

# WATER SYSTEM ANNUAL REPORT



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2009



**WATER SYSTEM**

**ANNUAL REPORT**

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## **REPORT SUMMARY**

In 2009, the City of Surrey, similar to other jurisdictions in the Lower Mainland, purchased all its water from Metro Vancouver. The City of Surrey's water distribution system begins at the discharge points of six (6) Metro Vancouver reservoirs and eleven (11) Metro Vancouver connection chambers located throughout the City.

The City's piped distribution system is approximately 1,800 km long and includes ten (10) pump stations.

Surrey's geography and size has required the configuration of eight (8) different water pressure zones to be employed throughout the system.

The City's scheduled maintenance program for its water system components includes a unidirectional water main flushing program. This program strives to flush all pipes at least once every three (3) years, ensuring that water from non-flushed mains does not flow into recently flushed mains. The combination of the City's maintenance program, ongoing pipe size upgrades, and water supply control by Metro Vancouver, has so far eliminated the need for any abrasive, mechanical cleaning of the City-owned distribution mains.

Key to monitoring the City's water quality are fifty-one (51) water-sampling sites located strategically across the City. Weekly samples are collected by both City and Metro Vancouver staff, with temperature, turbidity, chlorine residual, and bacterial analysis carried-out at Metro Vancouver's testing laboratory in Burnaby.

Approximately 18% of the City's Water Operating & Maintenance Budget was spent on water quality related work in 2009. Two-thousand seven hundred and forty-eight (2,748) water samples were analyzed, and there were no samples that detected the presence of e-coli coliforms. All samples met Metro Vancouver's testing laboratory's detection limit for compliance with the B.C. Drinking Water Protection Regulation (BCDWPR) and the Guidelines for Canadian Drinking Water Quality (GCDWQ) standards for counts of total coliforms. Audit samples taken in 2009 by the Fraser Health Authority throughout the system confirmed Metro Vancouver laboratory test results. This is consistent with previous years' samples and results.

The City has established response procedures to deal with water quality issues and for line breaks. The procedures incorporate both agency notification and physical repair steps. Integral to the response procedures are well-defined communication links between the City, Metro Vancouver, and the Fraser Health Authority (FHA). 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, portions of the distribution system have experienced lower than desirable chlorine residual values. The lower than desirable chlorine residual values will be reviewed with Metro Vancouver and the Fraser Health Authority to assess the impact of the results and to review operation and maintenance procedures.

Where weekly water sampling test results revealed (through the use of heterotrophic plate counts, HPC) bacterial growth within the mains, in excess of 500 colony forming units per milliliter, the City's maintenance crews flushed the mains in the affected areas and re-tested the chlorine residuals at the sampling station. Low chlorine residuals, low flow demands, and circulation restrictions at or near dead ends in the system are indicative of site characteristics where elevated HPC's reoccur.

The City is investigating 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 Capital Works projects in the area. Other activities being reviewed as part of our investigation efforts include unscheduled or scheduled maintenance, or underutilized (low flow)/dead end water mains where the water quality results show both low chlorine residuals and above normal HPC.

Metro Vancouver's laboratory performs quarterly tests on the City's water system for disinfection by-products (Haloacetic Acids and Trihalomethanes), and semi-annual tests for pH and select metal concentrations. These were carried out at representative sampling sites in accordance with a monitoring and reporting plan established between the City and Metro Vancouver. The annual average test results did not exceed the minimal acceptable levels recommended in the GCDWQ.

Except for the occasional unauthorized opening, or accident affecting fire hydrants, there were no incidents of vandalism in 2009. System security components incorporating lighting, locks and alarms at the water pump stations, as well as check valves on service connections, help provide protection against vandalism.

The City also monitors backflow controls on commercial/industrial businesses on an on-going basis through a cross-connection control (CCC) program. In 2009, an additional 800 backflow prevention assemblies were registered with the City. This brings the number of registered backflow prevention devices to over 6,200. The City's CCC program requires that the consumer test their devices annually and in 2009, the City realized a 90% compliance level. This increase is the result of improved communication efforts such as direct contact and follow-up through phone calls and/or written notices to our non-compliant customers.

The City of Surrey remains diligent in ensuring the water distribution system is maintained consistent with Best Management Practices (BMPs) which support the high standard expected by its 112,300 customers and over 466,200 residents.



## **WATER SYSTEM ANNUAL REPORT for 2009**

### **A. System Makeup**

In 2009, the City of Surrey obtained all of its potable water from Metro Vancouver, and its impounded reservoirs on the Capilano, Seymour, and the 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 feeding the reservoirs. Metro Vancouver rechlorinates all the supply water prior to it entering the City's distribution system.

The City's water distribution network, approximately 1,800 km long, incorporates water mains, water testing stations, pump stations, and water meters. The detailed breakdown of the current water main inventory is given in Table 1, "City of Surrey 2009 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 undertake a regular flushing of the mains in addition to the annual unidirectional flushing program.

**Table 1:  
City of Surrey 2009 Water Main Inventory**

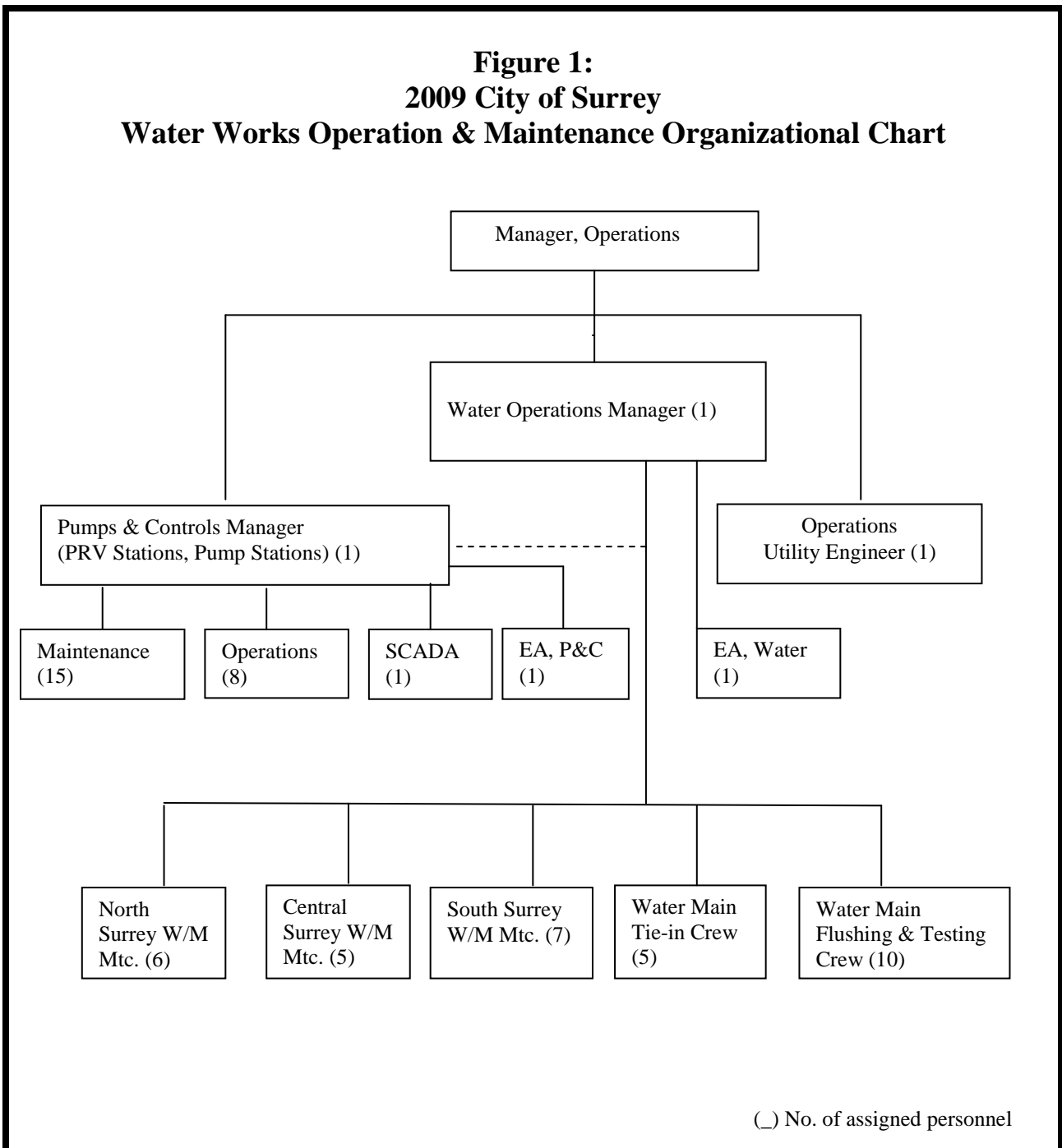
Main Size (mm)	Main Length (m) by Material								
	AC	CC	CI	CU	DI	GI	PE	PVC	ST
25				107		1,005	50	142	
38								10	
50	230		81	301	49	2,716	1,916	4,739	
75					163			104	
100	12,330		14,452		54,219	20	22,141	11,826	427
150	45,879		69,912		318,743		6,040	94,102	504
200	24,859		27,526		163,751		150	291,861	820
250	389		3,566		57,995			68,538	187
300	13,734		17,581		208,491		171	96,889	5,567
350					36,157			1,166	668
400					33,584			36	1,039
450		8,635			34,956			356	1,095
500					3,972				39
525									4,977
600		11,164			5,825				4,076
650					24				
675									205
750		304			88				15,617
850									5,610
900		33			526				20,202
990									
1050									11,266
1200									5,053
SUBTOTAL	97,421	20,136	133,118	408	918,543	3,741	30,468	569,769	77,352
<b>TOTAL</b>	<b>1,850,956</b>								

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
ST	Steel

## B. System Maintenance

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

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





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

- a) **Water Maintenance Crews (North, Central & South):**  
Provide maintenance of services, mains and of all appurtenances, on-demand flushing, and emergency repairs.
- b) **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.
- c) **Water Main Flushing & Testing 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.
- d) **Pumps & Control Maintenance Crew:**  
Provide scheduled and emergency repairs and upkeep on the mechanical components of water pump stations, and pressure reducing stations.
- e) **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.
- f) **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.
- g) **Utility Engineer:**  
Provides technical assistance with water quality issues, water meters, and distribution system expansions.

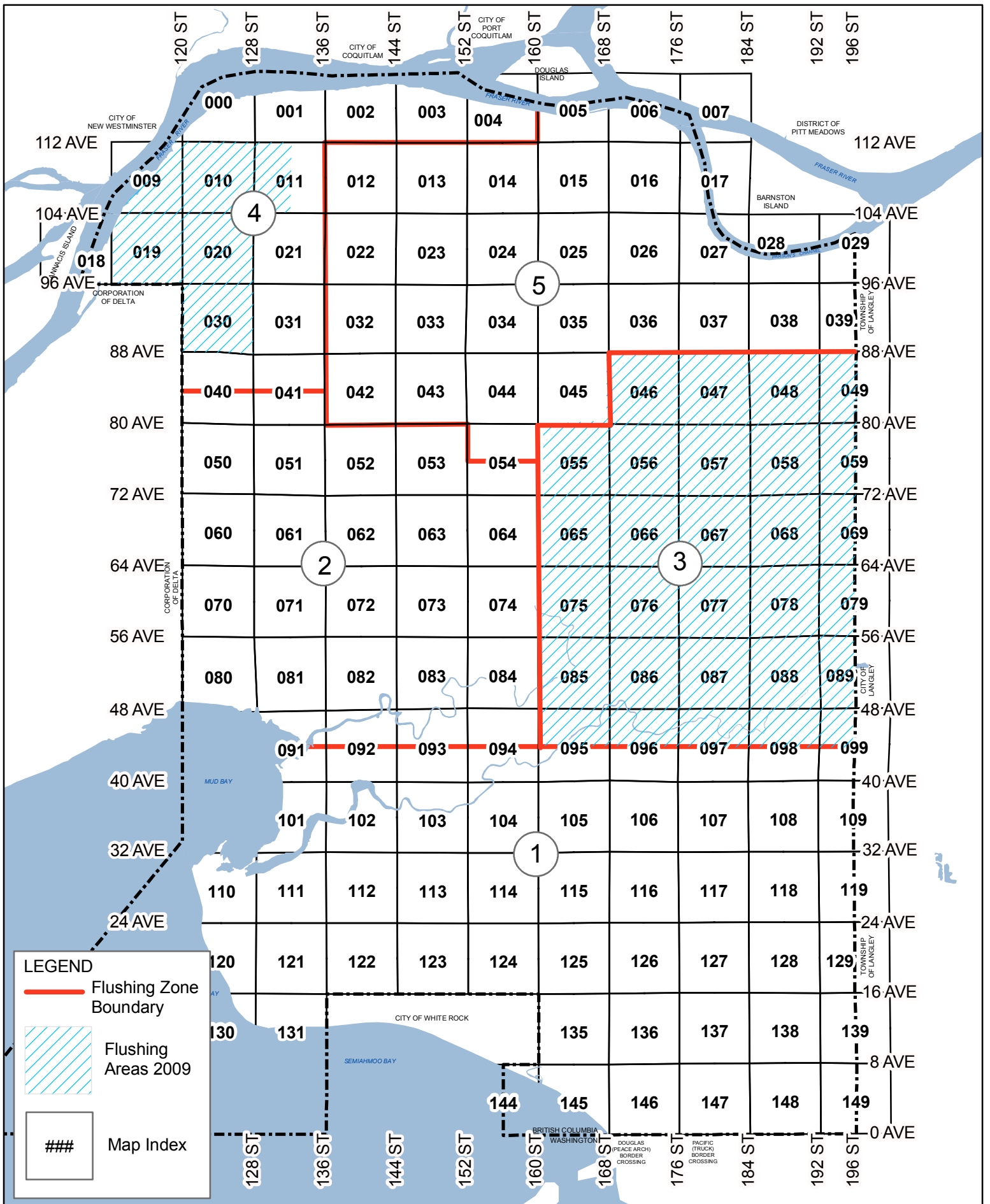
## **C. Scheduled Maintenance**

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 three years. “On demand” flushing also occurs, as needed in conjunction with water quality testing results and with line repairs. The flushing serves to remove 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, and more in line with that of 2006 and previous years.

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**



## **D. System Budget**

A summary of activities and annual budgets related to water quality preservation of the City's water distribution system 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  
2009 and 2010 Water Quality Maintenance Budgets**

<b>Description</b>	<b>2009 Budget</b>	<b>2010 Budget</b>
Main Line Repairs	\$337,000	\$348,800
Line Flushing (600 km/yr)	\$221,100	\$228,800
Hydrant Maint. (2300/yr)	\$295,700	\$320,100
PRV Maint.	\$227,500	\$237,300
Pump Stations Maint. (11)	\$382,300	\$392,000
Water Quality Monitoring	\$83,000	\$92,500
<b>TOTALS*</b>	<b>\$1,546,600</b>	<b>\$1,619,500</b>

\* Total Water Distribution System Operations & Maintenance Budget is: \$8,480,300 for Year 2009, and \$8,914,800 for Year 2010

## **E. Water Sampling & Testing Program**

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

Fifty-one water sampling site locations have been 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 the year 2009 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, metals, trihalomethanes (THM's), total coliforms, and fecal coliforms.

In the year 2009, a total of 2748 water samples were tested with a monthly maximum of 277, a monthly minimum of 171, and a monthly median of 228 samples being taken. This number of samples compares favourably 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 2009 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 waterline 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 maximum limit of 10 total coliforms per 100 ml in a 30-day period. However, there were three samples with t-coli counts of 1 per 100 ml and one sample with a t-coli count of 4 per 100 ml. Upon flushing and re-sampling, the t-coli counts returned to values of less than could be detected by Metro Vancouver's laboratory. There were no confirmed causes for the positive t-coli test results, although 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 bi-products: Haloacetic acids (five) (HAA5) and Trihalomethanes (THM's). The detailed results of these tests 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 6.7 with a maximum of 7.2, and a minimum of 6.5.

THM disinfection by-products were measured at seven of the test sampling sites. The results show the Total THM's 2009 running average to be 40.6 parts per billion (ppb), which is less than the GCDWQ 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 2009 running average to be 63.7 ppb, which is less than the GCDWQ acceptable concentration of 80 ppb.

Metro Vancouver's laboratory tested for concentrations of copper, iron, lead, zinc and other metals two times at three of the stations in 2009. The measured concentration 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 570 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.

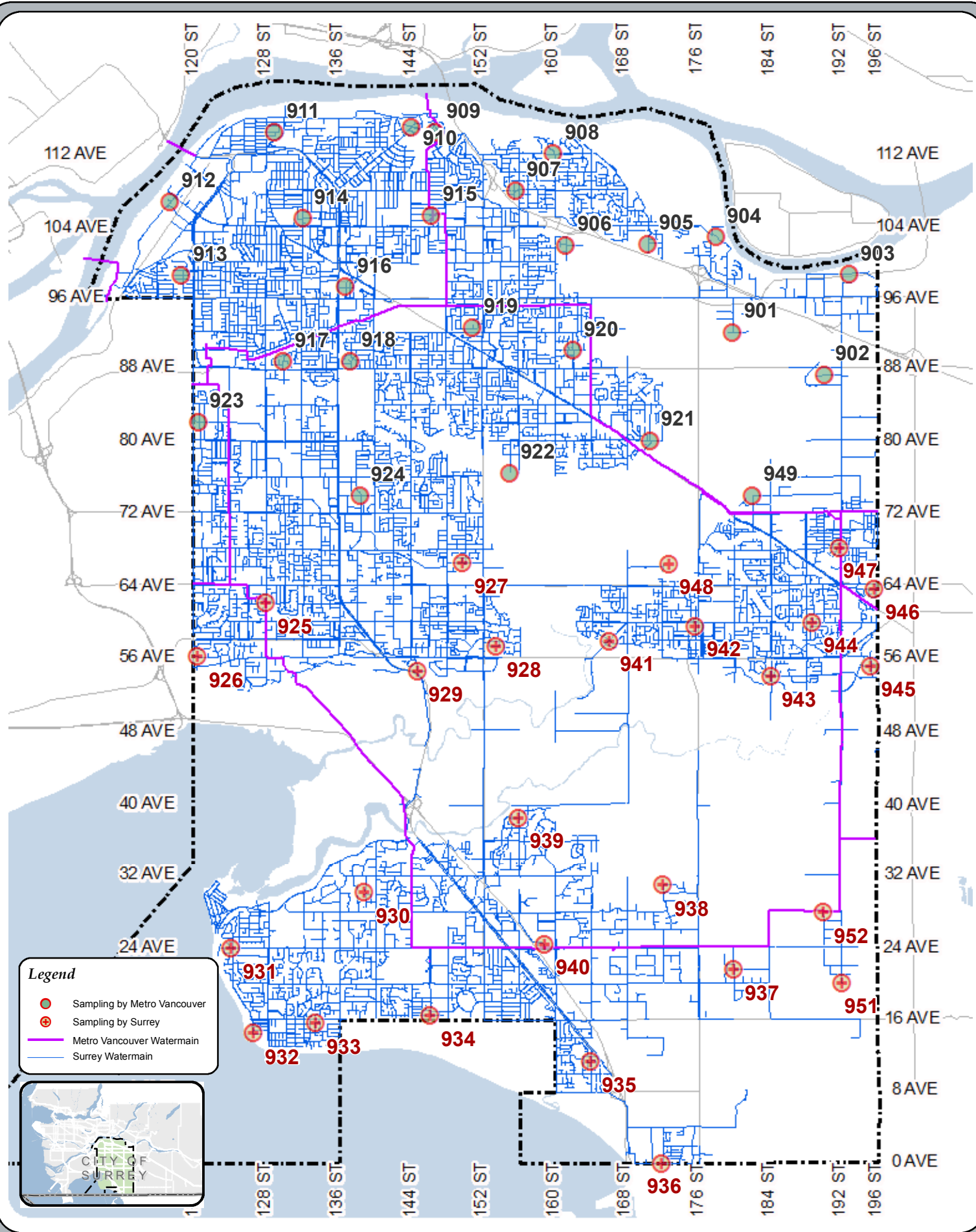
Due to the lack of water contact with pesticides, herbicides, or parasites, the City has not tested for these substances or organisms.

In 2009, there were an estimated total of 200 maintenance crew responses to public concerns about water quality. This number equates to 1.8 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, and are dealt with on an individual basis. Turbidity issues are typically the result of line flushing operations and do not usually requires follow up action by our maintenance crews.

SITE NUMBER	LOCATION	SAMPLE BY
901	NW CORNER 180 ST & 92 AVE	METRO VANCOUVER
902	ACROSS 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. 100f E OF 15A 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. 25f 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 & 20 AVE	SURREY
952	WPL 19026 28 AVE	SURREY

**Fig. 3: WATER SAMPLING SITES LEGEND**



**Fig. 4: WATER SAMPLING SITES**



0 0.5 1 2 3 4 5 KM  
SCALE: 1:110,000

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\Maps\Recurring\wrMainSamplingSites\_A.mxd  
Cartographer: AWB © City of Surrey Date Printed: June 4, 2009



**Table 3: Number of Year 2009 Water Test Samples**

SITE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Station Total
901	5	2	4	4	5	6	5	5	5	5	4	5	55
902	6	5	4	5	5	6	5	5	4	5	4	5	59
903	5	5	1	5	4	6	5	5	5	5	4	5	55
904	2	5	3	5	4	6	5	4	5	5	4	5	53
905	6	5	4	5	4	6	5	5	5	5	4	5	59
906	1	0	4	6	4	4	5	4	3	6	5	4	46
907	3	5	4	5	4	6	5	5	5	5	4	5	56
908	4	5	4	5	4	6	5	5	5	5	4	5	57
909	2	7	6	6	4	3	6	5	6	8	6	6	65
910	6	6	6	6	4	3	6	5	6	8	6	7	69
911	1	3	6	7	4	3	6	5	6	8	6	7	62
912	1	6	6	7	4	3	6	5	6	8	6	7	65
913	2	6	6	6	4	3	6	5	6	7	6	7	64
914	3	6	6	7	4	3	6	5	6	8	6	7	67
915	4	6	5	7	4	3	6	5	9	8	6	3	66
916	2	6	6	6	4	3	6	5	6	7	6	6	63
917	2	6	6	6	4	3	6	5	6	7	6	6	63
918	4	6	5	6	4	3	6	5	6	7	6	6	64
919	2	2	4	6	4	5	5	4	3	6	5	2	48
920	3	4	4	6	4	5	6	5	3	6	5	7	58
921	4	4	4	6	4	5	5	4	3	6	5	7	57
922	3	4	4	6	4	5	4	5	3	6	5	7	56
923	1	7	6	6	4	3	6	5	6	8	6	7	65
924	4	5	4	6	4	6	5	4	3	6	5	7	59
925	3	4	3	4	4	4	5	4	4	5	4	5	49
926	3	4	3	4	4	4	5	4	4	5	4	5	49
927	3	4	4	4	4	4	5	4	4	5	4	2	47
928	3	2	2	4	4	4	5	4	4	5	4	4	45
929	3	4	3	4	4	4	5	4	4	5	4	5	49
930	4	4	3	5	4	4	4	4	4	4	4	3	47
931	4	4	3	5	5	4	4	4	4	4	4	4	49
932	4	4	3	5	4	4	4	4	4	4	4	4	48
933	4	4	3	5	3	4	4	4	4	4	4	4	47
934	4	4	3	5	4	4	4	4	4	4	4	4	48
935	4	4	3	5	4	4	4	4	4	4	4	4	48
936	4	4	3	5	4	4	4	4	4	4	4	3	47
937	4	4	3	5	4	4	4	4	4	4	5	4	49
938	4	4	3	5	5	4	4	4	4	4	4	4	49
939	4	4	3	5	4	4	4	4	4	4	4	4	48
940	4	4	3	5	4	4	4	4	4	4	4	4	48
941	3	4	3	4	4	4	5	4	4	5	4	4	48
942	3	4	3	4	4	4	5	4	4	5	4	4	48
943	4	4	3	5	4	4	4	4	4	4	4	4	48
944	3	4	3	4	4	4	5	4	4	5	4	4	48
945	3	4	3	3	4	4	5	4	4	5	4	5	48
946	3	2	3	4	5	4	5	4	4	5	4	4	47
947	3	4	3	4	3	4	5	4	4	5	4	5	48
948	3	3	3	5	4	4	5	4	4	5	4	2	46
949	5	5	6	10	5	6	4	5	7	6	11	8	78
951	2	1	3	5	4	4	4	4	4	4	4	4	43
952	4	4	3	5	4	4	4	4	4	4	4	4	48
<b>Monthly Total</b>	171	217	196	268	208	215	251	224	232	277	240	249	2748
<b>Monthly Minimum</b>	171												
<b>Monthly Maximum</b>	277												
<b>Monthly Median</b>	228												

## 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 the FHA if any fecal coliform count is 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 <sup>2</sup> City of Surrey <sup>3</sup>	MHO (or delegate)	Immediate
Chemical Contamination – Metro Vancouver	Metro Vancouver	Metro Vancouver, MHO, City of Surrey <sup>1</sup>	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 <sup>1</sup>	Immediate
Disinfection Failure – Source Water (Primary Disinfection)	Metro Vancouver	Metro Vancouver, MHO, and City of Surrey <sup>1</sup>	Immediate (As per DWPA)
Disinfection Failure – Rechlorination (Secondary Disinfection)	Metro Vancouver	Metro Vancouver, MHO, and City of Surrey <sup>1</sup>	Immediate, in any situation in which the BCSDWR 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 <sup>4</sup>	City of Surrey	MHO (or delegate)	As soon as possible
Line Break – Metro Vancouver <sup>4</sup>	Metro Vancouver	City of Surrey	Optional
Line Break – City of Surrey <sup>5</sup>	City of Surrey	MHO (or delegate)	Immediate
Line Break – Metro Vancouver <sup>5</sup>	Metro Vancouver	Metro Vancouver, MHO, City of Surrey <sup>1</sup>	Immediate

1. City of Surrey to notify Fraser Health Authority.
2. Laboratory to immediately notify the MHO, DWO (or FHA delegates) and the water supplier as per section 12(1) of the DWPA.
3. City of Surrey to immediately notify the MHO, DWO (or FHA delegates) as per section 12(2) of the DWPA.
4. With no suspected contamination.
5. 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 (HPC counts, chlorine residual values, turbidity counts) 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 cause for all of the results with greater than 500 HPC's.

In 2009, 2% 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 2000 to 2009 HPC Positive Samples Summary >500" (pg. 16) summarizes the incidents of HPC's greater than 500 for years from 2000 to 2009.

Approximately 11% 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 higher than that of the previous 3 years (6.2%, 5.9% and 8.5% respectively).

The City is investigating 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 Capital Works projects. Other activities being reviewed as part of our investigation efforts include unscheduled or scheduled maintenance, and underutilized (low flow)/dead end water mains where the water quality results show both low chlorine residuals and above normal HPC.

Initial findings show no correlation between construction work and poor water quality results. However, areas with high HPC have been found to be limited to the southern portion of the City's distribution network. This is an area with relatively poor circulation due to partial build-out conditions. This system characteristic will continue to be closely monitored in 2010 and if necessary operational and maintenance adjustments introduced.

An additional consideration is the economic downturn and subsequent decrease in development throughout the City in 2009. This could have contributed to an increase in water stagnation due to a greater number of non-built out developments than in previous years.

**Table 5: Year 2000 to 2009 HPC Positive Samples Summary >500**

Sampling Site	No. of Samples Tested										No. of HPC Results >500										% of Samples >500										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	
901	38	48	51	47	48	50	48	47	46	55	1	6	1	0	0	0	0	0	0	0	3%	12.5%	2%	0%	0%	0%	0%	0%	0%	0%	
902	40	48	51	50	46	55	49	44	47	59	0	4	1	6	4	4	6	1	0	0	0%	8%	2%	12%	9%	7%	12%	2%	0%	0%	
903	37	53	50	46	46	59	50	47	48	55	0	6	0	1	1	1	1	0	0	0	0%	11%	0%	2%	2%	2%	2%	0%	0%	0%	
904	37	48	52	44	44	53	46	38	48	53	0	2	1	0	0	0	0	0	0	0	0%	4%	2%	0%	0%	0%	0%	0%	0%	0%	
905	39	49	52	44	47	53	47	41	46	59	0	0	2	1	0	0	0	0	1	0	0%	0%	4%	0%	0%	0%	0%	0%	2%	0%	
906	40	35	52	52	45	47	40	42	46	46	3	3	1	0	0	0	0	0	0	0	8%	9%	2%	0%	0%	0%	0%	0%	0%	0%	
907	9	48	51	47	45	49	46	44	47	56	0	0	1	0	0	0	0	0	0	0	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	
908	0	34	56	47	46	57	47	43	48	57	0	9	5	0	1	1	0	0	1	0	26%	9%	0%	2%	2%	2%	0%	0%	2%	0%	
909	0	33	48	49	47	46	46	38	59	65	0	7	0	0	0	0	0	0	0	0	21%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
910	23	51	51	49	48	46	48	39	60	69	0	9	2	0	0	0	0	2	0	2	0%	18%	4%	0%	0%	0%	0%	0%	3%	0%	
911	48	51	55	47	51	47	42	43	60	62	15	15	18	4	8	8	0	2	0	0	31%	29%	33%	9%	16%	17%	0%	5%	0%	0%	
912	51	48	42	47	46	47	43	43	54	65	0	2	0	0	0	0	0	7	9	0	0%	4%	0%	0%	0%	0%	0%	16%	17%	0%	
913	51	52	48	45	48	44	45	40	53	64	1	7	1	0	0	0	0	1	0	0	2%	13%	2%	0%	0%	0%	0%	3%	0%	0%	
914	23	48	51	45	45	46	42	39	62	67	1	4	1	0	0	0	0	0	2	0	4%	8%	2%	0%	0%	0%	0%	0%	3%	0%	
915	51	50	57	50	47	47	54	44	64	66	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
916	1	31	30	25	48	44	40	41	55	63	0	19	0	1	0	0	0	0	0	0	0%	61%	0%	4%	0%	0%	0%	0%	0%	0%	
917	0	28	51	45	46	47	41	43	55	63	0	0	1	1	0	0	0	0	0	0	0%	0%	2%	2%	0%	0%	0%	0%	0%	0%	
918	26	50	49	45	45	49	50	39	55	64	0	7	4	5	0	0	0	0	0	0	0%	14%	8%	11%	0%	0%	0%	0%	0%	0%	
919	51	51	53	53	44	45	41	44	50	48	0	3	0	0	0	0	0	0	0	0	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%	
920	50	54	55	51	44	42	39	43	49	58	0	3	0	2	1	1	0	0	0	0	0%	6%	0%	4%	2%	2%	0%	0%	0%	0%	
921	46	46	45	47	43	46	45	44	52	57	0	0	0	0	0	0	1	0	0	0	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	
922	0	54	59	49	46	50	35	45	51	56	0	15	4	3	4	4	0	1	1	0	28%	7%	6%	9%	8%	0%	2%	2%	0%	0%	
923	48	48	50	49	46	43	40	39	57	65	0	1	0	0	0	0	0	0	1	0	0%	2%	0%	0%	0%	0%	0%	0%	2%	0%	
924	24	48	45	48	44	46	44	41	47	59	0	0	1	1	0	0	0	0	0	0	0%	0%	2%	2%	0%	0%	0%	0%	0%	0%	
925	47	47	37	46	44	51	45	49	47	49	0	5	0	0	0	0	1	0	0	0	0%	11%	0%	0%	0%	0%	0%	2%	0%	0%	
926	52	51	46	47	44	53	50	48	46	49	1	1	4	0	0	0	0	0	0	0	2%	2%	9%	0%	0%	0%	0%	0%	0%	0%	
927	48	52	46	46	44	50	50	49	44	47	20	4	0	0	0	0	0	0	0	0	42%	8%	0%	0%	0%	0%	0%	0%	0%	0%	
928	51	51	45	47	44	51	49	48	48	45	0	0	1	6	1	1	0	0	1	0	0%	0%	2%	13%	2%	2%	0%	0%	2%	0%	
929	9	47	45	46	43	51	50	50	44	49	0	0	0	1	1	1	0	0	0	0	0%	0%	0%	2%	2%	2%	0%	0%	0%	0%	
930	51	54	50	51	45	45	47	41	47	47	5	7	0	0	0	0	0	0	0	0	10%	13%	0%	0%	0%	0%	0%	0%	0%	0%	
931	52	49	51	52	45	46	44	42	47	49	2	0	0	0	1	1	0	0	0	0	4%	0%	0%	0%	2%	2%	0%	0%	0%	0%	
932	50	50	51	52	45	46	47	42	47	48	3	0	0	0	0	0	5	0	1	0	6%	0%	0%	0%	0%	0%	11%	0%	2%	0%	
933	31	60	63	53	46	50	48	43	47	47	2	24	15	7	1	1	5	2	11	1	6%	40%	24%	13%	2%	2%	10%	5%	23%	2%	
934	0	25	53	52	44	58	48	40	47	48	0	0	3	4	3	3	1	2	5	2	0%	0%	6%	8%	7%	5%	2%	5%	11%	4%	
935	50	49	51	52	45	47	47	43	47	48	2	2	1	0	0	0	1	1	0	2	4%	4%	2%	0%	0%	2%	2%	0%	0%	4%	
936	5	48	52	52	44	48	48	43	48	47	4	6	1	1	3	3	3	5	3	2	80%	13%	2%	2%	7%	6%	6%	12%	6%	4%	
937	31	56	54	52	44	48	44	43	46	49	15	12	2	2	0	0	2	5	3	1	48%	21%	4%	4%	0%	0%	5%	12%	7%	2%	
938	31	51	53	52	45	48	44	44	47	49	24	10	3	4	0	0	0	0	0	0	77%	20%	6%	8%	0%	0%	0%	0%	0%	0%	
939	51	53	53	52	45	47	44	43	47	48	2	8	4	2	0	0	0	0	1	1	4%	15%	8%	4%	0%	0%	0%	0%	2%	2%	
940	51	51	53	53	46	48	40	44	47	48	12	4	3	1	0	0	3	1	7	2	24%	8%	6%	2%	0%	0%	8%	2%	15%	4%	
941	50	52	46	46	43	57	48	49	46	48	1	7	0	0	0	0	2	1	2	0	2%	13%	0%	0%	0%	0%	4%	2%	4%	0%	
942	0	26	47	46	45	52	50	47	45	48	0	0	0	0	0	0	1	1	0	0	0%	0%	0%	0%	0%	2%	2%	0%	0%	0%	
943	49	48	50	43	35	42	63	60	51	48	1	5	4	0	0	0	0	0	0	0	2%	10%	8%	0%	0%	0%	0%	0%	0%	0%	
944	50	51	45	46	44	51	47	47	46	48	0	0	0	1	1	1	1	0	0	0	0%	0%	0%	2%	2%	2%	2%	0%	0%	0%	0%
945	9	57	59	55	51	59	35	32	43	48	0	13	2	4	1	1	0	1	0	0	0%	23%	3%	7%	2%	2%	0%	3%	0%	0%	
946	31	53	46	47	45	51	52	47	45	47	5	7	0	1	2	2	0	0	0	0	16%	13%	0%	2%	4%	4%	0%	0%	0%	0%	
947	50	51	46	45	43	51	51	46	48	48	0	0	1	0	1	1	0	0	0	0	0%	0%	2%	0%	2%	2%	0%	0%	0%	0%	0%
948	50	50	48	46	43	53	51	46	46	46	3	5	2	6	4	4	0	1	1	0	6%	10%	4%	13%	9%	8%	0%	2%	2%	0%	
949	0	27	54	54	46	47	44	47	52	78	0	0	0	2	0	0	0	0	0	0	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%
951										43	43									27	24									63%	56%
952										48	48									10	1									21%	2%
AVERAGE																					9%	10%	3%	3%	2%	2%	1%	2%	4%	2%	
TOTALS	1632	2315	2448	2354	2213	2408	2254	2144	2518	2748	123	242	90	66	38	38	32	33	89	36											

## **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/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 door/ground hatches.

All service connections installed since 1992 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 2009, an additional 800 backflow prevention assemblies were registered with the City. This brings the number of registered backflow prevention devices to over 6,200. The City's CCC program requires that the consumer test their devices annually and in 2009, the City realized a 90% compliance level. This increase is the result of improved communication efforts such as direct contact and follow-up through phone calls and/or written notices to our non-compliant customers

Except for an occasional unauthorized opening, 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 2009.

## **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, and 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 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 to 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. 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 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 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.

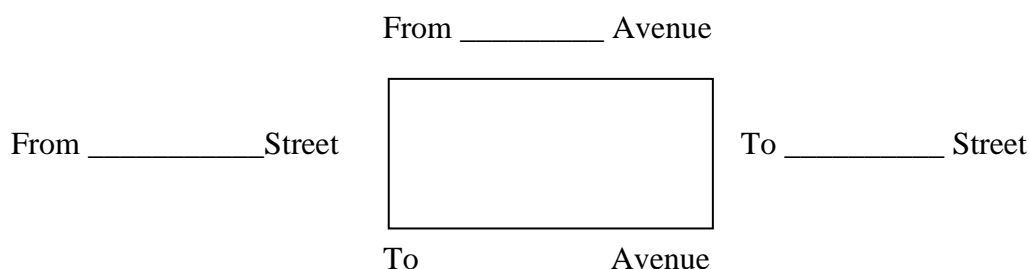
The City of Surrey Boil Water Advisory is shown on the page 21. It is a component part of the City's Water Quality Contingency Plan for a bacteriological contamination of the City's water.

