,786,500	\$1,843,800

* Total Water Distribution System Operations & Maintenance Budget is: \$9,630,300 for Year 2012, and \$10,686,054 for Year 2013.

E. Water Sampling & Testing Program

The City of Surrey supplies safe drinking water to its customers under an Operating Permit issued by the Medical Health Officer of the Fraser Health Authority (FHA).

Fifty-one water sampling site locations are utilized to monitor the City's water quality. The sampling sites and their locations are displayed in Figure 3, "Water Sampling Sites Legend" (pg. 10) and Figure 4, "Water Sampling Sites" (pg. 11). Weekly water testing results for 2012 are included in Appendix 'A' of this report. The test samples are collected by City and Metro Vancouver staff, and the results analyzed in Metro Vancouver's laboratory. Metro Vancouver's laboratory is approved by the Provincial Health Officer for bacteriological analysis and is certified by the Canadian Association for Laboratory Accreditation (CALA) for the testing of general parameters which include metals, trihalomethanes (THM's), total coliforms, and E.coli.

In 2012 a total of 3243 water samples were tested, with a monthly maximum of 311, a monthly minimum of 233, and a monthly median of 269.5 samples being taken. This number of samples compares favorably with the B.C. Drinking Water Protection Regulation (BCDWPR) and the Guidelines for Canadian Drinking Water Quality (GCDWQ) recommendations of minimum numbers of monthly samples of 127 and 136, respectively. A summary of the number of samples taken at each sampling site is shown in Table 3, "Number of Year 2012 Water Test Samples" (pg. 12).

The City relies extensively on both the specific results and general trends of these weekly test results to ensure that conditions are not present, nor developing, which could pose a risk to our residents. Additional information about drinking water and those with weakened immune systems can be found in Appendix D of this report.

The City has not had to add any chemicals to the distribution system to offset any excesses in the bacterial or chemical quality of the water. Higher than preferred heterotrophic plate counts (HPC) at a sampling site are treated immediately by water main flushing carried out by City maintenance staff. High turbidity and/or E. coli coliform results, if any, are referred to the FHA directly by Metro Vancouver Laboratory.

There were no test samples in which the total coliform (T.coli) count exceeded the BCDWPR and the GCDWQ's recommended maximum limit of 10 total coliforms per 100 ml in a 30-day period. However, there was one sample with a T.coli count of 1 per 100 ml. Upon flushing and re-sampling, the T.coli count returned to a value of less than could be detected by Metro Vancouver's laboratory. There were no confirmed causes for the positive T.coli test results; a possible cause might have been unrelated contamination of the sampling bottles. There were no samples with positive E.coli counts.

Line flushing by City forces occurs on a demand basis whenever the HPC count exceeds 500 CFU/ml, and whenever any positive coliform count is detected.

Metro Vancouver's laboratory also tests the City water system for pH and disinfection by-products, Haloacetic acids (five) (HAA5), and Trihalomethanes (THM's). The detailed

results of these tests along with a comparison of annual disinfection by-products in graphical format are included in Appendix 'A' of this report. pH measurement was done at three of the test sampling sites. The recorded pH's had a median value of 7.2 with a maximum of 7.2, and a minimum of 7.1.

THM disinfection by-products were measured at seven of the test sampling sites. The results show the total THM's 2012 running average to be 31 parts per billion (ppb), which is less than the GCDWQ recommended acceptable concentration of 100 ppb.

HAA5 disinfection by-products were measured at six of the test sampling sites. The results show the total HAA5's 2012 running average to be 45 ppb which is less than the GCDWQ recommended acceptable concentration of 80 ppb.

In 2012 Metro Vancouver's laboratory tested for concentrations of copper, iron, lead, zinc, and other metals at three of the stations. This was completed in April and October/November. The measured concentrations of copper, iron, lead, and zinc were all less than the GCDWQ recommended maximum concentrations. The detailed results of these tests are included in Appendix 'A' of this report.

The City has 590 km of polyvinyl chloride mains in the distribution system. Metro Vancouver's laboratory examined four sampling sites for the presence of vinyl chlorides and determined the concentration of vinyl chlorides to be less than the laboratory's minimum detection limit of 0.5 ppb. The maximum acceptable concentration recommended by the GCDWQ is 2 ppb. The detailed results of these tests are included in Appendix 'A' of this report.

Due to the lack of supplied water contact with pesticides, herbicides, or parasites, the City has not tested for these substances or organisms.

In 2012 there were an estimated total of 180 maintenance crew responses to public concerns about water quality. This number equates to 1.6 water quality concern responses per 1,000 customers and is similar to the values in past years. Generally, odour and taste issues are resolved by main flushing, and/or promoting longer running of tap water before use by the concerned consumer.

Turbidity (cloudiness), odour, and taste complaints are typically received at a rate of two to four per week. These concerns are dealt with on an individual basis. Turbidity issues are typically the result of line flushing operations and do not usually require follow up action by our maintenance crews.

SITE NUMBER	LOCATION	SAMPLE BY
901	NW CORNER 180 ST & 92 AVE	METRO VANCOUVER
902	ACCROSS FROM 18995 87A AVE IN SCHOOL BULEVARD	METRO VANCOUVER
903	19287 98A AVE BY HYDRANT 4085	METRO VANCOUVER
904	E OF HYDRANT 4737 ON TRIGGS RD	METRO VANCOUVER
905	SE CORNER 170A ST & 102 AVE	METRO VANCOUVER
906	SE CORNER 161 ST & 102 AVE	METRO VANCOUVER
907	10796 155A ST ON 108 AVE. 30m E of 155A ST	METRO VANCOUVER
908	112 AVE & 159A ST ON NW CORNER	METRO VANCOUVER
909	14669 WELLINGTON DR. E P/L BY HYDRANT	METRO VANCOUVER
910	SW CORNER OF 115 AVE & BEDFORD DR	METRO VANCOUVER
911	12893 114A AVE	METRO VANCOUVER
912	10680 TIMBERLAND RD 1 BLK S OF PINE RD HYDRNT 6745	METRO VANCOUVER
913	11878 98A AVE. 7.6m W of E P/L	METRO VANCOUVER
914	SE CORNER OF 105 AVE & 132 ST	METRO VANCOUVER
915	WHALLEY PUMP STATION	METRO VANCOUVER
916	NE CORNER OF 97A AVE & 137 ST	METRO VANCOUVER
917	E OF P/L 13031 LANARK PL	METRO VANCOUVER
918	SW CORNER GLEN PL & LAUDER DR	METRO VANCOUVER
919	NW CORNER 92A AVE & 151 ST	METRO VANCOUVER
920	SE CORNER 162 ST & 90 AVE	METRO VANCOUVER
921	NE CORNER OF 170A ST & 80 AVE	METRO VANCOUVER
922	7768 155 ST NW P/L	METRO VANCOUVER
923	NE P/L 8241 120A ST	METRO VANCOUVER
924	S SIDE OF 74 AVE. 100m W/O 138 ST	METRO VANCOUVER
925	NE CORNER OF 62 AVE & 128 ST	SURREY
926	W P/L 12059 56 AVE	SURREY
927	NW CORNER OF 66 AVE & 148 ST	SURREY
928	W P/L 15349 OFF 57 AVE	SURREY
929	SE CORNER OF LOMBARD PL & 144A ST	SURREY
930	S OF 3031 139 ST	SURREY
931	SW CORNER OF 124 ST & 24 AVE	SURREY
932	BESIDE HYDRANT W SIDE OF 126A ST & 1463. S OF ROW	SURREY
933	ACROSS FROM 13341 15B AVE. S SIDE	SURREY
934	NE CORNER OF 146 ST & 16A AVE	SURREY
935	BESIDE MAIL BOX NW CORNER OF 11 AVE & 164 ST	SURREY
936	17195 0 AVE	SURREY
937	NE CORNER OF 21A AVE & 180 ST. B.S. HYDRO BOX	SURREY
938	SE CORNER OF 172 ST & 31 AVE	SURREY
939	SW CORNER OF 156 ST & 38 A AVE	SURREY
940	ACROSS 15909 24 AVE AT SOUTH WORKYARD	SURREY
941	SE CORNER OF 57A AVE & OLD MCLELLAN RD	SURREY
942	BEHIND 5963 176 ST IN LANE	SURREY
943	SE CORNER OF 54 AVE & 184 ST	SURREY
944	NE CORNER OF 60 AVE & 189 ST	SURREY
945	PRODUCTION BLVRD & 55 AVE	SURREY
946	SE CORNER 63A AVE & 195B ST	SURREY
947	NW CORNER 68 AVE & 192 ST	SURREY
948	NW CORNER 66 AVE & 172 ST	SURREY
949	SE CORNER 182 ST & 74 AVE	METRO VANCOUVER
951	NE CORNER 192 ST & 21 AVE	SURREY
952	WPL 19026 28 AVE	SURREY

Fig. 3: WATER SAMPLING SITES LEGEND

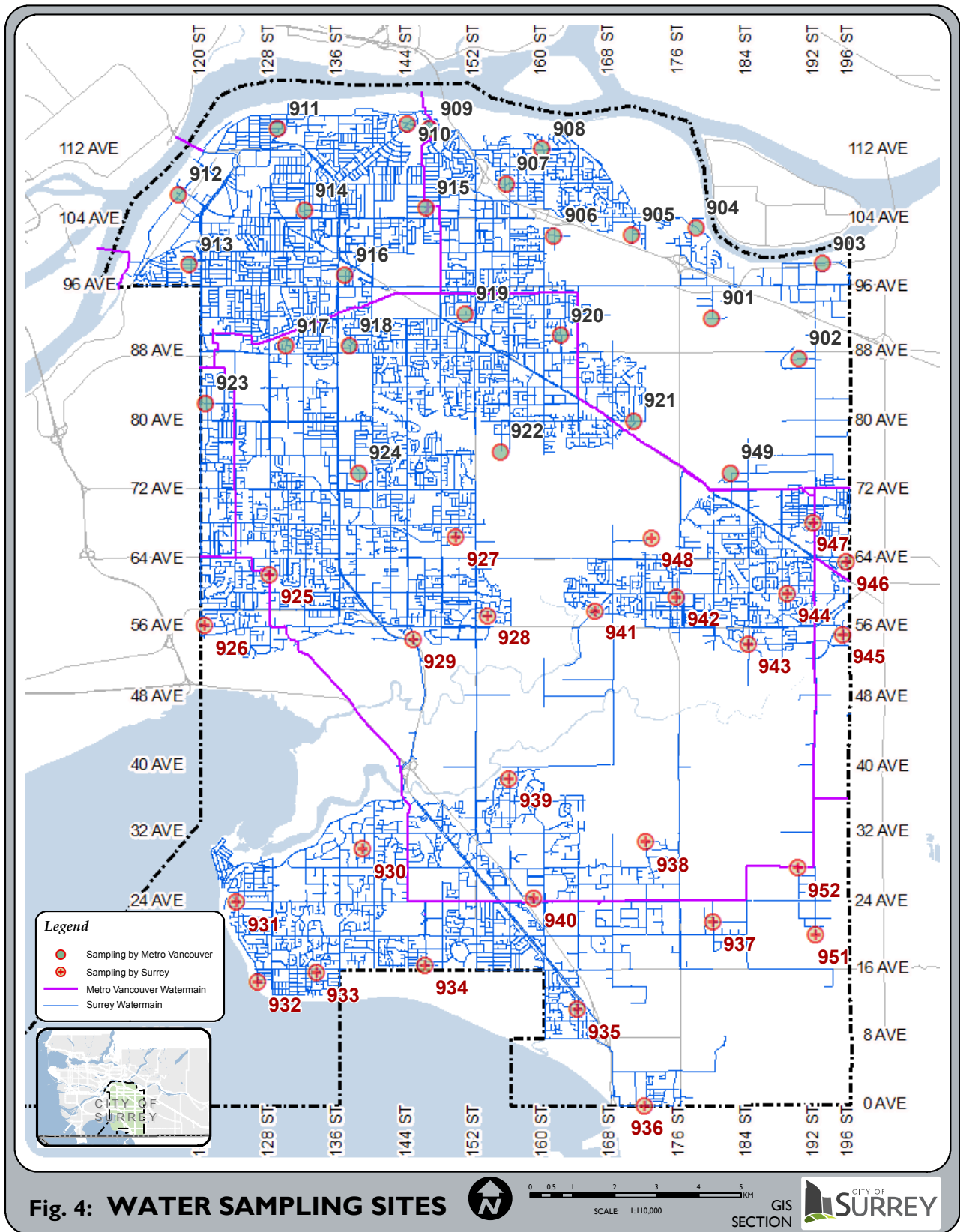


Fig. 4: WATER SAMPLING SITES

The data provided is compiled from various sources and IS NOT warranted as to its accuracy or sufficiency by the City of Surrey. This information is provided for information and convenience purposes only. Lot sizes, legal descriptions and encumbrances must be confirmed at the Land Title Office.

Source: G:\Mapping\GIS\MapResources\gw\MainSamplingSites_A.mxd
Cartographer: AW8 © City of Surrey Date Printed: June 4, 2009

Table 3: Number of Year 2012 Water Test Samples

SITE	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Station Total
901	6	5	5	7	4	4	5	5	4	6	6	6	63
902	6	5	5	7	4	4	5	5	4	7	7	6	65
903	6	5	5	7	4	5	5	5	5	6	5	6	64
904	6	5	5	7	4	4	5	5	4	6	5	6	62
905	0	5	5	7	4	4	5	5	4	6	5	6	56
906	8	6	7	5	5	7	6	6	5	6	4	6	71
907	6	5	5	7	4	4	5	5	4	6	5	6	62
908	6	5	5	7	4	4	5	5	4	6	5	6	62
909	7	9	8	7	7	6	6	5	5	8	7	11	86
910	7	9	8	7	7	6	5	5	7	8	7	12	88
911	7	9	9	7	7	6	6	5	6	8	7	11	88
912	7	9	7	7	7	5	6	5	6	8	7	11	85
913	7	9	9	7	7	5	6	5	6	8	7	11	87
914	7	10	7	7	7	6	6	5	7	8	7	11	88
915	6	8	7	7	7	6	6	5	7	8	6	11	84
916	6	8	8	7	7	5	6	5	6	7	7	12	84
917	7	9	8	7	7	5	6	5	6	7	7	12	86
918	6	9	9	7	7	5	6	5	6	7	6	12	85
919	8	7	8	5	6	7	6	6	5	8	5	6	77
920	8	7	8	5	5	7	6	6	5	6	5	6	74
921	8	7	8	5	7	6	6	6	5	6	5	6	75
922	8	7	8	4	7	6	6	6	4	6	5	6	73
923	7	9	9	7	7	5	6	5	6	7	7	12	87
924	8	8	1	5	6	7	6	6	6	7	5	5	70
925	4	4	6	4	5	4	4	4	4	4	5	4	52
926	4	4	5	4	5	4	4	4	4	4	5	4	51
927	4	4	5	4	5	4	4	4	4	4	5	4	51
928	4	4	5	4	5	5	4	4	4	4	5	4	52
929	4	4	5	4	5	4	4	4	4	4	5	4	51
930	5	4	4	4	4	4	4	5	4	5	4	4	51
931	4	5	4	3	5	4	4	5	4	5	4	4	51
932	4	5	4	4	5	4	4	5	4	5	4	4	52
933	4	5	4	4	5	5	4	5	4	5	4	4	53
934	4	5	4	4	5	4	4	5	4	5	4	4	52
935	4	5	4	4	5	4	4	5	4	5	4	4	52
936	4	5	4	4	5	4	4	5	4	5	4	4	52
937	4	5	4	4	5	4	4	5	4	5	4	4	52
938	4	5	4	4	5	4	4	5	4	5	4	4	52
939	4	5	4	4	6	4	4	5	4	5	4	4	53
940	4	5	5	4	5	4	4	5	4	5	4	4	53
941	4	4	5	4	5	4	4	4	4	4	5	4	51
942	4	4	5	4	5	4	4	4	4	4	5	4	51
943	4	5	4	4	5	4	4	5	4	5	4	4	52
944	4	4	5	4	5	4	4	4	4	4	5	4	51
945	4	4	5	4	5	4	4	4	4	4	5	4	51
946	4	4	5	4	5	3	4	4	4	4	5	3	49
947	4	4	5	4	5	4	4	3	0	0	0	0	33
948	4	4	5	4	5	4	4	4	4	4	5	4	51
949	10	7	8	8	10	7	10	9	6	7	7	9	98
951	4	5	4	4	5	4	4	5	4	5	4	4	52
952	4	5	4	4	5	4	4	5	4	5	4	4	52
Monthly Total	273	299	290	266	281	241	250	252	233	287	260	311	3243
Monthly Min.	233												
Monthly Max.	311												
Monthly Median	269.5												

F. Water Quality Response Notification

The City has developed, jointly with Metro Vancouver and its member municipalities, and with FHA, a notification procedure for situations affecting water quality. The City adheres to this procedure when line breaks occur or if a contamination condition is suspected. The City, through Metro Vancouver's testing laboratory, also notifies FHA if any E. coli bacteria are detected. This notification procedure is shown in Table 4 (below).

**Table 4:
Water Quality Response Procedure**

Situation	Notifying Agency	Agency Notified	Time Frame for Notification
Metro Vancouver E.Coli Positive Sample	Metro Vancouver	Metro Vancouver, MHO City of Surrey	Immediate
Municipal E.Coli Positive Sample	Laboratory ² City of Surrey ³	MHO (or delegate)	Immediate
Chemical Contamination – Metro Vancouver	Metro Vancouver	Metro Vancouver, MHO, City of Surrey ¹	Immediate
Chemical Contamination – City of Surrey	City of Surrey	MHO (or delegate)	Immediate
Turbidity > 5 NTU	Metro Vancouver	Metro Vancouver, MHO, and City of Surrey ¹	Immediate
Disinfection Failure – Source Water (Primary Disinfection)	Metro Vancouver	Metro Vancouver, MHO, and City of Surrey ¹	Immediate (As per DWPA)
Disinfection Failure – Rechlorination (Secondary Disinfection)	Metro Vancouver	Metro Vancouver, MHO, and City of Surrey ¹	Immediate, in any situation in which the BCDWPR or the GCDWQ may not be met.
Loss of Pressure Due to High Demand	City of Surrey	MHO (or delegate), Metro Vancouver	Immediate
Line Break – City of Surrey ⁴	City of Surrey	MHO (or delegate)	As soon as possible
Line Break – Metro Vancouver ⁴	Metro Vancouver	City of Surrey	Optional
Line Break – City of Surrey ⁵	City of Surrey	MHO (or delegate)	Immediate
Line Break – Metro Vancouver ⁵	Metro Vancouver	Metro Vancouver, MHO, City of Surrey ¹	Immediate

- A. City of Surrey to notify Fraser Health Authority.
- B. Laboratory to immediately notify the MHO, DWO (or FHA delegates) and the water supplier as per section 12(1) of the DWPA.
- C. City of Surrey to immediately notify the MHO, DWO (or FHA delegates) as per section 12(2) of the DWPA.
- D. With no suspected contamination.
- E. With suspected contamination.

G. Water Quality Test Results

The bacteriological quality of the City's distributed water remains high as evidenced by sampling results related to both E.coli and total coliforms.

The pipe condition environment is closely monitored by base indicators (heterotrophic plate counts, chlorine residuals and turbidity) and for trends that would indicate conditions are developing that could promote the growth of harmful bacteria. The GCDWQ recommends that re-sampling occur if samples contain more than 500 heterotrophic bacteria colonies (HPC) per milliliter. This recommendation is followed by the City, as well as flushing of the main adjacent to the affected sampling sites. Water stagnation and/or inadequate circulation in the City's mains are the likely causes for all of the results with greater than 500 HPC's.

In 2012, 0.3% of the samples taken showed HPC's higher than 500 using a laboratory testing method incorporating a 5 day incubation period and a temperature of 28°C. Table 5, "Year 2002 to 2012 HPC Positive Samples Summary >500" (pg. 16), summarizes the incidents of HPC's greater than 500 for years from 2002 to 2012. These results are also displayed in graphical form in Graph 1, "Comparison of Annual HPC Results >500 CFU in the City of Surrey's Water System" (pg. 17).

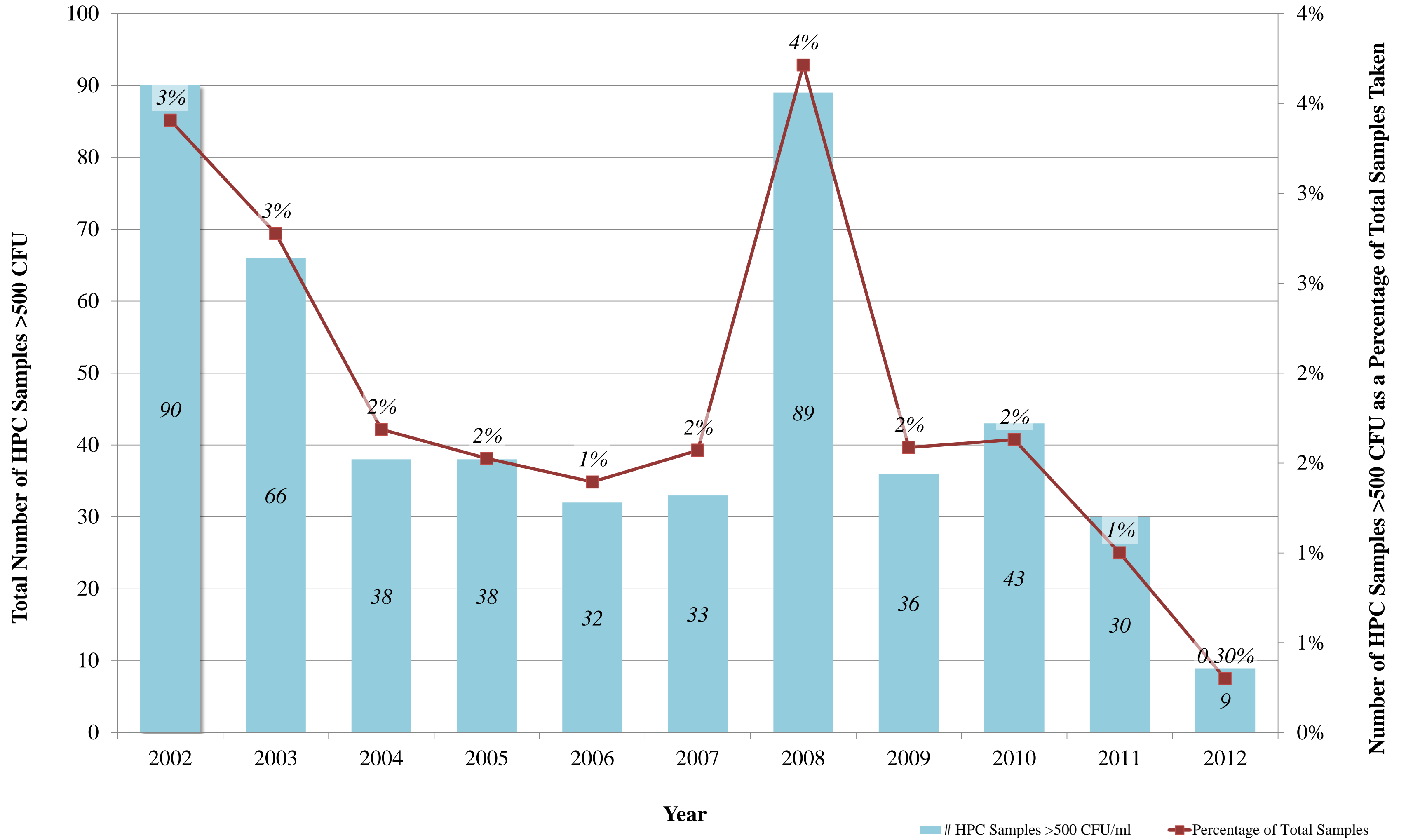
Approximately 10% of the water samples analyzed had free chlorine residual values less than the 0.1 mg/l considered optimum for the distribution system. This percentage is slightly lower than residual values of the previous 3 years (11%, 8.5%, 12% respectively).

The City continues to closely monitor incidents of low chlorine residuals (<0.1 mg/L) and high HPC (>500 CFU/mls) to determine if there is any correlation between these results and certain system conditions such as maintenance work or underutilized water mains. Although no definite causes have been identified, areas with high HPC have been found to be limited to an area in the north and one location in the south of the City's distribution network. These areas have relatively poor circulation due to partial build-out conditions. Every effort is being made by the City to improve water quality including efforts at the planning level to loop the extremities and non-built out portions of the water infrastructure.

Table 5: Year 2002 to 2012 HPC Positive Samples Summary >500 CFU/ml

Sampling Site	No. of Samples Tested												No. of HPC Results >500												% of Samples >500											
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012			
901	51	47	48	50	48	47	46	55	67	60	63	1	0	0	0	0	0	0	0	0	0	0	2%	0%	0%	0%	0.0%	0%	0%	0%	0%	0%	0%			
902	51	50	46	55	49	44	47	59	69	67	65	1	6	4	4	6	1	0	0	0	0	3	0	2%	12%	9%	7%	12%	2%	0%	0%	0%	4%	0%		
903	50	46	46	59	50	47	48	55	68	66	64	0	1	1	1	1	0	0	0	3	5	0	0%	2%	2%	2%	2%	0%	0%	0%	4%	8%	0%			
904	52	44	44	53	46	38	48	53	67	64	62	1	0	0	0	0	0	0	0	0	0	0	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
905	52	44	47	53	47	41	46	59	68	59	56	2	0	0	0	0	0	1	0	0	4	0	4%	0%	0%	0%	0%	0%	2%	0%	0%	7%	0%			
906	52	52	45	47	40	42	46	46	58	65	71	1	0	0	0	0	0	0	0	0	5	0	2%	0%	0%	0%	0%	0%	0%	0%	8%	0%				
907	51	47	45	49	46	44	47	56	68	65	62	1	0	0	0	0	0	0	0	0	0	0	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
908	56	47	46	57	47	43	48	57	68	63	62	5	0	1	1	0	0	1	0	0	6	0	9%	0%	2%	2%	0%	0%	2%	0%	0%	10%	0%			
909	48	49	47	46	46	38	59	65	76	77	86	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
910	51	49	48	46	48	39	60	69	73	76	88	2	0	0	0	0	0	2	0	0	0	0	4%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%			
911	55	47	51	47	42	43	60	62	77	76	88	18	4	8	8	0	2	0	0	0	0	0	33%	9%	16%	17%	0%	5%	0%	0%	0%	0%	0%			
912	42	47	46	47	43	43	54	65	76	77	85	0	0	0	0	0	7	9	0	0	0	3	0%	0%	0%	0%	0%	16%	17%	0%	0%	0%	4%			
913	48	45	48	44	45	40	53	64	77	76	87	1	0	0	0	0	1	0	0	0	0	0	2%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%			
914	51	45	45	46	42	39	62	67	77	76	88	1	0	0	0	0	0	2	0	0	0	0	2%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%			
915	57	50	47	47	54	44	64	66	78	78	84	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
916	30	25	48	44	40	41	55	63	78	77	84	0	1	0	0	0	0	0	0	0	0	0	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
917	51	45	46	47	41	43	55	63	73	75	86	1	1	0	0	0	0	0	0	0	0	0	2%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
918	49	45	45	49	50	39	55	64	77	76	85	4	5	0	0	0	0	0	0	0	0	0	8%	11%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
919	53	53	44	45	41	44	50	48	58	69	77	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
920	55	51	44	42	39	43	49	58	66	70	74	0	2	1	1	0	0	0	0	1	1	0	0%	4%	2%	2%	0%	0%	0%	0%	2%	1%	0%			
921	45	47	43	46	45	44	52	57	67	70	75	0	0	0	0	1	0	0	0	0	1	0	0%	0%	0%	0%	2%	0%	0%	0%	0%	1%	0%			
922	59	49	46	50	35	45	51	56	66	70	73	4	3	4	4	0	1	1	0	0	0	0	7%	6%	9%	8%	0%	2%	2%	0%	0%	0%	0%			
923	50	49	46	43	40	39	57	65	78	77	87	0	0	0	0	0	0	1	0	0	0	0	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%			
924	45	48	44	46	44	41	47	59	65	71	70	1	1	0	0	0	0	0	0	0	0	0	2%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
925	37	46	44	51	45	49	47	49	52	51	52	0	0	0	0	0	1	0	0	0	0	0	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%			
926	46	47	44	53	50	48	46	49	51	51	51	4	0	0	0	0	0	0	0	0	0	0	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
927	46	46	44	50	50	49	44	47	51	51	51	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
928	45	47	44	51	49	48	48	45	51	51	52	1	6	1	1	0	0	1	0	0	0	0	2%	13%	2%	2%	0%	0%	2%	0%	0%	0%	0%			
929	45	46	43	51	50	50	44	49	51	51	51	0	1	1	1	0	0	0	0	0	0	0	0%	2%	2%	2%	0%	0%	0%	0%	0%	0%	0%			
930	50	51	45	45	47	41	47	47	52	48	51	0	0	0	0	0	0	0	0	7	2	0	0%	0%	0%	0%	0%	0%	0%	0%	13%	4%	0%			
931	51	52	45	46	44	42	47	49	52	47	51	0	0	1	1	0	0	0	0	5	0	0	0%	0%	2%	2%	0%	0%	0%	0%	10%	0%	0%			
932	51	52	45	46	47	42	47	48	52	48	52	0	0	0	0	5	0	1	0	1	0	0	0%	0%	0%	0%	11%	0%	2%	0%	2%	0%	0%			
933	63	53	46	50	48	43	47	47	52	48	53	15	7	1	1	5	2	11	1	1	0	0	24%	13%	2%	2%	10%	5%	23%	2%	2%	0%	0%			
934	53	52	44	58	48	40	47	48	51	48	52	3	4	3	3	1	2	5	2	2	0	0	6%	8%	7%	5%	2%	5%	11%	4%	4%	0%	0%			
935	51	52	45	47	47	43	47	48	51	49	52	1	0	0	0	1	1	0	2	0	0	0	2%	0%	0%	0%	2%	2%	0%	4%	0%	0%	0%			
936	52	52	44	48	48	43	48	47	51	48	52	1	1	3	3	3	5	3	2	1	0	0	2%	2%	7%	6%	6%	12%	6%	4%	2%	0%	0%			
937	54	52	44	48	44	43	46	49	52	48	52	2	2	0	0	2	5	3	1	0	0	0	4%	4%	0%	0%	5%	12%	7%	2%	0%	0%	0%			
938	53	52	45	48	44	44	47	49	51	47	52	3	4	0	0	0	0	0	0	0	0	0	6%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
939	53	52	45	47	44	43	47	48	52	50	53	4	2	0	0	0	0	1	1	1	0	0	8%	4%	0%	0%	0%	0%	2%	2%	2%	0%	0%			
940	53	53	46	48	40	44	47	48	39	50	53	3	1	0	0	3	1	7	2	2	0	0	6%	2%	0%	0%	8%	2%	15%	4%	5%	0%	0%			
941	46	46	43	57	48	49	46	48	51	51	51	0	0	0	0	2	1	2	0	1	0	0	0%	0%	0%	0%	4%	2%	4%	0%	2%	0%	0%			
942	47	46	45	52	50	47	45	48	51	51	51	0	0	0	0	1	1	0	0	0	0	0	0%	0%	0%	0%	2%	2%	0%	0%	0%	0%	0%			
943	50	43	35	42	63	60	51	48	51	50	52	4	0	0	0	0	0	0	0	0	0	0	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
944	45	46	44	51	47	47	46	48	51	51	51	0	1	1	1	1	0	0	0	0	0	0	0%	0%	2%	2%	2%	0%	0%	0%	0%	0%	0%			
945	59	55	51	59	35	32	43	48	51	51	51	2	4	1	1	0	1	0	0	0	0	0	3%	7%	2%	2%	0%	3%	0%	0%	0%	0%	0%			
946	46	47	45	51	52	47	45	47	51	52	49	0	1	2	2	0	0	0	0	0	0	0	0%	2%	4%	4%	0%	0%	0%	0%	0%	0%	0%			
947	46	45	43	51	51	46	48	48	50	51	33	1	0	1	1	0	0	0	0	0	1	0	2%	0%	2%	2%	0%	0%	0%	0%	0%	2%	0%			
948	48	46	43	53	51	46	46	46	51	51	51	2	6	4	4	0	1	1	0	3	1	0	4%	13%	9%	8%	0%	2%	2%	0%	6%	2%	0%			
949	54	54	46	47	44	47	52	78	94	87	98	0	2	0	0	0	0	0	0	0	0	0	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
951							43	43	51	50	52							27	24	14	0	5						63%	56%	27%	0%	10%				
952							48	48	51	50	52																		21%	2%	2%	2%	2%			
AVERAGE																							3%	3%	2%	2%	1%	2%	4%	2%	2%	1%	0%			
TOTALS	2448	2354	2213	2408	2254	2144	2518	2748	3109	3081	3243	90	66	38	38	32	33	89	36	43	30	9														

Graph 1: Comparison of Annual HPC Results >500 CFU/ml in the City of Surrey's Water System



H. Water System Security

A combination of measures are utilized to provide security for the distribution system. All pump stations utilize external security lighting and have locked access doors and/or ground hatches. All stations are also provided with intrusion alarms that are SCADA monitored. Security fencing is installed at those pump stations with highly visible access doors and/or ground hatches.

All new service connections installed since 1998 incorporate check valves as a component of the meter/meter setter installation.

Back flow controls on commercial/industrial businesses are monitored on an on-going basis through the City's cross-connection control (CCC) program. The program, administered by the City's Engineering Department, incorporates site inspection, testing, and annual certification of back-flow prevention devices. Program priorities are based on the hazard potential associated with each business.

In 2012, the number of backflow prevention assemblies registered with the City increased by 9% for a total of 8,545 assemblies as of December 31, 2012. The City's CCC program requires that the owner test the control device annually to confirm that it is working properly. In 2012, the City achieved over 95% compliance with this requirement.

Except for the occasional unauthorized opening, theft of parts, or accident affecting fire hydrants, and a few instances of graffiti on fire hydrants, there were no incidents of vandalism to the City's water system in 2012.

I. Water Emergency Plan

As a component part of the City of Surrey Engineering Department Emergency Plan, the City has prepared a Water Continuity Plan (WCP). The testing of a draft WCP occurred in November 2007. This focused primarily on communications and was successfully carried out in concert with other Metro Vancouver member municipalities. This plan was updated in 2009 and submitted to the FHA.

The WCP follows the British Columbia Emergency Response Management System methodology. The WCP focuses on loss of Metro Vancouver water supply, water quality degradation, seismic hazards, and flooding. However, the response priorities, goals, and activities lend themselves to most other emergency situations. Utilization of the Operations Departments' Water Maintenance Crews, Pumps and Controls Crews, as well as Technical Planning staff, are included in the Engineering Department's Emergency Plan.

J. Water Main Break Procedure

Water main break repairs are made utilizing the following repair procedures. These procedures are based on the American Water Works Association (AWWA) Standards and Best Management Practices.(BMPs)

Step 1:Repairs Where No Groundwater Has Entered Into Water Main

- (a) Locate the break. Manager to advise FHA Environmental Health Officer of situation if main is greater than 150 mm diameter. Advise affected customers of pending flow and pressure reductions (dependent on crew availability).
- (b) Isolation valves shall be left open sufficiently to maintain positive pressure in the water main. The water main will have a positive outflow of water until the trench is excavated below the invert of the pipe.
- (c) If it can be determined that no contaminants have entered the water main, disinfection is undertaken by swabbing the pipe and repair materials with a 6% chlorine solution. No bacterial tests are carried out.
- (d) After repairs have been completed, the water main will be flushed.
- (e) If positive pressure cannot be maintained, and further disinfection is required, continue with Step 2.

Step 2:Repairs Where Groundwater Contamination Of The Water Main Has Occurred

These are repairs where positive pressure cannot be maintained due to the nature of the break (i.e. a large section of pipe has blown out).

- (a) Manager to advise FHA Environmental Health Officer of situation. Advise affected customers of pending flow and pressure reductions (dependent on crew availability).
- (b) Isolation valves should be “cracked” open to maintain water in the main as close to the break as possible to prevent debris entering the main.
- (c) Excavate below invert of the water main, and maintain groundwater to that level.
- (d) Spray trench walls and floor with 6% chlorine solution.
- (e) If material or groundwater has entered the pipe, it should be flushed out, if possible, by “cracking” open isolation valves at each end of the repair area.

Advise adjacent customers to open and run outside hose bibs until water runs clear and to then repeat this procedure inside their homes/building.

- (f) All water main and repair materials will be swabbed with 6% chlorine solution before installation.
- (g) On completion of repairs, the water main will be flushed through an appropriate appurtenance which creates water flow of >2.5 ft/sec. Scour main until turbidity is <10 NTU
- (h) On completion of flushing, a bacterial sample shall be taken as close to the repair area as possible, as well as a control sample from the flushing water source. FHA Environmental Health Officer will be notified of action taken.
- (i) If samples are positive, further testing and flushing will be required and, following a review with FHA Environmental Health Officer, further chlorination may be required.

Step 3:E. coli Contamination of a Water Main

If E. coli contamination of a water main has occurred (e.g. a water main and sanitary sewer main are broken in a common trench):

- a. The valves on either side of the contaminated section will be shut down.
- b. Water Operations Manager and FHA Environmental Health Officer will be notified immediately. The Water Operations Manager in consultation with the FHA Environmental Health Officer will determine if a boil water advisory is warranted. If it is warranted, the Water Operations Manager will initiate the City's issuance of the Boil Water advisory.
- c. The water main repairs will be completed as in Step 2.
- d. The water main will be chlorinated at minimum 200 ppm for two hours. The chlorine residual, after the two hours retention time, will not be less than 100 ppm, or the water main will have to be flushed and rechlorinated until it meets the minimum 100 ppm.
- e. After completion of the chlorination, the water main must be flushed until the chlorine level is below 1 ppm. Individual water services should also be flushed to remove the chlorine level to less than 1 ppm. Bacterial samples will be taken from the isolated section of main and a central sample outside the isolated section.

- f. The water main will be placed back in operation upon receipt of three negative sets of bacteriological results taken 24 hours apart, and with the approval of the FHA Medical Health Officer.

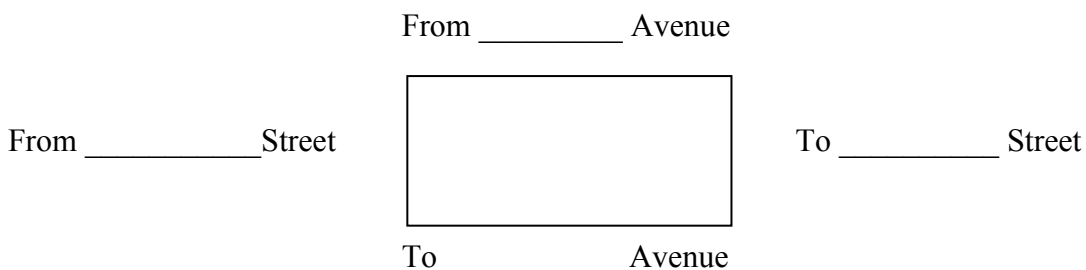
The City of Surrey Boil Water Advisory is shown on the page 22. It is a component part of the City's Water Quality Contingency Plan for a bacteriological contamination of the City's water.

For Release to Radio and Television Stations

CITY OF SURREY- BOIL WATER ADVISORY

Due to _____

The City of Surrey, advises the public that the water supply in the area below has become contaminated and may not be safe for human consumption. In order to ensure the safety of the water supply, all water must be boiled rapidly for at least one minute before being used for drinking, brushing teeth, washing food etc. The area involved is as follows:



NOTES TO THE PERSON GIVING THE ADVISORY NOTICE

- A. In the first line "Due To" indicate the reason for the advisory. e.g., "Due to the presence of E. Coli in the test results".
- B. It may be necessary to give only very general locations at the beginning with more exact locations identified when more information becomes available, recognizing that it is preferable to overstate the size of the area involved.

Also,

Metro Vancouver should be notified immediately. During regular working days notify either Bob Jones at 604-451-6001 or pager 604-645-0593 or cell 604-230-8142, Judith Smith at 604-451-6004 or cell 604-250-5703, or, Drew Gibson at 604-451-6008, or cell 604-312-3585.

THE FRASER HEALTH AUTHORITY ENVIRONMENTAL HEALTH OFFICER SHOULD HAVE BEEN ALREADY CONSULTED (1-604-870-7900 regular office hours). Outside regular office hours call 604-527-4806.

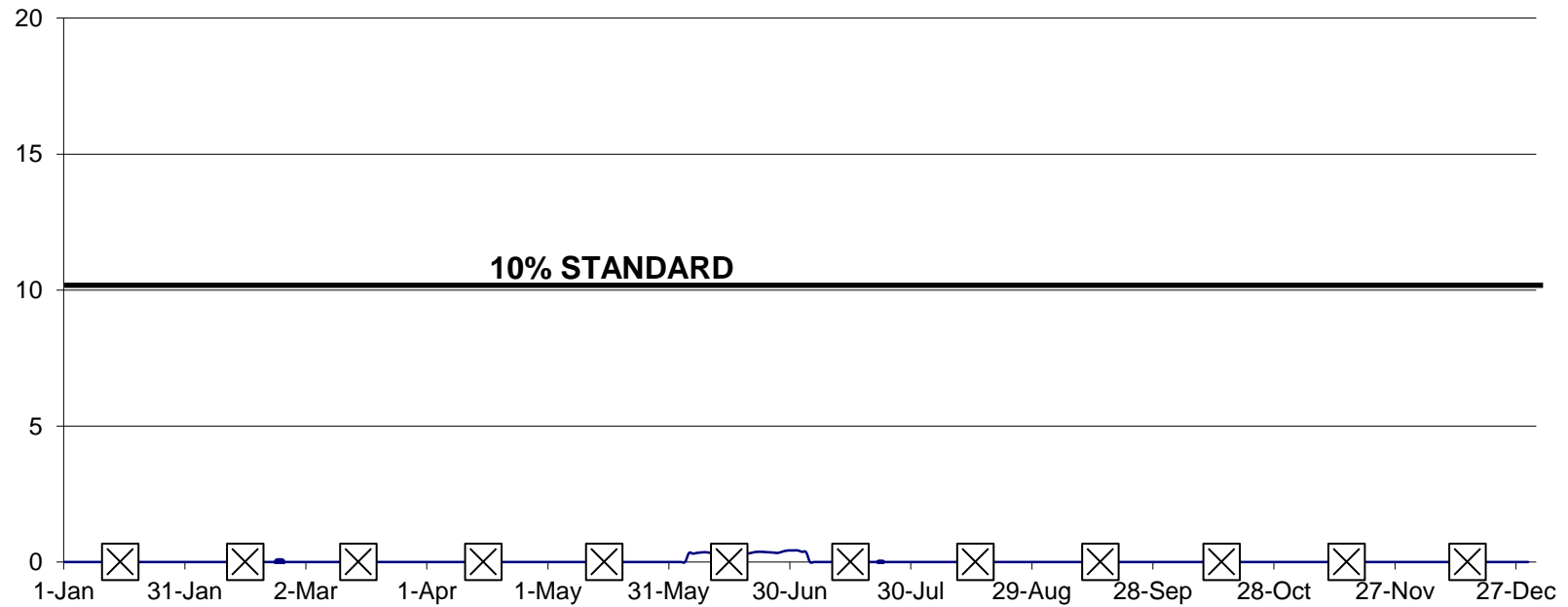
REMOVE THE BOIL WATER ADVISORY AFTER CONSULTATION WITH THE MEDICAL HEALTH OFFICER. Follow a similar notification procedure as the one used above.

APPENDIX 'A'

2012 Water Quality Laboratory Test Results

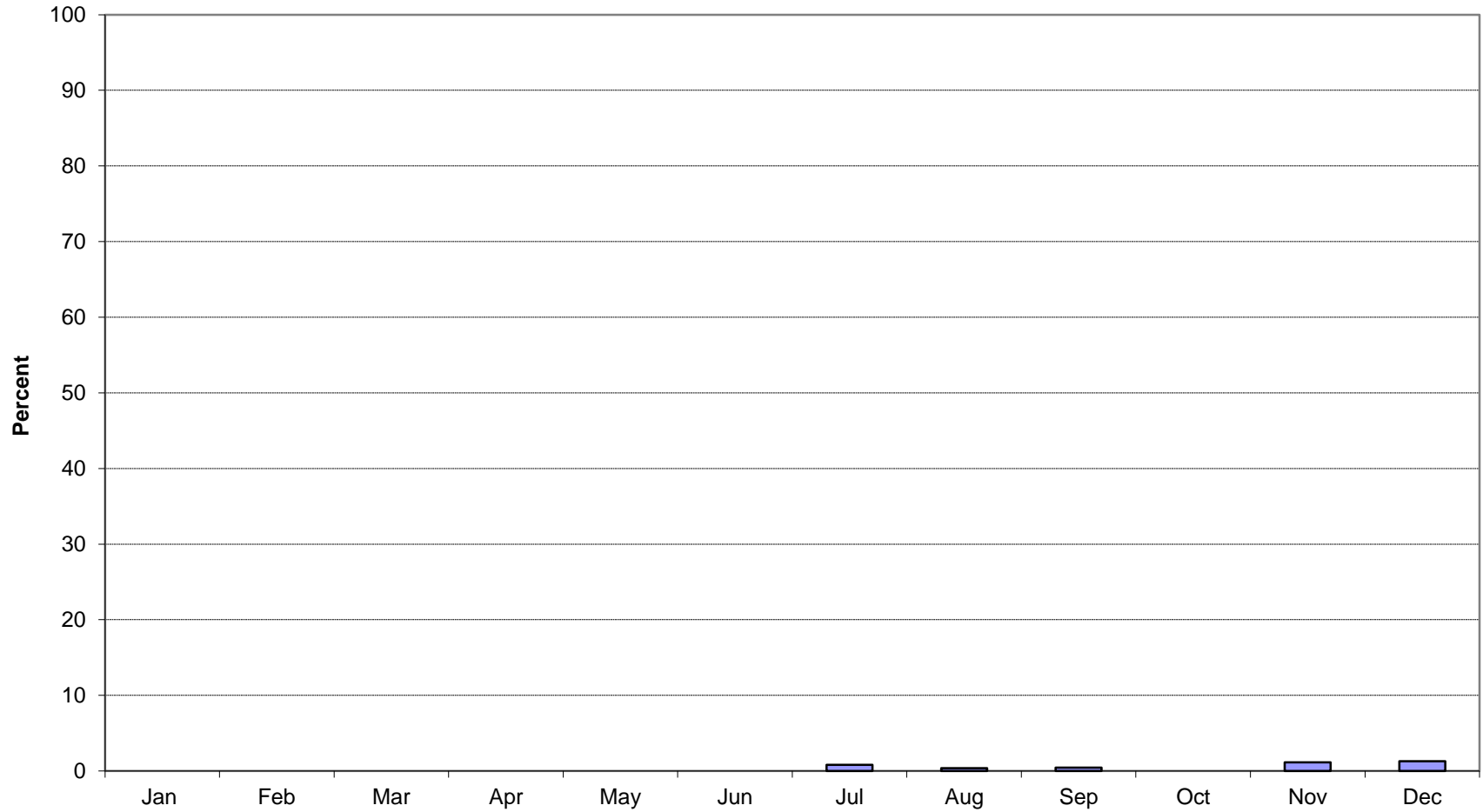
CITY OF SURREY - 2012

Results of Bacteriological Analyses of Potable Water Samples Compliance With BC Drinking Water Protection Regulation



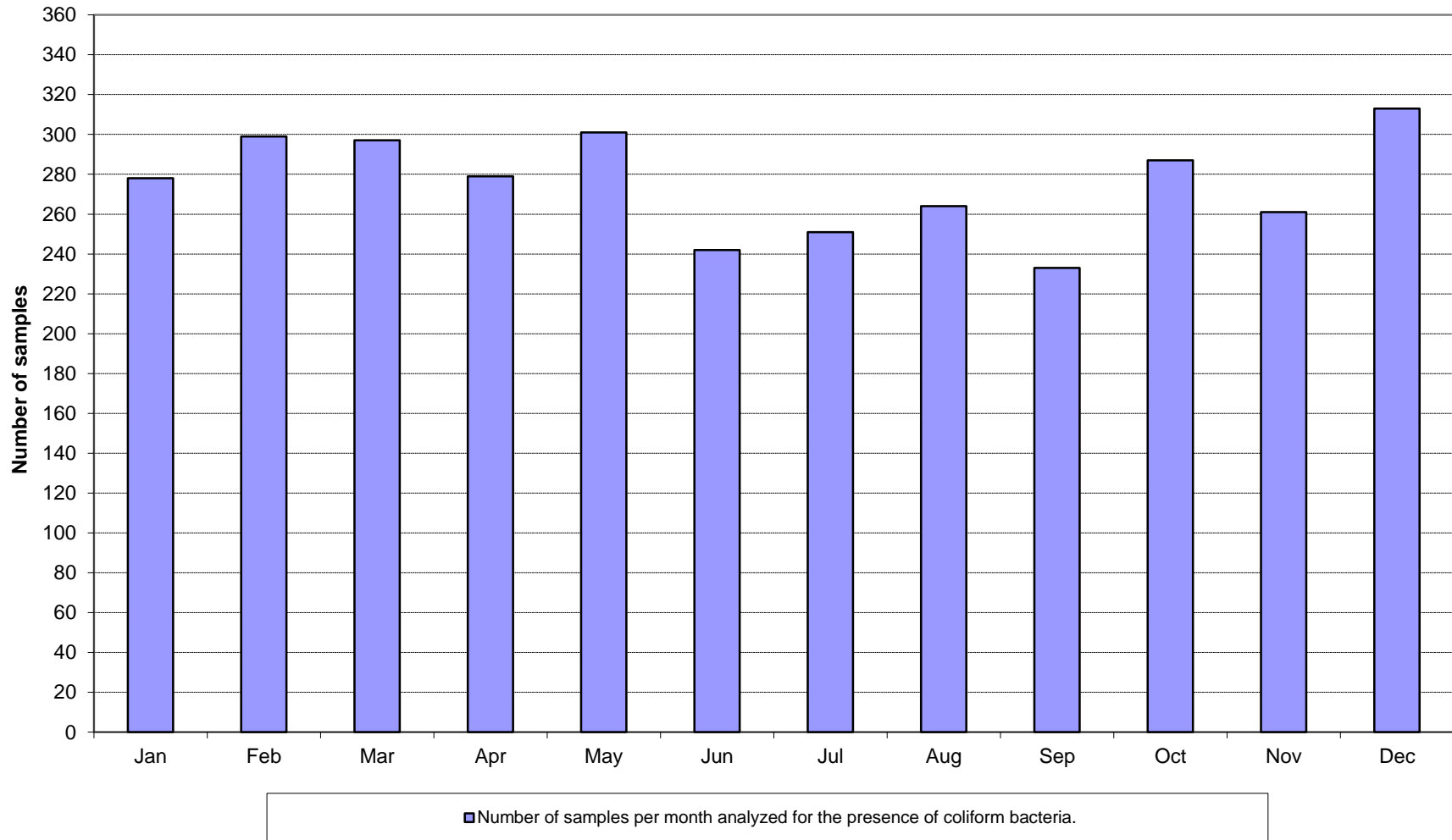
— Percent of samples positive for coliform bacteria in a 30 day period ending on date shown (10% allowed)
□ Number of samples positive for E. coli bacteria (none allowed)
× Number of samples per month containing more than 10 coliform bacteria per 100 mL (none allowed)

CITY OF SURREY - MONTHLY HPC COUNTS FOR 2012



■ Percent of samples per month containing greater than 500 CFU/mL of heterotrophic plate count (HPC) bacteria. High HPC levels are an indication of bacterial regrowth.

CITY OF SURREY - 2012
Number of Montly Samples Analyzed for Presence of Coliform Bacteria



City of Surrey

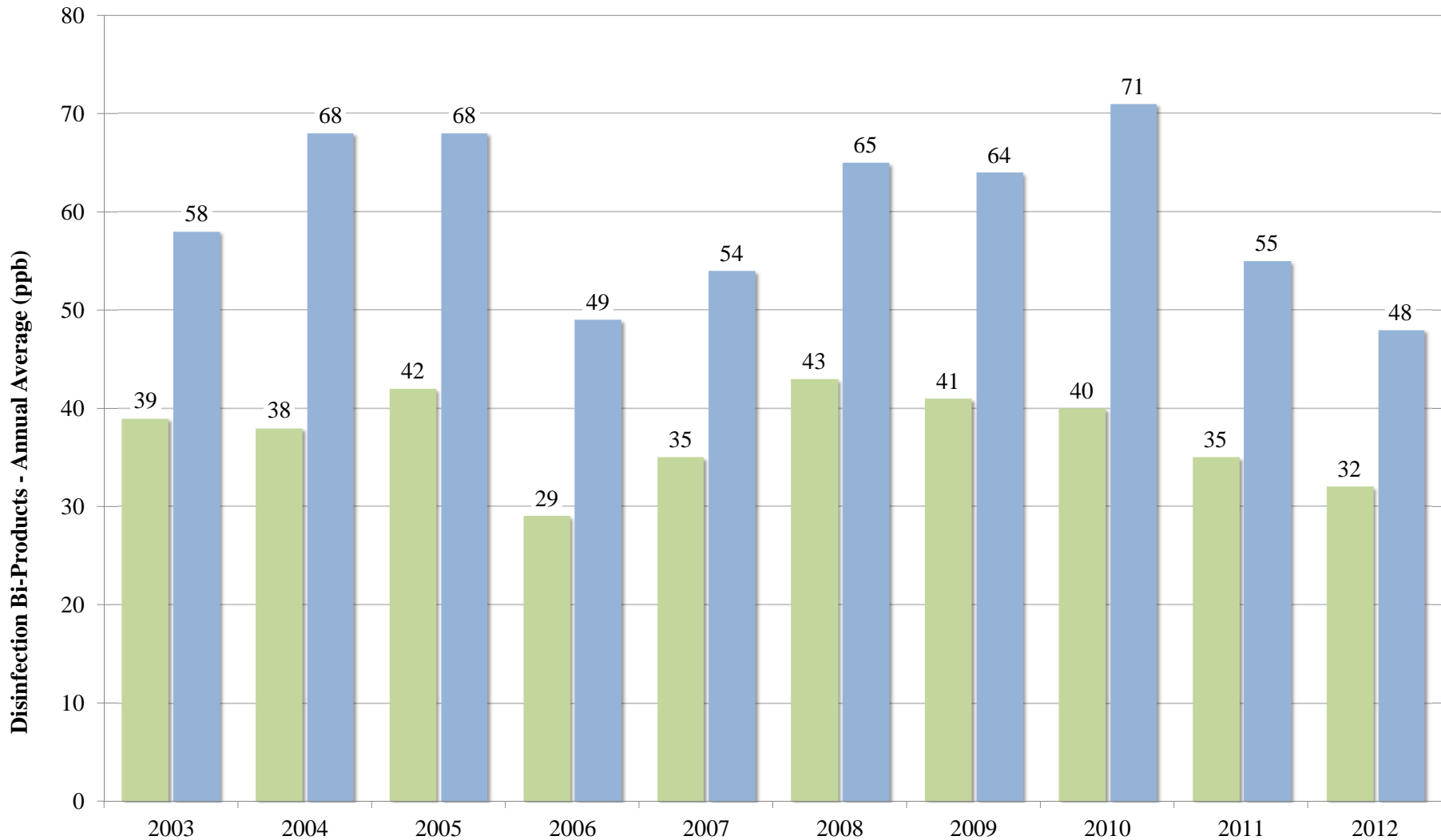
2012 Disinfection By-Products (THM,HAA) & pH Monitoring Results

Sample Station ID	Sample Station Location	Date Sampled	THM (ppb)					HAA (ppb)						pH		
			Bromodichloromethane	Bromoform	Chlorodibromomethane	Chloroform	Total Trihalomethanes	Dibromoacetic Acid	Dichloroacetic Acid	Monobromoacetic Acid	Monochloroacetic Acid	Trichloroacetic Acid	Total Haloacetic Acid			
SUR-902	18995 87A Ave.	2012-02-29	<1	<1	<1	20	20									
SUR-902		2012-05-09	<1	<1	<1	29	29									
SUR-902		2012-08-29	<1	<1	<1	26	26									
SUR-902		2012-11-29	<1	<1	<1	38	39									
SUR-922	7768 155 St.	2012-02-27	<1	<1	<1	24	24		<0.5	15	<1	2	26	43		
SUR-922		2012-05-29	<1	<1	<1	28	28		<0.5	16	<1	3	29	48		
SUR-922		2012-08-28	<1	<1	<1	27	27		<0.5	6	<1	<2	17	23		
SUR-922		2012-11-26	<1	<1	<1	37	37		<0.5	17	<1	3	29	50		7.2
SUR-926	12059 56 Ave.	2012-02-29	<1	<1	<1	20	20		<0.5	11	<1	<2	16	27		
SUR-926		2012-05-09	<1	<1	<1	28	28		<0.5	19	<1	15	18	52		
SUR-926		2012-08-30	<1	<1	<1	27	27		<0.5	10	<1	3	12	24		
SUR-926		2012-11-29	<1	<1	<1	30	30		<0.5	12	<1	2	19	32		
SUR-928	15349 57 Ave.	2012-02-29	<1	<1	<1	20	20		<0.5	16	<1	5	18	39		
SUR-928		2012-05-09	<1	<1	<1	27	27		<0.5	17	<1	21	17	55		
SUR-928		2012-08-30	<1	<1	<1	23	23		<0.5	10	<1	<2	12	21		
SUR-928		2012-11-29	<1	<1	<1	30	31		<0.5	7	<1	<2	19	26		
SUR-930	SW Entrance to Parkway, South of 3031 139 St.	2012-02-29	<1	<1	<1	41	41		<0.5	4	<1	<2	53	57		
SUR-930		2012-05-09	<1	<1	<1	37	37		<0.5	9	<1	2	38	49		
SUR-930		2012-08-29	<1	<1	<1	26	26		<0.5	9	<1	2	24	35		
SUR-930		2012-11-28	<1	<1	<1	52	52		<0.5	20	<1	4	58	82		7.1
SUR-931	124 St. & 24 Ave.	2012-02-29	<1	<1	<1	34	34		<0.5	4	<1	<2	29	34		
SUR-931		2012-05-09	<1	<1	<1	35	35		<0.5	7	<1	<2	30	36		
SUR-931		2012-08-29	<1	<1	<1	25	25		<0.5	5	<1	<2	31	36		
SUR-931		2012-11-28	<1	<1	<1	50	50		<0.5	29	<1	4	42	76		
SUR-940	24 Ave., by South Depot	2012-02-29	<1	<1	<1	34	34		<0.5	18	<1	8	27	53		
SUR-940		2012-05-09	<1	<1	<1	34	34		<0.5	24	<1	24	25	73		
SUR-940		2012-08-29	<1	<1	<1	25	25		<0.5	14	<1	7	21	42		
SUR-940		2012-11-28	<1	<1	<1	49	49		<0.5	24	<1	4	41	69		7.2

City of Surrey
2012 Disinfection By-Products (THM,HAA) Runing Quarterly Averages

Sample Station ID	Date Sampled	THM (ppb)					Total THM Quarterly Average	HAA (ppb)						Total HAA Quarterly Average
		Bromodichloromethane	Bromoform	Chlorodibromomethane	Chloroform	Total Trihalomethanes		Dibromoacetic Acid	Dichloroacetic Acid	Monobromoacetic Acid	Monochloroacetic Acid	Trichloroacetic Acid	Total Haloacetic Acid	
SUR-902	2011-05-10	<1	<1	<1	30	29.8		<0.5	8	<1	2	28	39.1	
SUR-902	2011-09-13	<1	<1	<1	19	19.4								
SUR-902	2011-11-14	<1	<1	<1	42	42								
SUR-902	2012-02-29	<1	<1	<1	20	20	28							
SUR-902	2012-05-09	<1	<1	<1	29	29	28							
SUR-902	2012-08-29	<1	<1	<1	26	26	29							
SUR-902	2012-11-29	<1	<1	<1	38	39	28							
SUR-922	2011-05-12	<1	<1	<1	30	30		<0.5	10	<1	2	20	31.4	
SUR-922	2011-09-14	<1	<1	<1	29	29		<0.5	8	<1	<2	24	31.6	
SUR-922	2011-11-15	<1	<1	<1	43	43		<0.5	8	<1	2	38	48.4	
SUR-922	2012-02-27	<1	<1	<1	24	24	31	<0.5	15	<1	2	26	43	39
SUR-922	2012-05-29	<1	<1	<1	28	28	31	<0.5	16	<1	3	29	48	43
SUR-922	2012-08-28	<1	<1	<1	27	27	30	<0.5	6	<1	<2	17	23	41
SUR-922	2012-11-26	<1	<1	<1	37	37	29	<0.5	17	<1	3	29	50	41
SUR-926	2011-05-12	<1	<1	<1	25	25		<0.5	12	<1	12	12	36.4	
SUR-926	2011-09-15	<1	<1	<1	25	25		<0.5	7	<1	11	7	25.9	
SUR-926	2011-11-17	<1	<1	<1	29	29		<0.5	12	<1	8	17	37.3	
SUR-926	2012-02-29	<1	<1	<1	20	20	25	<0.5	11	<1	<2	16	27	32
SUR-926	2012-05-09	<1	<1	<1	28	28	25	<0.5	19	<1	15	18	52	35
SUR-926	2012-08-30	<1	<1	<1	27	27	26	<0.5	10	<1	3	12	24	35
SUR-926	2012-11-29	<1	<1	<1	30	30	26	<0.5	12	<1	2	19	32	34
SUR-928	2011-05-12	<1	<1	<1	26	26		<0.5	12	<1	10	15	36.3	
SUR-928	2011-09-15	<1	<1	<1	28	28		<0.5	12	<1	12	6	30.8	
SUR-928	2011-11-17	<1	<1	<1	31	31		<0.5	13	<1	6	17	36.8	
SUR-928	2012-02-29	<1	<1	<1	20	20	26	<0.5	16	<1	5	18	39	36
SUR-928	2012-05-09	<1	<1	<1	27	27	26	<0.5	17	<1	21	17	55	41
SUR-928	2012-08-30	<1	<1	<1	23	23	25	<0.5	10	<1	<2	12	21	38
SUR-928	2012-11-29	<1	<1	<1	30	31	25	<0.5	7	<1	<2	19	26	36
SUR-930	2011-05-11	<1	<1	<1	40	40		<0.5	16	<1	4	36	56.2	
SUR-930	2011-09-14	<1	<1	<1	26	26		<0.5	19	<1	31	34	84.4	
SUR-930	2011-11-16	1	<1	<1	55	56		<0.5	7	<1	<2	72	78.3	
SUR-930	2012-02-29	<1	<1	<1	41	41	41	<0.5	4	<1	<2	53	57	69
SUR-930	2012-05-09	<1	<1	<1	37	37	40	<0.5	9	<1	2	38	49	67
SUR-930	2012-08-29	<1	<1	<1	26	26	40	<0.5	9	<1	2	24	35	55
SUR-930	2012-11-28	<1	<1	<1	52	52	39	<0.5	20	<1	4	58	82	56
SUR-931	2011-05-11	<1	<1	<1	40	41		<0.5	12	<1	3	34	49.4	
SUR-931	2011-09-14	<1	<1	<1	31	31		<0.5	13	<1	3	30	45.6	
SUR-931	2011-11-16	<1	<1	<1	50	50		<0.5	8	<1	6	62	76.1	
SUR-931	2012-02-29	<1	<1	<1	34	34	39	<0.5	4	<1	<2	29	34	51
SUR-931	2012-05-09	<1	<1	<1	35	35	38	<0.5	7	<1	<2	30	36	48
SUR-931	2012-08-29	<1	<1	<1	25	25	36	<0.5	5	<1	<2	31	36	46
SUR-931	2012-11-28	<1	<1	<1	50	50	36	<0.5	29	<1	4	42	76	45
SUR-940	2011-05-11	<1	<1	<1	35	35		<0.5	20	<1	13	30	62	
SUR-940	2011-09-14	<1	<1	<1	32	32		<0.5	20	<1	6	30	56.2	
SUR-940	2011-11-16	<1	<1	<1	45	45		<0.5	27	<1	13	57	97.1	
SUR-940	2012-02-29	<1	<1	<1	34	34	36	<0.5	18	<1	8	27	53	67
SUR-940	2012-05-09	<1	<1	<1	34	34	36	<0.5	24	<1	24	25	73	70
SUR-940	2012-08-29	<1	<1	<1	25	25	34	<0.5	14	<1	7	21	42	66
SUR-940	2012-11-28	<1	<1	<1	49	49	36	<0.5	24	<1	4	41	69	59

Comparison of Annual Disinfection Bi-Product Averages in the City of Surrey's Water System



Note: GCDWQ acceptable concentration for THMs is 100 ppb, and 80 ppb for HAAs

Year

■ THM Annual Average (ppb)
■ HAA Annual Average (ppb)

City of Surrey

2012 Semi-annual Metals Monitoring Results

Sample Station ID	Sample Station Location	Date & Time Sampled	Aluminum Total	Antimony Total	Arsenic Total	Barium Total	Boron Total	Cadmium Total	Calcium Total	Chromium Total	Cobalt Total	Copper Total	Iron Total	Lead Total	Magnesium Total	Manganese Total	Mercury Total	Molybdenum Total	Nickel Total	Potassium Total	Selenium Total	Silver Total	Sodium Total	Zinc Total
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
SUR-922	7768 - 155 St.	2012-04-23 9:07	43	<0.5	<0.5	3.3	<10	<0.2	2160	0.1	<0.5	2.1	35	<0.5	153	0.9	<0.05	<0.5	<0.5	166	<0.5	<0.5	3480	<3
SUR-922	7768 - 155 St.	2012-10-29 8:55	112	<0.5	<0.5	2.6	<10	<0.2	1020	0.06	<0.5	3.1	69	<0.5	93	2.1	<0.05	<0.5	<0.5	125	<0.5	<0.5	5510	<3
SUR-928	15349 - 57 Ave.	2012-04-26 8:35	37	<0.5	<0.5	3.3	<10	<0.2	2550	0.1	<0.5	2.8	21	<0.5	151	1	<0.05	<0.5	0.5	151	<0.5	<0.5	2420	6
SUR-928	15349 - 57 Ave.	2012-11-01 9:15	37	<0.5	<0.5	3.7	<10	<0.2	3330	0.14	<0.5	1.3	27	<0.5	156	1.2	<0.05	<0.5	<0.5	205	<0.5	<0.5	2050	<3
SUR-931	124 St. & 24 Ave.	2012-04-25 9:05	68	<0.5	<0.5	3	<10	<0.2	1600	0.1	<0.5	1.7	66	<0.5	94	1.1	<0.05	<0.5	<0.5	126	<0.5	<0.5	5120	5
SUR-931	124 St. & 24 Ave.	2012-10-31 9:10	108	<0.5	<0.5	3	<10	<0.2	1380	0.18	<0.5	2.1	60	<0.5	78	1.4	<0.05	<0.5	<0.5	140	<0.5	<0.5	5740	<3

City of Surrey

2012 Vinyl Chloride Results

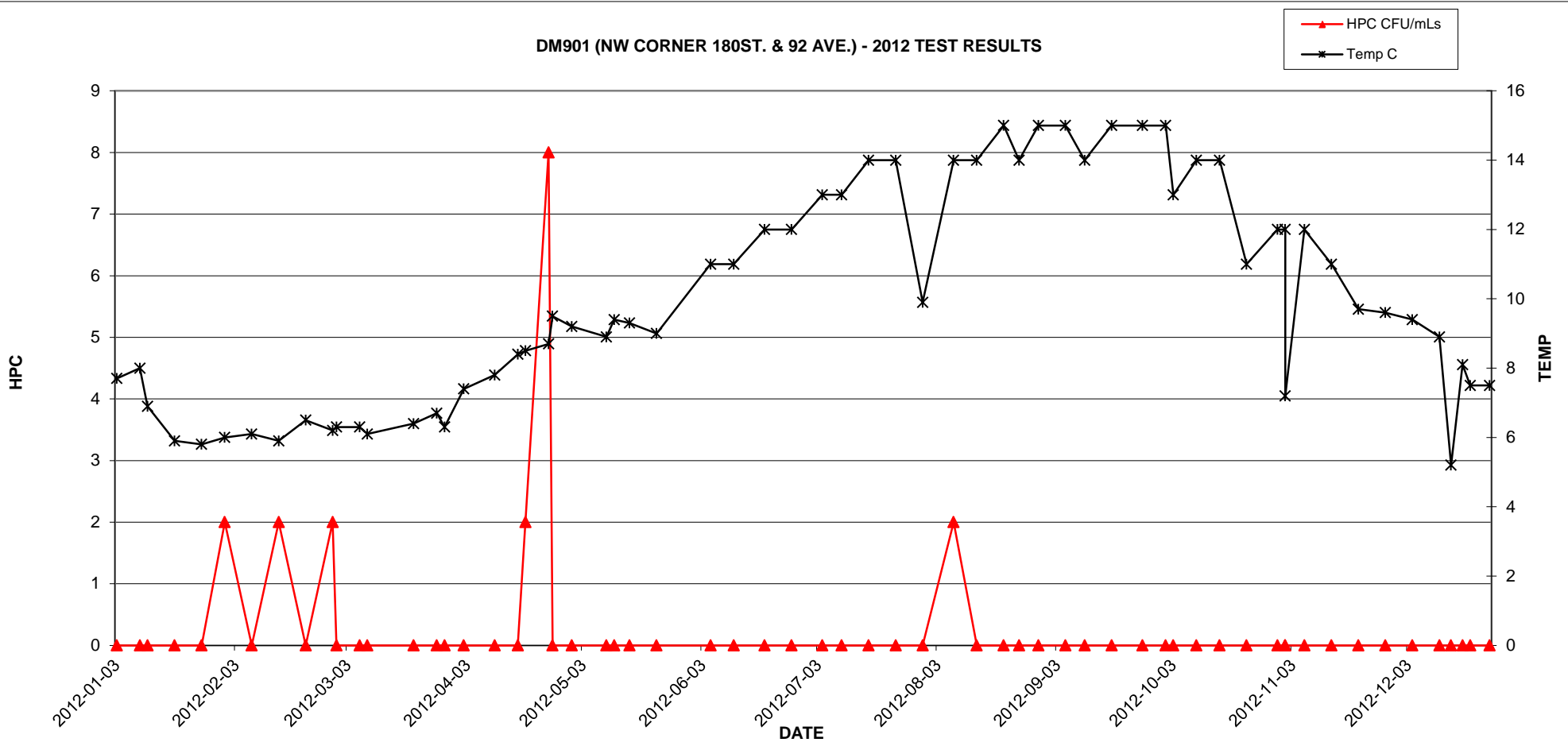
Sample Station ID	Sample Station Location	1st Half of 2012		2nd Half of 2012	
		Date Sampled	Vinyl Chloride µg/L	Date Sampled	Vinyl Chloride µg/L
901	180 St. & 92nd Ave.	24-Apr-12	<0.50	01-Nov-12	<0.50
902	18995 87A Ave.	24-Apr-12	<0.50	01-Nov-12	<0.50
928	15349 57 Ave.	26-Apr-12	<0.50	01-Nov-12	<0.50
930	SW Ent to Pkwy, S of 3031 139th St	25-Apr-12	<0.50	31-Oct-12	<0.50

Analysis for Vinyl Chloride was not done by Metro Vancouver
Laboratory but by Maxxam Analytics Inc.