## 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.

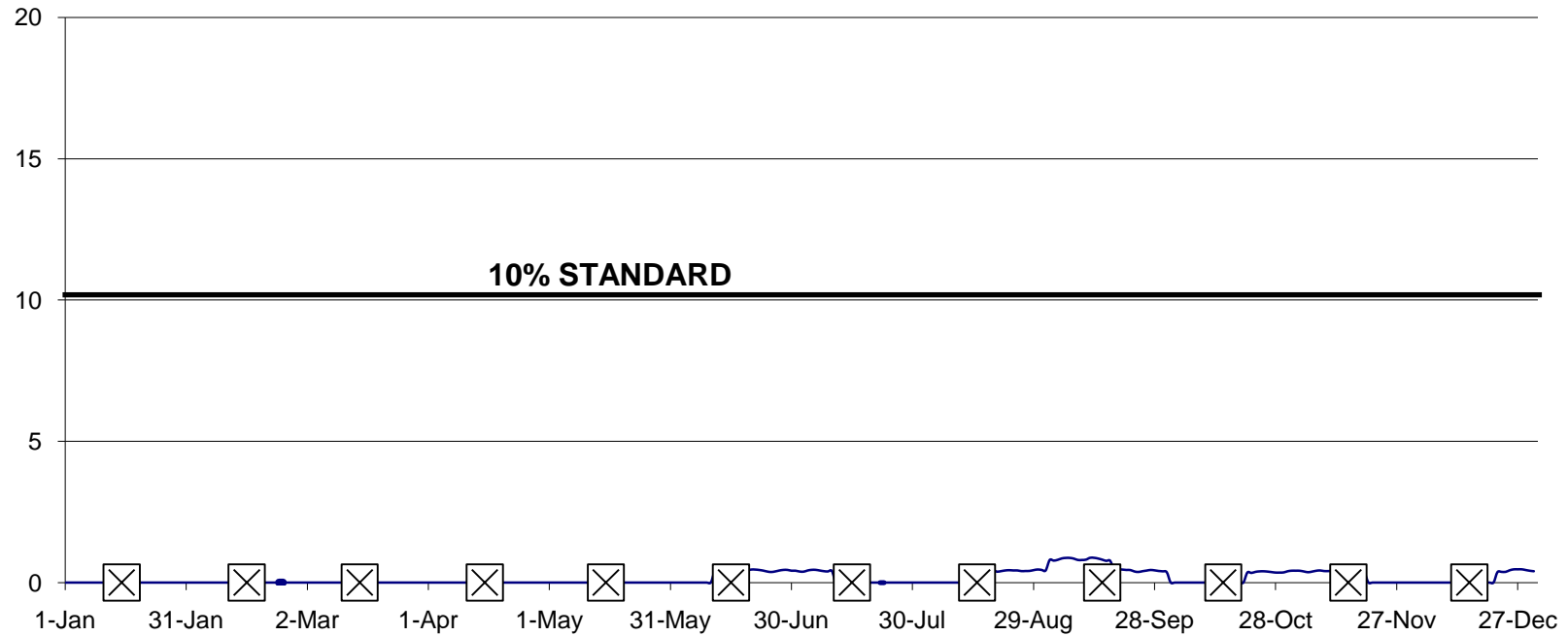
# **APPENDIX 'A'**

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## **2009 Water Quality Laboratory Test Results**

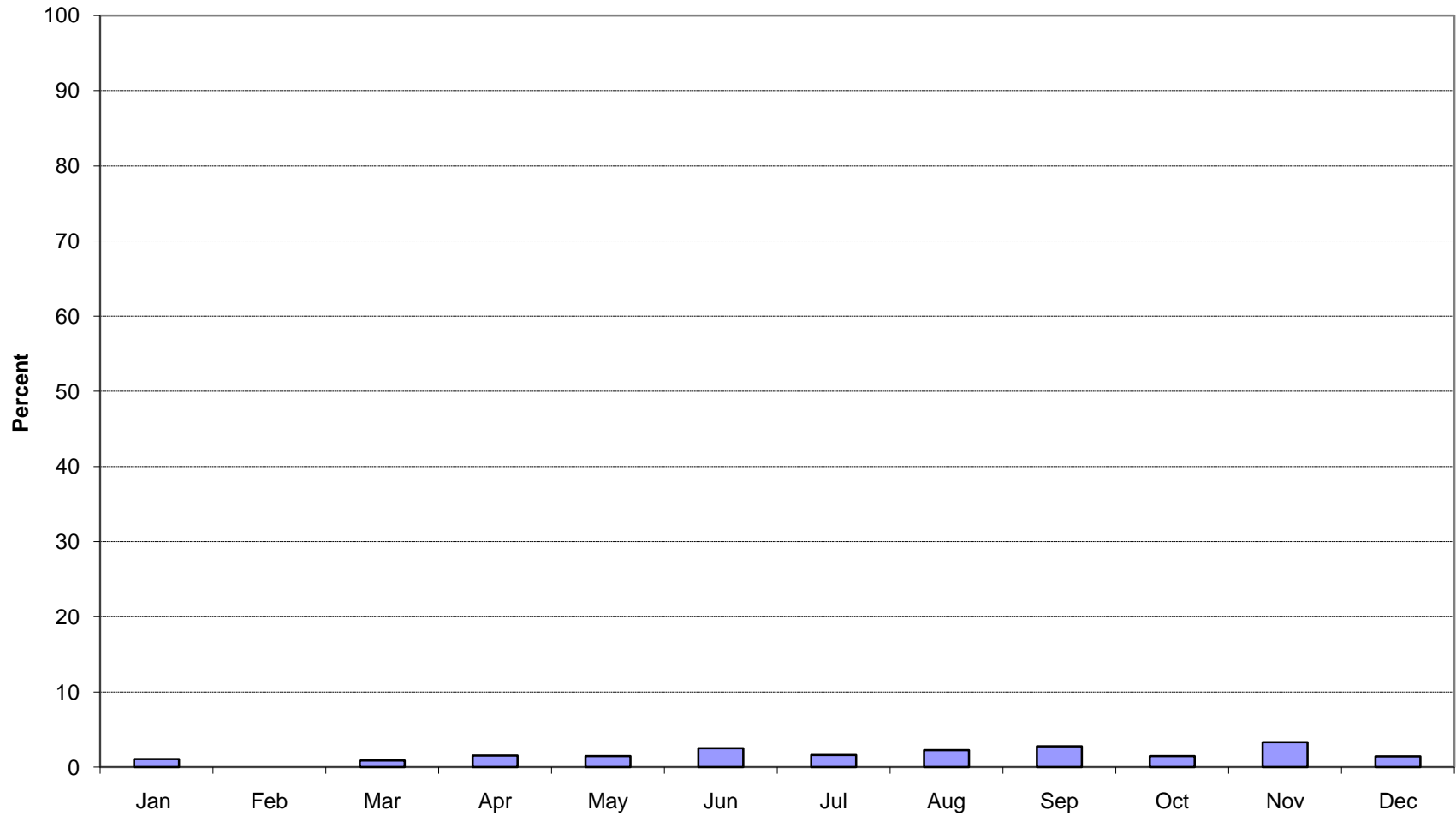
# CITY OF SURREY - 2009

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



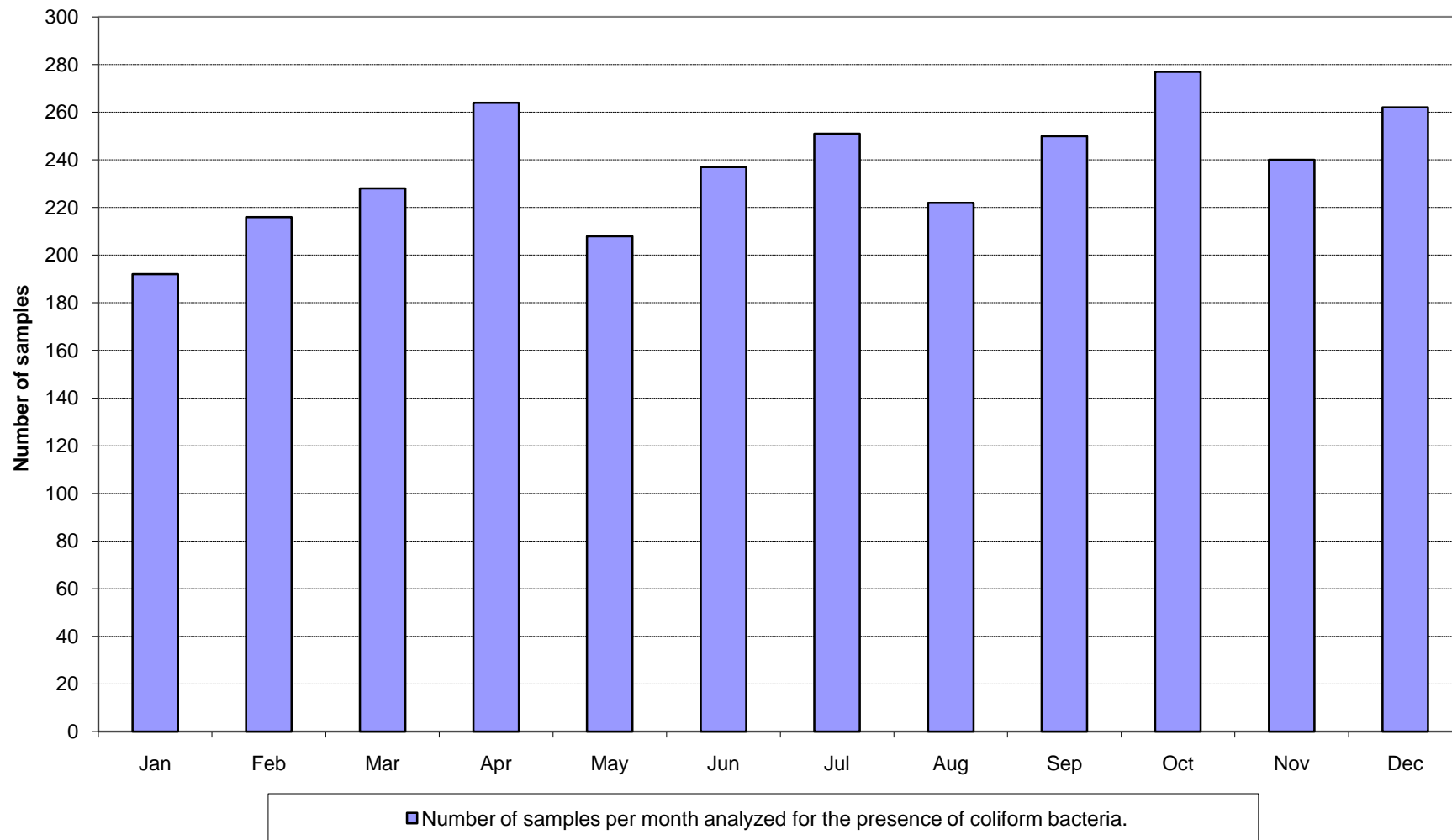
- Percent of samples positive for coliform bacteria in a 30 day period ending on date shown (10% allowed)
- Number of samples positive for E. coli bacteria (none allowed)
- × Number of samples per month containing more than 10 coliform bacteria per 100 mL (none allowed)

## CITY OF SURREY - MONTHLY HPC COUNTS FOR 2009



■ 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 - 2009**  
**Number of Monthly Samples Analyzed for Presence of Coliform Bacteria**



**City of Surrey**  
**2009 Disinfection Bi-products (THM, HAA) & pH Monitoring Results**

Sample Station ID	Sample Location	Date Sampled	THM (ppb)					HAA (ppb)						pH units pH	
			Bromodichloromethane	Bromoform	Chlorodibromomethane	Chloroform	Total Trihalomethanes	Dibromoacetic Acid	Dichloroacetic Acid	Monobromoacetic Acid	Monochloroacetic Acid	Trichloroacetic Acid	Total Haloacetic Acid		
SUR-902	18995 - 87 A Ave.	03-09-2009	<1	<1	<1	22	22								
SUR-902	18995 - 87 A Ave.	05-28-2009	<1	<1	<1	24	24								
SUR-902	18995 - 87 A Ave.	08-17-2009	<1	<1	<1	24	24								
SUR-902	18995 - 87 A Ave.	11-25-2009	<1	<1	<1	33	33		<0.5	17	<1	5	22.8	45	
SUR-922	7768 - 155 St.	03-12-2009	<1	<1	<1	17	17		<0.5	12	<1	<2	13	25	6.7
SUR-922	7768 - 155 St.	05-28-2009	<1	<1	<1	35	35		<0.5	16	<1	8	22	46	6.8
SUR-922	7768 - 155 St.	08-18-2009	<1	<1	<1	32	32		<0.5	16	<1	6	28	50	
SUR-922	7768 - 155 St.	11-25-2009	<1	<1	<1	37	37		<0.5	22	<1	7	22.9	52	7.2
SUR-926	12059 - 56 Ave.	03-12-2009	<1	<1	<1	33	33		<0.5	27	<1	<2	22	49	
SUR-926	12059 - 56 Ave.	05-28-2009	<1	<1	<1	61	61		<0.5	30	<1	5	38	73	
SUR-926	12059 - 56 Ave.	08-20-2009	<1	<1	<1	43	43		<0.5	22	<1	2	29	53	
SUR-926	12059 - 56 Ave.	11-26-2009	<1	<1	<1	45	45		<0.5	18	<1	4	28.6	51	
SUR-928	15349 - 57 Ave.	03-12-2009	<1	<1	<1	38	38		<0.5	23	<1	<2	19	42	
SUR-928	15349 - 57 Ave.	05-28-2009	<1	<1	<1	78	78		<0.5	26	<1	5	35	66	
SUR-928	15349 - 57 Ave.	08-20-2009	<1	<1	<1	44	44		<0.5	23	<1	8	26	57	
SUR-928	15349 - 57 Ave.	11-26-2009	<1	<1	<1	23	23		<0.5	33	<1	5	55.3	93	
SUR-930	SW Ent. to Pkwy, s. of 3031-139 St.	03-11-2009	<1	<1	<1	28	28		<0.5	15	<1	4	24	43	6.8
SUR-930	SW Ent. to Pkwy, s. of 3031-139 St.	05-29-2009	<1	<1	<1	44	44		<0.5	38	<1	9	39	86	6.6
SUR-930	SW Ent. to Pkwy, s. of 3031-139 St.	08-19-2009	1	<1	<1	33	34								6.5
SUR-930	SW Ent. to Pkwy, s. of 3031-139 St.	09-16-2009							<0.5	29	<1	10	41	80	
SUR-930	SW Ent. to Pkwy, s. of 3031-139 St.	11-25-2009	<1	<1	<1	48	48		<0.5	16	<1	5	42.3	63	6.7
SUR-931	124 St. & 24 Ave.	03-11-2009	<1	<1	<1	21	21		<0.5	19	<1	6	18	43	
SUR-931	124 St. & 24 Ave.	05-29-2009	<1	<1	<1	39	39		<0.5	43	<1	11	39	93	
SUR-931	124 St. & 24 Ave.	08-19-2009	<1	<1	<1	32	32								
SUR-931	124 St. & 24 Ave.	09-16-2009							<0.5	34	<1	17	44	95	
SUR-931	124 St. & 24 Ave.	11-25-2009	<1	<1	<1	40	40		<0.5	61	<1	8	58.6	130	
SUR-940	24 Ave., by south depot	03-11-2009	<1	<1	<1	24	24		<0.5	16	<1	<2	23	39	6.9
SUR-940	24 Ave., by south depot	05-29-2009	<1	<1	<1	35	35		<0.5	34	<1	8	33	75	6.7
SUR-940	24 Ave., by south depot	08-19-2009	<1	<1	<1	30	30								6.6
SUR-940	24 Ave., by south depot	09-16-2009							<0.5	24	<1	13	40	77	
SUR-940	24 Ave., by south depot	11-25-2009	<1	<1	<1	38	38		<0.5	31	<1	15	47.6	94	6.7

**City of Surrey**  
**2009 Disinfection Bi-products (THM, HAA) Running Quarterly Averages**

Sample Station ID	Date & Time 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	06-05-2008 10:10	1	<1	<1	30	31									
SUR-902	09-17-2008 7:59	1	<1	<1	38	39									
SUR-902	11-25-2008 8:30	<1	<1	<1	43	43									
SUR-902	03-09-2009 8:42	<1	<1	<1	22	22	<b>34</b>								
SUR-902	05-28-2009 8:57	<1	<1	<1	24	24	<b>32</b>								
SUR-902	08-17-2009 7:52	<1	<1	<1	24	24	<b>28</b>								
SUR-902	11-25-2009 8:28	<1	<1	<1	33	33	<b>26</b>	<0.5	17	<1	5	22.8	45		
SUR-922	06-02-2008 7:35	<1	<1	<1	27	27		<0.5	13	<1	<2	20	33		
SUR-922	09-17-2008 11:34	1	<1	<1	40	41		<0.5	17	<1	<2	29	46		
SUR-922	11-27-2008 7:55	<1	<1	<1	40	40		<0.5	18	<1	<2	33	51		
SUR-922	03-12-2009 7:58	<1	<1	<1	17	17	<b>31</b>	<0.5	12	<1	<2	13	25	<b>39</b>	
SUR-922	05-28-2009 8:20	<1	<1	<1	35	35	<b>33</b>	<0.5	16	<1	8	22	46	<b>42</b>	
SUR-922	08-18-2009 11:45	<1	<1	<1	32	32	<b>31</b>	<0.5	16	<1	6	28	50	<b>43</b>	
SUR-922	11-25-2009 10:35	<1	<1	<1	37	37	<b>30</b>	<0.5	22	<1	7	22.9	52	<b>43</b>	
SUR-926	06-05-2008 8:10	<1	<1	<1	60	60		<0.5	29	<1	3	39	71		
SUR-926	09-18-2008 12:45	1	<1	<1	66	67		<0.5	19	<1	2	29	50		
SUR-926	11-27-2008 8:10	<1	<1	<1	101	100		<0.5	56	<1	29	78	160		
SUR-926	03-12-2009 8:15	<1	<1	<1	33	33	<b>65</b>	<0.5	27	<1	<2	22	49	<b>83</b>	
SUR-926	05-28-2009 12:45	<1	<1	<1	61	61	<b>65</b>	<0.5	30	<1	5	38	73	<b>83</b>	
SUR-926	08-20-2009 8:15	<1	<1	<1	43	43	<b>59</b>	<0.5	22	<1	2	29	53	<b>84</b>	
SUR-926	11-26-2009 9:05	<1	<1	<1	45	45	<b>46</b>	<0.5	18	<1	4	28.6	51	<b>57</b>	
SUR-928	06-09-2008 10:00	<1	<1	<1	63	63		<0.5	36	<1	7	49	92		
SUR-928	09-18-2008 9:25	1	<1	<1	68	69		<0.5	25	<1	4	32	61		
SUR-928	11-27-2008 9:05	<1	<1	<1	79	79		<0.5	44	<1	8	62	110		
SUR-928	03-12-2009 9:40	<1	<1	<1	38	38	<b>62</b>	<0.5	23	<1	<2	19	42	<b>76</b>	
SUR-928	05-28-2009 9:45	<1	<1	<1	78	78	<b>66</b>	<0.5	26	<1	5	35	66	<b>70</b>	
SUR-928	08-20-2009 9:40	<1	<1	<1	44	44	<b>60</b>	<0.5	23	<1	8	26	57	<b>69</b>	
SUR-928	11-26-2009 10:25	<1	<1	<1	23	23	<b>46</b>	<0.5	33	<1	5	55.3	93	<b>65</b>	
SUR-930	06-04-2008 8:25	1	<1	<1	40	41		<0.5	24	<1	<2	44	68		
SUR-930	09-17-2008 8:20	1	<1	<1	34	35		<0.5	21	<1	9	30	60		
SUR-930	11-26-2008 9:00	<1	<1	<1	43	43		<0.5	18	<1	<2	38	56		
SUR-930	03-11-2009 7:50	<1	<1	<1	28	28	<b>37</b>	<0.5	15	<1	4	24	43	<b>57</b>	
SUR-930	05-29-2009 10:00	<1	<1	<1	44	44	<b>38</b>	<0.5	38	<1	9	39	86	<b>61</b>	
SUR-930	08-19-2009 8:15	1	<1	<1	33	34	<b>37</b>								
SUR-930	09-16-2009 9:10							<0.5	29	<1	10	41	80	<b>66</b>	
SUR-930	11-25-2009 8:15	<1	<1	<1	48	48	<b>39</b>	<0.5	16	<1	5	42.3	63	<b>68</b>	
SUR-931	06-04-2008 8:50	<1	<1	<1	36	36		<0.5	28	<1	<2	52	80		
SUR-931	09-17-2008 8:50	<1	<1	<1	37	37		<0.5	16	<1	7	16	39		
SUR-931	11-26-2008 9:20	<1	<1	<1	46	46		<0.5	31	<1	<2	37	68		
SUR-931	03-11-2009 8:15	<1	<1	<1	21	21	<b>35</b>	<0.5	19	<1	6	18	43	<b>58</b>	
SUR-931	05-29-2009 9:35	<1	<1	<1	39	39	<b>36</b>	<0.5	43	<1	11	39	93	<b>61</b>	
SUR-931	08-19-2009 8:40	<1	<1	<1	32	32	<b>35</b>								
SUR-931	09-16-2009 9:30							<0.5	34	<1	17	44	95	<b>75</b>	
SUR-931	11-25-2009 8:40	<1	<1	<1	40	40	<b>33</b>	<0.5	61	<1	8	58.6	130	<b>90</b>	
SUR-940	06-04-2008 12:15	<1	<1	<1	39	39		<0.5	12	<1	<2	54	66		
SUR-940	09-17-2008 12:45	1	<1	<1	34	35		<0.5	7	<1	3	16	26		
SUR-940	12-03-2008 11:15	<1	<1	<1	42	42		<0.5	28	<1	3	36	67		
SUR-940	03-11-2009 11:20	<1	<1	<1	24	24	<b>35</b>	<0.5	16	<1	<2	23	39	<b>50</b>	
SUR-940	05-29-2009 8:45	<1	<1	<1	35	35	<b>34</b>	<0.5	34	<1	8	33	75	<b>52</b>	
SUR-940	08-19-2009 12:40	<1	<1	<1	30	30	<b>33</b>								
SUR-940	09-16-2009 13:05							<0.5	24	<1	13	40	77	<b>65</b>	
SUR-940	11-25-2009 12:55	<1	<1	<1	38	38	<b>32</b>	<0.5	31	<1	15	47.6	94	<b>71</b>	



**City of Surrey  
2009 Semi-annual Metals Monitoring Results**

Sample Station ID	Sample Description	Date and Time Sampled	Aluminum Total mg/L	Arsenic Total mg/L	Barium Total mg/L	Boron Total mg/L	Cadmium Total mg/L	Calcium Total mg/L	Chromium Total mg/L	Cobalt Total mg/L	Copper Total mg/L	Iron Total mg/L	Lead Total mg/L	Magnesium Total mg/L	Manganese Total mg/L	Molybdenum Total mg/L	Nickel Total mg/L	Selenium Total mg/L	Silver Total mg/L	Sodium Total mg/L	Zinc Total mg/L
SUR-922	7768 - 155 St.	07-24-2009 11:30	0.07	<0.01	0.002	<0.02	<0.0005	1.03	<0.001	<0.001	0.006	0.05		0.09	0.001	<0.002	<0.001	<0.01	<0.001	5.2	0.01
SUR-922	7768 - 155 St.	10-23-2009 10:45	0.06	<0.01	0.002	<0.02	<0.0005	1.21	<0.001	<0.001	<0.002	0.05	<0.001	0.12	0.002	<0.002	<0.001	<0.01	<0.001	6.3	<0.002
SUR-928	15349 - 57 Ave.	06-11-2009 10:35	0.08	<0.01	0.003	<0.02	<0.0005	1.76	<0.001	<0.001	0.005	0.09	<0.001	0.12	0.007	<0.002	<0.001	<0.01	<0.001	3.5	0.015
SUR-928	15349 - 57 Ave.	10-22-2009 9:40	0.08	<0.01	0.003	<0.02	<0.0005	1.68	<0.001	<0.001	0.005	0.07	<0.001	0.12	0.003	<0.002	<0.001	<0.01	<0.001	6.6	0.01
SUR-931	124 St. & 24 Ave.	06-11-2009 8:30	0.07	<0.01	0.003	<0.02	<0.0005	1.32	<0.001	<0.001	0.003	0.06	<0.001	0.09	0.004	<0.002	<0.001	<0.01	<0.001	4.4	0.008
SUR-931	124 St. & 24 Ave.	10-21-2009 9:45	0.08	<0.01	0.003	<0.02	<0.0005	1.67	<0.001	<0.001	0.002	0.08	<0.001	0.09	0.006	<0.002	<0.001	<0.01	<0.001	6.5	0.005

**City of Surrey**

**2009 Vinyl Chloride Results**

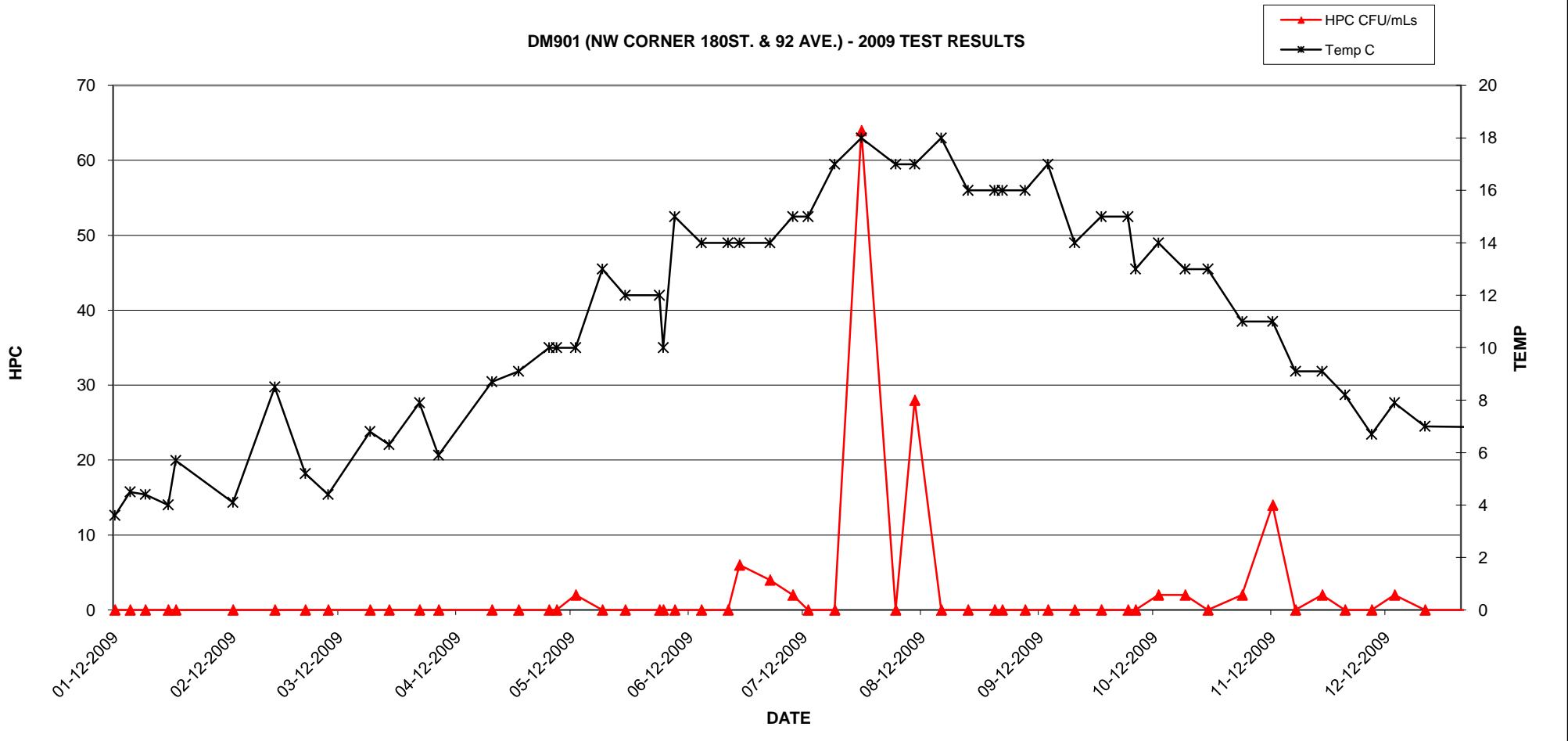
Sample Station ID	Sample Location	First half of 2009		Second half of 2009	
		Date & Time Sampled	Results µg/L	Date & Time Sampled	Results µg/L
901	180 St. & 92 Ave.	06-22-2009 8:29	<0.5	10-20-2009 9:19	<0.5
902	18995 87A Ave.	06-22-2009 8:47	<0.5	10-20-2009 9:00	<0.5
928	15349 57 Ave.	06-11-2009 10:35	<0.5	10-22-2009 9:40	<0.5
930	SW Ent. To Pkwy, S of 3031 139 St.	06-11-2009 8:10	<0.5	10-22-2009 9:20	<0.5

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

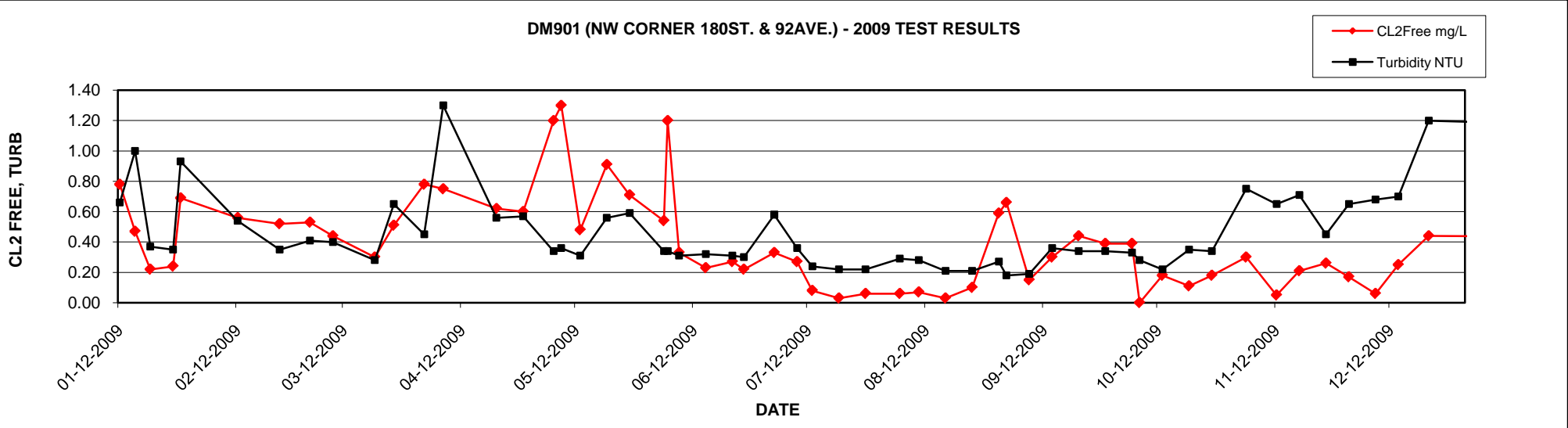
2009 Metro Vancouver Laboratory Report - DM901 (NW CORNER 180ST. & 92 AVE.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
12-Jan	0.78	<1	<2	<1	3.6	0.66
16-Jan	0.47	<1	<2	<1	4.5	1.00
20-Jan	0.22	<1	<2	<1	4.4	0.37
26-Jan	0.24	<1	<2	<1	4	0.35
28-Jan	0.69	<1	<2	<1	5.7	0.93
12-Feb	0.56	<1	<2	<1	4.1	0.54
23-Feb	0.52	<1	<2	<1	8.5	0.35
03-Mar	0.53	<1	<2	<1	5.2	0.41
09-Mar	0.44	<1	<2	<1	4.4	0.40
20-Mar	0.30	<1	<2	<1	6.8	0.28
25-Mar	0.51	<1	<2	<1	6.3	0.65
02-Apr	0.78	<1	<2	<1	7.9	0.45
07-Apr	0.75	<1	<2	<1	5.9	1.30
21-Apr	0.62	<1	<2	<1	8.7	0.56
28-Apr	0.60	<1	<2	<1	9.1	0.57
06-May	1.20	<1	<2	<1	10	0.34
08-May	1.30	<1	<2	<1	10	0.36
13-May	0.48	<1	2	<1	10	0.31
20-May	0.91	<1	<2	<1	13	0.56
26-May	0.71	<1	<2	<1	12	0.59
04-Jun	0.54	<1	<2	<1	12	0.34
05-Jun	1.20	<1	<2	<1	10	0.34
08-Jun	0.33	<1	<2	<1	15	0.31
15-Jun	0.23	<1	<2	<1	14	0.32
22-Jun	0.27	<1	<2	<1	14	0.31
25-Jun	0.22	<1	6	<1	14	0.30
03-Jul	0.33	<1	4	<1	14	0.58
09-Jul	0.27	<1	2	<1	15	0.36
13-Jul	0.08	<1	<2	<1	15	0.24
20-Jul	0.03	<1	<2	<1	17	0.22
27-Jul	0.06	<1	64	<1	18	0.22
05-Aug	0.06	<1	<2	<1	17	0.29
10-Aug	0.07	<1	28	<1	17	0.28
17-Aug	0.03	<1	<2	<1	18	0.21
24-Aug	0.10	<1	<2	<1	16	0.21
31-Aug	0.59	<1	<2	<1	16	0.27
02-Sep	0.66	<1	<2	<1	16	0.18
08-Sep	0.15	<1	<2	<1	16	0.19
14-Sep	0.30	<1	<2	<1	17	0.36
21-Sep	0.44	<1	<2	<1	14	0.34
28-Sep	0.39	<1	<2	<1	15	0.34
05-Oct	0.39	<1	<2	<1	15	0.33
07-Oct	<0.01	<1	<2	<1	13	0.28
13-Oct	0.18	<1	2	<1	14	0.22
20-Oct	0.11	<1	2	<1	13	0.35
26-Oct	0.18	<1	<2	<1	13	0.34
04-Nov	0.30	<1	2	<1	11	0.75
12-Nov	0.05	<1	14	<1	11	0.65
18-Nov	0.21	<1	<2	<1	9.1	0.71
25-Nov	0.26	<1	2	<1	9.1	0.45
01-Dec	0.17	<1	<2	<1	8.2	0.65
08-Dec	0.06	<1	<2	<1	6.7	0.68
14-Dec	0.25	<1	2	<1	7.9	0.70
22-Dec	0.44	<1	<2	<1	7	1.20
31-Dec	0.38	<1	NA	<1	6.3	0.94

DM901 (NW CORNER 180ST. & 92 AVE.) - 2009 TEST RESULTS

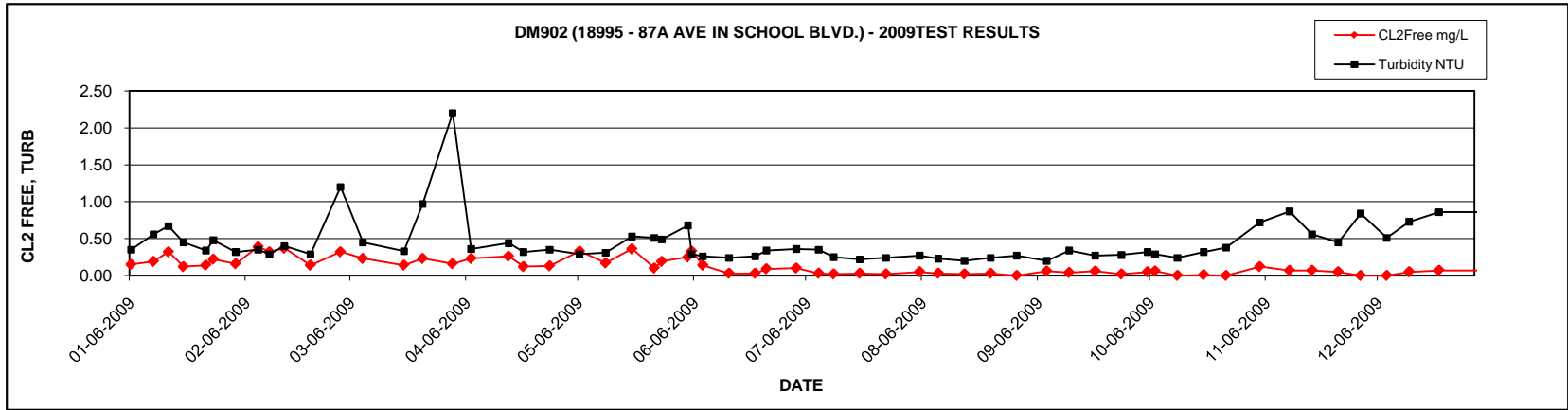
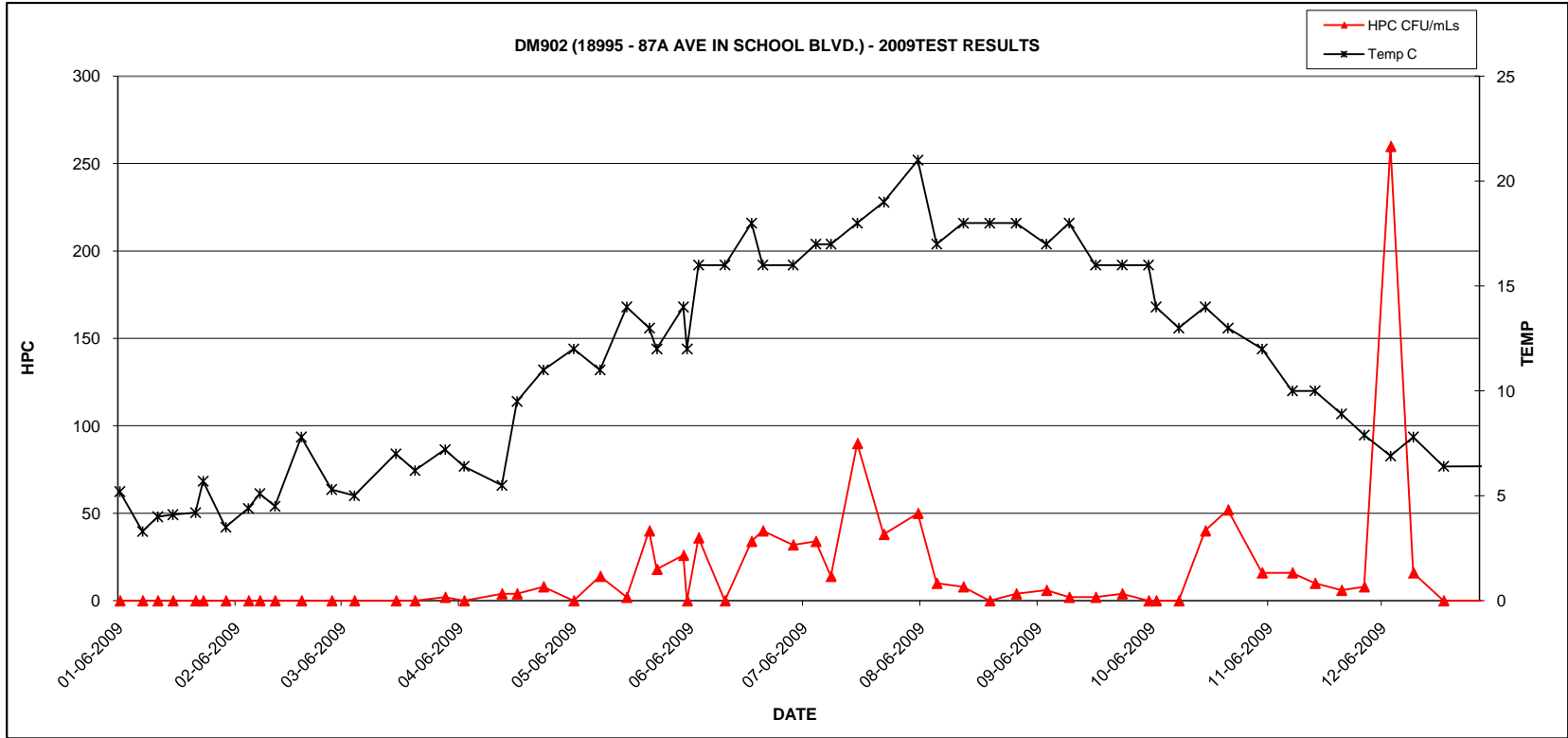


DM901 (NW CORNER 180ST. & 92AVE.) - 2009 TEST RESULTS



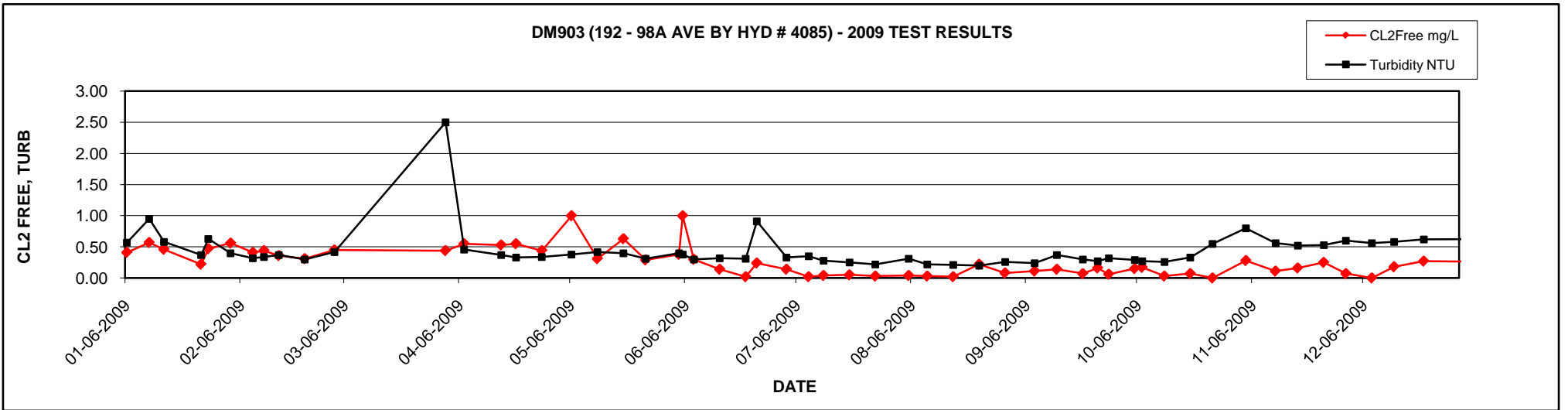
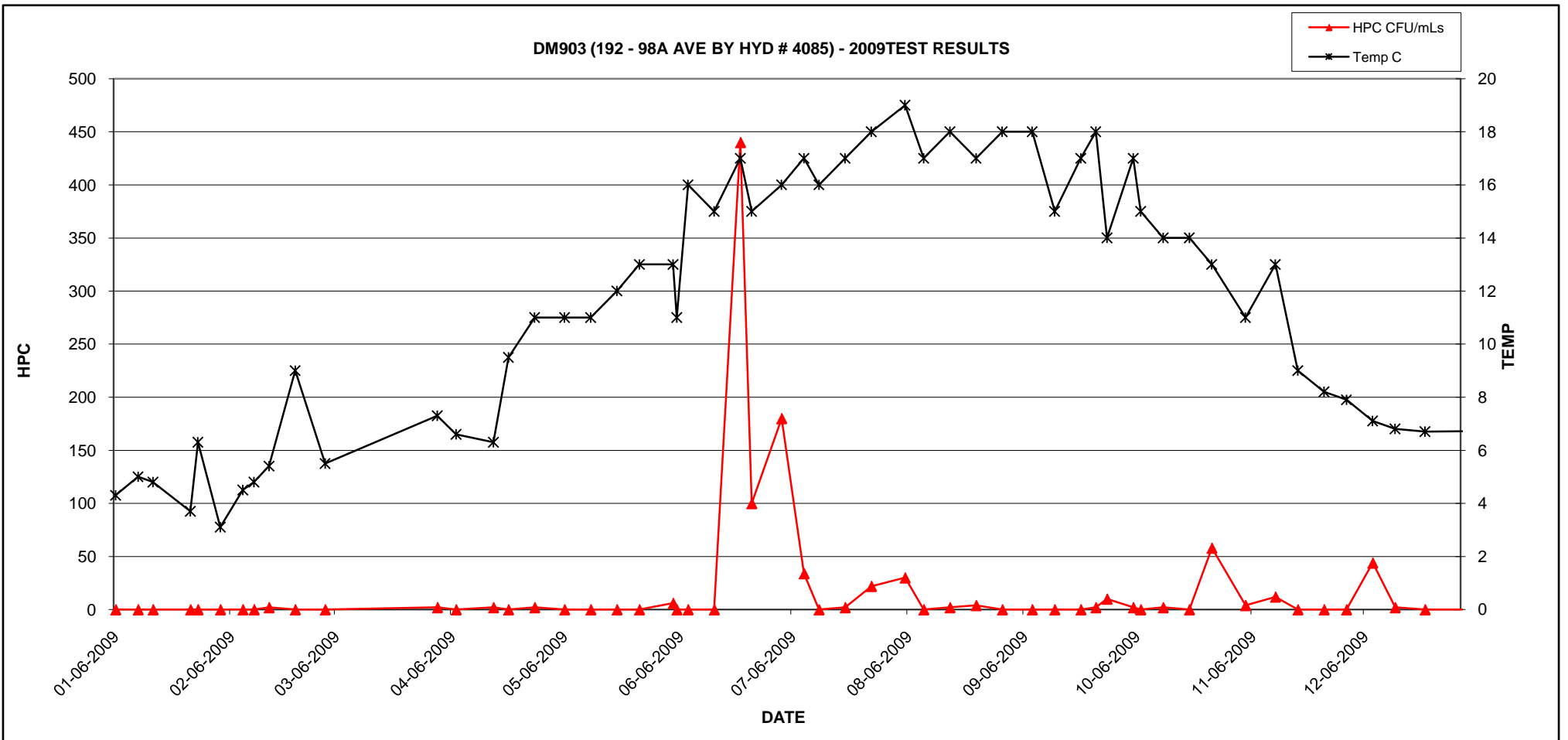
2009 Metro Vancouver Laboratory Report - DM902 (18995 - 87A AVE IN SCHOOL BLVD.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
12-Jan	0.19	<1	<2	<1	3.3	0.56
06-Jan	0.15	<1	<2	<1	5.2	0.35
16-Jan	0.32	<1	<2	<1	4	0.67
20-Jan	0.12	<1	<2	<1	4.1	0.45
26-Jan	0.14	<1	<2	<1	4.2	0.34
28-Jan	0.22	<1	<2	<1	5.7	0.48
03-Feb	0.16	<1	<2	<1	3.5	0.32
09-Feb	0.39	<1	<2	<1	4.4	0.35
12-Feb	0.32	<1	<2	<1	5.1	0.29
16-Feb	0.37	<1	<2	<1	4.5	0.40
23-Feb	0.14	<1	<2	<1	7.8	0.29
03-Mar	0.32	<1	<2	<1	5.3	1.20
09-Mar	0.23	<1	<2	<1	5	0.45
20-Mar	0.14	<1	<2	<1	7	0.33
25-Mar	0.23	<1	<2	<1	6.2	0.97
02-Apr	0.16	<1	2	<1	7.2	2.20
07-Apr	0.23	<1	<2	<1	6.4	0.36
17-Apr	0.26	<1	4	<1	5.5	0.44
21-Apr	0.12	<1	4	<1	9.5	0.32
28-Apr	0.13	<1	8	<1	11	0.35
06-May	0.33	<1	<2	<1	12	0.29
13-May	0.17	<1	14	<1	11	0.31
20-May	0.36	<1	2	<1	14	0.53
26-May	0.10	<1	40	<1	13	0.51
28-May	0.19	<1	18	<1	12	0.49
04-Jun	0.25	<1	26	<1	14	0.68
05-Jun	0.33	<1	<2	<1	12	0.29
08-Jun	0.14	<1	36	<1	16	0.26
15-Jun	0.03	<1	<2	<1	16	0.24
22-Jun	0.03	<1	34	<1	18	0.26
25-Jun	0.09	<1	40	<1	16	0.34
03-Jul	0.10	<1	32	<1	16	0.36
09-Jul	0.03	<1	34	<1	17	0.35
13-Jul	0.02	<1	14	<1	17	0.25
20-Jul	0.03	<1	90	<1	18	0.22
27-Jul	0.02	<1	38	<1	19	0.24
05-Aug	0.05	<1	50	<1	21	0.27
10-Aug	0.03	<1	10	<1	17	0.23
17-Aug	0.02	<1	8	<1	18	0.20
24-Aug	0.03	<1	<2	<1	18	0.24
31-Aug	<0.01	<1	4	<1	18	0.27
08-Sep	0.06	<1	6	<1	17	0.20
14-Sep	0.04	<1	2	<1	18	0.34
21-Sep	0.06	<1	2	<1	16	0.27
28-Sep	0.02	<1	4	<1	16	0.28
05-Oct	0.05	<1	<2	<1	16	0.32
07-Oct	0.06	<1	<2	<1	14	0.29
13-Oct	<0.01	<1	<2	<1	13	0.24
20-Oct	0.01	<1	40	<1	14	0.32
26-Oct	<0.01	<1	52	<1	13	0.38
04-Nov	0.12	<1	16	<1	12	0.72
12-Nov	0.07	<1	16	<1	10	0.87
18-Nov	0.07	<1	10	<1	10	0.56
25-Nov	0.05	<1	6	<1	8.9	0.45
01-Dec	<0.01	<1	8	<1	7.9	0.84
08-Dec	<0.01	<1	260	<1	6.9	0.51
14-Dec	0.05	<1	16	<1	7.8	0.73
22-Dec	0.07	<1	<2	<1	6.4	0.86
31-Dec	0.08	<1	NA	<1	6.7	0.83



2009 Metro Vancouver Laboratory Report - DM903 (192 - 98A AVE BY HYD # 4085)

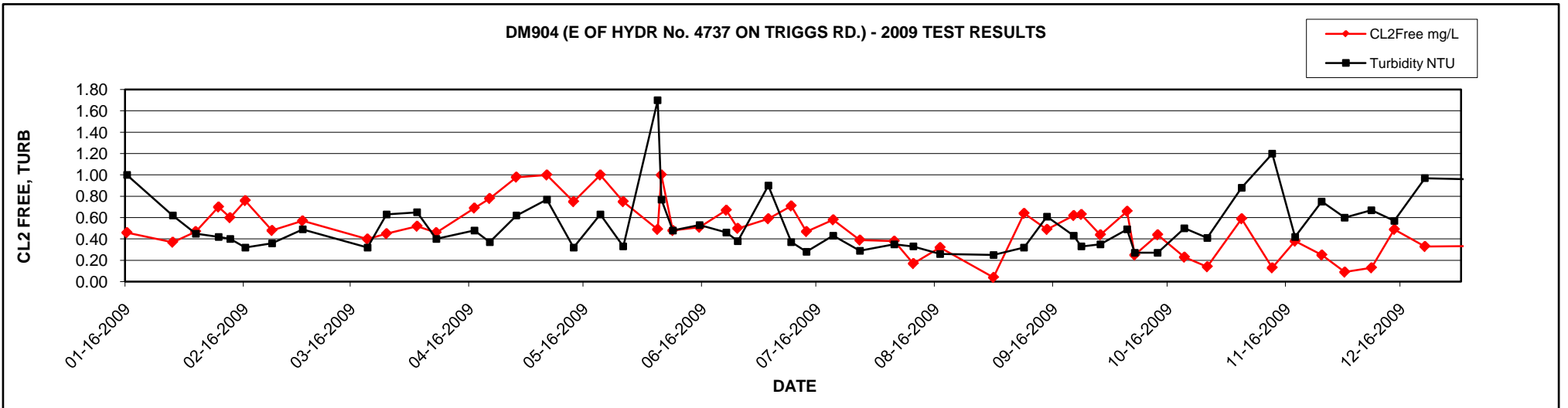
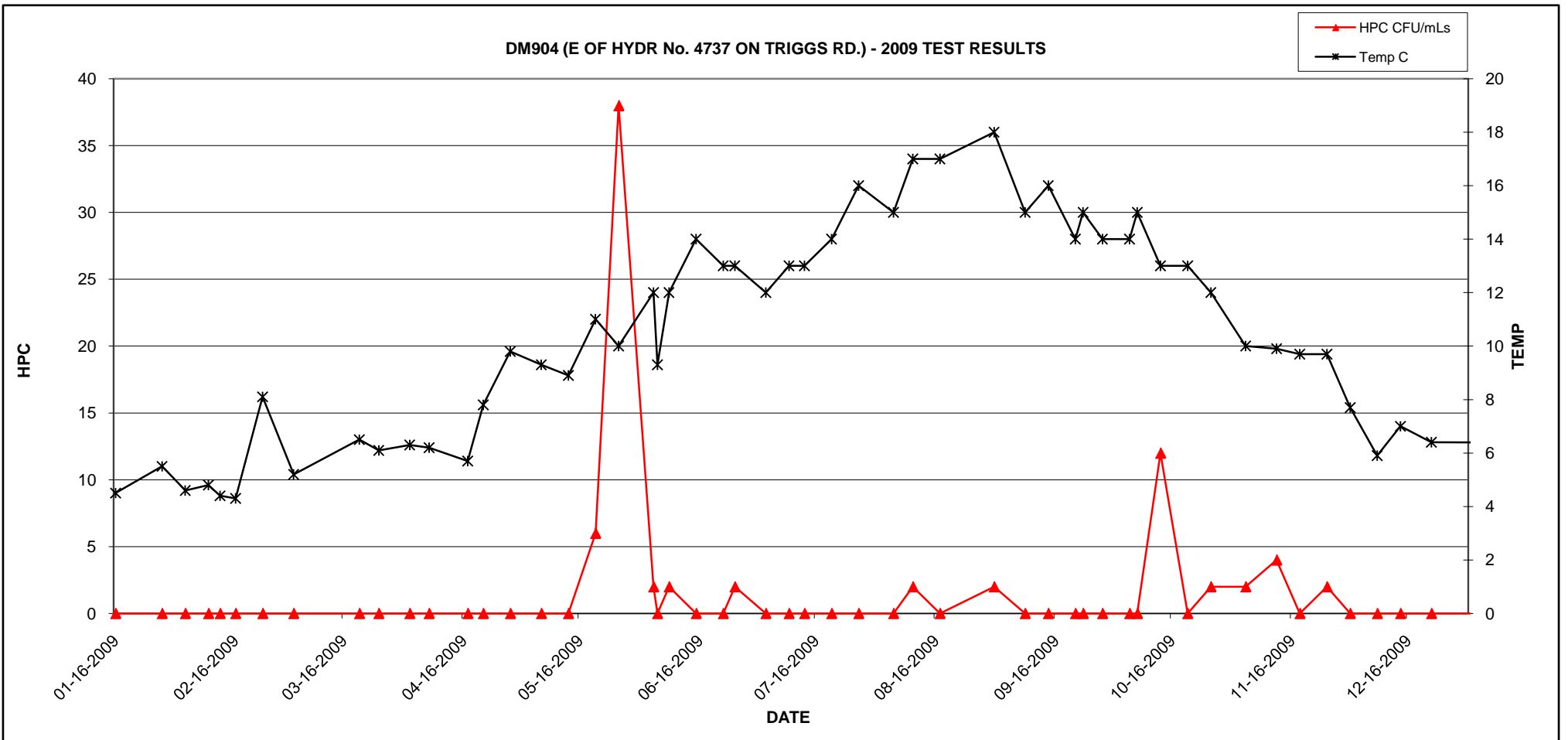
Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
12-Jan	0.57	<1	,2	<1	5	0.95
06-Jan	0.41	<1	<2	<1	4.3	0.57
16-Jan	0.46	<1	<2	<1	4.8	0.58
26-Jan	0.22	<1	<2	<1	3.7	0.37
28-Jan	0.47	<1	<2	<1	6.3	0.63
03-Feb	0.56	<1	<2	<1	3.1	0.40
09-Feb	0.41	<1	<2	<1	4.5	0.32
12-Feb	0.44	<1	<2	<1	4.8	0.34
16-Feb	0.36	<1	2	<1	5.4	0.37
23-Feb	0.31	<1	<2	<1	9	0.30
03-Mar	0.45	<1	<2	<1	5.5	0.42
02-Apr	0.44	<1	2	<1	7.3	2.50
07-Apr	0.55	<1	<2	<1	6.6	0.46
17-Apr	0.53	<1	2	<1	6.3	0.37
21-Apr	0.55	<1	<2	<1	9.5	0.33
28-Apr	0.44	<1	2	<1	11	0.34
06-May	1.00	<1	<2	<1	11	0.38
13-May	0.31	<1	<2	<1	11	0.42
20-May	0.63	<1	<2	<1	12	0.40
26-May	0.29	<1	<2	<1	13	0.31
04-Jun	0.38	<1	6	<1	13	0.40
05-Jun	1.00	<1	<2	<1	11	0.38
08-Jun	0.30	<1	<2	<1	16	0.30
15-Jun	0.14	<1	<2	<1	15	0.32
22-Jun	0.02	<1	440	<1	17	0.31
25-Jun	0.24	<1	100	<1	15	0.91
03-Jul	0.14	<1	180	<1	16	0.33
09-Jul	0.02	<1	34	<1	17	0.35
13-Jul	0.04	<1	<2	<1	16	0.28
20-Jul	0.05	<1	2	<1	17	0.25
27-Jul	0.03	<1	22	<1	18	0.22
05-Aug	0.04	<1	30	<1	19	0.31
10-Aug	0.03	<1	<2	<1	17	0.22
17-Aug	0.02	<1	2	<1	18	0.21
24-Aug	0.22	<1	4	<1	17	0.20
31-Aug	0.08	<1	<2	<1	18	0.26
08-Sep	0.11	<1	<2	<1	18	0.24
14-Sep	0.14	<1	<2	<1	15	0.37
21-Sep	0.07	<1	<2	<1	17	0.30
25-Sep	0.16	<1	2	<1	18	0.27
28-Sep	0.06	<1	10	<1	14	0.32
05-Oct	0.15	<1	2	<1	17	0.29
07-Oct	0.17	<1	<2	<1	15	0.27
13-Oct	0.03	<1	2	<1	14	0.26
20-Oct	0.07	<1	<2	<1	14	0.33
26-Oct	<0.01	<1	58	<1	13	0.55
04-Nov	0.28	<1	4	<1	11	0.80
12-Nov	0.11	<1	12	<1	13	0.56
18-Nov	0.16	<1	<2	<1	9	0.52
25-Nov	0.25	<1	<2	<1	8.2	0.53
01-Dec	0.07	<1	<2	<1	7.9	0.60
08-Dec	<0.01	<1	44	<1	7.1	0.56
14-Dec	0.18	<1	2	<1	6.8	0.58
22-Dec	0.27	<1	<2	<1	6.7	0.62
31-Dec	0.04	<1	NA	<1	7.2	0.73





2009 Metro Vancouver Laboratory Report - DM904 (E OF HYDR No. 4737 ON TRIGGS RD.)

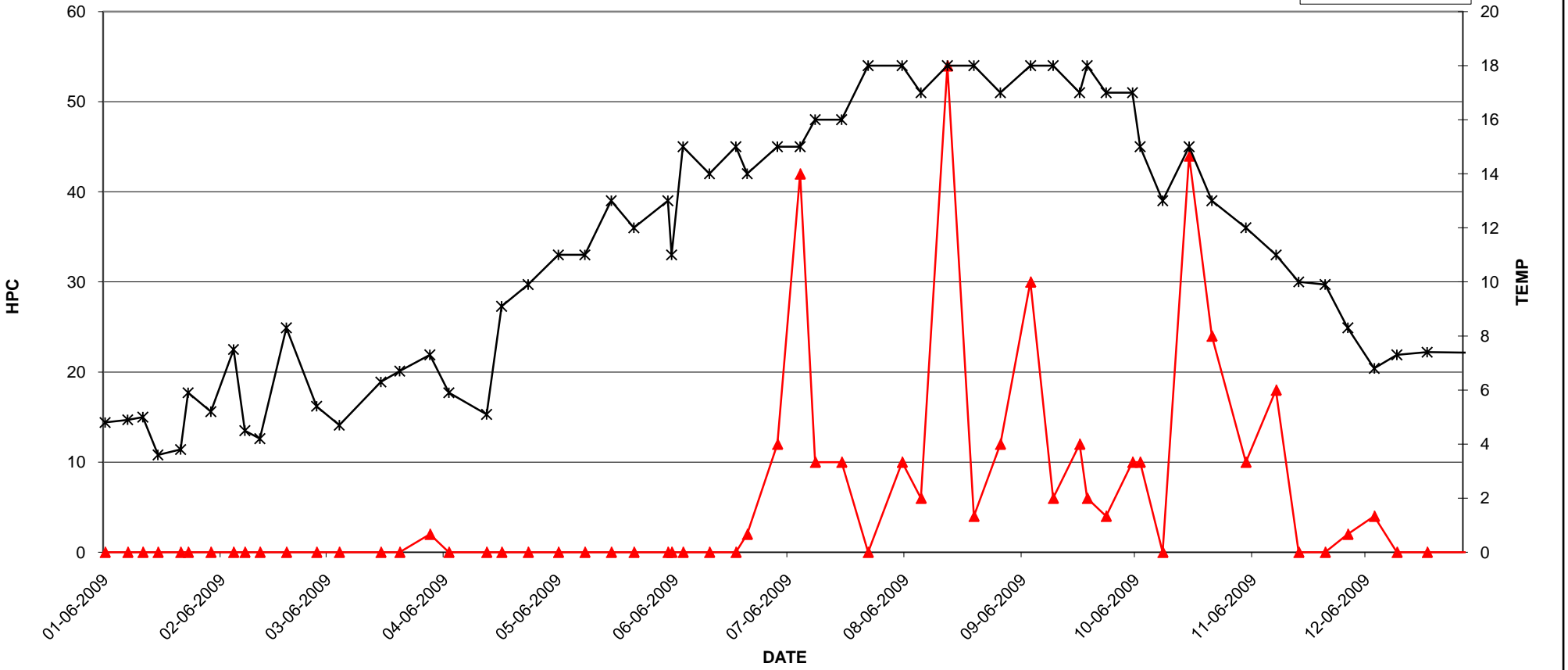
Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
16-Jan	0.46	<1	<2	<1	4.5	1.00
28-Jan	0.37	<1	<2	<1	5.5	0.62
03-Feb	0.47	<1	<2	<1	4.6	0.45
09-Feb	0.70	<1	<2	<1	4.8	0.42
12-Feb	0.60	<1	<2	<1	4.4	0.40
16-Feb	0.76	<1	<2	<1	4.3	0.32
23-Feb	0.48	<1	<2	<1	8.1	0.36
03-Mar	0.57	<1	<2	<1	5.2	0.49
20-Mar	0.40	<1	<2	<1	6.5	0.32
25-Mar	0.45	<1	<2	<1	6.1	0.63
02-Apr	0.52	<1	<2	<1	6.3	0.65
07-Apr	0.46	<1	<2	<1	6.2	0.40
17-Apr	0.69	<1	<2	<1	5.7	0.48
21-Apr	0.78	<1	<2	<1	7.8	0.37
28-Apr	0.98	<1	<2	<1	9.8	0.62
06-May	1.00	<1	<2	<1	9.3	0.77
13-May	0.75	<1	<2	<1	8.9	0.32
20-May	1.00	<1	6	<1	11	0.63
26-May	0.75	<1	38	<1	10	0.33
04-Jun	0.49	<1	2	<1	12	1.70
05-Jun	1.00	<1	<2	<1	9.3	0.77
08-Jun	0.48	<1	2	<1	12	0.48
15-Jun	0.51	<1	<2	<1	14	0.53
22-Jun	0.67	<1	<2	<1	13	0.46
25-Jun	0.50	<1	2	<1	13	0.38
03-Jul	0.59	<1	<2	<1	12	0.90
09-Jul	0.71	<1	<2	<1	13	0.37
13-Jul	0.47	<1	<2	<1	13	0.28
20-Jul	0.58	<1	<2	<1	14	0.43
27-Jul	0.39	<1	<2	<1	16	0.29
05-Aug	0.38	<1	<2	<1	15	0.35
10-Aug	0.17	<1	2	<1	17	0.33
17-Aug	0.32	<1	<2	<1	17	0.26
31-Aug	0.04	<1	2	<1	18	0.25
08-Sep	0.64	<1	<2	<1	15	0.32
14-Sep	0.49	<1	<2	<1	16	0.61
21-Sep	0.62	<1	<2	<1	14	0.43
23-Sep	0.63	<1	<2	<1	15	0.33
28-Sep	0.44	<1	<2	<1	14	0.35
05-Oct	0.66	<1	<2	<1	14	0.49
07-Oct	0.25	<1	<2	<1	15	0.27
13-Oct	0.44	<1	12	<1	13	0.27
20-Oct	0.23	<1	<2	<1	13	0.50
26-Oct	0.14	<1	2	<1	12	0.41
04-Nov	0.59	<1	2	<1	10	0.88
12-Nov	0.13	<1	4	<1	9.9	1.20
18-Nov	0.38	<1	<2	<1	9.7	0.42
25-Nov	0.25	<1	2	<1	9.7	0.75
01-Dec	0.09	<1	<2	<1	7.7	0.60
08-Dec	0.13	<1	<2	<1	5.9	0.67
14-Dec	0.49	<1	<2	<1	7	0.57
22-Dec	0.33	<1	<2	<1	6.4	0.97
31-Dec	0.45	<1	NA	<1	6.2	0.66



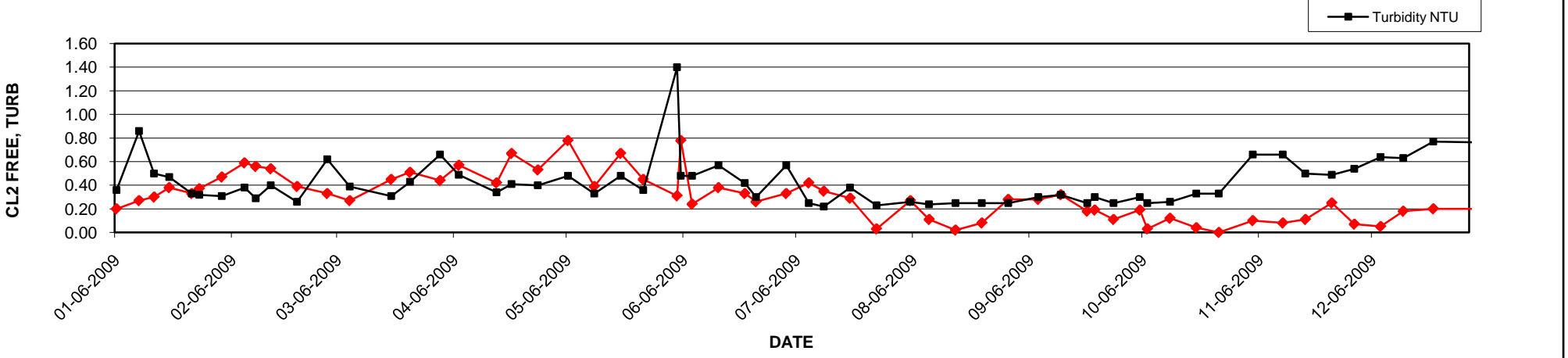
2009 Metro Vancouver Laboratory Report - DM905 (SE CORNER 170A ST. & 102 AVE.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
12-Jan	0.27	<1	<2	<1	4.9	0.86
06-Jan	0.20	<1	<2	<1	4.8	0.36
16-Jan	0.30	<1	<2	<1	5	0.50
20-Jan	0.38	<1	<2	<1	3.6	0.47
26-Jan	0.33	<1	<2	<1	3.8	0.33
28-Jan	0.37	<1	<2	<1	5.9	0.32
03-Feb	0.47	<1	<2	<1	5.2	0.31
09-Feb	0.59	<1	<2	<1	7.5	0.38
12-Feb	0.56	<1	<2	<1	4.5	0.29
16-Feb	0.54	<1	<2	<1	4.2	0.40
23-Feb	0.39	<1	<2	<1	8.3	0.26
03-Mar	0.33	<1	<2	<1	5.4	0.62
09-Mar	0.27	<1	<2	<1	4.7	0.39
20-Mar	0.45	<1	<2	<1	6.3	0.31
25-Mar	0.51	<1	<2	<1	6.7	0.43
02-Apr	0.44	<1	2	<1	7.3	0.66
07-Apr	0.57	<1	<2	<1	5.9	0.49
17-Apr	0.42	<1	<2	<1	5.1	0.34
21-Apr	0.67	<1	<2	<1	9.1	0.41
28-Apr	0.53	<1	<2	<1	9.9	0.40
06-May	0.78	<1	<2	<1	11	0.48
13-May	0.39	<1	<2	<1	11	0.33
20-May	0.67	<1	<2	<1	13	0.48
26-May	0.45	<1	<2	<1	12	0.36
04-Jun	0.31	<1	<2	<1	13	1.40
05-Jun	0.78	<1	<2	<1	11	0.48
08-Jun	0.24	<1	<2	<1	15	0.48
15-Jun	0.38	<1	<2	<1	14	0.57
22-Jun	0.33	<1	<2	<1	15	0.42
25-Jun	0.26	<1	2	<1	14	0.30
03-Jul	0.33	<1	12	<1	15	0.57
09-Jul	0.42	<1	42	<1	15	0.25
13-Jul	0.35	<1	10	<1	16	0.22
20-Jul	0.29	<1	10	<1	16	0.38
27-Jul	0.03	<1	<2	<1	18	0.23
05-Aug	0.27	<1	10	<1	18	0.26
10-Aug	0.11	<1	6	<1	17	0.24
17-Aug	0.02	<1	54	<1	18	0.25
24-Aug	0.08	<1	4	<1	18	0.25
31-Aug	0.28	<1	12	<1	17	0.25
08-Sep	0.28	<1	30	<1	18	0.30
14-Sep	0.32	<1	6	<1	18	0.32
21-Sep	0.18	<1	12	<1	17	0.25
23-Sep	0.19	<1	6	<1	18	0.30
28-Sep	0.11	<1	4	<1	17	0.25
05-Oct	0.19	<1	10	<1	17	0.30
07-Oct	0.03	<1	10	<1	15	0.25
13-Oct	0.12	<1	<2	<1	13	0.26
20-Oct	0.04	<1	44	<1	15	0.33
26-Oct	<0.01	<1	24	<1	13	0.33
04-Nov	0.10	<1	10	<1	12	0.66
12-Nov	0.08	<1	18	<1	11	0.66
18-Nov	0.11	<1	<2	<1	10	0.50
25-Nov	0.25	<1	<2	<1	9.9	0.49
01-Dec	0.07	<1	2	<1	8.3	0.54
08-Dec	0.05	<1	4	<1	6.8	0.64
14-Dec	0.18	<1	<2	<1	7.3	0.63
22-Dec	0.20	<1	<2	<1	7.4	0.77
31-Dec	0.21	<1	NA	<1	6.7	0.57

DM905 (SE CORNER 170A ST. & 102 AVE.) - 2009 TEST RESULTS



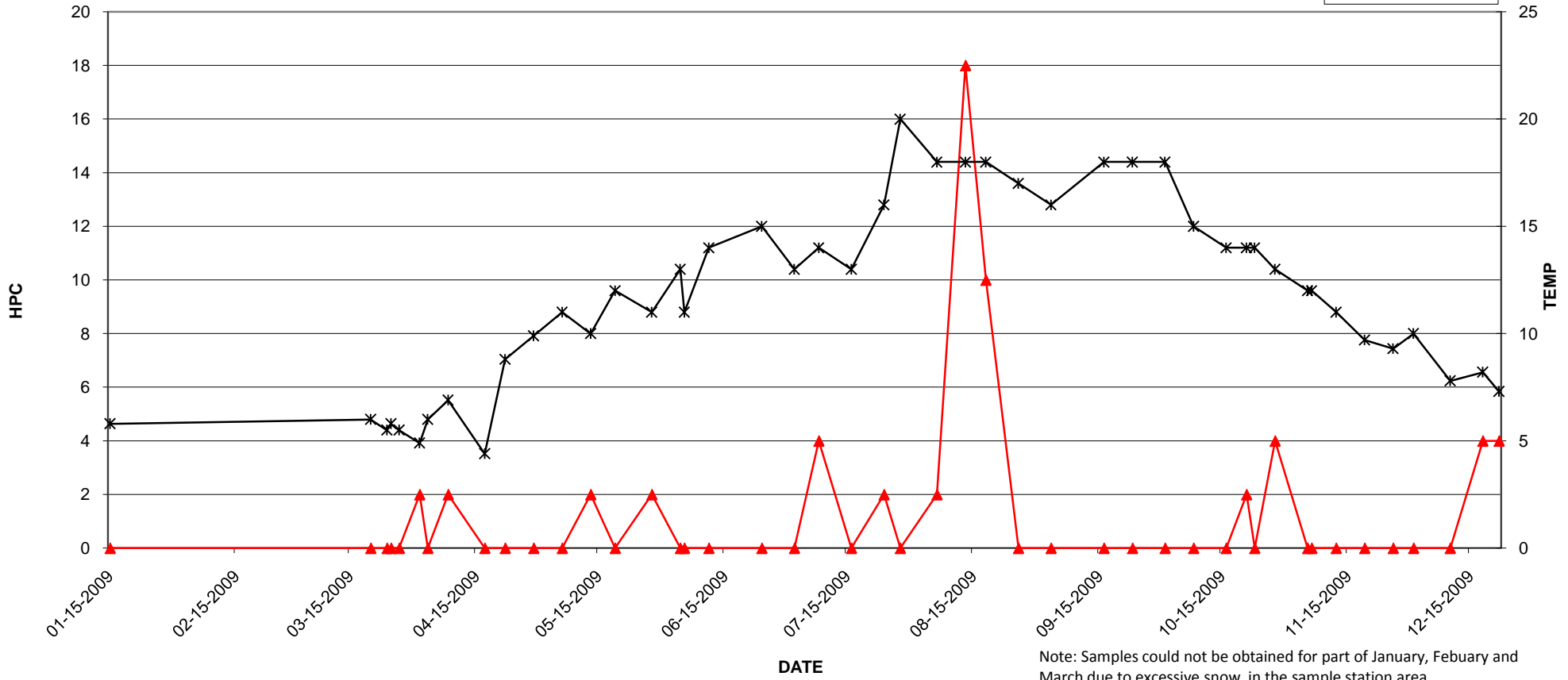
DM905 (SE CORNER 170A ST. & 102 AVE.) - 2009 TEST RESULTS