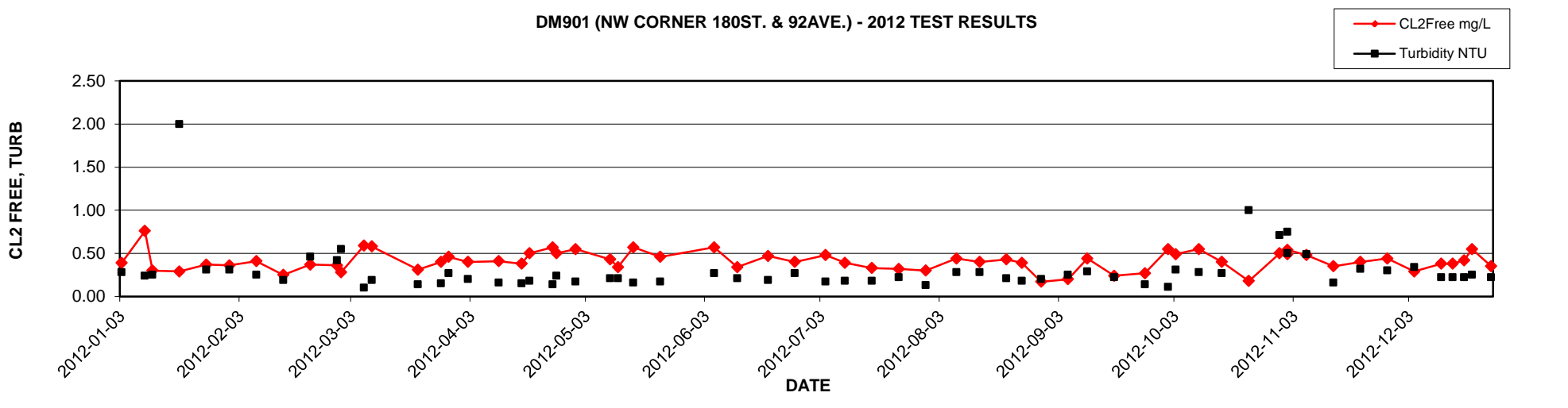
2012 GVRD Laboratory Report - DM901 (NW CORNER 180ST. & 92 AVE.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
03-Jan	0.39	<1	<2	<1	7.7	0.28
09-Jan	0.76	<1	<2	<1	8	0.24
11-Jan	0.30	<1	<2	<1	6.9	0.25
18-Jan	0.29	<1	<2	<1	5.9	2.00
25-Jan	0.37	<1	<2	<1	5.8	0.31
31-Jan	0.36	<1	2	<1	6	0.31
07-Feb	0.41	<1	<2	<1	6.1	0.25
14-Feb	0.25	<1	2	<1	5.9	0.19
21-Feb	0.37	<1	<2	<1	6.5	0.46
28-Feb	0.36	<1	2	<1	6.2	0.42
29-Feb	0.28	<1	<2	<1	6.3	0.55
06-Mar	0.59	<1	<2	<1	6.3	0.10
08-Mar	0.58	<1	<2	<1	6.1	0.19
20-Mar	0.31	<1	<2	<1	6.4	0.14
26-Mar	0.40	<1	<2	<1	6.7	0.15
28-Mar	0.46	<1	<2	<1	6.3	0.27
02-Apr	0.40	<1	<2	<1	7.4	0.20
10-Apr	0.41	<1	<2	<1	7.8	0.16
16-Apr	0.38	<1	<2	<1	8.4	0.15
18-Apr	0.50	<1	2	<1	8.5	0.18
24-Apr	0.57	<1	8	<1	8.7	0.14
25-Apr	0.50	<1	<2	<1	9.5	0.24
30-Apr	0.55	<1	<2	<1	9.2	0.17
09-May	0.43	<1	<2	<1	8.9	0.21
11-May	0.34	<1	<2	<1	9.4	0.21
15-May	0.57	<1	<2	<1	9.3	0.16
22-May	0.46	<1	<2	<1	9	0.17
05-Jun	0.57	<1	<2	<1	11	0.27
11-Jun	0.34	<1	<2	<1	11	0.21
19-Jun	0.47	<1	<2	<1	12	0.19
26-Jun	0.40	<1	<2	<1	12	0.27
04-Jul	0.48	<1	<2	<1	13	0.17
09-Jul	0.39	<1	<2	<1	13	0.18
16-Jul	0.33	<1	<2	<1	14	0.18
23-Jul	0.32	<1	<2	<1	14	0.22
30-Jul	0.30	<1	<2	<1	9.9	0.13
07-Aug	0.44	<1	2	<1	14	0.28
13-Aug	0.40	<1	<2	<1	14	0.28
20-Aug	0.43	<1	<2	<1	15	0.21
24-Aug	0.39	<1	<2	<1	14	0.18
29-Aug	0.17	<1	<2	<1	15	0.20
05-Sep	0.20	<1	<2	<1	15	0.25
10-Sep	0.44	<1	<2	<1	14	0.29
17-Sep	0.24	<1	<2	<1	15	0.22
25-Sep	0.27	<1	<2	<1	15	0.14
01-Oct	0.55	<1	<2	<1	15	0.11
03-Oct	0.49	<1	<2	<1	13	0.31
09-Oct	0.55	<1	<2	<1	14	0.28
15-Oct	0.40	<1	<2	<1	14	0.27
22-Oct	0.18	<1	<2	<1	11	1.00
30-Oct	0.50	<1	<2	<1	12	0.71
01-Nov	0.49	<1	<2	<1	12	0.50
01-Nov	0.54	<1	<2	<1	7.2	0.75
06-Nov	0.48	<1	<2	<1	12	0.49
13-Nov	0.35	<1	<2	<1	11	0.16
20-Nov	0.40	<1	<2	<1	9.7	0.32
27-Nov	0.44	<1	<2	<1	9.6	0.30
04-Dec	0.29	<1	<2	<1	9.4	0.34
11-Dec	0.38	<1	<2	<1	8.9	0.22
14-Dec	0.38	<1	<2	<1	5.2	0.22
17-Dec	0.42	<1	<2	<1	8.1	0.22
19-Dec	0.55	<1	<2	<1	7.5	0.25
24-Dec	0.35	<1	NA	<1	7.5	0.22

DM901 (NW CORNER 180ST. & 92 AVE.) - 2012 TEST RESULTS

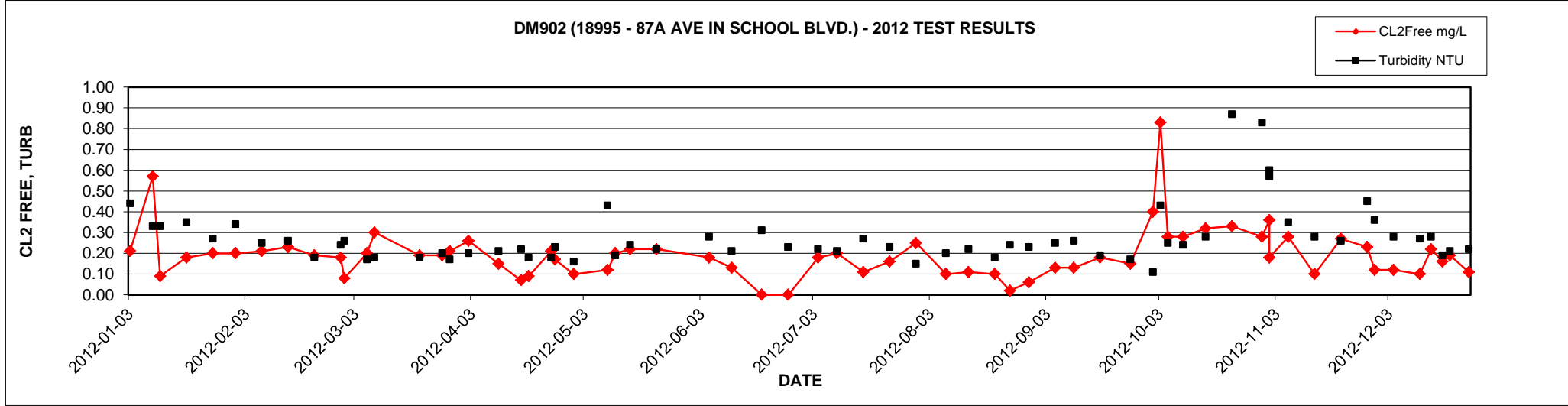
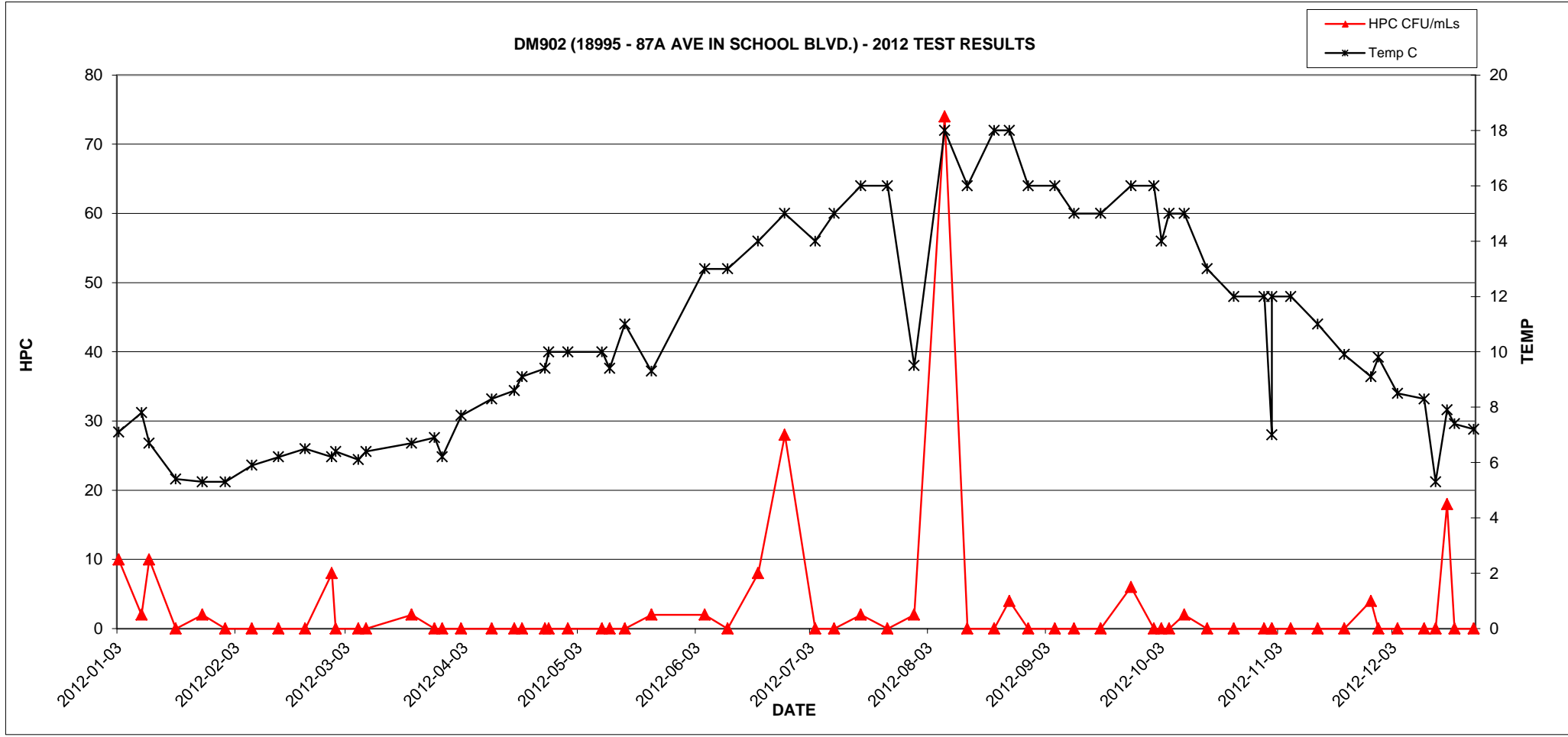


DM901 (NW CORNER 180ST. & 92AVE.) - 2012 TEST RESULTS



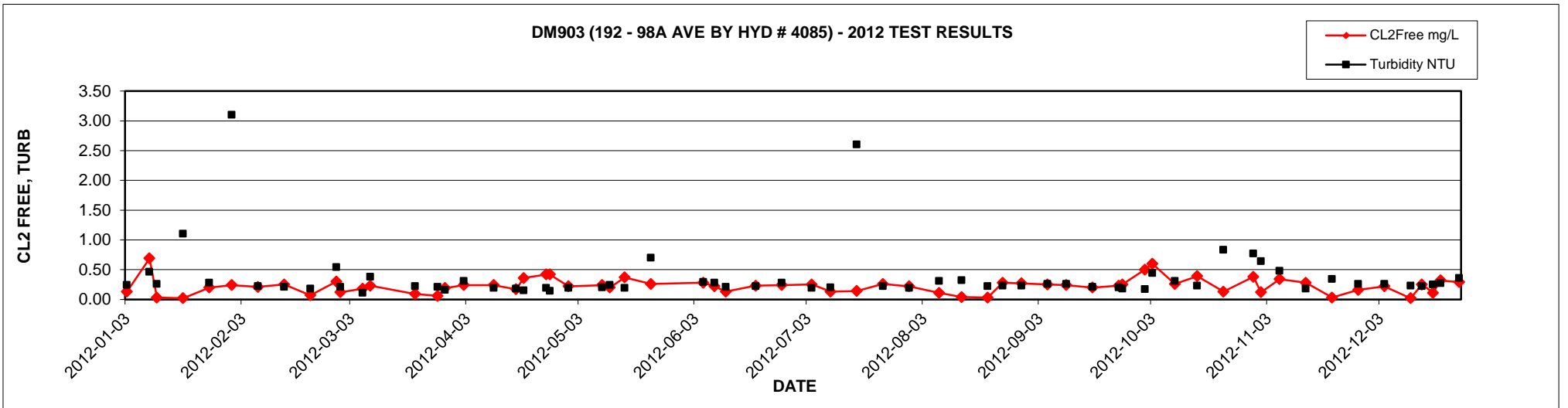
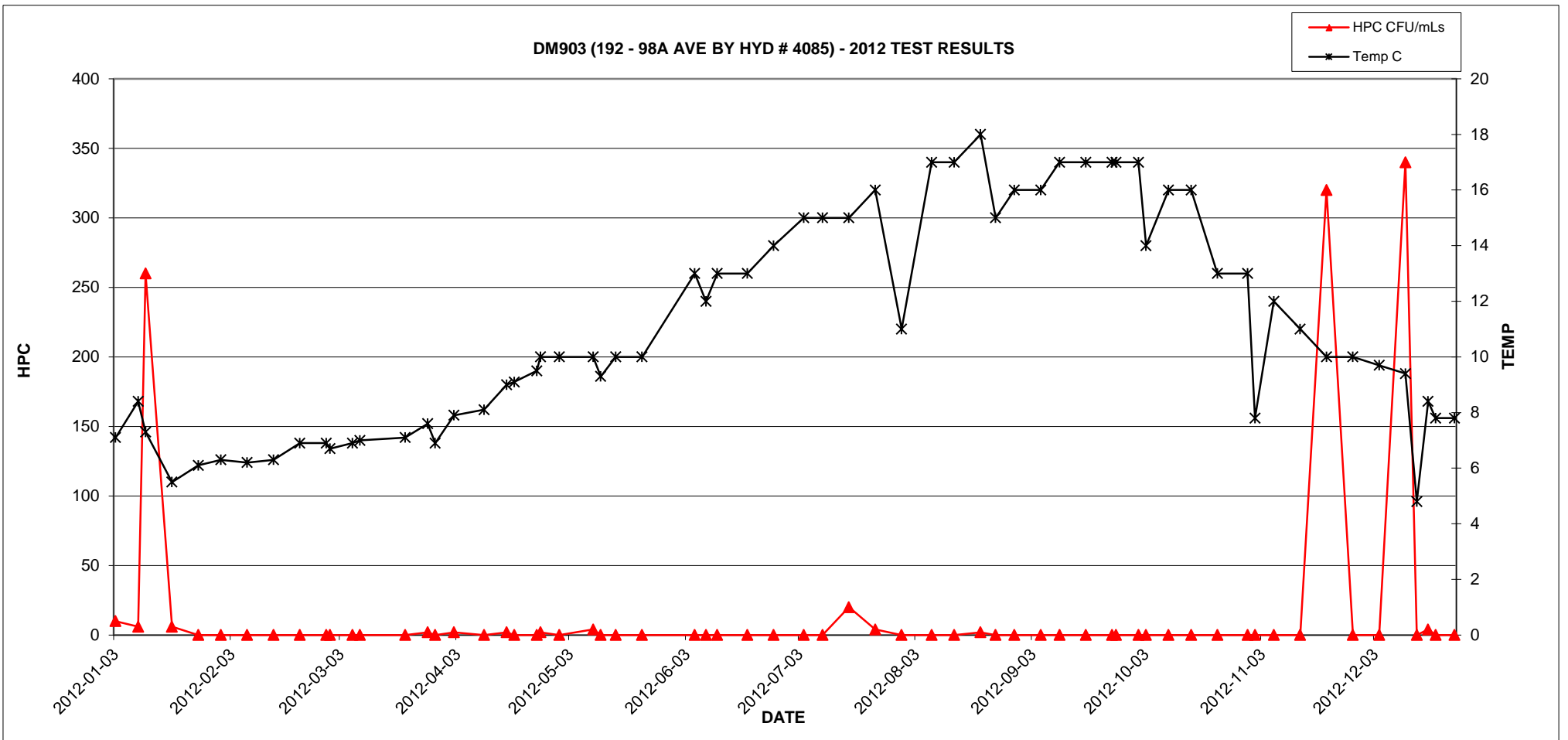
2012 GVRD Laboratory Report - DM902 (18995 - 87A AVE IN SCHOOL BLVD.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
03-Jan	0.21	<1	10	<1	7.1	0.44
09-Jan	0.57	<1	2	<1	7.8	0.33
11-Jan	0.09	<1	10	<1	6.7	0.33
18-Jan	0.18	<1	<2	<1	5.4	0.35
25-Jan	0.20	<1	2	<1	5.3	0.27
31-Jan	0.20	<1	<2	<1	5.3	0.34
07-Feb	0.21	<1	<2	<1	5.9	0.25
14-Feb	0.23	<1	<2	<1	6.2	0.26
21-Feb	0.19	<1	<2	<1	6.5	0.18
28-Feb	0.18	<1	8	<1	6.2	0.24
29-Feb	0.08	<1	<2	<1	6.4	0.26
06-Mar	0.20	<1	<2	<1	6.1	0.17
08-Mar	0.30	<1	<2	<1	6.4	0.18
20-Mar	0.19	<1	2	<1	6.7	0.18
26-Mar	0.19	<1	<2	<1	6.9	0.20
28-Mar	0.21	<1	<2	<1	6.2	0.17
02-Apr	0.26	<1	<2	<1	7.7	0.20
10-Apr	0.15	<1	<2	<1	8.3	0.21
16-Apr	0.07	<1	<2	<1	8.6	0.22
18-Apr	0.09	<1	<2	<1	9.1	0.18
24-Apr	0.21	<1	<2	<1	9.4	0.18
25-Apr	0.17	<1	<2	<1	10	0.23
30-Apr	0.10	<1	<2	<1	10	0.16
09-May	0.12	<1	<2	<1	10	0.43
11-May	0.20	<1	<2	<1	9.4	0.19
15-May	0.22	<1	<2	<1	11	0.24
22-May	0.22	<1	2	<1	9.3	0.22
05-Jun	0.18	<1	2	<1	13	0.28
11-Jun	0.13	<1	<2	<1	13	0.21
19-Jun	<0.01	<1	8	<1	14	0.31
26-Jun	<0.01	<1	28	<1	15	0.23
04-Jul	0.18	<1	<2	<1	14	0.22
09-Jul	0.20	<1	<2	<1	15	0.21
16-Jul	0.11	<1	2	<1	16	0.27
23-Jul	0.16	<1	<2	<1	16	0.23
30-Jul	0.25	<1	2	<1	9.5	0.15
07-Aug	0.10	<1	74	<1	18	0.20
13-Aug	0.11	<1	<2	<1	16	0.22
20-Aug	0.10	<1	<2	<1	18	0.18
24-Aug	0.02	<1	4	<1	18	0.24
29-Aug	0.06	<1	<2	<1	16	0.23
05-Sep	0.13	<1	<2	<1	16	0.25
10-Sep	0.13	<1	<2	<1	15	0.26
17-Sep	0.18	<1	<2	>1	15	0.19
25-Sep	0.15	<1	6	<1	16	0.17
01-Oct	0.40	<1	<2	<1	16	0.11
03-Oct	0.83	<1	<2	<1	14	0.43
05-Oct	0.28	<1	<2	<1	15	0.25
09-Oct	0.28	<1	2	<1	15	0.24
15-Oct	0.32	<1	<2	<1	13	0.28
22-Oct	0.33	<1	<2	<1	12	0.87
30-Oct	0.28	<1	<2	<1	12	0.83
01-Nov	0.36	<1	<2	<1	7	0.60
01-Nov	0.18	<1	<2	<1	12	0.57
06-Nov	0.28	<1	<2	<1	12	0.35
13-Nov	0.10	<1	<2	<1	11	0.28
20-Nov	0.27	<1	<2	<1	9.9	0.26
27-Nov	0.23	<1	4	<1	9.1	0.45
29-Nov	0.12	<1	<2	<1	9.8	0.36
04-Dec	0.12	<1	<2	<1	8.5	0.28
11-Dec	0.10	<1	<2	<1	8.3	0.27
14-Dec	0.22	<1	<2	<1	5.3	0.28
17-Dec	0.16	<1	18	<1	7.9	0.19
19-Dec	0.19	<1	<2	<1	7.4	0.21
24-Dec	0.11	<1	NA	<1	7.2	0.22



2012 GVRD Laboratory Report - DM903 (192 - 98A AVE BY HYD # 4085)

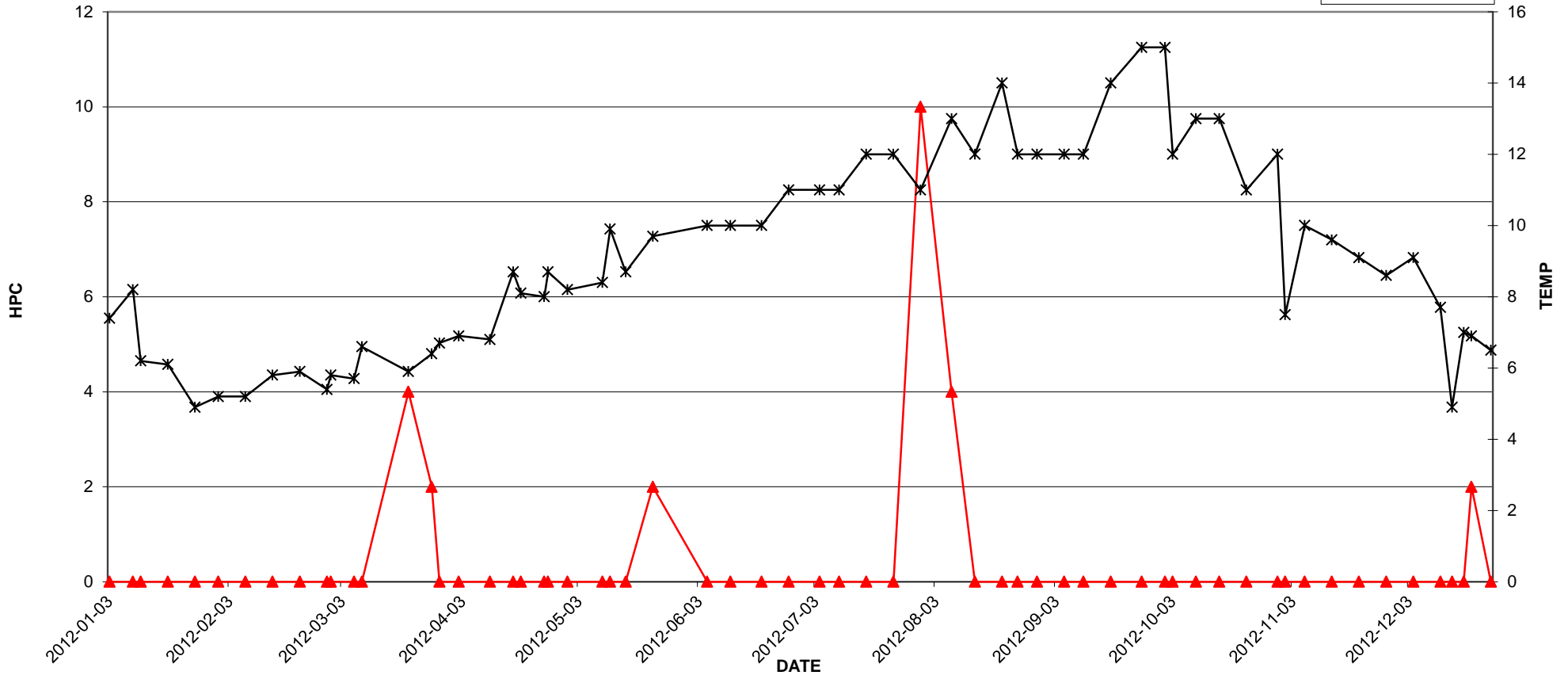
Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
03-Jan	0.13	<1	10	<1	7.1	0.24
09-Jan	0.69	<1	6	<1	8.4	0.46
11-Jan	0.03	<1	260	<1	7.3	0.26
18-Jan	0.02	<1	6	<1	5.5	1.10
25-Jan	0.20	<1	<2	<1	6.1	0.28
31-Jan	0.24	<1	<2	<1	6.3	3.10
07-Feb	0.21	<1	<2	<1	6.2	0.22
14-Feb	0.25	<1	<2	<1	6.3	0.21
21-Feb	0.07	<1	<2	<1	6.9	0.18
28-Feb	0.30	<1	<2	<1	6.9	0.54
29-Feb	0.12	<1	<2	<1	6.7	0.21
06-Mar	0.18	<1	<2	<1	6.9	0.11
08-Mar	0.23	<1	<2	<1	7	0.38
20-Mar	0.09	<1	<2	<1	7.1	0.22
26-Mar	0.06	<1	2	<1	7.6	0.21
28-Mar	0.19	<1	<2	<1	6.9	0.16
02-Apr	0.24	<1	2	<1	7.9	0.31
10-Apr	0.24	<1	<2	<1	8.1	0.19
16-Apr	0.17	<1	2	<1	9	0.18
18-Apr	0.36	<1	<2	<1	9.1	0.15
24-Apr	0.42	<1	<2	<1	9.5	0.19
25-Apr	0.42	<1	2	<1	10	0.14
30-Apr	0.22	<1	<2	<1	10	0.19
09-May	0.24	<1	4	<1	10	0.20
11-May	0.20	<1	<2	<1	9.3	0.24
15-May	0.37	<1	<2	<1	10	0.19
22-May	0.26	<1	<2	<1	10	0.70
05-Jun	0.28	<1	<2	<1	13	0.29
08-Jun	0.22	<1	<2	<1	12	0.28
11-Jun	0.13	<1	<2	<1	13	0.21
19-Jun	0.23	<1	<2	<1	13	0.22
26-Jun	0.24	<1	<2	<1	14	0.28
04-Jul	0.25	<1	<2	<1	15	0.19
09-Jul	0.13	<1	<2	<1	15	0.20
16-Jul	0.14	<1	20	<1	15	2.60
23-Jul	0.26	<1	4	<1	16	0.22
30-Jul	0.22	<1	<2	<1	11	0.19
07-Aug	0.11	<1	<2	<1	17	0.31
13-Aug	0.04	<1	<2	<1	17	0.32
20-Aug	0.03	<1	2	<1	18	0.22
24-Aug	0.28	<1	<2	<1	15	0.23
29-Aug	0.27	<1	<2	<1	16	0.23
05-Sep	0.25	<1	<2	<1	16	0.26
10-Sep	0.24	<1	<2	<1	17	0.26
17-Sep	0.20	<1	<2	<1	17	0.21
24-Sep	0.23	<1	<2	<1	17	0.20
25-Sep	0.25	<1	<2	<1	17	0.18
01-Oct	0.50	<1	<2	<1	17	0.17
03-Oct	0.60	<1	<2	<1	14	0.44
09-Oct	0.26	<1	<2	<1	16	0.31
15-Oct	0.39	<1	<2	<1	16	0.23
22-Oct	0.13	<1	<2	<1	13	0.83
30-Oct	0.38	<1	<2	<1	13	0.77
01-Nov	0.12	<1	<2	<1	7.8	0.64
06-Nov	0.34	<1	<2	<1	12	0.48
13-Nov	0.28	<1	<2	<1	11	0.18
20-Nov	0.03	<1	320	<1	10	0.34
27-Nov	0.16	<1	<2	<1	10	0.26
04-Dec	0.22	<1	<2	<1	9.7	0.26
11-Dec	0.02	<1	340	<1	9.4	0.23
14-Dec	0.25	<1	<2	<1	4.8	0.22
17-Dec	0.11	<1	4	<1	8.4	0.25
19-Dec	0.32	<1	<2	<1	7.8	0.27
24-Dec	0.29	<1	NA	<1	7.8	0.36



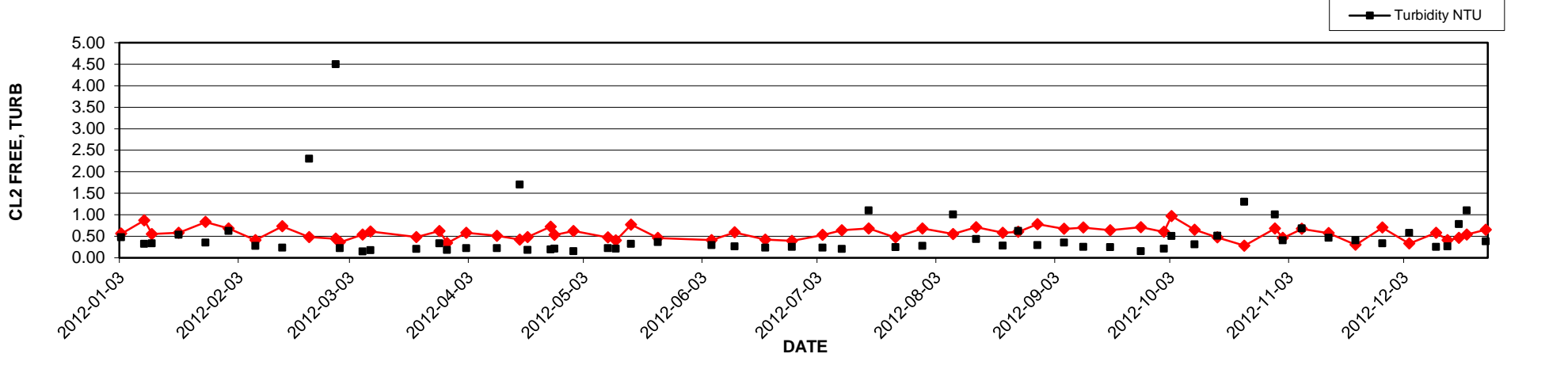
2012 GVRD Laboratory Report - DM904 (E OF HYDR No. 4737 ON TRIGGS RD.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
03-Jan	0.56	<1	<2	<1	7.4	0.47
09-Jan	0.87	<1	<2	<1	8.2	0.32
11-Jan	0.55	<1	<2	<1	6.2	0.33
18-Jan	0.58	<1	<2	<1	6.1	0.53
25-Jan	0.83	<1	<2	<1	4.9	0.35
31-Jan	0.68	<1	<2	<1	5.2	0.62
07-Feb	0.41	<1	<2	<1	5.2	0.27
14-Feb	0.73	<1	<2	<1	5.8	0.23
21-Feb	0.48	<1	<2	<1	5.9	2.30
28-Feb	0.44	<1	<2	<1	5.4	4.50
29-Feb	0.36	<1	<2	<1	5.8	0.22
06-Mar	0.54	<1	<2	<1	5.7	0.14
08-Mar	0.61	<1	<2	<1	6.6	0.17
20-Mar	0.48	<1	4	<1	5.9	0.20
26-Mar	0.62	<1	2	<1	6.4	0.33
28-Mar	0.34	<1	<2	<1	6.7	0.18
02-Apr	0.58	<1	<2	<1	6.9	0.22
10-Apr	0.51	<1	<2	<1	6.8	0.22
16-Apr	0.42	<1	<2	<1	8.7	1.70
18-Apr	0.48	<1	<2	<1	8.1	0.18
24-Apr	0.72	<1	<2	<1	8	0.19
25-Apr	0.53	<1	<2	<1	8.7	0.21
30-Apr	0.62	<1	<2	<1	8.2	0.15
09-May	0.47	<1	<2	<1	8.4	0.22
11-May	0.40	<1	<2	<1	9.9	0.21
15-May	0.77	<1	<2	<1	8.7	0.32
22-May	0.46	<1	2	<1	9.7	0.36
05-Jun	0.41	<1	<2	<1	10	0.29
11-Jun	0.59	<1	<2	<1	10	0.26
19-Jun	0.42	<1	<2	<1	10	0.23
26-Jun	0.39	<1	<2	<1	11	0.25
04-Jul	0.53	<1	<2	<1	11	0.23
09-Jul	0.64	<1	<2	<1	11	0.20
16-Jul	0.68	<1	<2	<1	12	1.10
23-Jul	0.47	<1	<2	<1	12	0.24
30-Jul	0.68	<1	10	<1	11	0.27
07-Aug	0.55	<1	4	<1	13	1.00
13-Aug	0.71	<1	<2	<1	12	0.43
20-Aug	0.58	<1	<2	<1	14	0.28
24-Aug	0.60	<1	<2	<1	12	0.62
29-Aug	0.78	<1	<2	<1	12	0.29
05-Sep	0.67	<1	<2	<1	12	0.35
10-Sep	0.70	<1	<2	<1	12	0.25
17-Sep	0.64	<1	<2	<1	14	0.24
25-Sep	0.71	<1	<2	<1	15	0.15
01-Oct	0.60	<1	<2	<1	15	0.21
03-Oct	0.97	<1	<2	<1	12	0.50
09-Oct	0.65	<1	<2	<1	13	0.31
15-Oct	0.47	<1	<2	<1	13	0.51
22-Oct	0.28	<1	<2	<1	11	1.30
30-Oct	0.68	<1	<2	<1	12	1.00
01-Nov	0.46	<1	<2	<1	7.5	0.40
06-Nov	0.67	<1	<2	<1	10	0.68
13-Nov	0.57	<1	<2	<1	9.6	0.46
20-Nov	0.30	<1	<2	<1	9.1	0.40
27-Nov	0.70	<1	<2	<1	8.6	0.33
04-Dec	0.33	<1	<2	<1	9.1	0.57
11-Dec	0.58	<1	<2	<1	7.7	0.25
14-Dec	0.41	<1	<2	<1	4.9	0.26
17-Dec	0.46	<1	<2	<1	7	0.78
19-Dec	0.54	<1	2	<1	6.9	1.10
24-Dec	0.65	<1	NA	<1	6.5	0.38

DM904 (E OF HYDR No. 4737 ON TRIGGS RD.) - 2012 TEST RESULTS



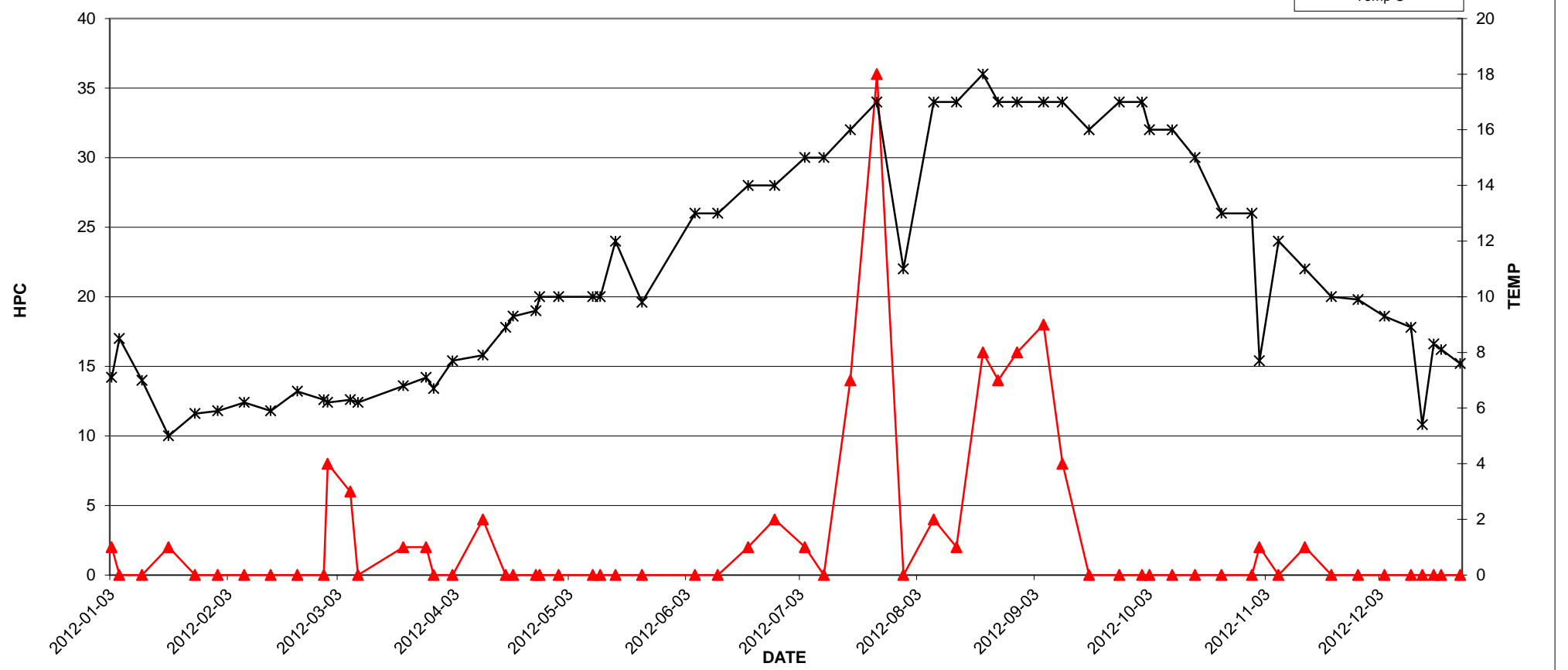
DM904 (E OF HYDR No. 4737 ON TRIGGS RD.) - 2012 TEST RESULTS



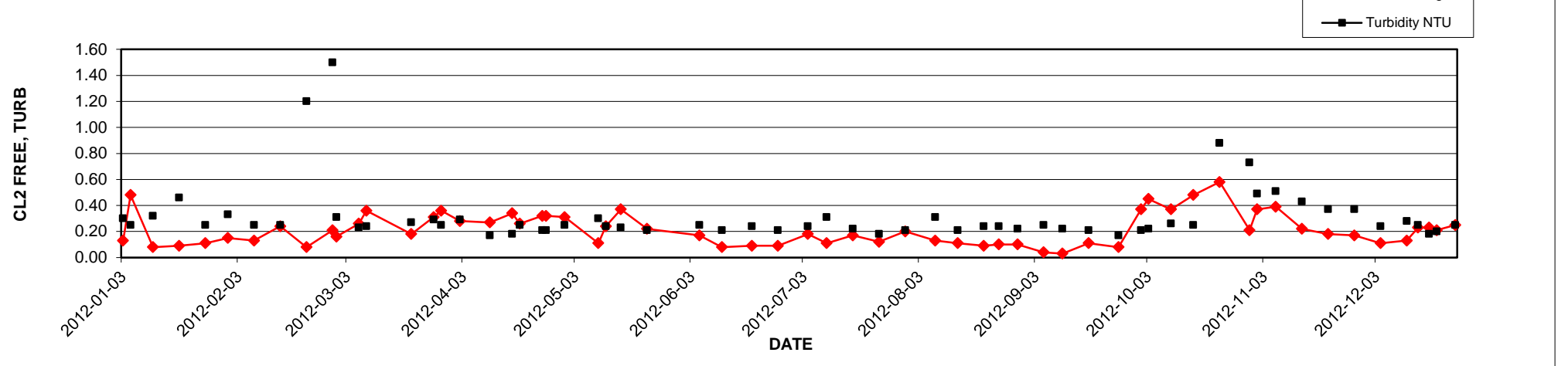
2012 GVRD Laboratory Report - DM905 (SE CORNER 170A ST. & 102 AVE.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
03-Jan	0.13	<1	2	<1	7.1	0.30
05-Jan	0.48	<1	<2	<1	8.5	0.25
11-Jan	0.08	<1	<2	<1	7	0.32
18-Jan	0.09	<1	2	<1	5	0.46
25-Jan	0.11	<1	<2	<1	5.8	0.25
31-Jan	0.15	<1	<2	<1	5.9	0.33
07-Feb	0.13	<1	<2	<1	6.2	0.25
14-Feb	0.24	<1	<2	<1	5.9	0.25
21-Feb	0.08	<1	<2	<1	6.6	1.20
28-Feb	0.21	<1	<2	<1	6.3	1.50
29-Feb	0.16	<1	8	<1	6.2	0.31
06-Mar	0.26	<1	6	<1	6.3	0.23
08-Mar	0.36	<1	<2	<1	6.2	0.24
20-Mar	0.18	<1	2	<1	6.8	0.27
26-Mar	0.31	<1	2	<1	7.1	0.29
28-Mar	0.36	<1	<2	<1	6.7	0.25
02-Apr	0.28	<1	<2	<1	7.7	0.29
10-Apr	0.27	<1	4	<1	7.9	0.17
16-Apr	0.34	<1	<2	<1	8.9	0.18
18-Apr	0.26	<1	<2	<1	9.3	0.25
24-Apr	0.32	<1	<2	<1	9.5	0.21
25-Apr	0.32	<1	<2	<1	10	0.21
30-Apr	0.31	<1	<2	<1	10	0.25
09-May	0.11	<1	<2	<1	10	0.30
11-May	0.24	<1	<2	<1	10	0.24
15-May	0.37	<1	<2	<1	12	0.23
22-May	0.22	<1	<2	<1	9.8	0.21
05-Jun	0.17	<1	<2	<1	13	0.25
11-Jun	0.08	<1	<2	<1	13	0.21
19-Jun	0.09	<1	2	<1	14	0.24
26-Jun	0.09	<1	4	<1	14	0.21
04-Jul	0.18	<1	2	<1	15	0.24
09-Jul	0.11	<1	<2	<1	15	0.31
16-Jul	0.17	<1	14	<1	16	0.22
23-Jul	0.12	<1	36	<1	17	0.18
30-Jul	0.20	<1	<2	<1	11	0.21
07-Aug	0.13	<1	4	<1	17	0.31
13-Aug	0.11	<1	2	<1	17	0.21
20-Aug	0.09	<1	16	<1	18	0.24
24-Aug	0.10	<1	14	<1	17	0.24
29-Aug	0.10	<1	16	<1	17	0.22
05-Sep	0.04	<1	18	<1	17	0.25
10-Sep	0.03	<1	8	>1	17	0.22
17-Sep	0.11	<1	<2	<1	16	0.21
25-Sep	0.08	<1	<2	<1	17	0.17
01-Oct	0.37	<1	<2	<1	17	0.21
03-Oct	0.45	<1	<2	<1	16	0.22
09-Oct	0.37	<1	<2	<1	16	0.26
15-Oct	0.48	<1	<2	<1	15	0.25
22-Oct	0.58	<1	<2	<1	13	0.88
30-Oct	0.21	<1	<2	<1	13	0.73
01-Nov	0.37	<1	2	<1	7.7	0.49
06-Nov	0.39	<1	<2	<1	12	0.51
13-Nov	0.22	<1	2	<1	11	0.43
20-Nov	0.18	<1	<2	<1	10	0.37
27-Nov	0.17	<1	<2	<1	9.9	0.37
04-Dec	0.11	<1	<2	<1	9.3	0.24
11-Dec	0.13	<1	<2	<1	8.9	0.28
14-Dec	0.23	<1	<2	<1	5.4	0.25
17-Dec	0.23	<1	<2	<1	8.3	0.18
19-Dec	0.21	<1	<2	<1	8.1	0.20
24-Dec	0.25	<1	NA	<1	7.6	0.25

DM905 (SE CORNER 170A ST. & 102 AVE.) - 2012 TEST RESULTS



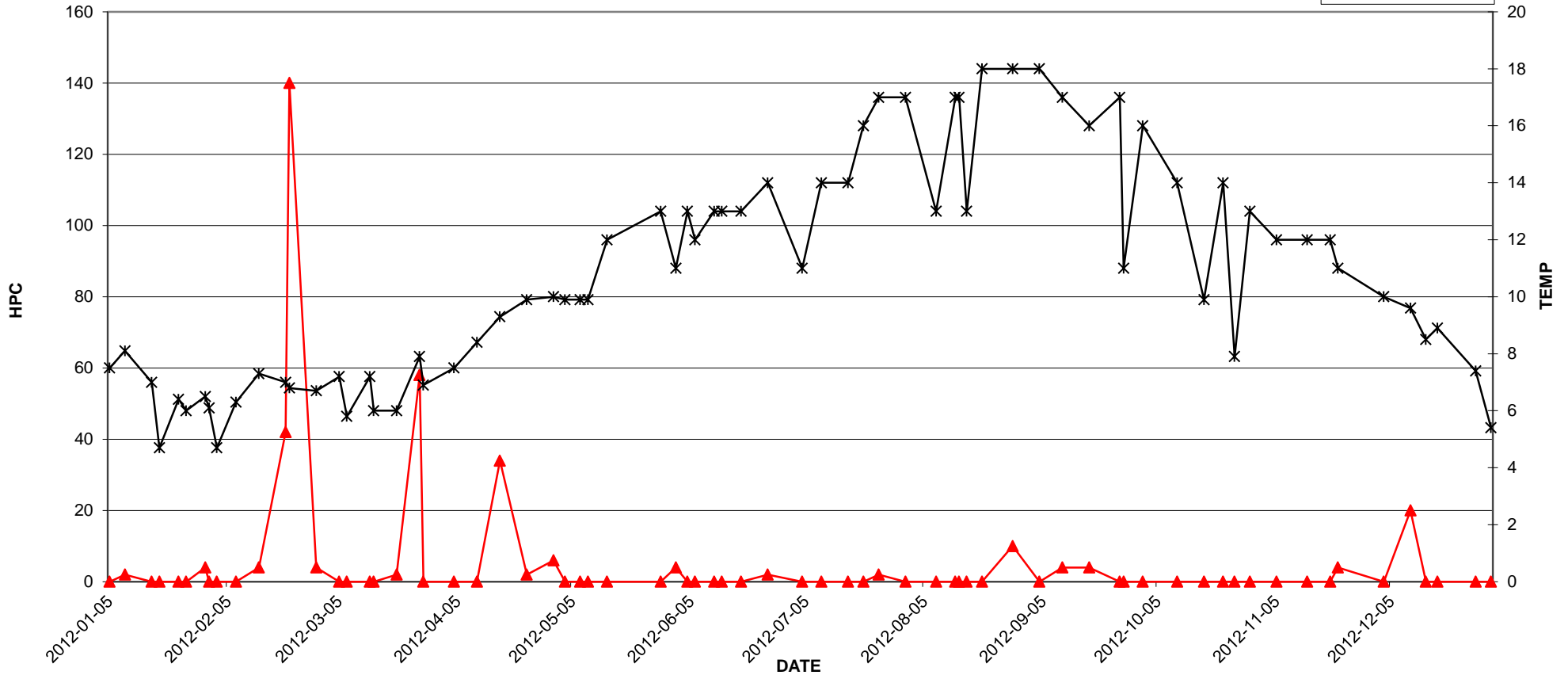
DM905 (SE CORNER 170A ST. & 102 AVE.) - 2012 TEST RESULTS



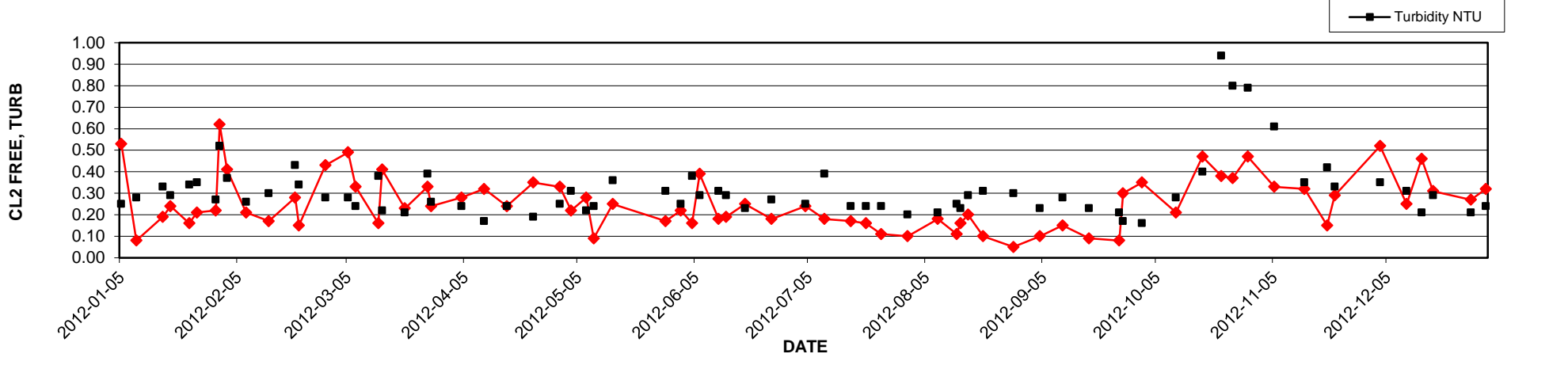
2012 GVRD Laboratory Report - DM906 (SE CORNER 161 ST. & 102 AVE.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
05-Jan	0.53	<1	<2	<1	7.5	0.25
09-Jan	0.08	<1	2	<1	8.1	0.28
16-Jan	0.19	<1	<2	<1	7	0.33
18-Jan	0.24	<1	<2	<1	4.7	0.29
23-Jan	0.16	<1	<2	<1	6.4	0.34
25-Jan	0.21	<1	<2	<1	6	0.35
30-Jan	0.22	<1	4	<1	6.5	0.27
31-Jan	0.62	<1	<2	<1	6.1	0.52
02-Feb	0.41	<1	<2	<1	4.7	0.37
07-Feb	0.21	<1	<2	<1	6.3	0.26
13-Feb	0.17	<1	4	<1	7.3	0.30
20-Feb	0.28	<1	42	<1	7	0.43
21-Feb	0.15	<1	140	<1	6.8	0.34
28-Feb	0.43	<1	4	<1	6.7	0.28
05-Mar	0.49	<1	<2	<1	7.2	0.28
07-Mar	0.33	<1	<2	<1	5.8	0.24
13-Mar	0.16	<1	<2	<1	7.2	0.38
14-Mar	0.41	<1	<2	<1	6	0.22
20-Mar	0.23	<1	2	<1	6	0.21
26-Mar	0.33	<1	58	<1	7.9	0.39
27-Mar	0.24	<1	<2	<1	6.9	0.26
04-Apr	0.28	<1	<2	<1	7.5	0.24
10-Apr	0.32	<1	<2	<1	8.4	0.17
16-Apr	0.24	<1	34	<1	9.3	0.24
23-Apr	0.35	<1	2	<1	9.9	0.19
30-Apr	0.33	<1	6	<1	10	0.25
03-May	0.22	<1	<2	<1	9.9	0.31
07-May	0.28	<1	<2	<1	9.9	0.22
09-May	0.09	<1	<2	<1	9.9	0.24
14-May	0.25	<1	<2	<1	12	0.36
28-May	0.17	<1	<2	<1	13	0.31
01-Jun	0.22	<1	4	<1	11	0.25
04-Jun	0.16	<1	<2	<1	13	0.38
06-Jun	0.39	<1	<2	<1	12	0.29
11-Jun	0.18	<1	<2	<1	13	0.31
13-Jun	0.19	<1	<2	<1	13	0.29
18-Jun	0.25	<1	<2	<1	13	0.23
25-Jun	0.18	<1	2	<1	14	0.27
04-Jul	0.24	<1	<2	<1	11	0.25
09-Jul	0.18	<1	<2	<1	14	0.39
16-Jul	0.17	<1	<2	<1	14	0.24
20-Jul	0.16	<1	<2	<1	16	0.24
24-Jul	0.11	<1	2	<1	17	0.24
31-Jul	0.10	<1	<2	<1	17	0.20
08-Aug	0.18	<1	<2	<1	13	0.21
13-Aug	0.11	<1	<2	<1	17	0.25
14-Aug	0.16	<1	<2	<1	17	0.23
16-Aug	0.20	<1	<2	<1	13	0.29
20-Aug	0.10	<1	<2	<1	18	0.31
28-Aug	0.05	<1	10	<1	18	0.30
04-Sep	0.10	<1	<2	<1	18	0.23
10-Sep	0.15	<1	4	<1	17	0.28
17-Sep	0.09	<1	4	<1	16	0.23
25-Sep	0.08	<1	<2	<1	17	0.21
26-Sep	0.30	<1	<2	<1	11	0.17
01-Oct	0.35	<1	<2	<1	16	0.16
10-Oct	0.21	<1	<2	<1	14	0.28
17-Oct	0.47	<1	<2	<1	9.9	0.40
22-Oct	0.38	<1	<2	<1	14	0.94
25-Oct	0.37	<1	<2	<1	7.9	0.80
29-Oct	0.47	<1	<2	<1	13	0.79
05-Nov	0.33	<1	<2	<1	12	0.61
13-Nov	0.32	<1	<2	<1	12	0.35
19-Nov	0.15	<1	<2	<1	12	0.42
21-Nov	0.29	<1	4	<1	11	0.33
03-Dec	0.52	<1	<2	<1	10	0.35
10-Dec	0.25	<1	20	<1	9.6	0.31
14-Dec	0.46	<1	<2	<1	8.5	0.21
17-Dec	0.31	<1	<2	<1	8.9	0.29
27-Dec	0.27	<1	NA	<1	7.4	0.21
31-Dec	0.32	<1	NA	<1	5.4	0.24

DM906 (SE CORNER 161 ST. & 102 AVE.) - 2012 TEST RESULTS



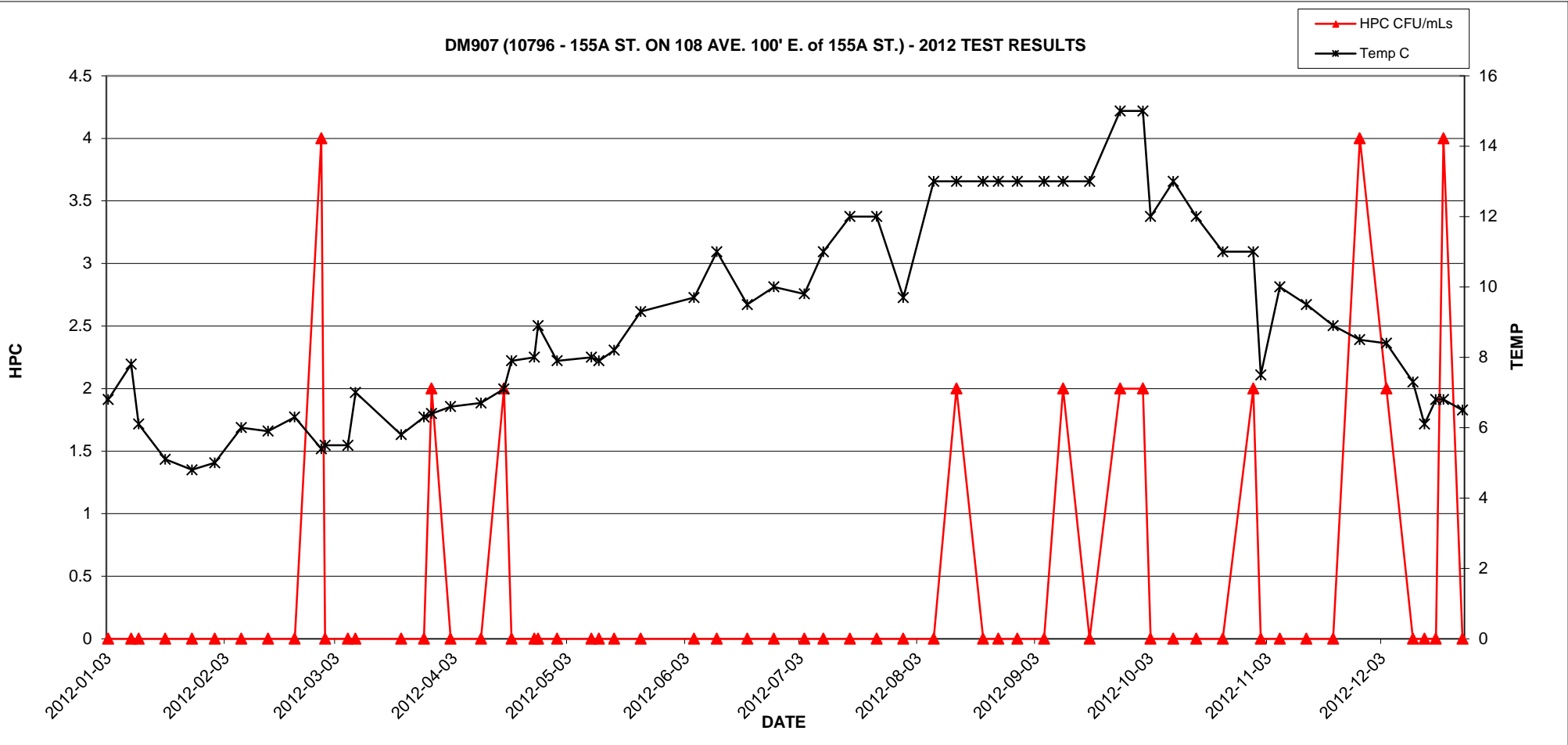
DM906 (SE CORNER 161 ST. & 102 AVE.) - 2012 TEST RESULTS



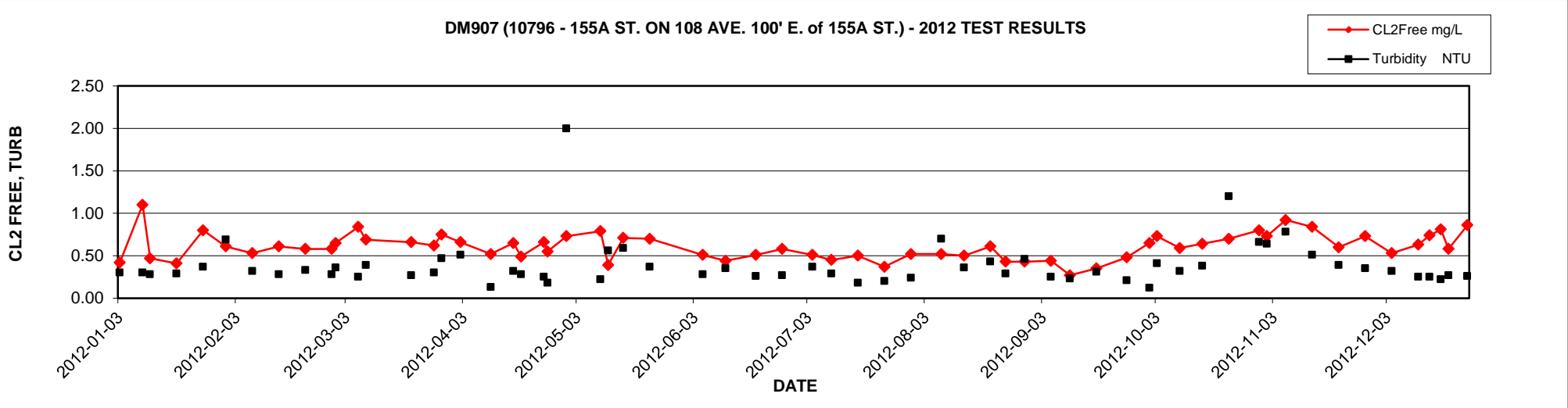
2012 GVRD Laboratory Report - DM907 (10796 - 155A ST. ON 108 AVE. 100' E. of 155A ST.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
03-Jan	0.42	<1	<2	<1	6.8	0.30
09-Jan	1.10	<1	<2	<1	7.8	0.30
11-Jan	0.47	<1	<2	<1	6.1	0.28
18-Jan	0.41	<1	<2	<1	5.1	0.29
25-Jan	0.80	<1	<2	<1	4.8	0.37
31-Jan	0.61	<1	<2	<1	5	0.69
07-Feb	0.53	<1	<2	<1	6	0.32
14-Feb	0.61	<1	<2	<1	5.9	0.28
21-Feb	0.58	<1	<2	<1	6.3	0.33
28-Feb	0.58	<1	4	<1	5.4	0.28
29-Feb	0.65	<1	<2	<1	5.5	0.36
06-Mar	0.84	<1	<2	<1	5.5	0.25
08-Mar	0.69	<1	<2	<1	7	0.39
20-Mar	0.66	<1	<2	<1	5.8	0.27
26-Mar	0.62	<1	<2	<1	6.3	0.30
28-Mar	0.75	<1	2	<1	6.4	0.47
02-Apr	0.66	<1	<2	<1	6.6	0.51
10-Apr	0.52	<1	<2	<1	6.7	0.13
16-Apr	0.65	<1	2	<1	7.1	0.32
18-Apr	0.49	<1	<2	<1	7.9	0.28
24-Apr	0.66	<1	<2	<1	8	0.25
25-Apr	0.55	<1	<2	<1	8.9	0.18
30-Apr	0.73	<1	<2	<1	7.9	2.00
09-May	0.79	<1	<2	<1	8	0.22
11-May	0.39	<1	<2	<1	7.9	0.56
15-May	0.71	<1	<2	<1	8.2	0.59
22-May	0.70	<1	<2	<1	9.3	0.37
05-Jun	0.51	<1	<2	<1	9.7	0.28
11-Jun	0.44	<1	<2	<1	11	0.35
19-Jun	0.51	<1	<2	<1	9.5	0.26
26-Jun	0.58	<1	<2	<1	10	0.27
04-Jul	0.51	<1	<2	<1	9.8	0.37
09-Jul	0.45	<1	<2	<1	11	0.29
16-Jul	0.50	<1	<2	<1	12	0.18
23-Jul	0.37	<1	<2	<1	12	0.20
30-Jul	0.52	<1	<2	<1	9.7	0.24
07-Aug	0.52	<1	<2	<1	13	0.70
13-Aug	0.50	<1	2	<1	13	0.36
20-Aug	0.61	<1	<2	<1	13	0.43
24-Aug	0.43	<1	<2	<1	13	0.29
29-Aug	0.43	<1	<2	<1	13	0.46
05-Sep	0.44	<1	<2	<1	13	0.25
10-Sep	0.27	<1	2	<1	13	0.23
17-Sep	0.35	<1	<2	<1	13	0.31
25-Sep	0.48	<1	2	<1	15	0.21
01-Oct	0.65	<1	2	<1	15	0.12
03-Oct	0.73	<1	<2	<1	12	0.41
09-Oct	0.59	<1	<2	<1	13	0.32
15-Oct	0.64	<1	<2	<1	12	0.38
22-Oct	0.70	<1	<2	<1	11	1.20
30-Oct	0.80	<1	2	<1	11	0.66
01-Nov	0.73	<1	<2	<1	7.5	0.64
06-Nov	0.92	<1	<2	<1	10	0.78
13-Nov	0.84	<1	<2	<1	9.5	0.51
20-Nov	0.60	<1	<2	<1	8.9	0.39
27-Nov	0.73	<1	4	<1	8.5	0.35
04-Dec	0.53	<1	2	<1	8.4	0.32
11-Dec	0.63	<1	<2	<1	7.3	0.25
14-Dec	0.74	<1	<2	<1	6.1	0.25
17-Dec	0.81	<1	<2	<1	6.8	0.22
19-Dec	0.58	<1	4	<1	6.8	0.27
24-Dec	0.86	<1	NA	<1	6.5	0.26

DM907 (10796 - 155A ST. ON 108 AVE. 100' E. of 155A ST.) - 2012 TEST RESULTS



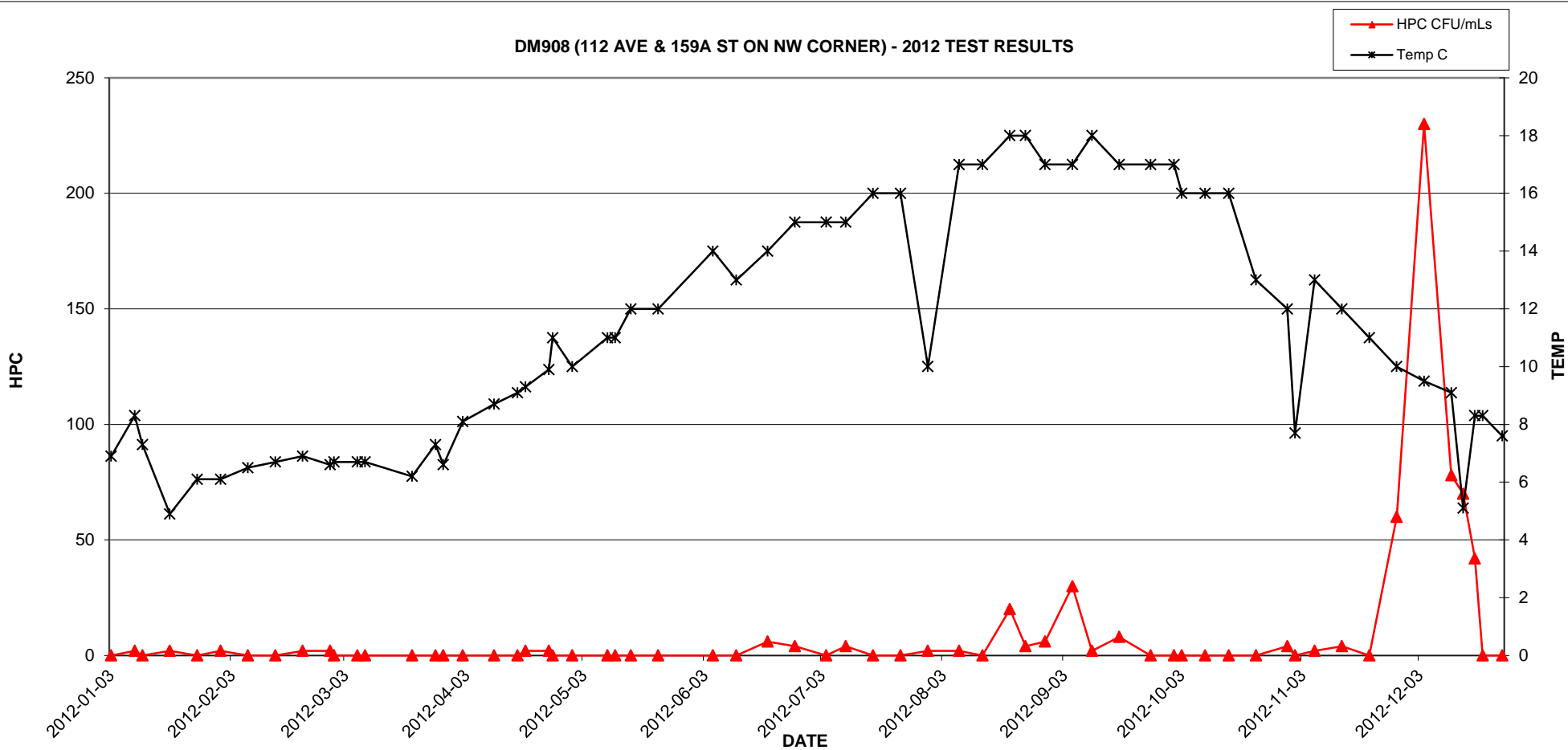
DM907 (10796 - 155A ST. ON 108 AVE. 100' E. of 155A ST.) - 2012 TEST RESULTS



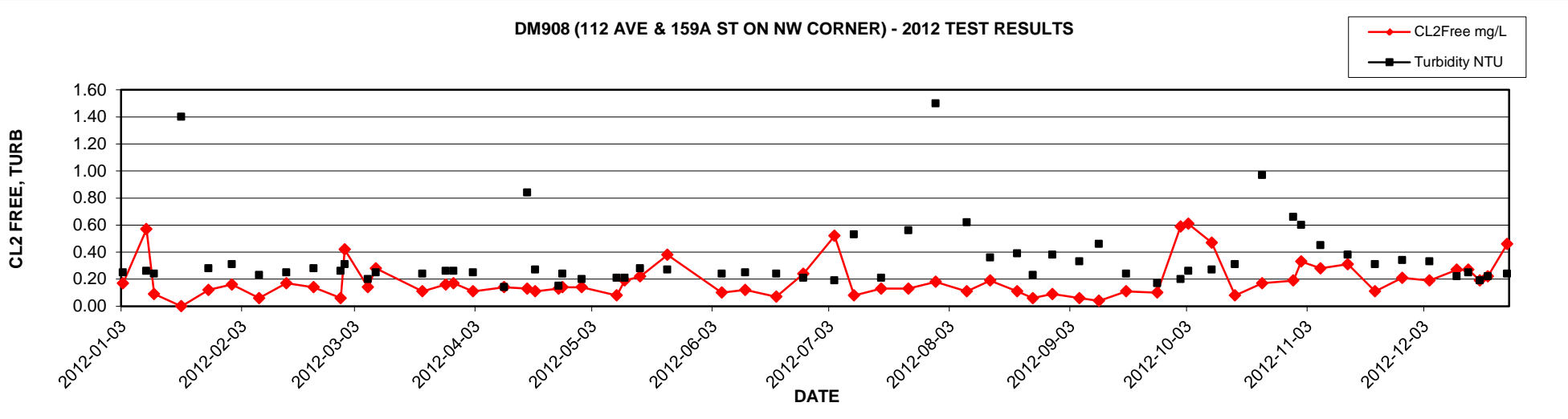
2012 GVRD Laboratory Report - DM908 (112 AVE & 159A ST ON NW CORNER)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
03-Jan	0.17	<1	<2	<1	6.9	0.25
09-Jan	0.57	<1	2	<1	8.3	0.26
11-Jan	0.09	<1	<2	<1	7.3	0.24
18-Jan	<0.01	<1	2	<1	4.9	1.40
25-Jan	0.12	<1	<2	<1	6.1	0.28
31-Jan	0.16	<1	2	<1	6.1	0.31
07-Feb	0.06	<1	<2	<1	6.5	0.23
14-Feb	0.17	<1	<2	<1	6.7	0.25
21-Feb	0.14	<1	2	<1	6.9	0.28
28-Feb	0.06	<1	2	<1	6.6	0.26
29-Feb	0.42	<1	<2	<1	6.7	0.31
08-Mar	0.28	<1	<2	<1	6.7	0.25
20-Mar	0.11	<1	<2	<1	6.2	0.24
02-Apr	0.11	<1	<2	<1	8.1	0.25
06-Mar	0.14	<1	<2	<1	6.7	0.20
26-Mar	0.16	<1	<2	<1	7.3	0.26
28-Mar	0.17	<1	<2	<1	6.6	0.26
10-Apr	0.14	<1	<2	<1	8.7	0.14
16-Apr	0.13	<1	<2	<1	9.1	0.84
18-Apr	0.11	<1	2	<1	9.3	0.27
24-Apr	0.13	<1	2	<1	9.9	0.15
25-Apr	0.14	<1	<2	<1	11	0.24
30-Apr	0.14	<1	<2	<1	10	0.20
09-May	0.08	<1	<2	<1	11	0.21
11-May	0.19	<1	<2	<1	11	0.21
15-May	0.22	<1	<2	<1	12	0.28
22-May	0.38	<1	<2	<1	12	0.27
05-Jun	0.10	<1	<2	<1	14	0.24
11-Jun	0.12	<1	<2	<1	13	0.25
19-Jun	0.07	<1	6	<1	14	0.24
26-Jun	0.24	<1	4	<1	15	0.21
04-Jul	0.52	<1	<2	<1	15	0.19
09-Jul	0.08	<1	4	<1	15	0.53
16-Jul	0.13	<1	<2	<1	16	0.21
23-Jul	0.13	<1	<2	<1	16	0.56
30-Jul	0.18	<1	2	<1	10	1.50
07-Aug	0.11	<1	2	<1	17	0.62
13-Aug	0.19	<1	<2	<1	17	0.36
20-Aug	0.11	<1	20	<1	18	0.39
24-Aug	0.06	<1	4	<1	18	0.23
29-Aug	0.09	<1	6	<1	17	0.38
05-Sep	0.06	<1	30	<1	17	0.33
10-Sep	0.04	<1	2	<1	18	0.46
17-Sep	0.11	<1	8	<1	17	0.24
25-Sep	0.10	<1	<2	<1	17	0.17
01-Oct	0.59	<1	<2	<1	17	0.20
03-Oct	0.61	<1	<2	<1	16	0.26
09-Oct	0.47	<1	<2	<1	16	0.27
15-Oct	0.08	<1	<2	<1	16	0.31
22-Oct	0.17	<1	<2	<1	13	0.97
30-Oct	0.19	<1	4	<1	12	0.66
01-Nov	0.33	<1	<2	<1	7.7	0.60
06-Nov	0.28	<1	2	<1	13	0.45
13-Nov	0.31	<1	4	<1	12	0.38
20-Nov	0.11	<1	<2	<1	11	0.31
27-Nov	0.21	<1	60	<1	10	0.34
04-Dec	0.19	<1	230	<1	9.5	0.33
11-Dec	0.27	<1	78	<1	9.1	0.22
14-Dec	0.27	<1	70	<1	5.1	0.25
17-Dec	0.19	<1	42	<1	8.3	0.19
19-Dec	0.22	<1	<2	<1	8.3	0.22
24-Dec	0.46	<1	NA	<1	7.6	0.24

DM908 (112 AVE & 159A ST ON NW CORNER) - 2012 TEST RESULTS



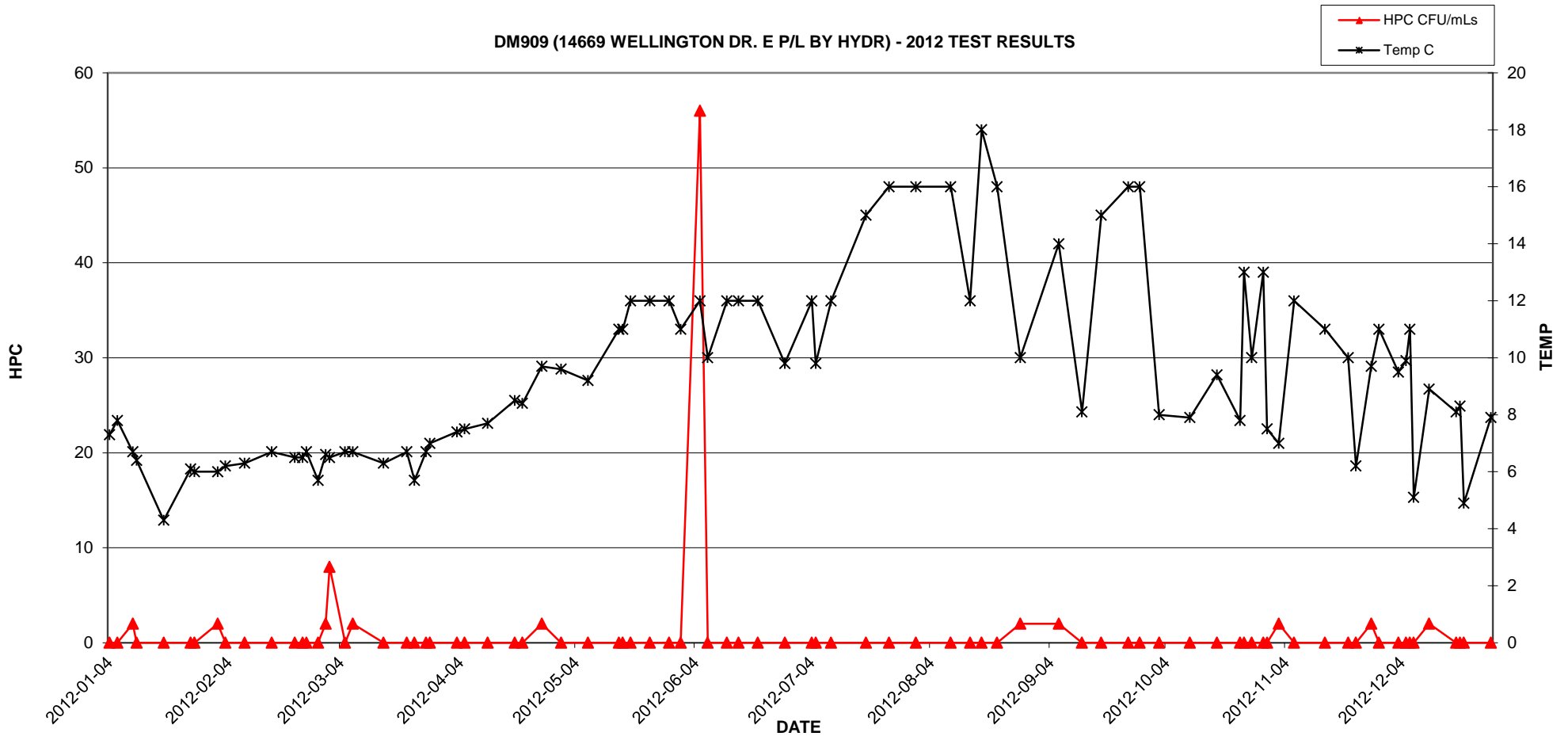
DM908 (112 AVE & 159A ST ON NW CORNER) - 2012 TEST RESULTS



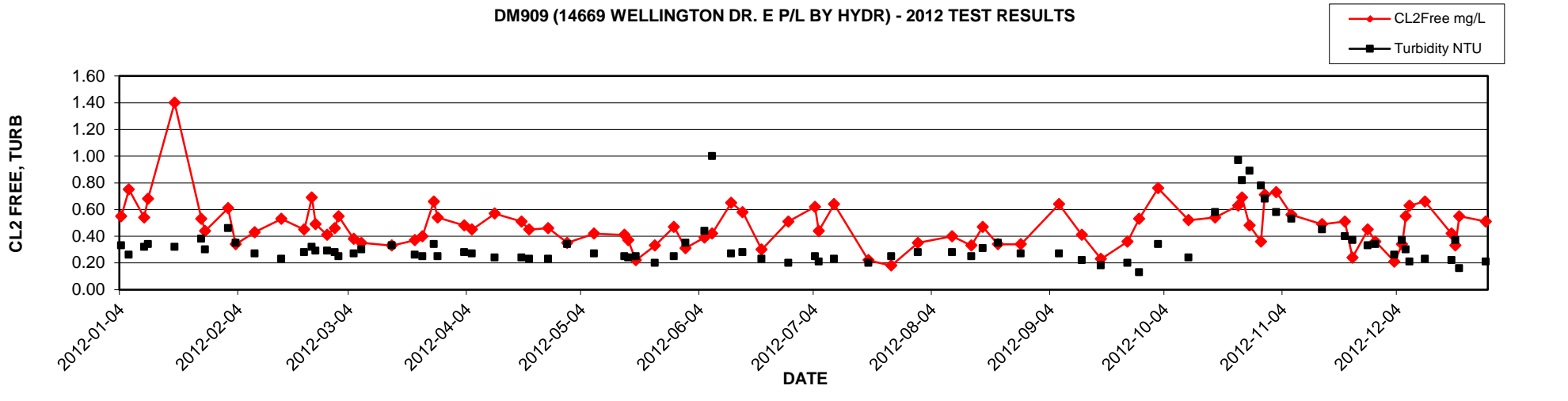
2012 GVRD Laboratory Report - DM909 (14669 WELLINGTON DR. E P/L BY HYDR)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
04-Jan	0.55	<1	<2	<1	7.3	0.33
06-Jan	0.75	<1	<2	<1	7.8	0.26
10-Jan	0.54	<1	2	<1	6.7	0.32
11-Jan	0.68	<1	<2	<1	6.4	0.34
18-Jan	1.40	<1	<2	<1	4.3	0.32
25-Jan	0.53	<1	<2	<1	6.1	0.38
26-Jan	0.44	<1	<2	<1	6	0.30
01-Feb	0.61	<1	2	<1	6	0.46
03-Feb	0.34	<1	<2	<1	6.2	0.35
08-Feb	0.43	<1	<2	<1	6.3	0.27
15-Feb	0.53	<1	<2	<1	6.7	0.23
21-Feb	0.45	<1	<2	<1	6.5	0.28
23-Feb	0.69	<1	<2	<1	6.5	0.32
24-Feb	0.49	<1	<2	<1	6.7	0.29
27-Feb	0.41	<1	<2	<1	5.7	0.29
29-Feb	0.46	<1	2	<1	6.6	0.28
01-Mar	0.55	<1	8	<1	6.5	0.25
05-Mar	0.38	<1	<2	<1	6.7	0.27
07-Mar	0.35	<1	2	<1	6.7	0.30
15-Mar	0.33	<1	<2	<1	6.3	0.33
21-Mar	0.37	<1	<2	<1	6.7	0.26
23-Mar	0.40	<1	<2	<1	5.7	0.25
26-Mar	0.66	<1	<2	<1	6.7	0.34
27-Mar	0.54	<1	<2	<1	7	0.25
03-Apr	0.48	<1	<2	<1	7.4	0.28
05-Apr	0.45	<1	<2	<1	7.5	0.27
11-Apr	0.57	<1	<2	<1	7.7	0.24
18-Apr	0.51	<1	<2	<1	8.5	0.24
20-Apr	0.45	<1	<2	<1	8.4	0.23
25-Apr	0.46	<1	2	<1	9.7	0.23
30-Apr	0.35	<1	<2	<1	9.6	0.34
07-May	0.42	<1	<2	<1	9.2	0.27
15-May	0.41	<1	NA	<1	11	0.25
16-May	0.37	<1	<2	<1	11	0.24
18-May	0.22	<1	<2	<1	12	0.25
23-May	0.33	<1	>11000	<1	12	0.20
28-May	0.47	<1	<2	<1	12	0.25
31-May	0.31	<1	<2	<1	11	0.35
05-Jun	0.39	<1	56	<1	12	0.44
07-Jun	0.42	<1	<2	<1	10	1.00
12-Jun	0.65	<1	<2	<1	12	0.27
15-Jun	0.58	<1	<2	<1	12	0.28
20-Jun	0.30	<1	<2	<1	12	0.23
27-Jun	0.51	<1	<2	<1	9.8	0.20
04-Jul	0.62	<1	<2	<1	12	0.25
05-Jul	0.44	<1	<2	<1	9.8	0.21
09-Jul	0.64	<1	<2	<1	12	0.23
18-Jul	0.22	<1	<2	<1	15	0.20
24-Jul	0.18	<1	<2	<1	16	0.25
31-Jul	0.35	<1	<2	<1	16	0.28
09-Aug	0.40	<1	<2	<1	16	0.28
14-Aug	0.33	<1	<2	<1	12	0.25
17-Aug	0.47	<1	<2	<1	18	0.31
21-Aug	0.34	<1	<2	<1	16	0.35
27-Aug	0.34	<1	2	<1	10	0.27
06-Sep	0.64	<1	2	<1	14	0.27
12-Sep	0.41	<1	<2	<1	8.1	0.22
17-Sep	0.23	<1	<2	<1	15	0.18
24-Sep	0.36	<1	<2	<1	16	0.20
27-Sep	0.53	<1	<2	<1	16	0.13
02-Oct	0.76	<1	<2	<1	8	0.34
10-Oct	0.52	<1	<2	<1	7.9	0.24
17-Oct	0.54	<1	<2	<1	9.4	0.58
23-Oct	0.63	<1	<2	<1	7.8	0.97
24-Oct	0.69	<1	<2	<1	13	0.82
26-Oct	0.48	<1	<2	<1	10	0.89
29-Oct	0.36	<1	<2	<1	13	0.78
30-Oct	0.71	<1	<2	<1	7.5	0.68
02-Nov	0.73	<1	2	<1	7	0.58
06-Nov	0.56	<1	<2	<1	12	0.53
14-Nov	0.49	<1	<2	<1	11	0.45
20-Nov	0.51	<1	<2	<1	10	0.40
22-Nov	0.24	<1	<2	<1	6.2	0.37
26-Nov	0.45	<1	2	<1	9.7	0.33
28-Nov	0.36	<1	<2	<1	11	0.34
03-Dec	0.21	<1	<2	<1	9.5	0.26
05-Dec	0.34	<1	<2	<1	9.9	0.37
06-Dec	0.55	<1	<2	<1	11	0.30
07-Dec	0.63	<1	<2	<1	5.1	0.21
11-Dec	0.66	<1	2	<1	8.9	0.23
18-Dec	0.42	<1	<2	<1	8.1	0.22
19-Dec	0.33	<1	<2	<1	8.3	0.37
20-Dec	0.55	<1	<2	<1	4.9	0.16
27-Dec	0.51	<1	NA	<1	7.9	0.21
28-Dec	0.74	<1	NA	<1	5.1	0.20
31-Dec	0.44	<1	NA	<1	7.6	0.21

DM909 (14669 WELLINGTON DR. E P/L BY HYDR) - 2012 TEST RESULTS



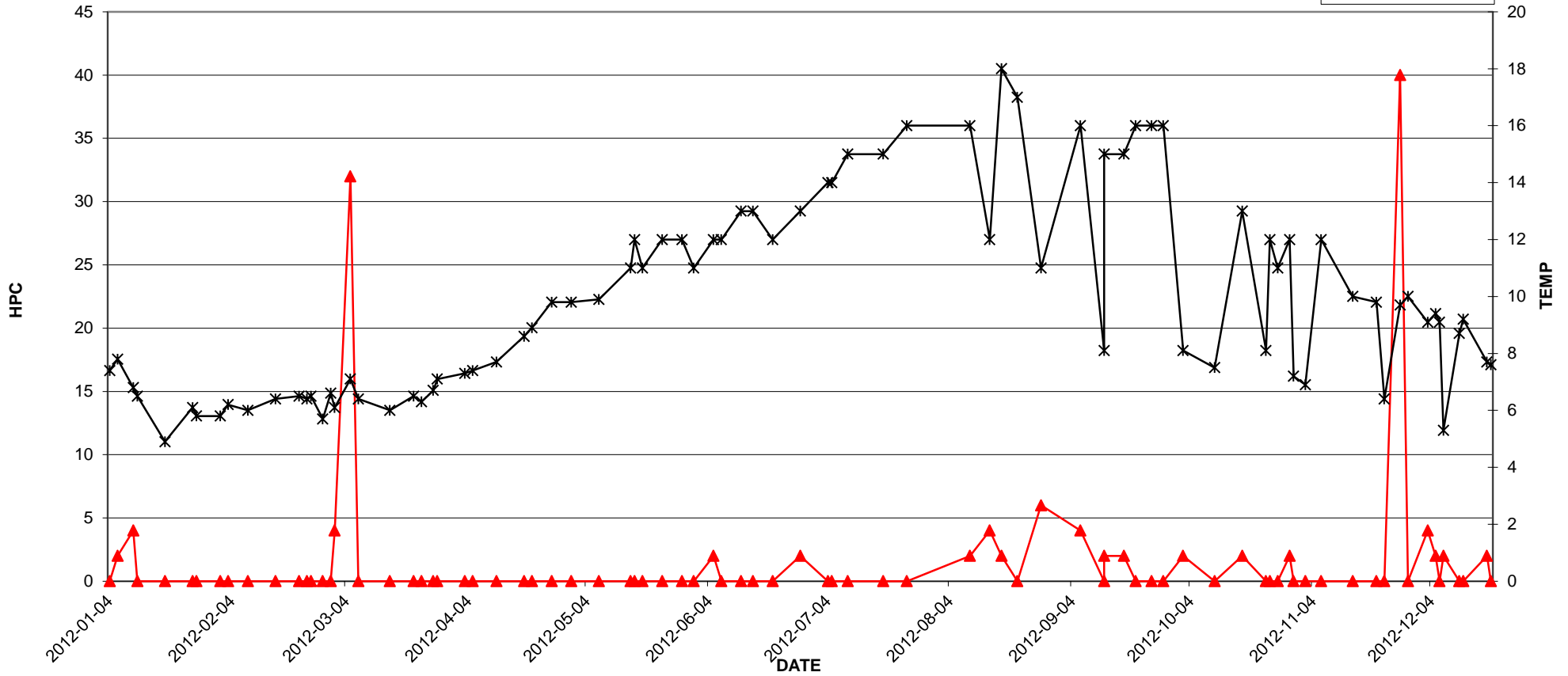
DM909 (14669 WELLINGTON DR. E P/L BY HYDR) - 2012 TEST RESULTS



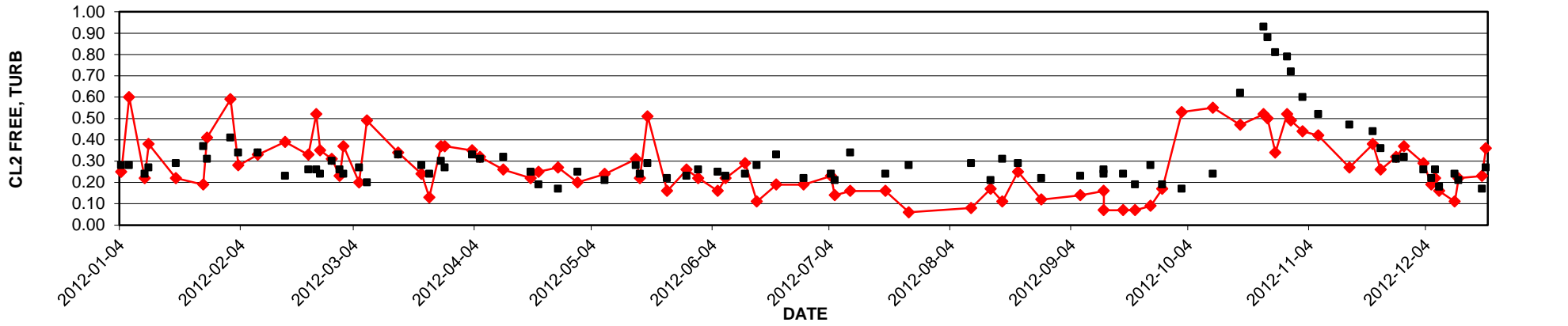
2012 GVRD Laboratory Report - DM910 (ON 115 AVE SW CORNER OF BEDFORD RD.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
04-Jan	0.25	<1	<2	<1	7.4	0.28
06-Jan	0.60	<1	2	<1	7.8	0.28
10-Jan	0.22	<1	4	<1	6.8	0.24
11-Jan	0.38	<1	<2	<1	6.5	0.27
18-Jan	0.22	<1	<2	<1	4.9	0.29
25-Jan	0.19	<1	<2	<1	6.1	0.37
26-Jan	0.41	<1	<2	<1	5.8	0.31
01-Feb	0.59	<1	<2	<1	5.8	0.41
03-Feb	0.28	<1	<2	<1	6.2	0.34
08-Feb	0.33	<1	<2	<1	6	0.34
15-Feb	0.39	<1	<2	<1	6.4	0.23
21-Feb	0.33	<1	<2	<1	6.5	0.26
23-Feb	0.52	<1	<2	<1	6.4	0.26
24-Feb	0.35	<1	<2	<1	6.5	0.24
27-Feb	0.31	<1	<2	<1	5.7	0.30
29-Feb	0.23	<1	<2	<1	6.6	0.26
01-Mar	0.37	<1	4	<1	6.1	0.24
05-Mar	0.20	<1	32	<1	7.1	0.27
07-Mar	0.49	<1	<2	<1	6.4	0.20
15-Mar	0.34	<1	<2	<1	6	0.33
21-Mar	0.24	<1	<2	<1	6.5	0.28
23-Mar	0.13	<1	<2	<1	6.3	0.24
26-Mar	0.37	<1	<2	<1	6.7	0.30
27-Mar	0.37	<1	<2	<1	7.1	0.27
03-Apr	0.35	<1	<2	<1	7.3	0.33
05-Apr	0.32	<1	<2	<1	7.4	0.31
11-Apr	0.26	<1	<2	<1	7.7	0.32
18-Apr	0.22	<1	<2	<1	8.6	0.25
20-Apr	0.25	<1	<2	<1	8.9	0.19
25-Apr	0.27	<1	<2	<1	9.8	0.17
30-Apr	0.20	<1	<2	<1	9.8	0.25
07-May	0.24	<1	<2	<1	9.9	0.21
15-May	0.31	<1	<2	<1	11	0.28
16-May	0.22	<1	<2	<1	12	0.24
18-May	0.51	<1	<2	<1	11	0.29
23-May	0.16	<1	<2	<1	12	0.22
28-May	0.26	<1	<2	<1	12	0.23
31-May	0.22	<1	<2	<1	11	0.26
05-Jun	0.16	<1	2	<1	12	0.25
07-Jun	0.22	<1	<2	<1	12	0.23
12-Jun	0.29	<1	<2	<1	13	0.24
15-Jun	0.11	<1	<2	<1	13	0.28
20-Jun	0.19	<1	<2	<1	12	0.33
27-Jun	0.19	<1	2	<1	13	0.22
04-Jul	0.23	<1	<2	<1	14	0.24
05-Jul	0.14	<1	<2	<1	14	0.21
09-Jul	0.16	<1	<2	<1	15	0.34
18-Jul	0.16	<1	<2	<1	15	0.24
24-Jul	0.06	<1	<2	<1	16	0.28
09-Aug	0.08	<1	2	<1	16	0.29
14-Aug	0.17	<1	4	<1	12	0.21
17-Aug	0.11	<1	2	<1	18	0.31
21-Aug	0.25	<1	LA	<1	17	0.29
27-Aug	0.12	<1	6	<1	11	0.22
06-Sep	0.14	<1	4	<1	16	0.23
12-Sep	0.16	<1	<2	<1	8.1	0.26
12-Sep	0.07	<1	2	>1	15	0.24
17-Sep	0.07	<1	2	>1	15	0.24
20-Sep	0.07	<1	<2	<1	16	0.19
24-Sep	0.09	<1	<2	<1	16	0.28
27-Sep	0.17	<1	<2	<1	16	0.19
02-Oct	0.53	<1	2	<1	8.1	0.17
10-Oct	0.55	<1	<2	<1	7.5	0.24
17-Oct	0.47	<1	2	<1	13	0.62
23-Oct	0.52	<1	<2	<1	8.1	0.93
24-Oct	0.50	<1	<2	<1	12	0.88
26-Oct	0.34	<1	<2	<1	11	0.81
29-Oct	0.52	<1	2	<1	12	0.79
30-Oct	0.49	<1	<2	<1	7.2	0.72
02-Nov	0.44	<1	<2	<1	6.9	0.60
06-Nov	0.42	<1	<2	<1	12	0.52
14-Nov	0.27	<1	<2	<1	10	0.47
20-Nov	0.38	<1	<2	<1	9.8	0.44
22-Nov	0.26	<1	<2	<1	6.4	0.36
26-Nov	0.32	<1	40	<1	9.7	0.31
28-Nov	0.37	<1	<2	<1	10	0.32
03-Dec	0.29	<1	4	<1	9.1	0.26
05-Dec	0.19	<1	2	<1	9.4	0.22
06-Dec	0.22	<1	<2	<1	9.1	0.26
07-Dec	0.16	<1	2	<1	5.3	0.18
11-Dec	0.11	<1	<2	<1	8.7	0.24
12-Dec	0.22	<1	<2	<1	9.2	0.21
18-Dec	0.23	<1	2	<1	7.7	0.17
19-Dec	0.36	<1	<2	<1	7.6	0.27
20-Dec	0.24	<1	<2	<1	5.1	0.14
27-Dec	0.24	<1	NA	<1	7.2	0.18
28-Dec	0.22	<1	NA	<1	4.9	0.14
31-Dec	0.20	<1	NA	<1	7.3	0.23

DM910 (ON 115 AVE SW CORNER OF BEDFORD RD.)- 2012 TEST RESULTS



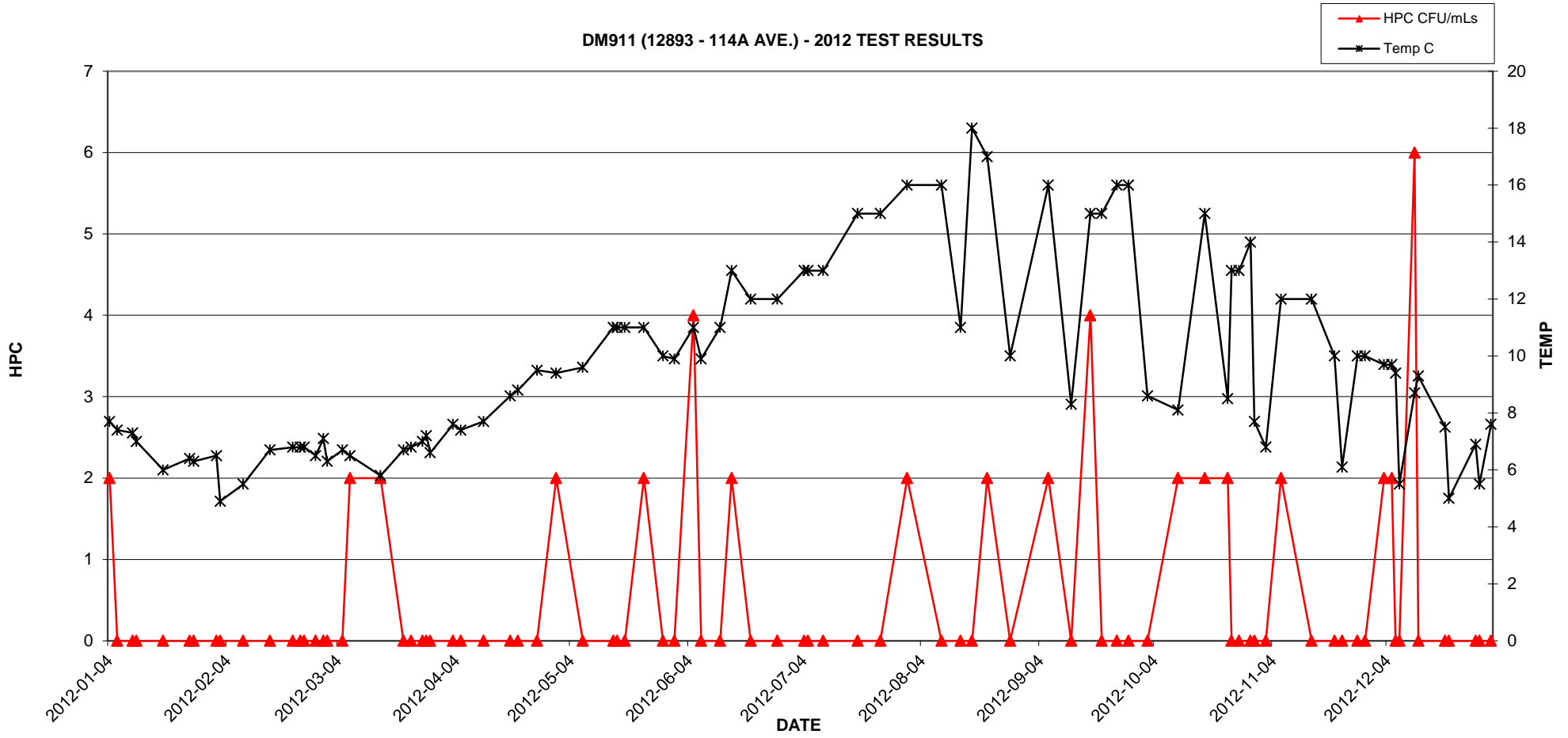
DM910 (ON 115 AVE SW CORNER OF BEDFORD RD.)- 2012 TEST RESULTS



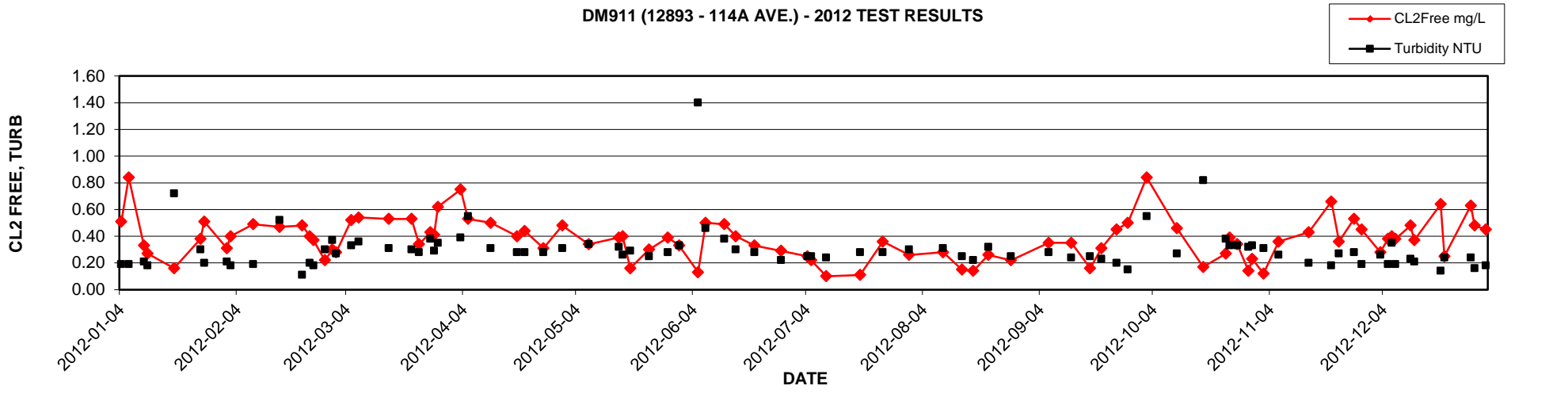
2012 GVRD Laboratory Report - DM911 (12893 - 114A AVE.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
04-Jan	0.51	<1	2	<1	7.7	0.19
06-Jan	0.84	<1	<2	<1	7.4	0.19
10-Jan	0.33	<1	<2	<1	7.3	0.21
11-Jan	0.27	<1	<2	<1	7	0.18
18-Jan	0.16	<1	<2	<1	6	0.72
25-Jan	0.38	<1	<2	<1	6.4	0.30
26-Jan	0.51	<1	<2	<1	6.3	0.20
01-Feb	0.31	<1	<2	<1	6.5	0.21
02-Feb	0.40	<1	<2	<1	4.9	0.18
08-Feb	0.49	<1	<2	<1	5.5	0.19
15-Feb	0.47	<1	<2	<1	6.7	0.52
21-Feb	0.48	<1	<2	<1	6.8	0.11
23-Feb	0.40	<1	<2	<1	6.8	0.20
24-Feb	0.37	<1	<2	<1	6.8	0.18
27-Feb	0.22	<1	<2	<1	6.5	0.30
29-Feb	0.30	<1	<2	<1	7.1	0.37
01-Mar	0.28	<1	<2	<1	6.3	0.27
05-Mar	0.52	<1	<2	<1	6.7	0.33
07-Mar	0.54	<1	2	<1	6.5	0.36
15-Mar	0.53	<1	2	<1	5.8	0.31
21-Mar	0.53	<1	<2	<1	6.7	0.30
23-Mar	0.34	<1	<2	<1	6.8	0.28
26-Mar	0.43	<1	<2	<1	7	0.38
27-Mar	0.41	<1	<2	<1	7.2	0.29
28-Mar	0.62	<1	<2	<1	6.6	0.35
03-Apr	0.75	<1	<2	<1	7.6	0.39
05-Apr	0.53	<1	<2	<1	7.4	0.55
11-Apr	0.50	<1	<2	<1	7.7	0.31
18-Apr	0.40	<1	<2	<1	8.6	0.28
20-Apr	0.44	<1	<2	<1	8.8	0.28
25-Apr	0.31	<1	<2	<1	9.5	0.28
30-Apr	0.48	<1	2	<1	9.4	0.31
07-May	0.34	<1	<2	<1	9.6	0.34
15-May	0.39	<1	<2	<1	11	0.32
16-May	0.40	<1	<2	<1	11	0.26
18-May	0.16	<1	<2	<1	11	0.29
23-May	0.30	<1	2	<1	11	0.25
28-May	0.39	<1	<2	<1	10	0.28
31-May	0.33	<1	<2	<1	9.9	0.33
05-Jun	0.13	<1	4	<1	11	1.40
07-Jun	0.50	<1	<2	<1	9.9	0.46
12-Jun	0.49	<1	<2	<1	11	0.38
15-Jun	0.40	<1	2	<1	13	0.30
20-Jun	0.33	<1	<2	<1	12	0.28
27-Jun	0.29	<1	<2	<1	12	0.22
04-Jul	0.25	<1	<2	<1	13	0.25
05-Jul	0.22	<1	<2	<1	13	0.25
09-Jul	0.10	<1	<2	<1	13	0.24
18-Jul	0.11	<1	<2	<1	15	0.28
24-Jul	0.36	<1	<2	<1	15	0.28
31-Jul	0.26	<1	2	<1	16	0.30
09-Aug	0.28	<1	<2	<1	16	0.31
14-Aug	0.15	<1	<2	<1	11	0.25
17-Aug	0.14	<1	<2	<1	18	0.22
21-Aug	0.26	<1	2	<1	17	0.32
27-Aug	0.22	<1	<2	<1	10	0.25
06-Sep	0.35	<1	2	<1	16	0.28
12-Sep	0.35	<1	<2	<1	8.3	0.24
17-Sep	0.16	<1	4	<1	15	0.25
20-Sep	0.31	<1	<2	<1	15	0.23
24-Sep	0.45	<1	<2	<1	16	0.20
27-Sep	0.50	<1	<2	<1	16	0.15
02-Oct	0.84	<1	<2	<1	8.6	0.55
10-Oct	0.46	<1	2	<1	8.1	0.27
17-Oct	0.17	<1	2	<1	15	0.82
23-Oct	0.27	<1	2	<1	8.5	0.38
24-Oct	0.39	<1	<2	<1	13	0.33
26-Oct	0.34	<1	<2	<1	13	0.33
29-Oct	0.14	<1	<2	<1	14	0.32
30-Oct	0.23	<1	<2	<1	7.7	0.33
02-Nov	0.12	<1	<2	<1	6.8	0.31
06-Nov	0.36	<1	2	<1	12	0.26
14-Nov	0.43	<1	<2	<1	12	0.20
20-Nov	0.66	<1	<2	<1	10	0.18
22-Nov	0.36	<1	<2	<1	6.1	0.27
26-Nov	0.53	<1	<2	<1	10	0.28
28-Nov	0.45	<1	<2	<1	10	0.19
03-Dec	0.28	<1	2	<1	9.7	0.26
05-Dec	0.38	<1	2	<1	9.7	0.19
06-Dec	0.40	<1	<2	<1	9.4	0.35
07-Dec	0.38	<1	<2	<1	5.5	0.19
11-Dec	0.48	<1	6	<1	8.7	0.23
12-Dec	0.37	<1	<2	<1	9.3	0.21
19-Dec	0.64	<1	<2	<1	7.5	0.14
20-Dec	0.25	<1	<2	<1	5	0.24
27-Dec	0.63	<1	NA	<1	6.9	0.24
28-Dec	0.48	<1	NA	<1	5.5	0.16
31-Dec	0.45	<1	NA	<1	7.6	0.18

DM911 (12893 - 114A AVE.) - 2012 TEST RESULTS



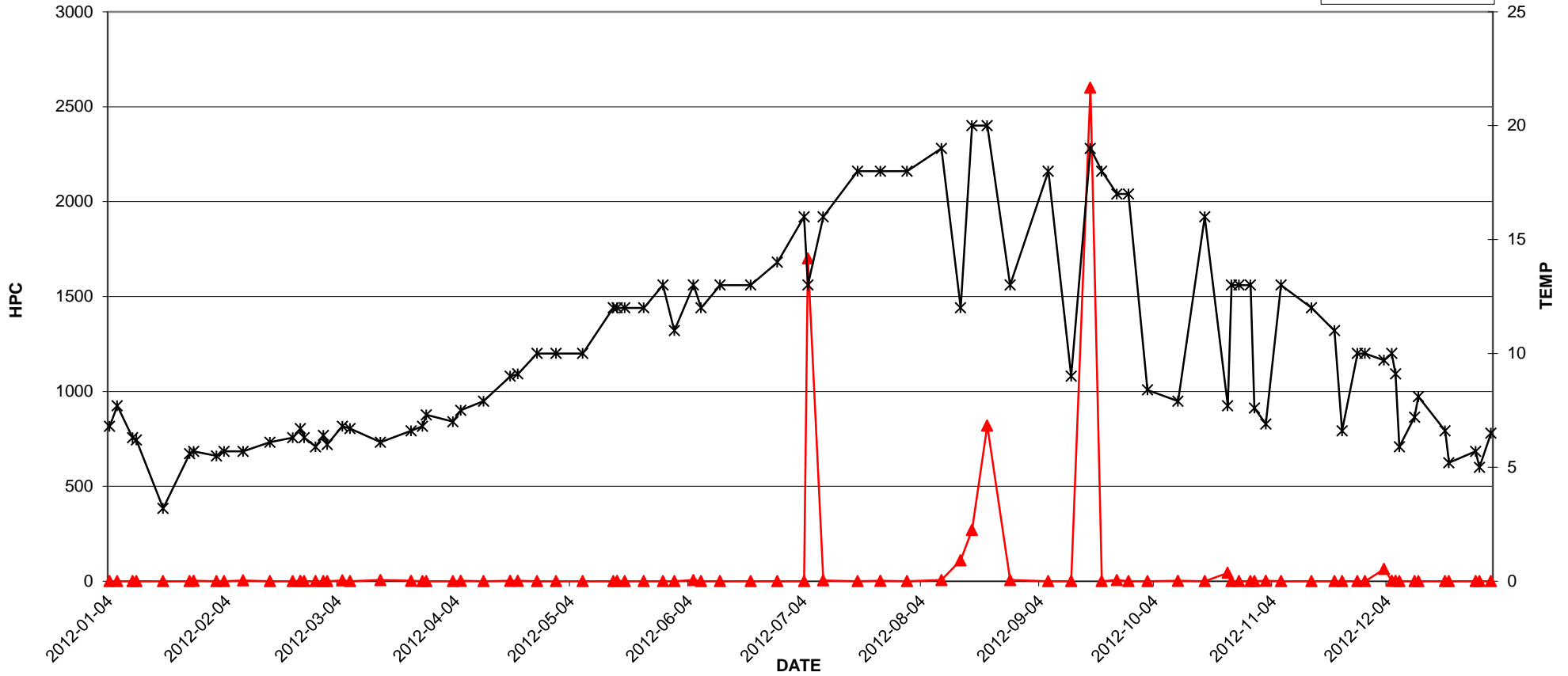
DM911 (12893 - 114A AVE.) - 2012 TEST RESULTS



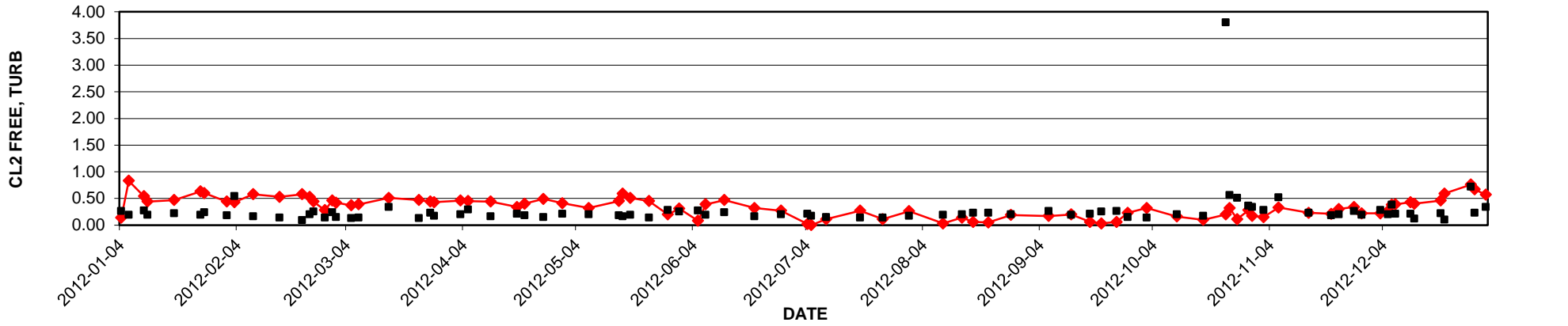
2012 GVRD Laboratory Report - DM912 (TIMBERLAND RD. 1 BLK S. of PINE RD.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
04-Jan	0.14	<1	<2	<1	6.8	0.26
06-Jan	0.83	<1	<2	<1	7.7	0.19
10-Jan	0.54	<1	<2	<1	6.3	0.27
11-Jan	0.44	<1	<2	<1	6.2	0.19
18-Jan	0.47	<1	<2	<1	3.2	0.22
25-Jan	0.63	<1	<2	<1	5.6	0.19
26-Jan	0.60	<1	2	<1	5.7	0.24
01-Feb	0.44	<1	<2	<1	5.5	0.18
03-Feb	0.43	<1	<2	<1	5.7	0.54
08-Feb	0.58	<1	4	<1	5.7	0.16
15-Feb	0.53	<1	<2	<1	6.1	0.14
21-Feb	0.58	<1	<2	<1	6.3	0.09
23-Feb	0.53	<1	2	<1	6.7	0.20
24-Feb	0.44	<1	<2	<1	6.3	0.25
27-Feb	0.28	<1	<2	<1	5.9	0.14
29-Feb	0.46	<1	<2	<1	6.4	0.24
01-Mar	0.42	<1	<2	<1	6	0.15
05-Mar	0.37	<1	4	<1	6.8	0.13
07-Mar	0.39	<1	<2	<1	6.7	0.14
15-Mar	0.51	<1	6	<1	6.1	0.34
23-Mar	0.47	<1	2	<1	6.6	0.13
26-Mar	0.44	<1	<2	<1	6.8	0.23
27-Mar	0.43	<1	<2	<1	7.3	0.17
03-Apr	0.46	<1	<2	<1	7	0.20
05-Apr	0.45	<1	2	<1	7.5	0.29
11-Apr	0.44	<1	<2	<1	7.9	0.16
18-Apr	0.34	<1	2	<1	9	0.21
20-Apr	0.40	<1	2	<1	9.1	0.18
25-Apr	0.49	<1	<2	<1	10	0.15
30-Apr	0.41	<1	<2	<1	10	0.21
07-May	0.32	<1	<2	<1	10	0.20
15-May	0.45	<1	<2	<1	12	0.18
16-May	0.59	<1	2	<1	12	0.16
18-May	0.51	<1	<2	<1	12	0.19
23-May	0.45	<1	<2	<1	12	0.14
28-May	0.20	<1	<2	<1	13	0.28
31-May	0.31	<1	<2	<1	11	0.25
05-Jun	0.08	<1	6	<1	13	0.27
07-Jun	0.39	<1	<2	<1	12	0.19
12-Jun	0.47	<1	<2	<1	13	0.24
20-Jun	0.32	<1	<2	<1	13	0.16
27-Jun	0.27	<1	<2	<1	14	0.20
04-Jul	0.02	<1	>11000	<1	16	0.21
05-Jul	<0.01	<1	1700	<1	13	0.17
09-Jul	0.11	<1	4	<1	16	0.15
18-Jul	0.27	<1	<2	<1	18	0.14
24-Jul	0.11	<1	2	<1	18	0.14
31-Jul	0.26	<1	<2	<1	18	0.17
09-Aug	0.03	<1	6	<1	19	0.19
14-Aug	0.14	<1	110	<1	12	0.20
17-Aug	0.06	<1	270	<1	20	0.23
21-Aug	0.05	<1	820	<1	20	0.23
27-Aug	0.19	<1	6	<1	13	0.20
06-Sep	0.17	<1	<2	<1	18	0.26
12-Sep	0.20	<1	<2	<1	9	0.19
17-Sep	0.06	<1	2600	<1	19	0.21
20-Sep	0.03	<1	<2	<1	18	0.25
24-Sep	0.06	<1	6	<1	17	0.26
27-Sep	0.23	<1	<2	<1	17	0.15
02-Oct	0.32	<1	<2	<1	8.4	0.14
10-Oct	0.16	<1	2	<1	7.9	0.20
17-Oct	0.10	<1	<2	<1	16	0.17
23-Oct	0.20	<1	44	<1	7.7	3.80
24-Oct	0.32	<1	<2	<1	13	0.56
26-Oct	0.11	<1	<2	<1	13	0.51
29-Oct	0.28	<1	<2	<1	13	0.36
30-Oct	0.17	<1	<2	<1	7.6	0.34
02-Nov	0.15	<1	2	<1	6.9	0.28
06-Nov	0.33	<1	<2	<1	13	0.52
14-Nov	0.23	<1	<2	<1	12	0.23
20-Nov	0.21	<1	<2	<1	11	0.18
22-Nov	0.30	<1	<2	<1	6.6	0.20
26-Nov	0.34	<1	<2	<1	10	0.26
28-Nov	0.22	<1	<2	<1	10	0.19
03-Dec	0.22	<1	64	<1	9.7	0.28
05-Dec	0.26	<1	2	<1	10	0.20
06-Dec	0.38	<1	2	<1	9.1	0.38
07-Dec	0.39	<1	<2	<1	5.9	0.21
11-Dec	0.43	<1	<2	<1	7.2	0.21
12-Dec	0.40	<1	<2	<1	8.1	0.12
19-Dec	0.46	<1	<2	<1	6.6	0.22
20-Dec	0.59	<1	<2	<1	5.2	0.10
27-Dec	0.76	<1	NA	<1	5.7	0.72
28-Dec	0.67	<1	NA	<1	5	0.23
31-Dec	0.57	<1	NA	<1	6.5	0.34

DM912 (TIMBERLAND RD. 1 BLK S. of PINE RD.) - 2012 TEST RESULTS



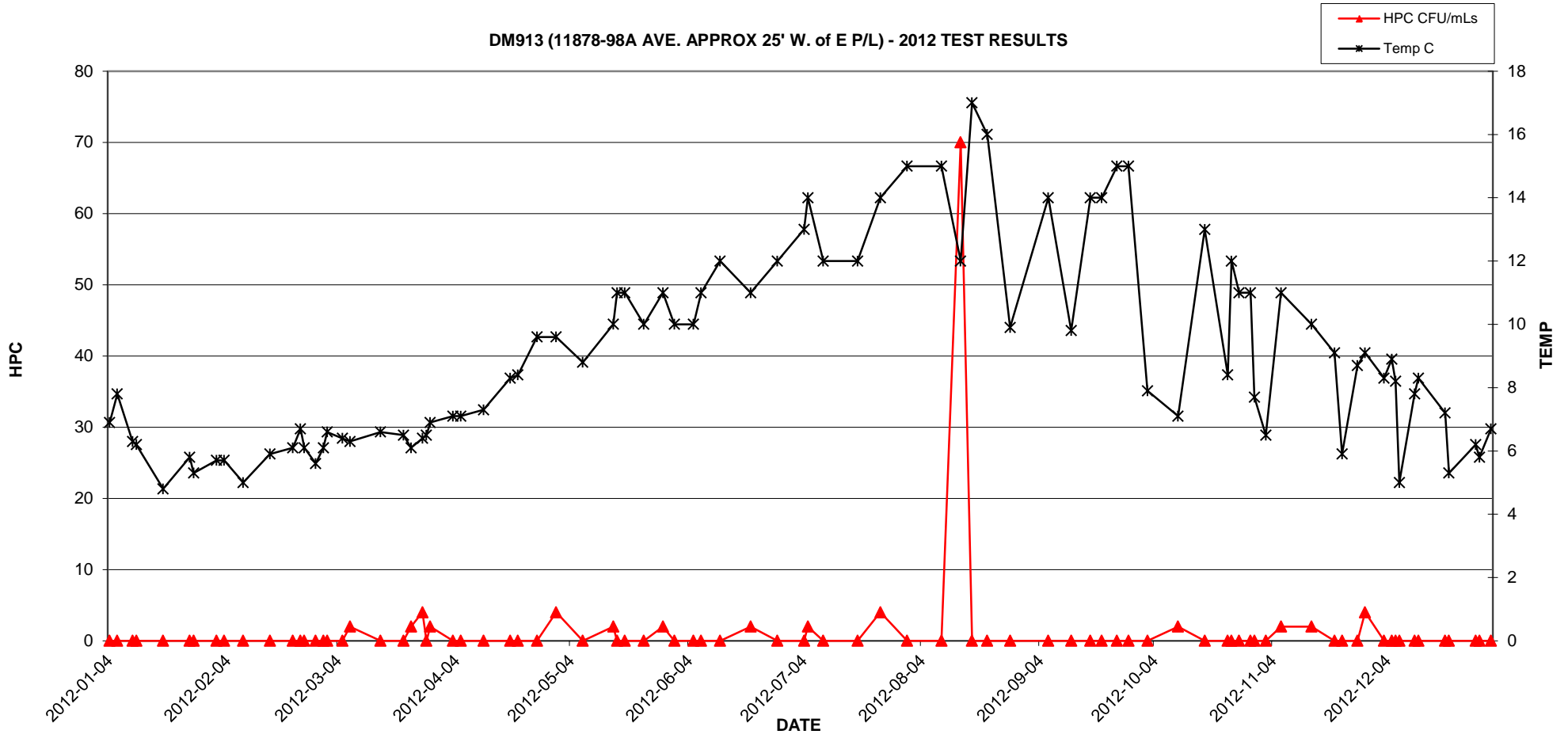
DM912 (TIMBERLAND RD. 1 BLK S. of PINE RD.) - 2012 TEST RESULTS



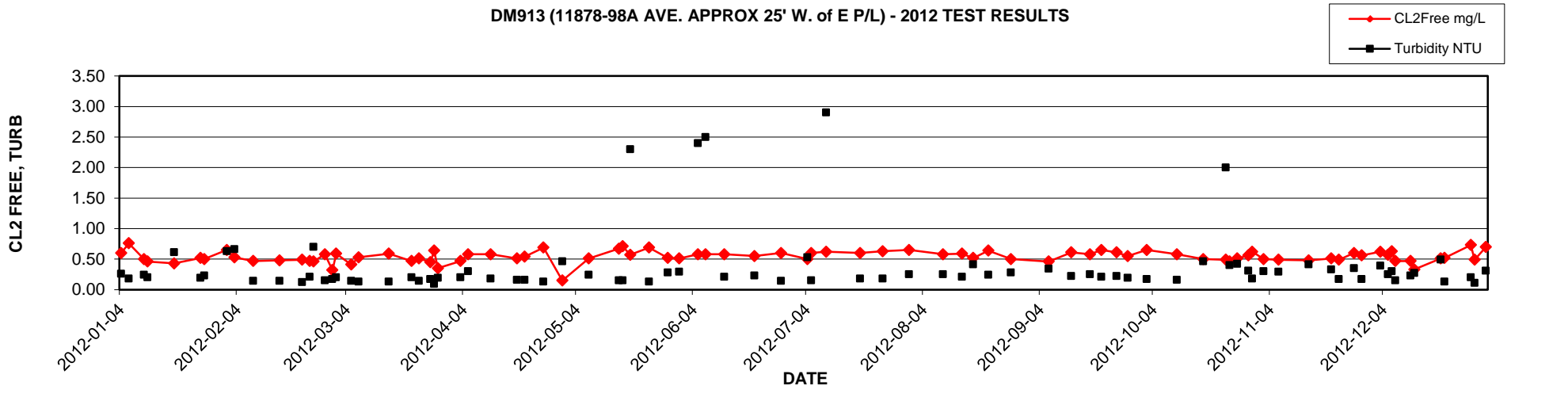
2012 GVRD Laboratory Report - DM913 (11878-98A AVE. APPROX 25' W. of E P/L)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
04-Jan	0.60	<1	<2	<1	6.9	0.26
06-Jan	0.76	<1	<2	<1	7.8	0.18
10-Jan	0.50	<1	<2	<1	6.3	0.24
11-Jan	0.46	<1	<2	<1	6.2	0.20
18-Jan	0.43	<1	<2	<1	4.8	0.61
25-Jan	0.52	<1	<2	<1	5.8	0.19
26-Jan	0.50	<1	<2	<1	5.3	0.23
01-Feb	0.65	<1	<2	<1	5.7	0.63
03-Feb	0.53	<1	<2	<1	5.7	0.66
08-Feb	0.47	<1	<2	<1	5	0.14
15-Feb	0.48	<1	<2	<1	5.9	0.14
21-Feb	0.49	<1	<2	<1	6.1	0.12
23-Feb	0.47	<1	<2	<1	6.7	0.21
24-Feb	0.46	<1	<2	<1	6.1	0.70
27-Feb	0.58	<1	<2	<1	5.6	0.15
29-Feb	0.32	<1	<2	<1	6.1	0.17
01-Mar	0.59	<1	<2	<1	6.6	0.20
05-Mar	0.41	<1	<2	<1	6.4	0.14
07-Mar	0.53	<1	2	<1	6.3	0.13
15-Mar	0.59	<1	<2	<1	6.6	0.13
21-Mar	0.47	<1	<2	<1	6.5	0.20
23-Mar	0.51	<1	2	<1	6.1	0.14
26-Mar	0.45	<1	4	<1	6.4	0.17
27-Mar	0.64	<1	<2	<1	6.5	0.09
28-Mar	0.35	<1	2	<1	6.9	0.19
03-Apr	0.47	<1	<2	<1	7.1	0.20
05-Apr	0.58	<1	<2	<1	7.1	0.30
11-Apr	0.58	<1	<2	<1	7.3	0.18
18-Apr	0.51	<1	<2	<1	8.3	0.16
20-Apr	0.54	<1	<2	<1	8.4	0.16
25-Apr	0.69	<1	<2	<1	9.6	0.13
30-Apr	0.15	<1	4	<1	9.6	0.46
07-May	0.51	<1	<2	<1	8.8	0.24
15-May	0.67	<1	2	<1	10	0.15
16-May	0.71	<1	<2	<1	11	0.15
18-May	0.57	<1	<2	<1	11	2.30
23-May	0.69	<1	<2	<1	10	0.13
28-May	0.52	<1	2	<1	11	0.28
31-May	0.51	<1	<2	<1	10	0.29
05-Jun	0.58	<1	<2	<1	10	2.40
07-Jun	0.58	<1	<2	<1	11	2.50
12-Jun	0.58	<1	<2	<1	12	0.21
20-Jun	0.55	<1	2	<1	11	0.23
27-Jun	0.60	<1	<2	<1	12	0.14
04-Jul	0.50	<1	<2	<1	13	0.53
05-Jul	0.60	<1	2	<1	14	0.15
09-Jul	0.62	<1	<2	<1	12	2.90
18-Jul	0.60	<1	<2	<1	12	0.18
24-Jul	0.63	<1	4	<1	14	0.18
31-Jul	0.65	<1	<2	<1	15	0.25
09-Aug	0.58	<1	<2	<1	15	0.25
14-Aug	0.59	<1	70	<1	12	0.21
17-Aug	0.52	<1	<2	<1	17	0.41
21-Aug	0.64	<1	<2	<1	16	0.24
27-Aug	0.50	<1	<2	<1	9.9	0.28
06-Sep	0.46	<1	<2	<1	14	0.34
12-Sep	0.61	<1	<2	<1	9.8	0.22
17-Sep	0.58	<1	<2	<1	14	0.25
20-Sep	0.65	<1	<2	<1	14	0.21
24-Sep	0.61	<1	<2	<1	15	0.22
27-Sep	0.55	<1	<2	<1	15	0.19
02-Oct	0.65	<1	<2	<1	7.9	0.17
10-Oct	0.58	<1	2	<1	7.1	0.16
17-Oct	0.50	<1	<2	<1	13	0.46
23-Oct	0.49	<1	<2	<1	8.4	2.00
24-Oct	0.46	<1	<2	<1	12	0.40
26-Oct	0.51	<1	<2	<1	11	0.42
29-Oct	0.56	<1	<2	<1	11	0.31
30-Oct	0.62	<1	<2	<1	7.7	0.18
02-Nov	0.50	<1	<2	<1	6.5	0.30
06-Nov	0.49	<1	2	<1	11	0.29
14-Nov	0.48	<1	2	<1	10	0.41
20-Nov	0.51	<1	<2	<1	9.1	0.33
22-Nov	0.49	<1	<2	<1	5.9	0.17
26-Nov	0.60	<1	<2	<1	8.7	0.35
28-Nov	0.56	<1	4	<1	9.1	0.17
03-Dec	0.62	<1	<2	<1	8.3	0.39
05-Dec	0.57	<1	<2	<1	8.9	0.25
06-Dec	0.63	<1	<2	<1	8.2	0.30
07-Dec	0.47	<1	<2	<1	5	0.15
11-Dec	0.47	<1	<2	<1	7.8	0.23
12-Dec	0.33	<1	<2	<1	8.3	0.27
19-Dec	0.51	<1	<2	<1	7.2	0.49
20-Dec	0.52	<1	<2	<1	5.3	0.13
27-Dec	0.73	<1	NA	<1	6.2	0.20
28-Dec	0.49	<1	NA	<1	5.8	0.11
31-Dec	0.70	<1	NA	<1	6.7	0.31

DM913 (11878-98A AVE. APPROX 25' W. of E P/L) - 2012 TEST RESULTS



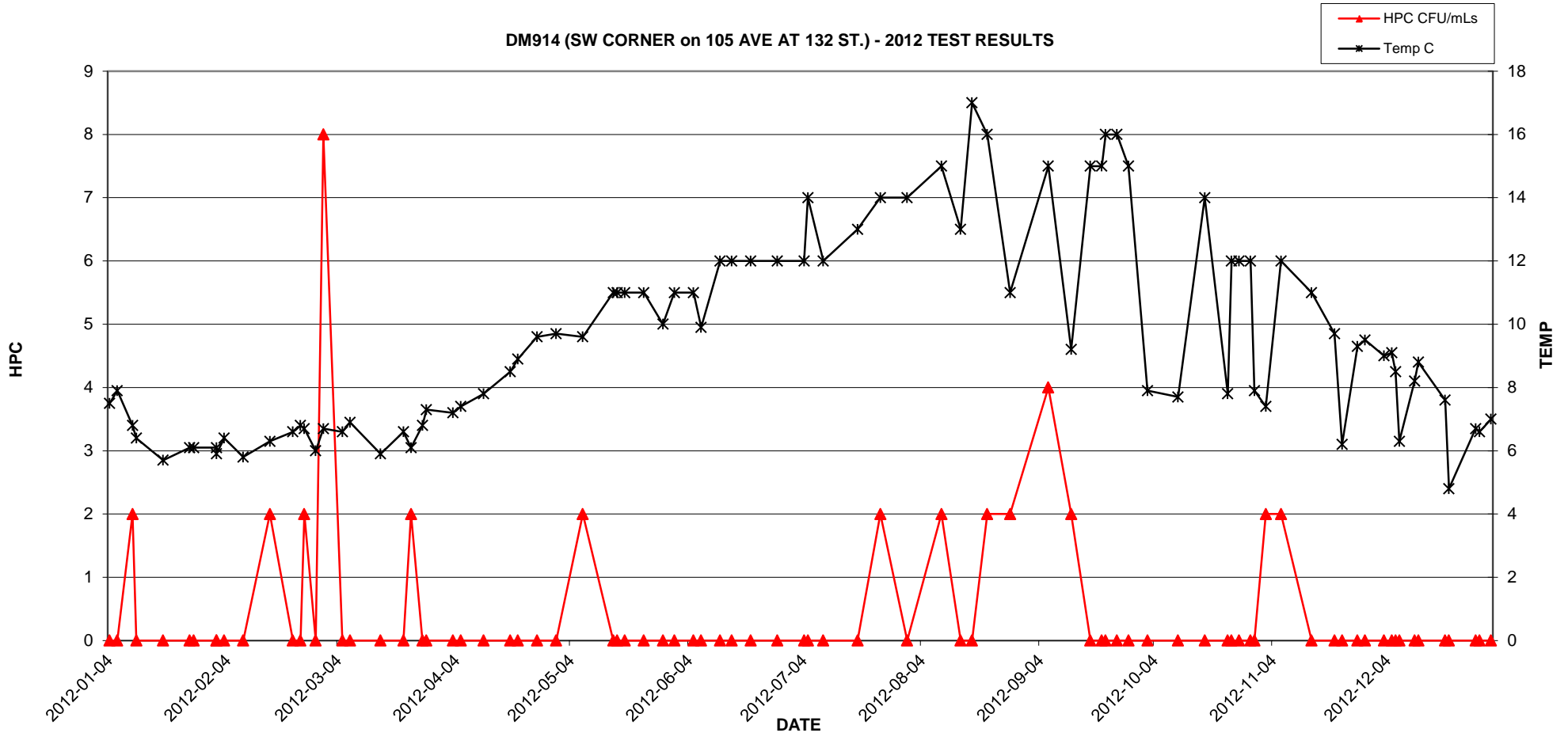
DM913 (11878-98A AVE. APPROX 25' W. of E P/L) - 2012 TEST RESULTS



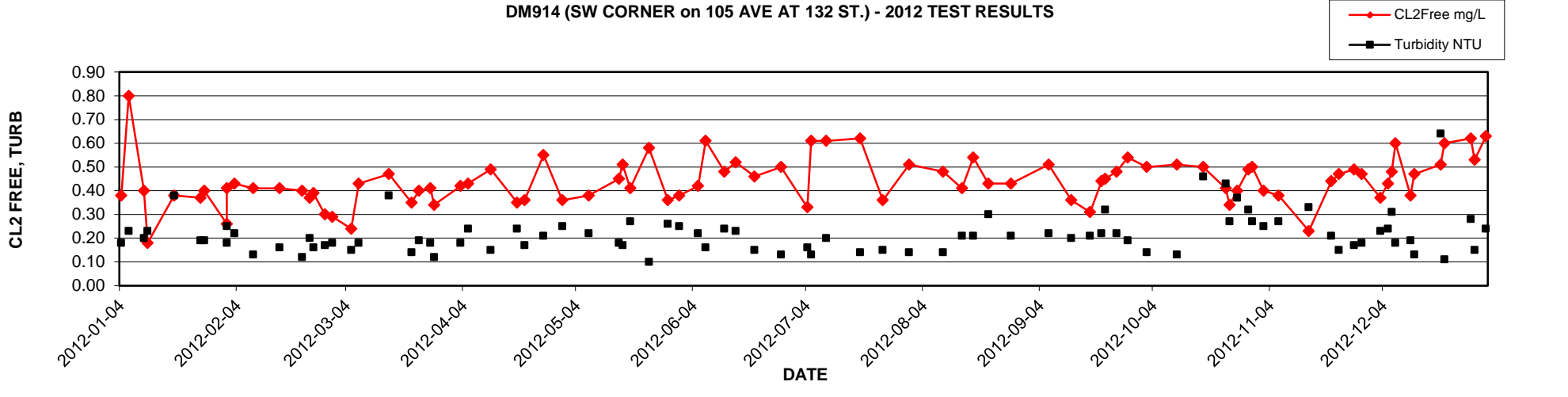
2012 GVRD Laboratory Report - DM914 (SW CORNER on 105 AVE AT 132 ST.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
04-Jan	0.38	<1	<2	<1	7.5	0.18
06-Jan	0.80	<1	<2	<1	7.9	0.23
10-Jan	0.40	<1	2	<1	6.8	0.20
11-Jan	0.18	<1	<2	<1	6.4	0.23
18-Jan	0.38	<1	<2	<1	5.7	0.38
25-Jan	0.37	<1	<2	<1	6.1	0.19
26-Jan	0.40	<1	<2	<1	6.1	0.19
01-Feb	0.26	<1	<2	<1	6.1	0.25
03-Feb	0.43	<1	<2	<1	6.4	0.22
08-Feb	0.41	<1	<2	<1	5.8	0.13
15-Feb	0.41	<1	2	<1	6.3	0.16
21-Feb	0.40	<1	<2	<1	6.6	0.12
23-Feb	0.37	<1	<2	<1	6.8	0.20
24-Feb	0.39	<1	2	<1	6.7	0.16
27-Feb	0.30	<1	<2	<1	6	0.17
29-Feb	0.29	<1	8	<1	6.7	0.18
01-Feb	0.41	<1	<2	<1	5.9	0.18
05-Mar	0.24	<1	<2	<1	6.6	0.15
07-Mar	0.43	<1	<2	<1	6.9	0.18
15-Mar	0.47	<1	<2	<1	5.9	0.38
21-Mar	0.35	<1	<2	<1	6.6	0.14
23-Mar	0.40	<1	2	<1	6.1	0.19
26-Mar	0.41	<1	<2	<1	6.8	0.18
27-Mar	0.34	<1	<2	<1	7.3	0.12
03-Apr	0.42	<1	<2	<1	7.2	0.18
05-Apr	0.43	<1	LA	<1	7.4	0.24
11-Apr	0.49	<1	<2	<1	7.8	0.15
18-Apr	0.35	<1	<2	<1	8.5	0.24
20-Apr	0.36	<1	<2	<1	8.9	0.17
25-Apr	0.55	<1	<2	<1	9.6	0.21
30-Apr	0.36	<1	<2	<1	9.7	0.25
07-May	0.38	<1	2	<1	9.6	0.22
15-May	0.45	<1	<2	<1	11	0.18
16-May	0.51	<1	<2	<1	11	0.17
18-May	0.41	<1	<2	<1	11	0.27
23-May	0.58	<1	<2	<1	11	0.10
28-May	0.36	<1	<2	<1	10	0.26
31-May	0.38	<1	<2	<1	11	0.25
05-Jun	0.42	<1	<2	<1	11	0.22
07-Jun	0.61	<1	<2	<1	9.9	0.16
12-Jun	0.48	<1	<2	<1	12	0.24
15-Jun	0.52	<1	<2	<1	12	0.23
20-Jun	0.46	<1	<2	<1	12	0.15
27-Jun	0.50	<1	<2	<1	12	0.13
04-Jul	0.33	<1	<2	<1	12	0.16
05-Jul	0.61	<1	<2	<1	14	0.13
09-Jul	0.61	<1	<2	<1	12	0.20
18-Jul	0.62	<1	<2	<1	13	0.14
24-Jul	0.36	<1	2	<1	14	0.15
31-Jul	0.51	<1	<2	<1	14	0.14
09-Aug	0.48	<1	2	<1	15	0.14
14-Aug	0.41	<1	<2	<1	13	0.21
17-Aug	0.54	<1	<2	<1	17	0.21
21-Aug	0.43	<1	2	<1	16	0.30
27-Aug	0.43	<1	2	<1	11	0.21
06-Sep	0.51	<1	4	<1	15	0.22
12-Sep	0.36	<1	2	<1	9.2	0.20
17-Sep	0.31	<1	<2	<1	15	0.21
20-Sep	0.44	<1	<2	<1	15	0.22
21-Sep	0.45	<1	<2	<1	16	0.32
24-Sep	0.48	<1	<2	<1	16	0.22
27-Sep	0.54	<1	<2	<1	15	0.19
02-Oct	0.50	<1	LA	<1	7.9	0.14
10-Oct	0.51	<1	<2	<1	7.7	0.13
17-Oct	0.50	<1	<2	<1	14	0.46
23-Oct	0.41	<1	<2	<1	7.8	0.43
24-Oct	0.34	<1	<2	<1	12	0.27
26-Oct	0.40	<1	<2	<1	12	0.37
29-Oct	0.49	<1	<2	<1	12	0.32
30-Oct	0.50	<1	<2	<1	7.9	0.27
02-Nov	0.40	<1	2	<1	7.4	0.25
06-Nov	0.38	<1	2	<1	12	0.27
14-Nov	0.23	<1	<2	<1	11	0.33
20-Nov	0.44	<1	<2	<1	9.7	0.21
22-Nov	0.47	<1	<2	<1	6.2	0.15
26-Nov	0.49	<1	<2	<1	9.3	0.17
28-Nov	0.47	<1	<2	<1	9.5	0.18
03-Dec	0.37	<1	<2	<1	9	0.23
05-Dec	0.43	<1	<2	<1	9.1	0.24
06-Dec	0.48	<1	<2	<1	8.5	0.31
07-Dec	0.60	<1	<2	<1	6.3	0.18
11-Dec	0.38	<1	<2	<1	8.2	0.19
12-Dec	0.47	<1	<2	<1	8.8	0.13
19-Dec	0.51	<1	<2	<1	7.6	0.64
20-Dec	0.60	<1	<2	<1	4.8	0.11
27-Dec	0.62	<1	NA	<1	6.7	0.28
28-Dec	0.53	<1	NA	<1	6.6	0.15
31-Dec	0.63	<1	NA	<1	7	0.24

DM914 (SW CORNER on 105 AVE AT 132 ST.) - 2012 TEST RESULTS



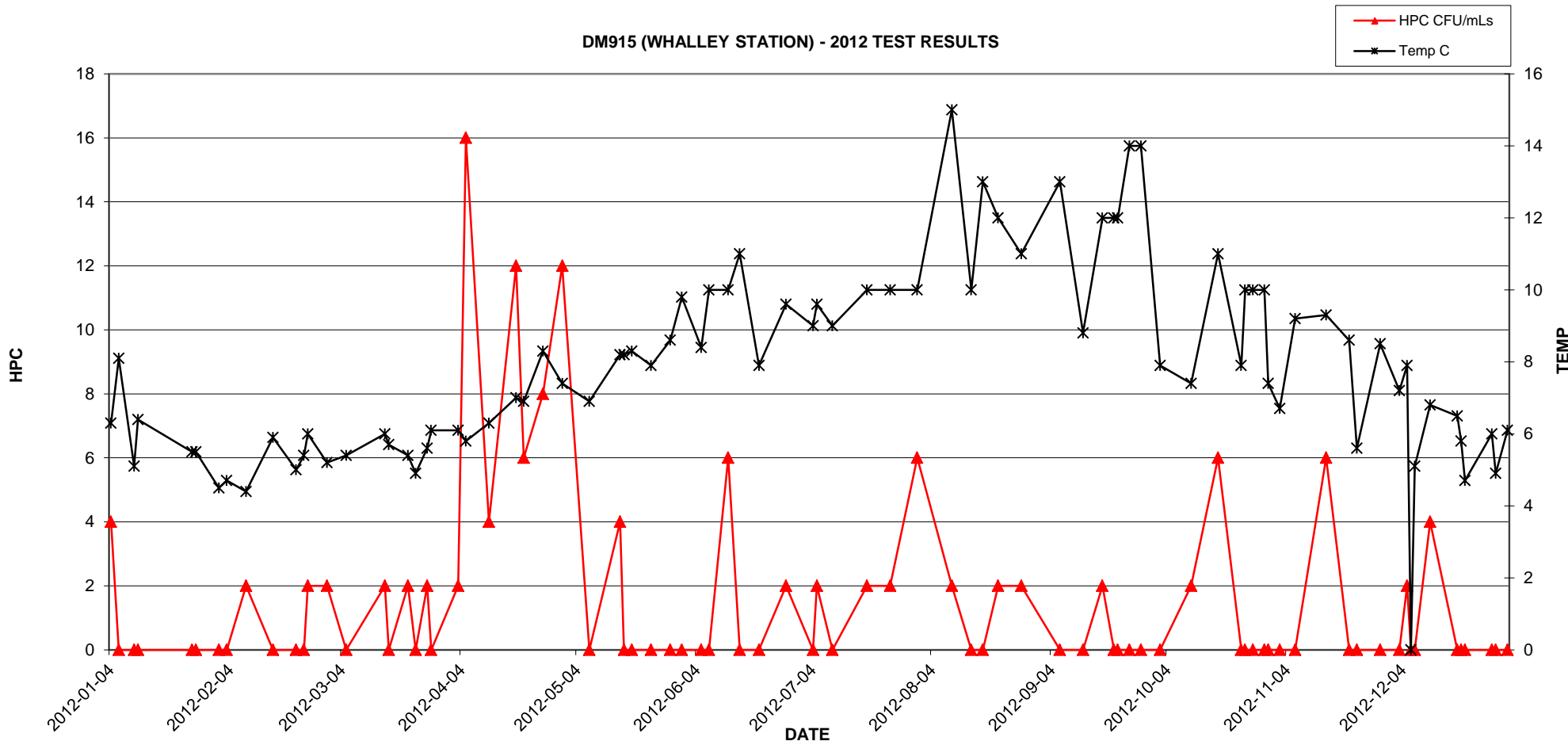
DM914 (SW CORNER on 105 AVE AT 132 ST.) - 2012 TEST RESULTS



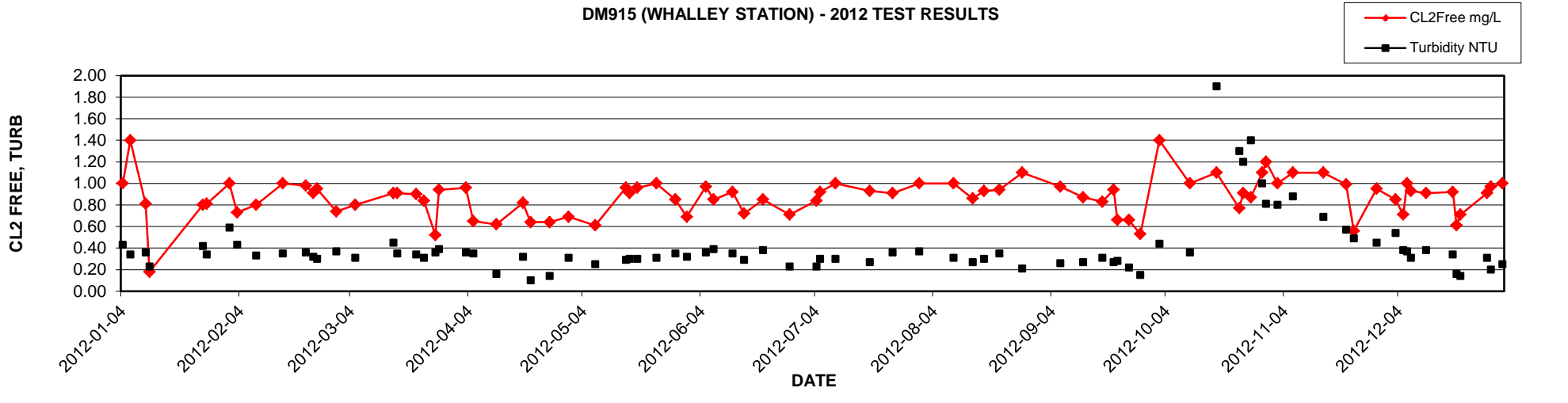
2012 GVRD Laboratory Report - DM915 (WHALLEY STATION)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
04-Jan	1.00	<1	4	<1	6.3	0.43
06-Jan	1.40	<1	<2	<1	8.1	0.34
10-Jan	0.81	<1	<2	<1	5.1	0.36
11-Jan	0.18	<1	<2	<1	6.4	0.23
25-Jan	0.80	<1	<2	<1	5.5	0.42
26-Jan	0.81	<1	<2	<1	5.5	0.34
01-Feb	1.00	<1	<2	<1	4.5	0.59
03-Feb	0.73	<1	<2	<1	4.7	0.43
08-Feb	0.80	<1	2	<1	4.4	0.33
15-Feb	1.00	<1	<2	<1	5.9	0.35
21-Feb	0.98	<1	<2	<1	5	0.36
23-Feb	0.91	<1	<2	<1	5.4	0.32
24-Feb	0.95	<1	2	<1	6	0.30
29-Feb	0.74	<1	2	<1	5.2	0.37
05-Mar	0.80	<1	<2	<1	5.4	0.31
15-Mar	0.91	<1	2	<1	6	0.45
16-Mar	0.91	<1	<2	<1	5.7	0.35
21-Mar	0.90	<1	2	<1	5.4	0.34
23-Mar	0.84	<1	<2	<1	4.9	0.31
26-Mar	0.52	<1	2	<1	5.6	0.36
27-Mar	0.94	<1	<2	<1	6.1	0.39
03-Apr	0.96	<1	2	<1	6.1	0.36
05-Apr	0.65	<1	16	<1	5.8	0.35
11-Apr	0.62	<1	4	<1	6.3	0.16
18-Apr	0.82	<1	12	<1	7	0.32
20-Apr	0.64	<1	6	<1	6.9	0.10
25-Apr	0.64	<1	8	<1	8.3	0.14
30-Apr	0.69	<1	12	<1	7.4	0.31
07-May	0.61	<1	<2	<1	6.9	0.25
15-May	0.96	<1	4	<1	8.2	0.29
16-May	0.91	<1	<2	<1	8.2	0.30
18-May	0.96	<1	<2	<1	8.3	0.30
23-May	1.00	<1	<2	<1	7.9	0.31
28-May	0.85	<1	<2	<1	8.6	0.35
31-May	0.69	<1	<2	<1	9.8	0.32
05-Jun	0.97	<1	<2	<1	8.4	0.36
07-Jun	0.85	<1	<2	<1	10	0.39
12-Jun	0.92	<1	6	<1	10	0.35
15-Jun	0.72	<1	<2	<1	11	0.29
20-Jun	0.85	<1	<2	<1	7.9	0.38
27-Jun	0.71	<1	2	<1	9.6	0.23
04-Jul	0.84	<1	<2	<1	9	0.23
05-Jul	0.92	<1	2	<1	9.6	0.30
09-Jul	1.00	<1	<2	<1	9	0.30
18-Jul	0.93	<1	2	<1	10	0.27
24-Jul	0.91	<1	2	<1	10	0.36
31-Jul	1.00	<1	6	<1	10	0.37
09-Aug	1.00	<1	2	<1	15	0.31
14-Aug	0.86	<1	<2	<1	10	0.27
17-Aug	0.93	<1	<2	<1	13	0.30
21-Aug	0.94	<1	2	<1	12	0.35
27-Aug	1.10	<1	2	<1	11	0.21
06-Sep	0.97	<1	<2	<1	13	0.26
12-Sep	0.87	<1	<2	<1	8.8	0.27
17-Sep	0.83	<1	2	<1	12	0.31
20-Sep	0.94	<1	<2	<1	12	0.27
21-Sep	0.66	<1	<2	<1	12	0.28
24-Sep	0.66	<1	<2	<1	14	0.22
27-Sep	0.53	<1	<2	<1	14	0.15
02-Oct	1.40	<1	<2	<1	7.9	0.44
10-Oct	1.00	<1	2	<1	7.4	0.36
17-Oct	1.10	<1	6	<1	11	1.90
23-Oct	0.77	<1	<2	<1	7.9	1.30
24-Oct	0.91	<1	<2	<1	10	1.20
26-Oct	0.87	<1	<2	<1	10	1.40
29-Oct	1.10	<1	<2	<1	10	1.00
30-Oct	1.20	<1	<2	<1	7.4	0.81
02-Nov	1.00	<1	<2	<1	6.7	0.80
06-Nov	1.10	<1	<2	<1	9.2	0.88
14-Nov	1.10	<1	6	<1	9.3	0.69
20-Nov	0.99	<1	<2	<1	8.6	0.57
22-Nov	0.56	<1	<2	<1	5.6	0.49
28-Nov	0.95	<1	<2	<1	8.5	0.45
03-Dec	0.85	<1	<2	<1	7.2	0.54
05-Dec	0.71	<1	2	<1	7.9	0.38
06-Dec	1.00	<1	<2	<1	LA	0.37
07-Dec	0.93	<1	<2	<1	5.1	0.31
11-Dec	0.91	<1	4	<1	6.8	0.38
18-Dec	0.92	<1	<2	<1	6.5	0.34
19-Dec	0.61	<1	<2	<1	5.8	0.16
20-Dec	0.71	<1	<2	<1	4.7	0.14
27-Dec	0.91	<1	NA	<1	6	0.31
28-Dec	0.97	<1	NA	<1	4.9	0.20
31-Dec	1.00	<1	NA	<1	6.1	0.25

DM915 (WHALLEY STATION) - 2012 TEST RESULTS



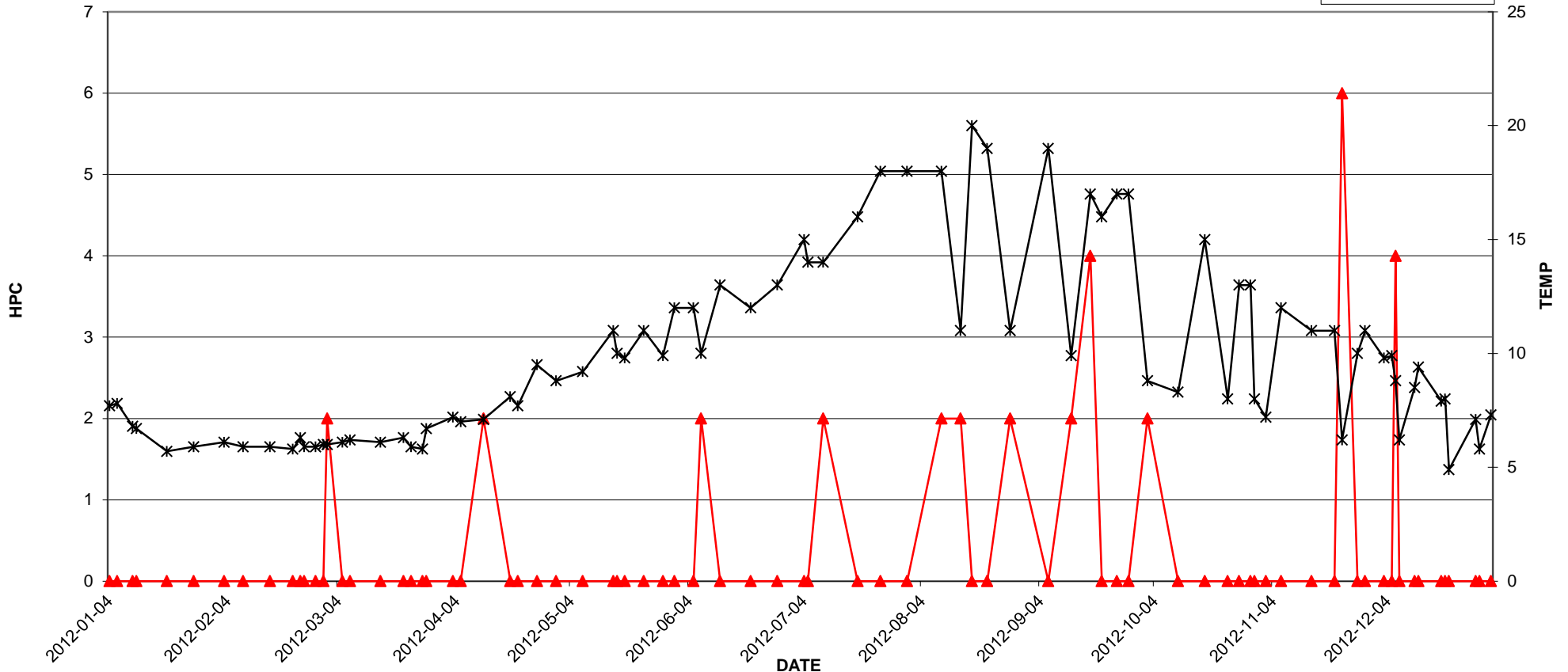
DM915 (WHALLEY STATION) - 2012 TEST RESULTS



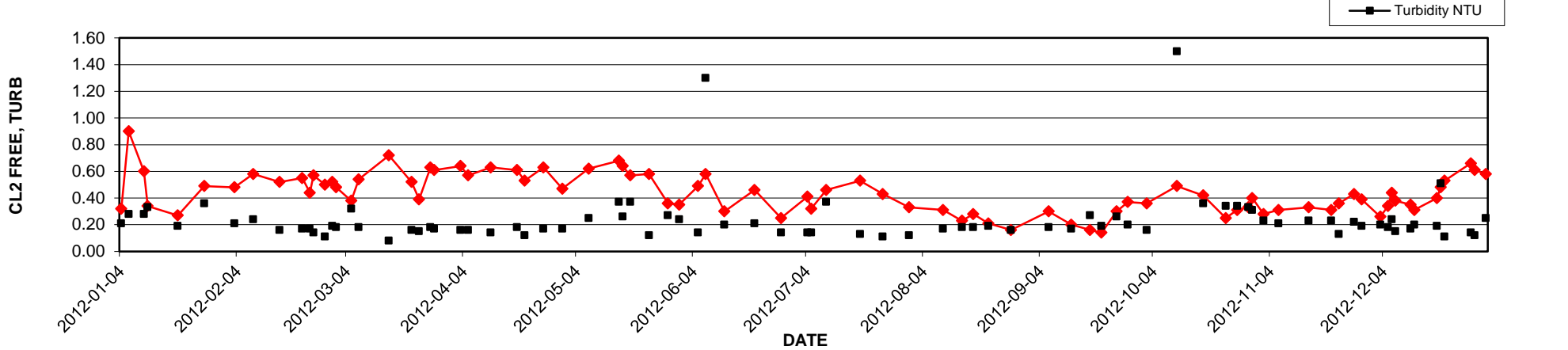
2012 GVRD Laboratory Report - DM916 (NE Corner 97A Ave. / 137 St.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
04-Jan	0.32	<1	<2	<1	7.7	0.21
06-Jan	0.90	<1	<2	<1	7.8	0.28
10-Jan	0.60	<1	<2	<1	6.8	0.28
11-Jan	0.34	<1	<2	<1	6.7	0.33
19-Jan	0.27	<1	<2	<1	5.7	0.19
26-Jan	0.49	<1	<2	<1	5.9	0.36
03-Feb	0.48	<1	<2	<1	6.1	0.21
08-Feb	0.58	<1	<2	<1	5.9	0.24
15-Feb	0.52	<1	<2	<1	5.9	0.16
21-Feb	0.55	<1	<2	<1	5.8	0.17
23-Feb	0.44	<1	<2	<1	6.3	0.17
24-Feb	0.57	<1	<2	<1	5.9	0.14
27-Feb	0.50	<1	<2	<1	5.9	0.11
29-Feb	0.52	<1	<2	<1	6	0.19
01-Mar	0.48	<1	2	<1	6	0.18
05-Mar	0.38	<1	<2	<1	6.1	0.32
07-Mar	0.54	<1	<2	<1	6.2	0.18
15-Mar	0.72	<1	<2	<1	6.1	0.08
21-Mar	0.52	<1	<2	<1	6.3	0.16
23-Mar	0.39	<1	<2	<1	5.9	0.15
26-Mar	0.63	<1	<2	<1	5.8	0.18
27-Mar	0.61	<1	<2	<1	6.7	0.17
03-Apr	0.64	<1	<2	<1	7.2	0.16
05-Apr	0.57	<1	<2	<1	7	0.16
11-Apr	0.63	<1	2	<1	7.1	0.14
18-Apr	0.61	<1	<2	<1	8.1	0.18
20-Apr	0.53	<1	<2	<1	7.7	0.12
25-Apr	0.63	<1	<2	<1	9.5	0.17
30-Apr	0.47	<1	<2	<1	8.8	0.17
07-May	0.62	<1	<2	<1	9.2	0.25
15-May	0.68	<1	<2	<1	11	0.37
16-May	0.64	<1	<2	<1	10	0.26
18-May	0.57	<1	<2	<1	9.8	0.37
23-May	0.58	<1	<2	<1	11	0.12
28-May	0.36	<1	<2	<1	9.9	0.27
31-May	0.35	<1	<2	<1	12	0.24
05-Jun	0.49	<1	<2	<1	12	0.14
07-Jun	0.58	<1	2	<1	10	1.30
12-Jun	0.30	<1	<2	<1	13	0.20
20-Jun	0.46	<1	<2	<1	12	0.21
27-Jun	0.25	<1	<2	<1	13	0.14
04-Jul	0.41	<1	<2	<1	15	0.14
05-Jul	0.32	<1	<2	<1	14	0.14
09-Jul	0.46	<1	2	<1	14	0.37
18-Jul	0.53	<1	<2	<1	16	0.13
24-Jul	0.43	<1	<2	<1	18	0.11
31-Jul	0.33	<1	<2	<1	18	0.12
09-Aug	0.31	<1	2	<1	18	0.17
14-Aug	0.23	<1	2	<1	11	0.18
17-Aug	0.28	<1	<2	<1	20	0.18
21-Aug	0.21	<1	<2	<1	19	0.19
27-Aug	0.16	<1	2	<1	11	0.16
06-Sep	0.30	<1	<2	<1	19	0.18
12-Sep	0.20	<1	2	<1	9.9	0.17
17-Sep	0.16	<1	4	<1	17	0.27
20-Sep	0.14	<1	<2	<1	16	0.19
24-Sep	0.30	<1	<2	<1	17	0.26
27-Sep	0.37	<1	<2	<1	17	0.20
02-Oct	0.36	<1	2	<1	8.8	0.16
10-Oct	0.49	<1	<2	<1	8.3	1.50
17-Oct	0.42	<1	<2	<1	15	0.36
23-Oct	0.25	<1	<2	<1	8	0.34
26-Oct	0.31	<1	<2	<1	13	0.34
29-Oct	0.33	<1	<2	<1	13	0.33
30-Oct	0.40	<1	<2	<1	8	0.31
02-Nov	0.28	<1	<2	<1	7.2	0.23
06-Nov	0.31	<1	<2	<1	12	0.21
14-Nov	0.33	<1	<2	<1	11	0.23
20-Nov	0.31	<1	<2	<1	11	0.23
22-Nov	0.36	<1	6	<1	6.2	0.13
26-Nov	0.43	<1	<2	<1	10	0.22
28-Nov	0.39	<1	<2	<1	11	0.19
03-Dec	0.26	<1	<2	<1	9.8	0.20
05-Dec	0.34	<1	<2	<1	9.9	0.18
06-Dec	0.44	<1	4	<1	8.8	0.24
07-Dec	0.38	<1	<2	<1	6.2	0.15
11-Dec	0.35	<1	<2	<1	8.5	0.17
12-Dec	0.31	<1	<2	<1	9.4	0.20
18-Dec	0.40	<1	<2	<1	7.9	0.19
19-Dec	0.48	<1	<2	<1	8	0.51
20-Dec	0.53	<1	<2	<1	4.9	0.11
27-Dec	0.66	<1	NA	<1	7.1	0.14
28-Dec	0.61	<1	NA	<1	5.8	0.12
31-Dec	0.58	<1	NA	<1	7.3	0.25

DM916 (NE Corner 97A Ave. / 137 St.) - 2012 TEST RESULTS



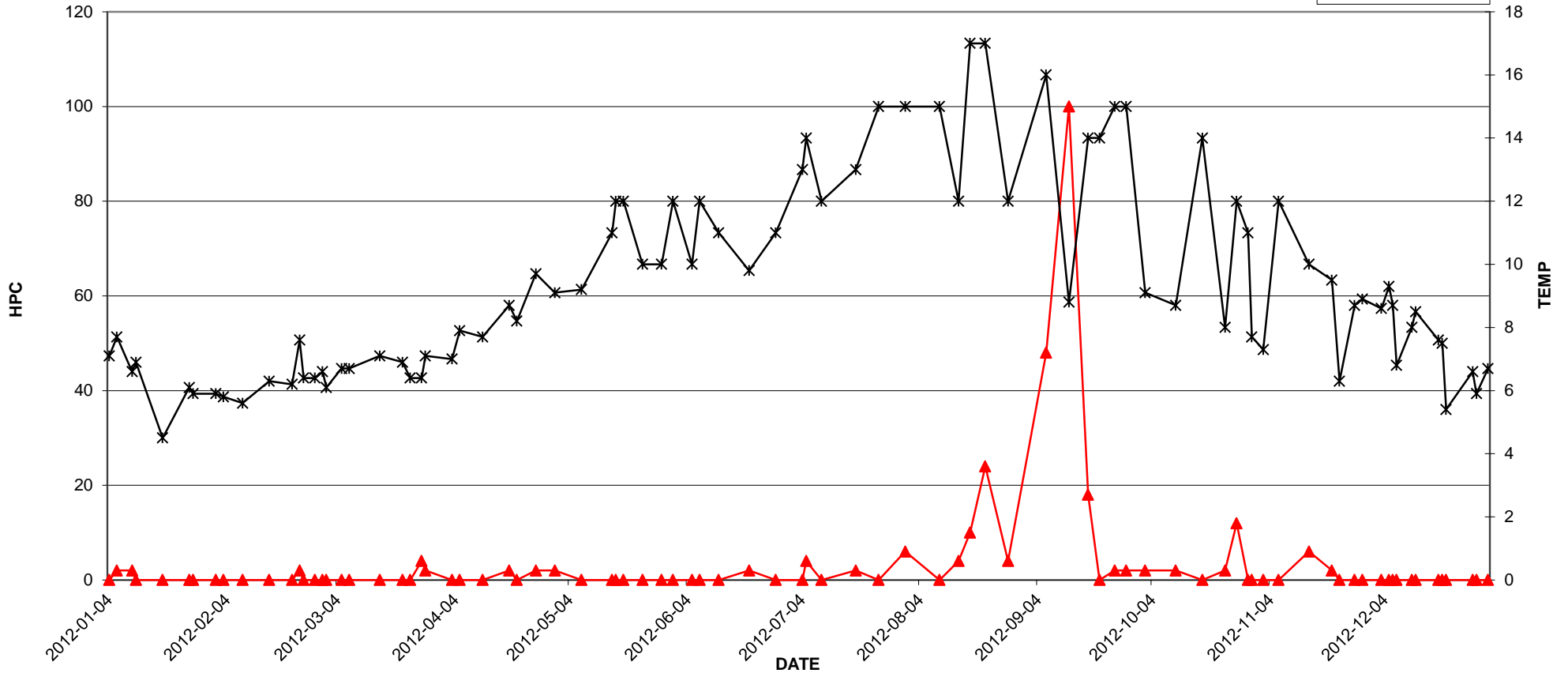
DM916 (NE Corner 97A Ave. / 137 St.) - 2012 TEST RESULTS