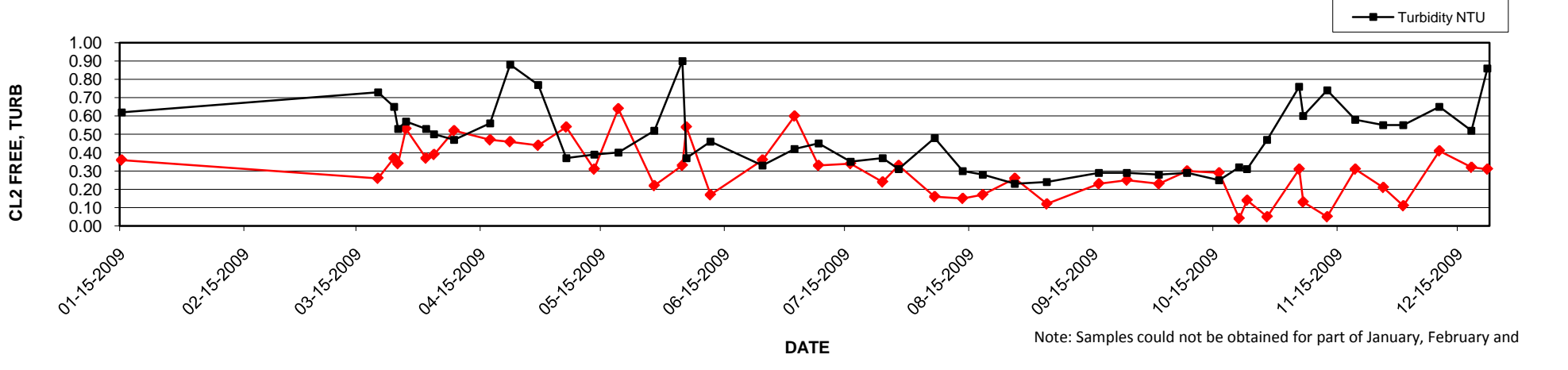
2009 Metro Vancouver Laboratory Report - DM906 (SE CORNER 161 ST. & 102 AVE.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
15-Jan	0.36	<1	<2	<1	5.8	0.62
20-Mar	0.26	<1	<2	<1	6	0.73
24-Mar	0.37	<1	<2	<1	5.5	0.65
25-Mar	0.34	<1	<2	<1	5.8	0.53
27-Mar	0.53	<1	<2	<1	5.5	0.57
01-Apr	0.37	<1	2	<1	4.9	0.53
03-Apr	0.39	<1	<2	<1	6	0.50
08-Apr	0.52	<1	2	<1	6.9	0.47
17-Apr	0.47	<1	<2	<1	4.4	0.56
22-Apr	0.46	<1	<2	<1	8.8	0.88
29-Apr	0.44	<1	<2	<1	9.9	0.77
06-May	0.54	<1	<2	<1	11	0.37
13-May	0.31	<1	2	<1	10	0.39
19-May	0.64	<1	<2	<1	12	0.40
28-May	0.22	<1	2	<1	11	0.52
04-Jun	0.33	<1	<2	<1	13	0.90
05-Jun	0.54	<1	<2	<1	11	0.37
11-Jun	0.17	<1	<2	<1	14	0.46
24-Jun	0.36	<1	<2	<1	15	0.33
02-Jul	0.60	<1	<2	<1	13	0.42
08-Jul	0.33	<1	4	<1	14	0.45
16-Jul	0.34	<1	<2	<1	13	0.35
24-Jul	0.24	<1	2	<1	16	0.37
28-Jul	0.33	<1	<2	<1	20	0.31
06-Aug	0.16	<1	2	<1	18	0.48
13-Aug	0.15	<1	18	<1	18	0.30
18-Aug	0.17	<1	10	<1	18	0.28
26-Aug	0.26	<1	<2	<1	17	0.23
03-Sep	0.12	<1	<2	<1	16	0.24
16-Sep	0.23	<1	<2	<1	18	0.29
23-Sep	0.25	<1	<2	<1	18	0.29
01-Oct	0.23	<1	<2	<1	18	0.28
08-Oct	0.30	<1	<2	<1	15	0.29
16-Oct	0.29	<1	<2	<1	14	0.25
21-Oct	0.04	<1	2	<1	14	0.32
23-Oct	0.14	<1	<2	<1	14	0.31
28-Oct	0.05	<1	4	<1	13	0.47
05-Nov	0.31	<1	<2	<1	12	0.76
06-Nov	0.13	<1	<2	<1	12	0.60
12-Nov	0.05	<1	<2	<1	11	0.74
19-Nov	0.31	<1	<2	<1	9.7	0.58
26-Nov	0.21	<1	<2	<1	9.3	0.55
01-Dec	0.11	<1	<2	<1	10	0.55
10-Dec	0.41	<1	<2	<1	7.8	0.65
18-Dec	0.32	<1	4	<1	8.2	0.52
22-Dec	0.31	<1	4	<1	7.3	0.86

DM906 (SE CORNER 161 ST. & 102 AVE.) - 2009 TEST RESULTS



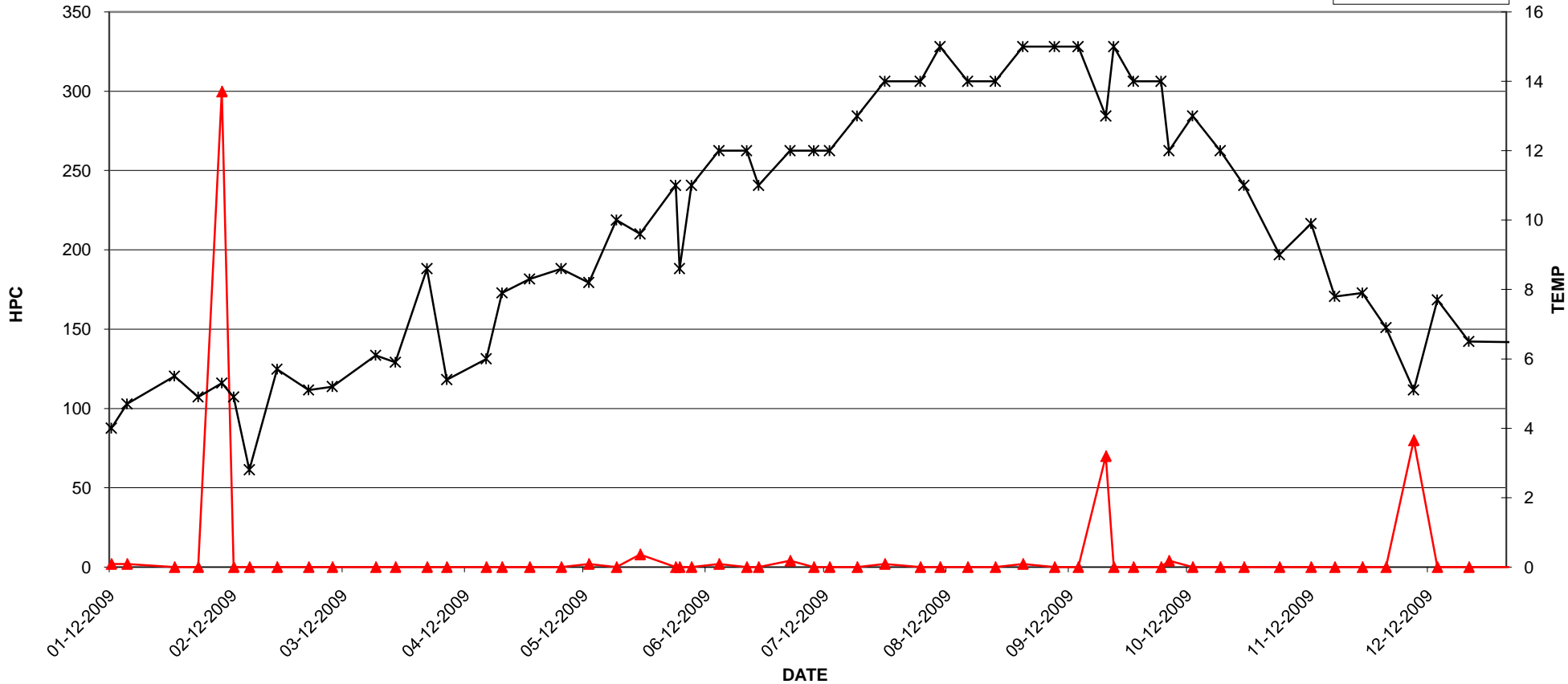
DM906 (SE CORNER 161 ST. & 102 AVE.) - 2009 TEST RESULTS



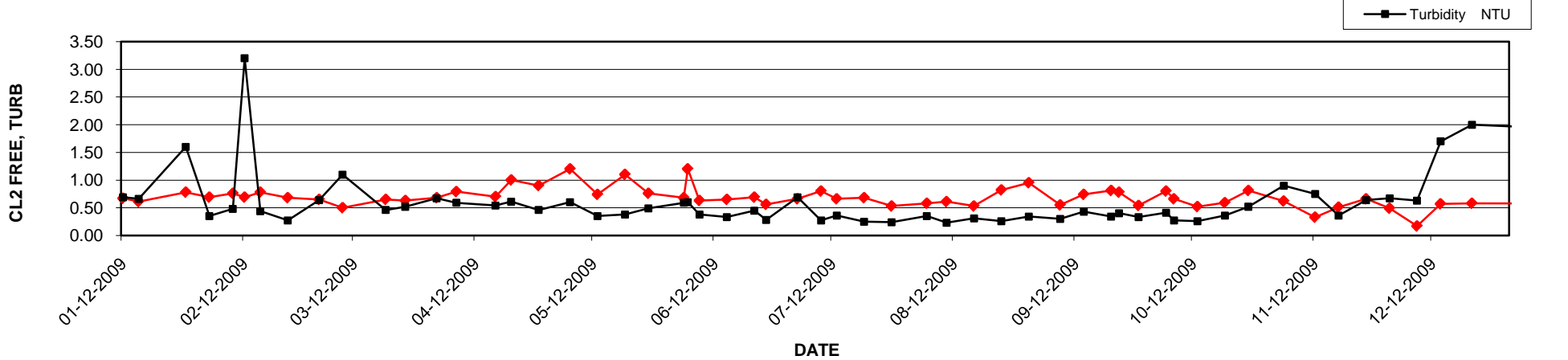
2009 Metro Vancouver Laboratory Report - DM907 (10796 - 155A ST. ON 108 AVE. 100' E. of 155A ST.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
12-Jan	0.67	<1	2	<1	4	0.69
16-Jan	0.61	<1	2	<1	4.7	0.66
28-Jan	0.78	<1	<2	<1	5.5	1.60
03-Feb	0.69	<1	<2	<1	4.9	0.35
09-Feb	0.76	<1	300	<1	5.3	0.48
12-Feb	0.69	<1	<2	<1	4.9	3.20
16-Feb	0.78	<1	<2	<1	2.8	0.44
23-Feb	0.68	<1	<2	<1	5.7	0.27
03-Mar	0.65	<1	<2	<1	5.1	0.64
09-Mar	0.50	<1	<2	<1	5.2	1.10
20-Mar	0.65	<1	<2	<1	6.1	0.46
25-Mar	0.63	<1	<2	<1	5.9	0.52
02-Apr	0.68	<1	<2	<1	8.6	0.67
07-Apr	0.79	<1	<2	<1	5.4	0.59
17-Apr	0.70	<1	<2	<1	6	0.54
21-Apr	1.00	<1	<2	<1	7.9	0.61
28-Apr	0.90	<1	<2	<1	8.3	0.46
06-May	1.20	<1	<2	<1	8.6	0.60
13-May	0.74	<1	2	<1	8.2	0.35
20-May	1.10	<1	<2	<1	10	0.38
26-May	0.76	<1	8	<1	9.6	0.49
04-Jun	0.68	<1	<2	<1	11	0.59
05-Jun	1.20	<1	<2	<1	8.6	0.60
08-Jun	0.63	<1	<2	<1	11	0.38
15-Jun	0.65	<1	2	<1	12	0.33
22-Jun	0.69	<1	<2	<1	12	0.45
25-Jun	0.56	<1	<2	<1	11	0.28
03-Jul	0.66	<1	4	<1	12	0.69
09-Jul	0.80	<1	<2	<1	12	0.27
13-Jul	0.66	<1	<2	<1	12	0.36
20-Jul	0.68	<1	<2	<1	13	0.25
27-Jul	0.53	<1	2	<1	14	0.24
05-Aug	0.58	<1	<2	<1	14	0.35
10-Aug	0.61	<1	<2	<1	15	0.23
17-Aug	0.53	<1	<2	<1	14	0.31
24-Aug	0.82	<1	<2	<1	14	0.26
31-Aug	0.95	<1	2	<1	15	0.34
08-Sep	0.55	<1	<2	<1	15	0.30
14-Sep	0.74	<1	<2	<1	15	0.43
21-Sep	0.81	<1	70	<1	13	0.34
23-Sep	0.78	<1	<2	<1	15	0.40
28-Sep	0.54	<1	<2	<1	14	0.33
05-Oct	0.80	<1	<2	<1	14	0.41
07-Oct	0.66	<1	4	<1	12	0.27
13-Oct	0.52	<1	<2	<1	13	0.26
20-Oct	0.59	<1	<2	<1	12	0.36
26-Oct	0.81	<1	<2	<1	11	0.52
04-Nov	0.62	<1	<2	<1	9	0.90
12-Nov	0.33	<1	<2	<1	9.9	0.75
18-Nov	0.51	<1	<2	<1	7.8	0.36
25-Nov	0.66	<1	<2	<1	7.9	0.64
01-Dec	0.49	<1	<2	<1	6.9	0.67
08-Dec	0.17	<1	80	<1	5.1	0.63
14-Dec	0.57	<1	<2	<1	7.7	1.70
22-Dec	0.58	<1	<2	<1	6.5	2.00
31-Dec	0.54	<1	NA	<1	5.9	0.85

DM907 (10796 - 155A ST. ON 108 AVE. 100' E. of 155A ST.) - 2009 TEST RESULTS



DM907 (10796 - 155A ST. ON 108 AVE. 100' E. of 155A ST.) - 2009 TEST RESULTS

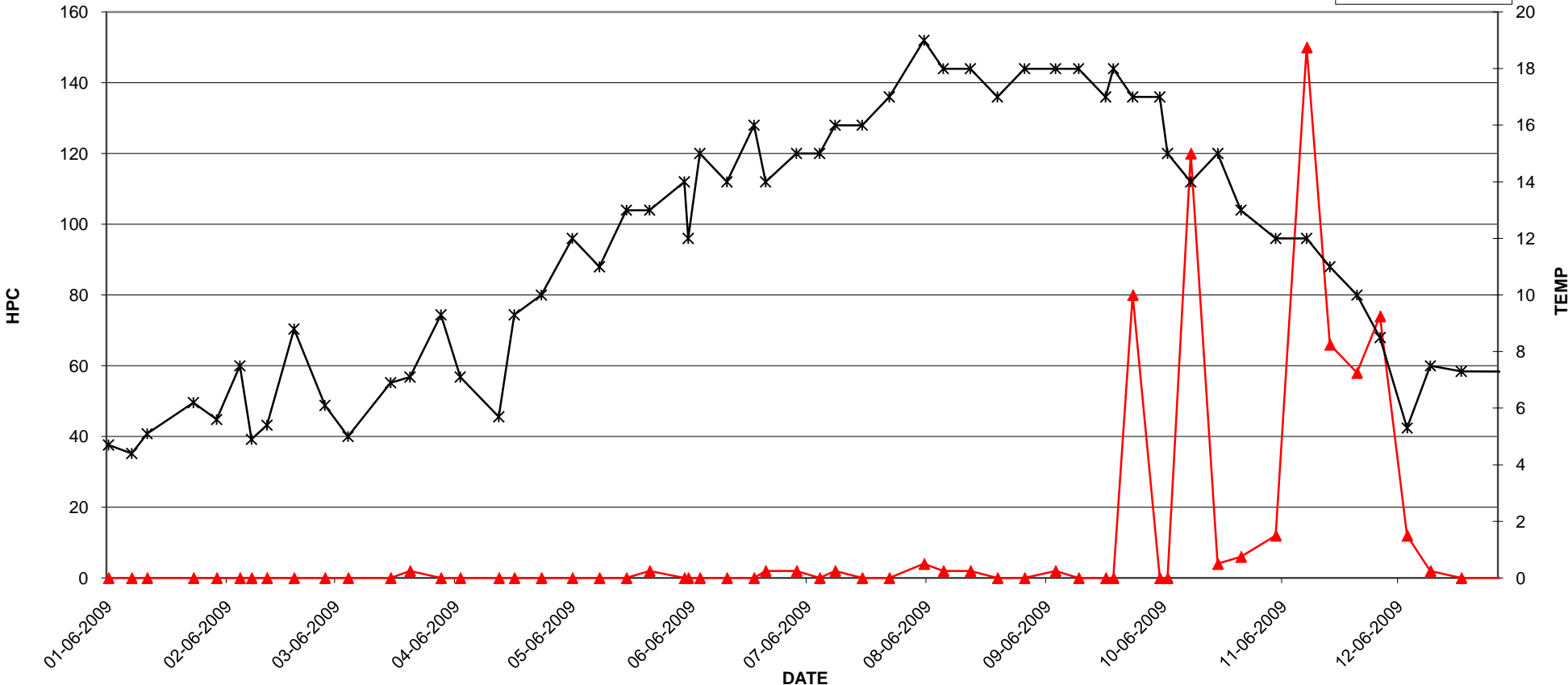




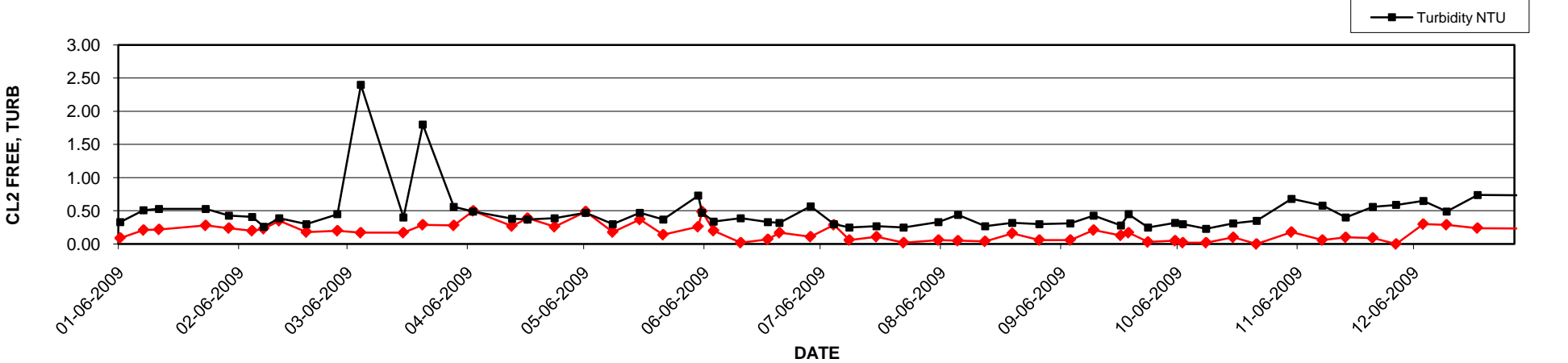
2009 Metro Vancouver Laboratory Report - DM908 (112 AVE & 159A ST ON NW CORNER)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
12-Jan	0.21	<1	<2	<1	4.4	0.51
06-Jan	0.09	<1	<2	<1	4.7	0.33
16-Jan	0.22	<1	<2	<1	5.1	0.53
28-Jan	0.28	<1	<2	<1	6.2	0.53
03-Feb	0.24	<1	<2	<1	5.6	0.43
09-Feb	0.20	<1	<2	<1	7.5	0.41
12-Feb	0.23	<1	<2	<1	4.9	0.26
16-Feb	0.35	<1	<2	<1	5.4	0.39
23-Feb	0.18	<1	<2	<1	8.8	0.30
03-Mar	0.20	<1	<2	<1	6.1	0.45
09-Mar	0.17	<1	<2	<1	5	2.40
20-Mar	0.17	<1	<2	<1	6.9	0.40
25-Mar	0.29	<1	2	<1	7.1	1.80
02-Apr	0.28	<1	<2	<1	9.3	0.56
07-Apr	0.50	<1	<2	<1	7.1	0.49
17-Apr	0.27	<1	<2	<1	5.7	0.38
21-Apr	0.39	<1	<2	<1	9.3	0.37
28-Apr	0.26	<1	<2	<1	10	0.39
06-May	0.49	<1	<2	<1	12	0.47
13-May	0.18	<1	<2	<1	11	0.30
20-May	0.37	<1	<2	<1	13	0.47
26-May	0.14	<1	2	<1	13	0.37
04-Jun	0.26	<1	<2	<1	14	0.73
05-Jun	0.49	<1	<2	<1	12	0.47
08-Jun	0.20	<1	<2	<1	15	0.34
15-Jun	0.02	<1	<2	<1	14	0.39
22-Jun	0.07	<1	<2	<1	16	0.33
25-Jun	0.17	<1	2	<1	14	0.32
03-Jul	0.11	<1	2	<1	15	0.57
09-Jul	0.29	<1	<2	<1	15	0.30
13-Jul	0.06	<1	2	<1	16	0.25
20-Jul	0.11	<1	<2	<1	16	0.27
27-Jul	0.02	<1	<2	<1	17	0.25
05-Aug	0.06	<1	4	<1	19	0.33
10-Aug	0.05	<1	2	<1	18	0.44
17-Aug	0.04	<1	2	<1	18	0.27
24-Aug	0.16	<1	<2	<1	17	0.32
31-Aug	0.06	<1	<2	<1	18	0.30
08-Sep	0.06	<1	2	<1	18	0.31
14-Sep	0.21	<1	<2	<1	18	0.43
21-Sep	0.13	<1	<2	<1	17	0.28
23-Sep	0.17	<1	<2	<1	18	0.45
28-Sep	0.03	<1	80	<1	17	0.25
05-Oct	0.05	<1	<2	<1	17	0.32
07-Oct	0.02	<1	<2	<1	15	0.30
13-Oct	0.02	<1	120	<1	14	0.23
20-Oct	0.10	<1	4	<1	15	0.31
26-Oct	<0.01	<1	6	<1	13	0.35
04-Nov	0.18	<1	12	<1	12	0.68
12-Nov	0.06	<1	150	<1	12	0.58
18-Nov	0.10	<1	66	<1	11	0.40
25-Nov	0.09	<1	58	<1	10	0.56
01-Dec	<0.01	<1	74	<1	8.5	0.59
08-Dec	0.30	<1	12	<1	5.3	0.65
14-Dec	0.29	<1	2	<1	7.5	0.49
22-Dec	0.24	<1	<2	<1	7.3	0.74
31-Dec	0.11	<1	NA	<1	7.1	0.56

DM908 (112 AVE & 159A ST ON NW CORNER) - 2009 TEST RESULTS



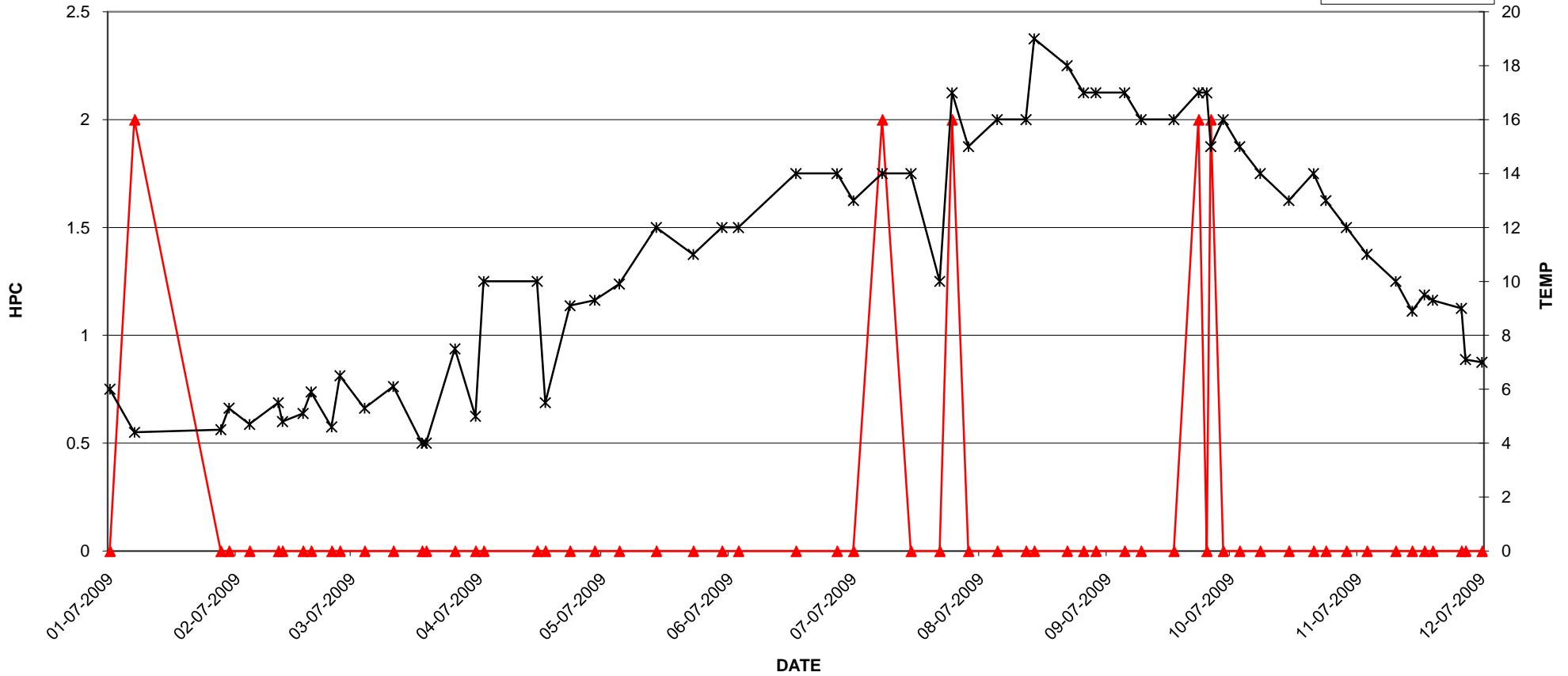
DM908 (112 AVE & 159A ST ON NW CORNER) - 2009 TEST RESULTS



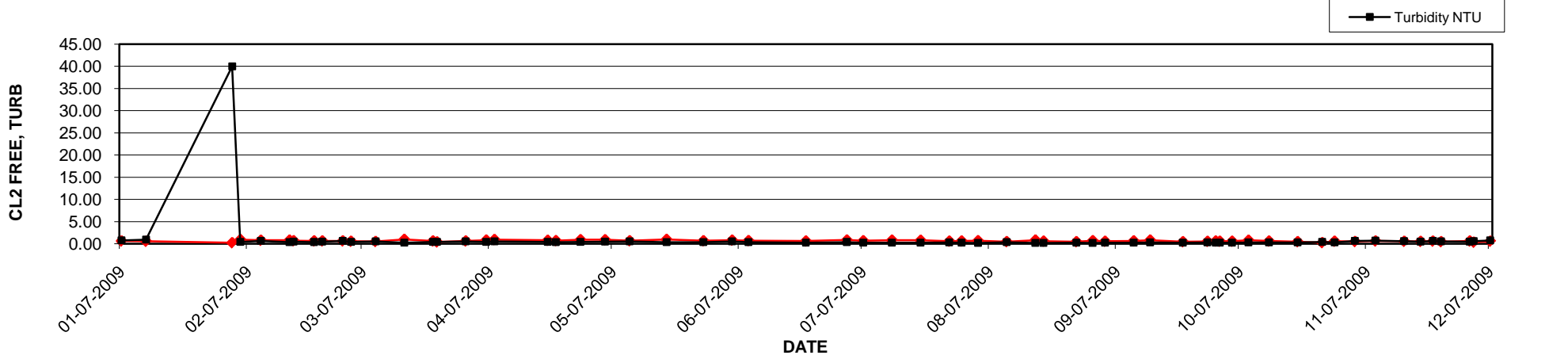
2009 Metro Vancouver Laboratory Report - DM909 (14669 WELLINGTON DR. E P/L BY HYDR)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
07-Jan	0.64	<1	<2	<1	6	0.79
13-Jan	0.57	<1	2	<1	4.4	0.93
03-Feb	0.25	<1	<2	<1	4.5	40.00
05-Feb	0.96	<1	<2	<1	5.3	0.46
10-Feb	0.80	<1	<2	<1	4.7	0.65
17-Feb	0.84	<1	<2	<1	5.5	0.36
18-Feb	0.70	<1	<2	<1	4.8	0.52
23-Feb	0.67	<1	<2	<1	5.1	0.41
25-Feb	0.66	<1	<2	<1	5.9	0.47
02-Mar	0.66	<1	<2	<1	4.6	0.65
04-Mar	0.58	<1	<2	<1	6.5	0.45
10-Mar	0.53	<1	<2	<1	5.3	0.53
17-Mar	1.00	<1	<2	<1	6.1	0.28
24-Mar	0.65	<1	<2	<1	4	0.46
25-Mar	0.43	<1	<2	<1	4	0.44
01-Apr	0.65	<1	<2	<1	7.5	0.57
06-Apr	0.85	<1	<2	<1	5	0.44
08-Apr	0.97	<1	<2	<1	10	0.56
21-Apr	0.80	<1	<2	<1	10	0.43
23-Apr	0.73	<1	<2	<1	5.5	0.38
29-Apr	0.93	<1	<2	<1	9.1	0.42
05-May	0.92	<1	<2	<1	9.3	0.48
11-May	0.69	<1	<2	<1	9.9	0.55
20-May	1.00	<1	<2	<1	12	0.38
29-May	0.70	<1	<2	<1	11	0.39
05-Jun	0.83	<1	<2	<1	12	0.53
09-Jun	0.73	<1	<2	<1	12	0.38
23-Jun	0.64	<1	<2	<1	14	0.27
03-Jul	0.86	<1	<2	<1	14	0.41
07-Jul	0.70	<1	<2	<1	13	0.28
14-Jul	0.83	<1	2	<1	14	0.25
21-Jul	0.80	<1	<2	<1	14	0.25
28-Jul	0.61	<1	<2	<1	10	0.31
31-Jul	0.64	<1	2	<1	17	0.27
04-Aug	0.71	<1	<2	<1	15	0.23
11-Aug	0.50	<1	<2	<1	16	0.39
18-Aug	0.85	<1	<2	<1	16	0.22
20-Aug	0.61	<1	<2	<1	19	0.22
28-Aug	0.49	<1	<2	<1	18	0.25
01-Sep	0.71	<1	<2	<1	17	0.21
04-Sep	0.58	<1	<2	<1	17	0.25
11-Sep	0.67	<1	<2	<1	17	0.28
15-Sep	0.85	<1	<2	<1	16	0.31
23-Sep	0.48	<1	<2	<1	16	0.26
29-Sep	0.56	<1	2	<1	17	0.32
01-Oct	0.64	<1	<2	<1	17	0.24
02-Oct	0.59	<1	2	<1	15	0.29
05-Oct	0.59	<1	<2	<1	16	0.26
09-Oct	0.81	<1	<2	<1	15	0.32
14-Oct	0.63	<1	<2	<1	14	0.30
21-Oct	0.49	<1	<2	<1	13	0.30
27-Oct	0.27	<1	<2	<1	14	0.44
30-Oct	0.59	<1	<2	<1	13	0.30
04-Nov	0.52	<1	<2	<1	12	0.68
09-Nov	0.64	<1	<2	<1	11	0.74
16-Nov	0.57	<1	<2	<1	10	0.63
20-Nov	0.55	<1	<2	<1	8.9	0.50
23-Nov	0.61	<1	<2	<1	9.5	0.66
25-Nov	0.49	<1	<2	<1	9.3	0.54
02-Dec	0.64	<1	<2	<1	9	0.51
03-Dec	0.37	<1	<2	<1	7.1	0.59
07-Dec	0.59	<1	<2	<1	7	0.78
16-Dec	0.52	<1	<2	<1	7.1	0.56
21-Dec	0.53	<1	<2	<1	7.8	0.60
29-Dec	0.52	<1	NA	<1	6.9	0.75

DM909 (14669 WELLINGTON DR. E P/L BY HYDR) - 2009 TEST RESULTS



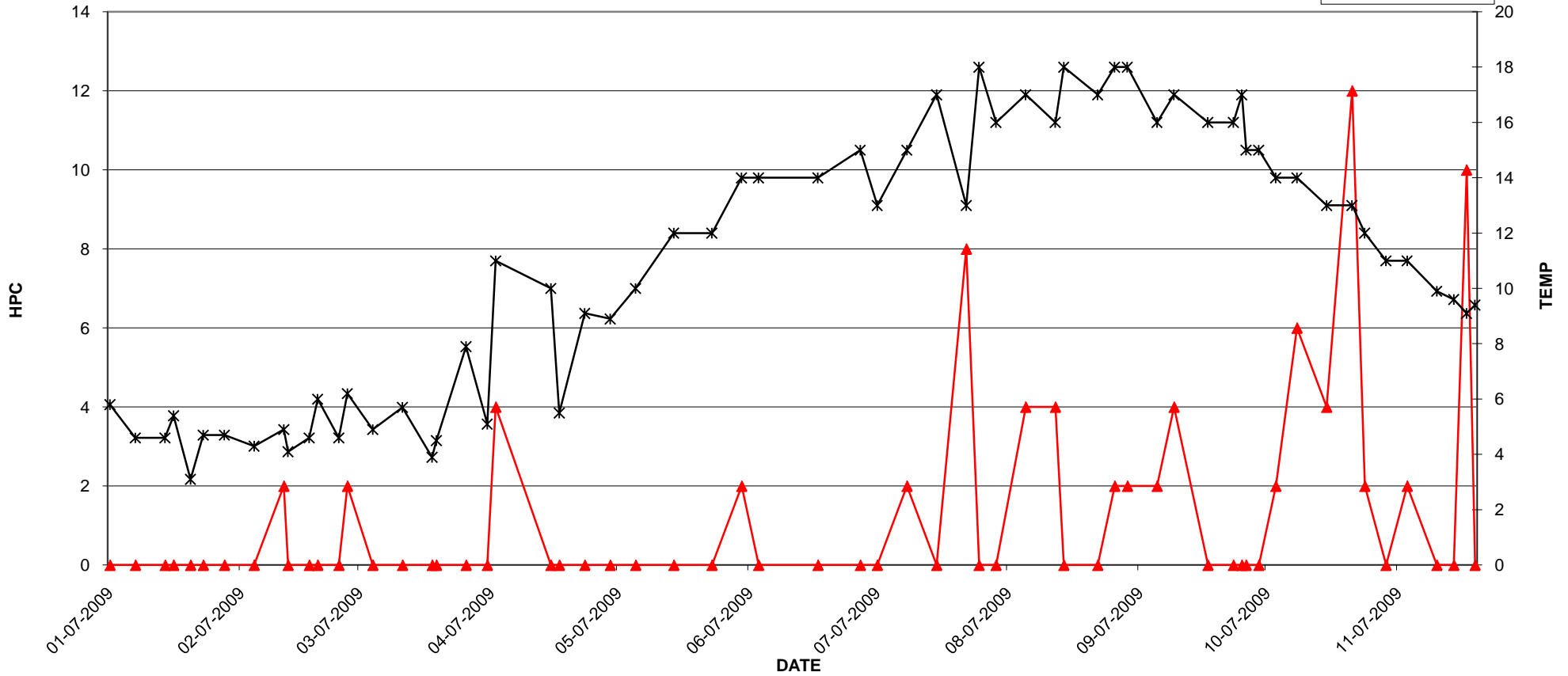
DM909 (14669 WELLINGTON DR. E P/L BY HYDR) - 2009 TEST RESULTS