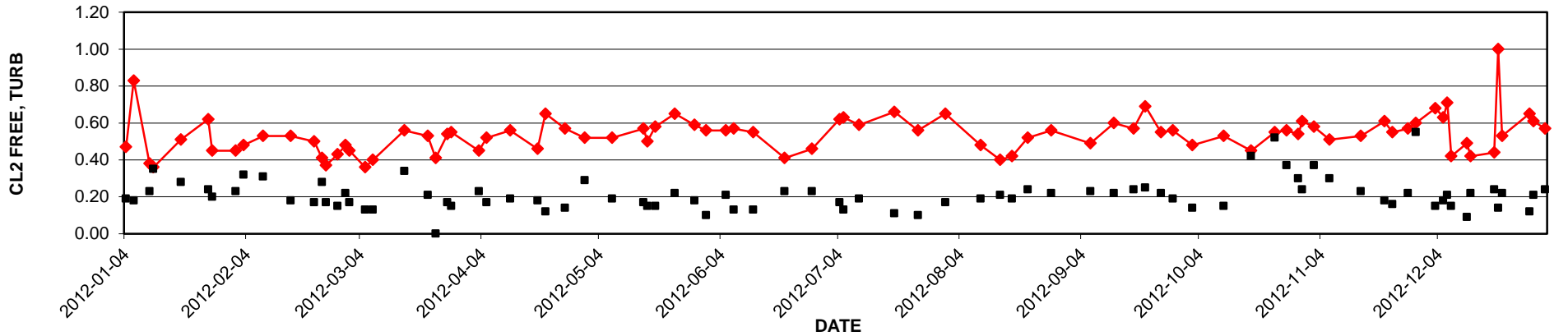
2012 GVRD Laboratory Report - DM917 (E P/L 13031 Lanark PL)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
04-Jan	0.47	<1	<2	<1	7.1	0.19
06-Jan	0.83	<1	2	<1	7.7	0.18
10-Jan	0.38	<1	2	<1	6.6	0.23
11-Jan	0.36	<1	<2	<1	6.9	0.35
18-Jan	0.51	<1	<2	<1	4.5	0.28
25-Jan	0.62	<1	<2	<1	6.1	0.24
26-Jan	0.45	<1	<2	<1	5.9	0.20
01-Feb	0.45	<1	<2	<1	5.9	0.23
03-Feb	0.48	<1	<2	<1	5.8	0.32
08-Feb	0.53	<1	<2	<1	5.6	0.31
15-Feb	0.53	<1	<2	<1	6.3	0.18
21-Feb	0.50	<1	<2	<1	6.2	0.17
23-Feb	0.41	<1	2	<1	7.6	0.28
24-Feb	0.37	<1	<2	<1	6.4	0.17
27-Feb	0.43	<1	<2	<1	6.4	0.15
29-Feb	0.48	<1	<2	<1	6.6	0.22
01-Mar	0.45	<1	<2	<1	6.1	0.17
05-Mar	0.36	<1	<2	<1	6.7	0.13
07-Mar	0.40	<1	<2	<1	6.7	0.13
15-Mar	0.56	<1	<2	<1	7.1	0.34
21-Mar	0.53	<1	<2	<1	6.9	0.21
23-Mar	0.41	<1	<2	<1	6.4	LA
26-Mar	0.54	<1	4	<1	6.4	0.17
27-Mar	0.55	<1	2	<1	7.1	0.15
03-Apr	0.45	<1	<2	<1	7	0.23
05-Apr	0.52	<1	<2	<1	7.9	0.17
11-Apr	0.56	<1	<2	<1	7.7	0.19
18-Apr	0.46	<1	2	<1	8.7	0.18
20-Apr	0.65	<1	<2	<1	8.2	0.12
25-Apr	0.57	<1	2	<1	9.7	0.14
30-Apr	0.52	<1	2	<1	9.1	0.29
07-May	0.52	<1	<2	<1	9.2	0.19
15-May	0.57	<1	<2	<1	11	0.17
16-May	0.50	<1	<2	<1	12	0.15
18-May	0.58	<1	<2	<1	12	0.15
23-May	0.65	<1	<2	<1	10	0.22
28-May	0.59	<1	<2	<1	10	0.18
31-May	0.56	<1	<2	<1	12	0.10
05-Jun	0.56	<1	<2	<1	10	0.21
07-Jun	0.57	<1	<2	<1	12	0.13
12-Jun	0.55	<1	<2	<1	11	0.13
20-Jun	0.41	<1	2	<1	9.8	0.23
27-Jun	0.46	<1	<2	<1	11	0.23
04-Jul	0.62	<1	<2	<1	13	0.17
05-Jul	0.63	<1	4	<1	14	0.13
09-Jul	0.59	<1	<2	<1	12	0.19
18-Jul	0.66	<1	2	<1	13	0.11
24-Jul	0.56	<1	<2	<1	15	0.10
31-Jul	0.65	<1	6	<1	15	0.17
09-Aug	0.48	<1	LA	<1	15	0.19
14-Aug	0.40	<1	4	<1	12	0.21
17-Aug	0.42	<1	10	<1	17	0.19
21-Aug	0.52	<1	24	<1	17	0.24
27-Aug	0.56	<1	4	<1	12	0.22
06-Sep	0.49	<1	48	<1	16	0.23
12-Sep	0.60	<1	100	<1	8.8	0.22
17-Sep	0.57	<1	18	<1	14	0.24
20-Sep	0.69	<1	<2	<1	14	0.25
24-Sep	0.55	<1	2	<1	15	0.22
27-Sep	0.56	<1	2	<1	15	0.19
02-Oct	0.48	<1	2	<1	9.1	0.14
10-Oct	0.53	<1	2	<1	8.7	0.15
17-Oct	0.45	<1	<2	<1	14	0.42
23-Oct	0.55	<1	2	<1	8	0.52
26-Oct	0.56	<1	12	<1	12	0.37
29-Oct	0.54	<1	<2	<1	11	0.30
30-Oct	0.61	<1	<2	<1	7.7	0.24
02-Nov	0.58	<1	<2	<1	7.3	0.37
06-Nov	0.51	<1	<2	<1	12	0.30
14-Nov	0.53	<1	6	<1	10	0.23
20-Nov	0.61	<1	2	<1	9.5	0.18
22-Nov	0.55	<1	<2	<1	6.3	0.16
26-Nov	0.57	<1	<2	<1	8.7	0.22
28-Nov	0.60	<1	<2	<1	8.9	0.55
03-Dec	0.68	<1	<2	<1	8.6	0.15
05-Dec	0.63	<1	<2	<1	9.3	0.18
06-Dec	0.71	<1	<2	<1	8.7	0.21
07-Dec	0.42	<1	<2	<1	6.8	0.15
11-Dec	0.49	<1	<2	<1	8	0.09
12-Dec	0.42	<1	<2	<1	8.5	0.22
18-Dec	0.44	<1	<2	<1	7.6	0.24
19-Dec	1.00	<1	<2	<1	7.5	0.14
20-Dec	0.53	<1	<2	<1	5.4	0.22
27-Dec	0.65	<1	NA	<1	6.6	0.12
28-Dec	0.61	<1	NA	<1	5.9	0.21
31-Dec	0.57	<1	NA	<1	6.7	0.24

DM917 (E P/L 13031 Lanark PI.) - 2012 TEST RESULTS



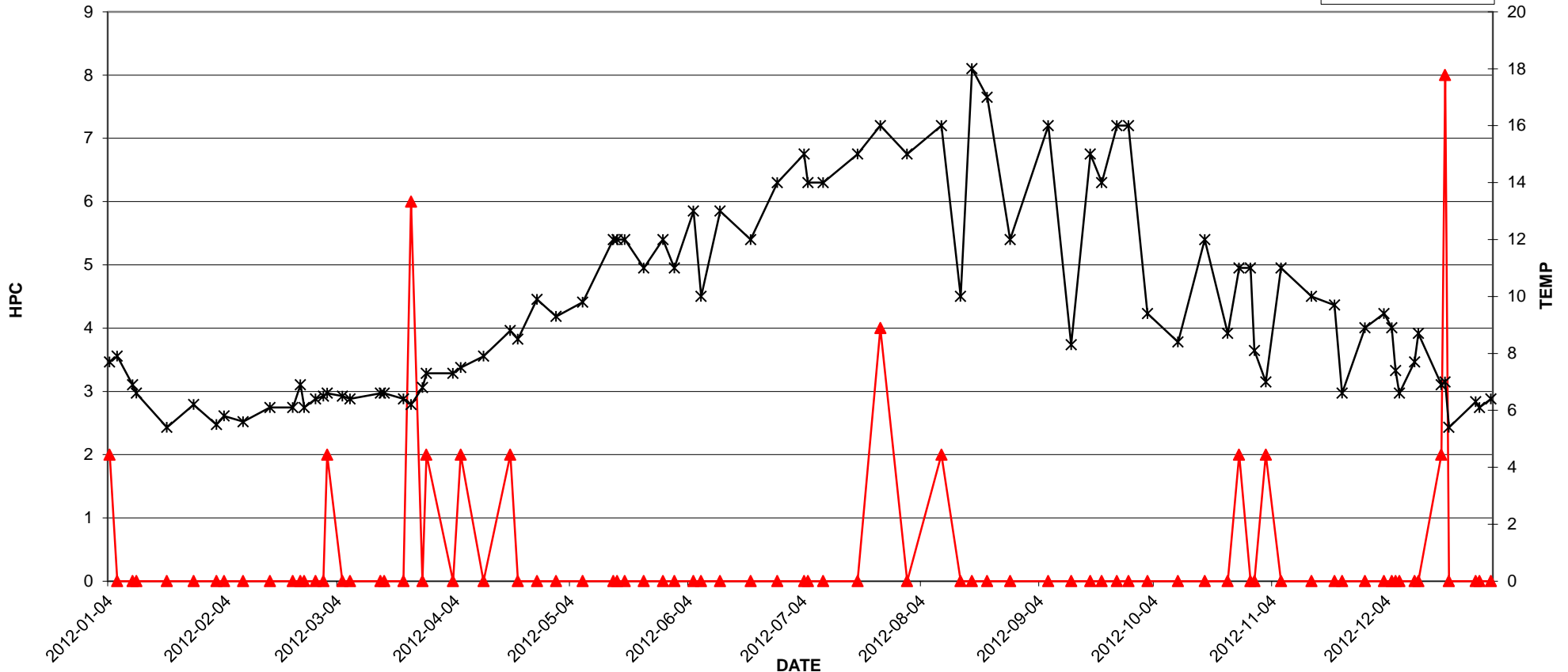
DM917 (E P/L 13031 Lanark PI.) - 2012 TEST RESULTS



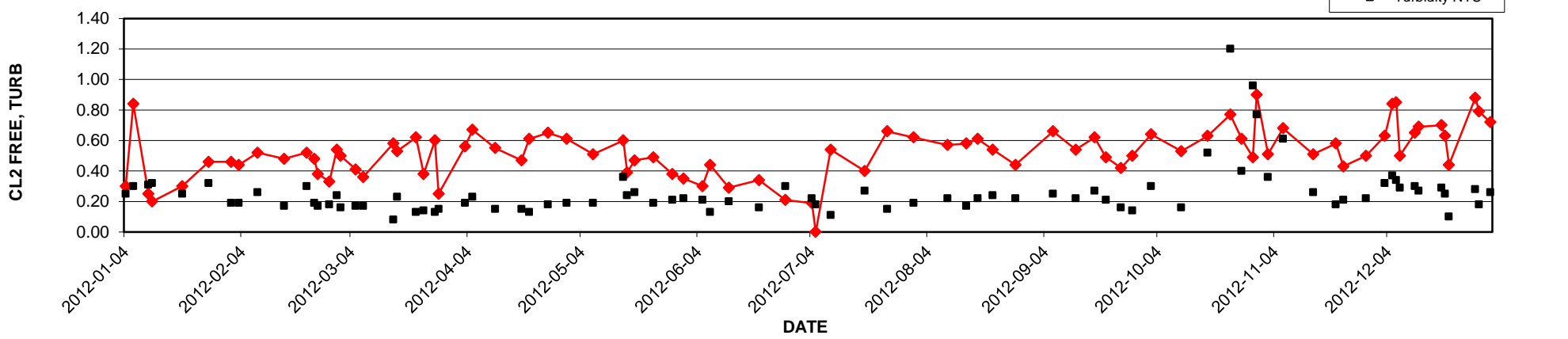
2012 GVRD Laboratory Report - DM918 (SW CORNER GLEN PL / LAUDER)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
04-Jan	0.30	<1	2	<1	7.7	0.25
06-Jan	0.84	<1	<2	<1	7.9	0.30
10-Jan	0.25	<1	<2	<1	6.9	0.31
11-Jan	0.20	<1	<2	<1	6.6	0.32
19-Jan	0.30	<1	<2	<1	5.4	0.25
26-Jan	0.46	<1	<2	<1	6.2	0.32
01-Feb	0.46	<1	<2	<1	5.5	0.19
03-Feb	0.44	<1	<2	<1	5.8	0.19
08-Feb	0.52	<1	<2	<1	5.6	0.26
15-Feb	0.48	<1	<2	<1	6.1	0.17
21-Feb	0.52	<1	<2	<1	6.1	0.30
23-Feb	0.48	<1	<2	<1	6.9	0.19
24-Feb	0.38	<1	<2	<1	6.1	0.17
27-Feb	0.33	<1	<2	<1	6.4	0.18
29-Feb	0.54	<1	<2	<1	6.5	0.24
01-Mar	0.50	<1	2	<1	6.6	0.16
05-Mar	0.41	<1	<2	<1	6.5	0.17
07-Mar	0.36	<1	<2	<1	6.4	0.17
15-Mar	0.58	<1	<2	<1	6.6	0.08
16-Mar	0.53	<1	<2	<1	6.6	0.23
21-Mar	0.62	<1	<2	<1	6.4	0.13
23-Mar	0.38	<1	6	<1	6.2	0.14
26-Mar	0.60	<1	<2	<1	6.8	0.13
03-Apr	0.56	<1	<2	<1	7.3	0.19
05-Apr	0.67	<1	2	<1	7.5	0.23
11-Apr	0.55	<1	<2	<1	7.9	0.15
18-Apr	0.47	<1	2	<1	8.8	0.15
20-Apr	0.61	<1	<2	<1	8.5	0.13
25-Apr	0.65	<1	<2	<1	9.9	0.18
27-Mar	0.25	<1	2	<1	7.3	0.15
30-Apr	0.61	<1	<2	<1	9.3	0.19
07-May	0.51	<1	<2	<1	9.8	0.19
15-May	0.60	<1	<2	<1	12	0.36
16-May	0.39	<1	<2	<1	12	0.24
18-May	0.47	<1	<2	<1	12	0.26
23-May	0.49	<1	<2	<1	11	0.19
28-May	0.38	<1	<2	<1	12	0.21
31-May	0.35	<1	<2	<1	11	0.22
05-Jun	0.30	<1	<2	<1	13	0.21
07-Jun	0.44	<1	<2	<1	10	0.13
12-Jun	0.29	<1	<2	<1	13	0.20
20-Jun	0.34	<1	<2	<1	12	0.16
27-Jun	0.21	<1	<2	<1	14	0.30
04-Jul	0.19	<1	<2	<1	15	0.22
05-Jul	<0.01	<1	<2	<1	14	0.18
09-Jul	0.54	<1	<2	<1	14	0.11
18-Jul	0.40	<1	<2	<1	15	0.27
24-Jul	0.66	<1	4	<1	16	0.15
31-Jul	0.62	<1	<2	<1	15	0.19
09-Aug	0.57	<1	2	<1	16	0.22
14-Aug	0.58	<1	<2	<1	10	0.17
17-Aug	0.61	<1	<2	<1	18	0.22
21-Aug	0.54	<1	<2	<1	17	0.24
27-Aug	0.44	<1	<2	<1	12	0.22
06-Sep	0.66	<1	<2	<1	16	0.25
12-Sep	0.54	<1	<2	<1	8.3	0.22
17-Sep	0.62	<1	<2	<1	15	0.27
20-Sep	0.49	<1	<2	<1	14	0.21
24-Sep	0.42	<1	<2	<1	16	0.16
27-Sep	0.50	<1	<2	<1	16	0.14
02-Oct	0.64	<1	<2	<1	9.4	0.30
10-Oct	0.53	<1	<2	<1	8.4	0.16
17-Oct	0.63	<1	<2	<1	12	0.52
23-Oct	0.77	<1	<2	<1	8.7	1.20
26-Oct	0.61	<1	2	<1	11	0.40
29-Oct	0.49	<1	<2	<1	11	0.96
30-Oct	0.90	<1	<2	<1	8.1	0.77
02-Nov	0.51	<1	2	<1	7	0.36
06-Nov	0.68	<1	<2	<1	11	0.61
14-Nov	0.51	<1	<2	<1	10	0.26
20-Nov	0.58	<1	<2	<1	9.7	0.18
22-Nov	0.43	<1	<2	<1	6.6	0.21
28-Nov	0.50	<1	<2	<1	8.9	0.22
03-Dec	0.63	<1	<2	<1	9.4	0.32
05-Dec	0.84	<1	<2	<1	8.9	0.37
06-Dec	0.85	<1	<2	<1	7.4	0.34
07-Dec	0.50	<1	<2	<1	6.6	0.29
11-Dec	0.65	<1	<2	<1	7.7	0.30
12-Dec	0.69	<1	<2	<1	8.7	0.27
18-Dec	0.70	<1	2	<1	6.9	0.29
19-Dec	0.63	<1	8	<1	7	0.25
20-Dec	0.44	<1	<2	<1	5.4	0.10
27-Dec	0.88	<1	NA	<1	6.3	0.28
28-Dec	0.79	<1	NA	<1	6.1	0.18
31-Dec	0.72	<1	NA	<1	6.4	0.26

DM918 (SW CORNER GLEN PL / LAUDER) - 2012 TEST RESULTS



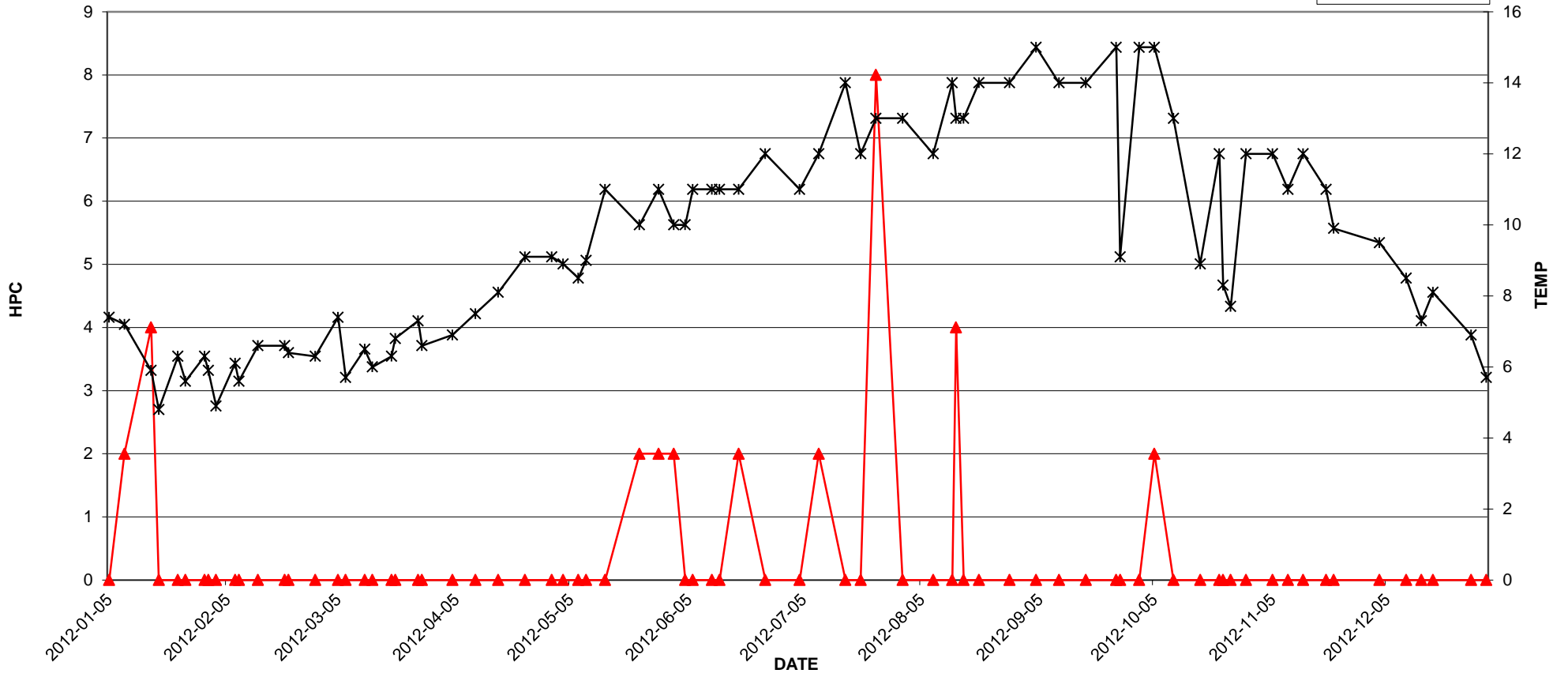
DM918 (SW CORNER GLEN PL / LAUDER) - 2012 TEST RESULTS



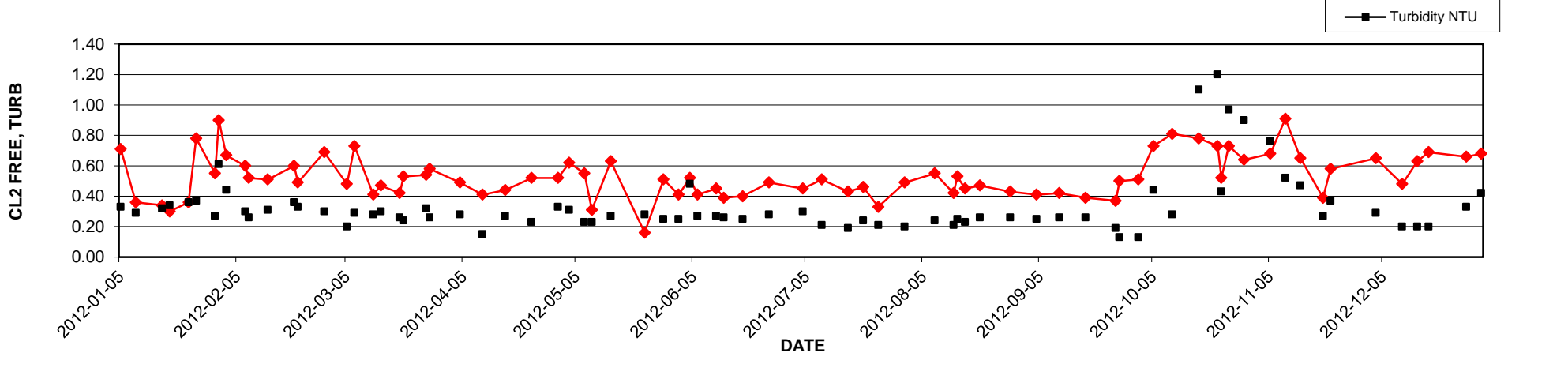
2012 GVRD Laboratory Report - DM919 (NW CORNER 92A AVE. & 151 ST.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
05-Jan	0.71	<1	<2	<1	7.4	0.33
09-Jan	0.36	<1	2	<1	7.2	0.29
16-Jan	0.34	<1	4	<1	5.9	0.32
18-Jan	0.30	<1	<2	<1	4.8	0.34
23-Jan	0.36	<1	<2	<1	6.3	0.36
25-Jan	0.78	<1	<2	<1	5.6	0.37
30-Jan	0.55	<1	<2	<1	6.3	0.27
31-Jan	0.90	<1	<2	<1	5.9	0.61
02-Feb	0.67	<1	<2	<1	4.9	0.44
07-Feb	0.60	<1	<2	<1	6.1	0.30
08-Feb	0.52	<1	<2	<1	5.6	0.26
13-Feb	0.51	<1	<2	<1	6.6	0.31
20-Feb	0.60	<1	<2	<1	6.6	0.36
21-Feb	0.49	<1	<2	<1	6.4	0.33
28-Feb	0.69	<1	<2	<1	6.3	0.30
05-Mar	0.48	<1	<2	<1	7.4	0.20
07-Mar	0.73	<1	<2	<1	5.7	0.29
12-Mar	0.41	<1	<2	<1	6.5	0.28
14-Mar	0.47	<1	<2	<1	6	0.30
19-Mar	0.42	<1	<2	<1	6.3	0.26
20-Mar	0.53	<1	<2	<1	6.8	0.24
26-Mar	0.54	<1	<2	<1	7.3	0.32
27-Mar	0.58	<1	<2	<1	6.6	0.26
04-Apr	0.49	<1	<2	<1	6.9	0.28
10-Apr	0.41	<1	<2	<1	7.5	0.15
16-Apr	0.44	<1	<2	<1	8.1	0.27
23-Apr	0.52	<1	<2	<1	9.1	0.23
30-Apr	0.52	<1	<2	<1	9.1	0.33
03-May	0.62	<1	<2	<1	8.9	0.31
07-May	0.55	<1	<2	<1	8.5	0.23
09-May	0.31	<1	<2	<1	9	0.23
14-May	0.63	<1	<2	<1	11	0.27
23-May	0.16	<1	2	<1	10	0.28
28-May	0.51	<1	2	<1	11	0.25
01-Jun	0.41	<1	2	<1	10	0.25
04-Jun	0.52	<1	<2	<1	10	0.48
06-Jun	0.41	<1	<2	<1	11	0.27
11-Jun	0.45	<1	<2	<1	11	0.27
13-Jun	0.39	<1	<2	<1	11	0.26
18-Jun	0.40	<1	2	<1	11	0.25
25-Jun	0.49	<1	<2	<1	12	0.28
04-Jul	0.45	<1	<2	<1	11	0.30
09-Jul	0.51	<1	2	<1	12	0.21
16-Jul	0.43	<1	<2	<1	14	0.19
20-Jul	0.46	<1	<2	<1	12	0.24
24-Jul	0.33	<1	8	<1	13	0.21
31-Jul	0.49	<1	<2	<1	13	0.20
08-Aug	0.55	<1	<2	<1	12	0.24
13-Aug	0.42	<1	<2	<1	14	0.21
14-Aug	0.53	<1	4	<1	13	0.25
16-Aug	0.45	<1	<2	<1	13	0.23
20-Aug	0.47	<1	<2	<1	14	0.26
28-Aug	0.43	<1	<2	<1	14	0.26
04-Sep	0.41	<1	<2	<1	15	0.25
10-Sep	0.42	<1	<2	<1	14	0.26
17-Sep	0.39	<1	<2	<1	14	0.26
25-Sep	0.37	<1	<2	<1	15	0.19
26-Sep	0.50	<1	<2	<1	9.1	0.13
01-Oct	0.51	<1	<2	<1	15	0.13
05-Oct	0.73	<1	2	<1	15	0.44
10-Oct	0.81	<1	<2	<1	13	0.28
17-Oct	0.78	<1	<2	<1	8.9	1.10
22-Oct	0.73	<1	<2	<1	12	1.20
23-Oct	0.52	<1	<2	<1	8.3	0.43
25-Oct	0.73	<1	<2	<1	7.7	0.97
29-Oct	0.64	<1	<2	<1	12	0.90
05-Nov	0.68	<1	<2	<1	12	0.76
09-Nov	0.91	<1	<2	<1	11	0.52
13-Nov	0.65	<1	<2	<1	12	0.47
19-Nov	0.39	<1	<2	<1	11	0.27
21-Nov	0.58	<1	<2	<1	9.9	0.37
03-Dec	0.65	<1	<2	<1	9.5	0.29
10-Dec	0.48	<1	<2	<1	8.5	0.20
14-Dec	0.63	<1	<2	<1	7.3	0.20
17-Dec	0.69	<1	<2	<1	8.1	0.20
27-Dec	0.66	<1	NA	<1	6.9	0.33
31-Dec	0.68	<1	NA	<1	5.7	0.42

DM919 (NW CORNER 92A AVE. & 151 ST.) - 2012 TEST RESULTS



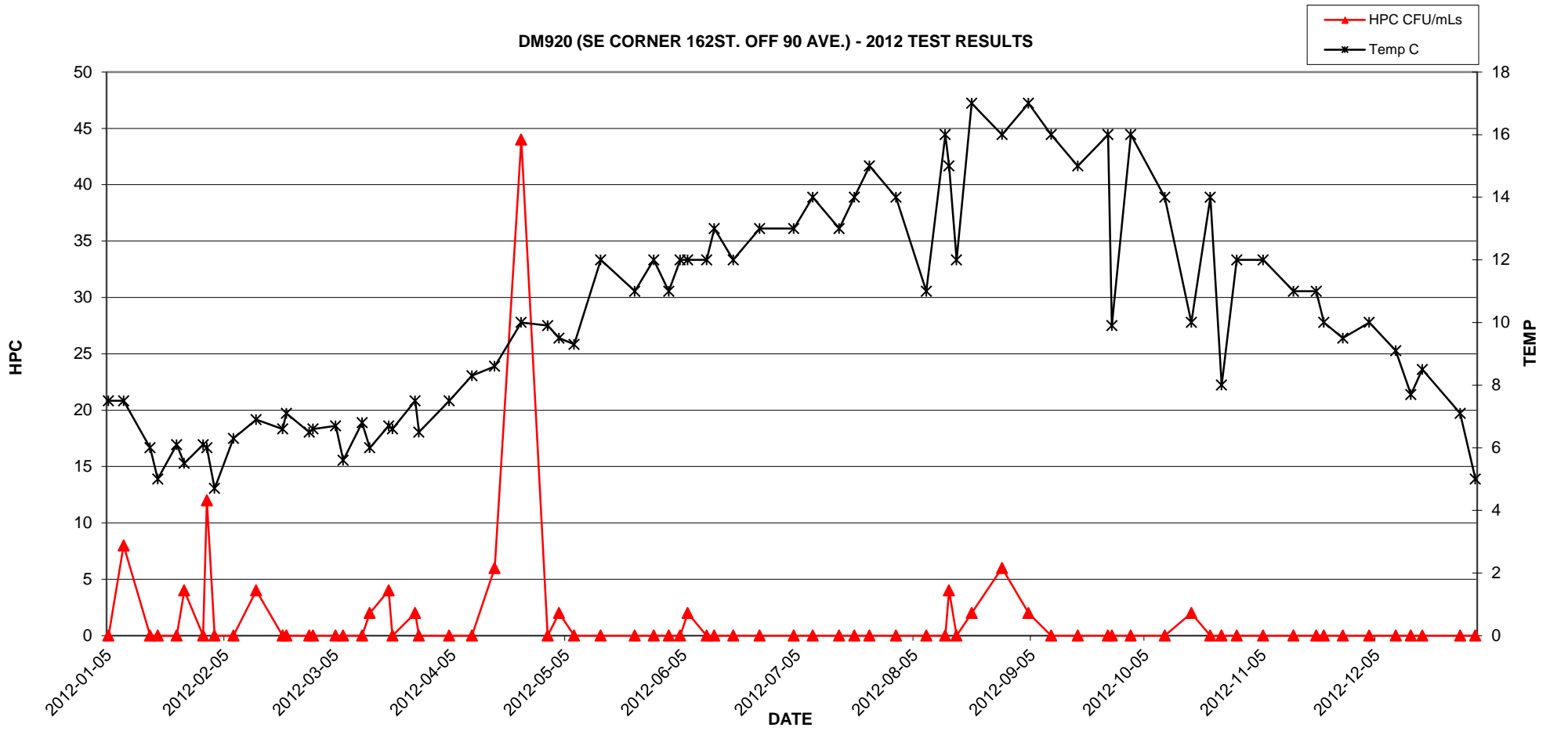
DM919 (NW CORNER 92A AVE. & 151 ST.) - 2012 TEST RESULTS



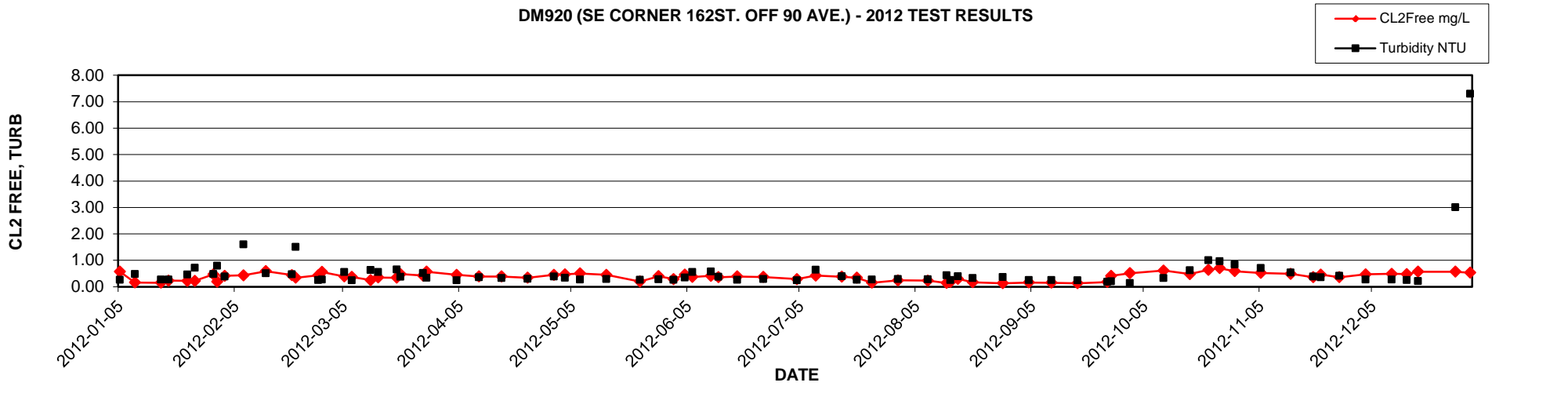
2012 GVRD Laboratory Report - DM920 (SE CORNER 162ST. OFF 90 AVE.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
05-Jan	0.57	<1	<2	<1	7.5	0.26
09-Jan	0.16	<1	8	<1	7.5	0.48
16-Jan	0.15	<1	<2	<1	6	0.27
18-Jan	0.23	<1	<2	<1	5	0.27
23-Jan	0.22	<1	<2	<1	6.1	0.46
25-Jan	0.22	<1	4	<1	5.5	0.71
30-Jan	0.47	<1	<2	<1	6.1	0.48
31-Jan	0.19	<1	12	<1	6	0.79
02-Feb	0.41	<1	<2	<1	4.7	0.38
07-Feb	0.43	<1	<2	<1	6.3	1.60
13-Feb	0.59	<1	4	<1	6.9	0.50
20-Feb	0.44	<1	<2	<1	6.6	0.47
21-Feb	0.34	<1	<2	<1	7.1	1.50
27-Feb	0.43	<1	LA	<1	6.5	0.25
28-Feb	0.56	<1	<2	<1	6.6	0.27
05-Mar	0.39	<1	<2	<1	6.7	0.55
07-Mar	0.37	<1	<2	<1	5.6	0.24
12-Mar	0.25	<1	<2	<1	6.8	0.63
14-Mar	0.35	<1	2	<1	6	0.55
19-Mar	0.34	<1	4	<1	6.7	0.65
20-Mar	0.48	<1	<2	<1	6.6	0.37
26-Mar	0.42	<1	2	<1	7.5	0.51
27-Mar	0.57	<1	<2	<1	6.5	0.33
04-Apr	0.45	<1	<2	<1	7.5	0.24
10-Apr	0.39	<1	<2	<1	8.3	0.35
16-Apr	0.39	<1	6	>1	8.6	0.32
23-Apr	0.34	<1	44	<1	10	0.30
30-Apr	0.45	<1	<2	<1	9.9	0.38
03-May	0.47	<1	2	<1	9.5	0.33
07-May	0.50	<1	<2	<1	9.3	0.27
14-May	0.45	<1	<2	<1	12	0.29
23-May	0.20	<1	<2	<1	11	0.26
28-May	0.40	<1	<2	<1	12	0.28
01-Jun	0.29	<1	<2	<1	11	0.26
04-Jun	0.46	<1	<2	<1	12	0.34
06-Jun	0.37	<1	2	<1	12	0.55
11-Jun	0.41	<1	<2	<1	12	0.57
13-Jun	0.36	<1	<2	<1	13	0.37
18-Jun	0.39	<1	<2	<1	12	0.26
25-Jun	0.37	<1	<2	<1	13	0.29
04-Jul	0.29	<1	<2	<1	13	0.24
09-Jul	0.42	<1	<2	<1	14	0.64
16-Jul	0.38	<1	<2	<1	13	0.39
20-Jul	0.34	<1	<2	<1	14	0.26
24-Jul	0.15	<1	<2	<1	15	0.27
31-Jul	0.24	<1	<2	<1	14	0.29
08-Aug	0.23	<1	<2	<1	11	0.28
13-Aug	0.14	<1	<2	<1	16	0.43
14-Aug	0.18	<1	4	<1	15	0.25
16-Aug	0.30	<1	<2	<1	12	0.39
20-Aug	0.17	<1	2	<1	17	0.32
28-Aug	0.13	<1	6	<1	16	0.36
04-Sep	0.16	<1	2	<1	17	0.25
10-Sep	0.15	<1	<2	<1	16	0.25
17-Sep	0.13	<1	<2	<1	15	0.24
25-Sep	0.18	<1	<2	<1	16	0.18
26-Sep	0.41	<1	<2	<1	9.9	0.20
01-Oct	0.51	<1	<2	<1	16	0.13
10-Oct	0.61	<1	<2	<1	14	0.32
17-Oct	0.48	<1	2	<1	10	0.62
22-Oct	0.64	<1	<2	<1	14	1.00
25-Oct	0.70	<1	<2	<1	8	0.96
29-Oct	0.59	<1	<2	<1	12	0.84
05-Nov	0.52	<1	<2	<1	12	0.70
13-Nov	0.49	<1	<2	<1	11	0.53
19-Nov	0.36	<1	<2	<1	11	0.38
21-Nov	0.46	<1	<2	<1	10	0.35
26-Nov	0.36	<1	<2	<1	9.5	0.41
03-Dec	0.47	<1	<2	<1	10	0.27
10-Dec	0.49	<1	<2	<1	9.1	0.27
14-Dec	0.48	<1	<2	<1	7.7	0.25
17-Dec	0.57	<1	<2	<1	8.5	0.21
27-Dec	0.57	<1	NA	<1	7.1	3.00
31-Dec	0.53	<1	NA	<1	5	7.30

DM920 (SE CORNER 162ST. OFF 90 AVE.) - 2012 TEST RESULTS



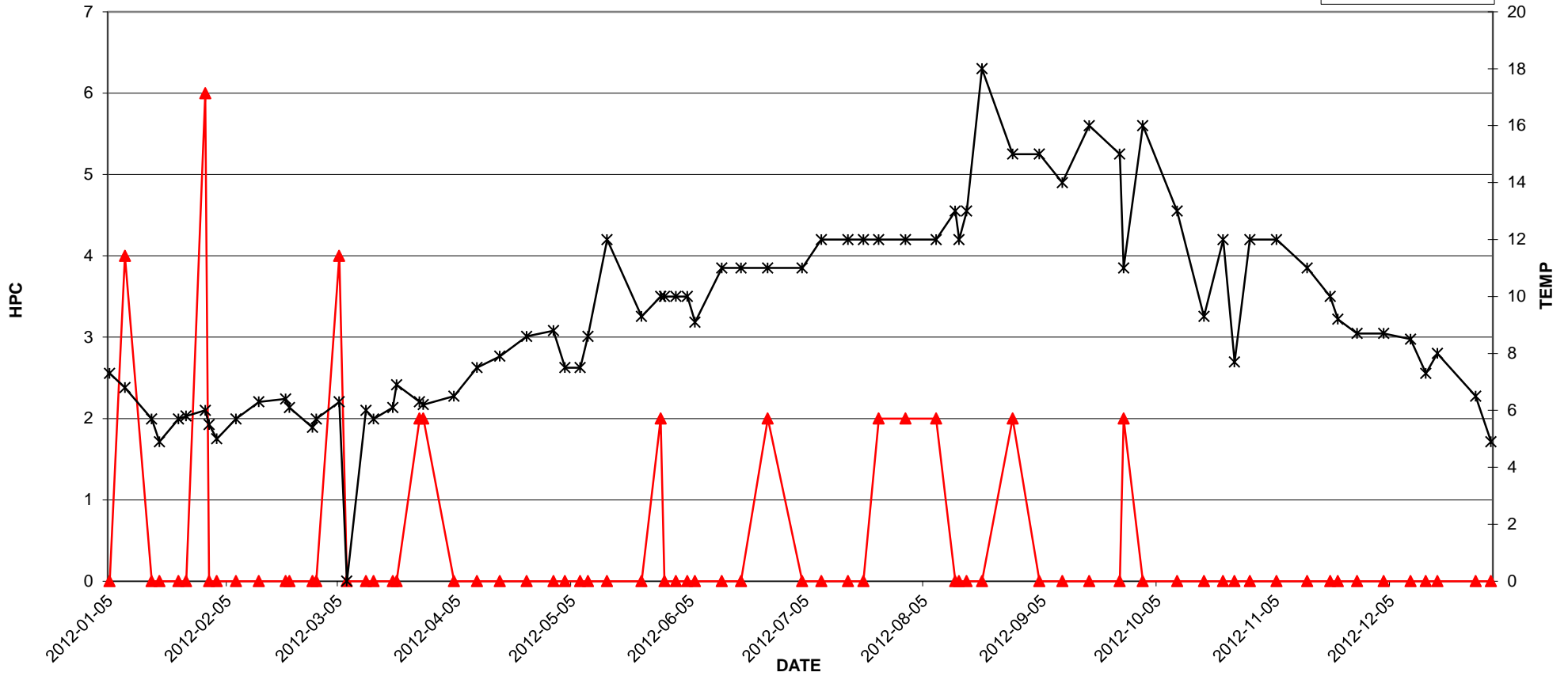
DM920 (SE CORNER 162ST. OFF 90 AVE.) - 2012 TEST RESULTS



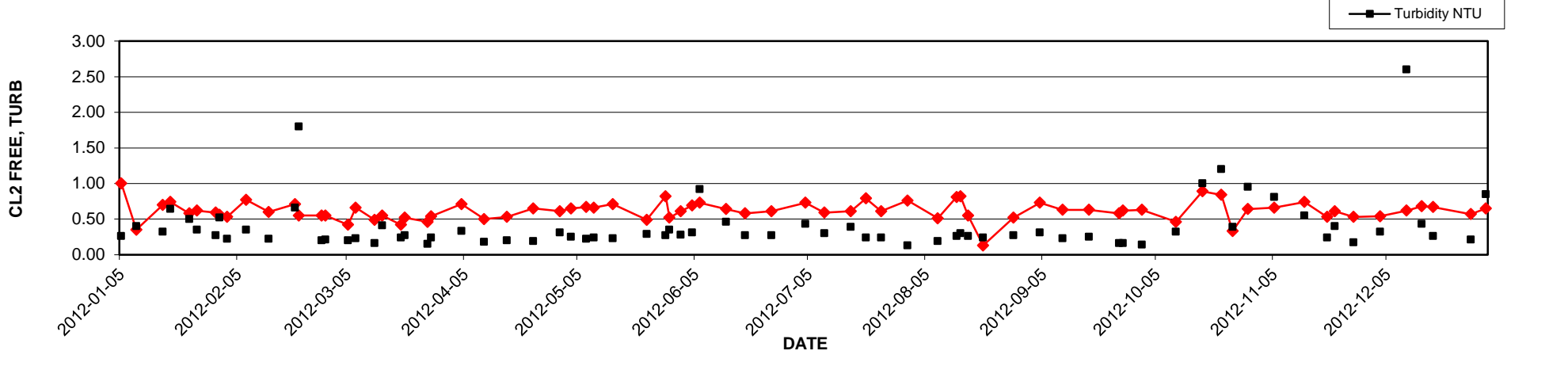
2012 GVRD Laboratory Report - DM921 (NE CORNER 170A ST. OFF 80 AVE.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
05-Jan	1.00	<1	<2	<1	7.3	0.26
09-Jan	0.35	<1	4	<1	6.8	0.40
16-Jan	0.70	<1	<2	<1	5.7	0.32
18-Jan	0.74	<1	<2	<1	4.9	0.64
23-Jan	0.58	<1	<2	<1	5.7	0.50
25-Jan	0.62	<1	<2	<1	5.8	0.35
30-Jan	0.59	<1	6	<1	6	0.27
31-Jan	0.56	<1	<2	<1	5.5	0.52
02-Feb	0.53	<1	<2	<1	5	0.22
07-Feb	0.77	<1	<2	<1	5.7	0.35
13-Feb	0.60	<1	<2	<1	6.3	0.22
20-Feb	0.71	<1	<2	<1	6.4	0.66
21-Feb	0.55	<1	<2	<1	6.1	1.80
27-Feb	0.55	<1	<2	<1	5.4	0.20
28-Feb	0.55	<1	<2	<1	5.7	0.21
05-Mar	0.42	<1	4	<1	6.3	0.20
07-Mar	0.66	<1	<2	<1	LA	0.23
12-Mar	0.49	<1	<2	<1	6	0.16
14-Mar	0.55	<1	<2	<1	5.7	0.41
19-Mar	0.42	<1	<2	<1	6.1	0.24
20-Mar	0.52	<1	<2	<1	6.9	0.27
26-Mar	0.46	<1	2	<1	6.3	0.15
27-Mar	0.54	<1	2	<1	6.2	0.24
04-Apr	0.71	<1	<2	<1	6.5	0.33
10-Apr	0.50	<1	<2	<1	7.5	0.18
16-Apr	0.53	<1	<2	<1	7.9	0.20
23-Apr	0.65	<1	<2	<1	8.6	0.19
30-Apr	0.61	<1	<2	<1	8.8	0.31
03-May	0.65	<1	<2	<1	7.5	0.25
07-May	0.67	<1	<2	<1	7.5	0.22
09-May	0.66	<1	<2	<1	8.6	0.24
14-May	0.71	<1	<2	<1	12	0.23
23-May	0.49	<1	<2	<1	9.3	0.29
28-May	0.82	<1	2	<1	10	0.27
29-May	0.52	<1	<2	<1	10	0.35
01-Jun	0.61	<1	<2	<1	10	0.28
04-Jun	0.69	<1	<2	<1	10	0.31
06-Jun	0.73	<1	<2	<1	9.1	0.92
13-Jun	0.64	<1	<2	<1	11	0.46
18-Jun	0.58	<1	<2	<1	11	0.27
25-Jun	0.61	<1	2	<1	11	0.27
04-Jul	0.73	<1	<2	<1	11	0.43
09-Jul	0.59	<1	<2	<1	12	0.30
16-Jul	0.61	<1	<2	<1	12	0.39
20-Jul	0.79	<1	<2	<1	12	0.24
24-Jul	0.61	<1	2	<1	12	0.24
31-Jul	0.76	<1	2	<1	12	0.13
08-Aug	0.51	<1	2	<1	12	0.19
13-Aug	0.81	<1	<2	<1	13	0.26
14-Aug	0.82	<1	<2	<1	12	0.30
16-Aug	0.55	<1	<2	<1	13	0.26
20-Aug	0.13	<1	<2	<1	18	0.24
28-Aug	0.52	<1	2	<1	15	0.27
04-Sep	0.73	<1	<2	<1	15	0.31
10-Sep	0.63	<1	<2	<1	14	0.23
17-Sep	0.63	<1	<2	<1	16	0.25
25-Sep	0.58	<1	<2	<1	15	0.16
26-Sep	0.62	<1	2	<1	11	0.16
01-Oct	0.63	<1	<2	<1	16	0.14
10-Oct	0.46	<1	<2	<1	13	0.32
17-Oct	0.89	<1	<2	<1	9.3	1.00
22-Oct	0.84	<1	<2	<1	12	1.20
25-Oct	0.33	<1	<2	<1	7.7	0.39
29-Oct	0.64	<1	<2	<1	12	0.95
05-Nov	0.66	<1	<2	<1	12	0.81
13-Nov	0.74	<1	<2	<1	11	0.55
19-Nov	0.53	<1	<2	<1	10	0.24
21-Nov	0.61	<1	<2	<1	9.2	0.40
26-Nov	0.53	<1	<2	<1	8.7	0.17
03-Dec	0.54	<1	<2	<1	8.7	0.32
10-Dec	0.62	<1	<2	<1	8.5	2.60
14-Dec	0.68	<1	<2	<1	7.3	0.43
17-Dec	0.67	<1	<2	<1	8	0.26
27-Dec	0.57	<1	NA	<1	6.5	0.21
31-Dec	0.65	<1	NA	<1	4.9	0.85

DM921 (NE CORNER 170A ST. OFF 80 AVE.) - 2012 TEST RESULTS



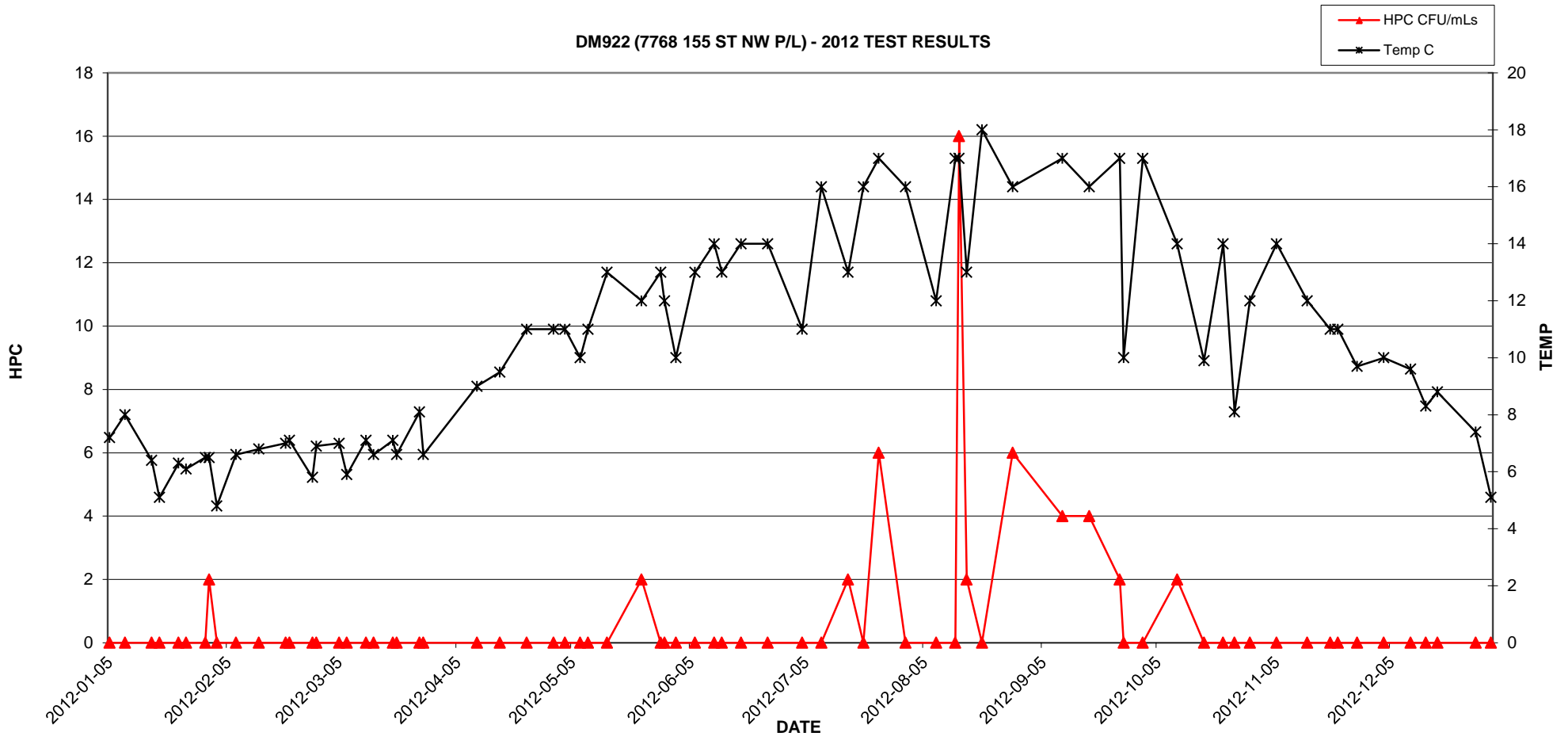
DM921 (NE CORNER 170A ST. OFF 80 AVE.) - 2012 TEST RESULTS



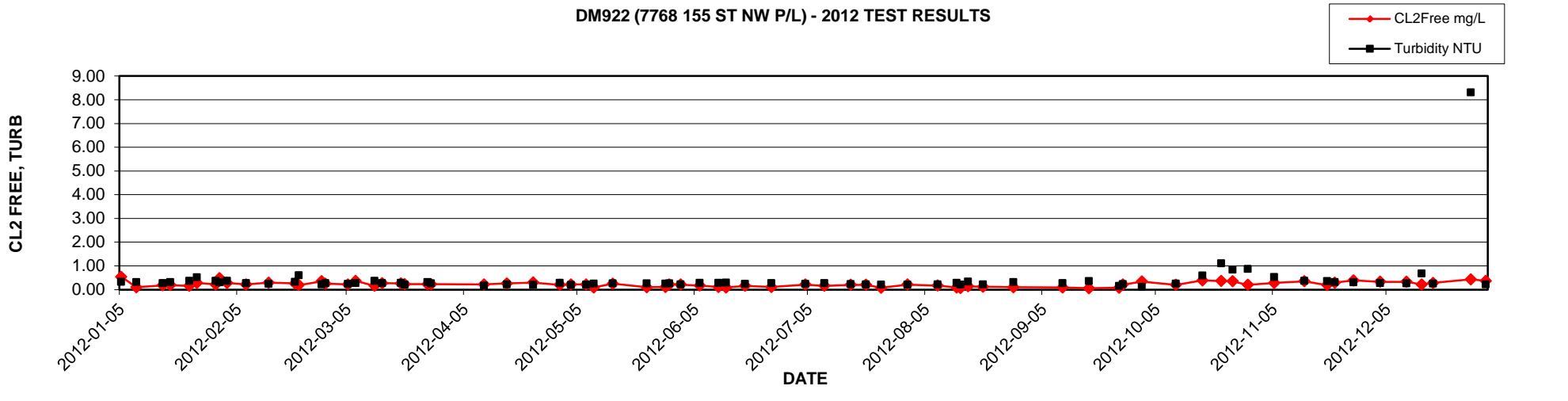
2012 GVRD Laboratory Report - DM922 (7768 155 ST NW P/L)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
05-Jan	0.54	<1	<2	<1	7.2	0.32
09-Jan	0.10	<1	<2	<1	8	0.31
16-Jan	0.18	<1	<2	<1	6.4	0.27
18-Jan	0.19	<1	<2	<1	5.1	0.31
23-Jan	0.16	<1	<2	<1	6.3	0.37
25-Jan	0.28	<1	<2	<1	6.1	0.51
30-Jan	0.22	<1	<2	<1	6.5	0.36
31-Jan	0.48	<1	2	<1	6.5	0.30
02-Feb	0.28	<1	<2	<1	4.8	0.36
07-Feb	0.22	<1	<2	<1	6.6	0.27
13-Feb	0.29	<1	<2	<1	6.8	0.24
20-Feb	0.26	<1	<2	<1	7	0.32
21-Feb	0.19	<1	<2	<1	7.1	0.60
27-Feb	0.35	<1	<2	<1	5.8	0.22
28-Feb	0.25	<1	<2	<1	6.9	0.27
05-Mar	0.22	<1	<2	<1	7	0.24
07-Mar	0.37	<1	<2	<1	5.9	0.27
12-Mar	0.16	<1	<2	<1	7.1	0.36
14-Mar	0.27	<1	<2	<1	6.6	0.27
19-Mar	0.26	<1	<2	<1	7.1	0.28
20-Mar	0.23	<1	<2	<1	6.6	0.20
26-Mar	0.23	<1	<2	<1	8.1	0.31
27-Mar	0.23	<1	<2	<1	6.6	0.26
10-Apr	0.22	<1	<2	<1	9	0.16
16-Apr	0.26	<1	<2	<1	9.5	0.21
23-Apr	0.30	<1	<2	<1	11	0.19
30-Apr	0.20	<1	<2	<1	11	0.28
03-May	0.22	<1	<2	<1	11	0.19
07-May	0.22	<1	<2	<1	10	0.20
09-May	0.09	<1	<2	<1	11	0.25
14-May	0.25	<1	<2	<1	13	0.26
23-May	0.10	<1	2	<1	12	0.26
28-May	0.11	<1	<2	<1	13	0.25
29-May	0.22	<1	<2	<1	12	0.26
01-Jun	0.21	<1	<2	<1	10	0.22
06-Jun	0.17	<1	<2	<1	13	0.28
11-Jun	0.11	<1	<2	<1	14	0.28
13-Jun	0.09	<1	<2	<1	13	0.29
18-Jun	0.16	<1	<2	<1	14	0.24
25-Jun	0.11	<1	<2	<1	14	0.27
04-Jul	0.21	<1	<2	<1	11	0.24
09-Jul	0.16	<1	<2	<1	16	0.27
16-Jul	0.20	<1	2	<1	13	0.23
20-Jul	0.20	<1	<2	<1	16	0.21
24-Jul	0.08	<1	6	<1	17	0.20
31-Jul	0.21	<1	<2	<1	16	0.20
08-Aug	0.17	<1	<2	<1	12	0.21
13-Aug	0.09	<1	<2	<1	17	0.28
14-Aug	0.07	<1	16	<1	17	0.20
16-Aug	0.14	<1	2	<1	13	0.33
20-Aug	0.12	<1	<2	<1	18	0.22
28-Aug	0.10	<1	6	<1	16	0.31
10-Sep	0.09	<1	4	<1	17	0.27
17-Sep	0.06	<1	4	<1	16	0.35
25-Sep	0.08	<1	2	<1	17	0.15
26-Sep	0.21	<1	<2	<1	10	0.23
01-Oct	0.34	<1	<2	<1	17	0.11
10-Oct	0.20	<1	2	<1	14	0.25
17-Oct	0.39	<1	<2	<1	9.9	0.59
22-Oct	0.36	<1	<2	<1	14	1.10
25-Oct	0.35	<1	<2	<1	8.1	0.83
29-Oct	0.20	<1	<2	<1	12	0.87
05-Nov	0.28	<1	<2	<1	14	0.53
13-Nov	0.35	<1	<2	<1	12	0.37
19-Nov	0.19	<1	<2	<1	11	0.35
21-Nov	0.29	<1	<2	<1	11	0.31
26-Nov	0.39	<1	<2	<1	9.7	0.30
03-Dec	0.33	<1	<2	<1	10	0.27
10-Dec	0.33	<1	<2	<1	9.6	0.26
14-Dec	0.22	<1	<2	<1	8.3	0.68
17-Dec	0.28	<1	<2	<1	8.8	0.25
27-Dec	0.43	<1	NA	<1	7.4	8.30
31-Dec	0.37	<1	NA	<1	5.1	0.22

DM922 (7768 155 ST NW P/L) - 2012 TEST RESULTS



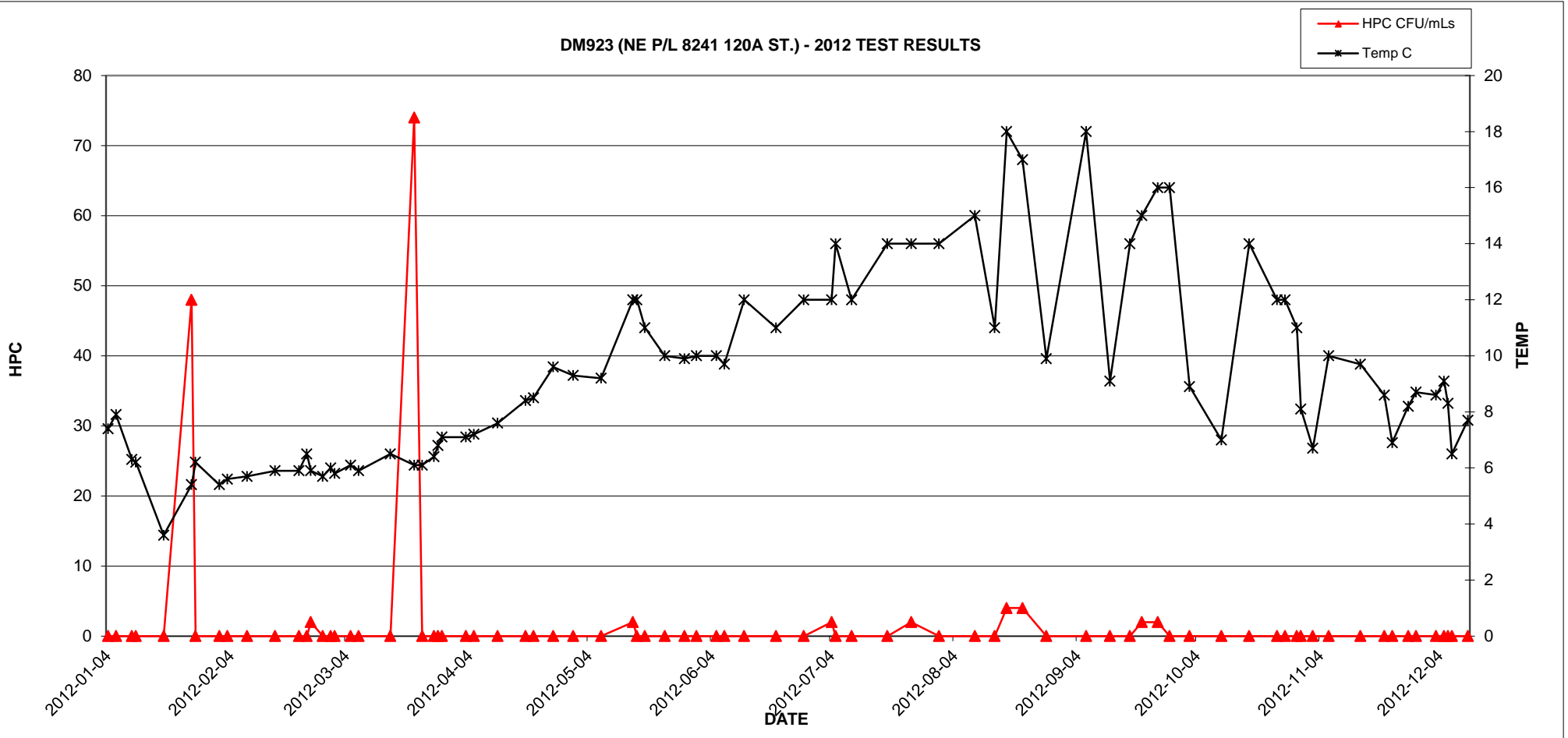
DM922 (7768 155 ST NW P/L) - 2012 TEST RESULTS



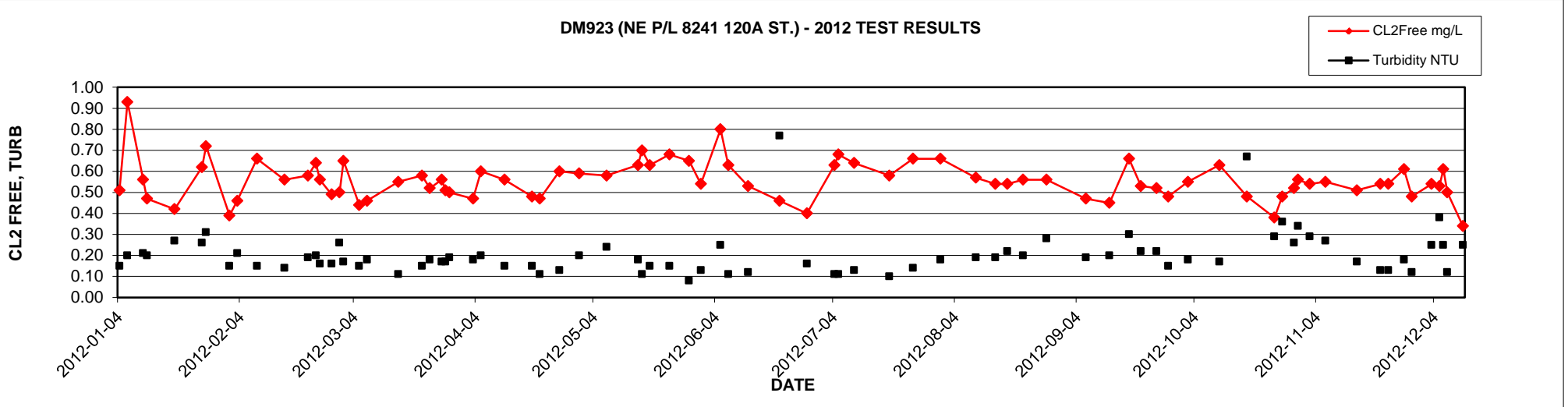
2012 GVRD Laboratory Report - DM923 (NE P/L 8241 120A ST.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
04-Jan	0.51	<1	<2	<1	7.4	0.15
06-Jan	0.93	<1	<2	<1	7.9	0.20
10-Jan	0.56	<1	<2	<1	6.3	0.21
11-Jan	0.47	<1	<2	<1	6.2	0.20
18-Jan	0.42	<1	<2	<1	3.6	0.27
25-Jan	0.62	<1	48	<1	5.4	0.26
26-Jan	0.72	<1	<2	<1	6.2	0.31
01-Feb	0.39	<1	<2	<1	5.4	0.15
03-Feb	0.46	<1	<2	<1	5.6	0.21
08-Feb	0.66	<1	<2	<1	5.7	0.15
15-Feb	0.56	<1	<2	<1	5.9	0.14
21-Feb	0.58	<1	<2	<1	5.9	0.19
23-Feb	0.64	<1	<2	<1	6.5	0.20
24-Feb	0.56	<1	2	<1	5.9	0.16
27-Feb	0.49	<1	<2	<1	5.7	0.16
29-Feb	0.50	<1	<2	<1	6	0.26
01-Mar	0.65	<1	<2	<1	5.8	0.17
05-Mar	0.44	<1	<2	<1	6.1	0.15
07-Mar	0.46	<1	<2	<1	5.9	0.18
15-Mar	0.55	<1	<2	<1	6.5	0.11
21-Mar	0.58	<1	74	<1	6.1	0.15
23-Mar	0.52	<1	<2	<1	6.1	0.18
26-Mar	0.56	<1	<2	<1	6.4	0.17
27-Mar	0.51	<1	<2	<1	6.8	0.17
28-Mar	0.50	<1	<2	<1	7.1	0.19
03-Apr	0.47	<1	<2	<1	7.1	0.18
05-Apr	0.60	<1	<2	<1	7.2	0.20
11-Apr	0.56	<1	<2	<1	7.6	0.15
18-Apr	0.48	<1	<2	<1	8.4	0.15
20-Apr	0.47	<1	<2	<1	8.5	0.11
25-Apr	0.60	<1	<2	<1	9.6	0.13
30-Apr	0.59	<1	<2	<1	9.3	0.20
07-May	0.58	<1	<2	<1	9.2	0.24
15-May	0.63	<1	2	<1	12	0.18
16-May	0.70	<1	<2	<1	12	0.11
18-May	0.63	<1	<2	<1	11	0.15
23-May	0.68	<1	<2	<1	10	0.15
28-May	0.65	<1	<2	<1	9.9	0.08
31-May	0.54	<1	<2	<1	10	0.13
05-Jun	0.80	<1	<2	<1	10	0.25
07-Jun	0.63	<1	<2	<1	9.7	0.11
12-Jun	0.53	<1	<2	<1	12	0.12
20-Jun	0.46	<1	<2	<1	11	0.77
27-Jun	0.40	<1	<2	<1	12	0.16
04-Jul	0.63	<1	2	<1	12	0.11
05-Jul	0.68	<1	<2	<1	14	0.11
09-Jul	0.64	<1	<2	<1	12	0.13
18-Jul	0.58	<1	<2	<1	14	0.10
24-Jul	0.66	<1	2	<1	14	0.14
31-Jul	0.66	<1	<2	<1	14	0.18
09-Aug	0.57	<1	<2	<1	15	0.19
14-Aug	0.54	<1	<2	<1	11	0.19
17-Aug	0.54	<1	4	<1	18	0.22
21-Aug	0.56	<1	4	<1	17	0.20
27-Aug	0.56	<1	<2	<1	9.9	0.28
06-Sep	0.47	<1	<2	<1	18	0.19
12-Sep	0.45	<1	<2	<1	9.1	0.20
17-Sep	0.66	<1	<2	<1	14	0.30
20-Sep	0.53	<1	2	<1	15	0.22
24-Sep	0.52	<1	2	<1	16	0.22
27-Sep	0.48	<1	<2	<1	16	0.15
02-Oct	0.55	<1	<2	<1	8.9	0.18
10-Oct	0.63	<1	<2	<1	7	0.17
17-Oct	0.48	<1	<2	<1	14	0.67
24-Oct	0.38	<1	<2	<1	12	0.29
26-Oct	0.48	<1	<2	<1	12	0.36
29-Oct	0.52	<1	<2	<1	11	0.26
30-Oct	0.56	<1	<2	<1	8.1	0.34
02-Nov	0.54	<1	<2	<1	6.7	0.29
06-Nov	0.55	<1	<2	<1	10	0.27
14-Nov	0.51	<1	<2	<1	9.7	0.17
20-Nov	0.54	<1	<2	<1	8.6	0.13
22-Nov	0.54	<1	<2	<1	6.9	0.13
26-Nov	0.61	<1	<2	<1	8.2	0.18
28-Nov	0.48	<1	<2	<1	8.7	0.12
03-Dec	0.54	<1	<2	<1	8.6	0.25
05-Dec	0.53	<1	<2	<1	9.1	0.38
06-Dec	0.61	<1	<2	<1	8.3	0.25
07-Dec	0.50	<1	<2	<1	6.5	0.12
11-Dec	0.34	<1	<2	<1	7.7	0.25
12-Dec	0.34	<1	<2	<1	8.4	0.25
14-Dec	0.55	<1	<2	<1	8.3	0.19
19-Dec	0.96	<1	<2	<1	7.3	0.16
20-Dec	0.61	<1	<2	<1	5.7	0.11
27-Dec	0.56	<1	NA	<1	6.7	0.16
28-Dec	0.47	<1	NA	<1	5.4	0.13
31-Dec	0.48	<1	NA	<1	6.9	0.19

DM923 (NE P/L 8241 120A ST.) - 2012 TEST RESULTS



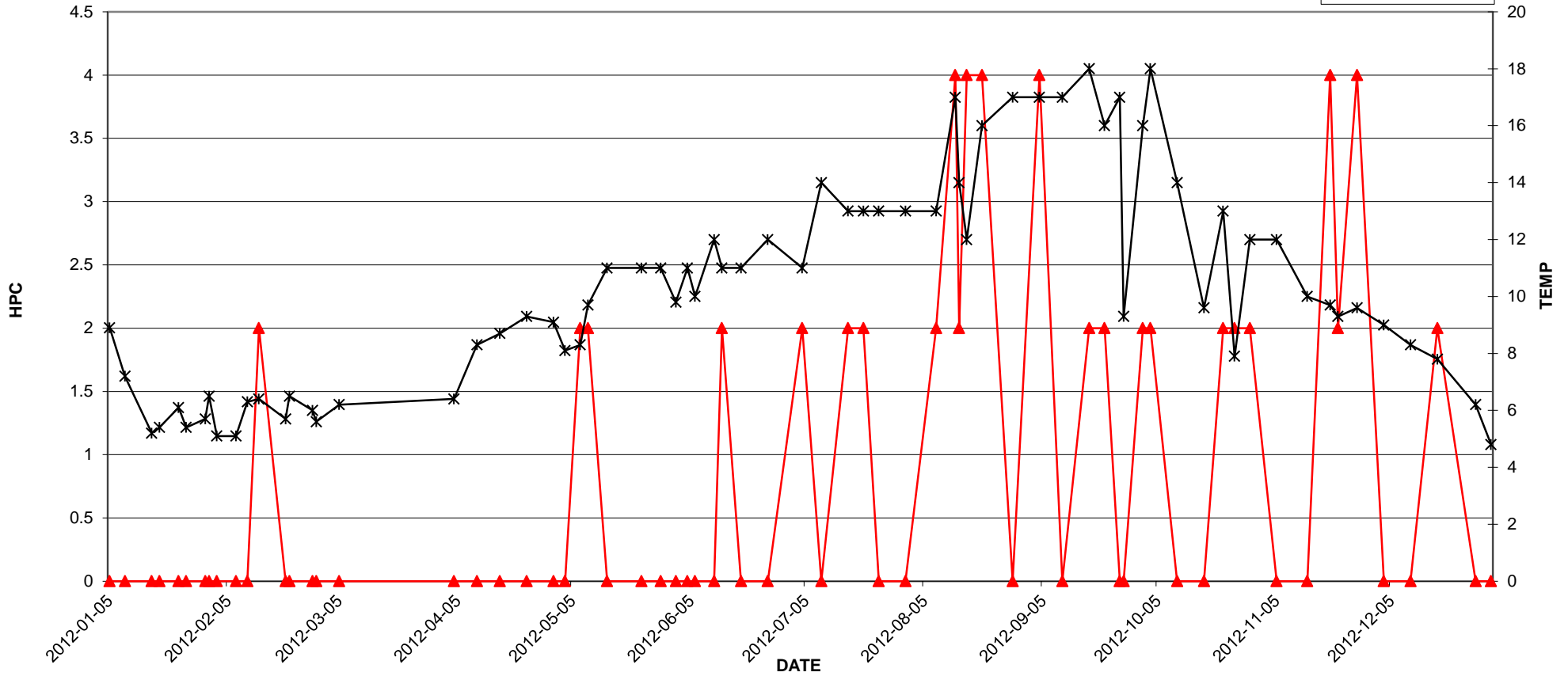
DM923 (NE P/L 8241 120A ST.) - 2012 TEST RESULTS



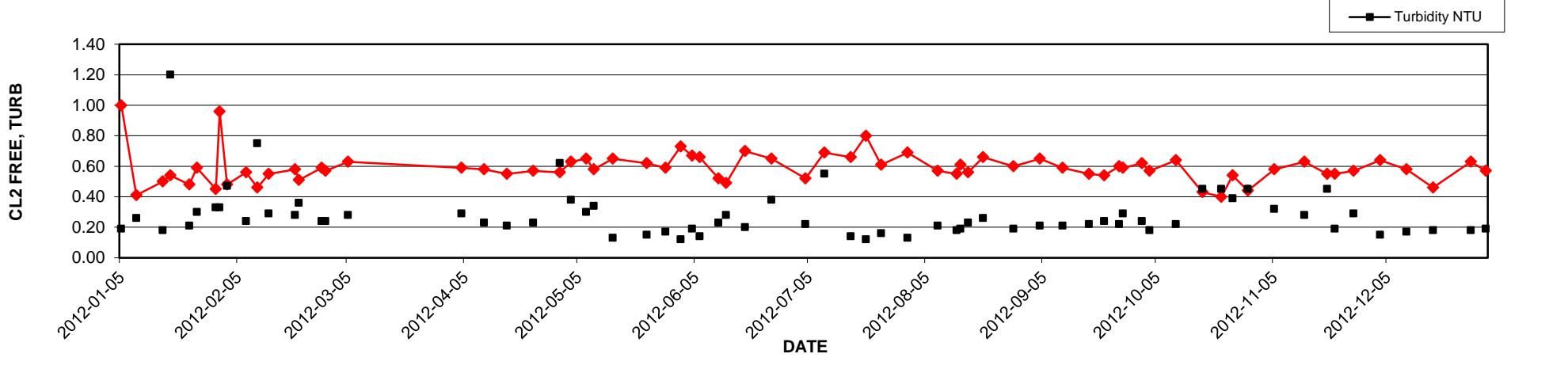
2012 GVRD Laboratory Report - DM924 (100M W/138 ST. S. SIDE of 74 AVE.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
05-Jan	1.00	<1	<2	<1	8.9	0.19
09-Jan	0.41	<1	<2	<1	7.2	0.26
16-Jan	0.50	<1	<2	<1	5.2	0.18
18-Jan	0.54	<1	<2	<1	5.4	1.20
23-Jan	0.48	<1	<2	<1	6.1	0.21
25-Jan	0.59	<1	<2	<1	5.4	0.30
30-Jan	0.45	<1	<2	<1	5.7	0.33
31-Jan	0.96	<1	<2	<1	6.5	0.33
02-Feb	0.48	<1	<2	<1	5.1	0.47
07-Feb	0.56	<1	<2	<1	5.1	0.24
10-Feb	0.46	<1	<2	<1	6.3	0.75
13-Feb	0.55	<1	2	<1	6.4	0.29
20-Feb	0.58	<1	<2	<1	5.7	0.28
21-Feb	0.51	<1	<2	<1	6.5	0.36
27-Feb	0.59	<1	<2	<1	6	0.24
28-Feb	0.57	<1	<2	<1	5.6	0.24
05-Mar	0.63	<1	<2	<1	6.2	0.28
04-Apr	0.59	<1	<2	<1	6.4	0.29
10-Apr	0.58	<1	<2	<1	8.3	0.23
16-Apr	0.55	<1	<2	<1	8.7	0.21
23-Apr	0.57	<1	<2	<1	9.3	0.23
30-Apr	0.56	<1	<2	<1	9.1	0.62
03-May	0.63	<1	<2	<1	8.1	0.38
07-May	0.65	<1	2	<1	8.3	0.30
09-May	0.58	<1	2	<1	9.7	0.34
14-May	0.65	<1	<2	<1	11	0.13
23-May	0.62	<1	<2	<1	11	0.15
28-May	0.59	<1	<2	<1	11	0.17
01-Jun	0.73	<1	<2	<1	9.8	0.12
04-Jun	0.67	<1	<2	<1	11	0.19
06-Jun	0.66	<1	<2	<1	10	0.14
11-Jun	0.52	<1	<2	<1	12	0.23
13-Jun	0.49	<1	2	<1	11	0.28
18-Jun	0.70	<1	<2	<1	11	0.20
25-Jun	0.65	<1	<2	<1	12	0.38
04-Jul	0.52	<1	2	<1	11	0.22
09-Jul	0.69	<1	<2	<1	14	0.55
16-Jul	0.66	<1	2	<1	13	0.14
20-Jul	0.80	<1	2	<1	13	0.12
24-Jul	0.61	<1	<2	<1	13	0.16
31-Jul	0.69	<1	<2	<1	13	0.13
08-Aug	0.57	<1	2	<1	13	0.21
13-Aug	0.55	<1	4	<1	17	0.18
14-Aug	0.61	<1	2	<1	14	0.19
16-Aug	0.56	<1	4	<1	12	0.23
20-Aug	0.66	<1	4	<1	16	0.26
28-Aug	0.60	<1	<2	<1	17	0.19
04-Sep	0.65	<1	4	<1	17	0.21
10-Sep	0.59	<1	<2	<1	17	0.21
17-Sep	0.55	<1	2	<1	18	0.22
21-Sep	0.54	<1	2	<1	16	0.24
25-Sep	0.60	<1	<2	<1	17	0.22
26-Sep	0.59	<1	<2	<1	9.3	0.29
01-Oct	0.62	<1	2	<1	16	0.24
03-Oct	0.57	<1	2	<1	18	0.18
10-Oct	0.64	<1	<2	<1	14	0.22
17-Oct	0.43	<1	<2	<1	9.6	0.45
22-Oct	0.40	<1	2	<1	13	0.45
25-Oct	0.54	<1	2	<1	7.9	0.39
29-Oct	0.44	<1	2	<1	12	0.45
05-Nov	0.58	<1	<2	<1	12	0.32
13-Nov	0.63	<1	<2	<1	10	0.28
19-Nov	0.55	<1	4	<1	9.7	0.45
21-Nov	0.55	<1	2	<1	9.3	0.19
26-Nov	0.57	<1	4	<1	9.6	0.29
03-Dec	0.64	<1	<2	<1	9	0.15
10-Dec	0.58	<1	<2	<1	8.3	0.17
17-Dec	0.46	<1	2	<1	7.8	0.18
27-Dec	0.63	<1	NA	<1	6.2	0.18
31-Dec	0.57	<1	NA	<1	4.8	0.19

DM924 (100M W/138 ST. S. SIDE of 74 AVE.) - 2012 TEST RESULTS



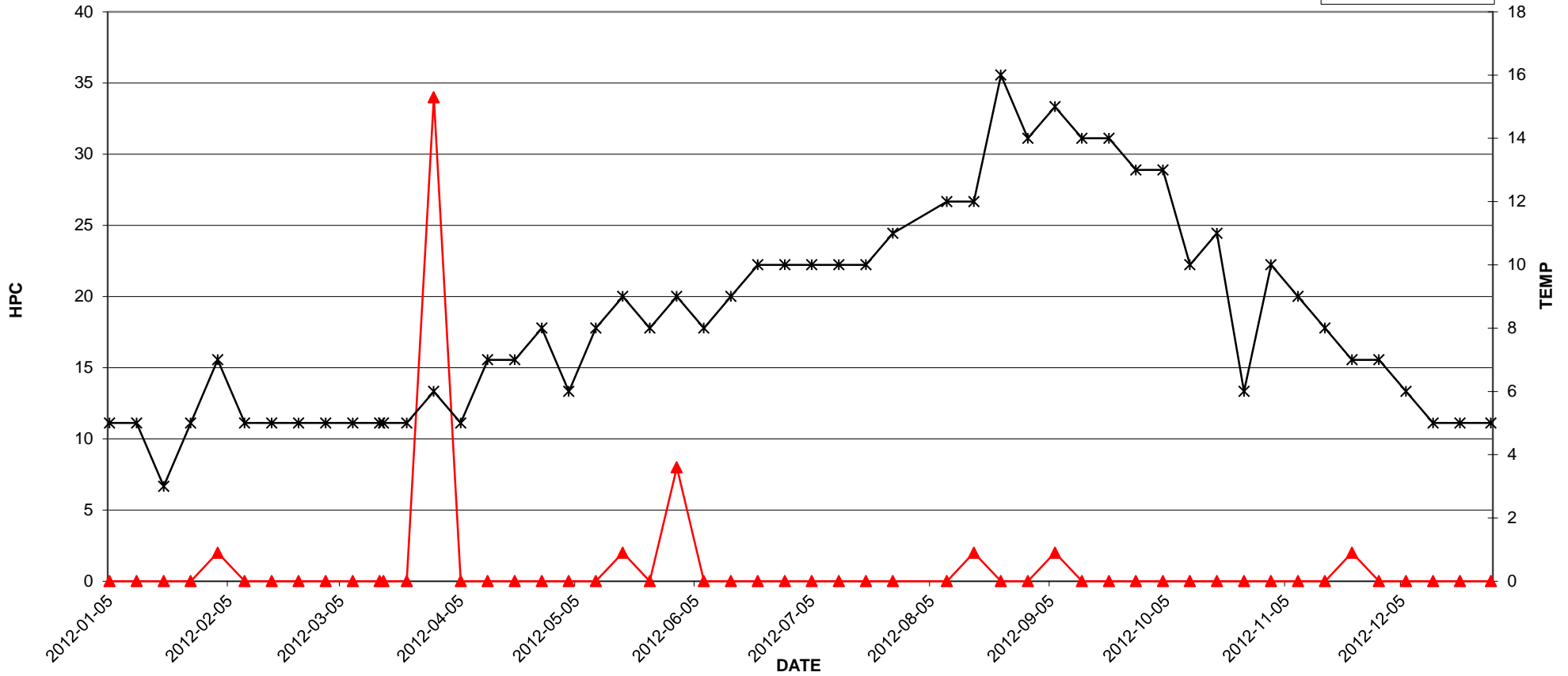
DM924 (100M W/138 ST. S. SIDE of 74 AVE.) - 2012 TEST RESULTS



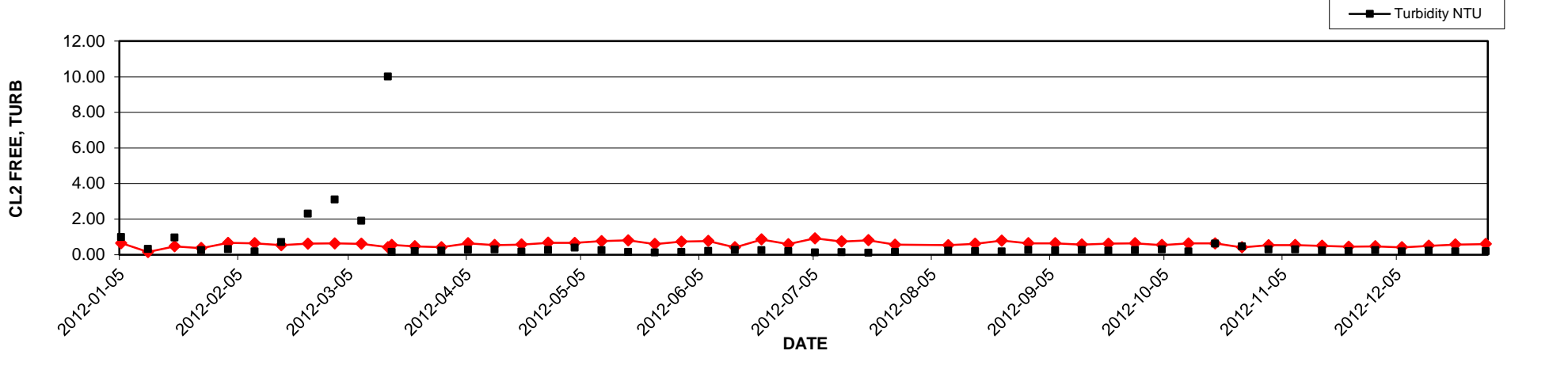
2012 GVRD Laboratory Report - DM925 (NEWTON STATION 128 ST.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
05-Jan	0.65	<1	<2	<1	5	0.98
12-Jan	0.15	<1	<2	<1	5	0.31
19-Jan	0.47	<1	<2	<1	3	0.96
26-Jan	0.37	<1	<2	<1	5	0.24
02-Feb	0.66	<1	2	<1	7	0.30
09-Feb	0.64	<1	<2	<1	5	0.18
16-Feb	0.53	<1	<2	<1	5	0.70
23-Feb	0.62	<1	<2	<1	5	2.30
01-Mar	0.63	<1	<2	<1	5	3.10
08-Mar	0.61	<1	<2	<1	5	1.90
15-Mar	0.42	<1	<2	<1	5	10.00
16-Mar	0.55	<1	<2	<1	5	0.15
22-Mar	0.47	<1	<2	<1	5	0.19
29-Mar	0.42	<1	34	<1	6	0.21
05-Apr	0.64	<1	<2	<1	5	0.27
12-Apr	0.54	<1	<2	<1	7	0.28
19-Apr	0.57	<1	<2	<1	7	0.16
26-Apr	0.67	<1	<2	<1	8	0.26
03-May	0.66	<1	<2	<1	6	0.38
10-May	0.76	<1	<2	<1	8	0.24
17-May	0.80	<1	2	<1	9	0.15
24-May	0.60	<1	<2	<1	8	0.12
31-May	0.73	<1	8	<1	9	0.15
07-Jun	0.77	<1	<2	<1	8	0.20
14-Jun	0.41	<1	<2	<1	9	0.26
21-Jun	0.85	<1	<2	<1	10	0.25
28-Jun	0.59	<1	<2	<1	10	0.19
05-Jul	0.92	<1	<2	<1	10	0.12
12-Jul	0.74	<1	<2	<1	10	0.13
19-Jul	0.81	<1	<2	<1	10	0.10
26-Jul	0.56	<1	<2	<1	11	0.14
09-Aug	0.53	<1	<2	<1	12	0.22
16-Aug	0.61	<1	2	<1	12	0.19
23-Aug	0.79	<1	<2	<1	16	0.17
30-Aug	0.64	<1	<2	<1	14	0.26
06-Sep	0.64	<1	2	<1	15	0.23
13-Sep	0.57	<1	<2	<1	14	0.26
20-Sep	0.62	<1	<2	<1	14	0.21
27-Sep	0.64	<1	<2	<1	13	0.24
04-Oct	0.54	<1	<2	<1	13	0.28
11-Oct	0.63	<1	<2	<1	10	0.17
18-Oct	0.63	<1	<2	<1	11	0.62
25-Oct	0.41	<1	<2	<1	6	0.46
01-Nov	0.53	<1	<2	<1	10	0.28
08-Nov	0.54	<1	<2	<1	9	0.29
15-Nov	0.50	<1	<2	<1	8	0.23
22-Nov	0.45	<1	2	<1	7	0.19
29-Nov	0.47	<1	<2	<1	7	0.24
06-Dec	0.41	<1	<2	<1	6	0.18
13-Dec	0.50	<1	<2	<1	5	0.22
20-Dec	0.57	<1	<2	<1	5	0.18
28-Dec	0.60	<1	NA	<1	5	0.19

DM925 (NEWTON STATION 128 ST.) - 2012 TEST RESULTS



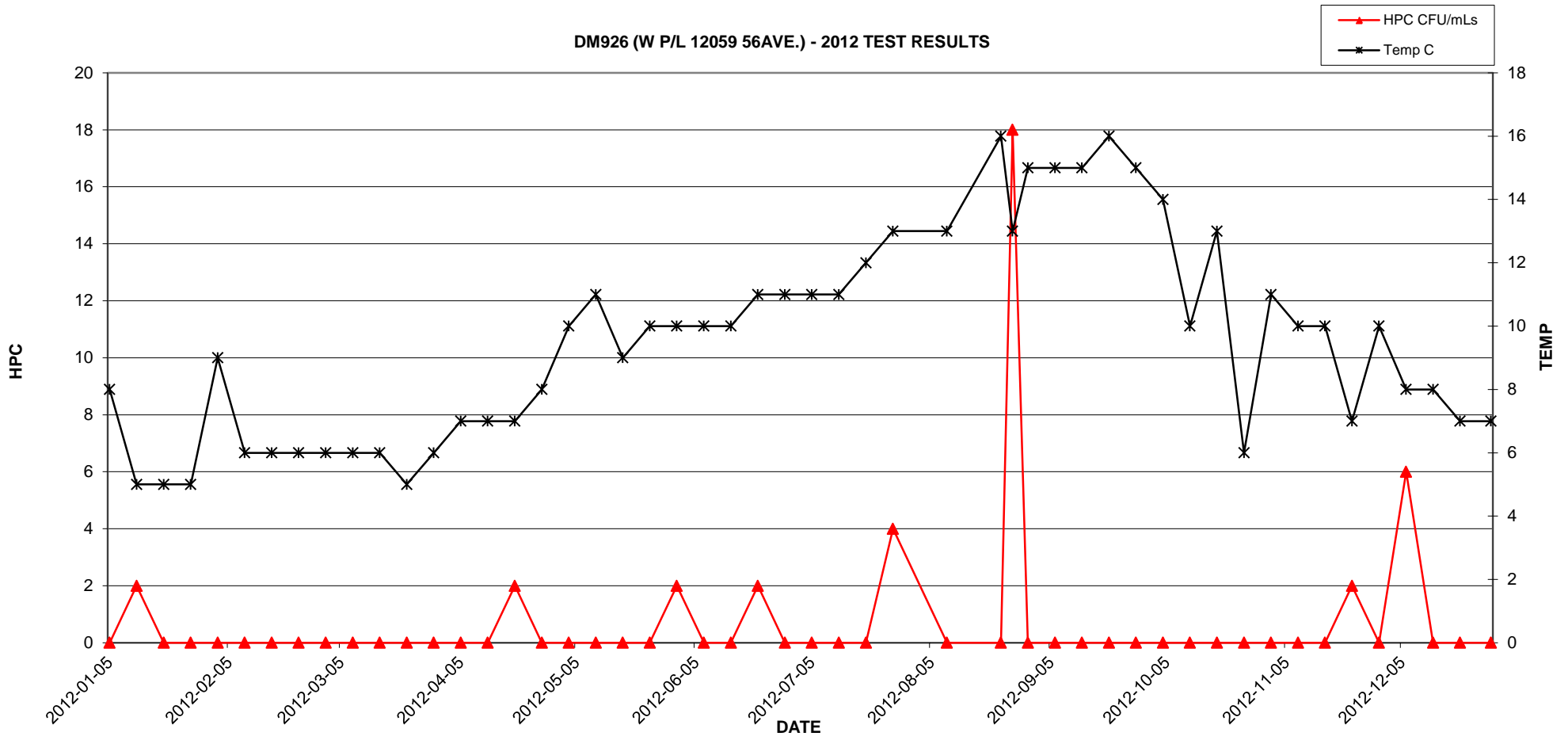
DM925 (NEWTON STATION 128 ST.) - 2012 TEST RESULTS



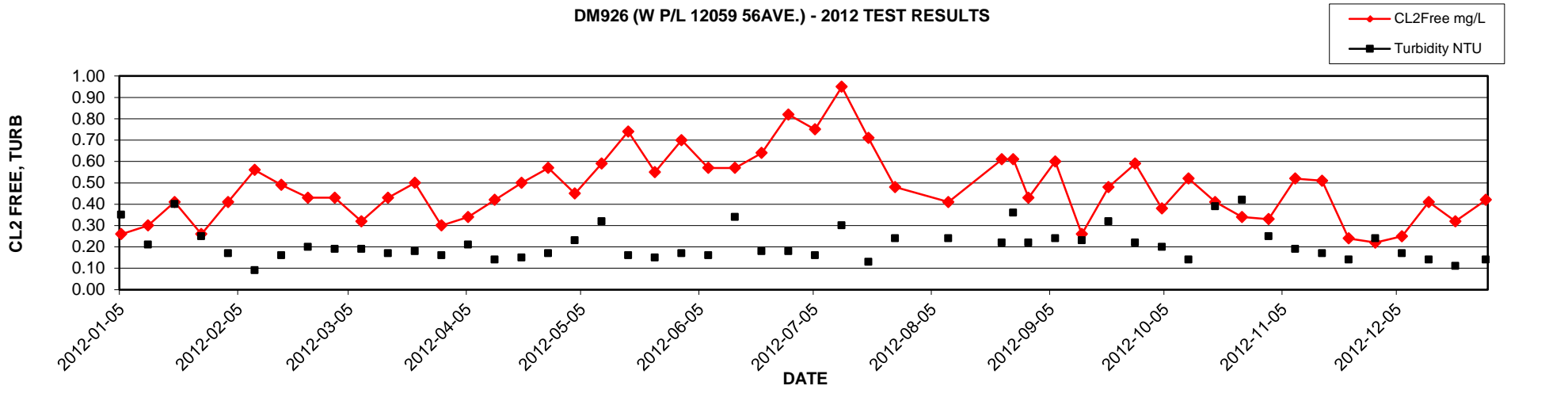
2012 GVRD Laboratory Report - DM926 (W P/L 12059 56AVE.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
05-Jan	0.26	<1	<2	<1	8	0.35
12-Jan	0.30	<1	2	<1	5	0.21
19-Jan	0.41	<1	<2	<1	5	0.40
26-Jan	0.26	<1	<2	<1	5	0.25
02-Feb	0.41	<1	<2	<1	9	0.17
09-Feb	0.56	<1	<2	<1	6	0.09
16-Feb	0.49	<1	<2	<1	6	0.16
23-Feb	0.43	<1	<2	<1	6	0.20
01-Mar	0.43	<1	<2	<1	6	0.19
08-Mar	0.32	<1	<2	<1	6	0.19
15-Mar	0.43	<1	<2	<1	6	0.17
22-Mar	0.50	<1	<2	<1	5	0.18
29-Mar	0.30	<1	<2	<1	6	0.16
05-Apr	0.34	<1	<2	<1	7	0.21
12-Apr	0.42	<1	<2	<1	7	0.14
19-Apr	0.50	<1	2	<1	7	0.15
26-Apr	0.57	<1	<2	<1	8	0.17
03-May	0.45	<1	<2	<1	10	0.23
10-May	0.59	<1	<2	<1	11	0.32
17-May	0.74	<1	<2	<1	9	0.16
24-May	0.55	<1	<2	<1	10	0.15
31-May	0.70	<1	2	<1	10	0.17
07-Jun	0.57	<1	<2	<1	10	0.16
14-Jun	0.57	<1	<2	<1	10	0.34
21-Jun	0.64	<1	2	<1	11	0.18
28-Jun	0.82	<1	<2	<1	11	0.18
05-Jul	0.75	<1	<2	<1	11	0.16
12-Jul	0.95	<1	<2	<1	11	0.30
19-Jul	0.71	<1	<2	<1	12	0.13
26-Jul	0.48	<1	4	<1	13	0.24
09-Aug	0.41	<1	<2	<1	13	0.24
26-Aug	0.61	<1	18	<1	13	0.36
23-Aug	0.61	<1	<2	<1	16	0.22
30-Aug	0.43	<1	<2	<1	15	0.22
06-Sep	0.60	<1	<2	<1	15	0.24
13-Sep	0.26	<1	<2	<1	15	0.23
20-Sep	0.48	<1	<2	<1	16	0.32
27-Sep	0.59	<1	<2	<1	15	0.22
04-Oct	0.38	<1	<2	<1	14	0.20
11-Oct	0.52	<1	<2	<1	10	0.14
18-Oct	0.41	<1	<2	<1	13	0.39
25-Oct	0.34	<1	<2	<1	6	0.42
01-Nov	0.33	<1	<2	<1	11	0.25
08-Nov	0.52	<1	<2	<1	10	0.19
15-Nov	0.51	<1	<2	<1	10	0.17
22-Nov	0.24	<1	2	<1	7	0.14
29-Nov	0.22	<1	<2	<1	10	0.24
06-Dec	0.25	<1	6	<1	8	0.17
13-Dec	0.41	<1	<2	<1	8	0.14
20-Dec	0.32	<1	<2	<1	7	0.11
28-Dec	0.42	<1	NA	<1	7	0.14

DM926 (W P/L 12059 56AVE.) - 2012 TEST RESULTS



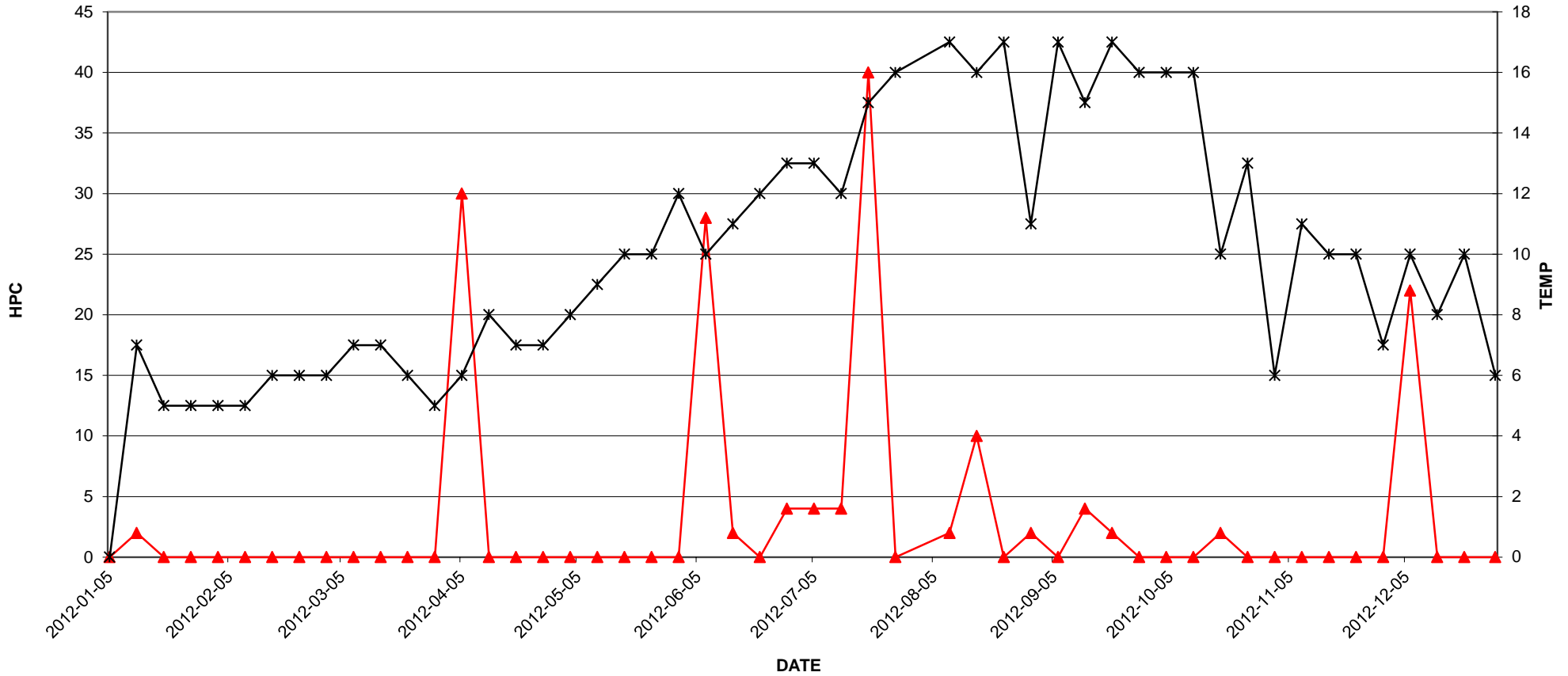
DM926 (W P/L 12059 56AVE.) - 2012 TEST RESULTS



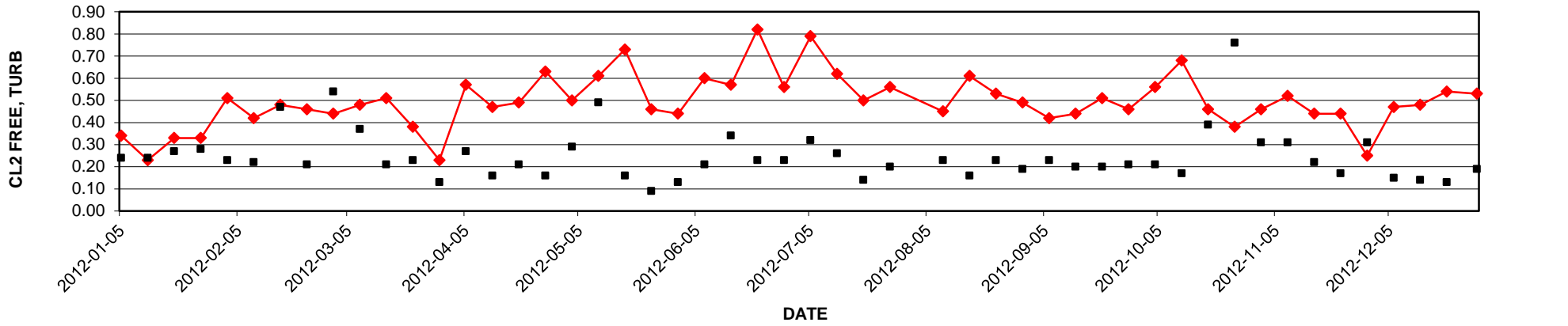
2012 GVRD Laboratory Report - DM927 (CITY WORKS YARD - 66A AVE. AND 148ST.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
05-Jan	0.34	<1	2	<1	7	0.24
12-Jan	0.23	<1	<2	<1	5	0.24
19-Jan	0.33	<1	<2	<1	5	0.27
26-Jan	0.33	<1	<2	<1	5	0.28
02-Feb	0.51	<1	<2	<1	5	0.23
09-Feb	0.42	<1	<2	<1	6	0.22
16-Feb	0.48	<1	<2	<1	6	0.47
23-Feb	0.46	<1	<2	<1	6	0.21
01-Mar	0.44	<1	<2	<1	7	0.54
08-Mar	0.48	<1	<2	<1	7	0.37
15-Mar	0.51	<1	<2	<1	6	0.21
22-Mar	0.38	<1	<2	<1	5	0.23
29-Mar	0.23	<1	30	<1	6	0.13
05-Apr	0.57	<1	<2	<1	8	0.27
12-Apr	0.47	<1	<2	<1	7	0.16
19-Apr	0.49	<1	<2	<1	7	0.21
26-Apr	0.63	<1	<2	<1	8	0.16
03-May	0.50	<1	<2	<1	9	0.29
10-May	0.61	<1	<2	<1	10	0.49
17-May	0.73	<1	<2	<1	10	0.16
24-May	0.46	<1	<2	<1	12	0.09
31-May	0.44	<1	28	<1	10	0.13
07-Jun	0.60	<1	2	<1	11	0.21
14-Jun	0.57	<1	<2	<1	12	0.34
21-Jun	0.82	<1	4	<1	13	0.23
28-Jun	0.56	<1	4	<1	13	0.23
05-Jul	0.79	<1	4	<1	12	0.32
12-Jul	0.62	<1	40	<1	15	0.26
19-Jul	0.50	<1	<2	<1	16	0.14
26-Jul	0.56	<1	2	<1	17	0.20
09-Aug	0.45	<1	10	<1	16	0.23
16-Aug	0.61	<1	<2	<1	17	0.16
23-Aug	0.53	<1	2	<1	11	0.23
30-Aug	0.49	<1	<2	<1	17	0.19
06-Sep	0.42	<1	4	<1	15	0.23
13-Sep	0.44	<1	2	<1	17	0.20
20-Sep	0.51	<1	<2	<1	16	0.20
27-Sep	0.46	<1	<2	<1	16	0.21
04-Oct	0.56	<1	<2	<1	16	0.21
11-Oct	0.68	<1	2	<1	10	0.17
18-Oct	0.46	<1	<2	<1	13	0.39
25-Oct	0.38	<1	<2	<1	6	0.76
01-Nov	0.46	<1	<2	<1	11	0.31
08-Nov	0.52	<1	<2	<1	10	0.31
15-Nov	0.44	<1	<2	<1	10	0.22
22-Nov	0.44	<1	<2	<1	7	0.17
29-Nov	0.25	<1	22	<1	10	0.31
06-Dec	0.47	<1	<2	<1	8	0.15
13-Dec	0.48	<1	<2	<1	10	0.14
20-Dec	0.54	<1	<2	<1	6	0.13
28-Dec	0.53	<1	NA	<1	6	0.19

DM927 (CITY WORKS YARD - 66A AVE. AND 148ST.) - 2012 TEST RESULTS



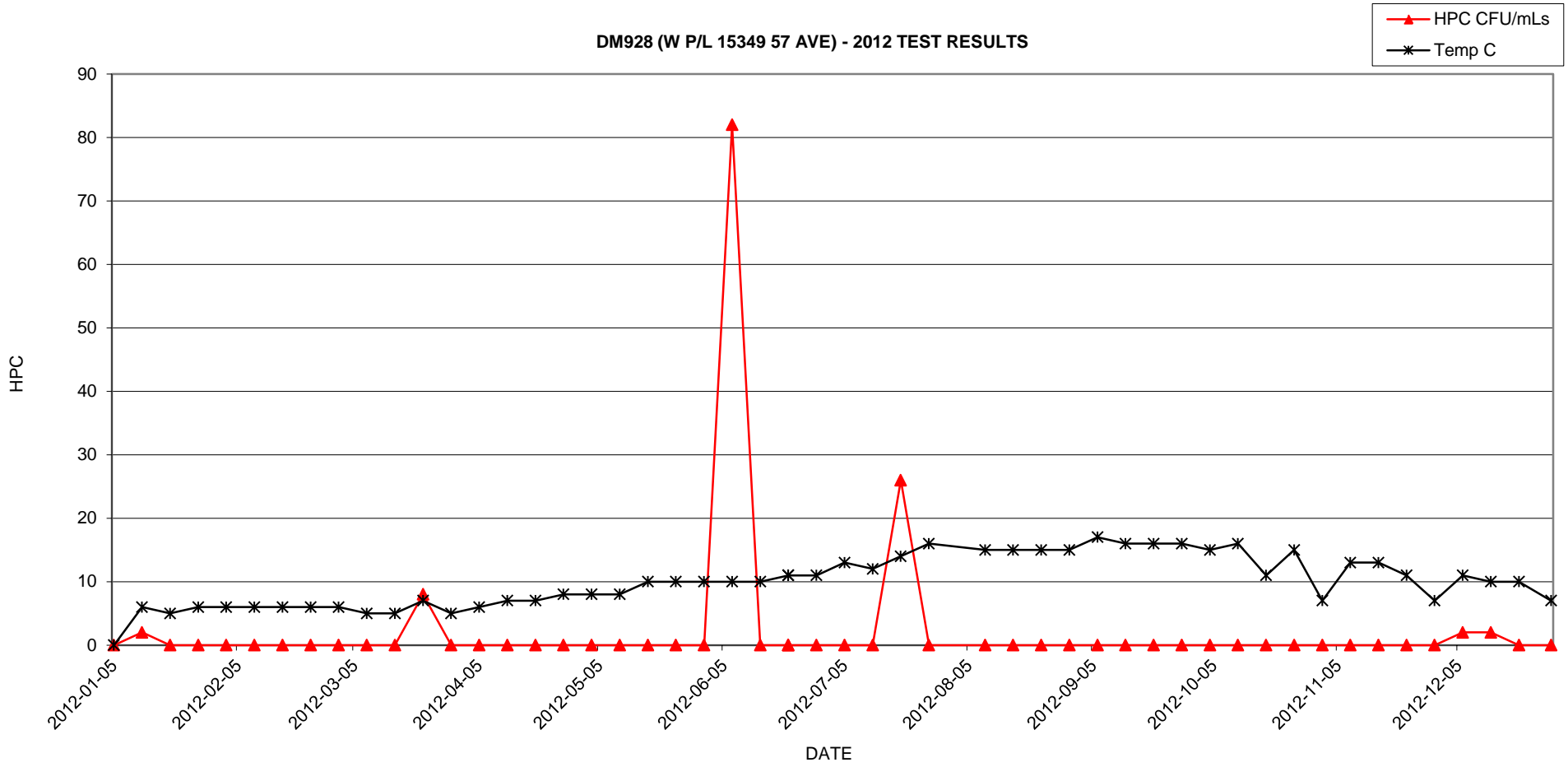
DM927 (CITY WORKS YARD - 66A AVE. AND 148ST.) - 2012 TEST RESULTS



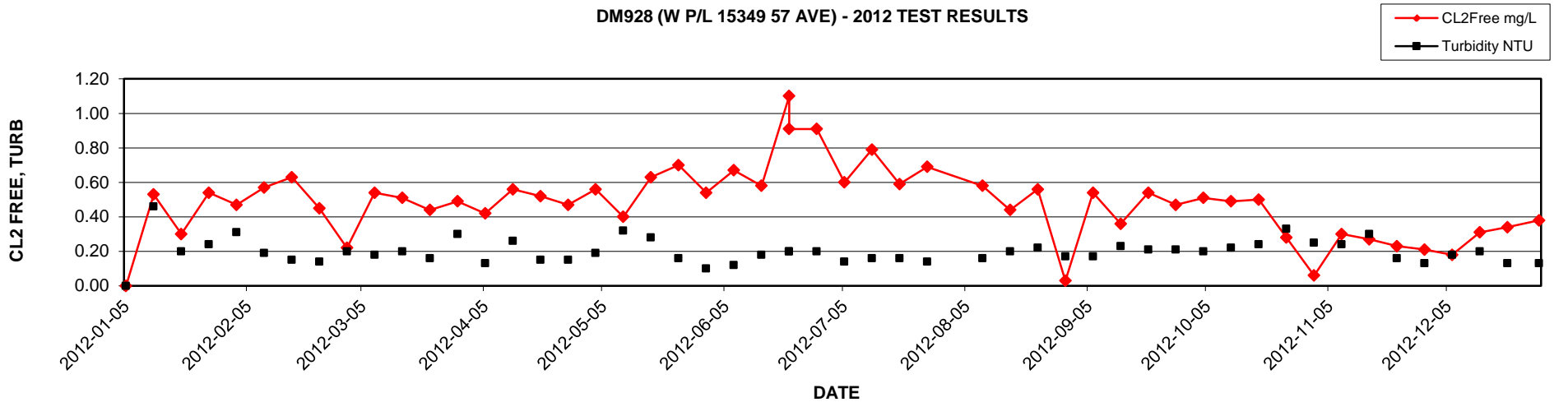
2012 GVRD Laboratory Report - DM928 (W P/L 15349 57 AVE)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
05-Jan	0.53	<1	2	<1	6	0.46
12-Jan	0.30	<1	<2	<1	5	0.20
19-Jan	0.54	<1	<2	<1	6	0.24
26-Jan	0.47	<1	<2	<1	6	0.31
02-Feb	0.57	<1	<2	<1	6	0.19
09-Feb	0.63	<1	<2	<1	6	0.15
16-Feb	0.45	<1	<2	<1	6	0.14
23-Feb	0.22	<1	<2	<1	6	0.20
01-Mar	0.54	<1	<2	<1	5	0.18
08-Mar	0.51	<1	<2	<1	5	0.20
15-Mar	0.44	<1	8	<1	7	0.16
22-Mar	0.49	<1	<2	<1	5	0.30
29-Mar	0.42	<1	<2	<1	6	0.13
05-Apr	0.56	<1	<2	<1	7	0.26
12-Apr	0.52	<1	<2	<1	7	0.15
19-Apr	0.47	<1	<2	<1	8	0.15
26-Apr	0.56	<1	<2	<1	8	0.19
03-May	0.40	<1	<2	<1	8	0.32
10-May	0.63	<1	<2	<1	10	0.28
17-May	0.70	<1	<2	<1	10	0.16
24-May	0.54	<1	<2	<1	10	0.10
31-May	0.67	<1	82	<1	10	0.12
07-Jun	0.58	<1	<2	<1	10	0.18
14-Jun	1.10	<1	<2	<1	11	0.20
21-Jun	0.91	<1	<2	<1	11	0.20
21-Jun	0.91	<1	<2	<1	11	0.20
28-Jun	0.60	<1	<2	<1	13	0.14
05-Jul	0.79	<1	<2	<1	12	0.16
12-Jul	0.59	<1	26	<1	14	0.16
19-Jul	0.69	<1	<2	<1	16	0.14
26-Jul	0.58	<1	<2	<1	15	0.16
09-Aug	0.44	<1	<2	<1	15	0.20
16-Aug	0.56	<1	<2	<1	15	0.22
23-Aug	0.03	<1	<2	<1	15	0.17
30-Aug	0.54	<1	<2	<1	17	0.17
06-Sep	0.36	<1	<2	<1	16	0.23
13-Sep	0.54	<1	<2	<1	16	0.21
20-Sep	0.47	<1	<2	<1	16	0.21
27-Sep	0.51	<1	<2	<1	15	0.20
04-Oct	0.49	<1	<2	<1	16	0.22
11-Oct	0.50	<1	<2	<1	11	0.24
18-Oct	0.28	<1	<2	<1	15	0.33
25-Oct	0.06	<1	<2	<1	7	0.25
01-Nov	0.30	<1	<2	<1	13	0.24
08-Nov	0.27	<1	<2	<1	13	0.30
15-Nov	0.23	<1	<2	<1	11	0.16
22-Nov	0.21	<1	<2	<1	7	0.13
29-Nov	0.18	<1	2	<1	11	0.18
06-Dec	0.31	<1	2	<1	10	0.20
13-Dec	0.34	<1	<2	<1	10	0.13
20-Dec	0.38	<1	<2	<1	7	0.13
28-Dec	0.43	<1	NA	<1	8	0.19

DM928 (W P/L 15349 57 AVE) - 2012 TEST RESULTS



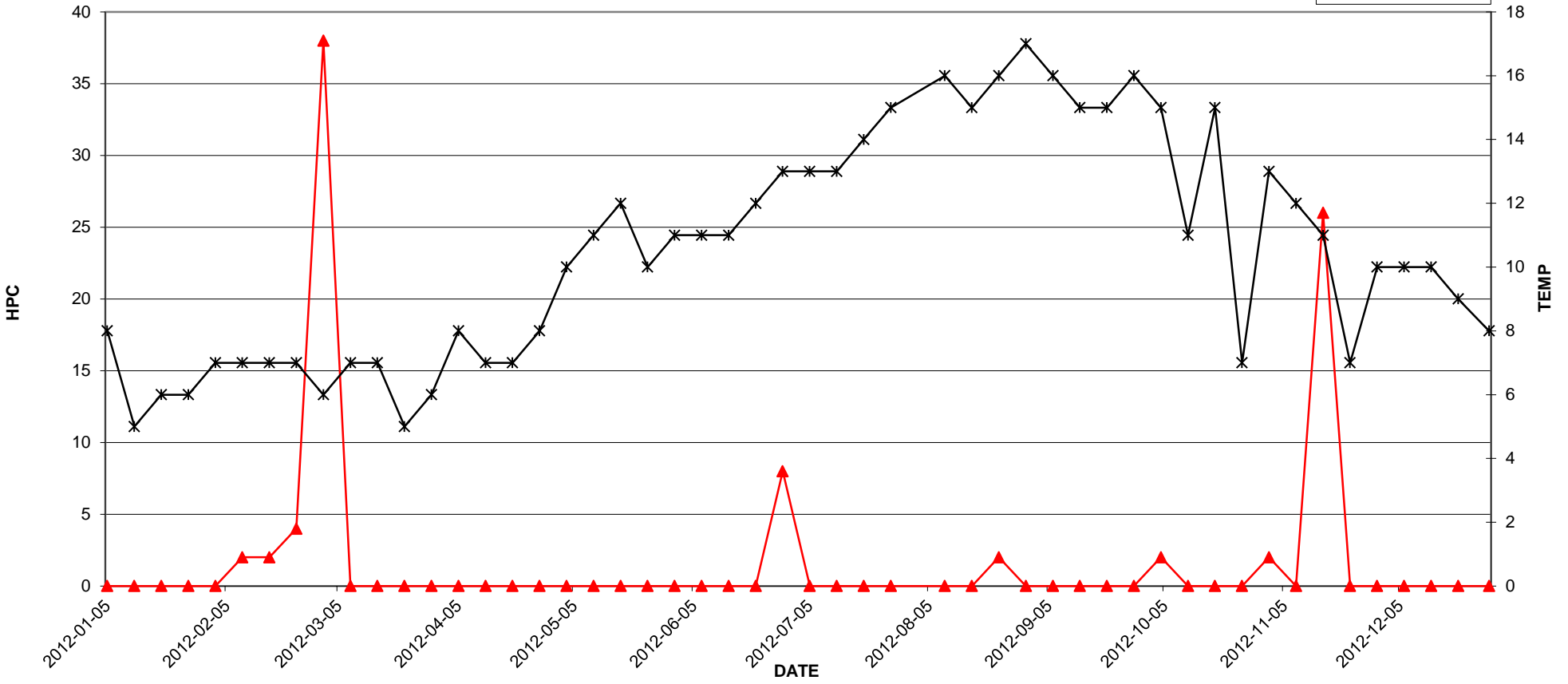
DM928 (W P/L 15349 57 AVE) - 2012 TEST RESULTS



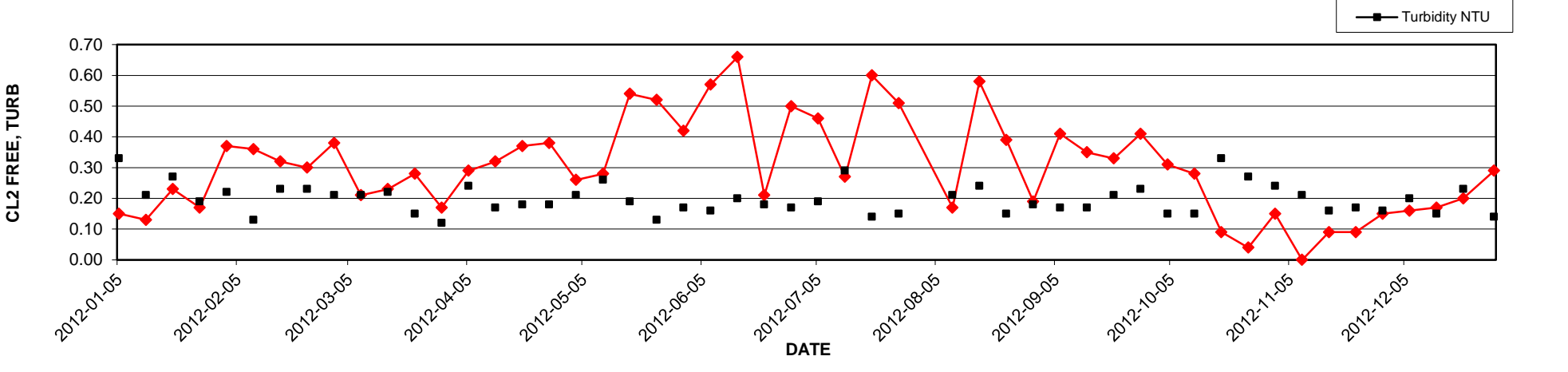
2012 GVRD Laboratory Report - DM929 (SE LOMBARD PLACE at 144A ST.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
05-Jan	0.15	<1	<2	<1	8	0.33
12-Jan	0.13	<1	<2	<1	5	0.21
19-Jan	0.23	<1	<2	<1	6	0.27
26-Jan	0.17	<1	<2	<1	6	0.19
02-Feb	0.37	<1	<2	<1	7	0.22
09-Feb	0.36	<1	2	<1	7	0.13
16-Feb	0.32	<1	2	<1	7	0.23
23-Feb	0.30	<1	4	<1	7	0.23
01-Mar	0.38	<1	38	<1	6	0.21
08-Mar	0.21	<1	<2	<1	7	0.21
15-Mar	0.23	<1	<2	<1	7	0.22
22-Mar	0.28	<1	<2	<1	5	0.15
29-Mar	0.17	<1	<2	<1	6	0.12
05-Apr	0.29	<1	<2	<1	8	0.24
12-Apr	0.32	<1	<2	<1	7	0.17
19-Apr	0.37	<1	<2	<1	7	0.18
26-Apr	0.38	<1	<2	<1	8	0.18
03-May	0.26	<1	<2	<1	10	0.21
10-May	0.28	<1	<2	<1	11	0.26
17-May	0.54	<1	<2	<1	12	0.19
24-May	0.52	<1	<2	<1	10	0.13
31-May	0.42	<1	<2	<1	11	0.17
07-Jun	0.57	<1	<2	<1	11	0.16
14-Jun	0.66	<1	<2	<1	11	0.20
21-Jun	0.21	<1	<2	<1	12	0.18
28-Jun	0.50	<1	8	<1	13	0.17
05-Jul	0.46	<1	<2	<1	13	0.19
12-Jul	0.27	<1	<2	<1	13	0.29
19-Jul	0.60	<1	<2	<1	14	0.14
26-Jul	0.51	<1	<2	<1	15	0.15
09-Aug	0.17	<1	<2	<1	16	0.21
16-Aug	0.58	<1	<2	<1	15	0.24
23-Aug	0.39	<1	2	<1	16	0.15
30-Aug	0.19	<1	<2	<1	17	0.18
06-Sep	0.41	<1	<2	<1	16	0.17
13-Sep	0.35	<1	<2	<1	15	0.17
20-Sep	0.33	<1	<2	<1	15	0.21
27-Sep	0.41	<1	<2	<1	16	0.23
04-Oct	0.31	<1	2	<1	15	0.15
11-Oct	0.28	<1	<2	<1	11	0.15
18-Oct	0.09	<1	<2	<1	15	0.33
25-Oct	0.04	<1	<2	<1	7	0.27
01-Nov	0.15	<1	2	<1	13	0.24
08-Nov	<0.01	<1	<2	<1	12	0.21
15-Nov	0.09	<1	26	<1	11	0.16
22-Nov	0.09	<1	<2	<1	7	0.17
29-Nov	0.15	<1	<2	<1	10	0.16
06-Dec	0.16	<1	<2	<1	10	0.20
13-Dec	0.17	<1	<2	<1	10	0.15
20-Dec	0.20	<1	<2	<1	9	0.23
28-Dec	0.29	<1	NA	<1	8	0.14

DM929 (SE LOMBARD PLACE at 144A ST.) - 2012 TEST RESULTS



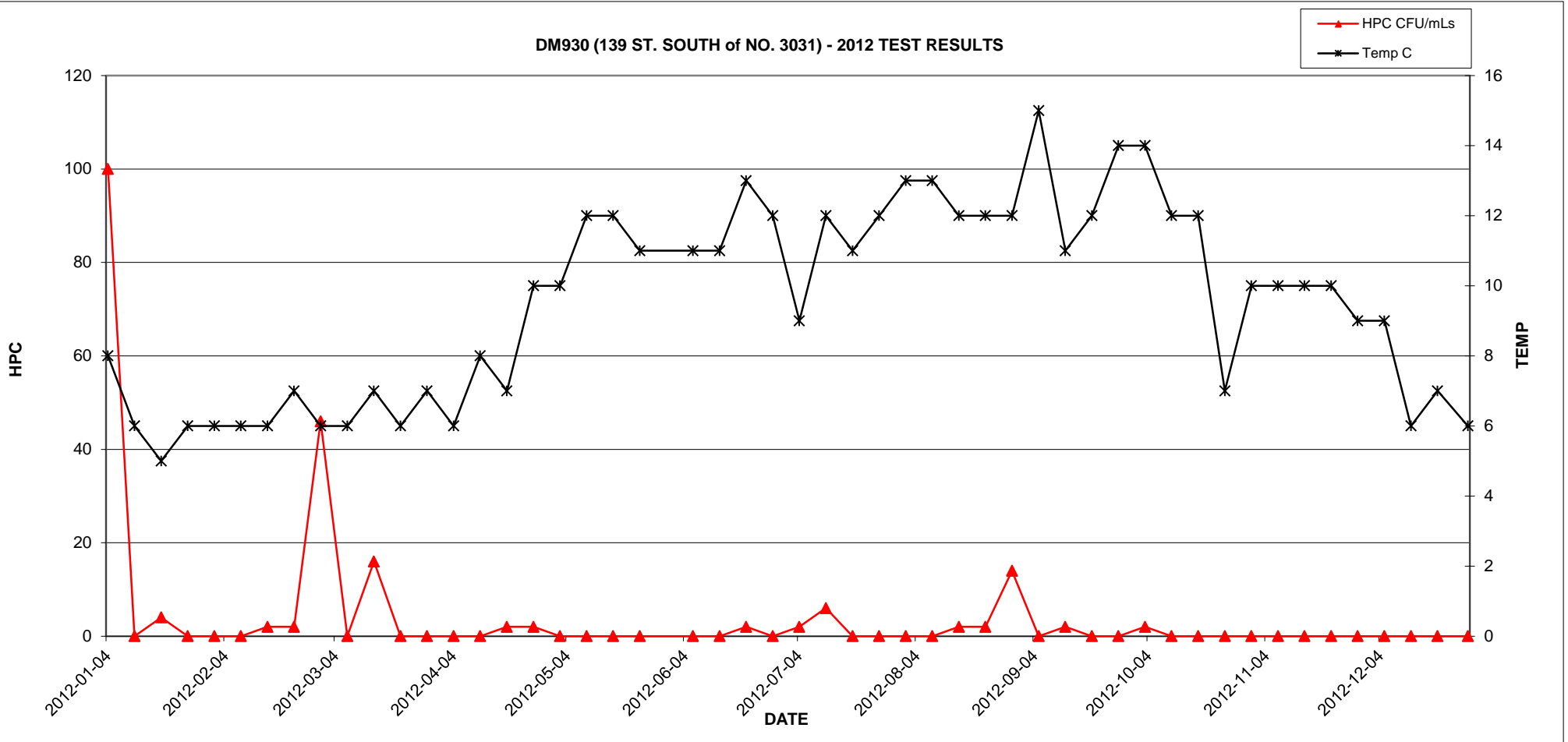
DM929 (SE LOMBARD PLACE at 144A ST.) - 2012 TEST RESULTS



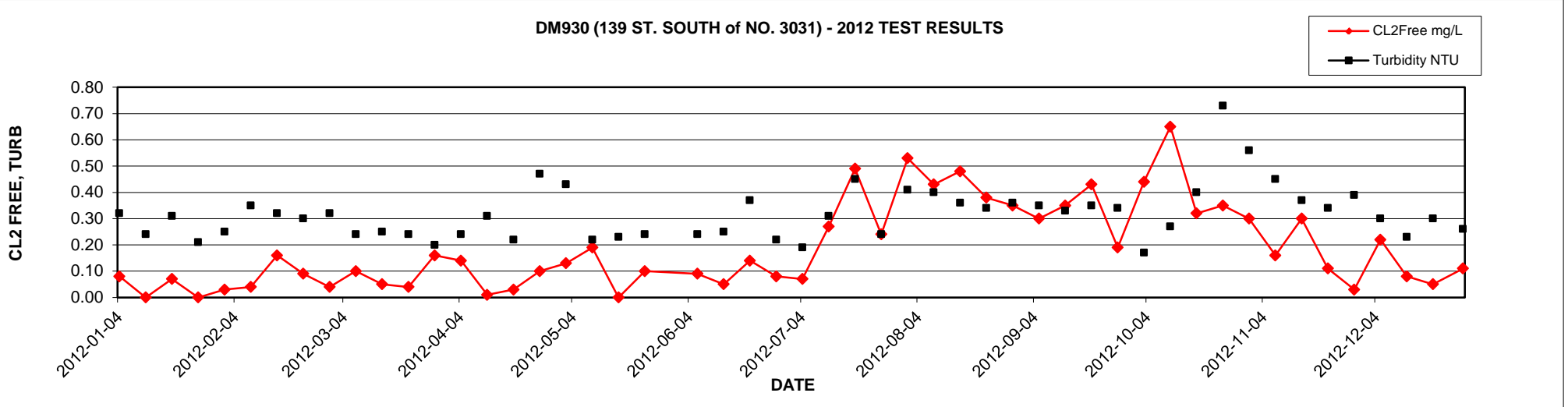
2012 GVRD Laboratory Report - DM930 (139 ST. SOUTH of NO. 3031)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
04-Jan	0.08	<1	100	<1	8	0.32
11-Jan	<0.01	<1	<2	<1	6	0.24
18-Jan	0.07	<1	4	<1	5	0.31
25-Jan	<0.01	<1	<2	<1	6	0.21
01-Feb	0.03	<1	<2	<1	6	0.25
08-Feb	0.04	<1	<2	<1	6	0.35
15-Feb	0.16	<1	2	<1	6	0.32
22-Feb	0.09	<1	2	<1	7	0.30
29-Feb	0.04	<1	46	<1	6	0.32
07-Mar	0.10	<1	<2	<1	6	0.24
14-Mar	0.05	<1	16	<1	7	0.25
21-Mar	0.04	<1	<2	<1	6	0.24
28-Mar	0.16	<1	<2	<1	7	0.20
04-Apr	0.14	<1	<2	<1	6	0.24
11-Apr	0.01	<1	<2	<1	8	0.31
18-Apr	0.03	<1	2	<1	7	0.22
25-Apr	0.10	<1	2	<1	10	0.47
02-May	0.13	<1	<2	<1	10	0.43
09-May	0.19	<1	<2	<1	12	0.22
16-May	<0.01	<1	<2	<1	12	0.23
23-May	0.10	<1	<2	<1	11	0.24
06-Jun	0.09	<1	<2	<1	11	0.24
13-Jun	0.05	<1	NA	<1	11	0.25
20-Jun	0.14	<1	2	<1	13	0.37
27-Jun	0.08	<1	<2	<1	12	0.22
04-Jul	0.07	<1	2	<1	9	0.19
11-Jul	0.27	<1	6	<1	12	0.31
18-Jul	0.49	<1	<2	<1	11	0.45
25-Jul	0.24	<1	<2	<1	12	0.24
01-Aug	0.53	<1	<2	<1	13	0.41
08-Aug	0.43	<1	<2	<1	13	0.40
15-Aug	0.48	<1	2	<1	12	0.36
22-Aug	0.38	<1	2	<1	12	0.34
29-Aug	0.35	<1	14	<1	12	0.36
05-Sep	0.30	<1	<2	<1	15	0.35
12-Sep	0.35	<1	2	<1	11	0.33
19-Sep	0.43	<1	<2	<1	12	0.35
26-Sep	0.19	<1	<2	<1	14	0.34
03-Oct	0.44	<1	2	<1	14	0.17
10-Oct	0.65	<1	<2	<1	12	0.27
17-Oct	0.32	<1	<2	<1	12	0.40
24-Oct	0.35	<1	<2	<1	7	0.73
31-Oct	0.30	<1	<2	<1	10	0.56
07-Nov	0.16	<1	<2	<1	10	0.45
14-Nov	0.30	<1	<2	<1	10	0.37
21-Nov	0.11	<1	<2	<1	10	0.34
28-Nov	0.03	<1	<2	<1	9	0.39
05-Dec	0.22	<1	<2	<1	9	0.30
12-Dec	0.08	<1	<2	<1	6	0.23
19-Dec	0.05	<1	<2	<1	7	0.30
27-Dec	0.11	<1	NA	<1	6	0.26

DM930 (139 ST. SOUTH of NO. 3031) - 2012 TEST RESULTS



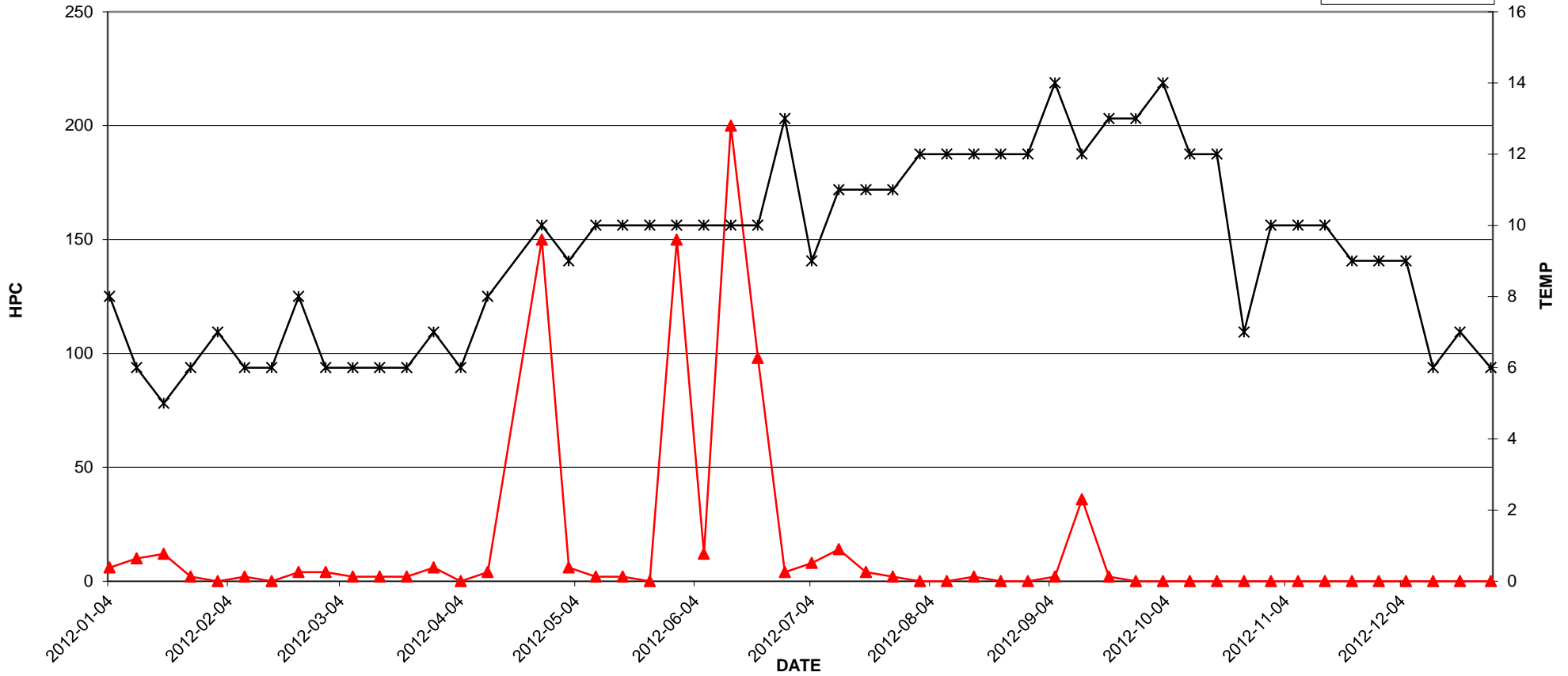
DM930 (139 ST. SOUTH of NO. 3031) - 2012 TEST RESULTS



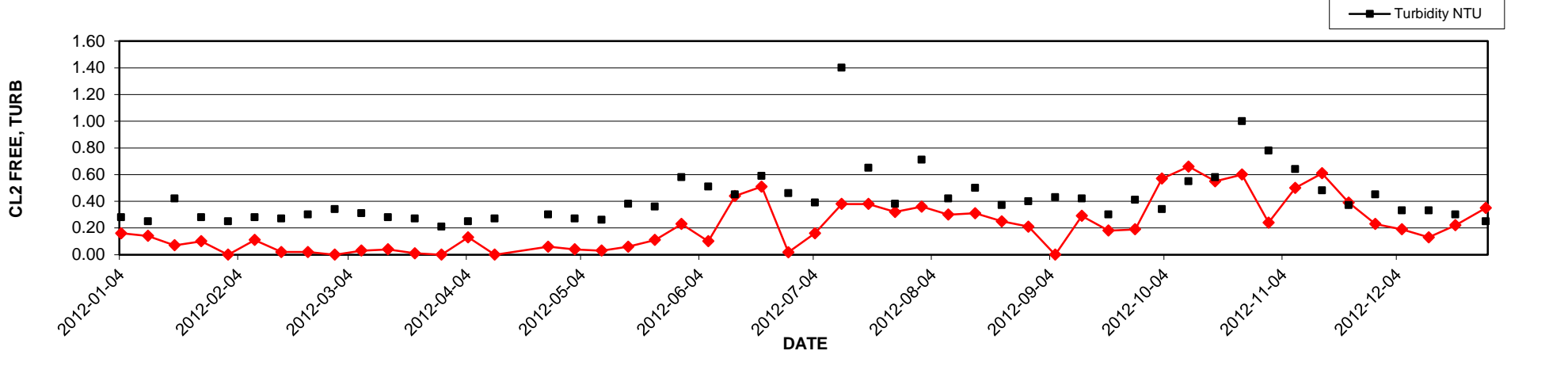
2012 GVRD Laboratory Report - DM931 (SW CORNER 124 ST. and 24 AVE.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
04-Jan	0.16	<1	6	<1	8	0.28
11-Jan	0.14	<1	10	<1	6	0.25
18-Jan	0.07	<1	12	<1	5	0.42
25-Jan	0.10	<1	2	<1	6	0.28
01-Feb	<0.01	<1	<2	<1	7	0.25
08-Feb	0.11	<1	2	<1	6	0.28
15-Feb	0.02	<1	<2	<1	6	0.27
22-Feb	0.02	<1	4	<1	8	0.30
29-Feb	<0.01	<1	4	<1	6	0.34
07-Mar	0.03	<1	2	<1	6	0.31
14-Mar	0.04	<1	2	<1	6	0.28
21-Mar	0.01	<1	2	<1	6	0.27
28-Mar	<0.01	<1	6	<1	7	0.21
04-Apr	0.13	<1	<2	<1	6	0.25
11-Apr	<0.01	<1	4	<1	8	0.27
25-Apr	0.06	<1	150	<1	10	0.30
02-May	0.04	<1	6	<1	9	0.27
09-May	0.03	<1	2	<1	10	0.26
16-May	0.06	<1	2	<1	10	0.38
23-May	0.11	<1	<2	<1	10	0.36
30-May	0.23	<1	150	<1	10	0.58
06-Jun	0.10	<1	12	<1	10	0.51
13-Jun	0.44	<1	200	<1	10	0.45
20-Jun	0.51	<1	98	<1	10	0.59
27-Jun	0.02	<1	4	<1	13	0.46
04-Jul	0.16	<1	8	<1	9	0.39
11-Jul	0.38	<1	14	<1	11	1.40
18-Jul	0.38	<1	4	<1	11	0.65
25-Jul	0.32	<1	2	<1	11	0.38
01-Aug	0.36	<1	<2	<1	12	0.71
08-Aug	0.30	<1	<2	<1	12	0.42
15-Aug	0.31	<1	2	<1	12	0.50
22-Aug	0.25	<1	<2	<1	12	0.37
29-Aug	0.21	<1	<2	<1	12	0.40
05-Sep	<0.01	<1	2	<1	14	0.43
12-Sep	0.29	<1	36	<1	12	0.42
19-Sep	0.18	<1	2	<1	13	0.30
26-Sep	0.19	<1	<2	<1	13	0.41
03-Oct	0.57	<1	<2	<1	14	0.34
10-Oct	0.66	<1	<2	<1	12	0.55
17-Oct	0.55	<1	<2	<1	12	0.58
24-Oct	0.60	<1	<2	<1	7	1.00
31-Oct	0.24	<1	<2	<1	10	0.78
07-Nov	0.50	<1	<2	<1	10	0.64
14-Nov	0.61	<1	<2	<1	10	0.48
21-Nov	0.39	<1	<2	<1	9	0.37
28-Nov	0.23	<1	<2	<1	9	0.45
05-Dec	0.19	<1	<2	<1	9	0.33
12-Dec	0.13	<1	<2	<1	6	0.33
19-Dec	0.22	<1	<2	<1	7	0.30
27-Dec	0.35	<1	NA	<1	6	0.25

DM931 (SW CORNER 124 ST. and 24 AVE.) - 2012 TEST RESULTS



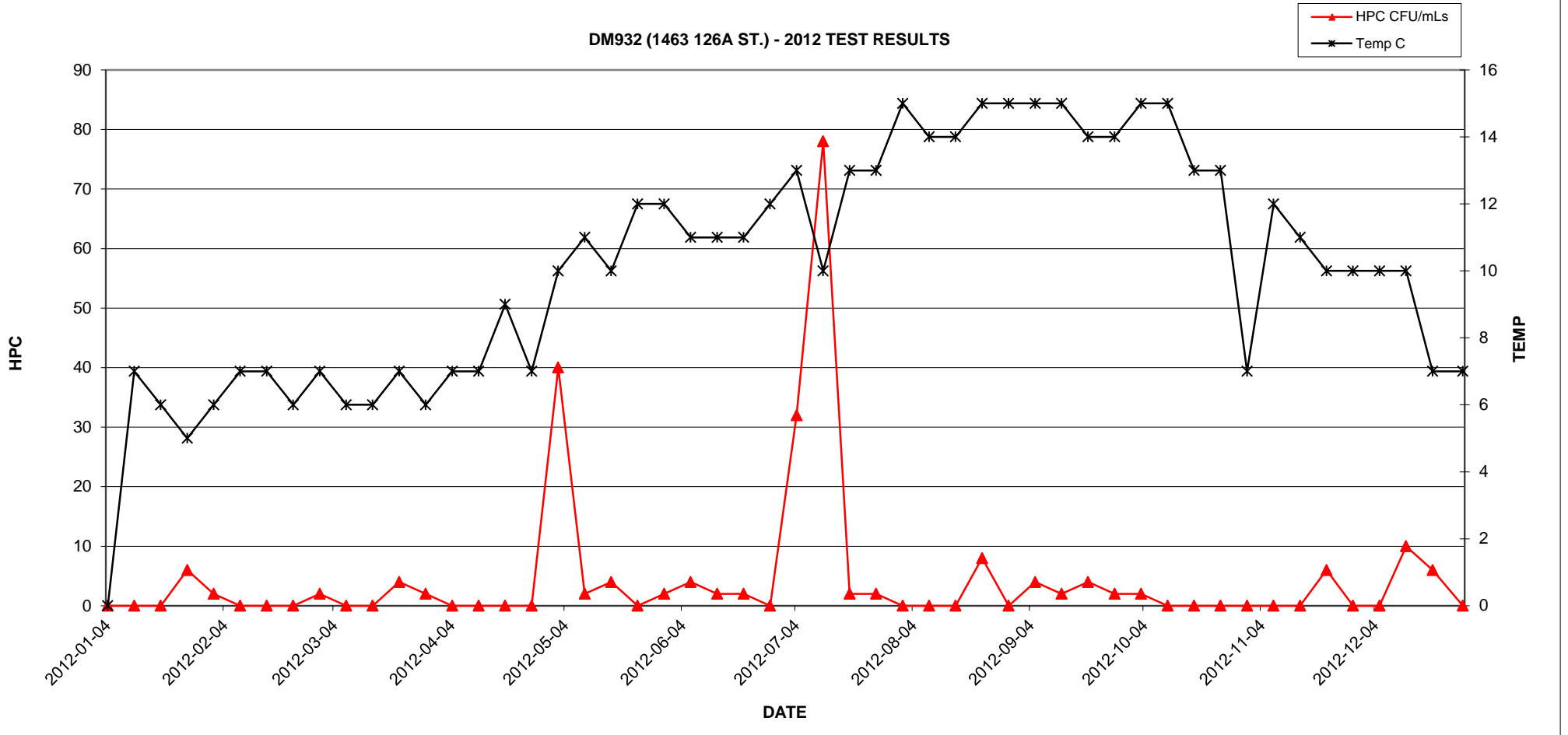
DM931 (SW CORNER 124 ST. and 24 AVE.) - 2012 TEST RESULTS



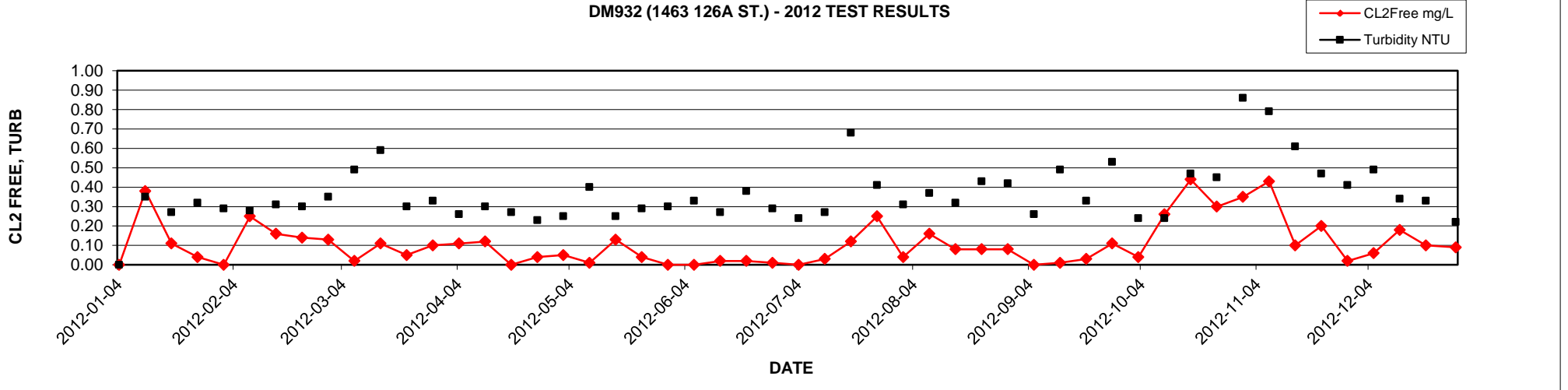
2012 GVRD Laboratory Report - DM932 (1463 126A ST.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
04-Jan	0.38	<1	<2	<1	7	0.35
11-Jan	0.11	<1	<2	<1	6	0.27
18-Jan	0.04	<1	6	<1	5	0.32
25-Jan	<0.01	<1	2	<1	6	0.29
01-Feb	0.25	<1	<2	<1	7	0.28
08-Feb	0.16	<1	<2	<1	7	0.31
15-Feb	0.14	<1	<2	<1	6	0.30
22-Feb	0.13	<1	2	<1	7	0.35
29-Feb	0.02	<1	<2	<1	6	0.49
07-Mar	0.11	<1	<2	<1	6	0.59
14-Mar	0.05	<1	4	<1	7	0.30
21-Mar	0.10	<1	2	<1	6	0.33
28-Mar	0.11	<1	<2	<1	7	0.26
04-Apr	0.12	<1	<2	<1	7	0.30
11-Apr	<0.01	<1	<2	<1	9	0.27
18-Apr	0.04	<1	<2	<1	7	0.23
25-Apr	0.05	<1	40	<1	10	0.25
02-May	0.01	<1	2	<1	11	0.40
09-May	0.13	<1	4	<1	10	0.25
16-May	0.04	<1	<2	<1	12	0.29
23-May	<0.01	<1	2	<1	12	0.30
30-May	<0.01	<1	4	<1	11	0.33
06-Jun	0.02	<1	2	<1	11	0.27
13-Jun	0.02	<1	2	<1	11	0.38
20-Jun	0.01	<1	<2	<1	12	0.29
27-Jun	<0.01	<1	32	<1	13	0.24
04-Jul	0.03	<1	78	<1	10	0.27
11-Jul	0.12	<1	2	<1	13	0.68
18-Jul	0.25	<1	2	<1	13	0.41
25-Jul	0.04	<1	<2	<1	15	0.31
01-Aug	0.16	<1	<2	<1	14	0.37
08-Aug	0.08	<1	<2	<1	14	0.32
15-Aug	0.08	<1	8	<1	15	0.43
22-Aug	0.08	<1	>11000	<1	15	0.42
29-Aug	<0.01	<1	4	<1	15	0.26
05-Sep	0.01	<1	2	<1	15	0.49
12-Sep	0.03	<1	4	<1	14	0.33
19-Sep	0.11	<1	2	<1	14	0.53
26-Sep	0.04	<1	2	<1	15	0.24
03-Oct	0.26	<1	<2	<1	15	0.24
10-Oct	0.44	<1	<2	<1	13	0.47
17-Oct	0.30	<1	<2	<1	13	0.45
24-Oct	0.35	<1	<2	<1	7	0.86
31-Oct	0.43	<1	<2	<1	12	0.79
07-Nov	0.10	<1	<2	<1	11	0.61
14-Nov	0.20	<1	6	<1	10	0.47
21-Nov	0.02	<1	<2	<1	10	0.41
28-Nov	0.06	<1	<2	<1	10	0.49
05-Dec	0.18	<1	10	<1	10	0.34
12-Dec	0.10	<1	6	<1	7	0.33
19-Dec	0.09	<1	<2	<1	7	0.22
27-Dec	0.15	<1	NA	<1	6	0.30

DM932 (1463 126A ST.) - 2012 TEST RESULTS



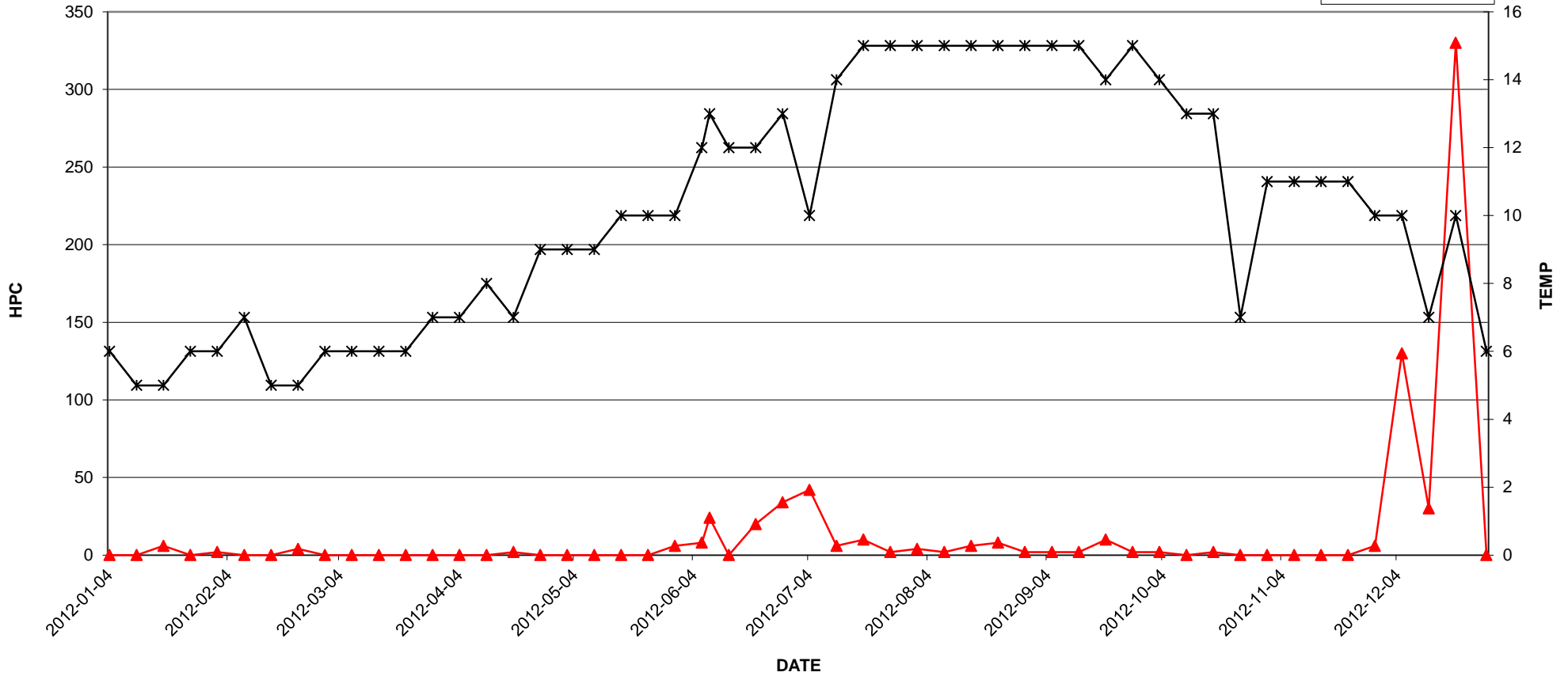
DM932 (1463 126A ST.) - 2012 TEST RESULTS



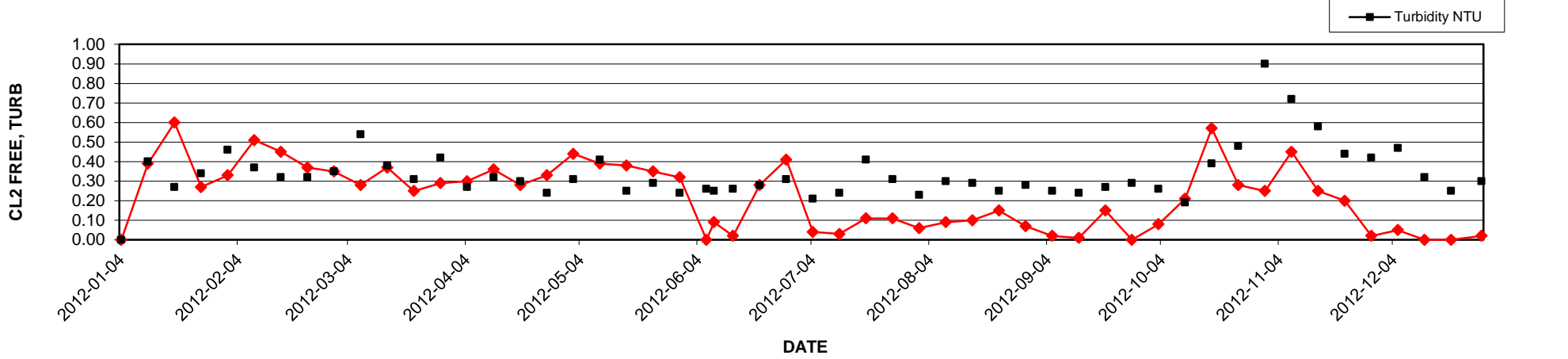
2012 GVRD Laboratory Report - DM933 (SOUTHSIDE 15B AVE. at 13341)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
04-Jan	0.39	<1	<2	<1	6	0.40
11-Jan	0.60	<1	<2	<1	5	0.27
18-Jan	0.27	<1	6	<1	5	0.34
25-Jan	0.33	<1	<2	<1	6	0.46
01-Feb	0.51	<1	2	<1	6	0.37
08-Feb	0.45	<1	<2	<1	7	0.32
15-Feb	0.37	<1	<2	<1	5	0.32
22-Feb	0.35	<1	4	<1	5	0.35
29-Feb	0.28	<1	<2	<1	6	0.54
07-Mar	0.37	<1	<2	<1	6	0.38
14-Mar	0.25	<1	<2	<1	6	0.31
21-Mar	0.29	<1	<2	<1	6	0.42
28-Mar	0.30	<1	<2	<1	7	0.27
04-Apr	0.36	<1	<2	<1	7	0.32
11-Apr	0.28	<1	<2	<1	8	0.30
18-Apr	0.33	<1	2	<1	7	0.24
25-Apr	0.44	<1	<2	<1	9	0.31
02-May	0.39	<1	<2	<1	9	0.41
09-May	0.38	<1	<2	<1	9	0.25
16-May	0.35	<1	<2	<1	10	0.29
23-May	0.32	<1	<2	<1	10	0.24
30-May	<0.01	<1	6	<1	10	0.26
06-Jun	0.09	<1	8	1	12	0.25
08-Jun	0.02	<1	24	<1	13	0.26
13-Jun	0.28	<1	<2	<1	12	0.28
20-Jun	0.41	<1	20	<1	12	0.31
27-Jun	0.04	<1	34	<1	13	0.21
04-Jul	0.03	<1	42	<1	10	0.24
11-Jul	0.11	<1	6	<1	14	0.41
18-Jul	0.11	<1	10	<1	15	0.31
25-Jul	0.06	<1	2	<1	15	0.23
01-Aug	0.09	<1	4	<1	15	0.30
08-Aug	0.10	<1	2	<1	15	0.29
15-Aug	0.15	<1	6	<1	15	0.25
22-Aug	0.07	<1	8	<1	15	0.28
29-Aug	0.02	<1	2	<1	15	0.25
05-Sep	0.01	<1	2	<1	15	0.24
12-Sep	0.15	<1	2	<1	15	0.27
19-Sep	<0.01	<1	10	<1	14	0.29
26-Sep	0.08	<1	2	<1	15	0.26
03-Oct	0.21	<1	2	<1	14	0.19
10-Oct	0.57	<1	<2	<1	13	0.39
17-Oct	0.28	<1	2	<1	13	0.48
24-Oct	0.25	<1	<2	<1	7	0.90
31-Oct	0.45	<1	<2	<1	11	0.72
07-Nov	0.25	<1	<2	<1	11	0.58
14-Nov	0.20	<1	<2	<1	11	0.44
21-Nov	0.02	<1	<2	<1	11	0.42
28-Nov	0.05	<1	6	<1	10	0.47
05-Dec	<0.01	<1	130	<1	10	0.32
12-Dec	<0.01	<1	30	<1	7	0.25
19-Dec	0.02	<1	330	<1	10	0.30
27-Dec	<0.01	<1	NA	<1	6	0.23