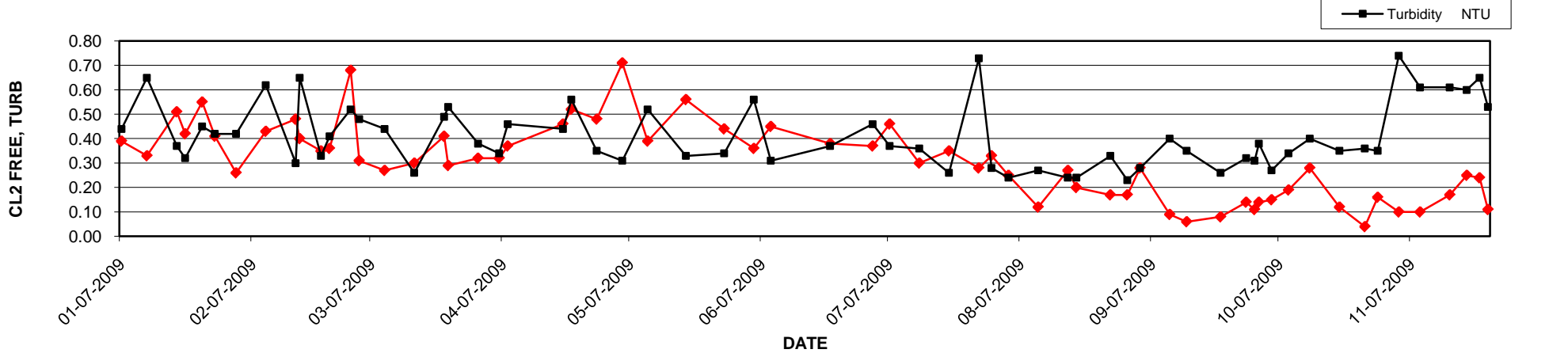
2009 Metro Vancouver Laboratory Report - DM910 (ON 115 AVE SW CORNER OF BEDFORD RD.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
07-Jan	0.39	<1	<2	<1	5.8	0.44
13-Jan	0.33	<1	<2	<1	4.6	0.65
20-Jan	0.51	<1	<2	<1	4.6	0.37
22-Jan	0.42	<1	<2	<1	5.4	0.32
26-Jan	0.55	<1	<2	<1	3.1	0.45
29-Jan	0.41	<1	<2	<1	4.7	0.42
03-Feb	0.26	<1	<2	<1	4.7	0.42
10-Feb	0.43	<1	<2	<1	4.3	0.62
17-Feb	0.48	<1	2	<1	4.9	0.30
18-Feb	0.40	<1	<2	<1	4.1	0.65
23-Feb	0.35	<1	<2	<1	4.6	0.33
25-Feb	0.36	<1	<2	<1	6	0.41
02-Mar	0.68	<1	<2	<1	4.6	0.52
04-Mar	0.31	<1	2	<1	6.2	0.48
10-Mar	0.27	<1	<2	<1	4.9	0.44
17-Mar	0.30	<1	<2	<1	5.7	0.26
24-Mar	0.41	<1	<2	<1	3.9	0.49
25-Mar	0.29	<1	<2	<1	4.5	0.53
01-Apr	0.32	<1	<2	<1	7.9	0.38
06-Apr	0.32	<1	<2	<1	5.1	0.34
08-Apr	0.37	<1	4	<1	11	0.46
21-Apr	0.46	<1	<2	<1	10	0.44
23-Apr	0.52	<1	<2	<1	5.5	0.56
29-Apr	0.48	<1	<2	<1	9.1	0.35
05-May	0.71	<1	<2	<1	8.9	0.31
11-May	0.39	<1	<2	<1	10	0.52
20-May	0.56	<1	<2	<1	12	0.33
29-May	0.44	<1	<2	<1	12	0.34
05-Jun	0.36	<1	2	<1	14	0.56
09-Jun	0.45	<1	<2	<1	14	0.31
23-Jun	0.38	<1	<2	<1	14	0.37
03-Jul	0.37	<1	<2	<1	15	0.46
07-Jul	0.46	<1	<2	<1	13	0.37
14-Jul	0.30	<1	2	<1	15	0.36
21-Jul	0.35	<1	<2	<1	17	0.26
28-Jul	0.28	<1	8	<1	13	0.73
31-Jul	0.33	<1	<2	<1	18	0.28
04-Aug	0.25	<1	<2	<1	16	0.24
11-Aug	0.12	<1	4	<1	17	0.27
18-Aug	0.27	<1	4	<1	16	0.24
20-Aug	0.20	<1	<2	<1	18	0.24
28-Aug	0.17	<1	<2	<1	17	0.33
01-Sep	0.17	<1	2	<1	18	0.23
04-Sep	0.28	<1	2	<1	18	0.28
11-Sep	0.09	<1	2	<1	16	0.40
15-Sep	0.06	<1	4	<1	17	0.35
23-Sep	0.08	<1	<2	<1	16	0.26
29-Sep	0.14	<1	<2	<1	16	0.32
01-Oct	0.11	<1	<2	<1	17	0.31
02-Oct	0.14	<1	<2	<1	15	0.38
05-Oct	0.15	<1	<2	<1	15	0.27
09-Oct	0.19	<1	2	<1	14	0.34
14-Oct	0.28	<1	6	<1	14	0.40
21-Oct	0.12	<1	4	<1	13	0.35
27-Oct	0.04	<1	12	<1	13	0.36
30-Oct	0.16	<1	2	<1	12	0.35
04-Nov	0.10	<1	<2	<1	11	0.74
09-Nov	0.10	<1	2	<1	11	0.61
16-Nov	0.17	<1	<2	<1	9.9	0.61
20-Nov	0.25	<1	<2	<1	9.6	0.60
23-Nov	0.24	<1	10	<1	9.1	0.65
25-Nov	0.11	<1	<2	<1	9.4	0.53
02-Dec	0.12	<1	<2	<1	8	0.65
03-Dec	0.14	<1	<2	<1	8.9	0.66
07-Dec	0.24	<1	<2	<1	7	0.57
11-Dec	0.25	<1	2	<1	7.3	0.63
16-Dec	0.39	<1	<2	<1	6.9	0.56
21-Dec	0.24	<1	<2	<1	7.4	0.78
29-Dec	0.26	<1	NA	<1	6.8	0.92

DM910 (ON 115 AVE SW CORNER OF BEDFORD RD.)- 2009 TEST RESULTS

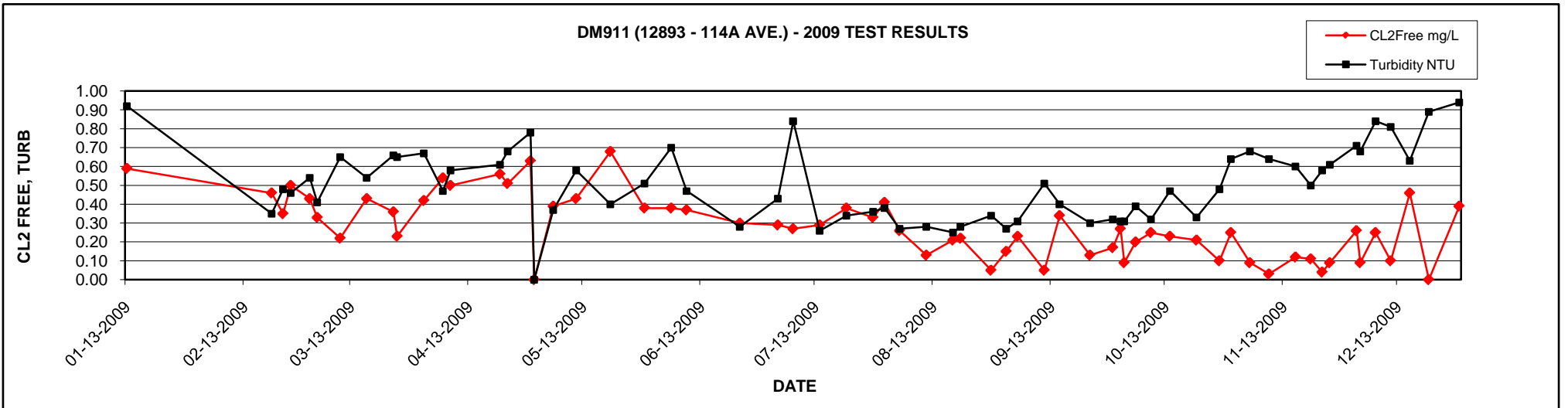
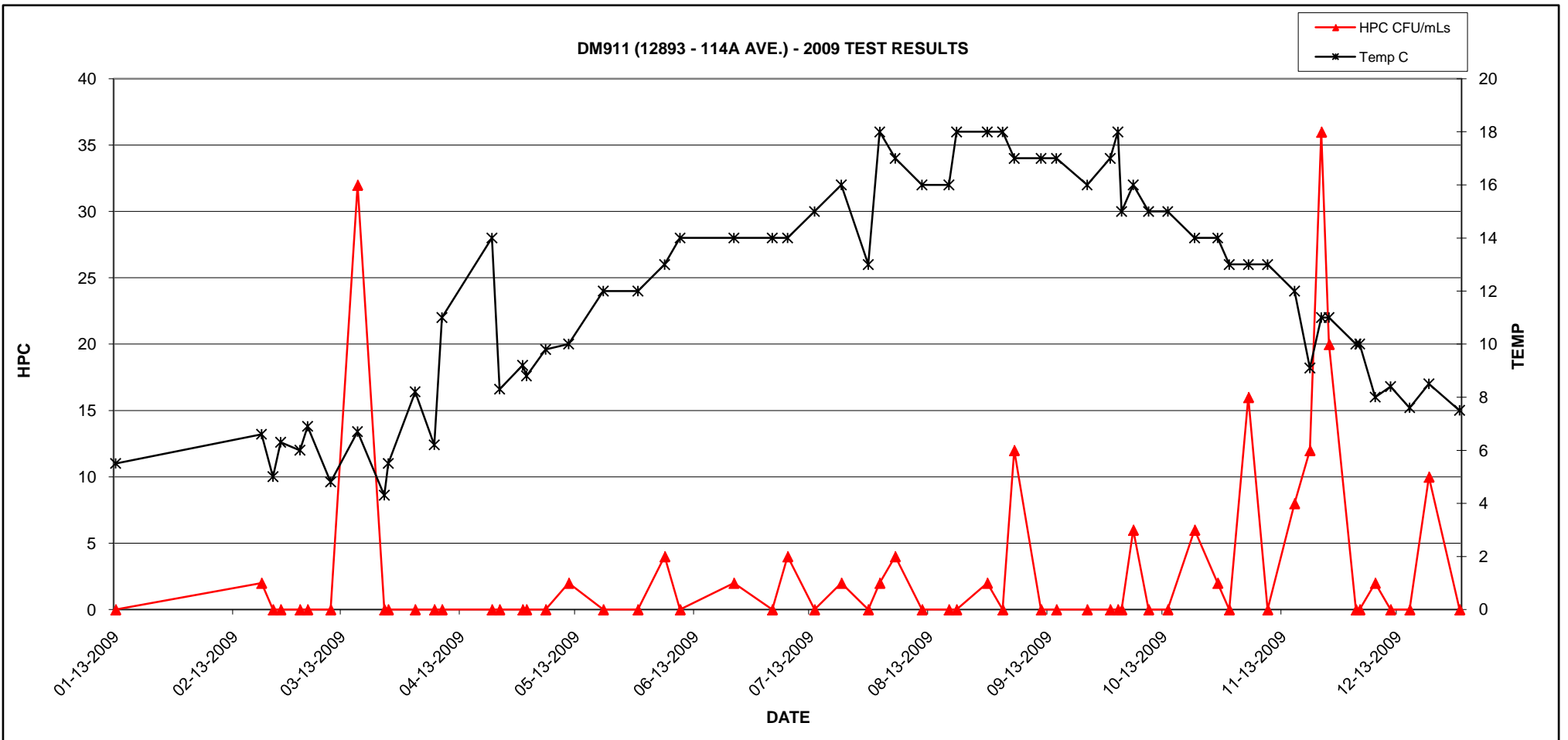


DM910 (ON 115 AVE SW CORNER OF BEDFORD RD.)- 2009 TEST RESULTS



2009 Metro Vancouver Laboratory Report - DM911 (12893 - 114A AVE.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
13-Jan	0.59	<1	<2	<1	5.5	0.92
20-Feb	0.46	<1	2	<1	6.6	0.35
23-Feb	0.35	<1	<2	<1	5	0.48
25-Feb	0.50	<1	<2	<1	6.3	0.46
02-Mar	0.43	<1	<2	<1	6	0.54
04-Mar	0.33	<1	<2	<1	6.9	0.41
10-Mar	0.22	<1	<2	<1	4.8	0.65
17-Mar	0.43	<1	32	<1	6.7	0.54
24-Mar	0.36	<1	<2	<1	4.3	0.66
25-Mar	0.23	<1	<2	<1	5.5	0.65
01-Apr	0.42	<1	<2	<1	8.2	0.67
06-Apr	0.54	<1	<2	<1	6.2	0.47
08-Apr	0.50	<1	<2	<1	11	0.58
21-Apr	0.56	<1	<2	<1	14	0.61
23-Apr	0.51	<1	<2	<1	8.3	0.68
30-Apr	NA	NA	NA	NA	8.8	NA
29-Apr	0.63	<1	<2	<1	9.2	0.78
05-May	0.39	<1	<2	<1	9.8	0.37
11-May	0.43	<1	2	<1	10	0.58
20-May	0.68	<1	<2	<1	12	0.40
29-May	0.38	<1	<2	<1	12	0.51
05-Jun	0.38	<1	4	<1	13	0.70
09-Jun	0.37	<1	<2	<1	14	0.47
23-Jun	0.30	<1	2	<1	14	0.28
03-Jul	0.29	<1	<2	<1	14	0.43
07-Jul	0.27	<1	4	<1	14	0.84
14-Jul	0.29	<1	<2	<1	15	0.26
21-Jul	0.38	<1	2	<1	16	0.34
28-Jul	0.33	<1	<2	<1	13	0.36
31-Jul	0.41	<1	2	<1	18	0.38
04-Aug	0.26	<1	4	<1	17	0.27
11-Aug	0.13	<1	<2	<1	16	0.28
18-Aug	0.21	<1	<2	<1	16	0.25
20-Aug	0.22	<1	<2	<1	18	0.28
28-Aug	0.05	<1	2	<1	18	0.34
01-Sep	0.15	<1	<2	<1	18	0.27
04-Sep	0.23	<1	12	<1	17	0.31
11-Sep	0.05	<1	<2	<1	17	0.51
15-Sep	0.34	<1	<2	<1	17	0.40
23-Sep	0.13	<1	<2	<1	16	0.30
29-Sep	0.17	<1	<2	<1	17	0.32
01-Oct	0.27	<1	<2	<1	18	0.31
02-Oct	0.09	<1	<2	<1	15	0.31
05-Oct	0.20	<1	6	<1	16	0.39
09-Oct	0.25	<1	<2	<1	15	0.32
14-Oct	0.23	<1	<2	<1	15	0.47
21-Oct	0.21	<1	6	<1	14	0.33
27-Oct	0.10	<1	2	<1	14	0.48
30-Oct	0.25	<1	<2	<1	13	0.64
04-Nov	0.09	<1	16	<1	13	0.68
09-Nov	0.03	<1	<2	<1	13	0.64
16-Nov	0.12	<1	8	<1	12	0.60
20-Nov	0.11	<1	12	<1	9.1	0.50
23-Nov	0.04	<1	36	<1	11	0.58
25-Nov	0.09	<1	20	<1	11	0.61
02-Dec	0.26	<1	<2	<1	10	0.71
03-Dec	0.09	<1	<2	<1	10	0.68
07-Dec	0.25	<1	2	<1	8	0.84
11-Dec	0.10	<1	<2	<1	8.4	0.81
16-Dec	0.46	<1	<2	<1	7.6	0.63
21-Dec	<0.01	<1	10	<1	8.5	0.89
29-Dec	0.39	<1	NA	<1	7.5	0.94

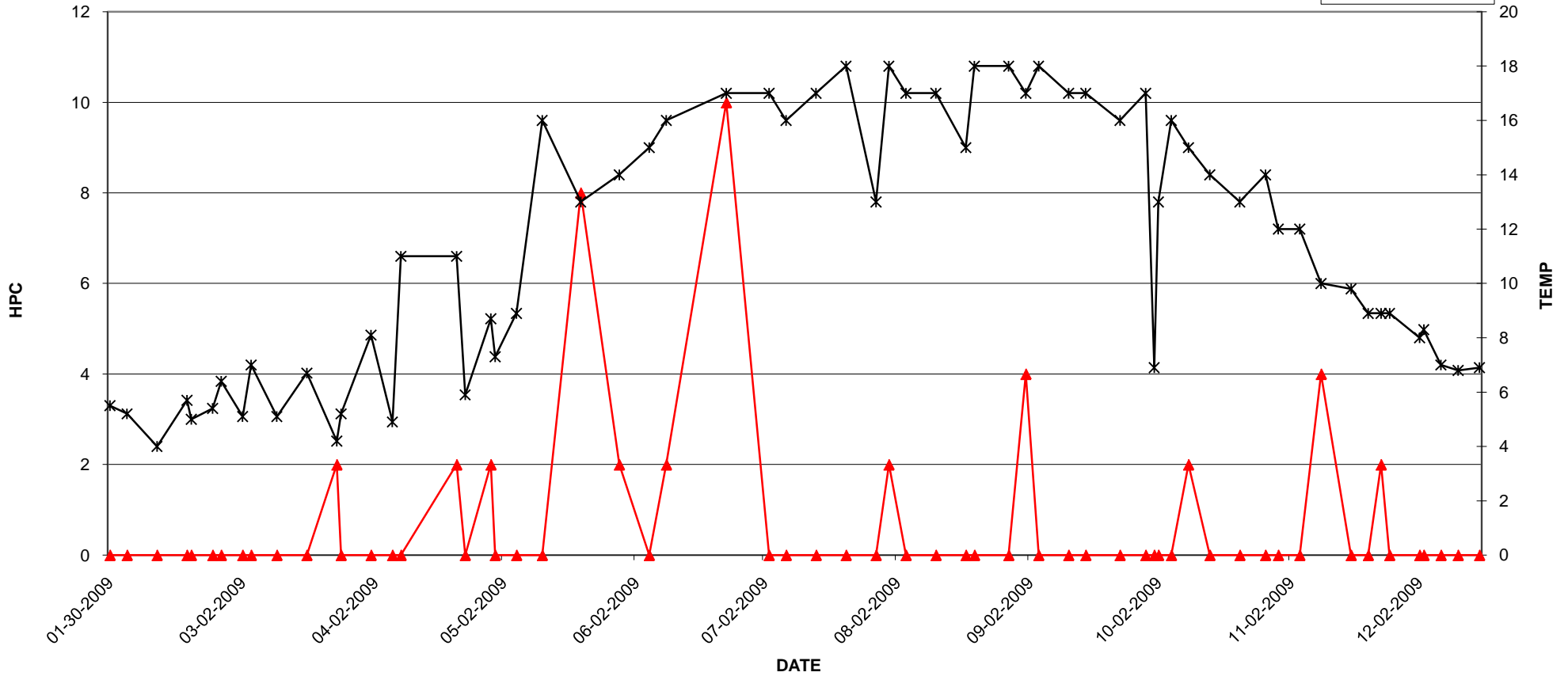




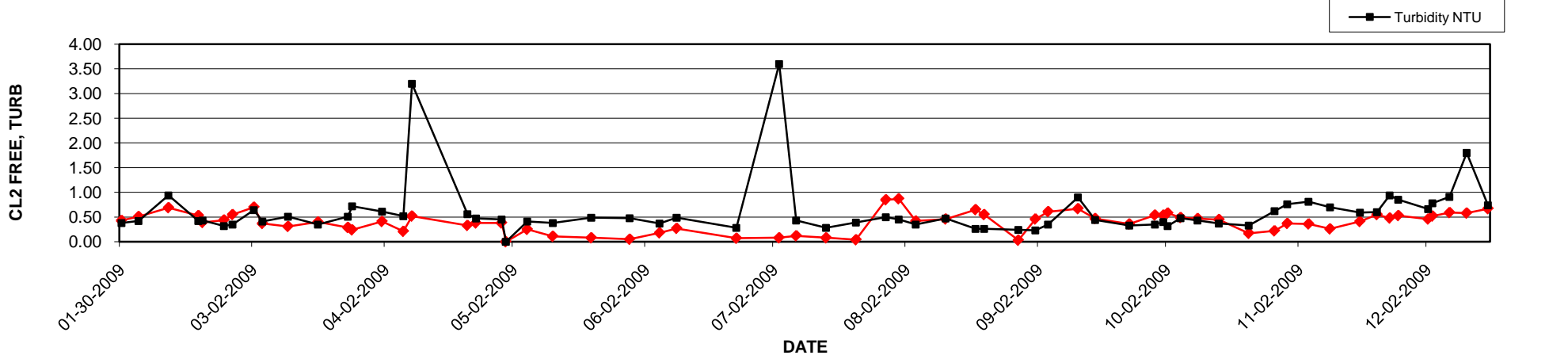
2009 Metro Vancouver Laboratory Report - DM912 (TIMBERLAND RD. 1 BLK S. of PINE RD.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
30-Jan	0.43	<1	<2	<1	5.5	0.38
03-Feb	0.51	<1	<2	<1	5.2	0.42
10-Feb	0.69	<1	<2	<1	4	0.94
17-Feb	0.53	<1	<2	<1	5.7	0.42
18-Feb	0.39	<1	<2	<1	5	0.43
23-Feb	0.44	<1	<2	<1	5.4	0.32
25-Feb	0.55	<1	<2	<1	6.4	0.35
02-Mar	0.70	<1	<2	<1	5.1	0.64
04-Mar	0.37	<1	<2	<1	7	0.41
10-Mar	0.31	<1	<2	<1	5.1	0.51
17-Mar	0.40	<1	<2	<1	6.7	0.35
24-Mar	0.29	<1	2	<1	4.2	0.51
25-Mar	0.24	<1	<2	<1	5.2	0.72
01-Apr	0.41	<1	<2	<1	8.1	0.61
06-Apr	0.21	<1	<2	<1	4.9	0.52
08-Apr	0.52	<1	<2	<1	11	3.20
21-Apr	0.33	<1	2	<1	11	0.56
23-Apr	0.38	<1	<2	<1	5.9	0.47
30-Apr	NA	NA	NA	NA	7.3	NA
29-Apr	0.38	<1	2	<1	8.7	0.45
05-May	0.25	<1	<2	<1	8.9	0.41
11-May	0.11	<1	<2	<1	16	0.38
20-May	0.08	<1	8	<1	13	0.49
29-May	0.05	<1	2	<1	14	0.48
05-Jun	0.18	<1	<2	<1	15	0.37
09-Jun	0.27	<1	2	<1	16	0.49
23-Jun	0.07	<1	10	<1	17	0.28
03-Jul	0.08	<1	<2	<1	17	3.60
07-Jul	0.12	<1	<2	<1	16	0.43
14-Jul	0.08	<1	<2	<1	17	0.28
21-Jul	0.04	<1	<2	<1	18	0.39
28-Jul	0.85	<1	<2	<1	13	0.50
31-Jul	0.87	<1	2	<1	18	0.45
04-Aug	0.42	<1	<2	<1	17	0.35
11-Aug	0.46	<1	<2	<1	17	0.47
18-Aug	0.65	<1	<2	<1	15	0.26
20-Aug	0.55	<1	<2	<1	18	0.26
28-Aug	0.03	<1	<2	<1	18	0.24
01-Sep	0.46	<1	4	<1	17	0.23
04-Sep	0.61	<1	<2	<1	18	0.35
11-Sep	0.67	<1	<2	<1	17	0.90
15-Sep	0.47	<1	<2	<1	17	0.44
23-Sep	0.36	<1	<2	<1	16	0.33
29-Sep	0.54	<1	<2	<1	17	0.35
01-Oct	0.54	<1	<2	<1	6.9	0.40
02-Oct	0.58	<1	<2	<1	13	0.32
05-Oct	0.49	<1	<2	<1	16	0.48
09-Oct	0.47	<1	2	<1	15	0.43
14-Oct	0.45	<1	<2	<1	14	0.37
21-Oct	0.17	<1	<2	<1	13	0.33
27-Oct	0.22	<1	<2	<1	14	0.62
30-Oct	0.37	<1	<2	<1	12	0.76
04-Nov	0.36	<1	<2	<1	12	0.81
09-Nov	0.26	<1	4	<1	10	0.70
16-Nov	0.41	<1	<2	<1	9.8	0.59
20-Nov	0.55	<1	<2	<1	8.9	0.60
23-Nov	0.48	<1	2	<1	8.9	0.94
25-Nov	0.53	<1	<2	<1	8.9	0.85
02-Dec	0.46	<1	<2	<1	8	0.66
03-Dec	0.52	<1	<2	<1	8.3	0.78
07-Dec	0.59	<1	<2	<1	7	0.91
11-Dec	0.58	<1	<2	<1	6.8	1.80
16-Dec	0.67	<1	<2	<1	6.9	0.74
21-Dec	0.52	<1	<2	<1	7.5	0.94
29-Dec	0.65	<1	NA	<1	6.5	0.78

DM912 (TIMBERLAND RD. 1 BLK S. of PINE RD.) - 2009 TEST RESULTS

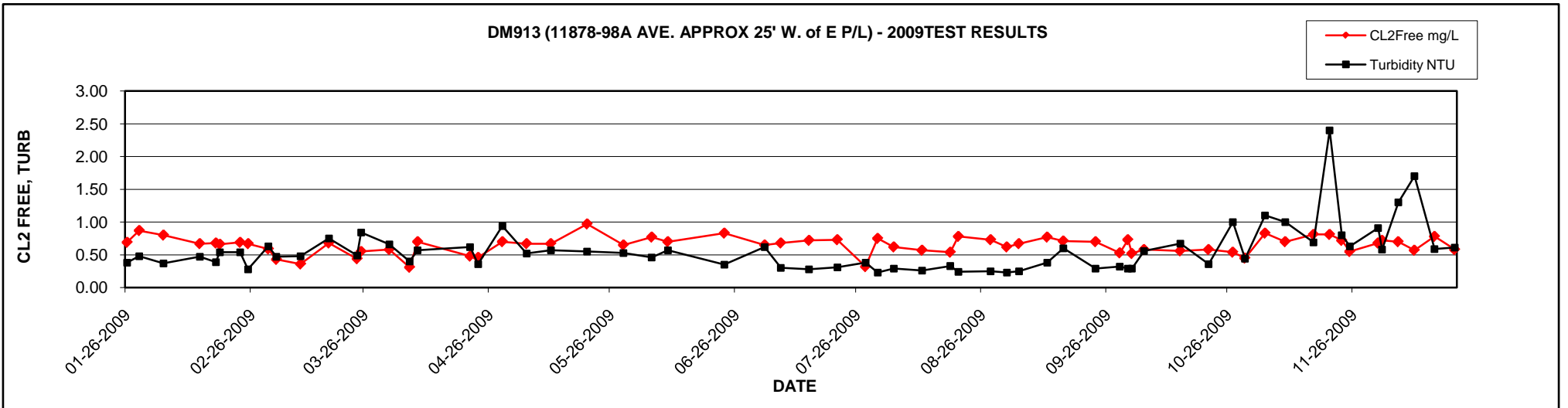
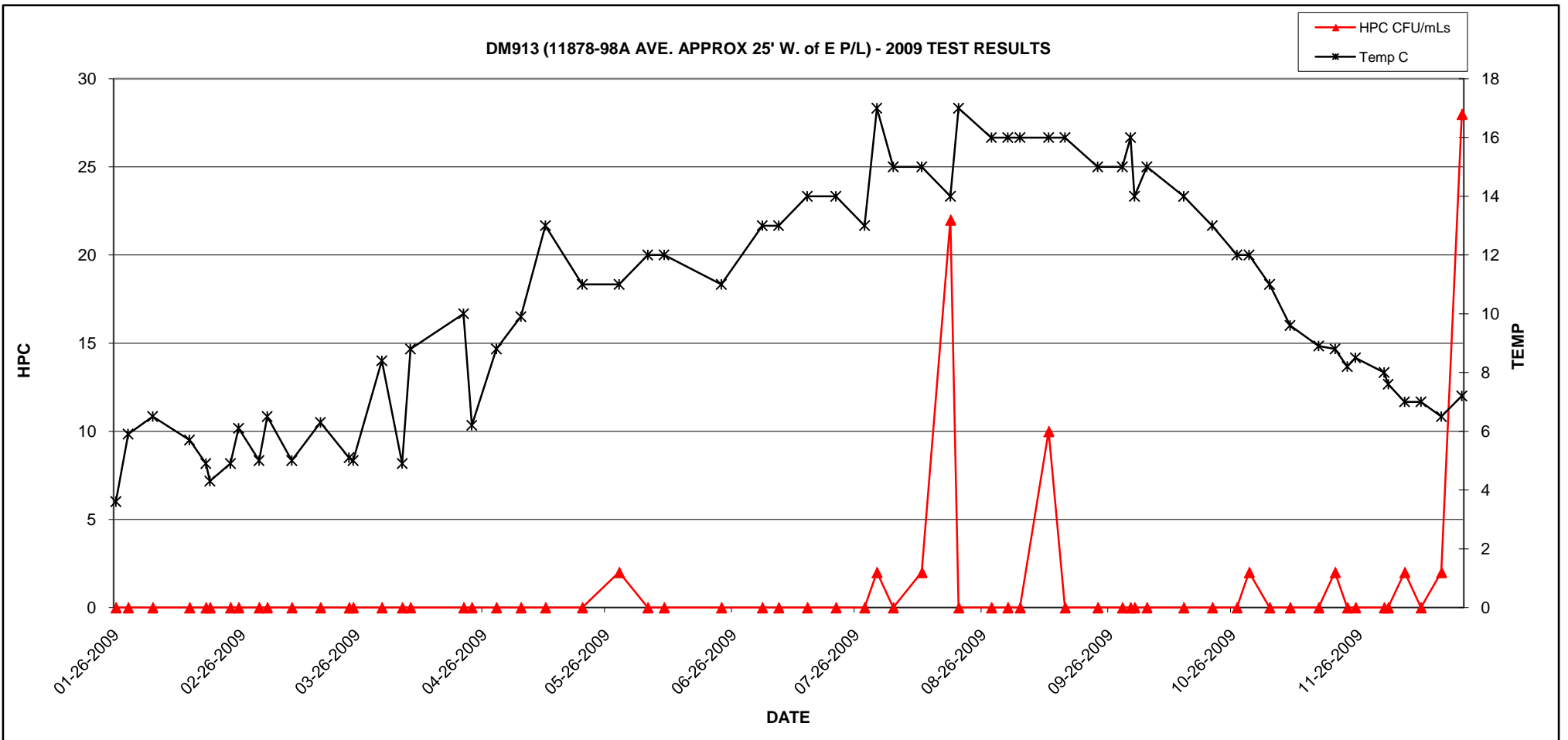


DM912 (TIMBERLAND RD. 1 BLK S. of PINE RD.) - 2009 TEST RESULTS



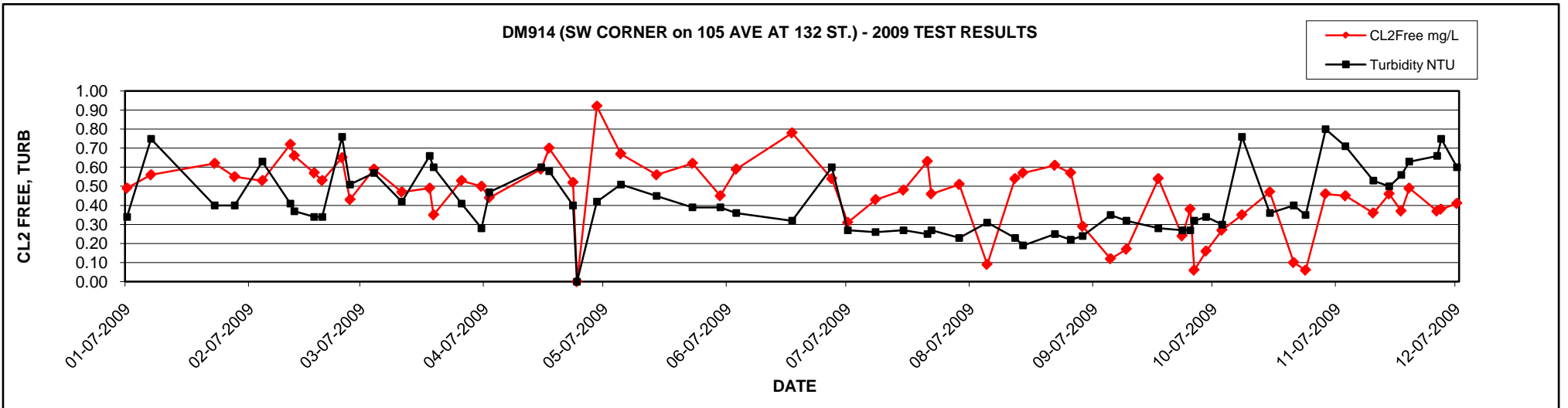
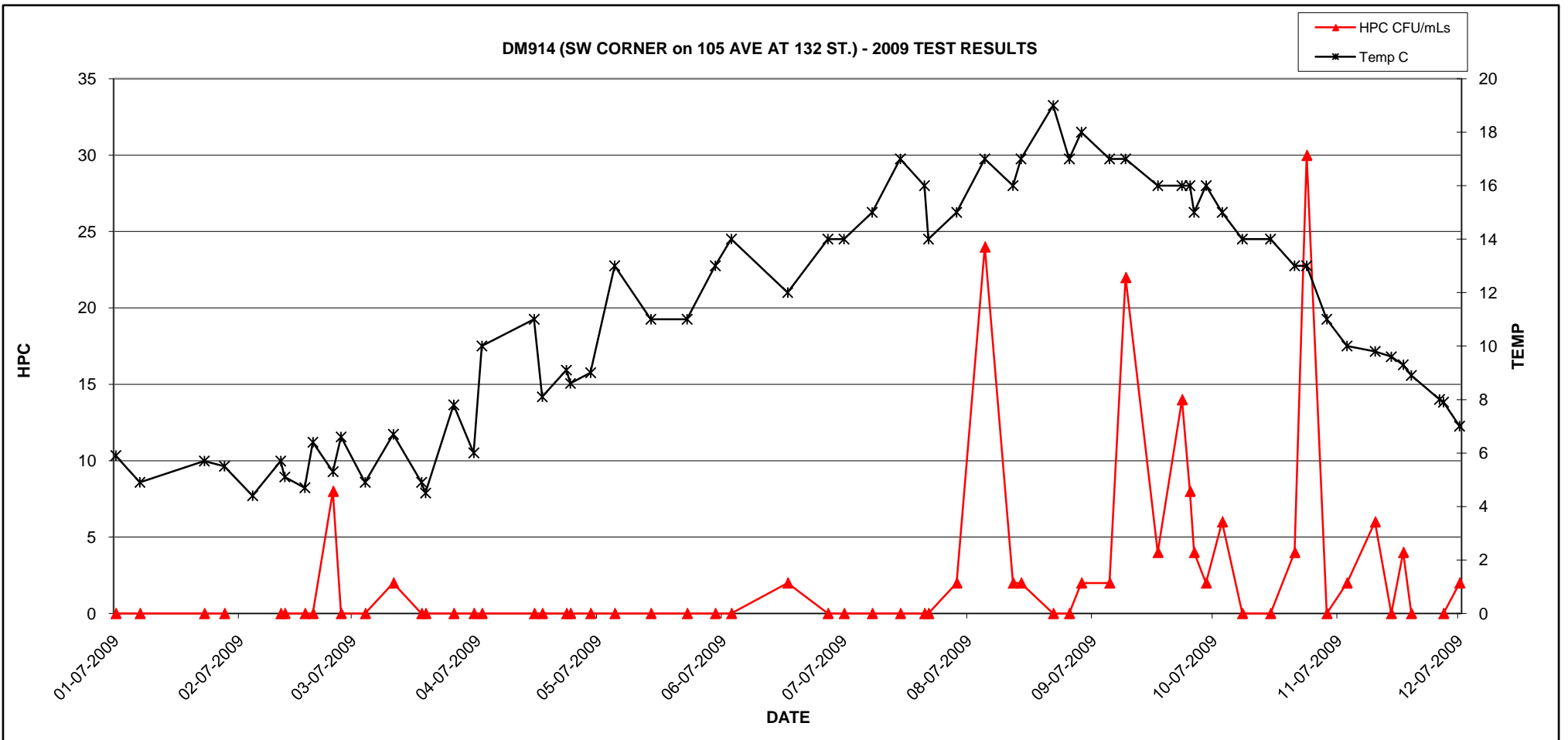
2009 Metro Vancouver Laboratory Report - DM913 (11878-98A AVE. APPROX 25' W. of E P/L)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
26-Jan	0.69	<1	<2	<1	3.6	0.38
29-Jan	0.87	<1	<2	<1	5.9	0.48
04-Feb	0.80	<1	<2	<1	6.5	0.37
13-Feb	0.67	<1	<2	<1	5.7	0.47
17-Feb	0.68	<1	<2	<1	4.9	0.39
18-Feb	0.66	<1	<2	<1	4.3	0.54
23-Feb	0.69	<1	<2	<1	4.9	0.54
25-Feb	0.67	<1	<2	<1	6.1	0.28
02-Mar	0.59	<1	<2	<1	5	0.63
04-Mar	0.43	<1	<2	<1	6.5	0.47
10-Mar	0.36	<1	<2	<1	5	0.48
17-Mar	0.68	<1	<2	<1	6.3	0.75
24-Mar	0.44	<1	<2	<1	5.1	0.49
25-Mar	0.55	<1	<2	<1	5	0.84
01-Apr	0.58	<1	<2	<1	8.4	0.66
06-Apr	0.31	<1	<2	<1	4.9	0.40
08-Apr	0.70	<1	<2	<1	8.8	0.57
21-Apr	0.48	<1	<2	<1	10	0.62
23-Apr	0.46	<1	<2	<1	6.2	0.36
29-Apr	0.70	<1	<2	<1	8.8	0.94
05-May	0.67	<1	<2	<1	9.9	0.52
11-May	0.67	<1	<2	<1	13	0.57
20-May	0.97	<1	<2	<1	11	0.55
29-May	0.65	<1	2	<1	11	0.53
05-Jun	0.77	<1	<2	<1	12	0.46
09-Jun	0.70	<1	<2	<1	12	0.57
23-Jun	0.83	<1	NA	<1	11	0.35
03-Jul	0.65	<1	<2	<1	13	0.62
07-Jul	0.68	<1	<2	<1	13	0.30
14-Jul	0.72	<1	<2	<1	14	0.28
21-Jul	0.73	<1	<2	<1	14	0.31
28-Jul	0.32	<1	<2	<1	13	0.38
31-Jul	0.75	<1	2	<1	17	0.23
04-Aug	0.62	<1	<2	<1	15	0.29
11-Aug	0.57	<1	2	<1	15	0.26
18-Aug	0.54	<1	22	<1	14	0.33
20-Aug	0.78	<1	<2	<1	17	0.24
28-Aug	0.73	<1	<2	<1	16	0.25
01-Sep	0.62	<1	<2	<1	16	0.23
04-Sep	0.67	<1	<2	<1	16	0.25
11-Sep	0.77	<1	10	<1	16	0.38
15-Sep	0.71	<1	<2	<1	16	0.60
23-Sep	0.70	<1	<2	<1	15	0.29
29-Sep	0.53	<1	<2	<1	15	0.32
01-Oct	0.73	<1	<2	<1	16	0.29
02-Oct	0.52	<1	<2	<1	14	0.29
05-Oct	0.58	<1	<2	<1	15	0.56
14-Oct	0.56	<1	<2	<1	14	0.67
21-Oct	0.58	<1	<2	<1	13	0.36
27-Oct	0.54	<1	<2	<1	12	1.00
30-Oct	0.45	<1	2	<1	12	0.44
04-Nov	0.83	<1	<2	<1	11	1.10
09-Nov	0.70	<1	<2	<1	9.6	1.00
16-Nov	0.81	<1	<2	<1	8.9	0.69
20-Nov	0.81	<1	2	<1	8.8	2.40
23-Nov	0.72	<1	<2	<1	8.2	0.80
25-Nov	0.55	<1	<2	<1	8.5	0.63
02-Dec	0.68	<1	<2	<1	8	0.91
03-Dec	0.72	<1	<2	<1	7.6	0.58
07-Dec	0.70	<1	2	<1	7	1.30
11-Dec	0.57	<1	<2	<1	7	1.70
16-Dec	0.78	<1	2	<1	6.5	0.59
21-Dec	0.58	<1	28	<1	7.2	0.61
29-Dec	0.85	<1	NA	<1	6.4	0.82