DM933 (SOUTHSIDE 15B AVE. at 13341) - 2012 TEST RESULTS



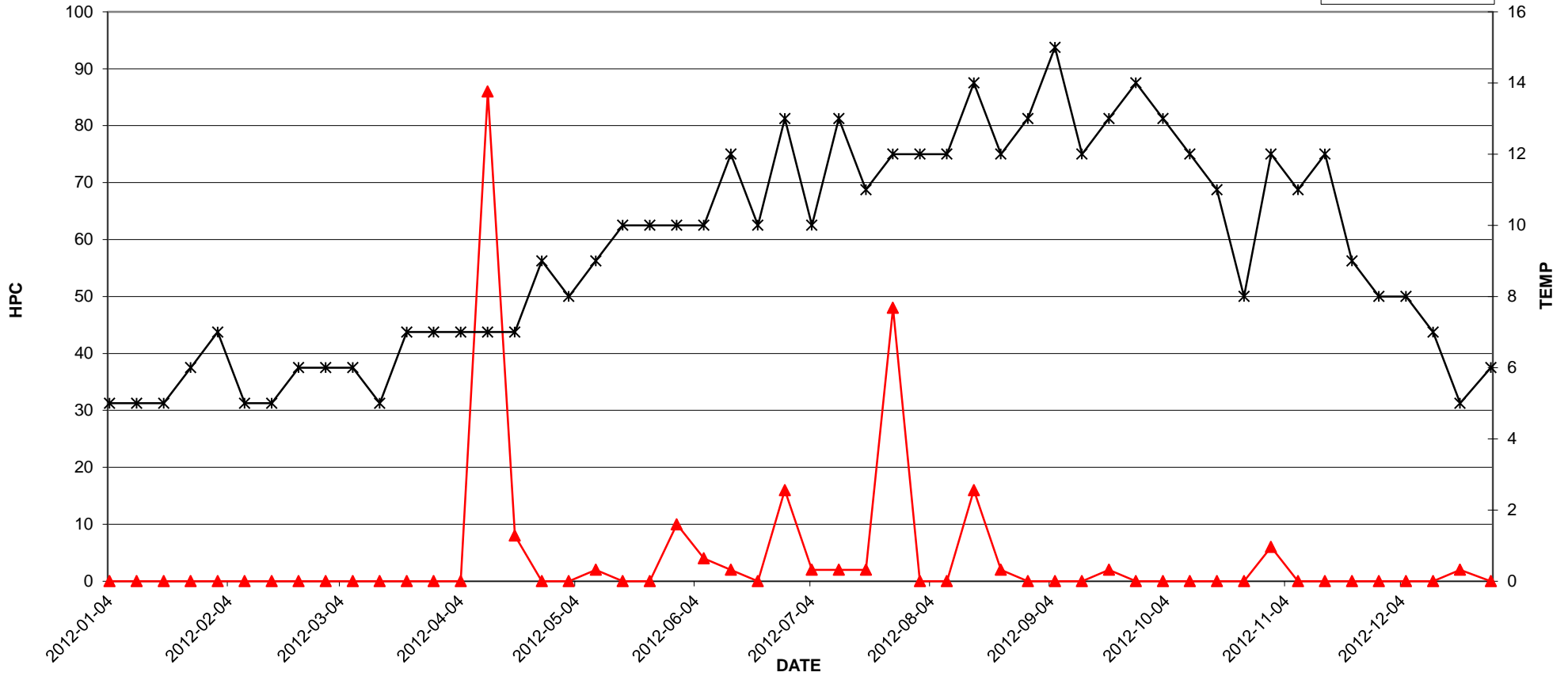
DM933 (SOUTHSIDE 15B AVE. at 13341) - 2012 TEST RESULTS



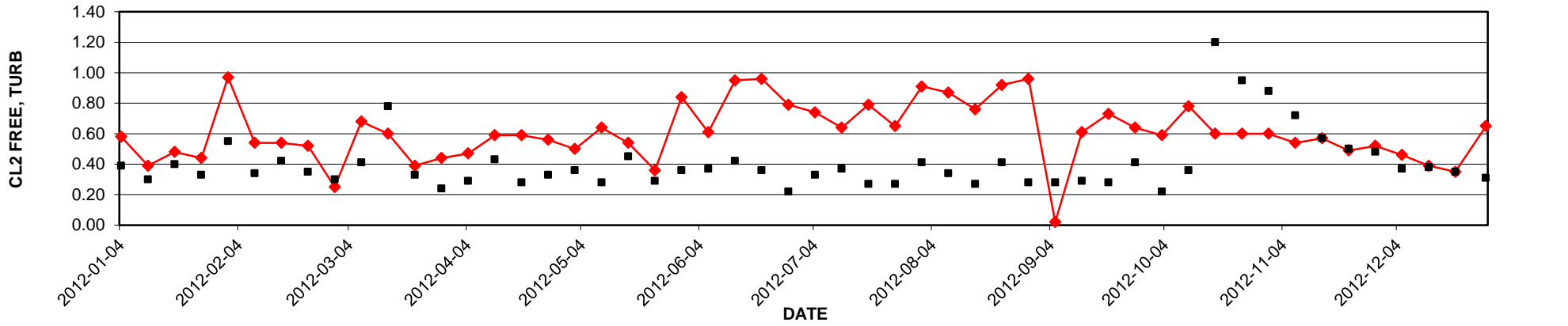
2012 GVRD Laboratory Report - DM934 (NE CORNER 146 ST & 16A AVE)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
04-Jan	0.58	<1	<2	<1	5	0.39
11-Jan	0.39	<1	<2	<1	5	0.30
18-Jan	0.48	<1	<2	<1	5	0.40
25-Jan	0.44	<1	<2	<1	6	0.33
01-Feb	0.97	<1	<2	<1	7	0.55
08-Feb	0.54	<1	<2	<1	5	0.34
15-Feb	0.54	<1	<2	<1	5	0.42
22-Feb	0.52	<1	<2	<1	6	0.35
29-Feb	0.25	<1	<2	<1	6	0.30
07-Mar	0.68	<1	<2	<1	6	0.41
14-Mar	0.60	<1	<2	<1	5	0.78
21-Mar	0.39	<1	<2	<1	7	0.33
28-Mar	0.44	<1	<2	<1	7	0.24
04-Apr	0.47	<1	<2	<1	7	0.29
11-Apr	0.59	<1	86	<1	7	0.43
18-Apr	0.59	<1	8	<1	7	0.28
25-Apr	0.56	<1	<2	<1	9	0.33
02-May	0.50	<1	<2	<1	8	0.36
09-May	0.64	<1	2	<1	9	0.28
16-May	0.54	<1	<2	<1	10	0.45
23-May	0.36	<1	<2	<1	10	0.29
30-May	0.84	<1	10	<1	10	0.36
06-Jun	0.61	<1	4	<1	10	0.37
13-Jun	0.95	<1	2	<1	12	0.42
20-Jun	0.96	<1	<2	<1	10	0.36
27-Jun	0.79	<1	16	<1	13	0.22
04-Jul	0.74	<1	2	<1	10	0.33
11-Jul	0.64	<1	2	<1	13	0.37
18-Jul	0.79	<1	2	<1	11	0.27
25-Jul	0.65	<1	48	<1	12	0.27
01-Aug	0.91	<1	<2	<1	12	0.41
08-Aug	0.87	<1	<2	<1	12	0.34
15-Aug	0.76	<1	16	<1	14	0.27
22-Aug	0.92	<1	2	<1	12	0.41
29-Aug	0.96	<1	<2	<1	13	0.28
05-Sep	0.02	<1	<2	<1	15	0.28
12-Sep	0.61	<1	<2	<1	12	0.29
19-Sep	0.73	<1	2	<1	13	0.28
26-Sep	0.64	<1	<2	<1	14	0.41
03-Oct	0.59	<1	<2	<1	13	0.22
10-Oct	0.78	<1	<2	<1	12	0.36
17-Oct	0.60	<1	<2	<1	11	1.20
24-Oct	0.60	<1	<2	<1	8	0.95
31-Oct	0.60	<1	6	<1	12	0.88
07-Nov	0.54	<1	<2	<1	11	0.72
14-Nov	0.57	<1	<2	<1	12	0.57
21-Nov	0.49	<1	<2	<1	9	0.50
28-Nov	0.52	<1	<2	<1	8	0.48
05-Dec	0.46	<1	<2	<1	8	0.37
12-Dec	0.39	<1	<2	<1	7	0.38
19-Dec	0.35	<1	2	<1	5	0.35
27-Dec	0.65	<1	NA	<1	6	0.31

DM934 (NE CORNER 146 ST & 16A AVE) - 2012 TEST RESULTS



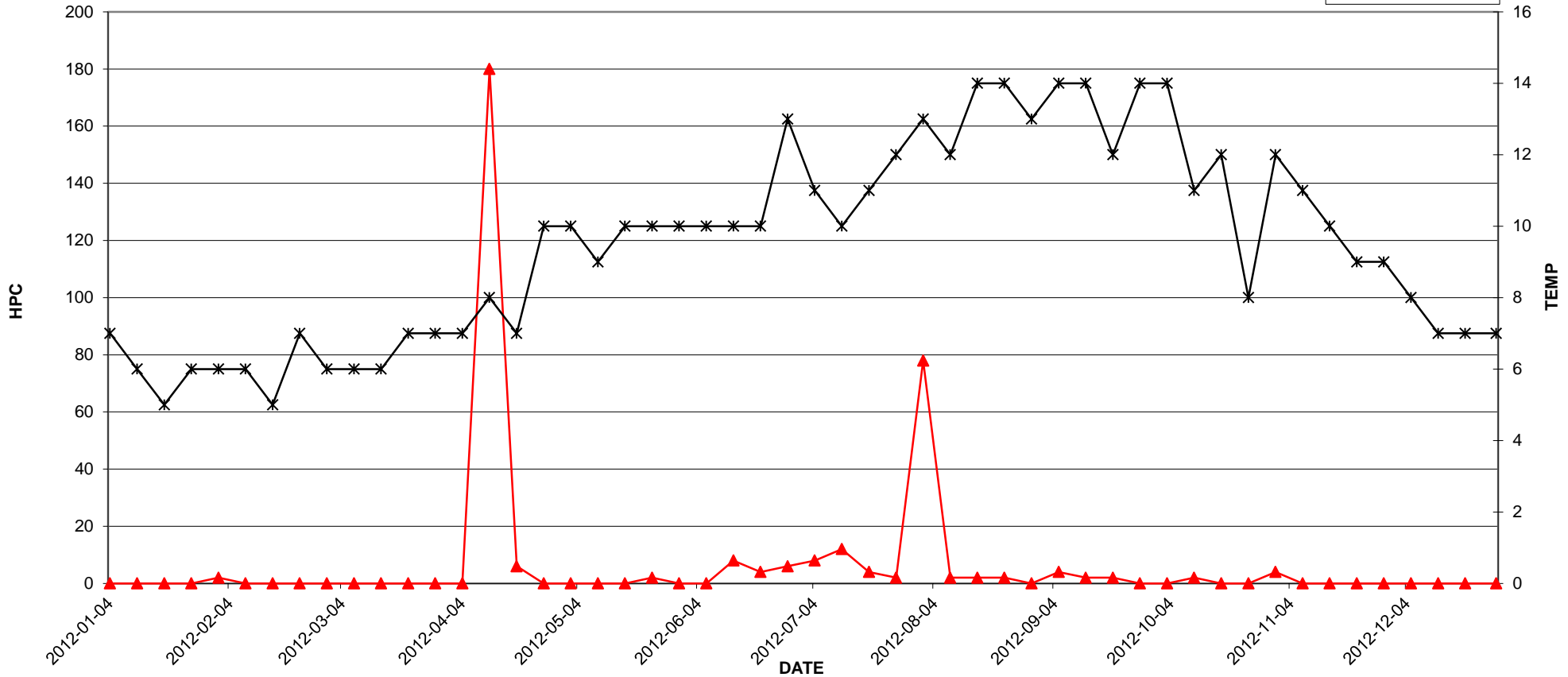
DM934 (NE CORNER 146 ST & 16A AVE) - 2012 TEST RESULTS



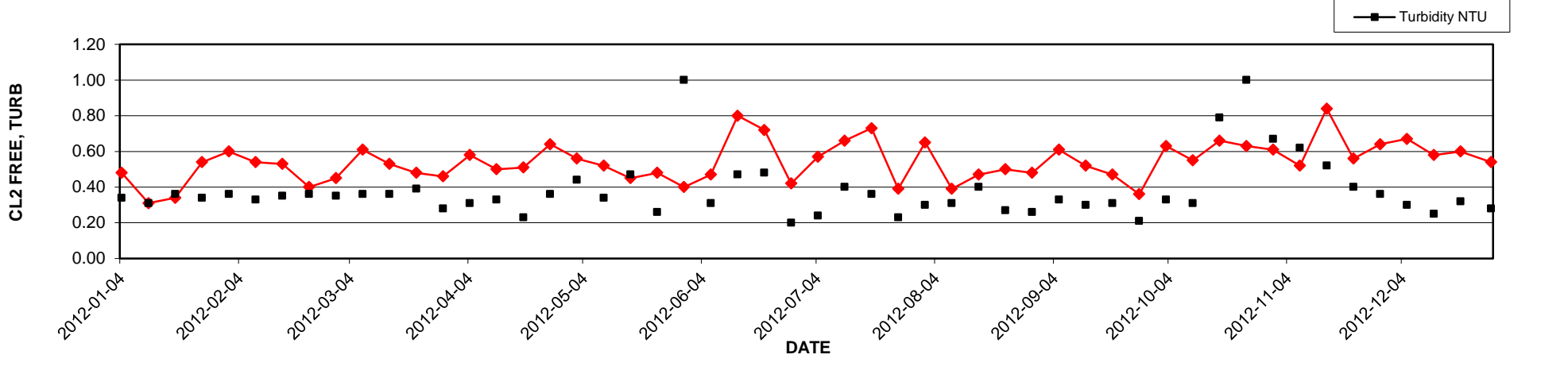
2012 GVRD Laboratory Report - DM935 (NW CORNER 11 AVE and 164 ST)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
04-Jan	0.48	<1	<2	<1	7	0.34
11-Jan	0.31	<1	<2	<1	6	0.31
18-Jan	0.34	<1	<2	<1	5	0.36
25-Jan	0.54	<1	<2	<1	6	0.34
01-Feb	0.60	<1	2	<1	6	0.36
08-Feb	0.54	<1	<2	<1	6	0.33
15-Feb	0.53	<1	<2	<1	5	0.35
22-Feb	0.40	<1	<2	<1	7	0.36
29-Feb	0.45	<1	<2	<1	6	0.35
07-Mar	0.61	<1	<2	<1	6	0.36
14-Mar	0.53	<1	<2	<1	6	0.36
21-Mar	0.48	<1	<2	<1	7	0.39
28-Mar	0.46	<1	<2	<1	7	0.28
04-Apr	0.58	<1	<2	<1	7	0.31
11-Apr	0.50	<1	180	<1	8	0.33
18-Apr	0.51	<1	6	<1	7	0.23
25-Apr	0.64	<1	<2	<1	10	0.36
02-May	0.56	<1	<2	<1	10	0.44
09-May	0.52	<1	<2	<1	9	0.34
16-May	0.45	<1	<2	<1	10	0.47
23-May	0.48	<1	2	<1	10	0.26
30-May	0.40	<1	<2	<1	10	1.00
06-Jun	0.47	<1	<2	<1	10	0.31
13-Jun	0.80	<1	8	<1	10	0.47
20-Jun	0.72	<1	4	<1	10	0.48
27-Jun	0.42	<1	6	<1	13	0.20
04-Jul	0.57	<1	8	<1	11	0.24
11-Jul	0.66	<1	12	<1	10	0.40
18-Jul	0.73	<1	4	<1	11	0.36
25-Jul	0.39	<1	2	<1	12	0.23
01-Aug	0.65	<1	78	<1	13	0.30
08-Aug	0.39	<1	2	<1	12	0.31
15-Aug	0.47	<1	2	<1	14	0.40
22-Aug	0.50	<1	2	<1	14	0.27
29-Aug	0.48	<1	<2	<1	13	0.26
05-Sep	0.61	<1	4	<1	14	0.33
12-Sep	0.52	<1	2	<1	14	0.30
19-Sep	0.47	<1	2	<1	12	0.31
26-Sep	0.36	<1	<2	<1	14	0.21
03-Oct	0.63	<1	<2	<1	14	0.33
10-Oct	0.55	<1	2	<1	11	0.31
17-Oct	0.66	<1	<2	<1	12	0.79
24-Oct	0.63	<1	<2	<1	8	1.00
31-Oct	0.61	<1	4	<1	12	0.67
07-Nov	0.52	<1	<2	<1	11	0.62
14-Nov	0.84	<1	<2	<1	10	0.52
21-Nov	0.56	<1	<2	<1	9	0.40
28-Nov	0.64	<1	<2	<1	9	0.36
05-Dec	0.67	<1	<2	<1	8	0.30
12-Dec	0.58	<1	<2	<1	7	0.25
19-Dec	0.60	<1	<2	<1	7	0.32
27-Dec	0.54	<1	NA	<1	7	0.28

DM935 (NW CORNER 11 AVE and 164 ST) - 2012 TEST RESULTS



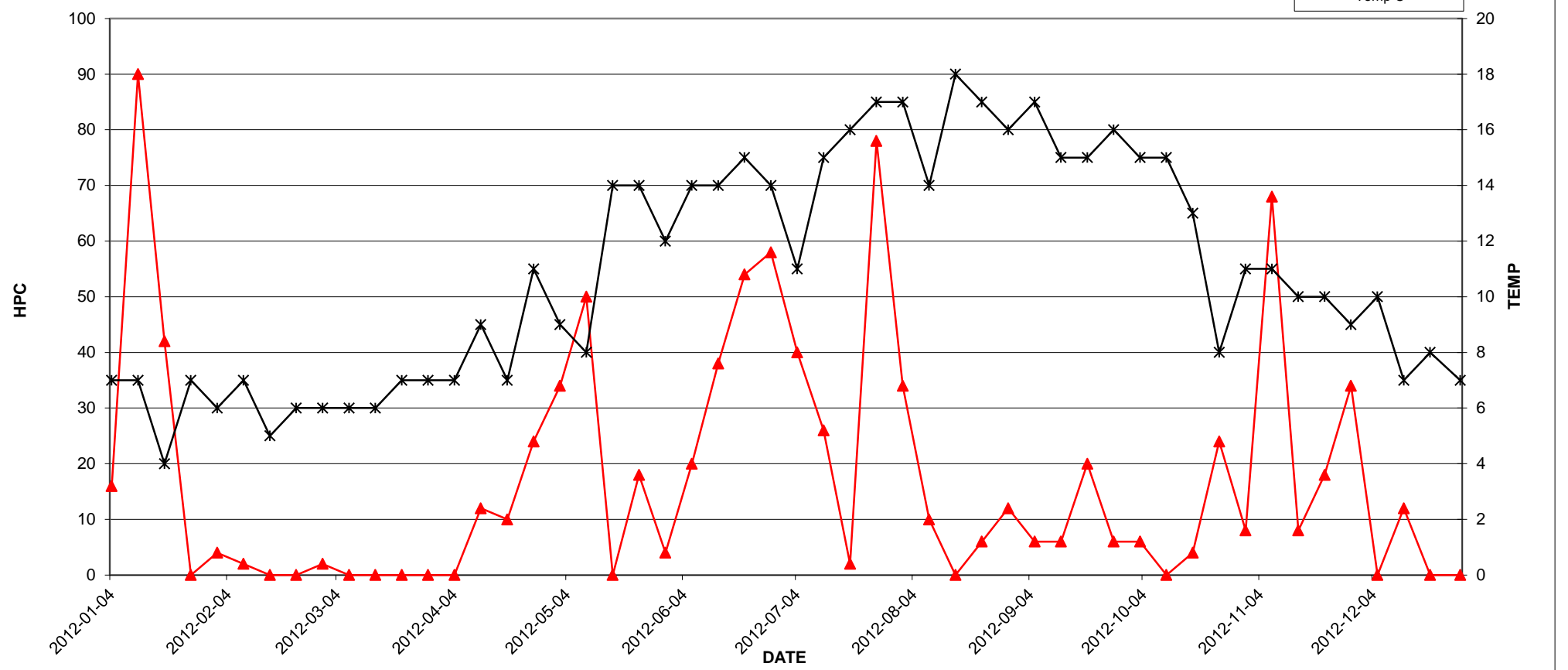
DM935 (NW CORNER 11 AVE and 164 ST) - 2012 TEST RESULTS



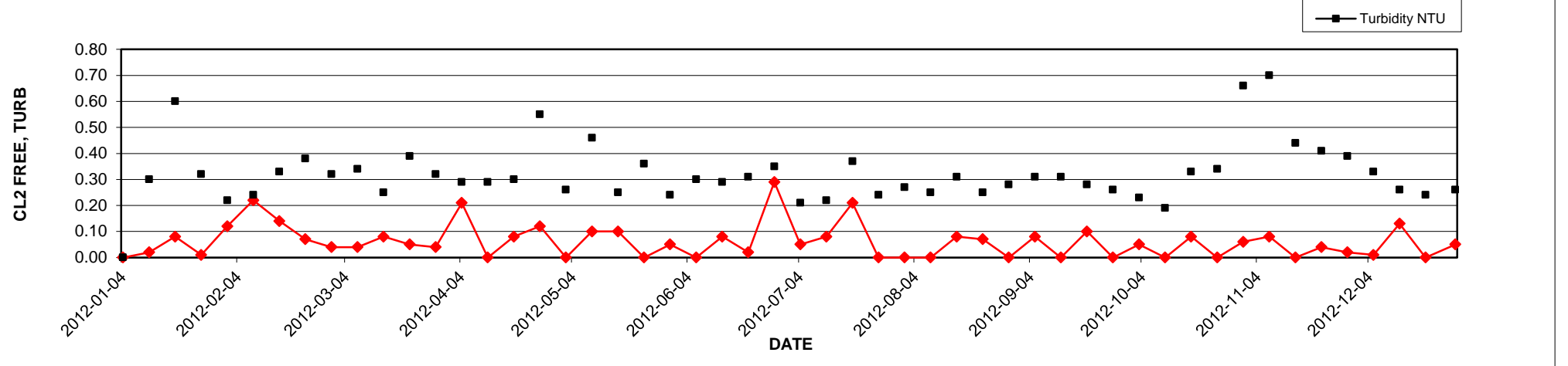
2012 GVRD Laboratory Report - DM936 (NW 0 AVE. at 172 ST.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
04-Jan	0.02	<1	16	<1	7	0.30
11-Jan	0.08	<1	90	<1	7	0.60
18-Jan	0.01	<1	42	<1	4	0.32
25-Jan	0.12	<1	<2	<1	7	0.22
01-Feb	0.22	<1	4	<1	6	0.24
08-Feb	0.14	<1	2	<1	7	0.33
15-Feb	0.07	<1	<2	<1	5	0.38
22-Feb	0.04	<1	<2	<1	6	0.32
29-Feb	0.04	<1	2	<1	6	0.34
07-Mar	0.08	<1	<2	<1	6	0.25
14-Mar	0.05	<1	<2	<1	6	0.39
21-Mar	0.21	<1	<2	<1	7	0.29
04-Apr	<0.01	<1	<2	<1	7	0.29
11-Apr	0.08	<1	12	<1	9	0.30
18-Apr	0.12	<1	10	<1	7	0.55
25-Apr	0.04	<1	24	<1	11	0.32
28-Mar	<0.01	<1	<2	<1	7	0.26
02-May	0.10	<1	34	<1	9	0.46
09-May	0.10	<1	50	<1	8	0.25
16-May	<0.01	<1	<2	<1	14	0.36
23-May	0.05	<1	18	<1	14	0.24
30-May	<0.01	<1	4	<1	12	0.30
06-Jun	0.08	<1	20	<1	14	0.29
13-Jun	0.02	<1	38	<1	14	0.31
20-Jun	0.29	<1	54	<1	15	0.35
27-Jun	0.05	<1	58	<1	14	0.21
04-Jul	0.08	<1	40	<1	11	0.22
11-Jul	0.21	<1	26	<1	15	0.37
18-Jul	<0.01	<1	2	<1	16	0.24
25-Jul	<0.01	<1	78	<1	17	0.27
01-Aug	<0.01	<1	34	<1	17	0.25
08-Aug	0.08	<1	10	<1	14	0.31
15-Aug	0.07	<1	<2	<1	18	0.25
22-Aug	<0.01	<1	6	<1	17	0.28
29-Aug	0.08	<1	12	<1	16	0.31
05-Sep	<0.01	<1	6	<1	17	0.31
12-Sep	0.10	<1	6	<1	15	0.28
19-Sep	<0.01	<1	20	<1	15	0.26
26-Sep	0.05	<1	6	<1	16	0.23
03-Oct	<0.01	<1	6	<1	15	0.19
10-Oct	0.08	<1	<2	<1	15	0.33
17-Oct	<0.01	<1	4	<1	13	0.34
24-Oct	0.06	<1	24	<1	8	0.66
31-Oct	0.08	<1	8	<1	11	0.70
07-Nov	<0.01	<1	68	<1	11	0.44
14-Nov	0.04	<1	8	<1	10	0.41
21-Nov	0.02	<1	18	<1	10	0.39
28-Nov	0.01	<1	34	<1	9	0.33
05-Dec	0.13	<1	<2	<1	10	0.26
12-Dec	<0.01	<1	12	<1	7	0.24
19-Dec	0.05	<1	<2	<1	8	0.26
27-Dec	<0.01	<1	NA	<1	7	0.24

DM936 (NW 0 AVE. at 172 ST.) - 2012 TEST RESULTS



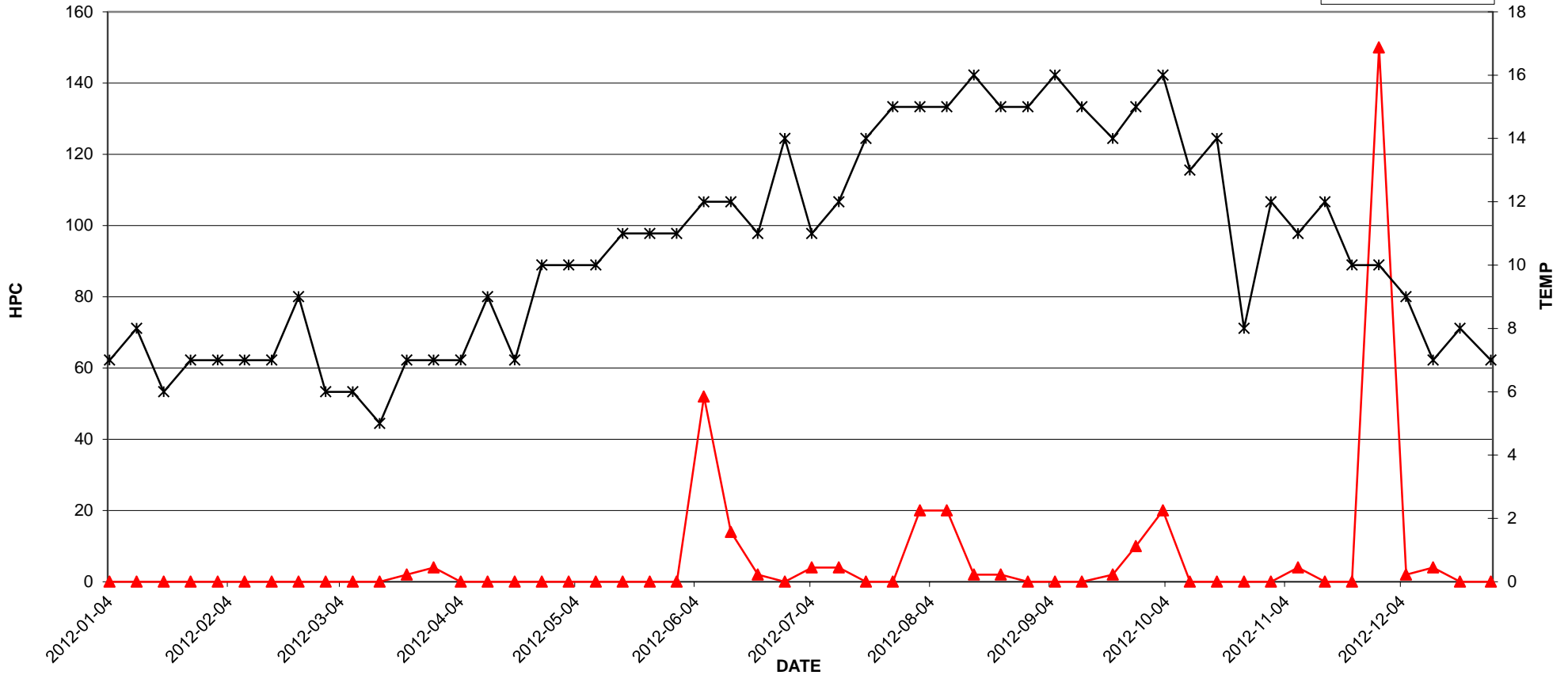
DM936 (NW 0 AVE. at 172 ST.) - 2012 TEST RESULTS



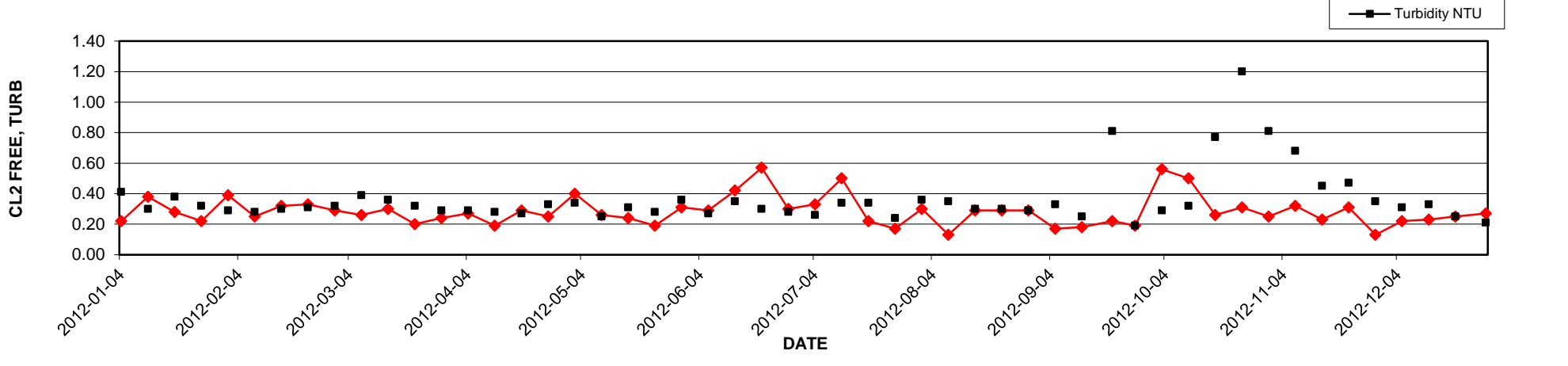
2012 GVRD Laboratory Report - DM937 (NE CORNER 21A AVE. at 180 ST.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
04-Jan	0.22	<1	<2	<1	7	0.41
11-Jan	0.38	<1	<2	<1	8	0.30
18-Jan	0.28	<1	<2	<1	6	0.38
25-Jan	0.22	<1	<2	<1	7	0.32
01-Feb	0.39	<1	<2	<1	7	0.29
08-Feb	0.25	<1	<2	<1	7	0.28
15-Feb	0.32	<1	<2	<1	7	0.30
22-Feb	0.33	<1	<2	<1	9	0.31
29-Feb	0.29	<1	<2	<1	6	0.32
07-Mar	0.26	<1	<2	<1	6	0.39
14-Mar	0.30	<1	<2	<1	5	0.36
21-Mar	0.20	<1	2	<1	7	0.32
28-Mar	0.24	<1	4	<1	7	0.29
04-Apr	0.27	<1	<2	<1	7	0.29
11-Apr	0.19	<1	<2	<1	9	0.28
18-Apr	0.29	<1	<2	<1	7	0.27
25-Apr	0.25	<1	<2	<1	10	0.33
02-May	0.40	<1	<2	<1	10	0.34
09-May	0.26	<1	NA	<1	10	0.25
16-May	0.24	<1	<2	<1	11	0.31
23-May	0.19	<1	<2	<1	11	0.28
30-May	0.31	<1	<2	<1	11	0.36
06-Jun	0.29	<1	52	<1	12	0.27
13-Jun	0.42	<1	14	<1	12	0.35
20-Jun	0.57	<1	2	<1	11	0.30
27-Jun	0.30	<1	<2	<1	14	0.28
04-Jul	0.33	<1	4	<1	11	0.26
11-Jul	0.50	<1	4	<1	12	0.34
18-Jul	0.22	<1	<2	<1	14	0.34
25-Jul	0.17	<1	<2	<1	15	0.24
01-Aug	0.30	<1	20	<1	15	0.36
08-Aug	0.13	<1	20	<1	15	0.35
15-Aug	0.29	<1	2	<1	16	0.30
22-Aug	0.29	<1	2	<1	15	0.30
29-Aug	0.29	<1	<2	<1	15	0.29
05-Sep	0.17	<1	<2	<1	16	0.33
12-Sep	0.18	<1	<2	<1	15	0.25
20-Sep	0.22	<1	2	<1	14	0.81
26-Sep	0.19	<1	10	<1	15	0.19
03-Oct	0.56	<1	20	<1	16	0.29
10-Oct	0.50	<1	<2	<1	13	0.32
17-Oct	0.26	<1	<2	<1	14	0.77
24-Oct	0.31	<1	<2	<1	8	1.20
31-Oct	0.25	<1	<2	<1	12	0.81
07-Nov	0.32	<1	4	<1	11	0.68
14-Nov	0.23	<1	<2	<1	12	0.45
21-Nov	0.31	<1	<2	<1	10	0.47
28-Nov	0.13	<1	150	<1	10	0.35
05-Dec	0.22	<1	2	<1	9	0.31
12-Dec	0.23	<1	4	<1	7	0.33
19-Dec	0.25	<1	<2	<1	8	0.25
27-Dec	0.27	<1	NA	<1	7	0.21

DM937 (NE CORNER 21A AVE. at 180 ST.) - 2012 TEST RESULTS



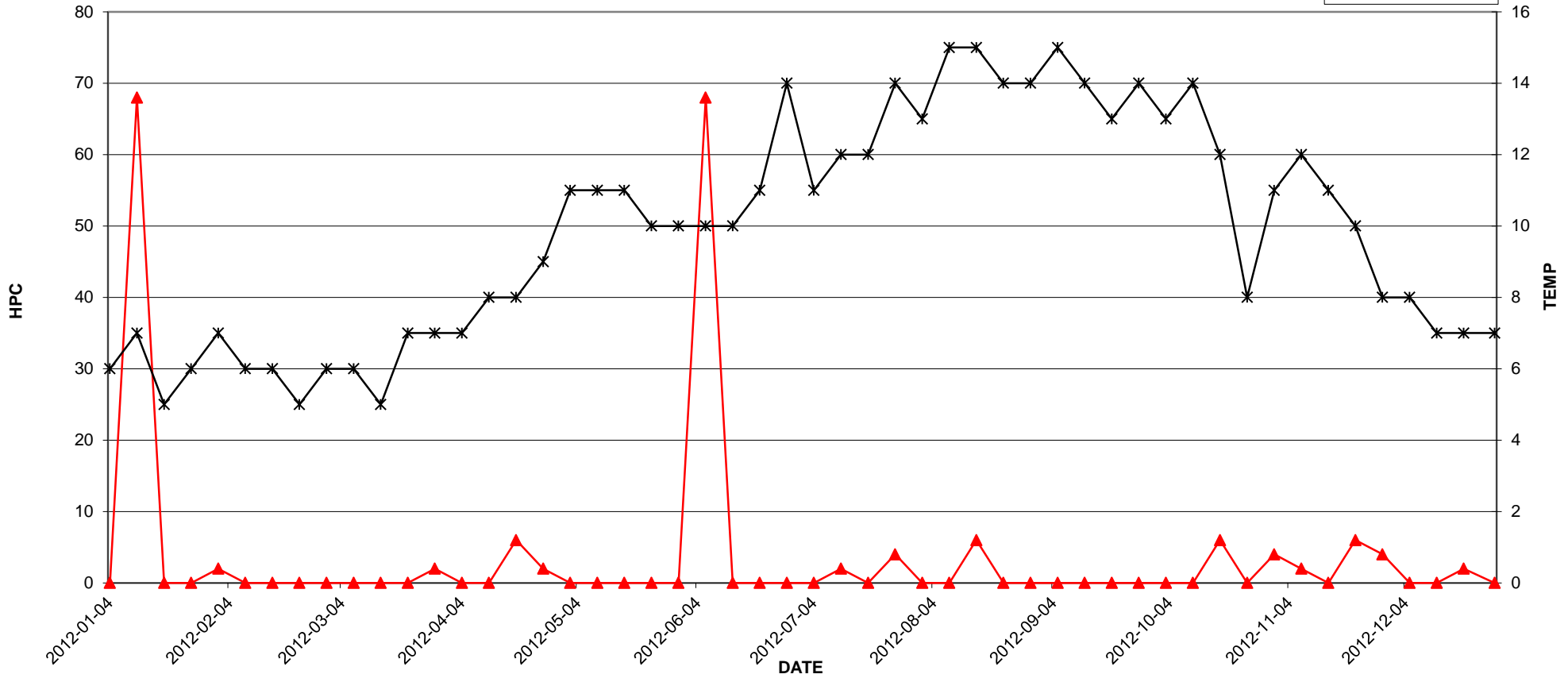
DM937 (NE CORNER 21A AVE. at 180 ST.) - 2012 TEST RESULTS



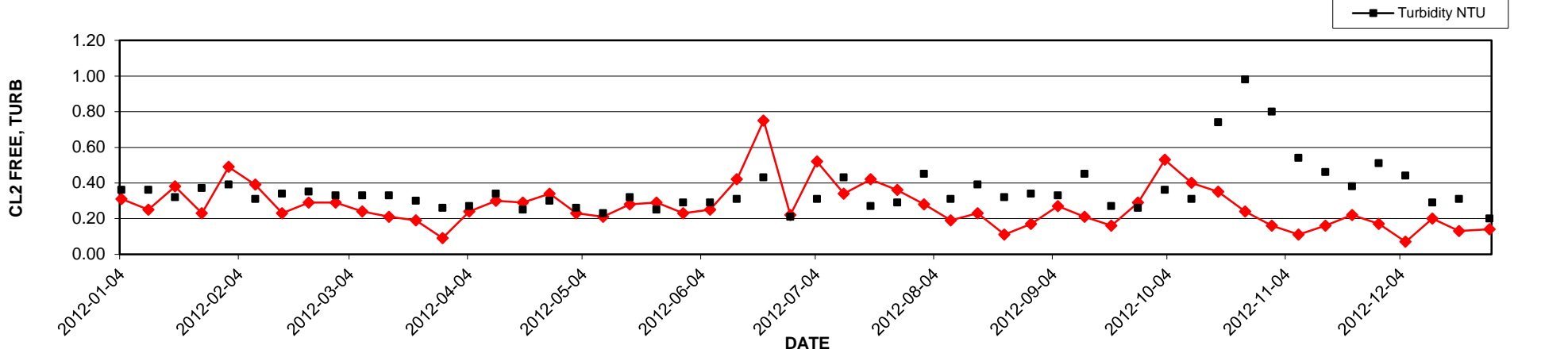
2012 GVRD Laboratory Report - DM938 (SE CORNER 172 ST. and 31 AVE.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
04-Jan	0.31	<1	<2	<1	6	0.36
11-Jan	0.25	<1	68	<1	7	0.36
18-Jan	0.38	<1	<2	<1	5	0.32
25-Jan	0.23	<1	<2	<1	6	0.37
01-Feb	0.49	<1	2	<1	7	0.39
08-Feb	0.39	<1	<2	<1	6	0.31
15-Feb	0.23	<1	<2	<1	6	0.34
22-Feb	0.29	<1	<2	<1	5	0.35
29-Feb	0.29	<1	<2	<1	6	0.33
07-Mar	0.24	<1	<2	<1	6	0.33
14-Mar	0.21	<1	<2	<1	5	0.33
21-Mar	0.19	<1	<2	<1	7	0.30
28-Mar	0.09	<1	2	<1	7	0.26
04-Apr	0.24	<1	<2	<1	7	0.27
11-Apr	0.30	<1	<2	<1	8	0.34
18-Apr	0.29	<1	6	<1	8	0.25
25-Apr	0.34	<1	2	<1	9	0.30
02-May	0.23	<1	<2	<1	11	0.26
09-May	0.21	<1	<2	<1	11	0.23
16-May	0.28	<1	<2	<1	11	0.32
23-May	0.29	<1	<2	<1	10	0.25
30-May	0.23	<1	<2	<1	10	0.29
06-Jun	0.25	<1	68	<1	10	0.29
13-Jun	0.42	<1	<2	<1	10	0.31
20-Jun	0.75	<1	<2	<1	11	0.43
27-Jun	0.22	<1	<2	<1	14	0.21
04-Jul	0.52	<1	<2	<1	11	0.31
11-Jul	0.34	<1	2	<1	12	0.43
18-Jul	0.42	<1	<2	<1	12	0.27
25-Jul	0.36	<1	4	<1	14	0.29
01-Aug	0.28	<1	<2	<1	13	0.45
08-Aug	0.19	<1	<2	<1	15	0.31
15-Aug	0.23	<1	6	<1	15	0.39
22-Aug	0.11	<1	<2	<1	14	0.32
29-Aug	0.17	<1	<2	<1	14	0.34
05-Sep	0.27	<1	<2	<1	15	0.33
12-Sep	0.21	<1	<2	<1	14	0.45
19-Sep	0.16	<1	<2	<1	13	0.27
26-Sep	0.29	<1	<2	<1	14	0.26
03-Oct	0.53	<1	<2	<1	13	0.36
10-Oct	0.40	<1	<2	<1	14	0.31
17-Oct	0.35	<1	6	<1	12	0.74
24-Oct	0.24	<1	<2	<1	8	0.98
31-Oct	0.16	<1	4	<1	11	0.80
07-Nov	0.11	<1	2	<1	12	0.54
14-Nov	0.16	<1	<2	<1	11	0.46
21-Nov	0.22	<1	6	<1	10	0.38
28-Nov	0.17	<1	4	<1	8	0.51
05-Dec	0.07	<1	<2	<1	8	0.44
12-Dec	0.20	<1	<2	<1	7	0.29
19-Dec	0.13	<1	2	<1	7	0.31
27-Dec	0.14	<1	NA	<1	7	0.20

DM938 (SE CORNER 172 ST. and 31 AVE.) - 2012 TEST RESULTS



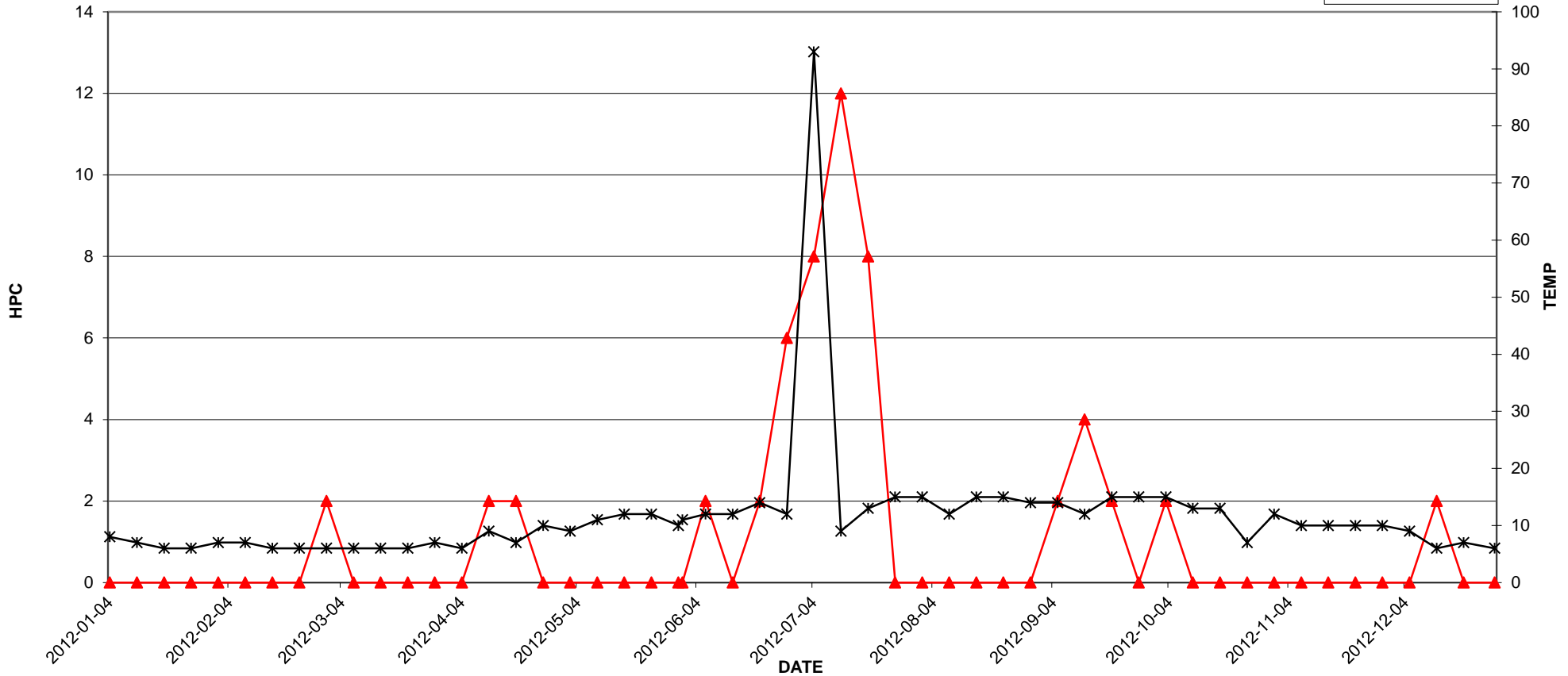
DM938 (SE CORNER 172 ST. and 31 AVE.) - 2012 TEST RESULTS



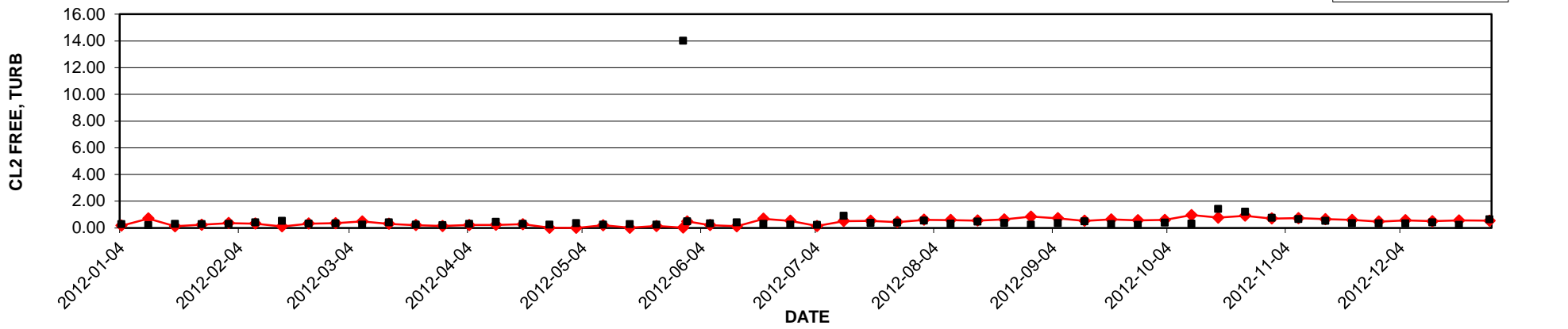
2012 GVRD Laboratory Report - DM939 (SW CORNER 156 ST. and 38A AVE.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
04-Jan	0.17	<1	<2	<1	8	0.26
11-Jan	0.70	<1	<2	<1	7	0.19
18-Jan	0.12	<1	<2	<1	6	0.28
25-Jan	0.24	<1	<2	<1	6	0.26
01-Feb	0.36	<1	<2	<1	7	0.28
08-Feb	0.32	<1	<2	<1	7	0.40
15-Feb	0.11	<1	<2	<1	6	0.51
22-Feb	0.32	<1	<2	<1	6	0.31
29-Feb	0.35	<1	2	<1	6	0.32
07-Mar	0.48	<1	<2	<1	6	0.24
14-Mar	0.30	<1	<2	<1	6	0.40
21-Mar	0.21	<1	<2	<1	6	0.23
28-Mar	0.14	<1	<2	<1	7	0.20
04-Apr	0.22	<1	<2	<1	6	0.28
11-Apr	0.23	<1	2	<1	9	0.43
18-Apr	0.27	<1	2	<1	7	0.28
25-Apr	0.01	<1	<2	<1	10	0.24
02-May	<0.01	<1	<2	<1	9	0.34
09-May	0.20	<1	<2	<1	11	0.23
16-May	0.01	<1	<2	<1	12	0.27
23-May	0.14	<1	<2	<1	12	0.24
30-May	0.02	<1	<2	<1	10	14.00
31-May	0.48	<1	<2	<1	11	0.48
06-Jun	0.21	<1	2	<1	12	0.33
13-Jun	0.12	<1	<2	<1	12	0.40
20-Jun	0.68	<1	2	<1	14	0.29
27-Jun	0.53	<1	6	<1	12	0.24
04-Jul	0.14	<1	8	<1	93	0.21
11-Jul	0.51	<1	12	<1	9	0.89
18-Jul	0.53	<1	8	<1	13	0.36
25-Jul	0.43	<1	<2	<1	15	0.38
01-Aug	0.61	<1	<2	<1	15	0.53
08-Aug	0.59	<1	<2	<1	12	0.30
15-Aug	0.55	<1	<2	<1	15	0.46
22-Aug	0.63	<1	<2	<1	15	0.36
29-Aug	0.84	<1	<2	<1	14	0.23
05-Sep	0.72	<1	2	<1	14	0.34
12-Sep	0.53	<1	4	<1	12	0.47
19-Sep	0.63	<1	2	<1	15	0.27
26-Sep	0.57	<1	<2	<1	15	0.22
03-Oct	0.60	<1	2	<1	15	0.39
10-Oct	0.96	<1	<2	<1	13	0.31
17-Oct	0.77	<1	<2	<1	13	1.40
24-Oct	0.91	<1	<2	<1	7	1.20
31-Oct	0.70	<1	<2	<1	12	0.75
07-Nov	0.73	<1	<2	<1	10	0.64
14-Nov	0.65	<1	<2	<1	10	0.51
21-Nov	0.60	<1	<2	<1	10	0.34
28-Nov	0.47	<1	<2	<1	10	0.33
05-Dec	0.57	<1	<2	<1	9	0.33
12-Dec	0.50	<1	2	<1	6	0.40
19-Dec	0.56	<1	<2	<1	7	0.22
27-Dec	0.54	<1	NA	<1	6	0.62

DM939 (SW CORNER 156 ST. and 38A AVE.) - 2012 TEST RESULTS



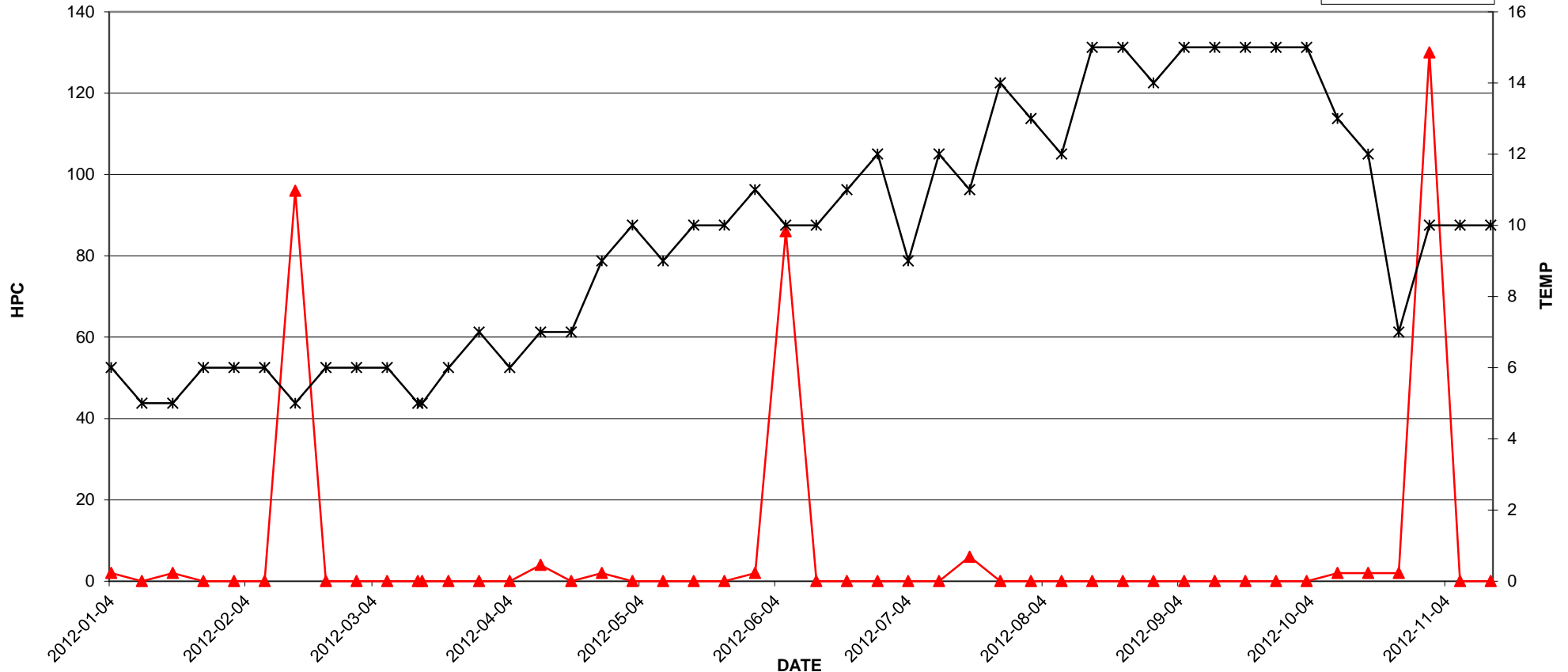
DM939 (SW CORNER 156 ST. and 38A AVE.) - 2012 TEST RESULTS



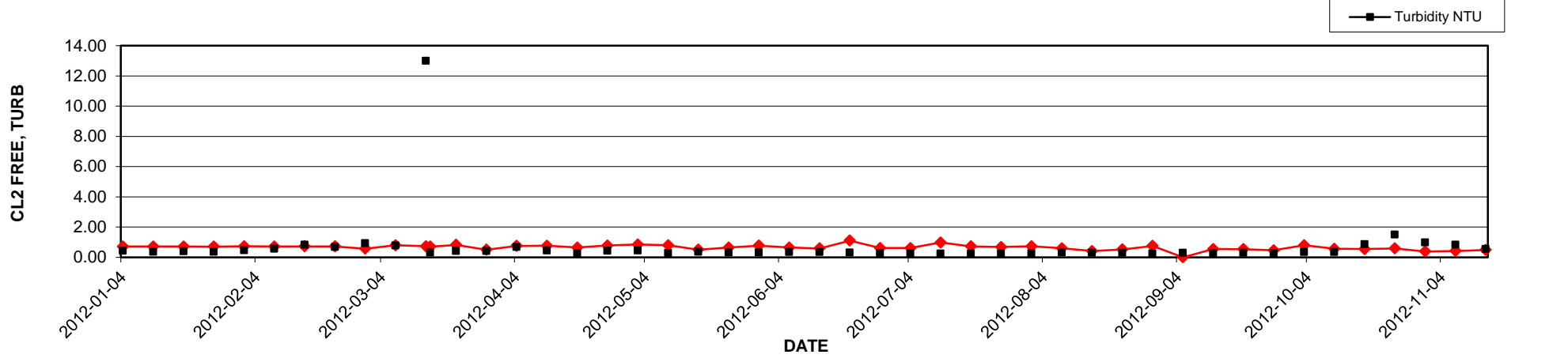
2012 GVRD Laboratory Report - DM940 (SOUTHSIDE 24 AVE. at S DEPOT)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
04-Jan	0.71	<1	2	<1	6	0.42
11-Jan	0.71	<1	<2	<1	5	0.35
18-Jan	0.71	<1	2	<1	5	0.39
25-Jan	0.70	<1	<2	<1	6	0.36
01-Feb	0.73	<1	<2	<1	6	0.46
08-Feb	0.71	<1	<2	<1	6	0.55
15-Feb	0.72	<1	96	<1	5	0.82
22-Feb	0.72	<1	<2	<1	6	0.67
29-Feb	0.57	<1	<2	<1	6	0.92
07-Mar	0.79	<1	<2	<1	6	0.77
14-Mar	0.73	<1	<2	<1	5	13.00
15-Mar	0.70	<1	<2	<1	5	0.30
21-Mar	0.82	<1	<2	<1	6	0.41
28-Mar	0.50	<1	<2	<1	7	0.40
04-Apr	0.75	<1	<2	<1	6	0.67
11-Apr	0.76	<1	4	<1	7	0.44
18-Apr	0.64	<1	<2	<1	7	0.24
25-Apr	0.78	<1	2	<1	9	0.42
02-May	0.84	<1	<2	<1	10	0.44
09-May	0.79	<1	<2	<1	9	0.27
16-May	0.50	<1	<2	<1	10	0.35
23-May	0.64	<1	<2	<1	10	0.30
30-May	0.77	<1	2	<1	11	0.31
06-Jun	0.64	<1	86	<1	10	0.34
13-Jun	0.58	<1	<2	<1	10	0.33
20-Jun	1.10	<1	<2	<1	11	0.30
27-Jun	0.61	<1	<2	<1	12	0.25
04-Jul	0.61	<1	<2	<1	9	0.23
11-Jul	0.98	<1	<2	<1	12	0.23
18-Jul	0.72	<1	6	<1	11	0.24
25-Jul	0.68	<1	<2	<1	14	0.24
01-Aug	0.73	<1	<2	<1	13	0.25
08-Aug	0.59	<1	<2	<1	12	0.30
15-Aug	0.41	<1	<2	<1	15	0.28
22-Aug	0.52	<1	<2	<1	15	0.29
29-Aug	0.75	<1	<2	<1	14	0.24
05-Sep	<0.01	<1	<2	<1	15	0.28
12-Sep	0.54	<1	<2	<1	15	0.27
19-Sep	0.53	<1	<2	<1	15	0.29
26-Sep	0.46	<1	<2	<1	15	0.23
03-Oct	0.79	<1	<2	<1	15	0.33
10-Oct	0.56	<1	2	<1	13	0.34
17-Oct	0.54	<1	2	<1	12	0.86
24-Oct	0.58	<1	2	<1	7	1.50
31-Oct	0.38	<1	130	<1	10	0.97
07-Nov	0.42	<1	<2	<1	10	0.83
14-Nov	0.48	<1	<2	<1	10	0.54
21-Nov	0.49	<1	<2	<1	9	0.45
28-Nov	0.40	<1	<2	<1	8	0.45
05-Dec	0.35	<1	<2	<1	9	0.30
12-Dec	0.44	<1	2	<1	6	0.46
19-Dec	0.42	<1	<2	<1	7	0.31
27-Dec	0.43	<1	NA	<1	6	0.26

DM940 (SOUTHSIDE 24 AVE. at S DEPOT) - 2012 TEST RESULTS



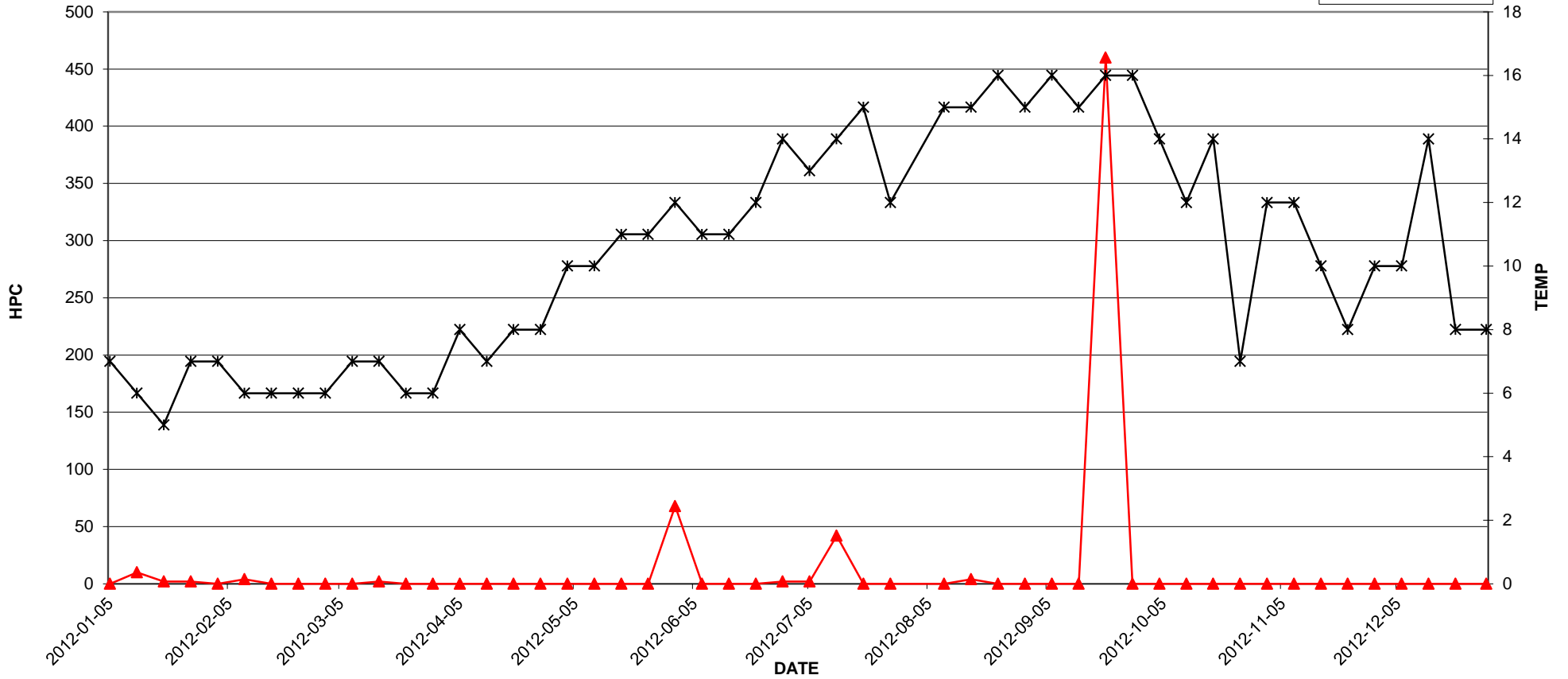
DM940 (SOUTHSIDE 24 AVE. at S DEPOT) - 2012 TEST RESULTS



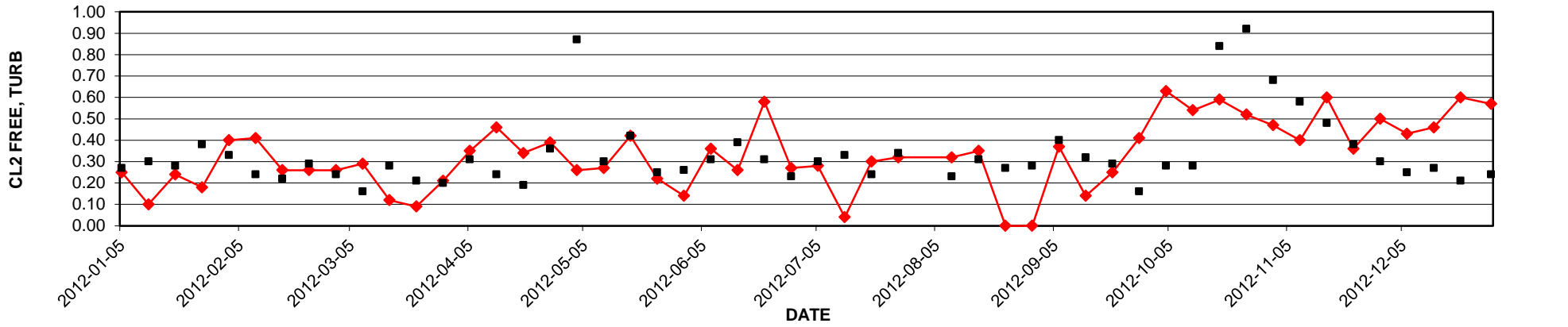
2012 GVRD Laboratory Report - DM941 (SE CORNER BELL ROAD and OLD McLELLAN ROAD)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
05-Jan	0.25	<1	<2	<1	7	0.27
12-Jan	0.10	<1	10	<1	6	0.30
19-Jan	0.24	<1	2	<1	5	0.28
26-Jan	0.18	<1	2	<1	7	0.38
02-Feb	0.40	<1	<2	<1	7	0.33
09-Feb	0.41	<1	4	<1	6	0.24
16-Feb	0.26	<1	<2	<1	6	0.22
23-Feb	0.26	<1	<2	<1	6	0.29
01-Mar	0.26	<1	<2	<1	6	0.24
08-Mar	0.29	<1	<2	<1	7	0.16
15-Mar	0.12	<1	2	<1	7	0.28
22-Mar	0.09	<1	<2	<1	6	0.21
29-Mar	0.21	<1	<2	<1	6	0.20
05-Apr	0.35	<1	<2	<1	8	0.31
12-Apr	0.46	<1	<2	<1	7	0.24
19-Apr	0.34	<1	<2	<1	8	0.19
26-Apr	0.39	<1	<2	<1	8	0.36
03-May	0.26	<1	<2	<1	10	0.87
10-May	0.27	<1	<2	<1	10	0.30
17-May	0.42	<1	<2	<1	11	0.42
24-May	0.22	<1	<2	<1	11	0.25
31-May	0.14	<1	68	<1	12	0.26
07-Jun	0.36	<1	<2	<1	11	0.31
14-Jun	0.26	<1	<2	<1	11	0.39
21-Jun	0.58	<1	<2	<1	12	0.31
28-Jun	0.27	<1	2	<1	14	0.23
05-Jul	0.28	<1	2	<1	13	0.30
12-Jul	0.04	<1	42	<1	14	0.33
19-Jul	0.30	<1	<2	<1	15	0.24
26-Jul	0.32	<1	<2	<1	12	0.34
09-Aug	0.32	<1	<2	<1	15	0.23
16-Aug	0.35	<1	4	<1	15	0.31
23-Aug	<0.01	<1	<2	<1	16	0.27
30-Aug	<0.01	<1	<2	<1	15	0.28
06-Sep	0.37	<1	LA	<1	16	0.40
13-Sep	0.14	<1	<2	<1	15	0.32
20-Sep	0.25	<1	460	<1	16	0.29
27-Sep	0.41	<1	<2	<1	16	0.16
04-Oct	0.63	<1	<2	<1	14	0.28
11-Oct	0.54	<1	<2	<1	12	0.28
18-Oct	0.59	<1	<2	<1	14	0.84
25-Oct	0.52	<1	<2	<1	7	0.92
01-Nov	0.47	<1	<2	<1	12	0.68
08-Nov	0.40	<1	<2	<1	12	0.58
15-Nov	0.60	<1	<2	<1	10	0.48
22-Nov	0.36	<1	<2	<1	8	0.38
29-Nov	0.50	<1	<2	<1	10	0.30
06-Dec	0.43	<1	<2	<1	10	0.25
13-Dec	0.46	<1	<2	<1	14	0.27
20-Dec	0.60	<1	<2	<1	8	0.21
28-Dec	0.57	<1	NA	<1	8	0.24

DM941 (SE CORNER BELL ROAD and OLD McLELLAN ROAD) - 2012 TEST RESULTS



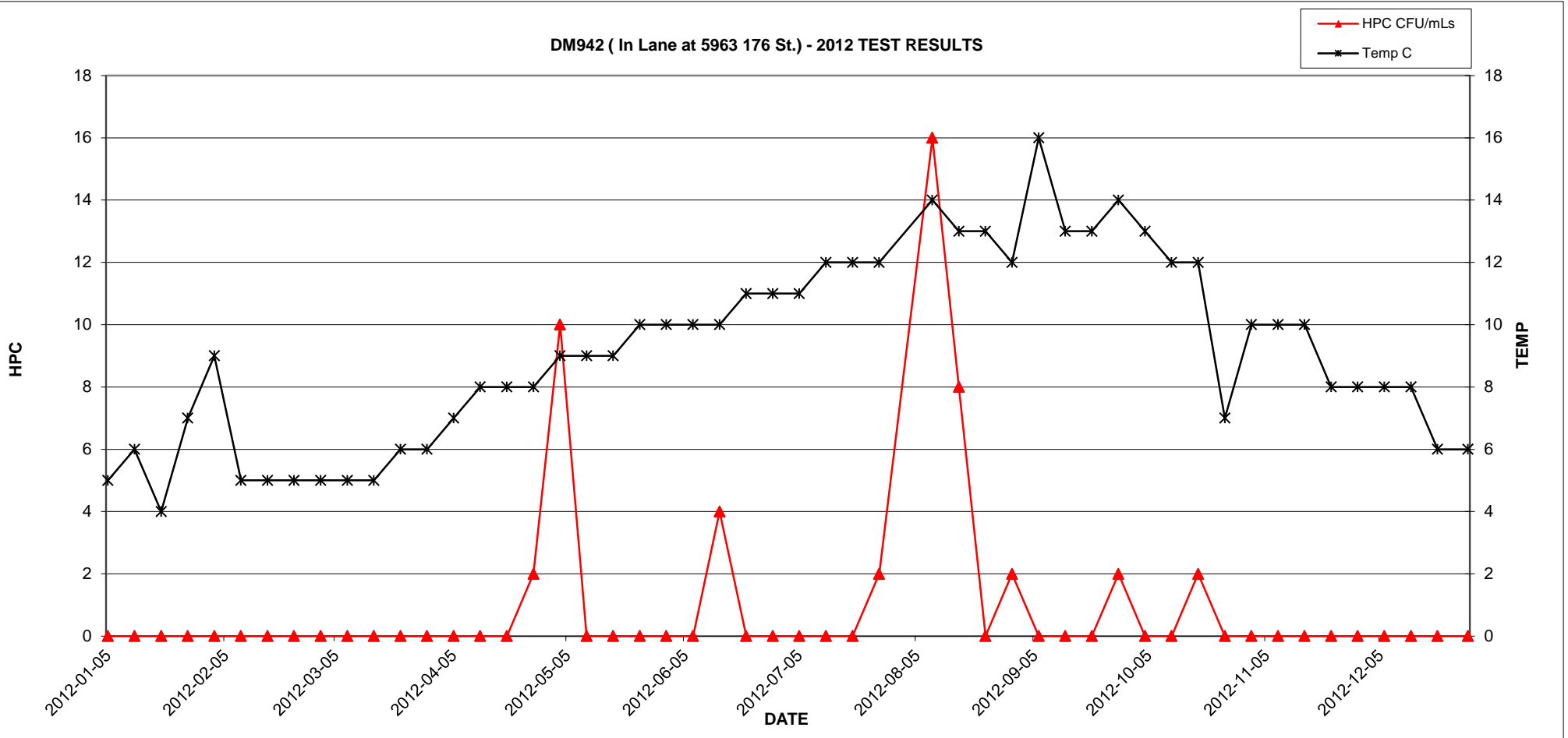
DM941 (SE CORNER BELL ROAD and OLD McLELLAN ROAD) - 2012 TEST RESULTS



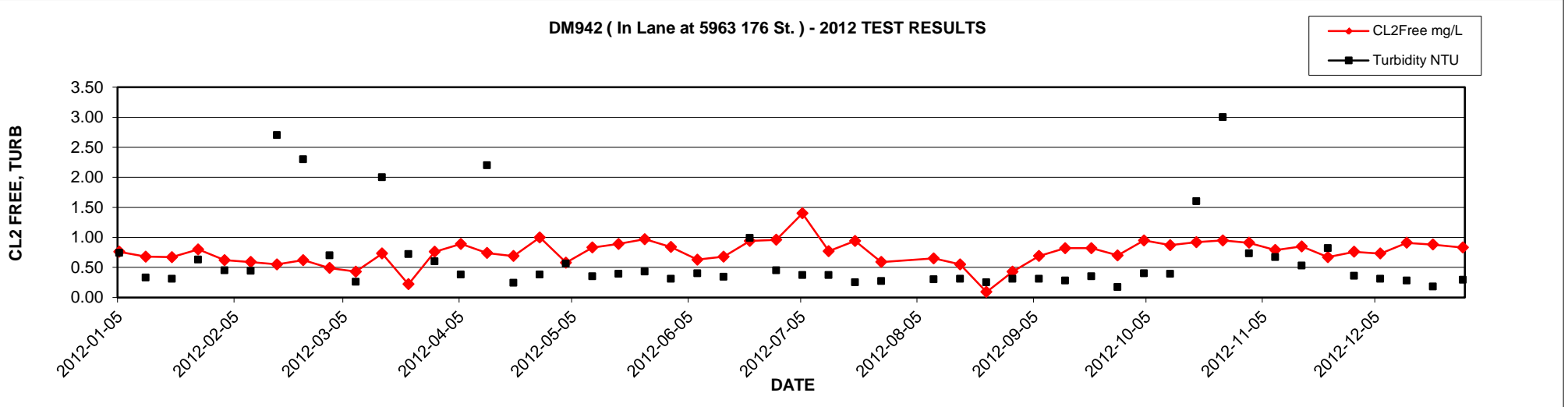
2012 GVRD Laboratory Report - DM942 (In Lane at 5963 176 St.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
05-Jan	0.76	<1	<2	<1	5	0.74
12-Jan	0.68	<1	<2	<1	6	0.33
19-Jan	0.67	<1	<2	<1	4	0.31
26-Jan	0.80	<1	<2	<1	7	0.63
02-Feb	0.62	<1	<2	<1	9	0.45
09-Feb	0.59	<1	<2	<1	5	0.44
16-Feb	0.55	<1	<2	<1	5	2.70
23-Feb	0.62	<1	<2	<1	5	2.30
01-Mar	0.49	<1	<2	<1	5	0.70
08-Mar	0.43	<1	<2	<1	5	0.26
15-Mar	0.73	<1	<2	<1	5	2.00
22-Mar	0.22	<1	<2	<1	6	0.72
29-Mar	0.76	<1	<2	<1	6	0.60
05-Apr	0.89	<1	<2	<1	7	0.38
12-Apr	0.74	<1	<2	<1	8	2.20
19-Apr	0.69	<1	<2	<1	8	0.24
26-Apr	1.00	<1	2	<1	8	0.38
03-May	0.58	<1	10	<1	9	0.56
10-May	0.83	<1	<2	<1	9	0.35
17-May	0.89	<1	<2	<1	9	0.39
24-May	0.97	<1	<2	<1	10	0.43
31-May	0.84	<1	<2	<1	10	0.31
07-Jun	0.63	<1	<2	<1	10	0.40
14-Jun	0.68	<1	4	<1	10	0.34
21-Jun	0.94	<1	<2	<1	11	0.99
28-Jun	0.96	<1	<2	<1	11	0.45
05-Jul	1.40	<1	<2	<1	11	0.37
12-Jul	0.77	<1	<2	<1	12	0.37
19-Jul	0.94	<1	<2	<1	12	0.25
26-Jul	0.59	<1	2	<1	12	0.27
09-Aug	0.65	<1	16	<1	14	0.30
16-Aug	0.55	<1	8	<1	13	0.31
23-Aug	0.09	<1	<2	<1	13	0.25
30-Aug	0.43	<1	2	<1	12	0.31
06-Sep	0.69	<1	LA	<1	16	0.31
13-Sep	0.82	<1	<2	<1	13	0.28
20-Sep	0.82	<1	<2	<1	13	0.35
27-Sep	0.70	<1	2	<1	14	0.17
04-Oct	0.95	<1	<2	<1	13	0.40
11-Oct	0.87	<1	<2	<1	12	0.39
18-Oct	0.92	<1	2	<1	12	1.60
25-Oct	0.95	<1	<2	<1	7	3.00
01-Nov	0.91	<1	<2	<1	10	0.73
08-Nov	0.79	<1	<2	<1	10	0.67
15-Nov	0.85	<1	<2	<1	10	0.53
22-Nov	0.67	<1	<2	<1	8	0.82
29-Nov	0.76	<1	<2	<1	8	0.36
06-Dec	0.73	<1	<2	<1	8	0.31
13-Dec	0.91	<1	<2	<1	8	0.28
20-Dec	0.88	<1	<2	<1	6	0.18
28-Dec	0.83	<1	NA	<1	6	0.29

DM942 (In Lane at 5963 176 St.) - 2012 TEST RESULTS



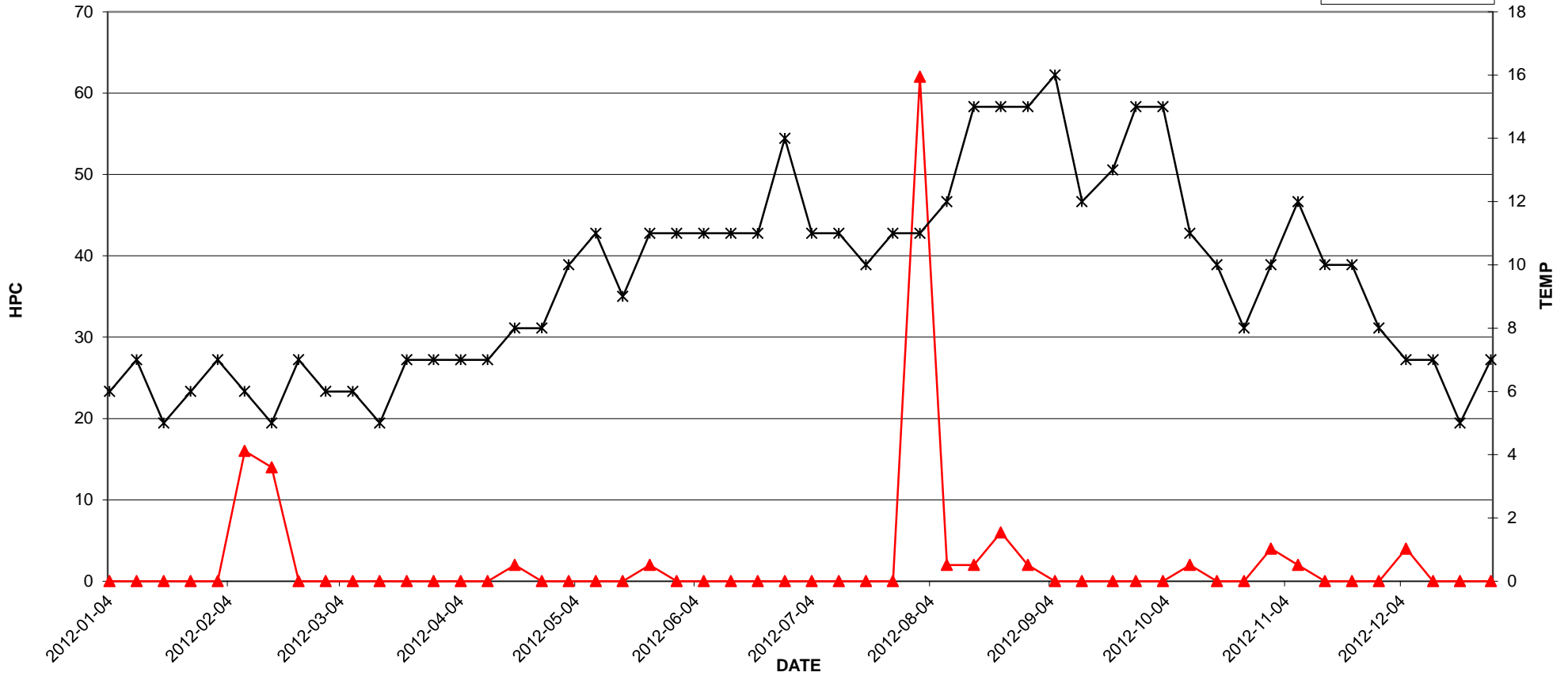
DM942 (In Lane at 5963 176 St.) - 2012 TEST RESULTS



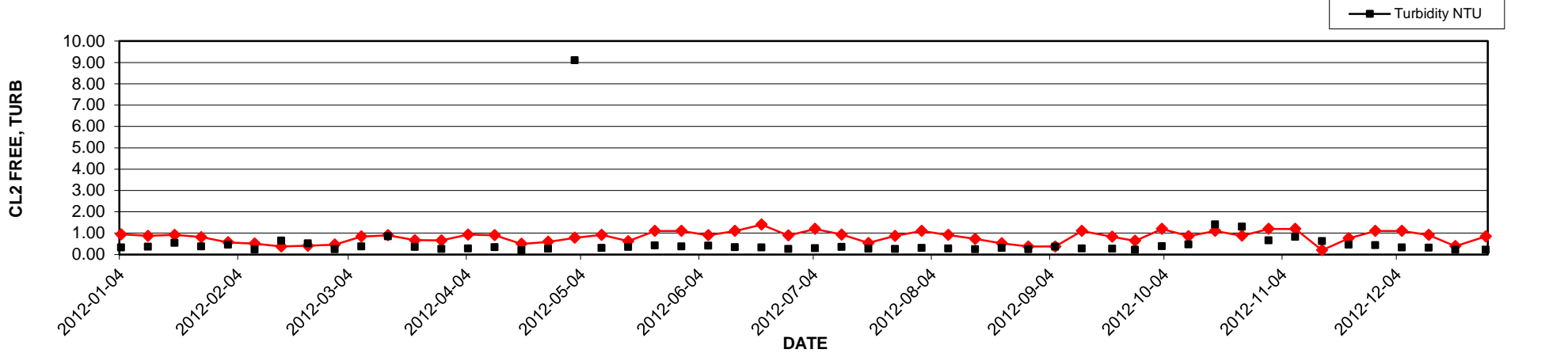
2012 GVRD Laboratory Report - DM943 (18412 54 AVE.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
04-Jan	0.94	<1	<2	<1	6	0.32
11-Jan	0.87	<1	<2	<1	7	0.36
18-Jan	0.92	<1	<2	<1	5	0.54
25-Jan	0.81	<1	<2	<1	6	0.37
01-Feb	0.57	<1	<2	<1	7	0.45
08-Feb	0.51	<1	16	<1	6	0.23
15-Feb	0.37	<1	14	<1	5	0.64
22-Feb	0.41	<1	<2	<1	7	0.51
29-Feb	0.46	<1	<2	<1	6	0.24
07-Mar	0.84	<1	<2	<1	6	0.37
14-Mar	0.90	<1	<2	<1	5	0.85
21-Mar	0.67	<1	<2	<1	7	0.34
28-Mar	0.66	<1	<2	<1	7	0.25
04-Apr	0.93	<1	<2	<1	7	0.28
11-Apr	0.90	<1	<2	<1	7	0.33
18-Apr	0.50	<1	2	<1	8	0.19
25-Apr	0.59	<1	<2	<1	8	0.26
02-May	0.78	<1	<2	<1	10	9.10
09-May	0.92	<1	<2	<1	11	0.30
16-May	0.62	<1	<2	<1	9	0.35
23-May	1.10	<1	2	<1	11	0.42
30-May	1.10	<1	<2	<1	11	0.37
06-Jun	0.90	<1	<2	<1	11	0.41
13-Jun	1.10	<1	<2	<1	11	0.33
20-Jun	1.40	<1	<2	<1	11	0.32
27-Jun	0.89	<1	<2	<1	14	0.25
04-Jul	1.20	<1	<2	<1	11	0.29
11-Jul	0.93	<1	<2	<1	11	0.35
18-Jul	0.54	<1	<2	<1	10	0.26
25-Jul	0.87	<1	<2	<1	11	0.25
01-Aug	1.10	<1	62	<1	11	0.30
08-Aug	0.91	<1	2	<1	12	0.28
15-Aug	0.73	<1	2	<1	15	0.24
22-Aug	0.52	<1	6	<1	15	0.30
29-Aug	0.37	<1	2	<1	15	0.24
05-Sep	0.37	<1	<2	<1	16	0.36
12-Sep	1.10	<1	<2	<1	12	0.27
20-Sep	0.83	<1	<2	<1	13	0.26
26-Sep	0.64	<1	<2	<1	15	0.21
03-Oct	1.20	<1	<2	<1	15	0.38
10-Oct	0.86	<1	2	<1	11	0.47
17-Oct	1.10	<1	<2	<1	10	1.40
24-Oct	0.88	<1	<2	<1	8	1.30
31-Oct	1.20	<1	4	<1	10	0.66
07-Nov	1.20	<1	2	<1	12	0.82
14-Nov	0.20	<1	<2	<1	10	0.62
21-Nov	0.76	<1	<2	<1	10	0.45
28-Nov	1.10	<1	<2	<1	8	0.43
05-Dec	1.10	<1	4	<1	7	0.32
12-Dec	0.91	<1	<2	<1	7	0.31
19-Dec	0.39	<1	<2	<1	5	0.22
27-Dec	0.85	<1	NA	<1	7	0.21

DM943 (18412 54 AVE.) - 2012 TEST RESULTS



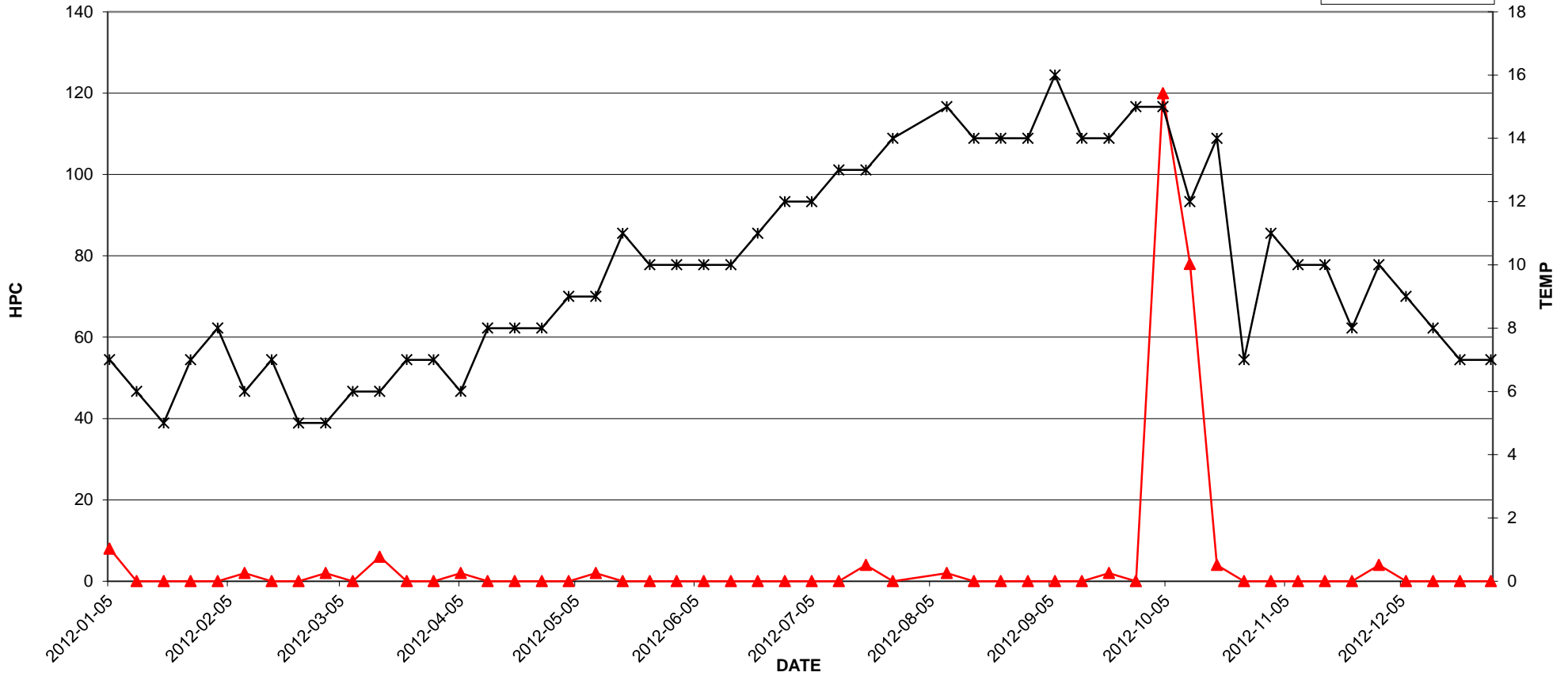
DM943 (18412 54 AVE.) - 2012 TEST RESULTS



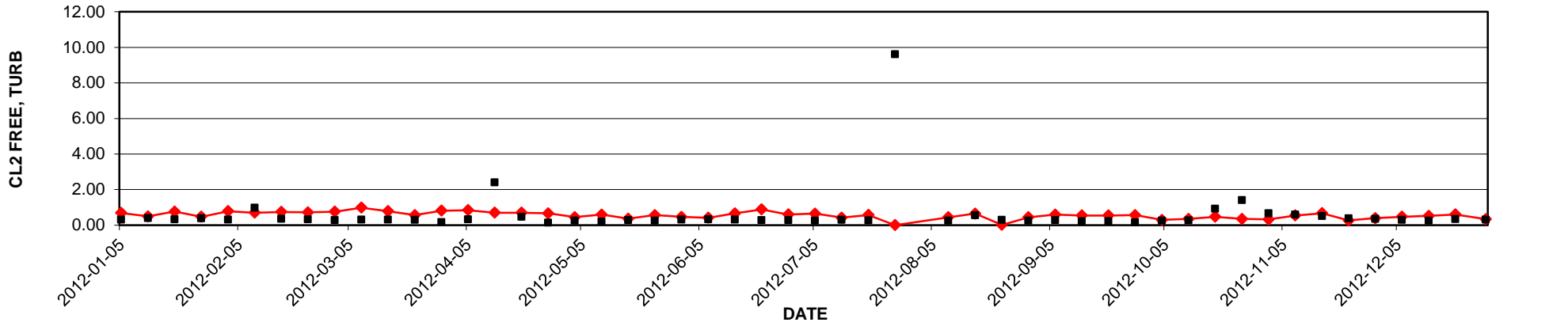
2012 GVRD Laboratory Report - DM944 (NE CORNER 60 AVE and 189 ST.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
05-Jan	0.68	<1	8	<1	7	0.30
12-Jan	0.49	<1	<2	<1	6	0.39
19-Jan	0.76	<1	<2	<1	5	0.32
26-Jan	0.47	<1	<2	<1	7	0.37
02-Feb	0.78	<1	<2	<1	8	0.30
09-Feb	0.70	<1	2	<1	6	0.97
16-Feb	0.74	<1	<2	<1	7	0.35
23-Feb	0.72	<1	<2	<1	5	0.31
01-Mar	0.75	<1	2	<1	5	0.27
08-Mar	0.98	<1	<2	<1	6	0.30
15-Mar	0.78	<1	6	<1	6	0.30
22-Mar	0.56	<1	<2	<1	7	0.28
29-Mar	0.81	<1	<2	<1	7	0.16
05-Apr	0.84	<1	2	<1	6	0.32
12-Apr	0.70	<1	<2	<1	8	2.40
19-Apr	0.70	<1	<2	<1	8	0.46
26-Apr	0.66	<1	<2	<1	8	0.13
03-May	0.45	<1	<2	<1	9	0.25
10-May	0.59	<1	2	<1	9	0.19
17-May	0.36	<1	<2	<1	11	0.27
24-May	0.56	<1	<2	<1	10	0.24
31-May	0.46	<1	<2	<1	10	0.30
07-Jun	0.41	<1	<2	<1	10	0.31
14-Jun	0.66	<1	<2	<1	10	0.30
21-Jun	0.88	<1	<2	<1	11	0.27
28-Jun	0.60	<1	<2	<1	12	0.27
05-Jul	0.65	<1	<2	<1	12	0.25
12-Jul	0.42	<1	<2	<1	13	0.28
19-Jul	0.57	<1	4	<1	13	0.26
26-Jul	<0.01	<1	<2	<1	14	9.60
09-Aug	0.44	<1	2	<1	15	0.24
16-Aug	0.65	<1	<2	<1	14	0.54
23-Aug	0.01	<1	<2	<1	14	0.29
30-Aug	0.44	<1	<2	<1	14	0.25
06-Sep	0.59	<1	<2	<1	16	0.27
13-Sep	0.54	<1	<2	<1	14	0.22
20-Sep	0.54	<1	2	<1	14	0.21
27-Sep	0.56	<1	<2	<1	15	0.14
04-Oct	0.29	<1	120	<1	15	0.25
11-Oct	0.35	<1	78	<1	12	0.26
18-Oct	0.47	<1	4	<1	14	0.92
25-Oct	0.35	<1	<2	<1	7	1.40
01-Nov	0.32	<1	<2	<1	11	0.66
08-Nov	0.54	<1	<2	<1	10	0.58
15-Nov	0.67	<1	<2	<1	10	0.50
22-Nov	0.26	<1	<2	<1	8	0.37
29-Nov	0.39	<1	4	<1	10	0.34
06-Dec	0.47	<1	<2	<1	9	0.29
13-Dec	0.52	<1	<2	<1	8	0.24
20-Dec	0.60	<1	<2	<1	7	0.33
28-Dec	0.33	<1	NA	<1	7	0.30

DM944 (NE CORNER 60 AVE and 189 ST.) - 2012 TEST RESULTS



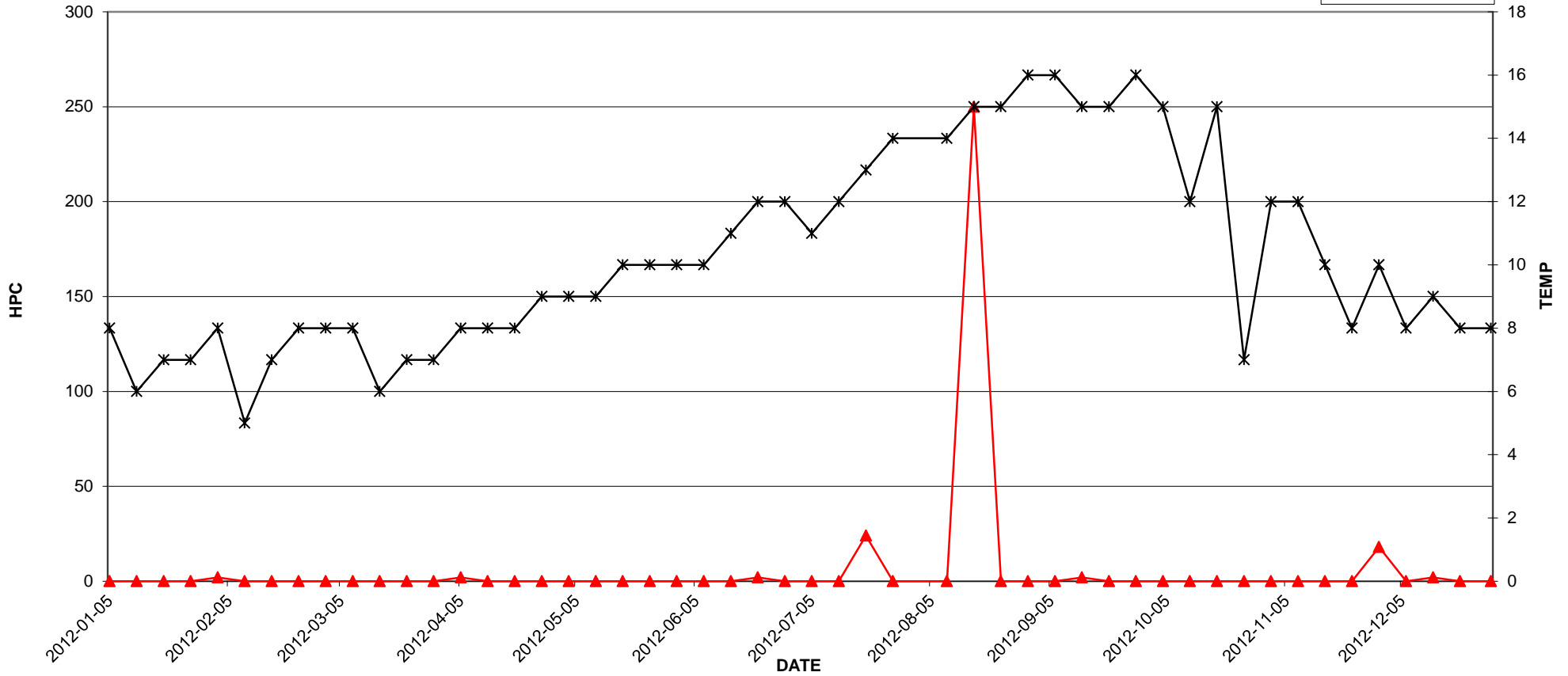
DM944 (NE CORNER 60 AVE and 189 ST.) - 2012 TEST RESULTS



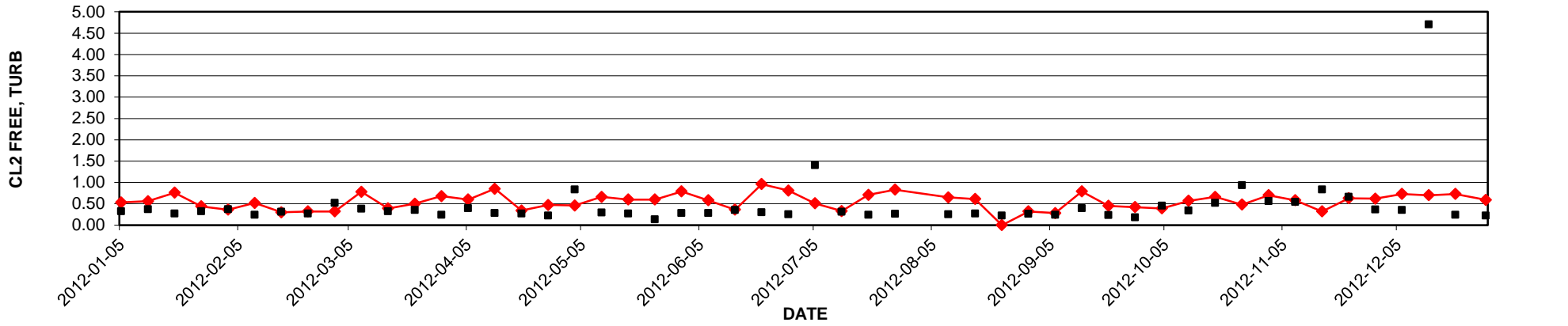
2012 GVRD Laboratory Report - DM945 (PRODUCTION BLVD. and 55 AVE)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
05-Jan	0.53	<1	<2	<1	8	0.32
12-Jan	0.56	<1	<2	<1	6	0.37
19-Jan	0.76	<1	<2	<1	7	0.27
26-Jan	0.44	<1	<2	<1	7	0.32
02-Feb	0.36	<1	2	<1	8	0.37
09-Feb	0.52	<1	<2	<1	5	0.24
16-Feb	0.30	<1	<2	<1	7	0.31
23-Feb	0.32	<1	<2	<1	8	0.27
01-Mar	0.32	<1	<2	<1	8	0.52
08-Mar	0.78	<1	<2	<1	8	0.38
15-Mar	0.39	<1	<2	<1	6	0.32
22-Mar	0.50	<1	<2	<1	7	0.35
29-Mar	0.68	<1	<2	<1	7	0.24
05-Apr	0.60	<1	2	<1	8	0.39
12-Apr	0.85	<1	<2	<1	8	0.28
19-Apr	0.34	<1	<2	<1	8	0.27
26-Apr	0.47	<1	<2	<1	9	0.22
03-May	0.46	<1	<2	<1	9	0.83
10-May	0.66	<1	<2	<1	9	0.29
17-May	0.60	<1	<2	<1	10	0.27
24-May	0.60	<1	<2	<1	10	0.13
31-May	0.79	<1	<2	<1	10	0.28
07-Jun	0.58	<1	<2	<1	10	0.28
14-Jun	0.36	<1	<2	<1	11	0.35
21-Jun	0.96	<1	2	<1	12	0.30
28-Jun	0.81	<1	<2	<1	12	0.25
05-Jul	0.51	<1	<2	<1	11	1.40
12-Jul	0.33	<1	<2	<1	12	0.31
19-Jul	0.71	<1	24	<1	13	0.24
26-Jul	0.83	<1	<2	<1	14	0.26
09-Aug	0.65	<1	<2	<1	14	0.25
16-Aug	0.61	<1	250	<1	15	0.27
23-Aug	<0.01	<1	<2	<1	15	0.22
30-Aug	0.32	<1	<2	<1	16	0.26
06-Sep	0.28	<1	<2	<1	16	0.24
13-Sep	0.79	<1	2	<1	15	0.39
20-Sep	0.45	<1	<2	<1	15	0.23
27-Sep	0.42	<1	<2	<1	16	0.18
04-Oct	0.39	<1	<2	<1	15	0.45
11-Oct	0.57	<1	<2	<1	12	0.34
18-Oct	0.66	<1	<2	<1	15	0.52
25-Oct	0.48	<1	<2	<1	7	0.93
01-Nov	0.70	<1	<2	<1	12	0.56
08-Nov	0.58	<1	<2	<1	12	0.54
15-Nov	0.32	<1	<2	<1	10	0.83
22-Nov	0.63	<1	<2	<1	8	0.66
29-Nov	0.62	<1	18	<1	10	0.36
06-Dec	0.73	<1	<2	<1	8	0.35
13-Dec	0.70	<1	2	<1	9	4.70
20-Dec	0.73	<1	<2	<1	8	0.24
28-Dec	0.59	<1	NA	<1	8	0.22

DM945 (PRODUCTION BLVD. and 55 AVE) - 2012 TEST RESULTS



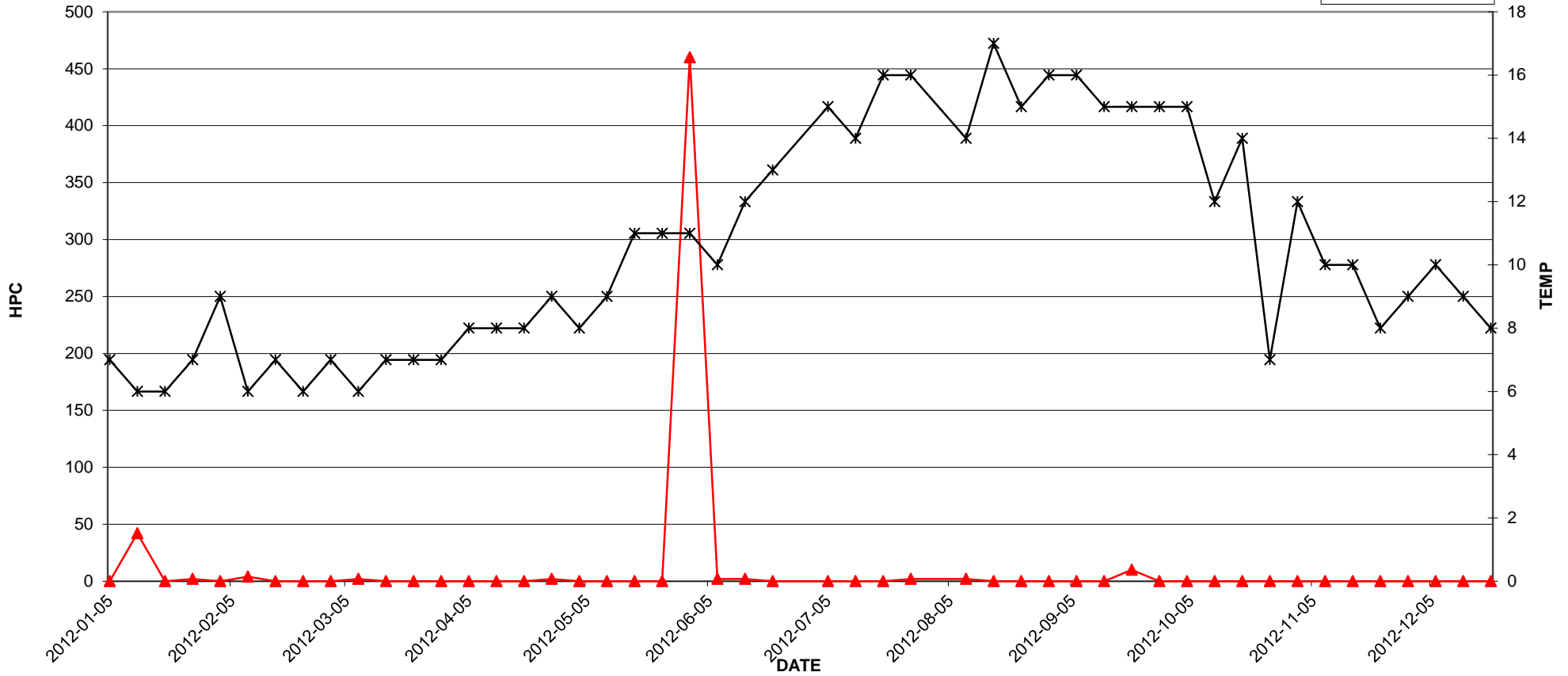
DM945 (PRODUCTION BLVD. and 55 AVE) - 2012 TEST RESULTS



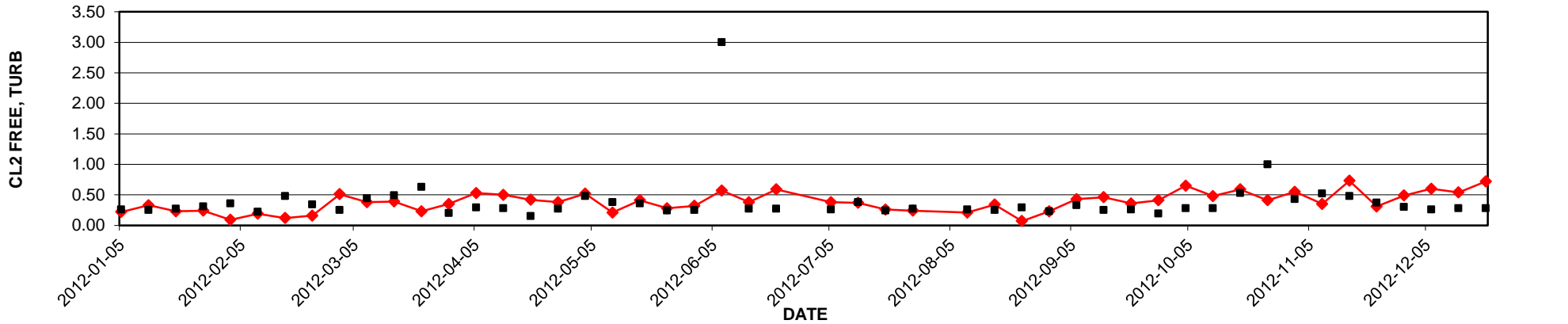
2012 GVRD Laboratory Report - DM946 (SE CORNER 195B ST and 63A AVE)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
05-Jan	0.22	<1	<2	<1	7	0.26
12-Jan	0.33	<1	42	<1	6	0.25
19-Jan	0.23	<1	<2	<1	6	0.27
26-Jan	0.24	<1	2	<1	7	0.31
02-Feb	0.09	<1	<2	<1	9	0.36
09-Feb	0.19	<1	4	<1	6	0.22
16-Feb	0.12	<1	<2	<1	7	0.48
23-Feb	0.16	<1	<2	<1	6	0.34
01-Mar	0.51	<1	<2	<1	7	0.25
08-Mar	0.38	<1	2	<1	6	0.44
15-Mar	0.39	<1	<2	<1	7	0.49
22-Mar	0.23	<1	<2	<1	7	0.63
29-Mar	0.35	<1	<2	<1	7	0.20
05-Apr	0.53	<1	<2	<1	8	0.29
12-Apr	0.50	<1	<2	<1	8	0.28
19-Apr	0.42	<1	<2	<1	8	0.15
26-Apr	0.38	<1	2	<1	9	0.27
03-May	0.52	<1	<2	<1	8	0.48
10-May	0.21	<1	<2	<1	9	0.38
17-May	0.41	<1	<2	<1	11	0.36
24-May	0.28	<1	<2	<1	11	0.24
31-May	0.32	<1	460	<1	11	0.25
07-Jun	0.57	<1	2	<1	10	3.00
14-Jun	0.38	<1	2	<1	12	0.27
21-Jun	0.59	<1	<2	<1	13	0.27
05-Jul	0.38	<1	<2	<1	15	0.26
12-Jul	0.37	<1	<2	<1	14	0.38
19-Jul	0.26	<1	<2	<1	16	0.24
26-Jul	0.24	<1	2	<1	16	0.27
09-Aug	0.21	<1	2	<1	14	0.26
16-Aug	0.34	<1	<2	<1	17	0.25
23-Aug	0.07	<1	<2	<1	15	0.29
30-Aug	0.23	<1	<2	<1	16	0.23
06-Sep	0.43	<1	<2	<1	16	0.33
13-Sep	0.46	<1	<2	<1	15	0.25
20-Sep	0.36	<1	10	<1	15	0.26
27-Sep	0.41	<1	<2	<1	15	0.19
04-Oct	0.65	<1	<2	<1	15	0.28
11-Oct	0.48	<1	<2	<1	12	0.28
18-Oct	0.59	<1	<2	<1	14	0.53
25-Oct	0.41	<1	<2	<1	7	1.00
01-Nov	0.55	<1	<2	<1	12	0.43
08-Nov	0.35	<1	<2	<1	10	0.52
15-Nov	0.73	<1	<2	<1	10	0.48
22-Nov	0.31	<1	<2	<1	8	0.37
29-Nov	0.49	<1	<2	<1	9	0.30
06-Dec	0.60	<1	<2	<1	10	0.26
13-Dec	0.54	<1	<2	<1	9	0.28
20-Dec	0.72	<1	<2	<1	8	0.28

DM946 (SE CORNER 195B ST and 63A AVE) - 2012 TEST RESULTS



DM946 (SE CORNER 195B ST and 63A AVE) - 2012 TEST RESULTS

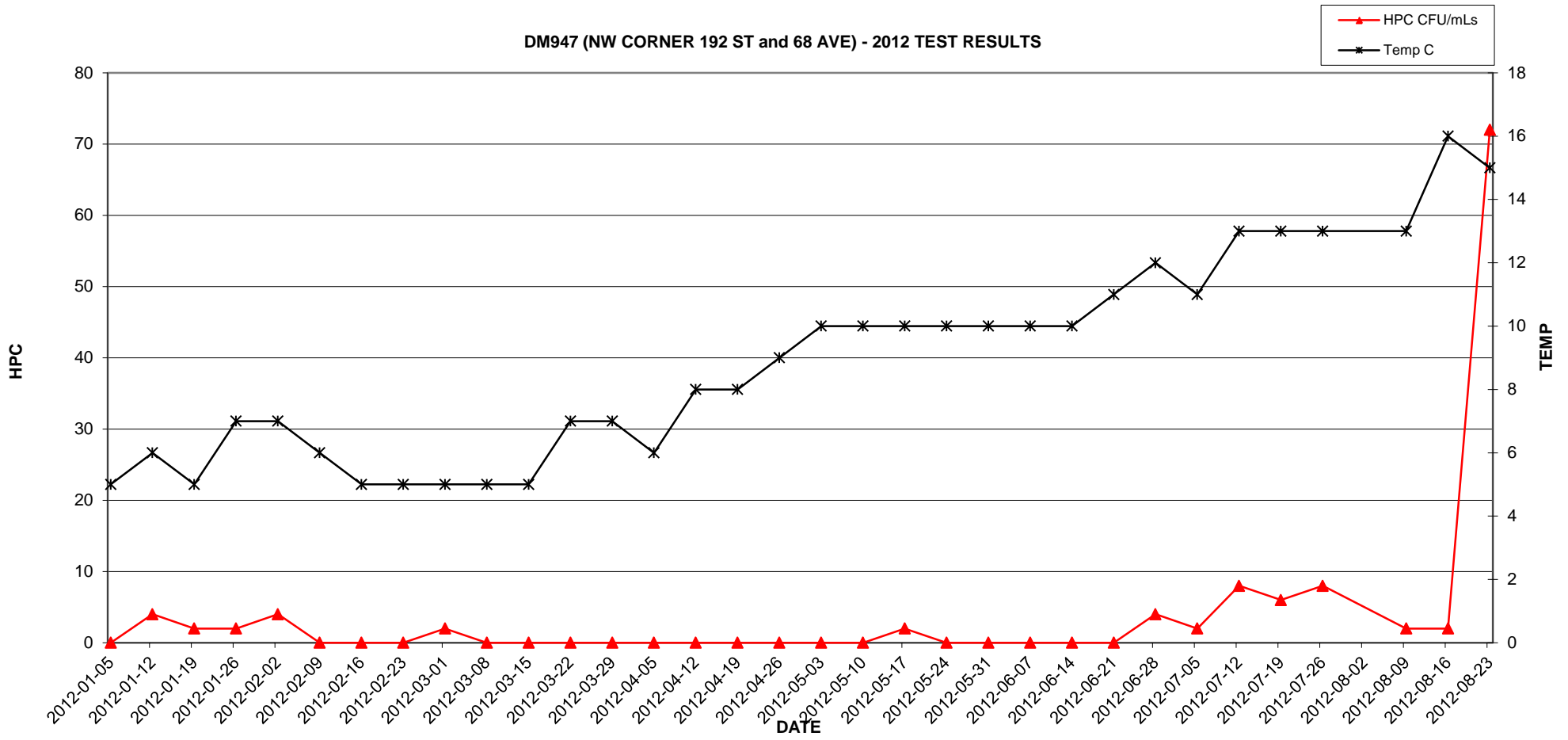


2012 GVRD Laboratory Report - DM947 (NW CORNER 192 ST and 68 AVE)

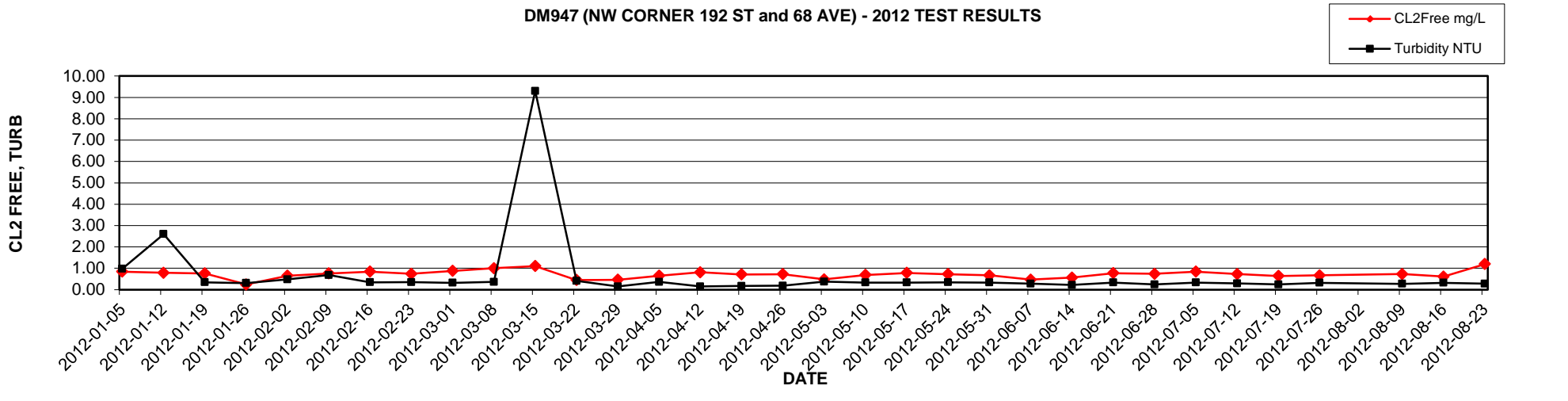
Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
05-Jan	0.84	<1	<2	<1	5	0.98
12-Jan	0.79	<1	4	<1	6	2.60
19-Jan	0.76	<1	2	<1	5	0.34
26-Jan	0.24	<1	2	<1	7	0.31
02-Feb	0.65	<1	4	<1	7	0.48
09-Feb	0.76	<1	<2	<1	6	0.68
16-Feb	0.84	<1	<2	<1	5	0.34
23-Feb	0.74	<1	<2	<1	5	0.35
01-Mar	0.88	<1	2	<1	5	0.32
08-Mar	1.00	<1	<2	<1	5	0.36
15-Mar	1.10	<1	<2	<1	5	9.30
22-Mar	0.45	<1	<2	<1	7	0.41
29-Mar	0.46	<1	<2	<1	7	0.15
05-Apr	0.65	<1	<2	<1	6	0.36
12-Apr	0.81	<1	<2	<1	8	0.15
19-Apr	0.71	<1	<2	<1	8	0.17
26-Apr	0.72	<1	<2	<1	9	0.18
03-May	0.48	<1	<2	<1	10	0.37
10-May	0.69	<1	<2	<1	10	0.33
17-May	0.78	<1	2	<1	10	0.33
24-May	0.72	<1	<2	<1	10	0.34
31-May	0.67	<1	<2	<1	10	0.33
07-Jun	0.47	<1	<2	<1	10	0.28
14-Jun	0.56	<1	<2	<1	10	0.22
21-Jun	0.77	<1	<2	<1	11	0.33
28-Jun	0.74	<1	4	<1	12	0.24
05-Jul	0.84	<1	2	<1	11	0.33
12-Jul	0.73	<1	8	<1	13	0.29
19-Jul	0.64	<1	6	<1	13	0.24
26-Jul	0.67	<1	8	<1	13	0.32
09-Aug	0.73	<1	2	<1	13	0.27
16-Aug	0.61	<1	2	<1	16	0.32
23-Aug*	1.20	<1	72	<1	15	0.28

* This sampling station was inaccessible for the remainder of 2012 due to construction work in the area.

DM947 (NW CORNER 192 ST and 68 AVE) - 2012 TEST RESULTS



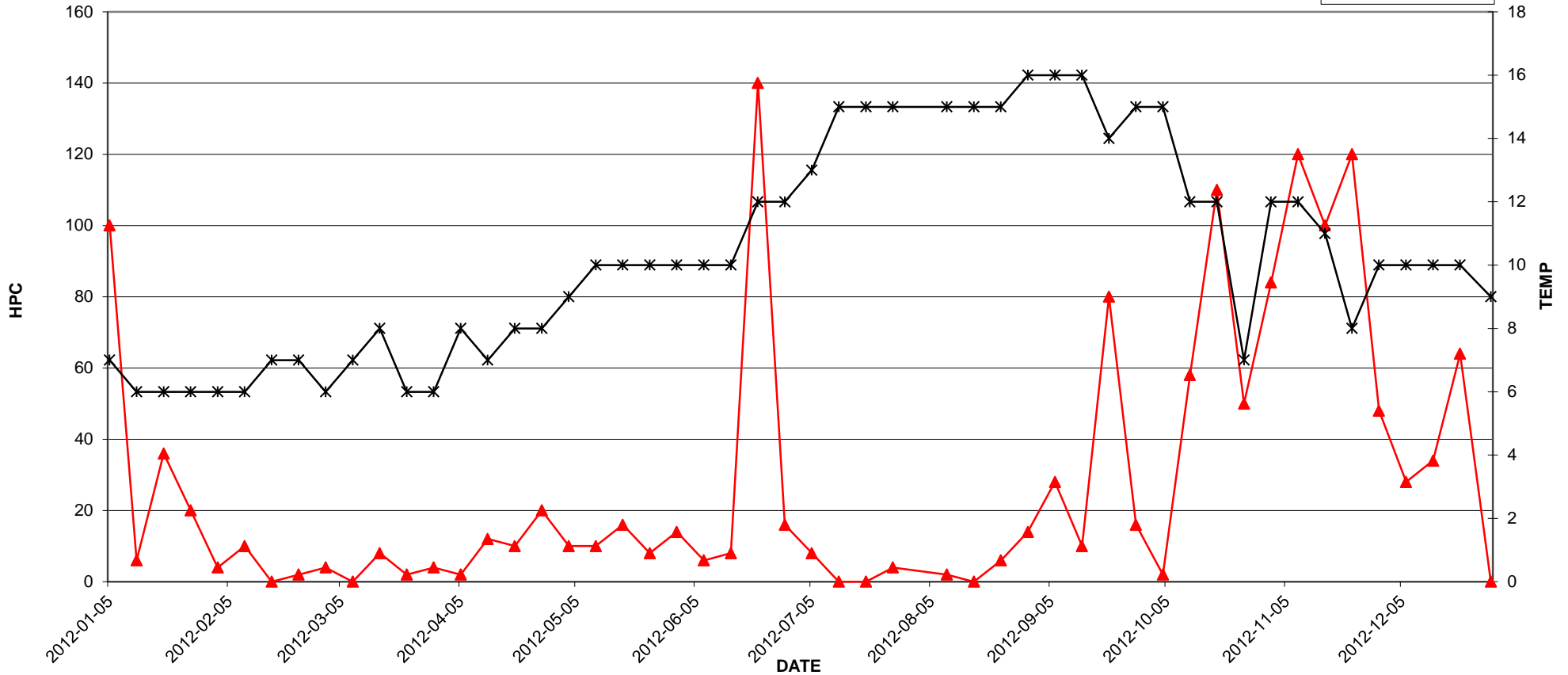
DM947 (NW CORNER 192 ST and 68 AVE) - 2012 TEST RESULTS



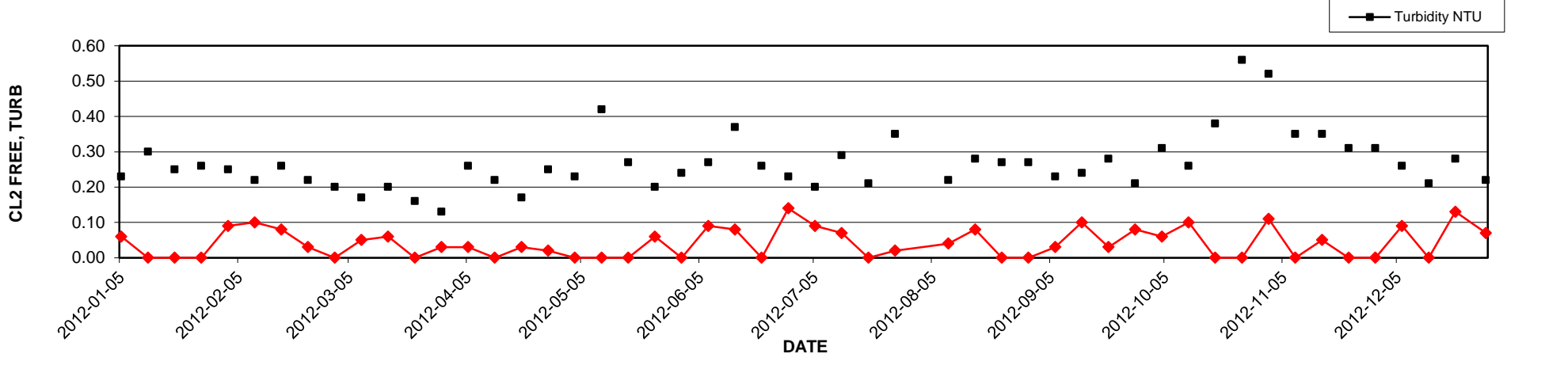
2012 GVRD Laboratory Report - DM948 (NW CORNER 66 AVE and 172 ST)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
05-Jan	0.06	<1	100	<1	7	0.23
12-Jan	<0.01	<1	6	<1	6	0.30
19-Jan	<0.01	<1	36	<1	6	0.25
26-Jan	<0.01	<1	20	<1	6	0.26
02-Feb	0.09	<1	4	<1	6	0.25
09-Feb	0.10	<1	10	<1	6	0.22
16-Feb	0.08	<1	<2	<1	7	0.26
23-Feb	0.03	<1	2	<1	7	0.22
01-Mar	<0.01	<1	4	<1	6	0.20
08-Mar	0.05	<1	<2	<1	7	0.17
15-Mar	0.06	<1	8	<1	8	0.20
22-Mar	<0.01	<1	2	<1	6	0.16
29-Mar	0.03	<1	4	<1	6	0.13
05-Apr	0.03	<1	2	<1	8	0.26
12-Apr	<0.01	<1	12	<1	7	0.22
19-Apr	0.03	<1	10	<1	8	0.17
26-Apr	0.02	<1	20	<1	8	0.25
03-May	<0.01	<1	10	<1	9	0.23
10-May	<0.01	<1	10	<1	10	0.42
17-May	<0.01	<1	16	<1	10	0.27
24-May	0.06	<1	8	<1	10	0.20
31-May	<0.01	<1	14	<1	10	0.24
07-Jun	0.09	<1	6	<1	10	0.27
14-Jun	0.08	<1	8	<1	10	0.37
21-Jun	<0.01	<1	140	<1	12	0.26
28-Jun	0.14	<1	16	<1	12	0.23
05-Jul	0.09	<1	8	<1	13	0.20
12-Jul	0.07	<1	<2	<1	15	0.29
19-Jul	<0.01	<1	<2	<1	15	0.21
26-Jul	0.02	<1	4	<1	15	0.35
09-Aug	0.04	<1	2	<1	15	0.22
16-Aug	0.08	<1	<2	<1	15	0.28
23-Aug	<0.01	<1	6	<1	15	0.27
30-Aug	<0.01	<1	14	<1	16	0.27
06-Sep	0.03	<1	28	<1	16	0.23
13-Sep	0.10	<1	10	<1	16	0.24
20-Sep	0.03	<1	80	<1	14	0.28
27-Sep	0.08	<1	16	<1	15	0.21
04-Oct	0.06	<1	2	<1	15	0.31
11-Oct	0.10	<1	58	<1	12	0.26
18-Oct	<0.01	<1	110	<1	12	0.38
25-Oct	<0.01	<1	50	<1	7	0.56
01-Nov	0.11	<1	84	<1	12	0.52
08-Nov	<0.01	<1	120	<1	12	0.35
15-Nov	0.05	<1	100	<1	11	0.35
22-Nov	<0.01	<1	120	<1	8	0.31
29-Nov	<0.01	<1	48	<1	10	0.31
06-Dec	0.09	<1	28	<1	10	0.26
13-Dec	<0.01	<1	34	<1	10	0.21
20-Dec	0.13	<1	64	<1	10	0.28
28-Dec	0.07	<1	NA	<1	9	0.22

DM948 (NW CORNER 66 AVE and 172 ST) - 2012 TEST RESULTS

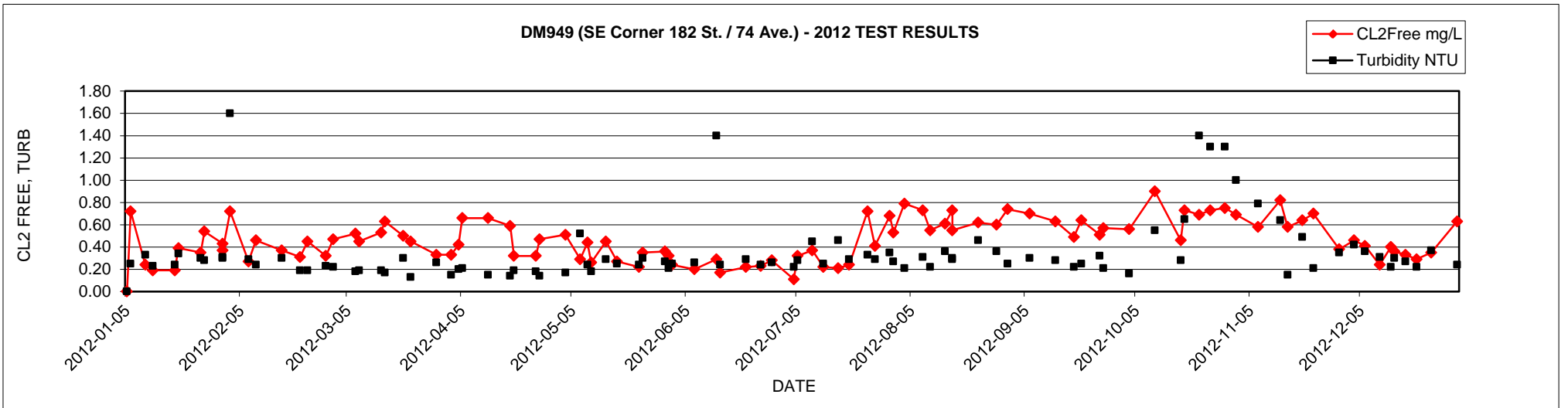
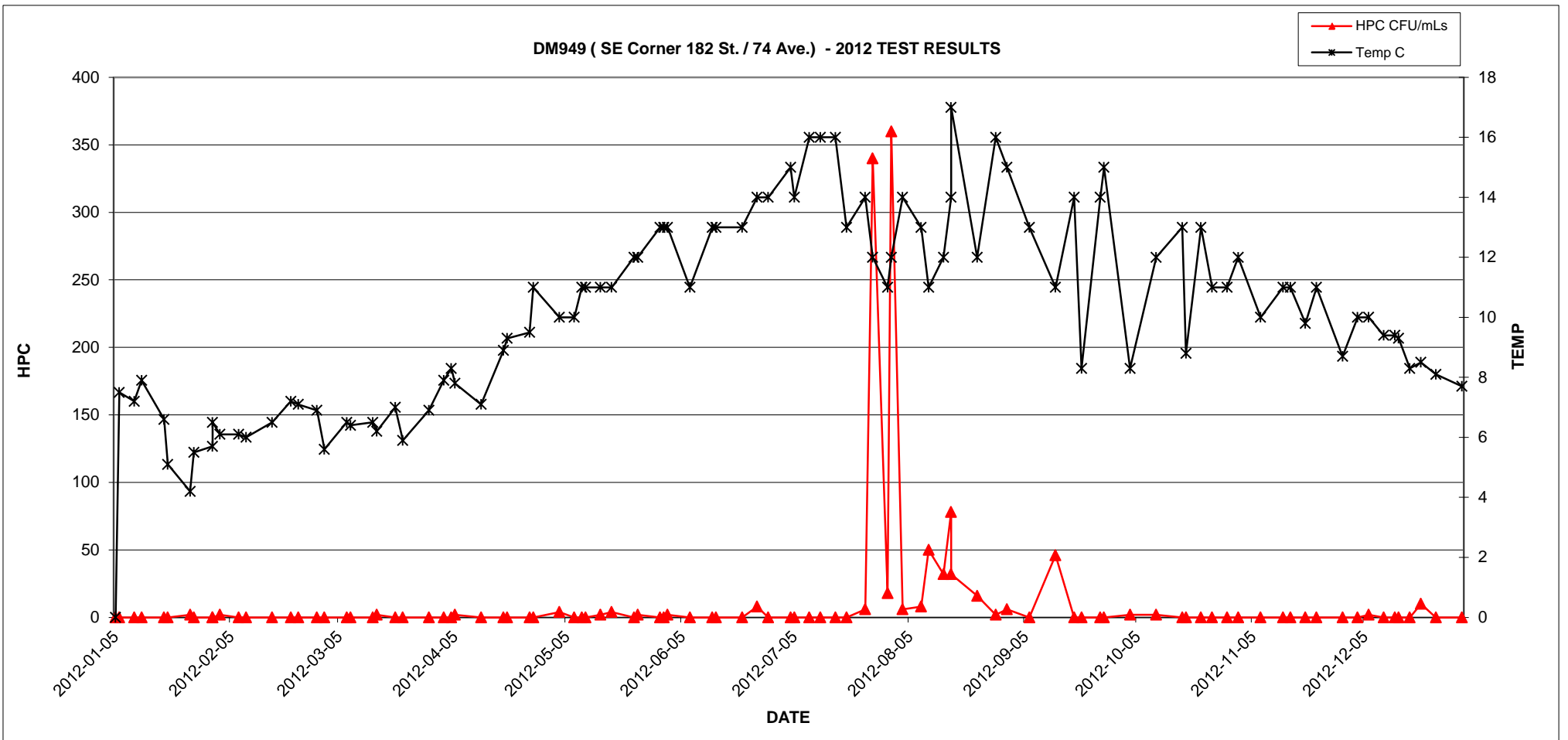


DM948 (NW CORNER 66 AVE and 172 ST) - 2012 TEST RESULTS



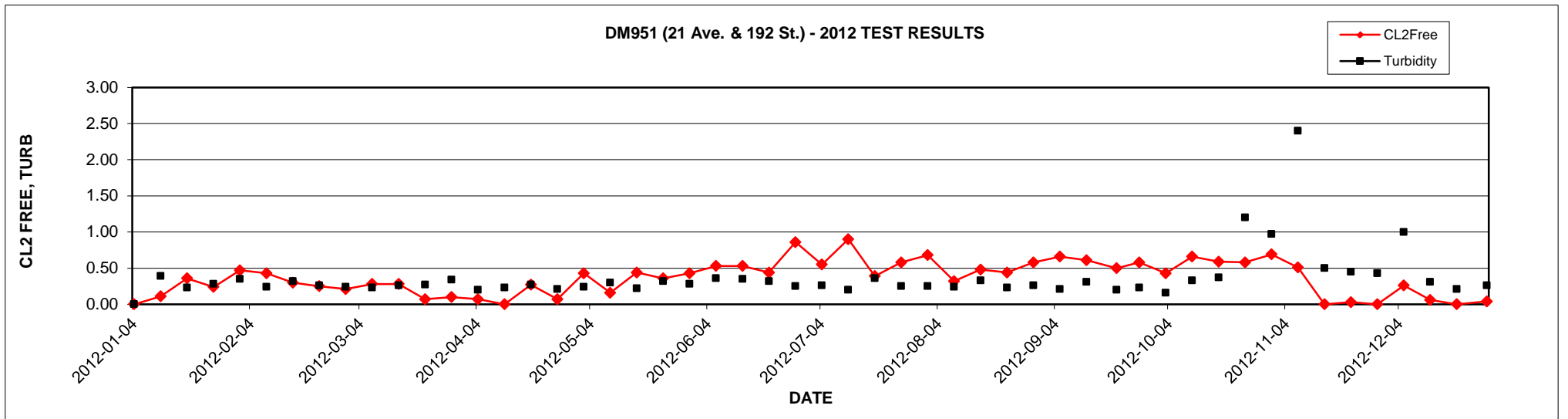
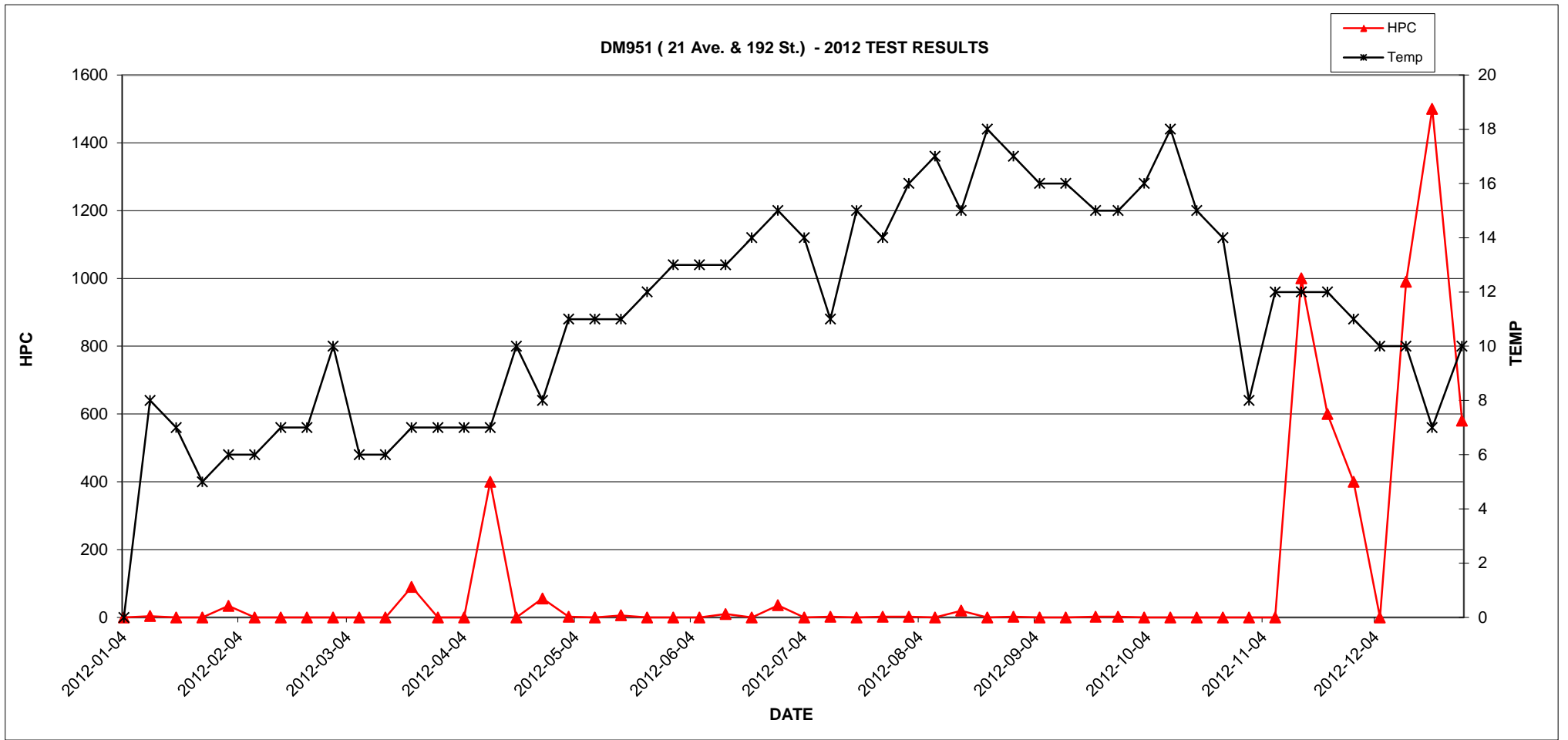
2012 GVRD Laboratory Report - DM949 (SE Corner 182 St. / 74 Ave.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
05-Jan	0.72	<1	<2	<1	7.5	0.25
06-Jan	0.24	<1	<2	<1	7.2	0.33
10-Jan	0.19	<1	<2	<1	7.9	0.23
12-Jan	0.19	<1	<2	<1	6.6	0.24
18-Jan	0.39	<1	<2	<1	5.1	0.34
19-Jan	0.35	<1	2	<1	4.2	0.30
25-Jan	0.54	<1	<2	<1	5.5	0.28
26-Jan	0.43	<1	<2	<1	5.7	0.30
31-Jan	0.37	<1	<2	<1	6.5	0.31
31-Jan	0.72	<1	2	<1	6.1	1.60
02-Feb	0.27	<1	<2	<1	6.1	0.29
07-Feb	0.46	<1	<2	<1	6	0.24
09-Feb	0.37	<1	<2	<1	6.5	0.30
16-Feb	0.31	<1	<2	<1	7.2	0.19
21-Feb	0.45	<1	<2	<1	7.1	0.19
23-Feb	0.32	<1	<2	<1	6.9	0.23
28-Feb	0.52	<1	<2	<1	6.5	0.18
07-Mar	0.47	<1	<2	<1	5.6	0.22
01-Mar	0.45	<1	<2	<1	6.4	0.19
08-Mar	0.53	<1	<2	<1	6.5	0.19
14-Mar	0.63	<1	2	<1	6.2	0.17
15-Mar	0.50	<1	<2	<1	7	0.30
20-Mar	0.45	<1	<2	<1	5.9	0.13
22-Mar	0.33	<1	<2	<1	6.9	0.26
29-Mar	0.33	<1	<2	<1	7.9	0.15
02-Apr	0.42	<1	<2	<1	8.3	0.20
04-Apr	0.66	<1	2	<1	7.8	0.21
05-Apr	0.66	<1	<2	<1	7.1	0.15
12-Apr	0.59	<1	<2	<1	8.9	0.14
18-Apr	0.32	<1	<2	<1	9.3	0.19
19-Apr	0.32	<1	<2	<1	9.5	0.18
25-Apr	0.47	<1	<2	<1	11	0.14
26-Apr	0.51	<1	4	<1	10	0.17
03-May	0.29	<1	<2	<1	10	0.52
07-May	0.44	<1	<2	<1	11	0.24
09-May	0.26	<1	<2	<1	11	0.18
10-May	0.45	<1	2	<1	11	0.29
14-May	0.27	<1	4	<1	11	0.25
17-May	0.22	<1	<2	<1	12	0.24
23-May	0.35	<1	2	<1	12	0.30
24-May	0.36	<1	<2	<1	13	0.27
30-May	0.32	<1	<2	<1	13	0.21
31-May	0.24	<1	2	<1	13	0.25
01-Jun	0.20	<1	<2	<1	11	0.26
07-Jun	0.29	<1	<2	<1	13	1.40
13-Jun	0.17	<1	<2	<1	13	0.24
14-Jun	0.22	<1	<2	<1	13	0.29
21-Jun	0.23	<1	8	<1	14	0.24
25-Jun	0.28	<1	<2	<1	14	0.26
28-Jun	0.11	<1	<2	<1	15	0.22
04-Jul	0.32	<1	<2	<1	14	0.28
05-Jul	0.37	<1	<2	<1	16	0.45
09-Jul	0.22	<1	<2	<1	16	0.25
12-Jul	0.21	<1	<2	<1	16	0.46
16-Jul	0.24	<1	<2	<1	13	0.29
19-Jul	0.72	<1	6	<1	14	0.33
24-Jul	0.41	<1	340	<1	12	0.29
26-Jul	0.68	<1	18	<1	11	0.35
30-Jul	0.53	<1	360	<1	12	0.27
31-Jul	0.79	<1	6	<1	14	0.21
03-Aug	0.73	<1	8	<1	13	0.31
08-Aug	0.55	<1	50	<1	11	0.22
10-Aug	0.61	<1	32	<1	12	0.36
14-Aug	0.73	<1	78	<1	14	0.30
16-Aug	0.55	<1	32	<1	17	0.29
16-Aug	0.62	<1	16	<1	12	0.46
23-Aug	0.60	<1	2	<1	16	0.36
28-Aug	0.74	<1	6	<1	15	0.25
31-Aug	0.70	<1	<2	<1	13	0.30
06-Sep	0.63	<1	46	<1	11	0.28
13-Sep	0.49	<1	<2	<1	14	0.22
18-Sep	0.64	<1	<2	<1	8.3	0.25
20-Sep	0.51	<1	<2	<1	14	0.32
25-Sep	0.57	<1	<2	<1	15	0.21
26-Sep	0.56	<1	2	<1	8.3	0.16
03-Oct	0.90	<1	2	<1	12	0.55
10-Oct	0.46	<1	<2	<1	13	0.28
17-Oct	0.73	<1	<2	<1	8.8	0.65
18-Oct	0.69	<1	<2	<1	13	1.40
22-Oct	0.73	<1	<2	<1	11	1.30
25-Oct	0.75	<1	<2	<1	11	1.30
29-Oct	0.69	<1	<2	<1	12	1.00
01-Nov	0.58	<1	<2	<1	10	0.79
07-Nov	0.82	<1	<2	<1	11	0.64
13-Nov	0.58	<1	<2	<1	11	0.15
15-Nov	0.64	<1	<2	<1	9.8	0.49
19-Nov	0.70	<1	<2	<1	11	0.21
22-Nov	0.46	<1	<2	<1	10	0.42
03-Dec	0.38	<1	<2	<1	8.7	0.35
29-Nov	0.41	<1	2	<1	10	0.36
06-Dec	0.24	<1	<2	<1	9.4	0.31
10-Dec	0.40	<1	<2	<1	9.4	0.22
13-Dec	0.36	<1	<2	<1	9.3	0.30
14-Dec	0.33	<1	<2	<1	8.3	0.27
17-Dec	0.29	<1	10	<1	8.5	0.22
20-Dec	0.35	<1	<2	<1	8.1	0.37
24-Dec	0.63	<1	NA	<1	7.7	0.24
31-Dec	0.51	<1	NA	<1	4.7	0.17



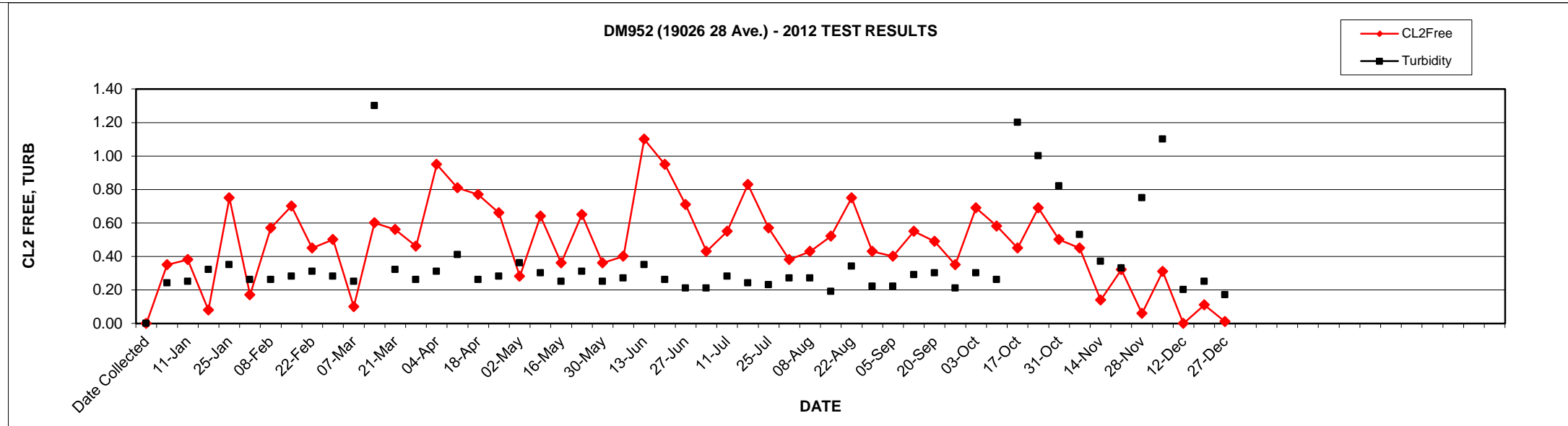
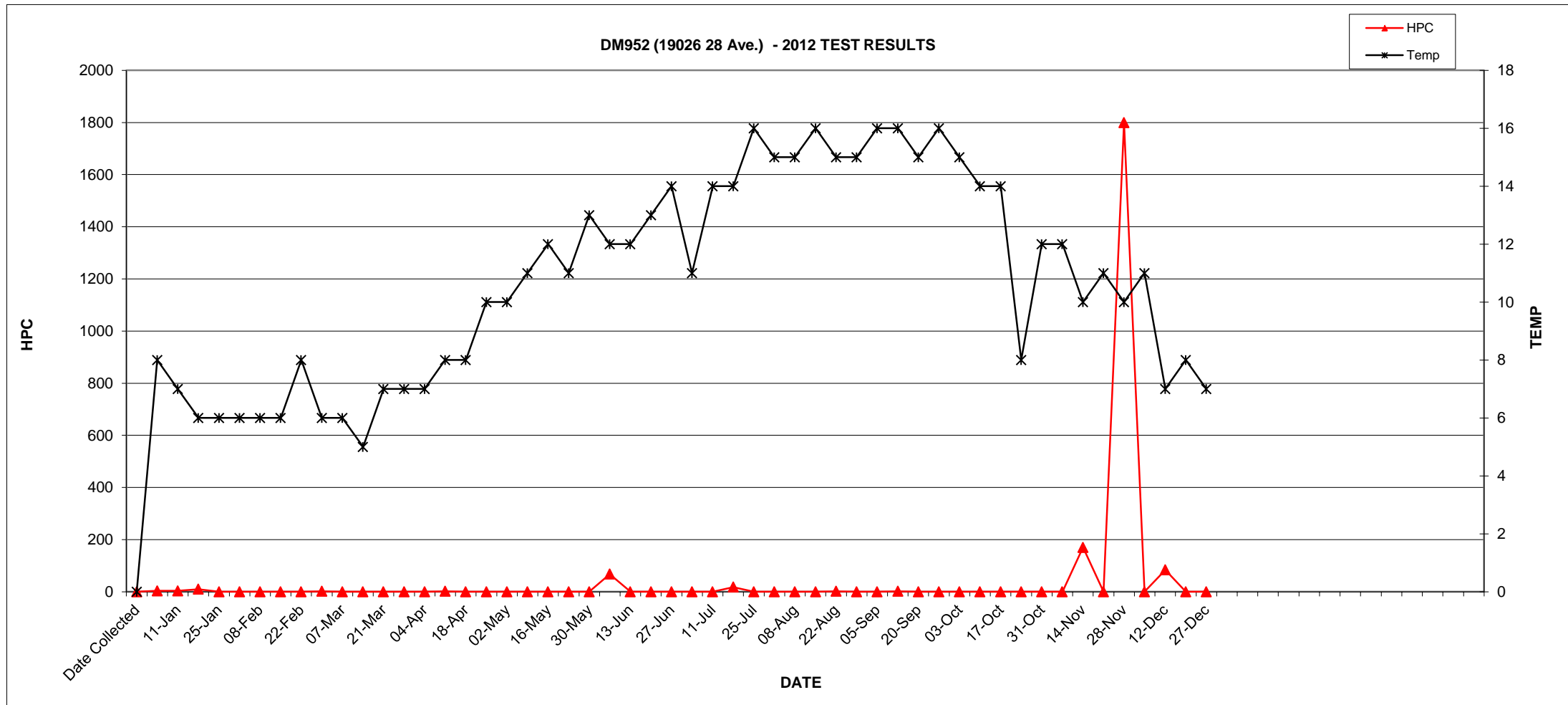
2012 GVRD Laboratory Report - DM951 (21 Ave. & 192 St.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
04-Jan	0.11	<1	4	<1	8	0.39
11-Jan	0.36	<1	<2	<1	7	0.23
18-Jan	0.24	<1	<2	<1	5	0.28
25-Jan	0.47	<1	34	<1	6	0.35
01-Feb	0.43	<1	<2	<1	6	0.24
08-Feb	0.30	<1	<2	<1	7	0.32
15-Feb	0.25	<1	<2	<1	7	0.26
22-Feb	0.21	<1	<2	<1	10	0.24
29-Feb	0.28	<1	<2	<1	6	0.23
07-Mar	0.28	<1	<2	<1	6	0.26
14-Mar	0.07	<1	90	<1	7	0.27
21-Mar	0.10	<1	<2	<1	7	0.34
28-Mar	0.07	<1	<2	<1	7	0.20
04-Apr	<0.01	<1	400	<1	7	0.23
11-Apr	0.27	<1	<2	<1	10	0.27
18-Apr	0.07	<1	56	<1	8	0.21
25-Apr	0.43	<1	2	<1	11	0.24
02-May	0.16	<1	<2	<1	11	0.30
09-May	0.44	<1	6	<1	11	0.22
16-May	0.36	<1	<2	<1	12	0.32
23-May	0.43	<1	<2	<1	13	0.28
30-May	0.53	<1	<2	<1	13	0.36
06-Jun	0.53	<1	10	<1	13	0.35
13-Jun	0.44	<1	<2	<1	14	0.32
20-Jun	0.86	<1	36	<1	15	0.25
27-Jun	0.55	<1	<2	<1	14	0.26
04-Jul	0.90	<1	2	<1	11	0.20
11-Jul	0.39	<1	<2	<1	15	0.36
18-Jul	0.58	<1	2	<1	14	0.25
25-Jul	0.68	<1	2	<1	16	0.25
01-Aug	0.32	<1	<2	<1	17	0.24
08-Aug	0.48	<1	20	<1	15	0.33
15-Aug	0.44	<1	<2	<1	18	0.23
22-Aug	0.58	<1	2	<1	17	0.26
29-Aug	0.66	<1	<2	<1	16	0.21
05-Sep	0.61	<1	<2	<1	16	0.31
12-Sep	0.50	<1	2	<1	15	0.20
20-Sep	0.58	<1	2	<1	15	0.23
26-Sep	0.43	<1	<2	<1	16	0.16
03-Oct	0.66	<1	<2	<1	18	0.33
10-Oct	0.59	<1	<2	<1	15	0.37
17-Oct	0.58	<1	<2	<1	14	1.20
24-Oct	0.69	<1	<2	<1	8	0.97
31-Oct	0.51	<1	<2	<1	12	2.40
07-Nov	<0.01	<1	1000	<1	12	0.50
14-Nov	0.03	<1	600	<1	12	0.45
21-Nov	<0.01	<1	400	<1	11	0.43
28-Nov	0.26	<1	<2	<1	10	1.00
05-Dec	0.06	<1	990	<1	10	0.31
12-Dec	<0.01	<1	1500	<1	7	0.21
19-Dec	0.04	<1	580	<1	10	0.26
27-Dec	0.15	<1	NA	<1	7	0.21



2012 GVRD Laboratory Report - DM952 (19026 28 Ave.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
04-Jan	0.35	<1	4	<1	8	0.24
11-Jan	0.38	<1	4	<1	7	0.25
18-Jan	0.08	<1	10	<1	6	0.32
25-Jan	0.75	<1	<2	<1	6	0.35
01-Feb	0.17	<1	<2	<1	6	0.26
08-Feb	0.57	<1	<2	<1	6	0.26
15-Feb	0.70	<1	<2	<1	6	0.28
22-Feb	0.45	<1	<2	<1	8	0.31
29-Feb	0.50	<1	2	<1	6	0.28
07-Mar	0.10	<1	<2	<1	6	0.25
14-Mar	0.60	<1	<2	<1	5	1.30
21-Mar	0.56	<1	<2	<1	7	0.32
28-Mar	0.46	<1	<2	<1	7	0.26
04-Apr	0.95	<1	<2	<1	7	0.31
11-Apr	0.81	<1	2	<1	8	0.41
18-Apr	0.77	<1	<2	<1	8	0.26
25-Apr	0.66	<1	<2	<1	10	0.28
02-May	0.28	<1	<2	<1	10	0.36
09-May	0.64	<1	<2	<1	11	0.30
16-May	0.36	<1	<2	<1	12	0.25
23-May	0.65	<1	<2	<1	11	0.31
30-May	0.36	<1	LA	<1	13	0.25
06-Jun	0.40	<1	68	<1	12	0.27
13-Jun	1.10	<1	<2	<1	12	0.35
20-Jun	0.95	<1	<2	<1	13	0.26
27-Jun	0.71	<1	LA	<1	14	0.21
04-Jul	0.43	<1	<2	<1	11	0.21
11-Jul	0.55	<1	<2	<1	14	0.28
18-Jul	0.83	<1	18	<1	14	0.24
25-Jul	0.57	<1	<2	<1	16	0.23
01-Aug	0.38	<1	<2	<1	15	0.27
08-Aug	0.43	<1	<2	<1	15	0.27
15-Aug	0.52	<1	<2	<1	16	0.19
22-Aug	0.75	<1	2	<1	15	0.34
29-Aug	0.43	<1	<2	<1	15	0.22
05-Sep	0.40	<1	<2	<1	16	0.22
12-Sep	0.55	<1	2	<1	16	0.29
20-Sep	0.49	<1	<2	<1	15	0.30
26-Sep	0.35	<1	<2	<1	16	0.21
03-Oct	0.69	<1	<2	<1	15	0.30
10-Oct	0.58	<1	<2	<1	14	0.26
17-Oct	0.45	<1	<2	<1	14	1.20
24-Oct	0.69	<1	<2	<1	8	1.00
31-Oct	0.50	<1	<2	<1	12	0.82
07-Nov	0.45	<1	<2	<1	12	0.53
14-Nov	0.14	<1	170	<1	10	0.37
21-Nov	0.32	<1	<2	<1	11	0.33
28-Nov	0.06	<1	1800	<1	10	0.75
05-Dec	0.31	<1	<2	<1	11	1.10
12-Dec	<0.01	<1	84	<1	7	0.20
19-Dec	0.11	<1	<2	<1	8	0.25
27-Dec	0.01	<1	NA	<1	7	0.17



APPENDIX ‘B’

Water Quality Monitoring and Reporting Plan for Metro Vancouver and Member Municipalities

Water Quality Monitoring and Reporting Plan
For The GVRD and Member Municipalities



Greater
Vancouver
Regional
District

January 2006

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1. Introduction

1.1 Background

The Water Quality Monitoring and Reporting Plan (WQMRP) was originally developed under the BC Safe Drinking Water Regulation (BCSDWR) which was promulgated under the Health Act in 1992. In short, the BCSDWR required suppliers of drinking water (purveyors) in BC to hold an Operating Permit which, in effect, confirmed that the Medical Health Officer for the area in question had approved of the public water supply and the purveyor's plans for assuring potability, monitoring, reporting and notification in the case of emergency or other unusual circumstances. The BCSDWR was replaced in 2003 with the BC Drinking Water Protection Regulation (BCDWPR) under the Drinking Water Protection Act (DWPA) which was promulgated in 2001. This update builds on the original WQMRP which was published in May of 2000 as a result of joint efforts between the GVRD, GVRD Municipalities, and the Region's Medical Health Officers. All parties mentioned above have been involved in the update of the plan.

The Drinking Water Protection Act places a number of responsibilities on water suppliers. Sections relevant to this plan are shown in the table below:

Table 1. Water Supplier Responsibilities Under the Drinking Water Protection Act

Section of Act	Requirement	Relevance
8	Operating Permits and Requirements For Water Systems	Places monitoring and reporting responsibilities on water suppliers.
10	Emergency Response and Contingency Plans	Places requirement for emergency response and contingency plans on water suppliers.
11	Water Monitoring Requirements	Outlines water monitoring and associated responsibilities for water suppliers.
12	Notice if Immediate Reporting Standard Not Met	Outlines immediate reporting responsibilities for laboratories and water suppliers.
13	Water Supplier Must Report Threats to Drinking Water	Places notification responsibilities on water suppliers for situations where the water might not be potable.
15	Publication of Other Information	Places reporting responsibilities on water suppliers.