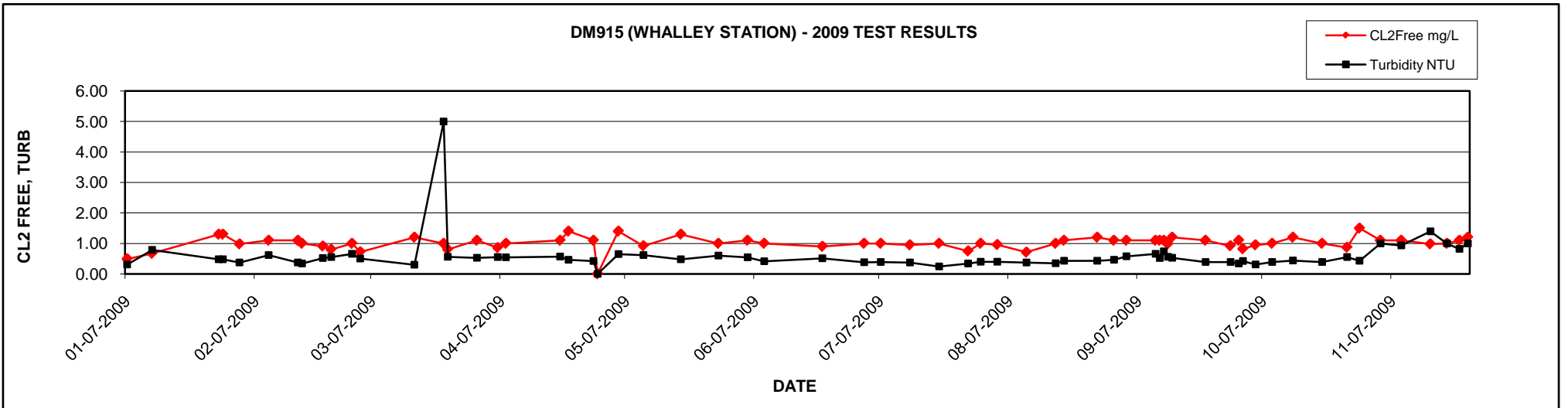
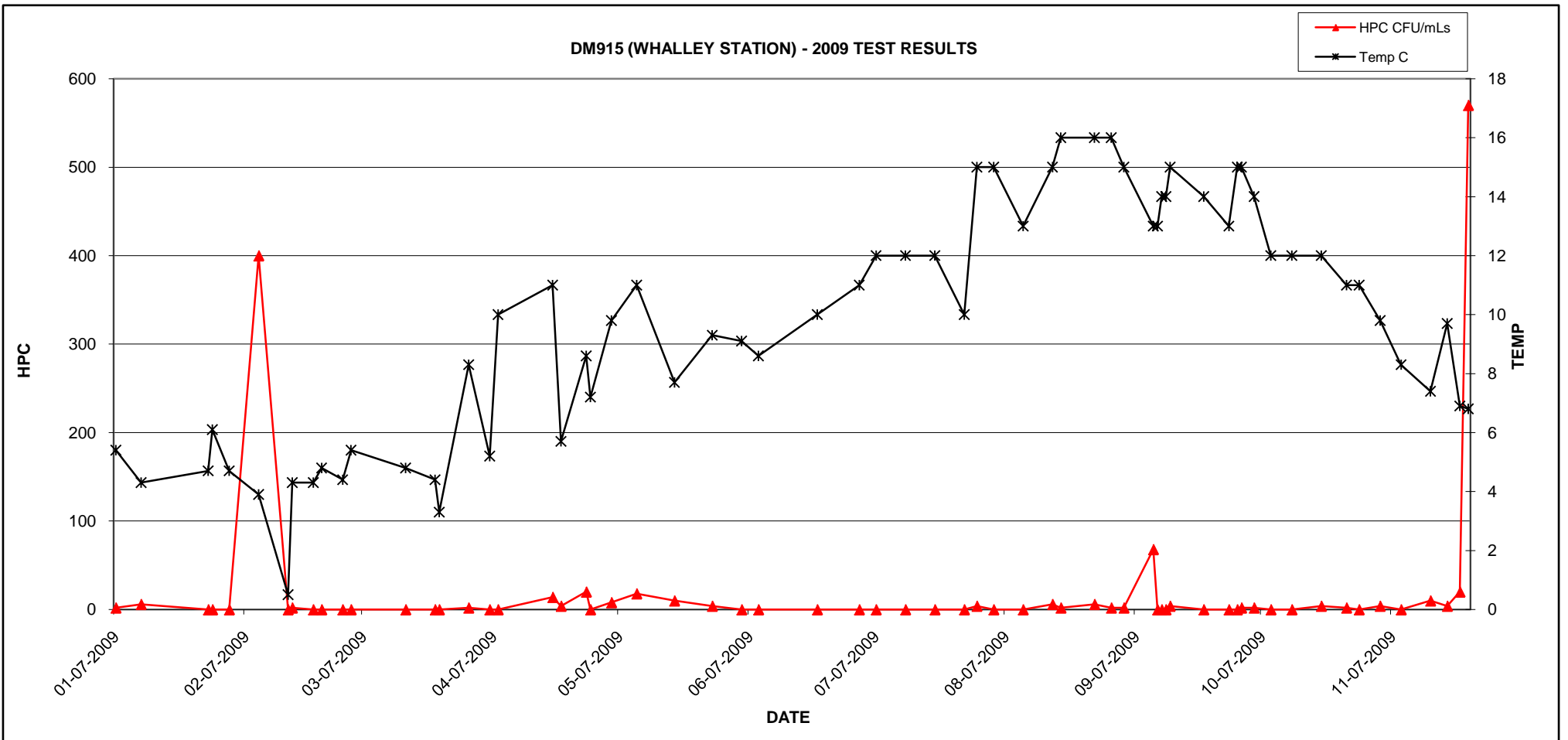
2009 Metro Vancouver Laboratory Report - DM914 (SW CORNER on 105 AVE AT 132 ST.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
07-Jan	0.49	<1	<2	<1	5.9	0.34
13-Jan	0.56	<1	<2	<1	4.9	0.75
29-Jan	0.62	<1	<2	<1	5.7	0.40
03-Feb	0.55	<1	<2	<1	5.5	0.40
10-Feb	0.53	<1	<2	<1	4.4	0.63
17-Feb	0.72	<1	<2	<1	5.7	0.41
18-Feb	0.66	<1	<2	<1	5.1	0.37
23-Feb	0.57	<1	<2	<1	4.7	0.34
25-Feb	0.53	<1	<2	<1	6.4	0.34
02-Mar	0.65	<1	8	<1	5.3	0.76
04-Mar	0.43	<1	<2	<1	6.6	0.51
10-Mar	0.59	<1	<2	<1	4.9	0.57
17-Mar	0.47	<1	2	<1	6.7	0.42
24-Mar	0.49	<1	<2	<1	4.9	0.66
25-Mar	0.35	<1	<2	<1	4.5	0.60
01-Apr	0.53	<1	<2	<1	7.8	0.41
06-Apr	0.50	<1	<2	<1	6	0.28
08-Apr	0.44	<1	<2	<1	10	0.47
21-Apr	0.59	<1	<2	<1	11	0.60
23-Apr	0.70	<1	<2	<1	8.1	0.58
30-Apr	NA	NA	NA	NA	8.6	NA
29-Apr	0.52	<1	<2	<1	9.1	0.40
05-May	0.92	<1	<2	<1	9	0.42
11-May	0.67	<1	<2	<1	13	0.51
20-May	0.56	<1	<2	<1	11	0.45
29-May	0.62	<1	<2	<1	11	0.39
05-Jun	0.45	<1	<2	<1	13	0.39
09-Jun	0.59	<1	<2	<1	14	0.36
23-Jun	0.78	<1	2	<1	12	0.32
03-Jul	0.54	<1	<2	<1	14	0.60
07-Jul	0.31	<1	<2	<1	14	0.27
14-Jul	0.43	<1	<2	<1	15	0.26
21-Jul	0.48	<1	<2	<1	17	0.27
28-Jul	0.46	<1	<2	<1	14	0.27
27-Jul	0.63	<1	<2	<1	16	0.25
04-Aug	0.51	<1	2	<1	15	0.23
11-Aug	0.09	<1	24	<1	17	0.31
18-Aug	0.54	<1	2	<1	16	0.23
20-Aug	0.57	<1	2	<1	17	0.19
28-Aug	0.61	<1	<2	<1	19	0.25
01-Sep	0.57	<1	<2	<1	17	0.22
04-Sep	0.29	<1	2	<1	18	0.24
11-Sep	0.12	<1	2	<1	17	0.35
15-Sep	0.17	<1	22	<1	17	0.32
23-Sep	0.54	<1	4	<1	16	0.28
29-Sep	0.24	<1	14	<1	16	0.27
01-Oct	0.38	<1	8	<1	16	0.27
02-Oct	0.06	<1	4	<1	15	0.32
05-Oct	0.16	<1	2	<1	16	0.34
09-Oct	0.27	<1	6	<1	15	0.30
14-Oct	0.35	<1	<2	<1	14	0.76
21-Oct	0.47	<1	<2	<1	14	0.36
27-Oct	0.10	<1	4	<1	13	0.40
30-Oct	0.06	<1	30	<1	13	0.35
04-Nov	0.46	<1	<2	<1	11	0.80
09-Nov	0.45	<1	2	<1	10	0.71
16-Nov	0.36	<1	6	<1	9.8	0.53
20-Nov	0.46	<1	<2	<1	9.6	0.50
23-Nov	0.37	<1	4	<1	9.3	0.56
25-Nov	0.49	<1	<2	<1	8.9	0.63
02-Dec	0.37	<1	<2	<1	8	0.66
03-Dec	0.38	<1	<2	<1	7.9	0.75
07-Dec	0.41	<1	2	<1	7	0.60
11-Dec	0.50	<1	<2	<1	6.9	1.30
16-Dec	0.46	<1	<2	<1	6.8	0.60
21-Dec	0.42	<1	LA	<1	7.5	0.69
29-Dec	0.55	<1	NA	<1	6.7	1.00



2009 Metro Vancouver Laboratory Report - DM915 (WHALLEY STATION)

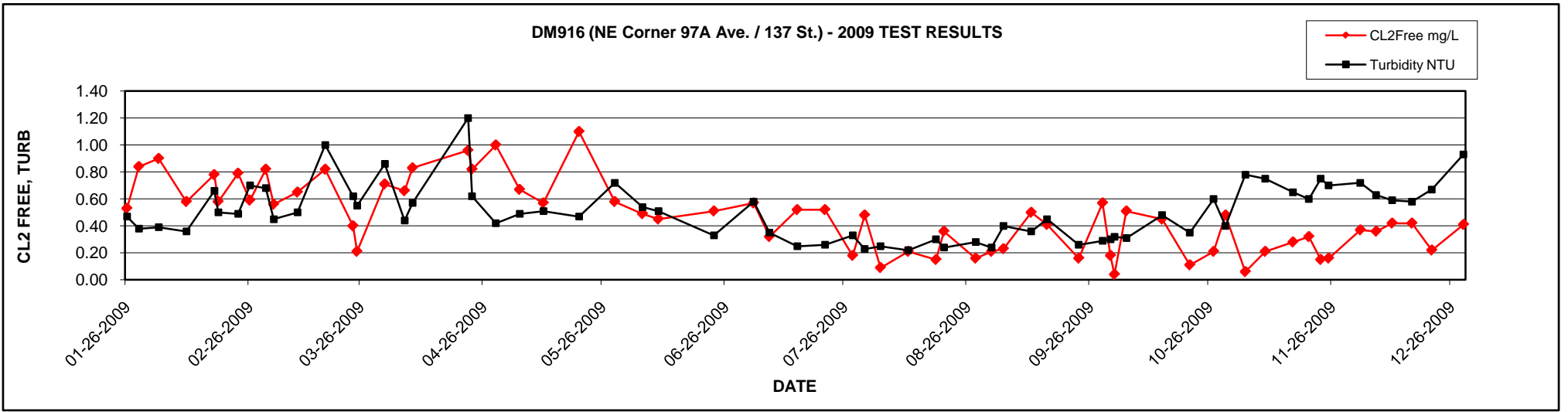
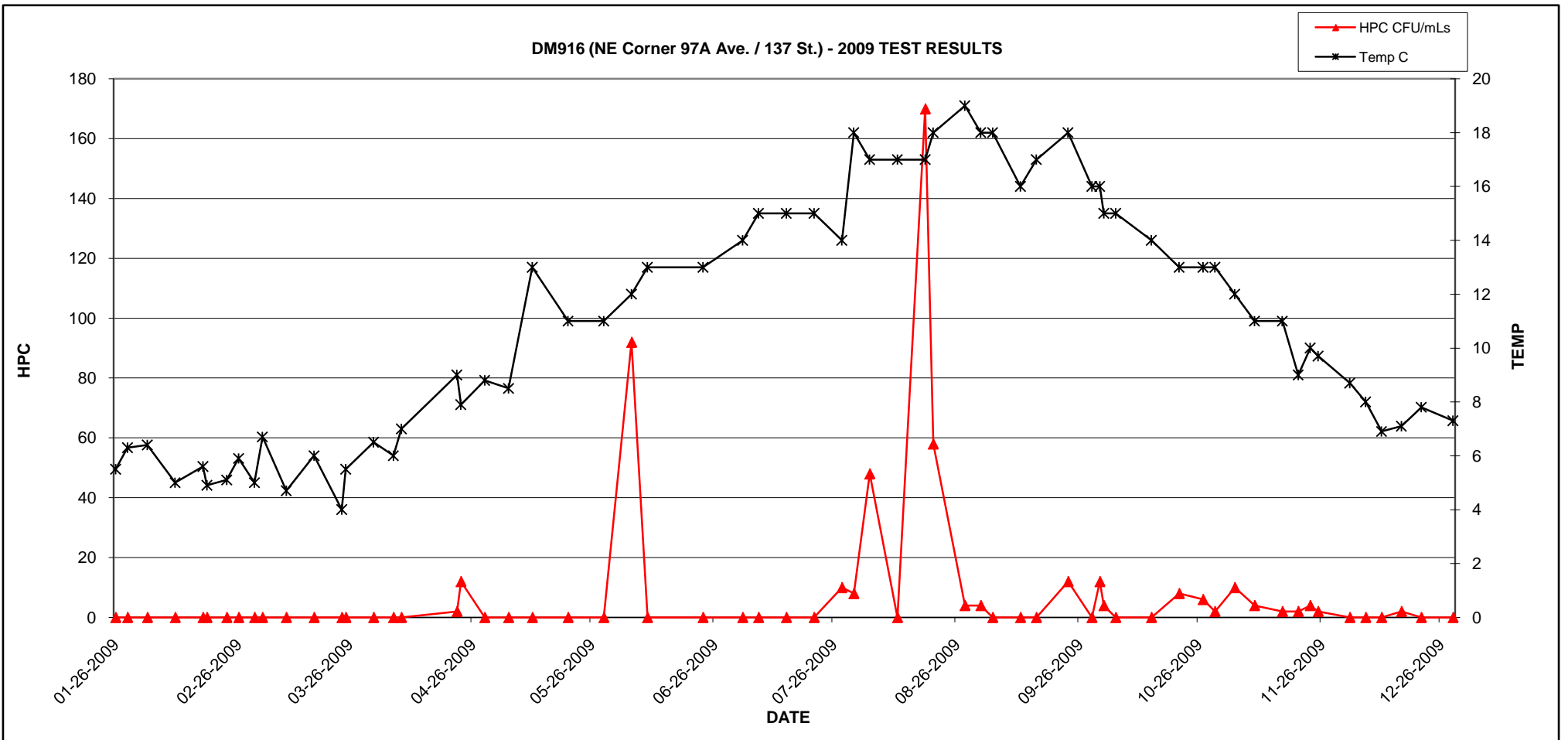
Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
07-Jan	0.49	<1	2	<1	5.4	0.31
13-Jan	0.67	<1	6	<1	4.3	0.79
29-Jan	1.30	<1	<2	<1	4.7	0.48
30-Jan	1.30	<1	<2	<1	6.1	0.48
03-Feb	0.98	<1	<2	<1	4.7	0.37
10-Feb	1.10	<1	400	<1	3.9	0.62
17-Feb	1.10	<1	<2	<1	0.5	0.37
18-Feb	1.00	<1	2	<1	4.3	0.34
23-Feb	0.91	<1	<2	<1	4.3	0.52
25-Feb	0.80	<1	<2	<1	4.8	0.55
02-Mar	1.00	<1	<2	<1	4.4	0.66
04-Mar	0.72	<1	<2	<1	5.4	0.50
17-Mar	1.20	<1	<2	<1	4.8	0.30
24-Mar	1.00	<1	<2	<1	4.4	5.00
25-Mar	0.80	<1	<2	<1	3.3	0.56
01-Apr	1.10	<1	2	<1	8.3	0.53
06-Apr	0.86	<1	<2	<1	5.2	0.55
08-Apr	1.00	<1	<2	<1	10	0.54
21-Apr	1.10	<1	14	<1	11	0.57
23-Apr	1.40	<1	4	<1	5.7	0.46
30-Apr	NA	NA	NA	NA	7.2	NA
29-Apr	1.10	<1	20	<1	8.6	0.42
05-May	1.40	<1	8	<1	9.8	0.65
11-May	0.92	<1	18	<1	11	0.62
20-May	1.30	<1	10	<1	7.7	0.48
29-May	1.00	<1	4	<1	9.3	0.60
05-Jun	1.10	<1	<2	<1	9.1	0.54
09-Jun	1.00	<1	<2	<1	8.6	0.41
23-Jun	0.90	<1	<2	<1	10	0.51
03-Jul	1.00	<1	<2	<1	11	0.38
07-Jul	1.00	<1	<2	<1	12	0.39
14-Jul	0.95	<1	<2	<1	12	0.37
21-Jul	1.00	<1	<2	<1	12	0.24
28-Jul	0.75	<1	<2	<1	10	0.34
31-Jul	1.00	<1	4	<1	15	0.40
04-Aug	0.96	<1	<2	<1	15	0.40
11-Aug	0.71	<1	<2	<1	13	0.37
18-Aug	1.00	<1	6	<1	15	0.35
20-Aug	1.10	<1	2	<1	16	0.43
28-Aug	1.20	<1	6	<1	16	0.43
01-Sep	1.10	<1	2	<1	16	0.46
04-Sep	1.10	<1	2	<1	15	0.58
11-Sep	1.10	<1	68	<1	13	0.66
12-Sep	1.10	<1	<2	<1	13	0.52
13-Sep	1.10	<1	<2	<1	14	0.74
14-Sep	0.98	<1	<2	<1	14	0.56
15-Sep	1.20	<1	4	<1	15	0.53
23-Sep	1.10	<1	<2	<1	14	0.39
29-Sep	0.92	<1	<2	<1	13	0.39
01-Oct	1.10	<1	<2	<1	15	0.34
02-Oct	0.82	<1	2	<1	15	0.42
05-Oct	0.95	<1	2	<1	14	0.31
09-Oct	1.00	<1	<2	<1	12	0.39
14-Oct	1.20	<1	<2	<1	12	0.44
21-Oct	1.00	<1	4	<1	12	0.39
27-Oct	0.87	<1	2	<1	11	0.55
30-Oct	1.50	<1	<2	<1	11	0.43
04-Nov	1.10	<1	4	<1	9.8	1.00
09-Nov	1.10	<1	<2	<1	8.3	0.93
16-Nov	0.98	<1	10	<1	7.4	1.40
20-Nov	1.00	<1	4	<1	9.7	1.00
23-Nov	1.10	<1	20	<1	6.9	0.82
25-Nov	1.20	<1	570	<1	6.8	1.00
16-Dec	1.00	<1	2	<1	LA	0.71
21-Dec	0.82	<1	32	<1	7.1	0.87
29-Dec	1.10	<1	NA	<1	5.4	1.20





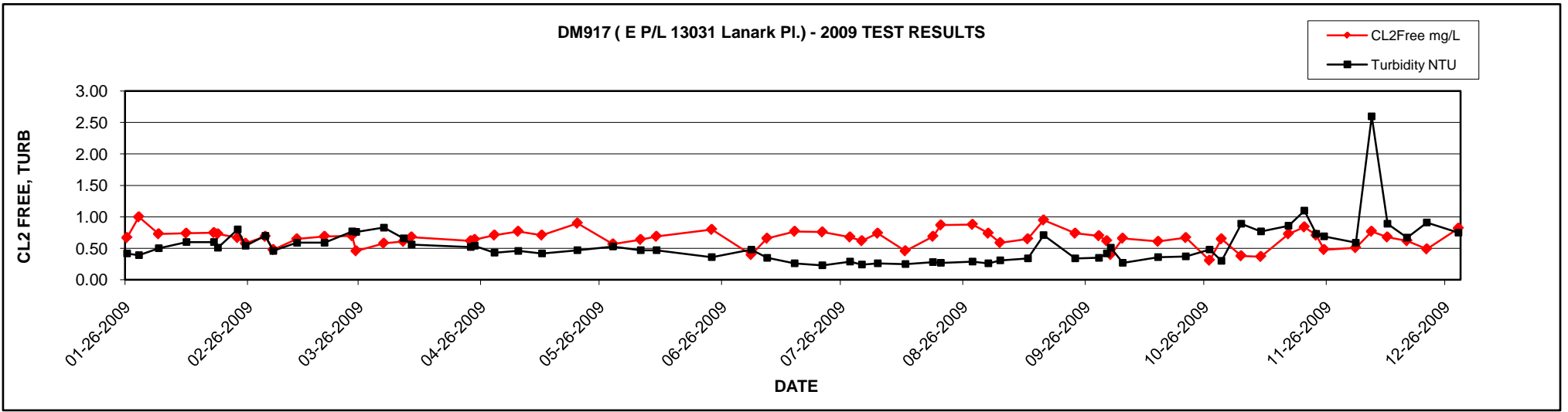
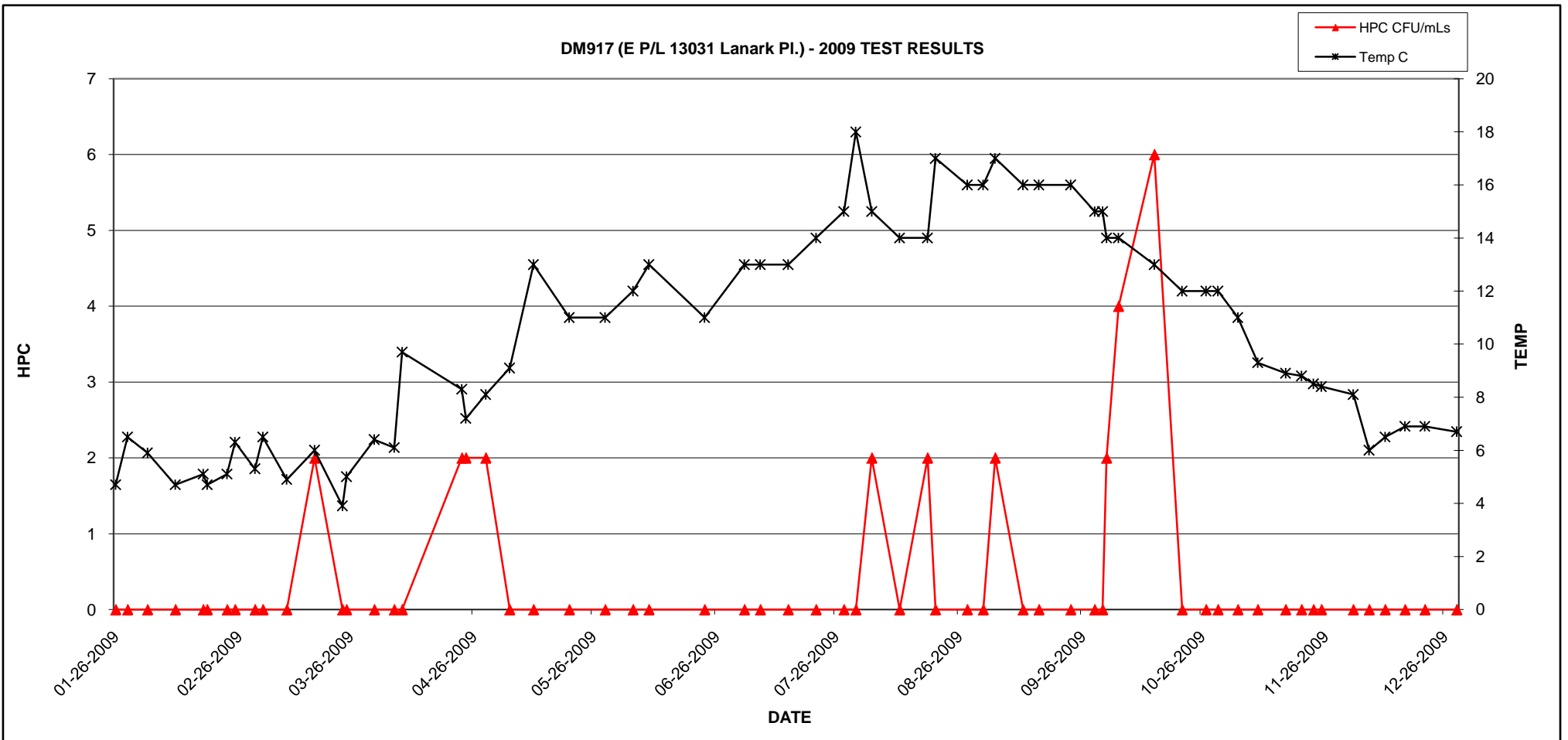
2009 Metro Vancouver Laboratory Report - DM916 (NE Corner 97A Ave. / 137 St.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
26-Jan	0.53	<1	<2	<1	5.5	0.47
29-Jan	0.84	<1	<2	<1	6.3	0.38
03-Feb	0.90	<1	<2	<1	6.4	0.39
10-Feb	0.58	<1	<2	<1	5	0.36
17-Feb	0.78	<1	<2	<1	5.6	0.66
18-Feb	0.58	<1	<2	<1	4.9	0.50
23-Feb	0.79	<1	<2	<1	5.1	0.49
26-Feb	0.59	<1	<2	<1	5.9	0.70
02-Mar	0.82	<1	<2	<1	5	0.68
04-Mar	0.56	<1	<2	<1	6.7	0.45
10-Mar	0.65	<1	<2	<1	4.7	0.50
17-Mar	0.82	<1	<2	<1	6	1.00
24-Mar	0.40	<1	<2	<1	4	0.62
25-Mar	0.21	<1	<2	<1	5.5	0.55
01-Apr	0.71	<1	<2	<1	6.5	0.86
06-Apr	0.66	<1	<2	<1	6	0.44
08-Apr	0.83	<1	<2	<1	7	0.57
22-Apr	0.96	<1	2	<1	9	1.20
23-Apr	0.82	<1	12	<1	7.9	0.62
29-Apr	1.00	<1	<2	<1	8.8	0.42
05-May	0.67	<1	<2	<1	8.5	0.49
11-May	0.57	<1	<2	<1	13	0.51
20-May	1.10	<1	<2	<1	11	0.47
29-May	0.58	<1	<2	<1	11	0.72
05-Jun	0.49	<1	92	<1	12	0.54
09-Jun	0.45	<1	<2	<1	13	0.51
23-Jun	0.51	<1	<2	<1	13	0.33
03-Jul	0.57	<1	<2	<1	14	0.58
07-Jul	0.32	<1	<2	<1	15	0.35
14-Jul	0.52	<1	<2	<1	15	0.25
21-Jul	0.52	<1	<2	<1	15	0.26
28-Jul	0.18	<1	10	<1	14	0.33
31-Jul	0.48	<1	8	<1	18	0.23
04-Aug	0.09	<1	48	<1	17	0.25
11-Aug	0.21	<1	<2	<1	17	0.22
18-Aug	0.15	<1	170	<1	17	0.30
20-Aug	0.36	<1	58	<1	18	0.24
28-Aug	0.16	<1	4	<1	19	0.28
01-Sep	0.21	<1	4	<1	18	0.24
04-Sep	0.23	<1	<2	<1	18	0.40
11-Sep	0.50	<1	<2	<1	16	0.36
15-Sep	0.41	<1	<2	<1	17	0.45
23-Sep	0.16	<1	12	<1	18	0.26
29-Sep	0.57	<1	<2	<1	16	0.29
01-Oct	0.18	<1	12	<1	16	0.30
02-Oct	0.04	<1	4	<1	15	0.32
05-Oct	0.51	<1	<2	<1	15	0.31
14-Oct	0.45	<1	<2	<1	14	0.48
21-Oct	0.11	<1	8	<1	13	0.35
27-Oct	0.21	<1	6	<1	13	0.60
30-Oct	0.48	<1	2	<1	13	0.40
04-Nov	0.06	<1	10	<1	12	0.78
09-Nov	0.21	<1	4	<1	11	0.75
16-Nov	0.28	<1	2	<1	11	0.65
20-Nov	0.32	<1	2	<1	9	0.60
23-Nov	0.15	<1	4	<1	10	0.75
25-Nov	0.16	<1	2	<1	9.7	0.70
03-Dec	0.37	<1	<2	<1	8.7	0.72
07-Dec	0.36	<1	<2	<1	8	0.63
11-Dec	0.42	<1	<2	<1	6.9	0.59
16-Dec	0.42	<1	2	<1	7.1	0.58
21-Dec	0.22	<1	<2	<1	7.8	0.67
29-Dec	0.41	<1	NA	<1	7.3	0.93



2009 Metro Vancouver Laboratory Report - DM917 (E P/L 13031 Lanark Pl.)

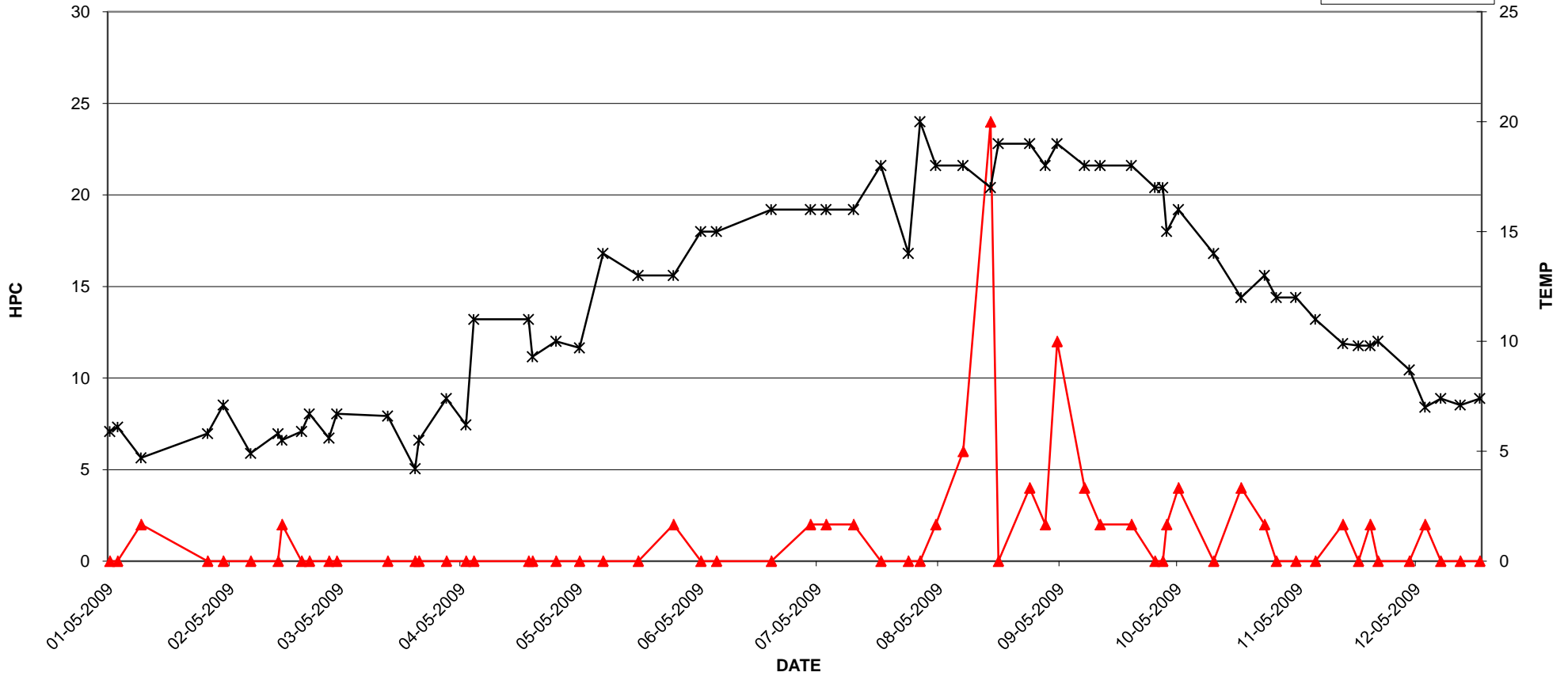
Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
26-Jan	0.67	<1	<2	<1	4.7	0.42
29-Jan	1.00	<1	<2	<1	6.5	0.39
03-Feb	0.73	<1	<2	<1	5.9	0.50
10-Feb	0.74	<1	<2	<1	4.7	0.60
17-Feb	0.75	<1	<2	<1	5.1	0.60
18-Feb	0.73	<1	<2	<1	4.7	0.51
23-Feb	0.67	<1	<2	<1	5.1	0.80
25-Feb	0.58	<1	<2	<1	6.3	0.54
02-Mar	0.69	<1	<2	<1	5.3	0.70
04-Mar	0.48	<1	<2	<1	6.5	0.46
10-Mar	0.65	<1	<2	<1	4.9	0.59
17-Mar	0.69	<1	2	<1	6	0.59
24-Mar	0.70	<1	<2	<1	3.9	0.77
25-Mar	0.46	<1	<2	<1	5	0.76
01-Apr	0.58	<1	<2	<1	6.4	0.83
06-Apr	0.61	<1	<2	<1	6.1	0.66
08-Apr	0.68	<1	<2	<1	9.7	0.56
23-Apr	0.62	<1	2	<1	8.3	0.52
24-Apr	0.64	<1	2	<1	7.2	0.54
29-Apr	0.71	<1	2	<1	8.1	0.43
05-May	0.77	<1	<2	<1	9.1	0.46
11-May	0.71	<1	<2	<1	13	0.42
20-May	0.90	<1	<2	<1	11	0.47
29-May	0.57	<1	<2	<1	11	0.53
05-Jun	0.64	<1	<2	<1	12	0.47
09-Jun	0.69	<1	<2	<1	13	0.47
23-Jun	0.80	<1	<2	<1	11	0.36
03-Jul	0.40	<1	<2	<1	13	0.48
07-Jul	0.66	<1	<2	<1	13	0.35
14-Jul	0.77	<1	<2	<1	13	0.26
21-Jul	0.76	<1	<2	<1	14	0.23
28-Jul	0.68	<1	<2	<1	15	0.29
31-Jul	0.62	<1	<2	<1	18	0.24
04-Aug	0.74	<1	2	<1	15	0.26
11-Aug	0.46	<1	<2	<1	14	0.25
18-Aug	0.69	<1	2	<1	14	0.28
20-Aug	0.87	<1	<2	<1	17	0.27
28-Aug	0.88	<1	<2	<1	16	0.29
01-Sep	0.74	<1	<2	<1	16	0.26
04-Sep	0.59	<1	2	<1	17	0.31
11-Sep	0.65	<1	<2	<1	16	0.34
15-Sep	0.95	<1	<2	<1	16	0.71
23-Sep	0.74	<1	<2	<1	16	0.34
29-Sep	0.70	<1	<2	<1	15	0.35
01-Oct	0.62	<1	<2	<1	15	0.42
02-Oct	0.40	<1	2	<1	14	0.51
05-Oct	0.66	<1	4	<1	14	0.27
14-Oct	0.61	<1	6	<1	13	0.36
21-Oct	0.67	<1	<2	<1	12	0.37
27-Oct	0.31	<1	<2	<1	12	0.48
30-Oct	0.65	<1	<2	<1	12	0.30
04-Nov	0.38	<1	<2	<1	11	0.89
09-Nov	0.37	<1	<2	<1	9.3	0.77
16-Nov	0.73	<1	<2	<1	8.9	0.86
20-Nov	0.84	<1	<2	<1	8.8	1.10
23-Nov	0.71	<1	<2	<1	8.5	0.73
25-Nov	0.48	<1	<2	<1	8.4	0.69
03-Dec	0.51	<1	<2	<1	8.1	0.59
07-Dec	0.77	<1	<2	<1	6	2.60
11-Dec	0.68	<1	<2	<1	6.5	0.89
16-Dec	0.62	<1	<2	<1	6.9	0.67
21-Dec	0.49	<1	<2	<1	6.9	0.91
29-Dec	0.82	<1	NA	<1	6.7	0.75