Even though this document describes a monitoring and reporting plan for the GVRD and its member municipalities using GVRD water sources, it can also be used as a template for monitoring and reporting on separate water supplies that exist within some municipalities. Many of the monitoring initiatives described in this plan are already in place. Hence, it is written for the most part in the present tense.

1.2 Quality Control

All analyses should be conducted by a laboratory that is approved by the Provincial Health Officer for bacteriological analyses and is certified by the Canadian Association for Environmental Analytical Laboratories (CAEAL) or an equivalent certification program for the other tests performed. It is recognized that certification may not be available for all parameters.

With the exception of *Giardia* and *Cryptosporidium*, all of the microbiological analyses discussed in this report are performed at the GVRD laboratory except for those for the City of Vancouver which are performed at the Provincial Health laboratory (BCCDC laboratory). The Provincial Health Officer has approved both laboratories for the analysis of drinking water samples.

For water from GVRD sources (Capilano, Seymour, Coquitlam) many of the chemical and physical analyses are performed by the GVRD laboratory. The GVRD laboratory is a member and is accredited by CAEAL. The GVRD laboratory is accredited (or certified) for many of the available parameters offered by CAEAL including general parameters, metals, trihalomethanes (THMs) and total coliforms. The GVRD laboratory also performs analyses for haloacetic acids (HAAs). CAEAL does not offer certification for HAAs or for radioisotopes.

Analyses for organic chemical contaminants (herbicides, pesticides, etc.) and uranium and radioactivity as shown in the Guidelines For Canadian Drinking Water Quality are performed by contract laboratories. The contract laboratories are accredited and the scope of accreditation includes the following parameters: BTEX, PAHs, THMs and specific pesticides. The GVRD uses the Wisconsin State Laboratory of Hygiene, at the University of Wisconsin Center for Health Sciences, for radioactivity analyses. The US Environmental Protection Agency has certified this laboratory for radioactivity related analyses.

CAEAL certification and accreditation are valuable but they are no substitute for critical review of laboratory results (including review of Quality Control/Quality Assurance procedures and results) by the agency responsible for reporting the results. The GVRD reviews all laboratory results (including results from the GVRD laboratory and contract laboratories) for QA/QC and municipalities should do the same for results not reviewed for QA/QC by the GVRD.

Samples should be collected and shipped in accordance with the most recent edition (21st edition now available) of Standard Methods For The Examination of Water and Wastewater (APHA, AWWA, WEF).

2. Definitions

BCDWPR	British Columbia Drinking Water Protection Regulation
BCSDWR	British Columbia Safe Drinking Water Regulation
CAEAL	Canadian Association for Environmental Analytical Laboratories
Distribution System (D)	Municipally owned and operated water mains and reservoirs
DWO	Drinking Water Officer
DWPA	Drinking Water Protection Act
DWPR	Drinking Water Protection Regulation
<i>E. coli</i>	<i>Escherichia coli</i> is a member of the coliform group, part of the family Enterobacteriaceae, and is described as a facultative anaerobic, Gram-negative, non-spore forming, rod-shaped bacterium that possesses the enzyme β -glucuronidase.
GCDWQ	Guidelines For Canadian Drinking Water Quality
HPC	Heterotrophic Plate Count
LCOC	Lake City Operations Centre (GVRD)
Primary Disinfection	Initial disinfection of the water as it enters the water transmission system
SCADA	Supervisory Control and Data Acquisition (system)
Source Water (S)	Untreated water as it enters the GVRD water supply intakes.
Total Coliform	Gram-negative, non-spore forming, rod-shaped bacterium that develops a red colony with a metallic (golden) sheen within 24 hours at 35 °C on an endo-type medium containing lactose.
Transmission System (T)	Large diameter water mains and water reservoirs operated by the GVRD.
WQMRP	Water Quality Monitoring and Reporting Plan

3. Source (Untreated) Water Quality Monitoring

The GVRD monitors both the microbiological and chemical characteristics of the three major water sources, Capilano, Seymour and Coquitlam. Where a municipality uses a water source other than that from the GVRD (i.e. from Capilano, Seymour or Coquitlam), it is the responsibility of the municipality to monitor the source water. Every effort is made to carry out the various monitoring programs according to the frequencies discussed below, however, it should be recognized that occasionally a scheduled sample may be missed due to equipment failure or inclement weather conditions.

3.1 Microbiological Monitoring

3.1.1 Bacteria

An important consideration in the type and degree of treatment required for a water supply is the bacteriological quality of the source water. In order to assist this assessment process in the GVRD, and to maintain an ongoing record of source water quality, samples of untreated water are collected at the water supply intakes daily and analyzed for *E. coli*.

3.1.2 *Giardia* and *Cryptosporidium*

The GVRD routinely monitors the source waters at the water supply intakes for *Giardia* and *Cryptosporidium*. One sample is taken at each intake every week. Analysis is carried out at the Enhanced Water Testing Laboratory, University of British Columbia.

3.2 Chemical and Physical Monitoring

3.2.1 Turbidity

Since elevated turbidity levels in water may interfere with disinfection, it is important that a water utility monitors the turbidity of the source water on a regular basis. Samples are collected daily from all three sources and analyzed for turbidity in the laboratory. These readings constitute the GVRD's official turbidity readings, which are made available to the public daily. In addition, the GVRD has in-line turbidity monitors at all water supply intakes. Results from these monitors are transmitted via SCADA to LCOC where appropriate action (changes in the operation of the water system) can be taken should a turbidity problem develop.

3.2.2 General Chemical and Physical Quality

The chemical and physical characteristics of each water supply (before treatment) are tested on a routine basis according to the frequencies shown in Table 2. Monitoring is used to demonstrate compliance with the GCDWQ, provide up-to-date background information on water quality and to assess long term changes. Some water quality characteristics, such as iron, ammonia and organic carbon, are monitored more frequently by the GVRD depending on operational requirements and other needs. Samples for source water analysis are collected just up-stream of chlorination in the chlorination plants.

Table 2. Physical and Chemical Testing of GVRD Source Waters (S)

Parameter	Frequency
Aldicarb	Annually
Aldrin + Dieldrin	Annually
Antimony	Semi-annually
Aluminum (Tot. & Diss.)	Semi-annually
Arsenic	Semi-annually
Atrazine + Metabolites	Annually
Azinphos-Methyl	Annually
Barium	Semi-annually
Bendiocarb	Annually
Benzene	Annually
Benzo(α)pyrene	Semi-annually
Boron	Semi-annually
Bromide	Quarterly
Bromoxynil	Annually
Cadmium	Semi-annually
Carbaryl	Annually
Carbofuran	Annually
Carbon Tetrachloride	Annually
Chloride	Annually
Chlorpyrifos	Annually
Chromium	Semi-annually
Colour	Weekly
Copper	Semi-annually
Cyanazine	Annually
Cyanide	Annually
Diazinon	Annually
Dicamba	Annually
Dichlorobenzene, 1,2-	Annually
Dichlorobenzene, 1,4-	Annually
Dichloroethane, 1,2-	Annually
Dichloroethylene, 1,1-	Annually
Dichloromethane	Annually
Dichlorophenol, 2,4-	Annually
Dichlorophenoxyacetic Acid 2,4 (2,4-D)	Annually
Diclofop-Methyl	Annually
Dimethoate	Annually
Dinoseb	Annually
Diquat	Annually
Diuron	Annually
Ethylbenzene	Annually
Fluoride	Annually

Parameter	Frequency
Glyphosate	Annually
Iron	Semi-annually
Lead	Semi-annually
Malathion	Annually
Manganese	Semi-annually
Mercury	Semi-annually
Methoxychlor	Annually
Metolachlor	Annually
Metribuzin	Annually
Monochlorobenzene	Annually
Nitrate	Semi-annually
Nitrilotriacetic Acid (NTA)	Annually
Odour	Complaint Basis
Paraquat (As Dichloride)	Annually
Parathion	Annually
Pentachlorophenol	Annually
pH	Weekly
Phorate	Annually
Picloram	Annually
Radionuclides (Gross Alpha And Beta)	Annually
Selenium	Annually
Simazine	Annually
Sodium	Semi-annually
Sulphate	Semi-annually
Sulphide (as H ₂ S)	N/A *
Taste	Complaint Basis
Temperature	Quarterly
Terbufos	Annually
Tetrachloroethylene	Annually
Tetrachlorophenol, 2,3,4,6-	Annually
Toluene	Annually
Total Diss. Solids (TDS)	Semi-annually
Trichloroethylene	Annually
Trichlorophenol, 2,4,6-	Annually
Trifluralin	Annually
Turbidity	Daily
Uranium	Annually
Vinyl Chloride	Annually
Xylenes (Total)	Annually
Zinc	Semi-annually

* Sulphide (as H₂S) not monitored on surface water supplies; should be monitored on well water.

4. Transmission/Distribution System Monitoring – Treated Water

4.1 Bacteriology Sampling Stations – Type, Location and Number

Dedicated sampling stations connected directly to the water main are preferred (over convenience stations in public buildings) for a number of reasons including consistency of results and accessibility. If the sample is not constantly running the sample line should be of suitable size to allow water from the main to reach the sample tap after a brief period of flushing.

4.1.1 GVRD Transmission Mains and Reservoirs

Each day, the GVRD collects a sample from each water supply at a location downstream of disinfection and upstream of the first customer. The GVRD also collects samples weekly from sites at or just before the last connection on all supply mains as well as at other sites of interest including sites just after river crossings. Samples are also collected weekly from all GVRD treated water reservoirs.

4.1.2 Municipal Distribution Mains

Municipal sampling locations for monitoring the bacteriological quality of the delivered water are distributed as follows:

- 10% source water - *this refers to water entering the municipal distribution grid from the GVRD transmission mains*. Samples taken from GVRD transmission mains in the area can be used to meet this requirement as well as samples from the municipal distribution system just downstream of the connection to the GVRD transmission main.
- 40% medium flow.
- 40% low flow.
- 10% dead ends, unlooped lines, stagnant areas.

The number of samples per municipality, as recommended by the Guidelines For Canadian Drinking Water Quality, is based on population (Table 3). Samples collected from all sites in the GVRD transmission system and reservoirs are analyzed for total coliform bacteria. Samples from municipal distribution systems are analyzed for total coliform and *E. coli* bacteria. All samples analyzed in the GVRD laboratory are also tested for the presence of Heterotrophic Plate Count bacteria on R2A media, with a 5 day incubation at 28 °C. This test is used to monitor the system for the early warning signs of regrowth.

GVRD sampling locations are shown in Appendix 1. Sampling locations in the municipal distribution systems are shown in Appendix 2.

Table 3. Bacteriology Monitoring – Municipal Samples

City	Population (2004)	Number of Sample Sites	Minimum Number of Samples per Month as Required by Schedule B of the DWPR
Burnaby	209,328	57	111
Coquitlam	126,434	28	103
Delta	101,125	26	100
Langley City	24,980	13	25
Langley Township	93,650	22	99
Maple Ridge	72,937	12	73
New Westminster	60,123	10	60
North Vancouver City	48,619	15	49
North Vancouver District	86,359	34	86
Pitt Meadows	16,267	7	16
Port Coquitlam	58,070	10	58
Port Moody	27,466	6	27
Richmond	176,438	25	108
Surrey	401,839	49	130
Vancouver	578,112	48	148
West Vancouver	44,545	17	45
Total	2,126,292	379	1238

This monitoring program provides a representative picture of drinking water quality in the GVRD water system and within municipal mains. It does not provide a definite picture of drinking water quality within buildings, where water quality can change significantly due to pipe materials, standing times, temperature, and other factors. It can be assumed that samples taken within buildings will be of different quality than those taken from sites on municipal mains.

4.2 Chemical and Physical Parameters

4.2.1 GVRD Transmission Mains

Table 4 lists the chemical and physical testing program proposed for GVRD transmission mains. Sampling for the effects of water main lining associated problems will require expanding the sampling for the associated parameters (eg. BTEX) into affected municipal distribution systems as is described in the table.

Table 4. Chemical/Physical Monitoring in GVRD Transmission System

Parameter	Location	Frequency
Benzo(α)pyrene	GVRD mains with history of coal tar related problems and a representative number of affected municipal distribution mains.	Semi-annually
Bromate	GVRD mains downstream of ozonation.	Quarterly
Chloride	GVRD System. Primary chlorination evaluation stations and downstream of the secondary disinfection stations.	Semi-annually
Ethylbenzene	GVRD mains with history of epoxy lining related problems and a representative number of affected municipal distribution mains.	As required
Haloacetic acids	GVRD Sites – end of transmission system.	Quarterly
Odour	Any or all sites.	Complaint Basis
pH	GVRD Sites – before and after corrosion control.	Semi-annually
Sodium	GVRD Sites – after corrosion control and secondary disinfection.	Semi-annually
Taste	Any or all sites.	Complaint Basis
Temperature	GVRD Sites – primary disinfection evaluation stations.	Quarterly
Toluene	GVRD mains with history of epoxy lining related problems and a representative number of affected municipal distribution mains.	As required
Total Dissolved Solids	GVRD Sites – pre and post corrosion control.	Semi-annually
Trihalomethanes	GVRD Sites – end of transmission system.	Quarterly
Turbidity	GVRD Sites – after treatment.	Collected with bacteriological samples
Xylenes	GVRD mains with history of epoxy lining related problems and a representative number of affected municipal distribution mains.	As required

4.2.2 Municipal Distribution Mains

The proposed monitoring program for chemical and physical characteristics of the water in municipal distribution mains is shown in Table 5. Except where otherwise noted, approximately 10% of the sample sites in each municipal system will be sampled for the following parameters at the frequency shown. The sample sites for this testing will be selected with regard to local conditions including factors such as water source, pipe materials, location of water treatment facilities, etc.

Table 5. Chemical/Physical Monitoring in Municipal Distribution Systems

Parameter	Location	Frequency
Free Chlorine Residual	All	Tests run when bacteriological samples are taken
Copper	Municipal Distribution System **	Semi-annually
Haloacetic acids	Municipal Sites – cross section, representative of all three sources. Minimum of one per municipality.	Quarterly
Iron	Representative municipal sites – unlined iron and steel mains.	Semi-annually
Lead	Municipal Distribution System **	Semi-annually
Odour	Any or all sites.	Complaint Basis *
pH	Municipal Sites – cross section, representative of all three sources. Minimum of one per municipality.	Semi-annually
Taste	Any or all sites.	Complaint Basis *
Temperature	Representative municipal sites.	Quarterly
Trihalomethanes	Municipal Sites – cross section, representative of all sources, minimum of three per municipality.	Quarterly
Turbidity	Municipal Sites – all.	Collected with bacteriological samples
Vinyl Chloride	Municipal sites where PVC pipe is used in the distribution system – minimum of one per potentially affected system.	Semi-annually
Zinc	Municipal Distribution System **	Semi-annually

* If a complaint comes to the GVRD, the GVRD will bring it to the attention of the relevant municipality.

** The GCDWQ stipulate that samples for metals analysis should be from a flushed location. This provides rationale to sample for metals in the distribution system as opposed to locations in buildings.

5. Reporting

Section 15 (b) of the DWPA requires a water supplier to report on monitoring results. As well, in accordance with Sec. 11 of the DWPR, each purveyor, municipal and the GVRD, must make an annual written report to the consumers and to its Medical Health Officer by the end of June. The annual report will include the quality of the water with respect to all microbiological and chemical standards. This report must also include the purveyor's plan (including time lines) for addressing any standards that are not met. Reporting is summarized in Table 6.

Table 6. Reports

Title	Report Content	Target Audience	Frequency
GVRD Routine Municipal Reports	Municipal distribution system microbiological analyses and related parameters (chlorine, turbidity, temperature, HPC).*	Municipalities** Health Regions	Batch basis. In general once per week.
GVRD Monthly Reports	GVRD transmission mains microbiological analyses and related parameters (chlorine, turbidity, temperature, HPC). Information is used to supplement municipal monitoring data.	Health Regions	Monthly
GVRD (GVWD) Annual Water Quality Report	GVRD source water microbiological, chemical and physical quality, GVRD treated water quality, municipal water quality. Summary presentation of all monitoring information.	Health Regions GVRD Board Municipal Councils General Public	Annually (Public Report by the end of June)
Municipal Annual Water Quality Reports	Municipal distribution system water quality, microbiological and related parameters (see Table 5). Summary presentation of all source water chemistry and distribution system water monitoring information.	Health Regions Municipal Councils General Public	Annually (Public Report by the end of June)

* Reports from GVRD lab for samples from municipalities using GVRD lab.

** Preliminary reports are provided verbally or by electronic mail immediately if the GVRD laboratory suspects a problem at a particular sample site. Written reports are sent out by the GVRD lab only after data have been certified. Results not meeting standards will be highlighted in written reports where possible.

The WQMRP has been accepted by both Vancouver Coastal Health and the Fraser Health Authority. The WQMRP is intended to fully meet the requirements of the DWPA and the DWPR however it is acknowledged that there may be circumstances that the water supplier's MHO, DWO (or DWO delegate) may place additional requirements in accordance with the provisions of the DWPA.

6. Emergency Response

6.1 Notification Requirements

Public health should be notified in the situations shown in Table 7.

Table 7. Notification for Unusual Situations Affecting Water Potability

Situation	Notifying Agency	Agency Notified	Time Frame For Notification
GVRD <i>E. Coli</i> Positive Sample	GVRD	GVRD MHO Municipality(ies) ¹	Immediate
Municipal <i>E. Coli</i> Positive Sample	Laboratory ² Municipality ³	MHO (or delegate)	Immediate
Chemical Contamination - GVRD	GVRD	GVRD MHO Municipality(ies) ¹	Immediate
Chemical Contamination - Municipality	Municipality	MHO (or delegate)	Immediate
Turbidity > 5 NTU	GVRD	GVRD MHO Municipality(ies) ¹	Immediate
Disinfection Failure – Source Water (Primary Disinfection)	GVRD	GVRD MHO Municipality(ies) ¹	Immediate (As per DWPA)
Disinfection Failure – Rechlorination (Secondary Disinfection)	GVRD	GVRD MHO Municipality(ies) ¹	Immediate, in any situation in which the BCDWPR or the GCDWQ may not be met.
Loss of Pressure Due to High Demand	Municipality	MHO (or delegate) GVRD	Immediate
Line Break ⁴ – Municipality	Municipality	MHO (or delegate)	As required by Health Regions
Line Break ⁴ – GVRD	GVRD	Municipality(ies)	As required by Municipalities
Line Break ⁵ – Municipality	Municipality	MHO (or delegate)	Immediate
Line Break ⁵ – GVRD	GVRD	GVRD MHO Municipality(ies) ¹	Immediate

1. Affected municipality(ies) to notify local public health contact.
2. Laboratory to immediately notify the MHO, DWO (or delegates) and the water supplier as per section 12 (1) of the DWPA.
3. Municipality to immediately notify the MHO, DWO (or delegates) as per section 12 (2) of the DWPA.
4. With no suspected contamination.
5. With suspected contamination.

6.2 Response Plans

Emergency situations with the GVRD and municipal water supplies have been divided into four main areas of response as follows:

- An *E. coli* positive sample (in either the GVRD water system or in a municipal water system).
- Loss of disinfection.
- A turbidity event.
- Loss of GVRD and municipal water system integrity (potential contamination).

A response protocol for each situation is provided in Appendix 3.

In addition, under Sec. 10 of the DWPA, each municipality is required to have its own emergency response plan to cover specific emergencies.

A Contingency Plan for Water Quality is provided in Appendix 4 for those situations where a boil water advisory may be required.

6.3 Major Emergency Situations

Major natural disasters such as earthquakes would require the implementation of the emergency response plans that have been or are being developed by the GVRD and each of the member municipalities. Documentation of these plans is beyond the scope of this document.

APPENDIX ‘C’

B.C. Drinking Water Protection Regulation

Guidelines for Canadian Drinking Water Quality – Summary Table

B.C Drinking Water Protection Regulation



B.C. Reg. 200/2003

Deposited May 16, 2003

O.C. 508/2003

Drinking Water Protection Act
DRINKING WATER PROTECTION REGULATION

[includes amendments up to B.C. Reg. 87/2011, May 19, 2011]

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- 2 Standards for potable water
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Schedule A

Schedule B

Schedule C

Definitions

1 In this regulation:

"Act" means the *Drinking Water Protection Act*;

"building system" means a system, within a building, to which the British Columbia Plumbing Code applies, that receives water from a water supply system operating under a valid operating permit under the Act;

"connection" means the line from the water main to a dwelling, campsite or premises;

"decal" means an adhesive label that is issued and affixed to an operating permit at the time fees under this regulation are paid or remitted;

"fiscal year" means the period from April 1 in one year to March 31 in the next year;

"small system" means a water supply system that serves up to 500 individuals during any 24 hour period.

"system within a system" means a water supply system that, in the opinion of a drinking water officer or issuing official,

(a) redistributes water from a water supply system operating under a valid operating permit under the Act, and

(b) does not require further treatment processes, additional infrastructure or ongoing maintenance to prevent a drinking water health hazard.

[en. B.C. Reg. 352/2005, s. 1; am. B.C. Regs. 5/2007, App. 1, s. 1; 363/2008, s. 1; 87/2011, s. 1.]

Standards for potable water

2 The prescribed water quality standards for potable water are set out in Schedule A.

Domestic water system

3 The following are excluded from the definition of "domestic water system" in the Act:

(a) equipment, works and facilities constructed, operated or maintained

(i) under a licence, as defined in the *Water Act*, for conservation, power or storage purposes,

(ii) under a permit issued under the *Water Act*,

(iii) for bottled water production or distribution, or

(iv) for drinking water dispensing machines;

(b) a reservoir relating to a licence or permit referred to in paragraph (a);

(c) a building system;

(d) a system within a system.

[en. B.C. Reg. 352/2005, s. 2; am. B.C. Regs. 363/2008, s. 2; 87/2011, s. 2.]

Exemptions

3.1 A small system is exempt from section 6 of the Act if

(a) the system does not provide water for human consumption or food preparation purposes, and is not connected to a water supply system that provides water for human consumption and food preparation purposes, or

(b) each recipient of the water from the system has a point of entry or point of use treatment system that makes the water potable.

[en. B.C. Reg. 352/2005, s. 3.]

Prescribed water supply systems

- 4** (1) All water supply systems are prescribed for the purposes of sections 8, 10, 11 and 22 (1) (b) of the Act.
- (2) All water supply systems, except small systems, are prescribed for the purposes of section 9 of the Act.

[en. B.C. Reg. 352/2005, s. 4.]

Treatment

- 5** (1) In this section:

"ground water" means ground water as defined in section 1 of the *Water Act*;

"surface water" means water from a source which is open to the atmosphere and includes streams, lakes, rivers, creeks and springs.

- (2) For the purposes of section 6 (b) of the Act, drinking water from a water supply system must be disinfected by a water supplier if the water originates from

- (a) surface water, or
- (b) ground water that, in the opinion of a drinking water officer, is at risk of containing pathogens.

[am. B.C. Reg. 352/2005, s. 5.]

Construction permits

- 6** (1) The following individuals are authorized to issue construction permits:
- (a) a drinking water officer who is a professional engineer, or who is working under the direction of a professional engineer;
 - (b) a professional engineer who has been approved by a drinking water officer.
- (2) An issuing official under subsection (1) may issue a construction permit to a person after receiving an application in a form satisfactory to the issuing official.
- (3) A person does not require a construction permit
- (a) if the person is undertaking emergency repairs to a water supply system,
 - (b) for a water supply system that is a tank truck or a vehicle water tank, or
 - (c) for a small system, provided that an issuing official waives the requirement for a construction permit.
- (4) A valid and subsisting construction permit that was issued under section 2 of the Safe Drinking Water Regulation, B.C. Reg. 230/92, before the repeal of that regulation is deemed to be a construction permit issued under this regulation and remains valid until its expiration date unless earlier surrendered, suspended or cancelled.

[am. B.C. Reg. 352/2005, s. 6.]

Operating permits and fees

- 7** (1) A drinking water officer may issue an operating permit to a water supplier after receiving
- (a) an application for an operating permit in a form satisfactory to the drinking water officer, and
 - (b) the fee set out in Schedule C.
- (2) An operating permit in force on March 31 of a year expires on March 31 of that year.
- (3) Despite subsection (2), an operating permit issued for a period of less than 12 months expires on the date specified on the approved application.
- (4) A drinking water officer may renew an operating permit if
- (a) the operating permit was in force anytime during the 12 months prior to the renewal in respect of the same water supply system, and
 - (b) the fee set out in Schedule C is paid before the effective date of the renewal.
- (5) Approval is given for the remission of a fee paid under this section if
- (a) the water supplier applies for the remission, and
 - (b) the fee is for a month of the fiscal year for which the water supplier was not required to have the operating permit to which the fee applies.
- (6) A valid and subsisting operating permit that was issued under section 4 of the Safe Drinking Water Regulation, B.C. Reg. 230/92, before the repeal of that regulation is deemed to be an operating permit issued under this regulation and remains valid until its expiration date unless earlier surrendered, suspended or cancelled.

[en. B.C. Reg. 5/2007, App. 1, s. 2.]

Decals

- 7.1** (1) If, in accordance with section 7, an operating permit is issued or renewed, a drinking water officer must issue a decal to the water supplier to cover the period for which the fee is paid.
- (2) If an operating permit does not bear a decal or if that decal does not cover the current date, then the operating permit is not valid.

[en. B.C. Reg. 5/2007, App. 1, s. 2.]

Permits and decals not transferable

- 7.2** An operating permit or a decal is not transferable.

[en. B.C. Reg. 5/2007, App. 1, s. 2.]

Temporary facilities

- 7.3** Despite sections 7 and 7.1, if an operating permit is issued for no more than 14 days during a fiscal year, then
- (a) approval is given for a reduction in the applicable fee so that the water

supplier is not required to pay the fee set out in the Schedule, and

(b) the operating permit is not required to bear a decal to be valid.

[en. B.C. Reg. 5/2007, App. 1, s. 2.]

Water monitoring analysis

8 (1) A water supplier must transport water samples to a laboratory in accordance with the procedures established by a drinking water officer.

(2) For the purpose of section 11 (1) of the Act, a water supplier must monitor for total coliform bacteria and, effective April 1, 2006, *Escherichia coli*, at the frequencies set out in Schedule B of this regulation.

(3) Despite subsection (2), a drinking water officer may establish different sampling frequencies for a water supplier.

(4) A laboratory carrying out monitoring analyses for the parameters referred to in subsection (2) must be approved in writing by the Provincial health officer.

(5) If requested to do so by a drinking water officer, a laboratory must provide to the drinking water officer, the water supplier, or both, a report

(a) listing all water samples sent by the water supplier to the laboratory, and

(b) describing, for all samples analyzed, the results of any monitoring analyses for total coliform bacteria and *Escherichia coli*.

[am. B.C. Reg. 352/2005, s. 7.]

Immediate reporting standard

9 (1) Subject to subsection (2), immediate reporting is required under section 12 of the Act if the water quality standards in Schedule A are not met for the fecal coliform bacteria or *Escherichia coli* parameters.

(2) Immediate reporting is not required if a water sample that failed to meet the immediate reporting standard

(a) was collected from a location in the water supply system before the water is treated for the removal or inactivation of pathogens,

(b) is not used for domestic purposes, or

(c) is water for which a public advisory to boil for drinking water has been issued.

Public notification

10 If water provided by a domestic water system is not or may not be potable water, the owner of a public premises that is served by the domestic water system must do both of the following:

(a) notify the public that the water is not potable water by posting a sign at every sink or drinking water fountain accessible to the public;

(b) if normal business practices provide an opportunity, verbally advise any

person who may use the domestic water system for a domestic purpose that the water is not potable water.

Time limits for publication

- 11** For the purposes of section 15 (b) of the Act, a water supplier must prepare and make public, within 6 months of the end of the calendar year, an annual report of the results of the monitoring required by this regulation, its operating permit or the drinking water officer.

Qualification standards for persons operating water supply systems

- 12** (1) In this section, "**Environmental Operators Certification Program**" means the program of classification and certification for water supply system operators established in British Columbia by the Environmental Operators Certification Program Society.
- (2) Subject to subsections (3) and (6), a person is qualified to operate, maintain or repair a water supply system if the person is certified by the Environmental Operators Certification Program for that class of system as classified under the Environmental Operators Certification Program.
- (3) Subsection (2) applies to water supply systems classified as level 1 or level 2, and effective January 1, 2006, water supply systems classified as level 3.
- (4) Despite section 4 (2) of this regulation, an operating permit may require a person to be certified to operate, maintain or repair a small system.
- (5) Despite subsection (3), an operating permit may establish a later date on which subsection (2) applies to a water supply system.
- (6) Subsection (2) does not apply to a person with specialist knowledge immediately relevant to maintenance or repair of a water supply system provided the maintenance or repair is conducted following procedures approved by a person certified by the Environmental Operators Certification Program.

[en. B.C. Reg. 352/2005, s. 8.]

Emergency response and contingency plan

- 13** (1) In this section, "**public health inspector**" means a public health inspector as defined in the *Health Act*.
- (2) A water supplier must include the following in an emergency response and contingency plan:
- (a) the names and telephone numbers of
 - (i) the management personnel for the water supply system,
 - (ii) the drinking water officer, medical health officer and public health inspector, and
 - (iii) other agencies and officials specified by the drinking water officer;
 - (b) the persons referred to in paragraph (a) to be contacted in each type of emergency or abnormal operational circumstance;
 - (c) the steps to follow in the event of an emergency or abnormal operational

circumstance;

(d) protocols to follow respecting public notice if an immediate reporting standard is not met.

(3) A water supplier must

(a) make the emergency response and contingency plan accessible to the staff of the water supplier, and

(b) provide a copy of the emergency response and contingency plan to the drinking water officer.

(4) A water supplier must make a summary of the emergency response and contingency plan accessible to the users served by its water supply system.

(5) A water supplier must not include in the summary referred to in subsection (4) any information that may reasonably pose a risk to the water supply system.

Well floodproofing

14 For the purpose of section 16 of the Act, the following persons must floodproof their wells in the manner described in section 11 (2) (a) and (b) of the Ground Water Protection Regulation:

(a) the owner or operator of a well that provides or may provide drinking water and that is identified in an assessment as being at risk of flooding;

(b) the owner of a well completed after October 31, 2005 that is for the purpose of supplying a water supply system.

[en. B.C. Reg. 300/2004.]

Assessment response plan

15 For the purposes of section 22 (3) of the Act, an assessment response plan must include provisions to identify, eliminate and prevent cross connections with non-potable water sources.

Schedule A

Water Quality Standards for Potable Water

(sections 2 and 9)

Parameter:	Standard:
Fecal coliform bacteria	No detectable fecal coliform bacteria per 100 ml
<i>Escherichia coli</i>	No detectable <i>Escherichia coli</i> per 100 ml
Total coliform bacteria	
(a) 1 sample in a 30 day period	No detectable total coliform bacteria per 100 ml
(b) more than 1 sample in a 30 day period	At least 90% of samples have no detectable total coliform bacteria per 100 ml and no sample has more than 10 total

coliform bacteria per 100 ml

Schedule B

Frequency of Monitoring Samples for

Prescribed Water Supply Systems

(section 8)

Population Served by the Prescribed

Water Supply System:	Number of Samples Per Month:
less than 5 000	4
5 000 to 90 000	1 per 1 000 of population
more than 90 000	90 plus 1 per 10 000 of population in excess of 90 000

Schedule C

Operating Permit Fees

[en. B.C. Reg. 5/2007, App. 1, s. 3.]

(section 7)

1 The operating permit fee for a fiscal year is:

- (a) for 1 - 14 connections no charge
- (b) for 15 - 300 connections \$150
- (c) for 301 - 10 000 connections \$250
- (d) for 10 001 - 20 000 connections \$500
- (e) for more than 20 000 connections \$1 000

2 If an operating permit is issued for a period of less than 12 months, the fee is calculated using the following formula:

$$fee = \frac{n \times z}{12}$$

where

n is the number of calendar months of the fiscal year in which the permit will apply, and

z is the applicable fee under section 1.

Note: *this regulation repeals B.C. Reg. 230/92.*

[Provisions of the *Drinking Water Protection Act*, S.B.C. 2001, c. 9, relevant to the enactment of this regulation: sections 48 and 49]

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**Guidelines
For Canadian Drinking Water
Quality**

Summary Table



Health
Canada

Santé
Canada

*Your health and
safety... our priority.*

*Votre santé et votre
sécurité... notre priorité.*

Guidelines for Canadian Drinking Water Quality Summary Table

Prepared by the

Federal-Provincial-Territorial Committee on Drinking Water

of the

Federal-Provincial-Territorial Committee on Health and the Environment

August 2012

Canada

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Other documents for the Guidelines for Canadian Drinking Water Quality can be found on the following web page:
www.healthcanada.gc.ca/waterquality

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Introduction

The Guidelines for Canadian Drinking Water Quality are established by the Federal-Provincial-Territorial Committee on Drinking Water (CDW) and published by Health Canada. This summary table is updated regularly and published on Health Canada's website (www.healthcanada.gc.ca/waterquality). It supersedes all previous electronic and printed versions, including the 6th edition of the Guidelines for Canadian Drinking Water Quality (1996).

Each guideline was established based on current, published scientific research related to health effects, aesthetic effects, and operational considerations. Health-based guidelines are established on the basis of comprehensive review of the known health effects associated with each contaminant, on exposure levels and on the availability of treatment and analytical technologies. Aesthetic effects (e.g., taste, odour) are taken into account when these play a role in determining whether consumers will consider the water drinkable. Operational considerations are factored in when the presence of a substance may interfere with or impair a treatment process or technology (e.g., turbidity interfering with chlorination or UV disinfection) or adversely affect drinking water infrastructure (e.g., corrosion of pipes).

The Federal-Provincial-Territorial Committee on Drinking Water establishes the *Guidelines for Canadian Drinking Water Quality* specifically for contaminants that meet all of the following criteria:

1. exposure to the contaminant could lead to adverse health effects in humans;
2. the contaminant is frequently detected or could be expected to be found in a large number of drinking water supplies throughout Canada; and
3. the contaminant is detected, or could be expected to be detected, in drinking water at a level that is of possible human health significance.

If a contaminant of interest does not meet all these criteria, CDW may choose not to establish a numerical guideline or develop a Guideline Technical Document. In that case, a Guidance Document may be developed.

Older guidelines are systematically reviewed in order to assess the need to update them; in the tables, guidelines that have been reaffirmed include both the original approval and reaffirmation year indicated after the name of the parameter.

Science-based documents published as part of the Guidelines for Canadian Drinking Water Quality (i.e., Guideline Technical Documents, Guidance Documents) are developed through a documented process which includes a literature review, internal and external peer-reviews, public consultations and Federal-Provincial-Territorial approval processes. For more information on specific guidelines, please refer to the guideline technical document or guidance document for the parameter of concern, available on the Health Canada website (www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/index-eng.php).

Membership of the Federal-Provincial-Territorial Committee on Drinking Water

Jurisdictional representatives

Alberta	Department of Environment and Water	Dr. Donald Reid
British Columbia	Ministry of Health	Mr. Barry Boettger
Manitoba	Manitoba Water Stewardship	Ms. Kim Philip
New Brunswick	Department of Health	Mr. Kevin Gould
Newfoundland and Labrador	Department of Environment and Conservation	Mr. Haseen Kahn
Northwest Territories	Department of Health and Social Services	Mr. Duane Fleming
Nova Scotia	Department of Environment	Ms. Judy MacDonald
Nunavut Territory	Department of Health and Social Services	Mr. Peter Workman
Ontario	Ministry of the Environment	Dr. Satish Deshpande
Prince Edward Island	Department of Environment, Energy and Forestry	Mr. George Somers
Québec	Ministère du Développement durable, de l'Environnement et des Parcs	Ms. Caroline Robert
Saskatchewan	Ministry of the Environment	Mr. Sam Ferris
Yukon Territory	Department of Health and Social Services	Ms. Patricia Brooks
Canada	Department of Health	Dr. John Cooper

Liaison officers

Federal-Provincial-Territorial Committee on Health and the Environment (CHE)	Mr. Peter Workman
Environment Canada/Canadian Council of Ministers of the Environment	Dr. Doug Spry

Committee coordinator

Health Canada (Water, Air and Climate Change Bureau)	Ms. Anne Vézina
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Tables

Table 1. Microbiological Parameters

In general, the highest-priority guidelines are those dealing with microbiological contaminants, such as bacteria, protozoa and viruses. As a result of challenges with routine analysis of harmful microorganisms that could potentially be present in inadequately treated drinking water, the microbiological guidelines focus on indicators (*E.coli*, total coliforms) and treatment goals. The use of a multi-barrier approach that includes source water protection, adequate treatment, including disinfection, and a well-maintained distribution system can reduce microorganisms to levels that have not been associated with illness, as well as meet the guidelines outlined below.

Parameter (approval)	Guideline	Common sources	Health considerations	Applying the guideline
Bacterial waterborne pathogens (2006)	None required	Human and animal faeces; some are naturally occurring	Commonly associated with gastrointestinal upset (nausea, vomiting, diarrhoea); some pathogens may infect the lungs, skin, eyes, central nervous system or liver.	Use multi-barrier approach to reduce pathogens to levels that are non-detectable or not associated with illness.
Enteric viruses (2011)	Treatment goal: Minimum 4 log reduction and/or inactivation of enteric viruses	Human and animal faeces	Commonly associated with gastrointestinal upset (nausea, vomiting, diarrhoea); less common health effects can include respiratory symptoms, central nervous system infections, liver infections and muscular syndromes.	Routine monitoring for viruses is not practical; where possible, characterize source water to determine if greater than a 4 log removal or inactivation is necessary.
<i>Escherichia coli</i> (<i>E. coli</i>) (2006)	MAC: None detectable per 100 mL	Human and animal faeces	The presence of <i>E. coli</i> indicates recent faecal contamination and the potential presence of microorganisms capable of causing gastrointestinal illnesses; pathogens in human and animal faeces pose the most immediate danger to public health.	<i>E. coli</i> is used as an indicator of the microbiological safety of drinking water; if detected, enteric pathogens may also be present.
Heterotrophic plate count (HPC) (2006)	None required	Naturally occurring	HPC results are not an indicator of water safety and should not be used as an indicator of potential adverse human health effects; HPC is a useful operational tool for monitoring general bacteriological water quality through the treatment process and in the distribution system.	If increases in HPC values above baseline levels occur, the system should be inspected to determine the cause; HPC should be minimized through effective treatment and disinfection and remain constant over time.
Protozoa: <i>Giardia</i> and <i>Cryptosporidium</i> (2004)	Treatment goal: Minimum 3 log reduction and/or inactivation	Human and animal faeces	Commonly associated with gastrointestinal upset (nausea, vomiting, diarrhoea); less common health effects can include respiratory symptoms, central nervous system infections, liver infections and muscular syndromes.	Monitoring for <i>Cryptosporidium</i> and <i>Giardia</i> in source waters will provide valuable information for assessing treatment requirements.

Parameter (approval)	Guideline	Common sources	Health considerations	Applying the guideline
Total coliforms (2006)	<p><i>At exit of municipal treatment plant or throughout semi-public systems:</i> MAC of none detectable/100 mL</p> <p><i>In municipal distribution systems:</i> No consecutive samples or no more than 10% of samples should contain total coliforms</p>	Human and animal faeces; naturally occurring in water, soil and vegetation	Total coliforms are not used as indicators of potential health effects from pathogenic microorganisms; they are used as an operational tool to determine how well the drinking water treatment system is operating.	In water leaving a treatment plant, the presence of total coliforms indicates that the water has been inadequately treated and may contain pathogenic microorganisms; in semi-public systems, the presence of total coliforms generally indicates that the system is vulnerable to contamination and that additional actions need to be taken; in a distribution and storage system, detection of total coliforms can indicate regrowth of the bacteria in distribution system biofilms or intrusion of untreated water; thus, exceedances of the distribution system goal should be investigated.
Turbidity (2003)	<p>Guideline Treated water < 0.1 NTU¹ at all times. Where not achievable: ≤ 0.3 NTU² ≤ 1.0 NTU³ ≤ 0.1 NTU⁴</p>	<p>Naturally occurring particles: <i>Inorganic:</i> clays, silts, metal precipitates <i>Organic:</i> decomposed plant & animal debris, microorganisms</p>	Indirect associations: particles can harbour microorganisms, protecting them from disinfection, and can entrap heavy metals and biocides; elevated or fluctuating turbidity in filtered water can indicate a problem with the water treatment process and a potential increased risk of pathogens in treated water.	Guidelines apply to individual filter turbidity for systems that use surface water or GUDI; drinking water from some sources may meet exemption criteria from filtration requirements established by the appropriate authority; increases in distribution system turbidity can be indicative of deteriorating water quality and should be investigated.

¹ Where possible, filtration systems should be designed and operated to reduce turbidity levels as low as possible, with a treated water turbidity target of less than 0.1 NTU at all times

² Chemically assisted filtration: ≤ 0.3 NTU in at least 95% of a) measurements made or b) the time each calendar month; never to exceed 1.0 NTU.

³ Slow sand or diatomaceous earth filtration: ≤ 1.0 NTU in at least 95% of a) measurements made or b) the time each calendar month; never to exceed 3.0 NTU.

⁴ Membrane filtration: ≤ 0.1 NTU in at least 99% of a) measurements made or b) the time each calendar month; never to exceed 0.3 NTU.

Table 2. Chemical and Physical Parameters

Guidelines for chemical and physical parameters are:

1. health based and listed as a maximum acceptable concentrations (MAC);
2. based on aesthetic considerations and listed as an aesthetic objectives (AO); or
3. established based on operational considerations and listed as an operational guidance values (OG).

In general, the highest priority guidelines are those dealing with microbiological contaminants. Any measure taken to reduce concentrations of chemical contaminants should not compromise the effectiveness of disinfection.

Type ¹	Parameter (approval, reaffirmation)	MAC (mg/L)	Other value (mg/L)	Common sources of parameter in water	Health considerations	Comments
T	Aluminum (1998)		OG: < 0.1 (conventional treatment); < 0.2 (other treatment types)	Aluminum salts used as coagulants in drinking water treatment; naturally occurring		Current weight of evidence does not indicate adverse health effects at levels found in drinking water.
I	Ammonia (1987)	None required		Naturally occurring; released from agricultural or industrial wastes; added as part of chloramination for drinking water disinfection		Guideline value not necessary as it is produced in the body and efficiently metabolized in healthy people; no adverse effects at levels found in drinking water.
I	Antimony (1997)	0.006		Naturally occurring (erosion); soil runoff; industrial effluents; leaching from plumbing materials and solder	Health basis of MAC: Microscopic changes in organs and tissues (thymus, kidney, liver, spleen, thyroid)	MAC takes into consideration analytical achievability; plumbing should be thoroughly flushed before water is used for consumption.
I	Arsenic (2006)	0.010 ALARA		Naturally occurring (erosion and weathering of soils, minerals, ores)	Health basis of MAC: Cancer (lung, bladder, liver, skin) (classified as human carcinogen) Other: Skin, vascular and neurological effects (numbness and tingling of extremities)	MAC based on treatment achievability; elevated levels associated with certain groundwaters; levels should be kept as low as reasonably achievable.

Type ¹	Parameter (approval, reaffirmation)	MAC (mg/L)	Other value (mg/L)	Common sources of parameter in water	Health considerations	Comments
I	Asbestos (1989, 2005)	None required		Naturally occurring (erosion of asbestos minerals and ores); decay of asbestos-cement pipes		Guideline value not necessary; no evidence of adverse health effects from exposure through drinking water.
P	Atrazine (1993)	0.005		Leaching and/or runoff from agricultural use	Health basis of MAC: Developmental effects (reduced body weight of offspring) Other: Potential increased risk of ovarian cancer or lymphomas (classified as possible carcinogen)	MAC applicable to the sum of atrazine and its <i>N</i> -dealkylated metabolites; persistent in source waters.
P	Azinphos-methyl (1989, 2005)	0.02		Leaching and/or runoff from agricultural use	Health basis of MAC: Neurological effects (plasma cholinesterase)	All uses to be phased out by 2012.
I	Barium (1990)	1.0		Naturally occurring; releases or spills from industrial uses	Health basis of MAC: Increases in blood pressure, cardiovascular disease	
O	Benzene (2009)	0.005		Releases or spills from industrial uses	Health basis of MAC: Bone marrow (red and white blood cell) changes and cancer (classified as human carcinogen) Other: Blood system and immunological responses	MAC considers additional exposure through showering and bathing; drinking water is generally a minor source of exposure.
O	Benzo[<i>a</i>]pyrene (1988, 2005)	0.000 01		Leaching from liners in water distribution systems	Health basis of MAC: Stomach tumours (classified as probable carcinogen)	
I	Boron (1990)	5		Naturally occurring; leaching or runoff from industrial use	Health basis of MAC: Reproductive effects (testicular atrophy, spermatogenesis) Other: Limited evidence of reduced sexual function in men	MAC based on treatment achievability.
DBP	Bromate (1998)	0.01		By-product of drinking water disinfection with ozone; possible contaminant in hypochlorite solution	Health basis of MAC: Renal cell tumours (classified as probable carcinogen)	MAC based on analytical and treatment achievability
P	Bromoxynil (1989, 2005)	0.005		Leaching or runoff from agricultural use	Health basis of MAC: Reduced liver to body weight ratios	

Type ¹	Parameter (approval, reaffirmation)	MAC (mg/L)	Other value (mg/L)	Common sources of parameter in water	Health considerations	Comments
I	Cadmium (1986, 2005)	0.005		Leaching from galvanized pipes, solders or black polyethylene pipes; industrial and municipal waste	Health basis of MAC: Kidney damage and softening of bone	
I	Calcium (1987, 2005)	None required		Naturally occurring (erosion and weathering of soils, minerals, ores)		Guideline value not necessary, as there is no evidence of adverse health effects from calcium in drinking water; calcium contributes to hardness
P	Carbaryl (1991, 2005)	0.09		Leaching or runoff from agricultural use	Health basis of MAC: Decreased kidney function (may be rapidly reversible after exposure ceases)	
P	Carbofuran (1991, 2005)	0.09		Leaching or runoff from agricultural use	Health basis of MAC: Nervous system effects (cholinesterase inhibition) and growth suppression	
O	Carbon tetrachloride (2010)	0.002		Industrial effluents and leaching from hazardous waste sites	Health basis of MAC: Liver toxicity Other: Kidney damage; liver tumours (classified as probable carcinogen)	MAC considers additional exposure through showering and bathing
D	Chloramines (1995)	3.0		Monochloramine is used as a secondary disinfectant; formed in presence of both chlorine and ammonia	Health basis of MAC: Reduced body weight gain Other: immunotoxicity effects	MAC is for total chloramines based on health effects associated with monochloramine and analytical achievability
DBP	Chlorate (2008)	1		By-product of drinking water disinfection with chlorine dioxide; possible contaminant in hypochlorite solution	Health basis of MAC: Thyroid gland effects (colloid depletion)	Formation of chlorate ion should be prevented, as it is difficult to remove once formed; chlorate formation should be controlled by respecting the maximum feed dose of 1.2 mg/L of chlorine dioxide and managing /monitoring formation in hypochlorite solutions.
I	Chloride (1979, 2005)		AO: ≤ 250	Naturally occurring (seawater intrusion); dissolved salt deposits, highway salt, industrial effluents, oil well operations, sewage, irrigation drainage, refuse leachates		Based on taste and potential for corrosion in the distribution system

Type ¹	Parameter (approval, reaffirmation)	MAC (mg/L)	Other value (mg/L)	Common sources of parameter in water	Health considerations	Comments
D	Chlorine (2009)	None required		Used as drinking water disinfectant	Guideline value not necessary due to low toxicity at concentrations found in drinking water	Free chlorine concentrations in most Canadian drinking water distribution systems range from 0.04 to 2.0 mg/L
D	Chlorine dioxide (2008)	None required		Used as drinking water disinfectant	A guideline for chlorine dioxide is not required because of its rapid reduction to chlorite in drinking water	A maximum feed dose of 1.2 mg/L of chlorine dioxide should not be exceeded to control the formation of chlorite and chlorate
DBP	Chlorite (2008)	1		By-product of drinking water disinfection with chlorine dioxide	Health basis of MAC: Neurobehavioural effects (lowered auditory startle amplitude, decreased exploratory activity), decreased absolute brain weight, altered liver weights	Chlorite formation should be controlled by respecting the maximum feed dose of 1.2 mg/L of chlorine dioxide and managing /monitoring formation in hypochlorite solutions.
P	Chlorpyrifos (1986)	0.09		Leaching and/or runoff from agricultural or other uses	Health basis of MAC: Nervous system effects (cholinesterase inhibition)	Not expected to leach significantly into groundwater
I	Chromium (1986)	0.05		Naturally occurring (erosion of minerals); releases or spills from industrial uses	Health basis of MAC: Enlarged liver, irritation of the skin, respiratory and gastrointestinal tracts from chromium (VI)	Chromium (III) is an essential element; MAC is protective of health effects from chromium (VI)
T	Colour (1979, 2005)		AO: ≤ 15 TCU	Naturally occurring organic substances, metals; industrial wastes		May interfere with disinfection; removal is important to ensure effective treatment
I	Copper (1992)		AO: ≤ 1.0	Naturally occurring; leaching from copper piping	Copper is an essential element in human metabolism. Adverse health effects occur at levels much higher than the aesthetic objective	Based on taste, staining of laundry and plumbing fixtures; plumbing should be thoroughly flushed before water is used for consumption
I	Cyanide (1991)	0.2		Industrial and mining effluents; release from organic compounds	Health basis of MAC: No clinical or other changes at the highest dose tested	Health effects from cyanide are acute; at low levels of exposure, it can be detoxified to a certain extent in the human body
O	Cyanobacterial toxins— Microcystin-LR (2002)	0.0015		Naturally occurring (released from blooms of blue-green algae)	Health basis of MAC: Liver effects (enzyme inhibitor) Other: Classified as possible carcinogen	MAC is protective of total microcystins; avoid algicides like copper sulphate, as they may cause toxin release into water

Type ¹	Parameter (approval, reaffirmation)	MAC (mg/L)	Other value (mg/L)	Common sources of parameter in water	Health considerations	Comments
P	Diazinon (1986, 2005)	0.02		Runoff from agricultural or other uses	Health basis of MAC: Nervous system effects (cholinesterase inhibition)	Not expected to leach significantly into groundwater
P	Dicamba (1987, 2005)	0.12		Leaching or runoff from agricultural or other uses	Health basis of MAC: Liver effects (vacuolization, necrosis, fatty deposits and liver weight changes)	Readily leaches into groundwater
O	1,2-Dichlorobenzene ² (1987)	0.2	AO: ≤ 0.003	Releases or spills from industrial effluents	Health basis of MAC: Increased blood cholesterol, protein and glucose levels	AO based on odour; levels above the AO would render drinking water unpalatable
O	1,4-Dichlorobenzene ² (1987)	0.005	AO: ≤ 0.001	Releases or spills from industrial effluents; use of urinal deodorants	Health basis of MAC: Benign liver tumours and adrenal gland tumours (classified as probable carcinogen)	AO based on odour; levels above the AO would render drinking water unpalatable
O	1,2-Dichloroethane (1987)	0.005		Releases or spills from industrial effluents; waste disposal	Health basis of MAC: Cancer of the circulatory system (classified as probable carcinogen)	MAC based on treatment and analytical achievability
O	1,1-Dichloroethylene (1994)	0.014		Releases or spills from industrial effluents	Health basis of MAC: Liver effects (fatty changes)	
O	Dichloromethane (2011)	0.05		Industrial and municipal wastewater discharges	Health basis of MAC: Liver effects (liver foci and areas of cellular alteration). Other: Classified as probable carcinogen	MAC is protective of carcinogenic effects and considers additional exposure through showering and bathing
O	2,4-Dichlorophenol (1987, 2005)	0.9	AO: ≤ 0.0003	By-product of drinking water disinfection with chlorine; releases from industrial effluents	Health basis of MAC: Liver effects (cellular changes)	AO based on odour; levels above the AO would render drinking water unpalatable
P	2,4-Dichlorophenoxy acetic acid (2,4-D) (1991)	0.1		Leaching and/or runoff from use as a weed controller; releases from industrial effluents	Health basis of MAC: Kidney effects (tubular cell pigmentation)	

Type ¹	Parameter (approval, reaffirmation)	MAC (mg/L)	Other value (mg/L)	Common sources of parameter in water	Health considerations	Comments
P	Diclofop-methyl (1987, 2005)	0.009		Leaching and/or runoff from use as a weed controller; added directly to water to control aquatic weeds	Health basis of MAC: Liver effects (enlargement and enzyme changes)	Low potential for groundwater contamination
P	Dimethoate (1986, 2005)	0.02		Leaching and/or runoff from residential, agricultural and forestry use	Health basis of MAC: Nervous system effects (cholinesterase inhibition)	
P	Diquat (1986, 2005)	0.07		Leaching and/or runoff from agricultural use; added directly to water to control aquatic weeds	Health basis of MAC: Cataract formation	Unlikely to leach into groundwater
P	Diuron (1987, 2005)	0.15		Leaching and/or runoff from use in controlling vegetation	Health basis of MAC: Weight loss, increased liver weight and blood effects	High potential to leach into groundwater
O	Ethylbenzene (1986, 2005)		AO: ≤ 0.0024	Emissions, effluents or spills from petroleum and chemical industries		Based on odour
I	Fluoride (2010)	1.5		Naturally occurring (rock and soil erosion); may be added to promote dental health	Health basis of MAC: Moderate dental fluorosis (based on cosmetic effect, not health)	Beneficial in preventing dental caries
DBP	Formaldehyde (1997)	None required		By-product of disinfection with ozone; releases from industrial effluents		Guideline value not necessary, as levels in drinking water are below the level at which adverse health effects may occur
O	Gasoline and its organic constituents (1986, 2005)	None required		Spill or leaking storage tank		No MAC due to complex composition of gasoline; strong taste and odour at concentrations well below those potentially eliciting adverse health effects (see benzene, ethylbenzene, toluene and xylenes for more information)
P	Glyphosate (1987, 2005)	0.28		Leaching and/or runoff from various uses in weed control	Health basis of MAC: Reduced body weight gain	Not expected to migrate to groundwater

Type ¹	Parameter (approval, reaffirmation)	MAC (mg/L)	Other value (mg/L)	Common sources of parameter in water	Health considerations	Comments
DBP	Haloacetic acids – Total (HAAs) ³ (2008)	0.08 ALARA		By-product of drinking water disinfection with chlorine	Health basis of MAC: Liver cancer (DCA); DCA is classified as probably carcinogenic to humans Other: Other organ cancers (DCA, DBA, TCA); liver and other organ effects (body, kidney and testes weights) (MCA)	Refers to the total of monochloroacetic acid (MCA), dichloroacetic acid (DCA), trichloroacetic acid (TCA), monobromoacetic acid (MBA) and dibromoacetic acid (DBA); MAC is based on ability to achieve HAA levels in distribution systems without compromising disinfection; precursor removal limits formation
T	Hardness (1979)	None required		Naturally occurring (sedimentary rock erosion and seepage, runoff from soils); levels generally higher in groundwater	Although hardness may have significant aesthetic effects, a guideline has not been established because public acceptance of hardness may vary considerably according to the local conditions; major contributors to hardness -- calcium and magnesium -- are not of direct public health concern	Hardness levels between 80 and 100 mg/L (as CaCO ₃) provide acceptable balance between corrosion and incrustation; where a water softener is used, a separate unsoftened supply for cooking and drinking purposes is recommended
I	Iron (1978, 2005)		AO: ≤ 0.3	Naturally occurring (erosion and weathering of rocks and minerals); acidic mine water drainage, landfill leachates, sewage effluents and iron-related industries		Based on taste and staining of laundry and plumbing fixtures; no evidence exists of dietary iron toxicity in the general population
I	Lead (1992)	0.010		Leaching from plumbing (pipes, solder, brass fittings and lead service lines)	Health basis of MAC: Biochemical and neurobehavioural effects (intellectual development, behaviour) in infants and young children (under 6 years) Other: Anaemia, central nervous system effects; in pregnant women, can affect the unborn child; in infants and children under 6 years, can affect intellectual development, behaviour, size and hearing; classified as probably carcinogenic to humans	Because the MAC is based on chronic effects, it is intended to apply to average concentrations in water consumed for extended periods. Exposure to lead should nevertheless be kept to a minimum; plumbing should be thoroughly flushed before water is used for consumption; most significant contribution is generally from lead service line entering the building

Type ¹	Parameter (approval, reaffirmation)	MAC (mg/L)	Other value (mg/L)	Common sources of parameter in water	Health considerations	Comments
I	Magnesium (1978)	None required		Naturally occurring (erosion and weathering of rocks and minerals)		Guideline value not necessary, as there is no evidence of adverse health effects from magnesium in drinking water
P	Malathion (1986, 2005)	0.19		Leaching and/or runoff from agricultural and other uses	Health basis of MAC: Nervous system effects (cholinesterase inhibition)	Not expected to leach into groundwater
I	Manganese (1987)		AO: ≤ 0.05	Naturally occurring (erosion and weathering of rocks and minerals)		Based on taste and staining of laundry and plumbing fixtures
I	Mercury (1986)	0.001		Releases or spills from industrial effluents; waste disposal; irrigation or drainage of areas where agricultural pesticides are used	Health basis of MAC: Irreversible neurological symptoms	Applies to all forms of mercury; mercury generally not found in drinking water, as it binds to sediments and soil
P	2-Methyl-4-chlorophenoxyacetic acid (MCPA) (2010)	0.1		Leaching and/or runoff from agricultural and other uses	Health basis of MAC: Kidney effects (increased absolute and relative weights, urinary bilirubin, crystals and pH) Other: Systemic, liver, testicular, reproductive/developmental and nervous system effects	Can potentially leach into groundwater
O	Methyl tertiary-butyl ether (MTBE) (2006)		AO: ≤ 0.015	Spills from gasoline refineries, filling stations and gasoline-powered boats; seepage into groundwater from leaking storage tanks	There exist too many uncertainties and limitations in the MTBE database to develop a health based guideline.	AO based on odour; levels above the AO would render water unpalatable; as the AO is lower than levels associated with potential toxicological effects, it is considered protective of human health.
P	Metolachlor (1986)	0.05		Leaching and/or runoff from agricultural or other uses	Health basis of MAC: Liver lesions and nasal cavity tumours	Readily binds to organic matter in soil; little leaching expected in soils with high organic and clay content
P	Metribuzin (1986, 2005)	0.08		Leaching and/or runoff from agricultural use	Health basis of MAC: Liver effects (increased incidence and severity of mucopolysaccharide droplets)	Leaching into groundwater depends on the organic matter content of the soil
O	Monochlorobenzene (1987)	0.08	AO: ≤ 0.03	Releases or spills from industrial effluents	Health basis of MAC: Reduced survival and body weight gain	AO based on odour; levels above the AO would render water unpalatable

Type ¹	Parameter (approval, reaffirmation)	MAC (mg/L)	Other value (mg/L)	Common sources of parameter in water	Health considerations	Comments
I	Nitrate/nitrite (1987)	Nitrate: 45 as nitrate; 10 as nitrate-nitrogen	Nitrite (if measured separately): 3.2 as nitrite; 1.0 as nitrite-nitrogen	Naturally occurring; leaching or runoff from agricultural fertilizer use, manure and domestic sewage; may be produced from excess ammonia or from microbial activity in distribution systems	Health basis of MAC: Methaemoglobinaemia (blue baby syndrome) in infants less than 3 months old (short term) Other: Classified as possible carcinogen	MACs are protective of children and adults; systems using chloramine disinfection or that have naturally occurring ammonia should monitor nitrite and nitrate in distribution system
I	Nitritotriacetic acid (NTA) (1990)	0.4		Sewage contamination	Health basis of MAC: Kidney effects (nephritis and nephrosis) Other: Classified as possible carcinogen	
DBP	N-Nitroso dimethylamine (NDMA) (2010)	0.000 04		By-product of drinking water disinfection with chlorine or chloramines; industrial and sewage treatment plant effluents	Health basis of MAC: Liver cancer (classified as probable carcinogen)	MAC considers additional exposure through showering and bathing; levels should be kept low by preventing formation during treatment
A	Odour (1979, 2005)		Inoffensive	Biological or industrial sources		Important to provide drinking water with no offensive odour, as consumers may seek alternative sources that are less safe
P	Paraquat (1986, 2005)	0.01 as paraquat dichloride; 0.007 as paraquat ion		Leaching and/or runoff from agricultural and other uses; added directly to water to control aquatic weeds	Health basis of MAC: Various effects on body weight, spleen, testes, liver, lungs, kidney, thyroid, heart and adrenal gland	Entry into drinking water unlikely from crop applications (clay binding); however, may persist in water for several days if directly applied to water
O	Pentachlorophenol (1987, 2005)	0.06	AO: ≤ 0.03	By-product of drinking water disinfection with chlorine; industrial effluents	Health basis of MAC: Reduced body weight, changes in clinical parameters, histological changes in kidney and liver, reproductive effects (decreased neonatal survival and growth)	AO based on odour; levels above the AO would render drinking water unpalatable
T	pH (1979)		6.5–8.5 ⁴	Not applicable		pH can influence the formation of disinfection by-products and effectiveness of treatment

Type ¹	Parameter (approval, reaffirmation)	MAC (mg/L)	Other value (mg/L)	Common sources of parameter in water	Health considerations	Comments
P	Phorate (1986, 2005)	0.002		Leaching and/or runoff from agricultural and other uses	Health basis of MAC: Nervous system effects (cholinesterase inhibition)	Some potential to leach into groundwater
P	Picloram (1988, 2005)	0.19		Leaching and/or runoff from agricultural and other uses	Health basis of MAC: Changes in body and liver weights and clinical chemistry parameters Other: Kidney effects (liver to body weight ratios and histopathology)	Significant potential to leach into groundwater
I	Selenium (1992)	0.01		Naturally occurring (erosion and weathering of rocks and soils)	Health basis of MAC: Essential nutritional element Other: Hair loss and weakened nails at extremely high levels of exposure	Most exposure from food; little information on toxicity of selenium from drinking water
I	Silver (1986, 2005)	None required		Naturally occurring (erosion and weathering of rocks and soils)		Guideline value not required as drinking water contributes negligibly to an individual's daily intake
P	Simazine (1986)	0.01		Leaching and/or runoff from agricultural and other uses	Health basis of MAC: Body weight changes and effects on serum and thyroid gland	Extent of leaching decreases with increasing organic matter and clay content
I	Sodium (1979)		AO: ≤ 200	Naturally occurring (erosion and weathering of salt deposits and contact with igneous rock, seawater intrusion); sewage and industrial effluents; sodium-based water softeners		Based on taste; where a sodium-based water softener is used, a separate unsoftened supply for cooking and drinking purposes is recommended
I	Sulphate (1994)		AO: ≤ 500	Industrial wastes	High levels (above 500 mg/L) can cause physiological effects such as diarrhoea or dehydration	Based on taste; health authorities should be notified of drinking water sources containing above 500 mg/L
I	Sulphide (1992)		AO: ≤ 0.05	Can occur in the distribution system from the reduction of sulphates by sulphate-reducing bacteria; industrial wastes		Based on taste and odour; levels above the AO would render water unpalatable
A	Taste (1979, 2005)		Inoffensive	Biological or industrial sources		Important to provide drinking water with no offensive taste, as consumers may seek alternative sources that are less safe

Type ¹	Parameter (approval, reaffirmation)	MAC (mg/L)	Other value (mg/L)	Common sources of parameter in water	Health considerations	Comments
T	Temperature (1979, 2005)		AO: ≤ 15°C	Not applicable		Temperature indirectly affects health and aesthetics through impacts on disinfection, corrosion control and formation of biofilms in the distribution system
P	Terbufos (1987, 2005)	0.001		Leaching and/or runoff from agricultural and other uses	Health basis of MAC: Nervous system effects (cholinesterase inhibition)	Based on analytical achievability
O	Tetrachloroethylene (1995)	0.03		Industrial effluents or spills	Health basis of MAC: Increased liver and kidney weights Other: Classified as possible carcinogen; limited evidence of an increased risk of spontaneous abortion	Readily leaches into groundwater; MAC considers additional exposure through showering and bathing
O	2,3,4,6-Tetrachlorophenol (1986, 2005)	0.1	AO: ≤ 0.001	By-product of drinking water disinfection with chlorine; industrial effluents and use of pesticides	Health basis of MAC: Developmental effects (embryotoxicity)	AO based on odour; levels above the AO would render drinking water unpalatable
O	Toluene (1986, 2005)		AO: ≤ 0.024	Release of effluents or spills from petroleum and chemical industries		AO based on odour; levels above the AO would render drinking water unpalatable
A	Total dissolved solids (TDS) (1991)		AO: ≤ 500	Naturally occurring; sewage, urban and agricultural runoff, industrial wastewater		Based on taste; TDS above 500 mg/L results in excessive scaling in water pipes, water heaters, boilers and appliances; TDS is composed of calcium, magnesium, sodium, potassium, carbonate, bicarbonate, chloride, sulphate and nitrate
O	Trichloroethylene (2005)	0.005		Industrial effluents and spills from improper disposal	Health basis of MAC: Developmental effects (heart malformations) Other: Classified as probable carcinogen	MAC considers additional exposure through showering and bathing
O	2,4,6-Trichlorophenol (1987, 2005)	0.005	AO: ≤ 0.002	By-product of drinking water disinfection with chlorine; industrial effluents and spills	Health basis of MAC: Liver cancer (classified as probable carcinogen)	AO based on odour; levels above the AO would render drinking water unpalatable

Type ¹	Parameter (approval, reaffirmation)	MAC (mg/L)	Other value (mg/L)	Common sources of parameter in water	Health considerations	Comments
P	Trifluralin (1989, 2005)	0.045		Runoff from agricultural uses	Health basis of MAC: Changes in liver and spleen weights and in serum chemistry	Unlikely to leach into groundwater
DBP	Trihalomethanes ³ (THMs) (2006)	0.1		By-product of drinking water disinfection with chlorine; industrial effluents	Health basis of MAC: Liver effects (fatty cysts) (chloroform classified as possible carcinogen) Other: Kidney and colorectal cancers	Considers the most commonly found THMs, namely chlorodibromomethane, chloroform, bromodichloromethane and bromoform; MAC based on health effects of chloroform and considers additional exposure through showering and bathing; precursor removal limits formation
I	Uranium (1999)	0.02		Naturally occurring (erosion and weathering of rocks and soils); mill tailings; emissions from nuclear industry and combustion of coal and other fuels; phosphate fertilizers	Health basis of MAC: Kidney effects (various lesions); may be rapidly reversible after exposure ceases	Based on treatment achievability; MAC based on chemical effects, as uranium is only weakly radioactive; uranium is rapidly eliminated from the body
O	Vinyl chloride (1992)	0.002		Industrial effluents; degradation product from trichloroethylene and tetrachloroethylene in groundwater; leaching from polyvinyl chloride pipes	Health basis of MAC: Liver cancer (classified as human carcinogen) Other: Raynaud's disease, effects on bone, circulatory system, thyroid, spleen, central nervous system	Based on treatment and analytical achievability; leaching from polyvinyl chloride pipe is not expected to be significant
O	Xylene (1986, 2005)		AO: ≤ 0.3	Industrial effluents and spills		AO based on taste and odour; levels above the AO would render water unpalatable
I	Zinc (1979, 2005)		AO: ≤ 5.0	Naturally occurring; industrial and domestic emissions; leaching may occur from galvanized pipes, hot water tanks and brass fittings		AO based on taste; water with zinc levels above the AO tends to be opalescent and develops a greasy film when boiled; plumbing should be thoroughly flushed before water is consumed

¹ Parameter types: A – Acceptability; D – Disinfectant; DBP – Disinfection by-product; P – Pesticide; I – Inorganic chemical; O – Organic chemical; P – Pesticide; Treatment related parameter.

² In cases where total dichlorobenzenes are measured and concentrations exceed the most stringent value (0.005 mg/L), the concentrations of the individual isomers should be established.

³ Expressed as a locational running annual average of quarterly samples.

⁴ No units.

Table 3. Radiological Parameters

Guidelines for radiological parameters focus on routine operational conditions of existing and new water supplies and do not apply in the event of contamination during an emergency involving a large release of radionuclides into the environment. Maximum acceptable concentrations (MACs) have been established for the most commonly detected natural and artificial radionuclides in Canadian drinking water sources, using internationally accepted equations and principles and based solely on health considerations.

The MACs are based on exposure solely to a specific radionuclide. The radiological effects of two or more radionuclides in the same drinking water source are considered to be additive. Thus, the sum of the ratios of the observed concentration to the MAC for each contributing radionuclide should not exceed 1.

Water samples may be initially analysed for the presence of radioactivity using gross alpha and gross beta screening rather than measurements of individual radionuclides. If screening levels are exceeded (0.5 Bq/L for gross alpha and 1.0 Bq/L for gross beta), then concentrations of specific radionuclides should be analysed. A guideline for radon is not deemed necessary and has not been established. Information on radon is presented because of its significance for indoor air quality in certain situations.

Parameter (approval)	MAC (Bq/L)	Common sources	Health basis of MAC	Comments
Cesium-137 (2009)	10	Nuclear weapons fallout and emissions from nuclear reactors	Cancer of the lung, breast, thyroid, bone, digestive organs and skin; leukaemia	
Iodine-131 (2009)	6	Sewage effluent	Cancer of the lung, breast, thyroid, bone, digestive organs and skin; leukaemia	
Lead-210 (2009)	0.2	Naturally occurring (decay product of radon)	Cancer of the lung, breast, thyroid, bone, digestive organs and skin; leukaemia	Corresponds to total lead concentration of 7×10^{-8} µg/L
Radium-226 (2009)	0.5	Naturally occurring	Cancer of the lung, breast, thyroid, bone, digestive organs and skin; leukaemia	
Radon (2009)	None required	Naturally occurring (leaching from radium-bearing rocks and soils; decay product of radium-226)	Health risk from ingestion considered negligible due to high volatility	Mainly a groundwater concern; if concentrations in drinking water exceed 2000 Bq/L actions should be taken to reduce release into indoor air (e.g. proper venting of drinking water supply)
Strontium-90 (2009)	5	Nuclear weapons fallout	Cancer of the lung, breast, thyroid, bone, digestive organs and skin; leukaemia	
Tritium (2009)	7000	Naturally occurring (cosmogenic radiation); releases from nuclear reactors	Cancer of the lung, breast, thyroid, bone, digestive organs and skin; leukaemia	Not removed by drinking water treatment

Table 4. Guidance Documents

In certain situations, the Federal-Provincial-Territorial Committee on Drinking Water may choose to develop guidance documents for contaminants that do not meet the criteria for guideline development and for specific issues for which operational or management guidance is warranted. These documents are offered as information for drinking water authorities and help provide guidance relating to contaminants, drinking water management issues or emergency situations.

Parameter/subject (approval)	Comments
Issuing and rescinding boil water advisories (2009)	Summarizes factors for consideration when responsible authorities issue or rescind boil water advisories
Chloral hydrate in drinking water (2008)	Exposure levels in Canada far below concentration that would cause health effects; levels above 0.2 mg/L may indicate a concern for health effects and should be investigated
Controlling corrosion in drinking water distribution systems (2009)	Addresses strategies to deal with leaching of lead from materials in the distribution system; sampling protocols can be used to assess corrosion and the effectiveness of remediation/control measures to reduce lead levels in drinking water; corrective measures are outlined to address lead sources
Issuing and rescinding drinking water avoidance advisories in emergency situations (2009)	Summarizes factors for consideration when responsible authorities issue or rescind drinking water avoidance advisories in emergency situations
Potassium from water softeners (2008)	Not a concern for general population; those with kidney disease or other conditions, such as heart disease, coronary artery disease, hypertension or diabetes, and those who are taking medications that interfere with normal body potassium handling should avoid the consumption of water treated by water softeners using potassium chloride

Table 5. Archived Documents

The Federal-Provincial-Territorial Committee on Drinking Water has established a science-based process to systematically review older guidelines and archive those that are no longer required. Guidelines are archived for parameters that are no longer found in Canadian drinking water supplies at levels that could pose a risk to human health, including pesticides that are no longer registered for use in Canada and for mixtures of contaminants that are addressed individually.

Parameter	Type
Aldicarb	Pesticide
Aldrin + dieldrin	Pesticide
Bendiocarb	Pesticide
Cyanazine	Pesticide
Dinoseb	Pesticide
Gasoline and its organic constituents	Organic chemical
Methoxychlor	Pesticide

Acronyms

A	acceptability (parameter type)
ALARA	as low as reasonably achievable
AO	aesthetic objective
CDW	Committee on Drinking Water (FPT)
D	disinfectant (parameter type)
DBP	disinfectant by-product (parameter type)
HPC	heterotrophic plate count
I	inorganic chemical (parameter type)
MAC	maximum acceptable concentration
NTU	nephelometric turbidity units
O	organic chemical (parameter type)
OG	operational guidance value
P	pesticide (parameter type)
T	treatment-related (parameter type)
TCU	total colour units

APPENDIX 'D'

B.C. Centre for Disease Control

**Drinking Water and Those with Weakened
Immune Systems**



Drinking Water and Those with Weakened Immune Systems

Some people with very weak immune systems may be at higher risk of water-borne infections. This file provides information about how to help prevent water-borne infections.

People who have significantly weakened immune systems and who are at higher risk of certain water-borne diseases include:

- People with HIV infection who have a CD4+ count of < 100 cells/mm³.
- People with hematological malignancies (lymphoma or leukemia) who are being actively treated or have been in remission and off treatment for less than 1 year.
- Hematopoietic stem cell transplant recipients.
- People born with diseases that severely affect their immune systems.

Some people with weakened immune systems, such as those with certain types of cancers or taking certain medications, may not be at higher risk of severe water-borne diseases. These people do not need to take extra precautions with their drinking water.

Ask your doctor or specialist how weak your immune system is, and whether you need to take extra precautions.

Diseases from drinking water

Drinking water can contain different organisms, including bacteria, viruses and parasites, which can cause disease. These organisms can exist in the source water such as lake water and survive through treatment, or they can enter the water supply in the distribution system. Well water can be contaminated if the well is not built properly or if it draws on water from the surface of the

ground, such as shallow wells or wells drilled in fractured rock. Surface water, such as rivers, lakes and streams, can also contain disease-causing organisms from animal feces.

If you have a weak immune system, you should not drink water from surface sources or wells potentially contaminated by surface water (for example, dug wells), unless the water has been treated to remove or inactivate at least 99.9% of parasites (protozoa), 99.99% of viruses and 100% of harmful bacteria.

Most community water systems in B.C. have effective treatment, such as disinfection or chlorination, against bacteria and viruses. However, in many cases, treatment may not provide a 99.9% reduction in infectious parasites. Furthermore, some water systems and many private supplies have no treatment at all. If the water you drink has not been disinfected, please refer to HealthLink BC File [#49b How to Disinfect Drinking Water](#).

To further treat drinking water that has been disinfected, consider the methods listed below.

Options for water treatment

Boiling: If your water supply is disinfected you need only bring the water to a full boil to inactivate any *Cryptosporidium* parasites - a major concern for immunocompromised people, as there is no medical treatment for this parasite.

If the water is not yet disinfected, it's recommended you bring water to a full boil for at least one minute as the best way to kill or inactivate bacteria, viruses and parasites.

At elevations over 2,000 meters [6,500 feet], you should boil water for at least two minutes to disinfect it. In this situation, you should not drink or use tap water to brush your teeth, rinse your mouth, mix drinks or make ice cubes without boiling it first.

If you are preparing infant formula, please see HealthLink BC File [#69b Formula Feeding Your Baby: Safely Preparing and Storing Formula](#). Please note that boiling water will get rid of viruses, bacteria and parasites but not chemicals which may be found in the water. For more information, please contact the environmental health officer or drinking water officer at your nearest public health unit.

Filters: If you plan to install a drinking water filter in your home, you will need a system labeled as "Absolute" 1 micron or smaller, and labeled as meeting ANSI/NSF International Standard #53 for removal of parasites. These are *not* suitable for removing bacteria and viruses and should *not* be used *unless* the water supply is at least disinfected first.

Jug-type filters, which sit in a jug and allow water to trickle through, and some tap-mounted and built-in devices are not an appropriate solution. The jug filter models are *not* effective in removing many disease-causing organisms.

Reverse Osmosis (RO): RO is effective against all disease-causing organisms and many chemical contaminants. Unless it has a high capacity, it will only produce small amounts of water and waste a large volume. Speak to a water treatment specialist to see if this is the best option for you.

Ultraviolet (UV) Treatment: UV light will kill many disease-causing organisms, and it is effective against almost all parasites. UV will not kill some bacterial spores and some viruses, so it should *not* be used *unless* the water supply is at least disinfected. UV

treatment units should meet NSF Standard #55A.

Bottled water

If you do not want to drink water from the tap, you may also choose to buy bottled water that has been treated adequately. Most bottled water in B.C. has had RO treatment, but not all has been treated. You should check with the water bottler to find out what treatment it has had. You can still use tap water for cooking as long as you boil it. You can use bottled water treated by reverse osmosis for drinking, brushing teeth, making ice cubes and for recipes where water is used but not boiled such as cold soups or salad dressings.

For more information, including the level of treatment in your local water system, please contact your drinking water purveyor or supplier or the local environmental health officer or drinking water officer. Please also see the following HealthLink BC Files.

[#49a Water-borne Diseases in BC](#)

[#49b How to Disinfect Drinking Water](#)

For more HealthLink BC File topics, visit www.HealthLinkBC.ca/healthfiles/index.stm or your local public health unit.

Click on www.HealthLinkBC.ca or call **8-1-1** for non-emergency health information and services in B.C.

For deaf and hearing-impaired assistance, call 7-1-1 in B.C.

Translation services are available in more than 130 languages on request.

APPENDIX ‘E’

Fraser Health Authority

“Flush” Message



fraserhealth Better health.
Best in health care.

June, 2012

Water System Operators

Re: Metals in Drinking Water – “Flush” Message in Annual Reports

Fraser Health has recently revised its metals at the tap “Flush” message and we are asking all water systems to please include the following health message with your next annual reports to your users.

Anytime the water in a particular faucet has not been used for six hours or longer, "flush" your cold-water pipes by running the water until you notice a change in temperature. (This could take as little as five to thirty seconds if there has been recent heavy water use such as showering or toilet flushing. Otherwise, it could take two minutes or longer.) The more time water has been sitting in your home's pipes, the more lead it may contain.

Use only water from the cold-tap for drinking, cooking, and especially making baby formula. Hot water is likely to contain higher levels of lead.

The two actions recommended above are very important to the health of your family. They will probably be effective in reducing lead levels because most of the lead in household water usually comes from the plumbing in your house, not from the local water supply.

Conserving water is still important. Rather than just running the water down the drain you could use the water for things such as watering your plants.

If you have any questions, please contact our Drinking Water Program at 604-870-7900 or 1-866-749-7900.

Sincerely,

Marc Zubeł
Manager, Drinking Water Program
Health Protection