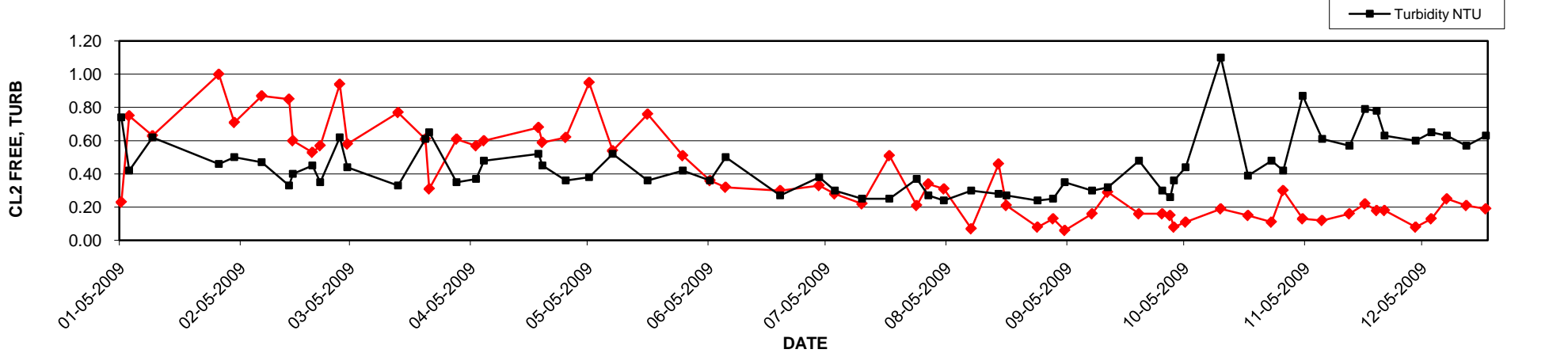
2009 Metro Vancouver Laboratory Report - DM918 (SW CORNER GLEN PL / LAUDER)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
05-Jan	0.23	<1	<2	<1	5.9	0.74
07-Jan	0.75	<1	<2	<1	6.1	0.42
13-Jan	0.63	<1	2	<1	4.7	0.62
30-Jan	1.00	<1	<2	<1	5.8	0.46
03-Feb	0.71	<1	<2	<1	7.1	0.50
10-Feb	0.87	<1	<2	<1	4.9	0.47
17-Feb	0.85	<1	<2	<1	5.8	0.33
18-Feb	0.60	<1	2	<1	5.5	0.40
23-Feb	0.53	<1	<2	<1	5.9	0.45
25-Feb	0.57	<1	<2	<1	6.7	0.35
02-Mar	0.94	<1	<2	<1	5.6	0.62
04-Mar	0.58	<1	<2	<1	6.7	0.44
17-Mar	0.77	<1	<2	<1	6.6	0.33
24-Mar	0.61	<1	<2	<1	4.2	0.61
25-Mar	0.31	<1	<2	<1	5.5	0.65
01-Apr	0.61	<1	<2	<1	7.4	0.35
06-Apr	0.57	<1	<2	<1	6.2	0.37
08-Apr	0.60	<1	<2	<1	11	0.48
22-Apr	0.68	<1	<2	<1	11	0.52
23-Apr	0.59	<1	<2	<1	9.3	0.45
29-Apr	0.62	<1	<2	<1	10	0.36
05-May	0.95	<1	<2	<1	9.7	0.38
11-May	0.54	<1	<2	<1	14	0.52
20-May	0.76	<1	<2	<1	13	0.36
29-May	0.51	<1	2	<1	13	0.42
05-Jun	0.36	<1	<2	<1	15	0.36
09-Jun	0.32	<1	<2	<1	15	0.50
23-Jun	0.30	<1	<2	<1	16	0.27
03-Jul	0.33	<1	2	<1	16	0.38
07-Jul	0.28	<1	2	<1	16	0.30
14-Jul	0.22	<1	2	<1	16	0.25
21-Jul	0.51	<1	<2	<1	18	0.25
28-Jul	0.21	<1	<2	<1	14	0.37
31-Jul	0.34	<1	<2	<1	20	0.27
04-Aug	0.31	<1	2	<1	18	0.24
11-Aug	0.07	<1	6	<1	18	0.30
18-Aug	0.46	<1	24	<1	17	0.28
20-Aug	0.21	<1	<2	<1	19	0.27
28-Aug	0.08	<1	4	<1	19	0.24
01-Sep	0.13	<1	2	<1	18	0.25
04-Sep	0.06	<1	12	<1	19	0.35
11-Sep	0.16	<1	4	<1	18	0.30
15-Sep	0.29	<1	2	<1	18	0.32
23-Sep	0.16	<1	2	<1	18	0.48
29-Sep	0.16	<1	<2	<1	17	0.30
01-Oct	0.15	<1	<2	<1	17	0.26
02-Oct	0.08	<1	2	<1	15	0.36
05-Oct	0.11	<1	4	<1	16	0.44
14-Oct	0.19	<1	<2	<1	14	1.10
21-Oct	0.15	<1	4	<1	12	0.39
27-Oct	0.11	<1	2	<1	13	0.48
30-Oct	0.30	<1	<2	<1	12	0.42
04-Nov	0.13	<1	<2	<1	12	0.87
09-Nov	0.12	<1	<2	<1	11	0.61
16-Nov	0.16	<1	2	<1	9.9	0.57
20-Nov	0.22	<1	<2	<1	9.8	0.79
23-Nov	0.18	<1	2	<1	9.8	0.78
25-Nov	0.18	<1	<2	<1	10	0.63
03-Dec	0.08	<1	<2	<1	8.7	0.60
07-Dec	0.13	<1	2	<1	7	0.65
11-Dec	0.25	<1	<2	<1	7.4	0.63
16-Dec	0.21	<1	<2	<1	7.1	0.57
21-Dec	0.19	<1	<2	<1	7.4	0.63
29-Dec	0.29	<1	NA	<1	6.8	0.96

DM918 (SW CORNER GLEN PL / LAUDER) - 2009 TEST RESULTS



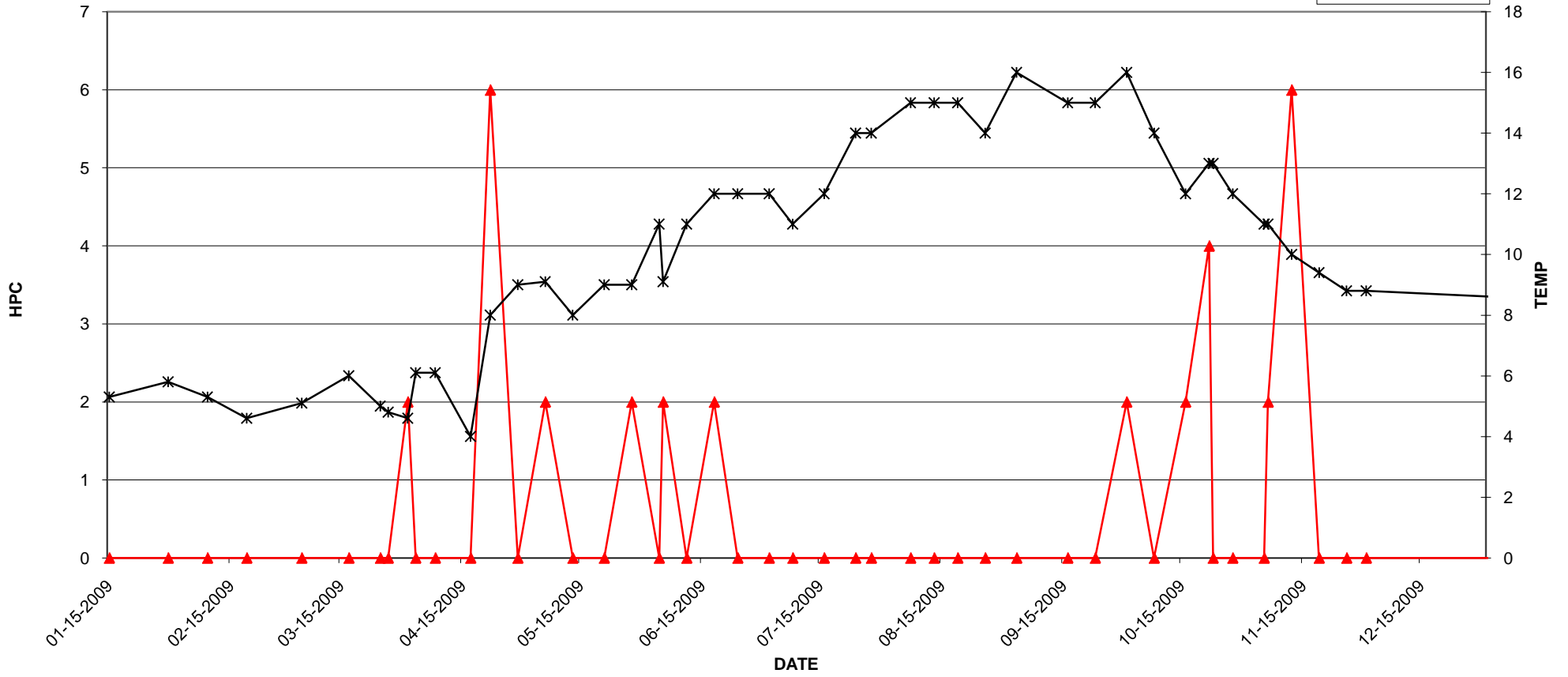
DM918 (SW CORNER GLEN PL / LAUDER) - 2009 TEST RESULTS



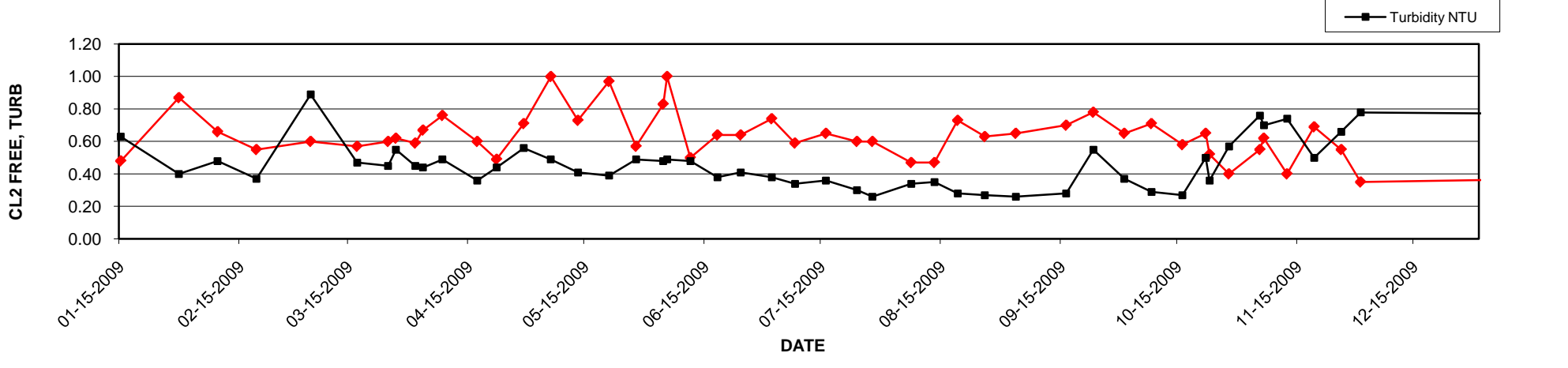
2009 Metro Vancouver Laboratory Report - DM919 (NW CORNER 92A AVE. & 151 ST.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
15-Jan	0.48	<1	<2	<1	5.3	0.63
30-Jan	0.87	<1	<2	<1	5.8	0.40
09-Feb	0.66	<1	<2	<1	5.3	0.48
19-Feb	0.55	<1	<2	<1	4.6	0.37
05-Mar	0.60	<1	<2	<1	5.1	0.89
17-Mar	0.57	<1	<2	<1	6	0.47
25-Mar	0.60	<1	<2	<1	5	0.45
27-Mar	0.62	<1	<2	<1	4.8	0.55
01-Apr	0.59	<1	2	<1	4.6	0.45
03-Apr	0.67	<1	<2	<1	6.1	0.44
08-Apr	0.76	<1	<2	<1	6.1	0.49
17-Apr	0.60	<1	<2	<1	4	0.36
22-Apr	0.49	<1	6	<1	8	0.44
29-Apr	0.71	<1	<2	<1	9	0.56
06-May	1.00	<1	2	<1	9.1	0.49
13-May	0.73	<1	<2	<1	8	0.41
21-May	0.97	<1	<2	<1	9	0.39
28-May	0.57	<1	2	<1	9	0.49
04-Jun	0.83	<1	<2	<1	11	0.48
05-Jun	1.00	<1	2	<1	9.1	0.49
11-Jun	0.50	<1	<2	<1	11	0.48
18-Jun	0.64	<1	2	<1	12	0.38
24-Jun	0.64	<1	<2	<1	12	0.41
02-Jul	0.74	<1	<2	<1	12	0.38
08-Jul	0.59	<1	<2	<1	11	0.34
16-Jul	0.65	<1	<2	<1	12	0.36
24-Jul	0.60	<1	<2	<1	14	0.30
28-Jul	0.60	<1	<2	<1	14	0.26
07-Aug	0.47	<1	<2	<1	15	0.34
13-Aug	0.47	<1	<2	<1	15	0.35
19-Aug	0.73	<1	<2	<1	15	0.28
26-Aug	0.63	<1	<2	<1	14	0.27
03-Sep	0.65	<1	<2	<1	16	0.26
16-Sep	0.70	<1	<2	<1	15	0.28
23-Sep	0.78	<1	<2	<1	15	0.55
01-Oct	0.65	<1	2	<1	16	0.37
08-Oct	0.71	<1	<2	<1	14	0.29
16-Oct	0.58	<1	2	<1	12	0.27
22-Oct	0.65	<1	4	<1	13	0.50
23-Oct	0.52	<1	<2	<1	13	0.36
28-Oct	0.40	<1	<2	<1	12	0.57
05-Nov	0.55	<1	<2	<1	11	0.76
06-Nov	0.62	<1	2	<1	11	0.70
12-Nov	0.40	<1	6	<1	10	0.74
19-Nov	0.69	<1	<2	<1	9.4	0.50
26-Nov	0.55	<1	<2	<1	8.8	0.66
01-Dec	0.35	<1	<2	<1	8.8	0.78
31-Dec	0.50	<1	NA	<1	6.4	0.71

DM919 (NW CORNER 92A AVE. & 151 ST.) - 2009 TEST RESULTS



DM919 (NW CORNER 92A AVE. & 151 ST.) - 2009 TEST RESULTS

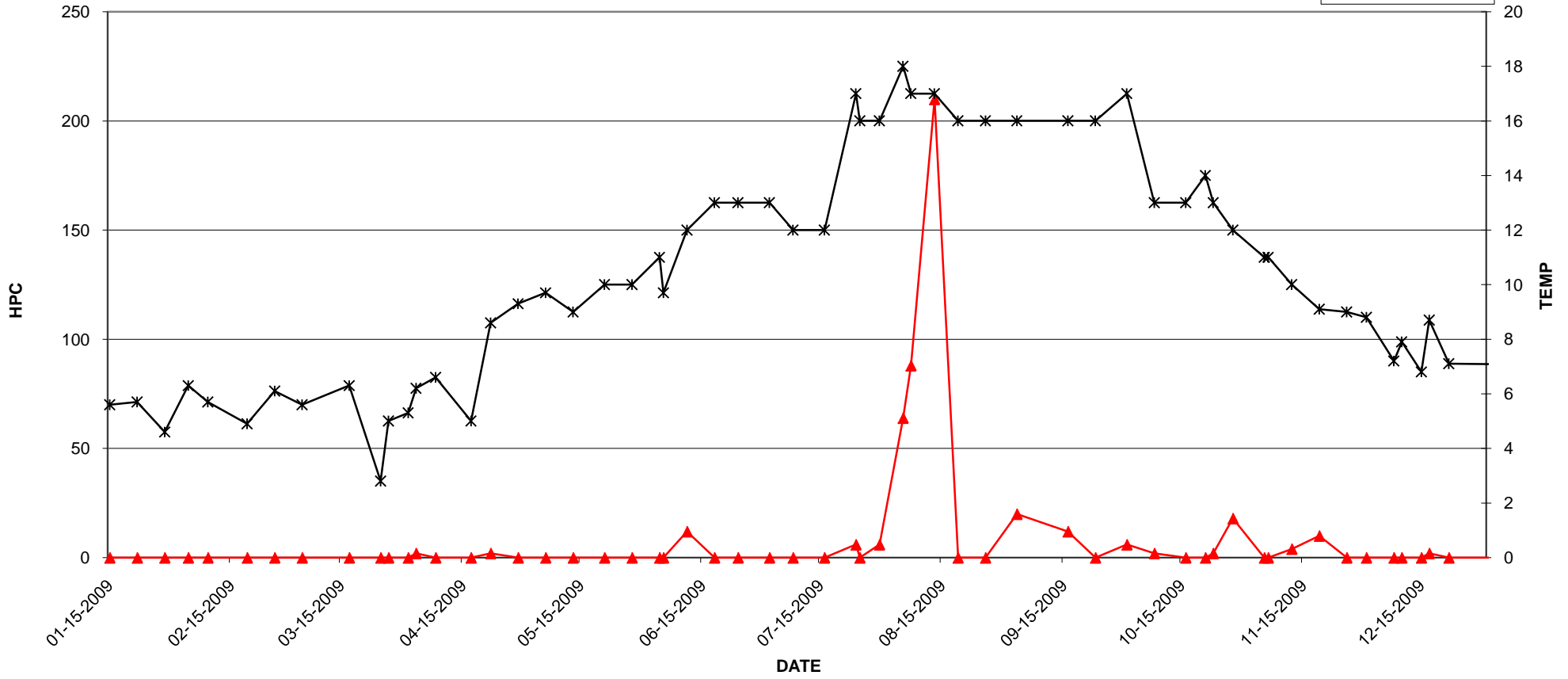




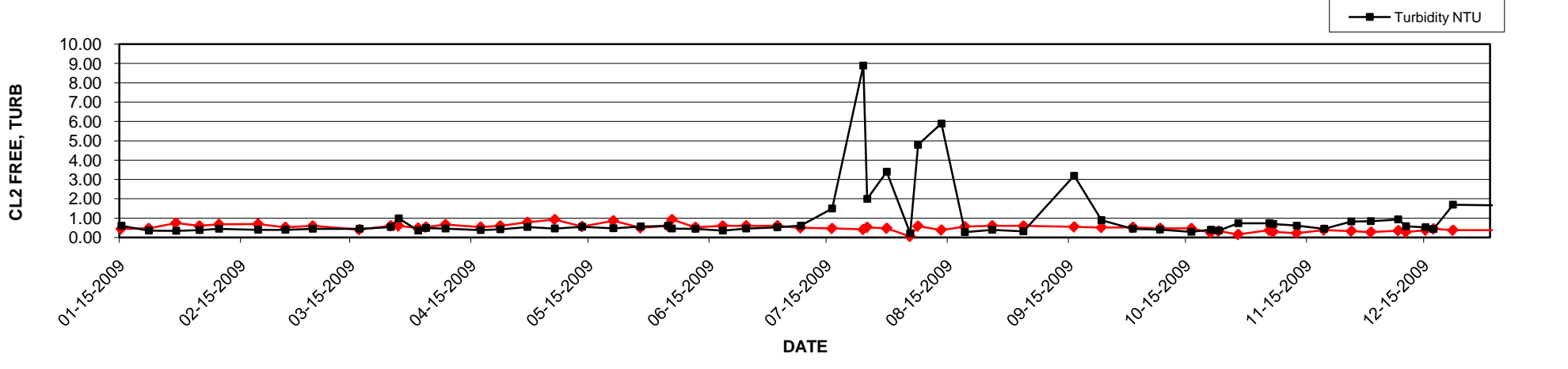
2009 Metro Vancouver Laboratory Report - DM920 (SE CORNER 162ST. OFF 90 AVE.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
15-Jan	0.45	<1	<2	<1	5.6	0.61
22-Jan	0.47	<1	<2	<1	5.7	0.36
29-Jan	0.75	<1	<2	<1	4.6	0.35
04-Feb	0.60	<1	<2	<1	6.3	0.39
09-Feb	0.68	<1	<2	<1	5.7	0.46
19-Feb	0.70	<1	<2	<1	4.9	0.40
26-Feb	0.53	<1	<2	<1	6.1	0.40
05-Mar	0.60	<1	<2	<1	5.6	0.46
17-Mar	0.41	<1	<2	<1	6.3	0.45
25-Mar	0.61	<1	<2	<1	2.8	0.55
27-Mar	0.60	<1	<2	<1	5	1.00
01-Apr	0.49	<1	<2	<1	5.3	0.36
03-Apr	0.54	<1	2	<1	6.2	0.50
08-Apr	0.67	<1	<2	<1	6.6	0.47
17-Apr	0.54	<1	<2	<1	5	0.39
22-Apr	0.60	<1	2	<1	8.6	0.43
29-Apr	0.79	<1	<2	<1	9.3	0.55
06-May	0.93	<1	<2	<1	9.7	0.47
13-May	0.57	<1	<2	<1	9	0.56
21-May	0.87	<1	<2	<1	10	0.48
28-May	0.50	<1	<2	<1	10	0.58
04-Jun	0.60	<1	<2	<1	11	0.61
05-Jun	0.93	<1	<2	<1	9.7	0.47
11-Jun	0.53	<1	12	<1	12	0.46
18-Jun	0.60	<1	<2	<1	13	0.37
24-Jun	0.61	<1	<2	<1	13	0.47
02-Jul	0.61	<1	<2	<1	13	0.54
08-Jul	0.50	<1	<2	<1	12	0.62
16-Jul	0.47	<1	<2	<1	12	1.50
24-Jul	0.42	<1	6	<1	17	8.90
25-Jul	0.53	<1	<2	<1	16	2.00
05-Aug	0.06	<1	64	<1	18	0.22
30-Jul	0.48	<1	6	<1	16	3.40
07-Aug	0.59	<1	88	<1	17	4.80
13-Aug	0.39	<1	210	<1	17	5.90
19-Aug	0.56	<1	<2	<1	16	0.28
26-Aug	0.61	<1	<2	<1	16	0.40
03-Sep	0.60	<1	20	<1	16	0.33
16-Sep	0.55	<1	12	<1	16	3.20
23-Sep	0.52	<1	<2	<1	16	0.90
01-Oct	0.53	<1	6	<1	17	0.46
08-Oct	0.48	<1	2	<1	13	0.42
16-Oct	0.47	<1	<2	<1	13	0.30
21-Oct	0.25	<1	<2	<1	14	0.41
23-Oct	0.33	<1	2	<1	13	0.37
28-Oct	0.16	<1	18	<1	12	0.74
05-Nov	0.38	<1	<2	<1	11	0.75
06-Nov	0.29	<1	<2	<1	11	0.70
12-Nov	0.23	<1	4	<1	10	0.62
19-Nov	0.39	<1	10	<1	9.1	0.45
26-Nov	0.33	<1	<2	<1	9	0.84
01-Dec	0.28	<1	<2	<1	8.8	0.85
08-Dec	0.36	<1	<2	<1	7.2	0.94
10-Dec	0.28	<1	<2	<1	7.9	0.59
15-Dec	0.38	<1	<2	<1	6.8	0.53
17-Dec	0.45	<1	2	<1	8.7	0.44
22-Dec	0.38	<1	<2	<1	7.1	1.70
31-Dec	0.24	<1	NA	<1	6.5	0.78

DM920 (SE CORNER 162ST. OFF 90 AVE.) - 2009 TEST RESULTS

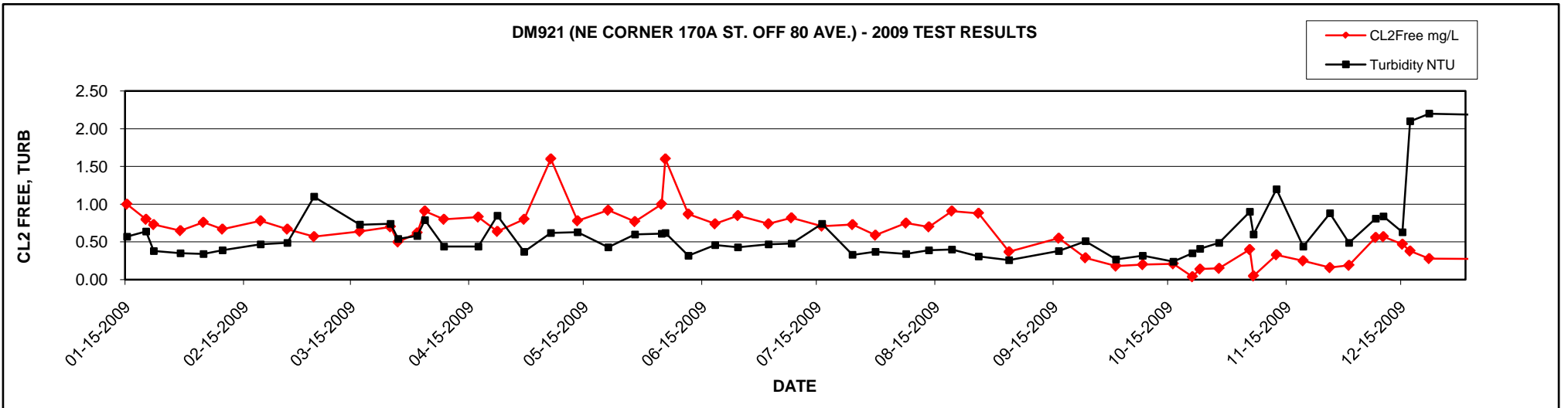
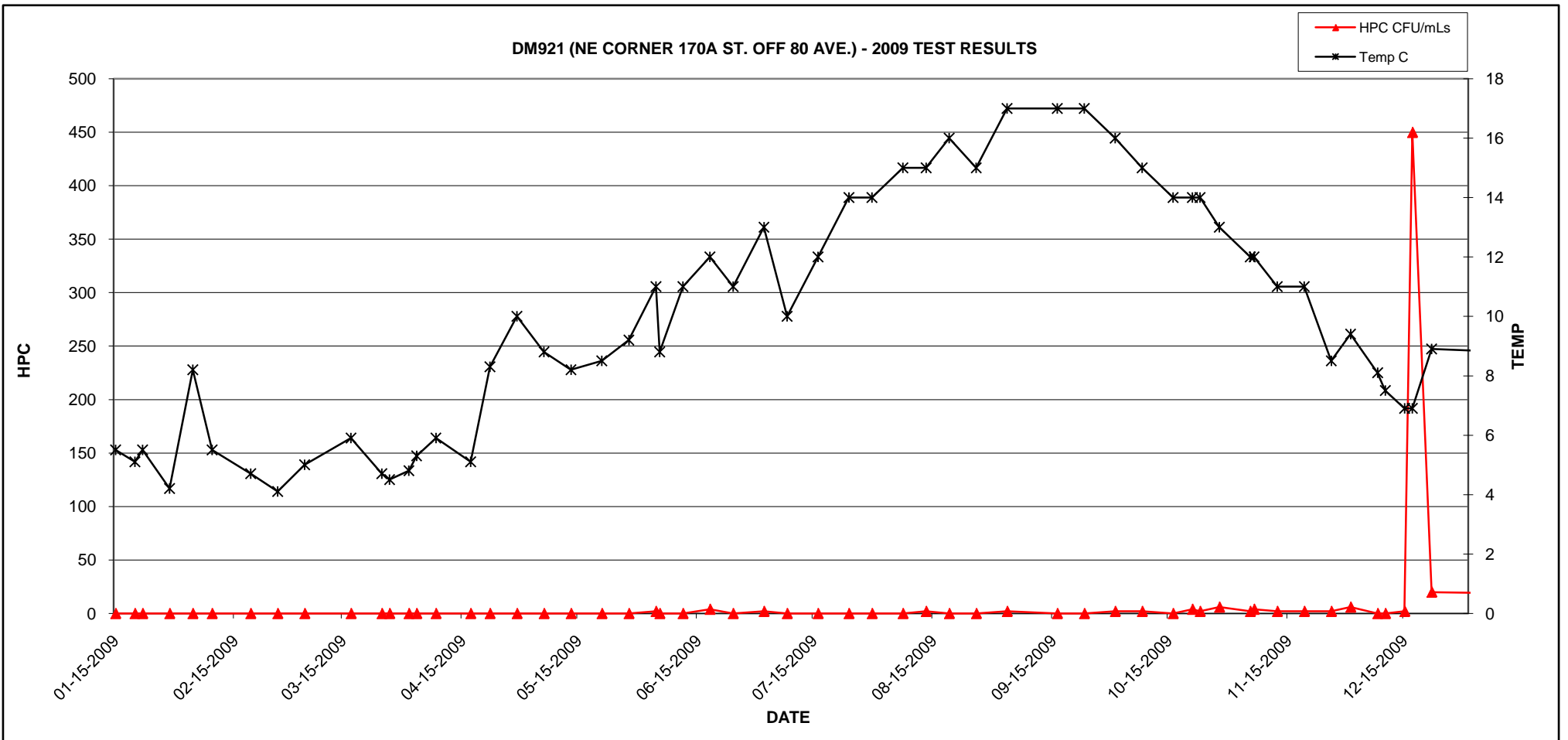


DM920 (SE CORNER 162ST. OFF 90 AVE.) - 2009 TEST RESULTS



2009 Metro Vancouver Laboratory Report - DM921 (NE CORNER 170A ST. OFF 80 AVE.)

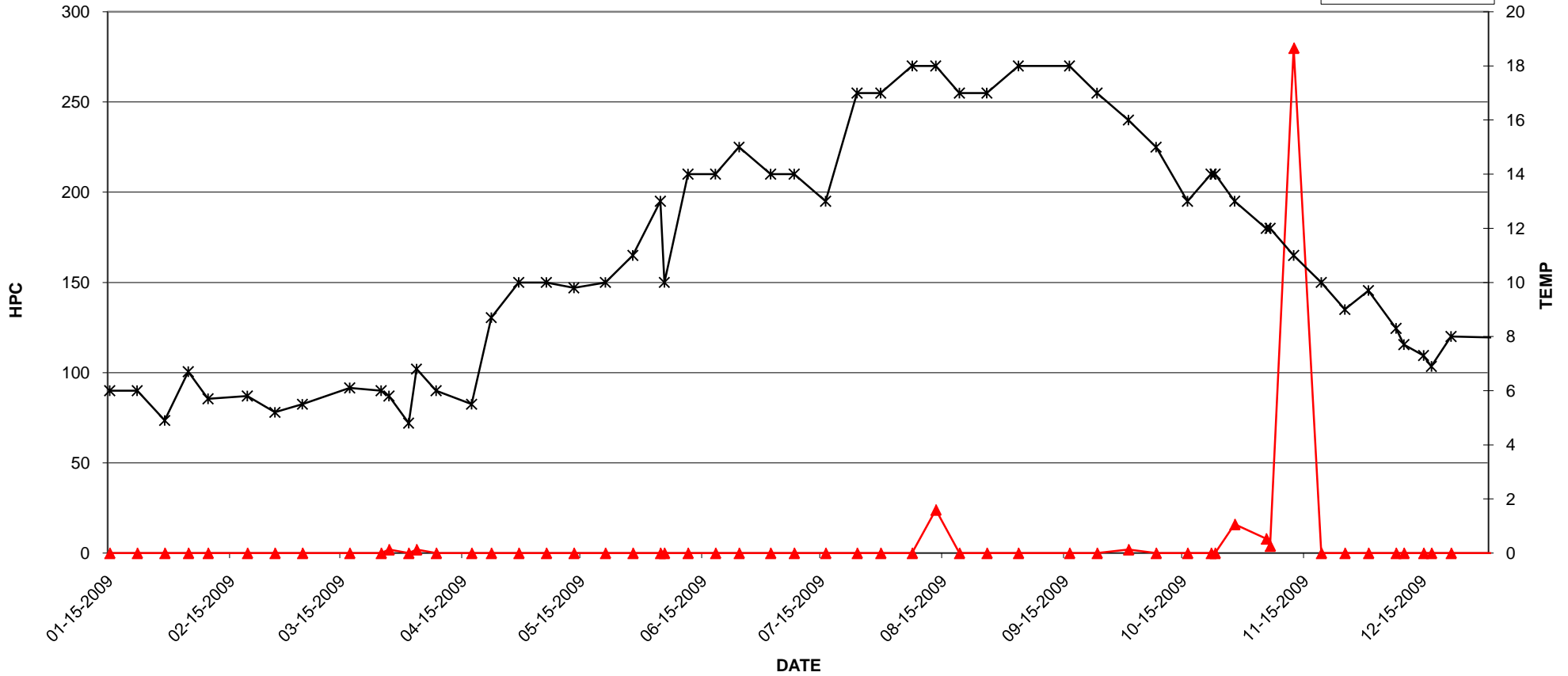
Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
15-Jan	1.00	<1	<2	<1	5.5	0.57
20-Jan	0.80	<1	<2	<1	5.1	0.64
22-Jan	0.73	<1	<2	<1	5.5	0.38
29-Jan	0.65	<1	<2	<1	4.2	0.35
04-Feb	0.76	<1	<2	<1	8.2	0.34
09-Feb	0.67	<1	<2	<1	5.5	0.39
19-Feb	0.78	<1	<2	<1	4.7	0.47
26-Feb	0.67	<1	<2	<1	4.1	0.49
05-Mar	0.57	<1	<2	<1	5	1.10
17-Mar	0.64	<1	<2	<1	5.9	0.73
25-Mar	0.70	<1	<2	<1	4.7	0.74
27-Mar	0.50	<1	<2	<1	4.5	0.54
01-Apr	0.62	<1	<2	<1	4.8	0.58
03-Apr	0.91	<1	<2	<1	5.3	0.79
08-Apr	0.80	<1	<2	<1	5.9	0.44
17-Apr	0.83	<1	<2	<1	5.1	0.44
22-Apr	0.64	<1	<2	<1	8.3	0.85
29-Apr	0.80	<1	<2	<1	10	0.37
06-May	1.60	<1	<2	<1	8.8	0.62
13-May	0.78	<1	<2	<1	8.2	0.63
21-May	0.92	<1	<2	<1	8.5	0.43
28-May	0.77	<1	<2	<1	9.2	0.60
04-Jun	1.00	<1	2	<1	11	0.61
05-Jun	1.60	<1	<2	<1	8.8	0.62
11-Jun	0.87	<1	<2	<1	11	0.32
18-Jun	0.74	<1	4	<1	12	0.46
24-Jun	0.85	<1	<2	<1	11	0.43
02-Jul	0.74	<1	2	<1	13	0.47
08-Jul	0.82	<1	<2	<1	10	0.48
16-Jul	0.71	<1	<2	<1	12	0.74
24-Jul	0.73	<1	<2	<1	14	0.33
30-Jul	0.59	<1	<2	<1	14	0.37
07-Aug	0.75	<1	<2	<1	15	0.34
13-Aug	0.70	<1	2	<1	15	0.39
19-Aug	0.91	<1	<2	<1	16	0.40
26-Aug	0.88	<1	<2	<1	15	0.31
03-Sep	0.37	<1	2	<1	17	0.26
16-Sep	0.55	<1	<2	<1	17	0.38
23-Sep	0.29	<1	<2	<1	17	0.51
01-Oct	0.18	<1	2	<1	16	0.27
08-Oct	0.20	<1	2	<1	15	0.32
16-Oct	0.21	<1	<2	<1	14	0.24
21-Oct	0.04	<1	4	<1	14	0.35
23-Oct	0.14	<1	2	<1	14	0.41
28-Oct	0.15	<1	6	<1	13	0.49
05-Nov	0.40	<1	2	<1	12	0.90
06-Nov	0.05	<1	4	<1	12	0.60
12-Nov	0.33	<1	2	<1	11	1.20
19-Nov	0.25	<1	2	<1	11	0.44
26-Nov	0.16	<1	2	<1	8.5	0.88
01-Dec	0.19	<1	6	<1	9.4	0.49
08-Dec	0.56	<1	<2	<1	8.1	0.81
10-Dec	0.57	<1	<2	<1	7.5	0.84
15-Dec	0.47	<1	2	<1	6.9	0.63
17-Dec	0.38	<1	450	<1	6.9	2.10
22-Dec	0.28	<1	20	<1	8.9	2.20
31-Dec	0.16	<1	NA	<1	7	1.80



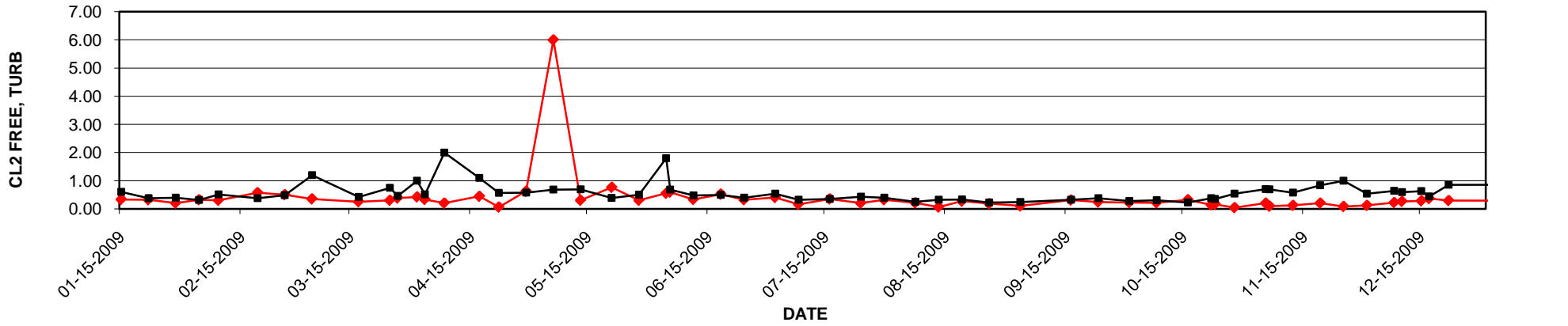
2009 Metro Vancouver Laboratory Report - DM922 (7768 155 ST NW P/L)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
15-Jan	0.34	<1	<2	<1	6	0.61
22-Jan	0.33	<1	<2	<1	6	0.38
29-Jan	0.21	<1	<2	<1	4.9	0.40
04-Feb	0.33	<1	<2	<1	6.7	0.32
09-Feb	0.31	<1	<2	<1	5.7	0.52
19-Feb	0.58	<1	<2	<1	5.8	0.38
26-Feb	0.51	<1	<2	<1	5.2	0.49
05-Mar	0.36	<1	<2	<1	5.5	1.20
17-Mar	0.26	<1	<2	<1	6.1	0.43
25-Mar	0.31	<1	<2	<1	6	0.75
27-Mar	0.39	<1	2	<1	5.8	0.46
01-Apr	0.43	<1	<2	<1	4.8	1.00
03-Apr	0.34	<1	2	<1	6.8	0.52
08-Apr	0.21	<1	<2	<1	6	2.00
17-Apr	0.45	<1	<2	<1	5.5	1.10
22-Apr	0.07	<1	<2	<1	8.7	0.57
29-Apr	0.63	<1	<2	<1	10	0.58
06-May	6.00	<1	<2	<1	10	0.69
13-May	0.31	<1	<2	<1	9.8	0.70
21-May	0.77	<1	<2	<1	10	0.39
28-May	0.31	<1	<2	<1	11	0.51
04-Jun	0.56	<1	<2	<1	13	1.80
05-Jun	0.60	<1	<2	<1	10	0.69
11-Jun	0.34	<1	<2	<1	14	0.48
18-Jun	0.53	<1	<2	<1	14	0.50
24-Jun	0.33	<1	<2	<1	15	0.40
02-Jul	0.41	<1	<2	<1	14	0.54
08-Jul	0.17	<1	<2	<1	14	0.33
16-Jul	0.36	<1	<2	<1	13	0.36
24-Jul	0.21	<1	<2	<1	17	0.44
30-Jul	0.33	<1	<2	<1	17	0.40
07-Aug	0.22	<1	<2	<1	18	0.26
13-Aug	0.07	<1	24	<1	18	0.33
19-Aug	0.28	<1	<2	<1	17	0.34
26-Aug	0.19	<1	<2	<1	17	0.23
03-Sep	0.11	<1	<2	<1	18	0.25
16-Sep	0.32	<1	<2	<1	18	0.33
23-Sep	0.25	<1	<2	<1	17	0.38
01-Oct	0.23	<1	2	<1	16	0.28
08-Oct	0.22	<1	<2	<1	15	0.31
16-Oct	0.33	<1	<2	<1	13	0.23
22-Oct	0.15	<1	<2	<1	14	0.38
23-Oct	0.17	<1	<2	<1	14	0.36
28-Oct	0.05	<1	16	<1	13	0.54
05-Nov	0.21	<1	8	<1	12	0.71
06-Nov	0.10	<1	4	<1	12	0.70
12-Nov	0.13	<1	280	<1	11	0.58
19-Nov	0.21	<1	<2	<1	10	0.84
25-Nov	0.09	<1	<2	<1	9	1.00
01-Dec	0.13	<1	<2	<1	9.7	0.54
08-Dec	0.23	<1	<2	<1	8.3	0.64
10-Dec	0.27	<1	<2	<1	7.7	0.60
15-Dec	0.29	<1	<2	<1	7.3	0.63
17-Dec	0.37	<1	<2	<1	6.9	0.45
22-Dec	0.30	<1	<2	<1	8	0.86
31-Dec	0.17	<1	NA	<1	6.7	0.91

DM922 (7768 155 ST NW P/L) - 2009 TEST RESULTS

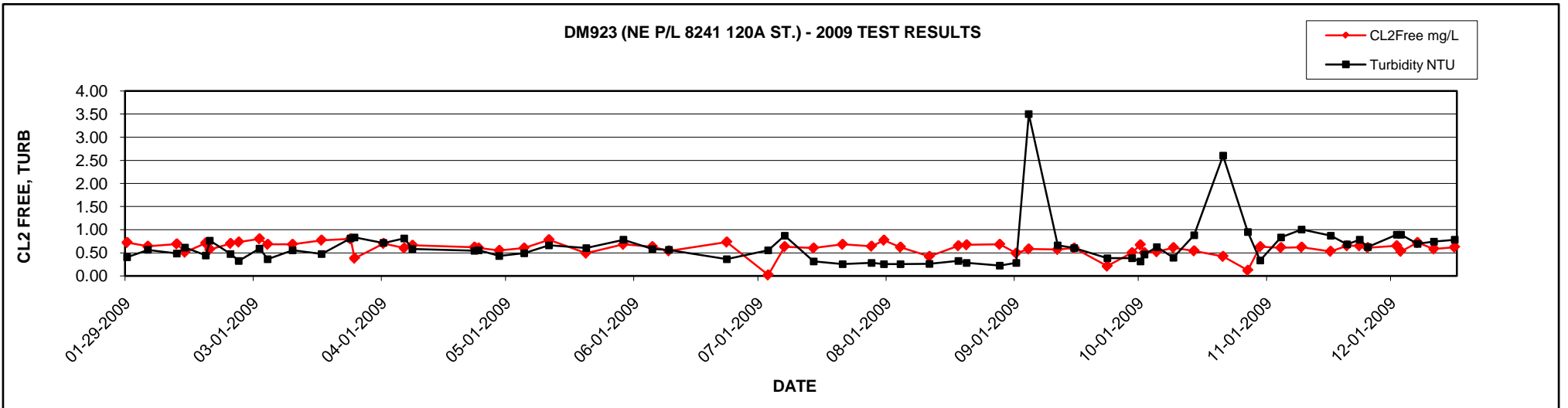
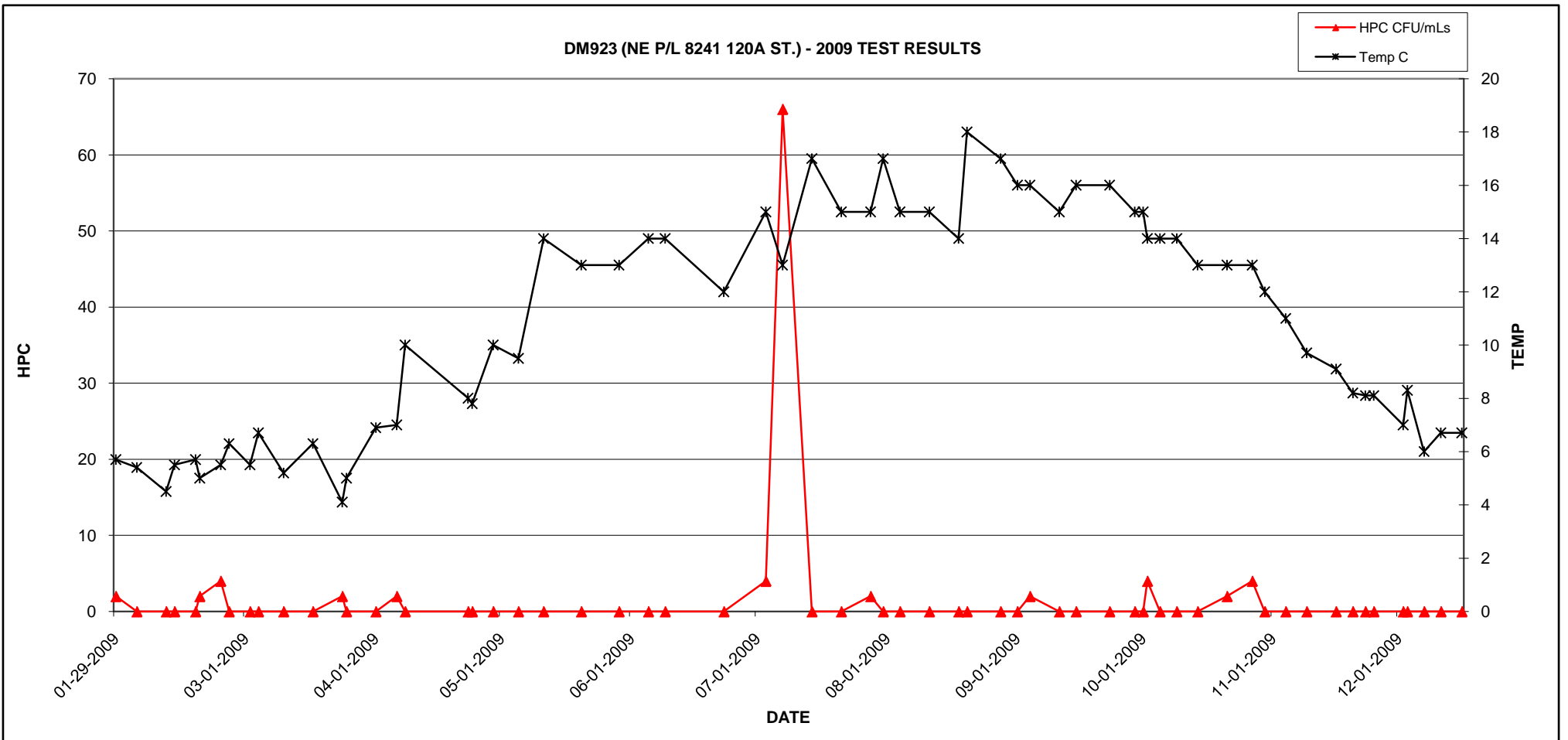


DM922 (7768 155 ST NW P/L) - 2009 TEST RESULTS



2009 Metro Vancouver 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
29-Jan	0.72	<1	2	<1	5.7	0.40
03-Feb	0.64	<1	<2	<1	5.4	0.56
10-Feb	0.69	<1	<2	<1	4.5	0.48
12-Feb	0.51	<1	<2	<1	5.5	0.61
17-Feb	0.71	<1	<2	<1	5.7	0.44
18-Feb	0.57	<1	2	<1	5	0.76
23-Feb	0.70	<1	4	<1	5.5	0.47
25-Feb	0.73	<1	<2	<1	6.3	0.32
02-Mar	0.80	<1	<2	<1	5.5	0.59
04-Mar	0.68	<1	<2	<1	6.7	0.36
10-Mar	0.68	<1	<2	<1	5.2	0.55
17-Mar	0.77	<1	<2	<1	6.3	0.47
24-Mar	0.80	<1	2	<1	4.1	0.81
25-Mar	0.38	<1	<2	<1	5	0.83
01-Apr	0.70	<1	<2	<1	6.9	0.71
06-Apr	0.60	<1	2	<1	7	0.81
08-Apr	0.66	<1	<2	<1	10	0.58
23-Apr	0.62	<1	<2	<1	8	0.54
24-Apr	0.60	<1	<2	<1	7.8	0.55
29-Apr	0.55	<1	<2	<1	10	0.43
05-May	0.60	<1	<2	<1	9.5	0.49
11-May	0.78	<1	<2	<1	14	0.66
20-May	0.49	<1	<2	<1	13	0.60
29-May	0.68	<1	<2	<1	13	0.78
05-Jun	0.63	<1	<2	<1	14	0.58
09-Jun	0.54	<1	<2	<1	14	0.56
23-Jun	0.73	<1	<2	<1	12	0.36
03-Jul	0.02	<1	4	<1	15	0.55
07-Jul	0.63	<1	66	<1	13	0.87
14-Jul	0.60	<1	<2	<1	17	0.31
21-Jul	0.68	<1	<2	<1	15	0.25
28-Jul	0.64	<1	2	<1	15	0.28
31-Jul	0.77	<1	<2	<1	17	0.25
04-Aug	0.62	<1	<2	<1	15	0.25
11-Aug	0.42	<1	<2	<1	15	0.26
18-Aug	0.65	<1	<2	<1	14	0.32
20-Aug	0.67	<1	<2	<1	18	0.28
28-Aug	0.68	<1	<2	<1	17	0.22
01-Sep	0.49	<1	<2	<1	16	0.28
04-Sep	0.58	<1	2	<1	16	3.50
11-Sep	0.57	<1	<2	<1	15	0.66
15-Sep	0.60	<1	<2	<1	16	0.60
23-Sep	0.21	<1	<2	<1	16	0.38
29-Sep	0.50	<1	<2	<1	15	0.38
01-Oct	0.67	<1	<2	<1	15	0.31
02-Oct	0.50	<1	4	<1	14	0.46
05-Oct	0.52	<1	<2	<1	14	0.62
09-Oct	0.61	<1	<2	<1	14	0.39
14-Oct	0.54	<1	<2	<1	13	0.88
21-Oct	0.42	<1	2	<1	13	2.60
27-Oct	0.12	<1	4	<1	13	0.95
30-Oct	0.63	<1	<2	<1	12	0.33
04-Nov	0.61	<1	<2	<1	11	0.83
09-Nov	0.62	<1	<2	<1	9.7	1.00
16-Nov	0.53	<1	<2	<1	9.1	0.87
20-Nov	0.65	<1	<2	<1	8.2	0.68
23-Nov	0.65	<1	<2	<1	8.1	0.78
25-Nov	0.61	<1	<2	<1	8.1	0.62
02-Dec	0.65	<1	<2	<1	7	0.89
03-Dec	0.53	<1	<2	<1	8.3	0.89
07-Dec	0.72	<1	<2	<1	6	0.69
11-Dec	0.58	<1	<2	<1	6.7	0.74
16-Dec	0.62	<1	<2	<1	6.7	0.78
21-Dec	0.60	<1	<2	<1	7.2	0.88
29-Dec	0.84	<1	NA	<1	6.3	1.10

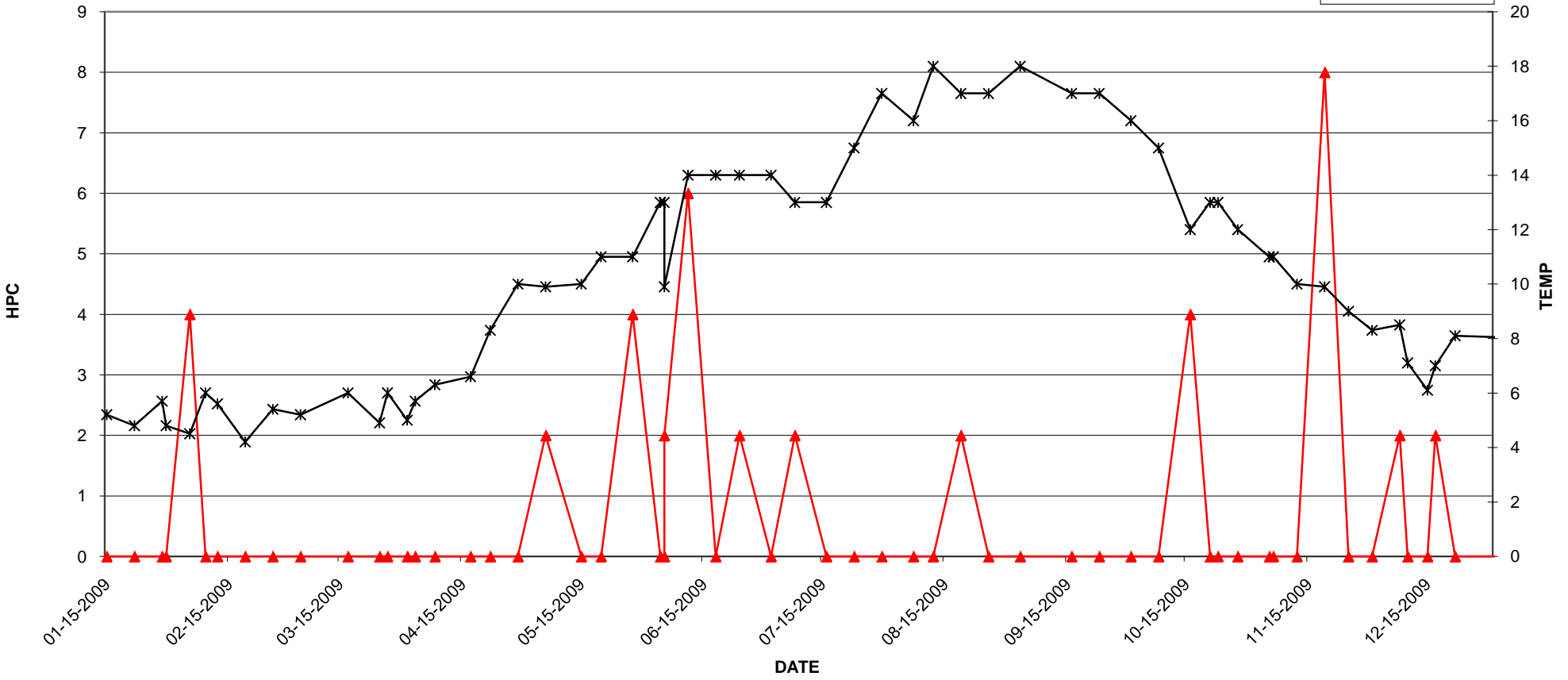




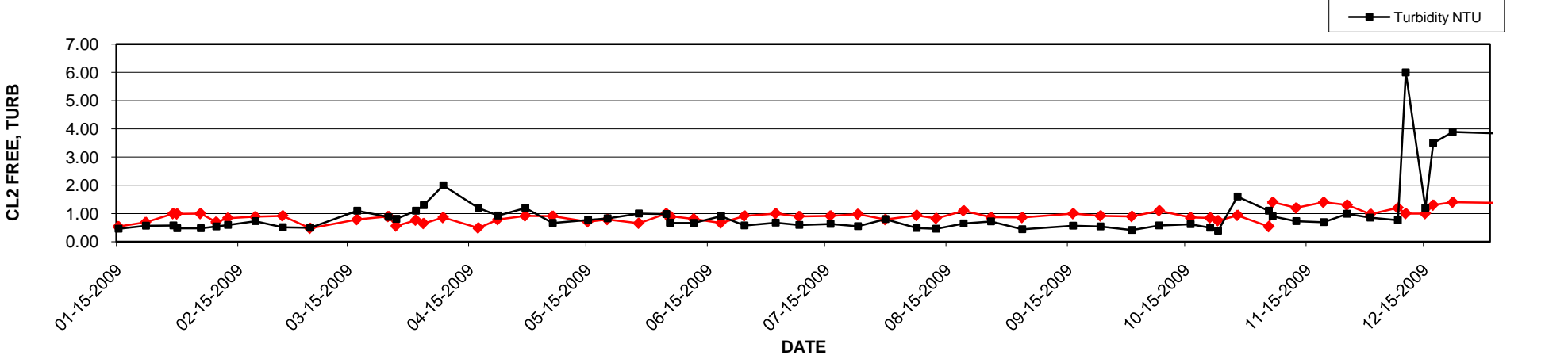
2009 Metro Vancouver Laboratory Report - DM924 (100M W/138 ST. S. SIDE of 74 AVE.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
15-Jan	0.54	<1	<2	<1	5.2	0.46
22-Jan	0.69	<1	<2	<1	4.8	0.57
29-Jan	1.00	<1	<2	<1	5.7	0.58
30-Jan	0.99	<1	<2	<1	4.8	0.48
05-Feb	1.00	<1	4	<1	4.5	0.48
09-Feb	0.70	<1	<2	<1	6	0.54
12-Feb	0.84	<1	<2	<1	5.6	0.60
19-Feb	0.89	<1	<2	<1	4.2	0.73
26-Feb	0.92	<1	<2	<1	5.4	0.52
05-Mar	0.48	<1	<2	<1	5.2	0.50
17-Mar	0.79	<1	<2	<1	6	1.10
25-Mar	0.90	<1	<2	<1	4.9	0.88
27-Mar	0.56	<1	<2	<1	6	0.81
01-Apr	0.77	<1	<2	<1	5	1.10
03-Apr	0.65	<1	<2	<1	5.7	1.30
08-Apr	0.86	<1	<2	<1	6.3	2.00
17-Apr	0.49	<1	<2	<1	6.6	1.20
22-Apr	0.79	<1	<2	<1	8.3	0.93
29-Apr	0.92	<1	<2	<1	10	1.20
06-May	0.91	<1	2	<1	9.9	0.67
15-May	0.71	<1	<2	<1	10	0.78
20-May	0.79	<1	<2	<1	11	0.83
28-May	0.66	<1	4	<1	11	1.00
04-Jun	1.00	<1	<2	<1	13	0.98
05-Jun	0.84	<1	<2	<1	13	0.68
05-Jun	0.91	<1	2	<1	9.9	0.67
11-Jun	0.81	<1	6	<1	14	0.67
18-Jun	0.67	<1	<2	<1	14	0.91
24-Jun	0.92	<1	2	<1	14	0.58
02-Jul	1.00	<1	<2	<1	14	0.68
08-Jul	0.90	<1	2	<1	13	0.60
16-Jul	0.92	<1	<2	<1	13	0.63
23-Jul	0.98	<1	<2	<1	15	0.55
30-Jul	0.79	<1	<2	<1	17	0.80
07-Aug	0.94	<1	<2	<1	16	0.49
12-Aug	0.83	<1	<2	<1	18	0.46
19-Aug	1.10	<1	2	<1	17	0.65
26-Aug	0.87	<1	<2	<1	17	0.72
03-Sep	0.86	<1	<2	<1	18	0.44
16-Sep	1.00	<1	<2	<1	17	0.57
23-Sep	0.92	<1	<2	<1	17	0.54
01-Oct	0.90	<1	<2	<1	16	0.42
08-Oct	1.10	<1	<2	<1	15	0.58
16-Oct	0.86	<1	4	<1	12	0.62
21-Oct	0.85	<1	<2	<1	13	0.50
23-Oct	0.75	<1	<2	<1	13	0.39
28-Oct	0.94	<1	<2	<1	12	1.60
05-Nov	0.54	<1	<2	<1	11	1.10
06-Nov	1.40	<1	<2	<1	11	0.90
12-Nov	1.20	<1	<2	<1	10	0.73
19-Nov	1.40	<1	8	<1	9.9	0.70
25-Nov	1.30	<1	<2	<1	9	0.99
01-Dec	0.98	<1	<2	<1	8.3	0.86
08-Dec	1.20	<1	2	<1	8.5	0.77
10-Dec	1.00	<1	<2	<1	7.1	6.00
15-Dec	1.00	<1	<2	<1	6.1	1.20
17-Dec	1.30	<1	2	<1	7	3.50
22-Dec	1.40	<1	<2	<1	8.1	3.90
31-Dec	0.63	<1	NA	<1	6.3	2.20

DM924 (100M W/138 ST. S. SIDE of 74 AVE.) - 2009 TEST RESULTS



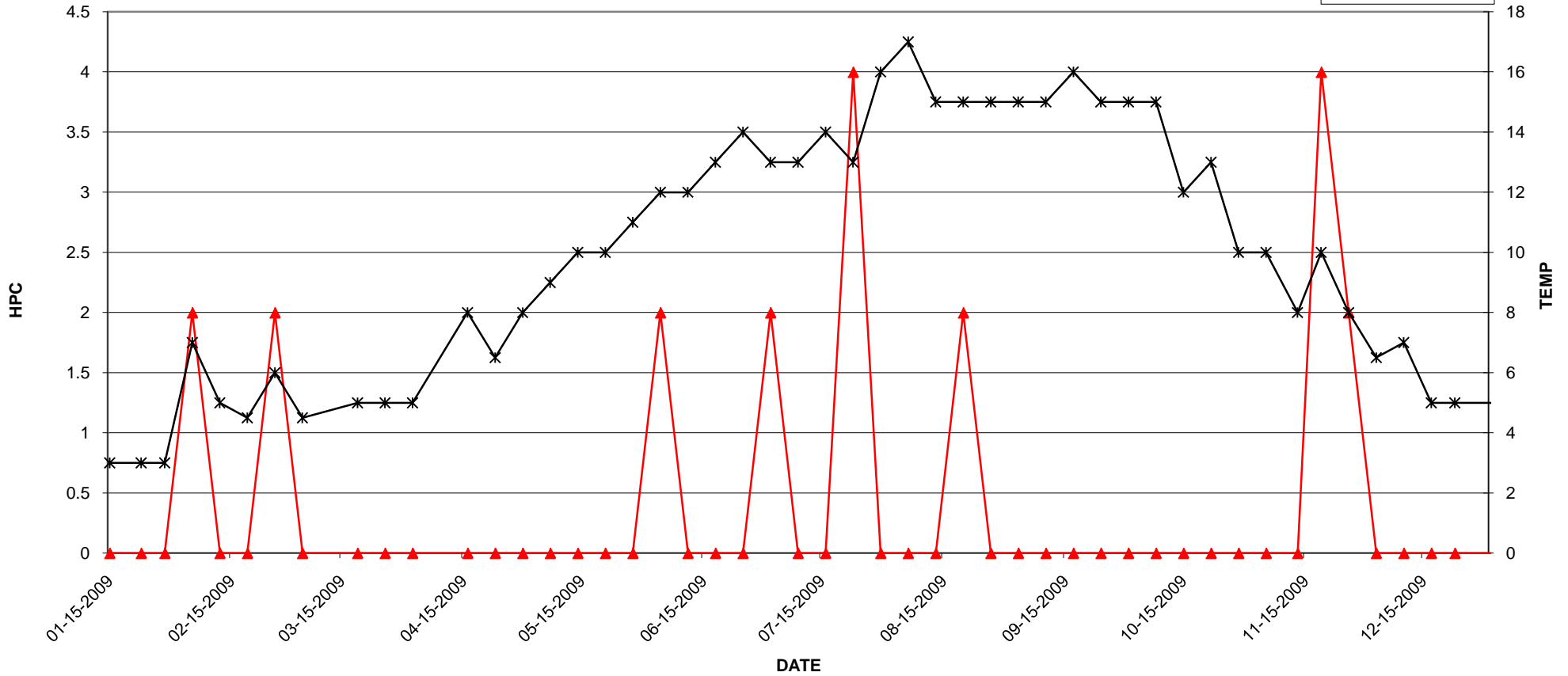
DM924 (100M W/138 ST. S. SIDE of 74 AVE.) - 2009 TEST RESULTS



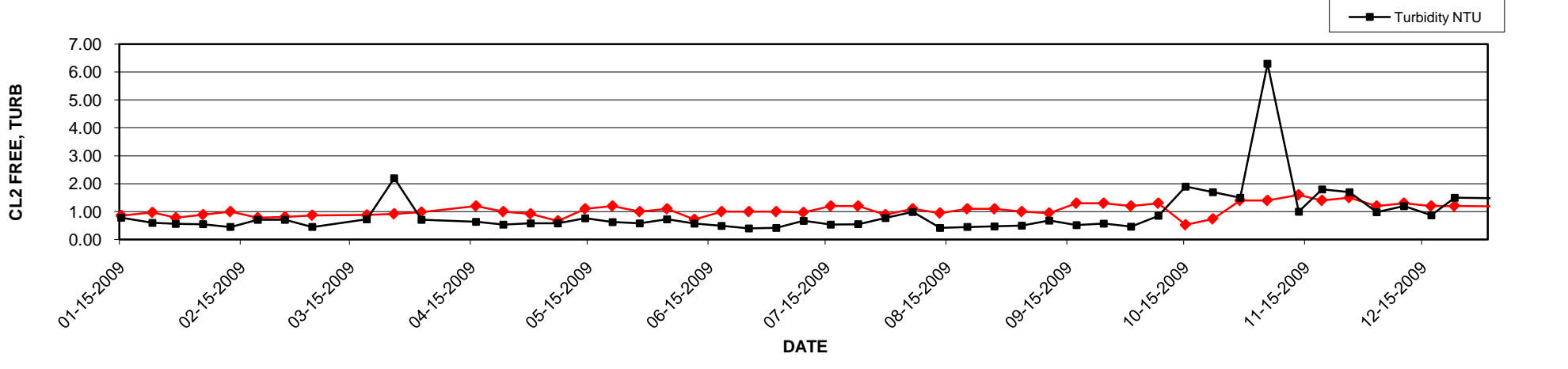
2009 Metro Vancouver Laboratory Report - DM925 (NEWTON STATION 128 ST.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
15-Jan	0.86	<1	<2	<1	3	0.78
23-Jan	0.97	<1	<2	<1	3	0.60
29-Jan	0.78	<1	<2	<1	3	0.56
05-Feb	0.89	<1	2	<1	7	0.55
12-Feb	1.00	<1	<2	<1	5	0.45
19-Feb	0.78	<1	<2	<1	4.5	0.71
26-Feb	0.81	<1	2	<1	6	0.71
05-Mar	0.87	<1	<2	<1	4.5	0.45
19-Mar	0.88	<1	<2	<1	5	0.73
26-Mar	0.92	<1	<2	<1	5	2.20
02-Apr	0.98	<1	<2	<1	5	0.71
16-Apr	1.20	<1	<2	<1	8	0.64
23-Apr	1.00	<1	<2	<1	6.5	0.54
30-Apr	0.92	<1	<2	<1	8	0.58
07-May	0.67	<1	<2	<1	9	0.58
14-May	1.10	<1	<2	<1	10	0.76
21-May	1.20	<1	<2	<1	10	0.63
28-May	1.00	<1	<2	<1	11	0.58
04-Jun	1.10	<1	2	<1	12	0.73
11-Jun	0.72	<1	<2	<1	12	0.57
18-Jun	1.00	<1	<2	<1	13	0.49
25-Jun	1.00	<1	<2	<1	14	0.40
02-Jul	1.00	<1	2	<1	13	0.42
09-Jul	0.97	<1	<2	<1	13	0.67
16-Jul	1.20	<1	<2	<1	14	0.54
23-Jul	1.20	<1	4	<1	13	0.55
30-Jul	0.89	<1	<2	<1	16	0.77
06-Aug	1.10	<1	<2	<1	17	0.99
13-Aug	0.95	<1	<2	<1	15	0.42
20-Aug	1.10	<1	2	<1	15	0.45
27-Aug	1.10	<1	LA	<1	15	0.47
03-Sep	1.00	<1	NA	<1	15	0.50
10-Sep	0.95	<1	<2	<1	15	0.68
17-Sep	1.30	<1	<2	<1	16	0.52
24-Sep	1.30	<1	<2	<1	15	0.57
01-Oct	1.20	<1	<2	<1	15	0.46
08-Oct	1.30	<1	<2	<1	15	0.85
15-Oct	0.53	<1	<2	<1	12	1.90
22-Oct	0.74	<1	<2	<1	13	1.70
29-Oct	1.40	<1	<2	<1	10	1.50
05-Nov	1.40	<1	<2	<1	10	6.30
13-Nov	1.60	<1	<2	<1	8	1.00
19-Nov	1.40	<1	4	<1	10	1.80
26-Nov	1.50	<1	2	<1	8	1.70
03-Dec	1.20	<1	<2	<1	6.5	0.98
10-Dec	1.30	<1	<2	<1	7	1.20
17-Dec	1.20	<1	<2	<1	5	0.87
23-Dec	1.20	<1	<2	<1	5	1.50
31-Dec	0.83	<1	NA	<1	5	0.76

DM925 (NEWTON STATION 128 ST.) - 2009 TEST RESULTS

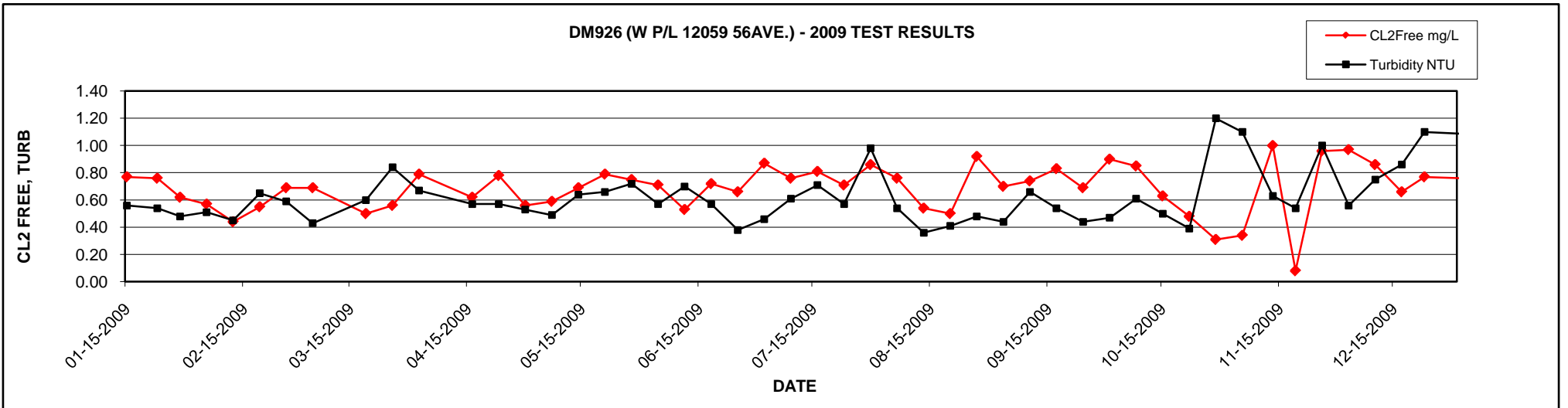
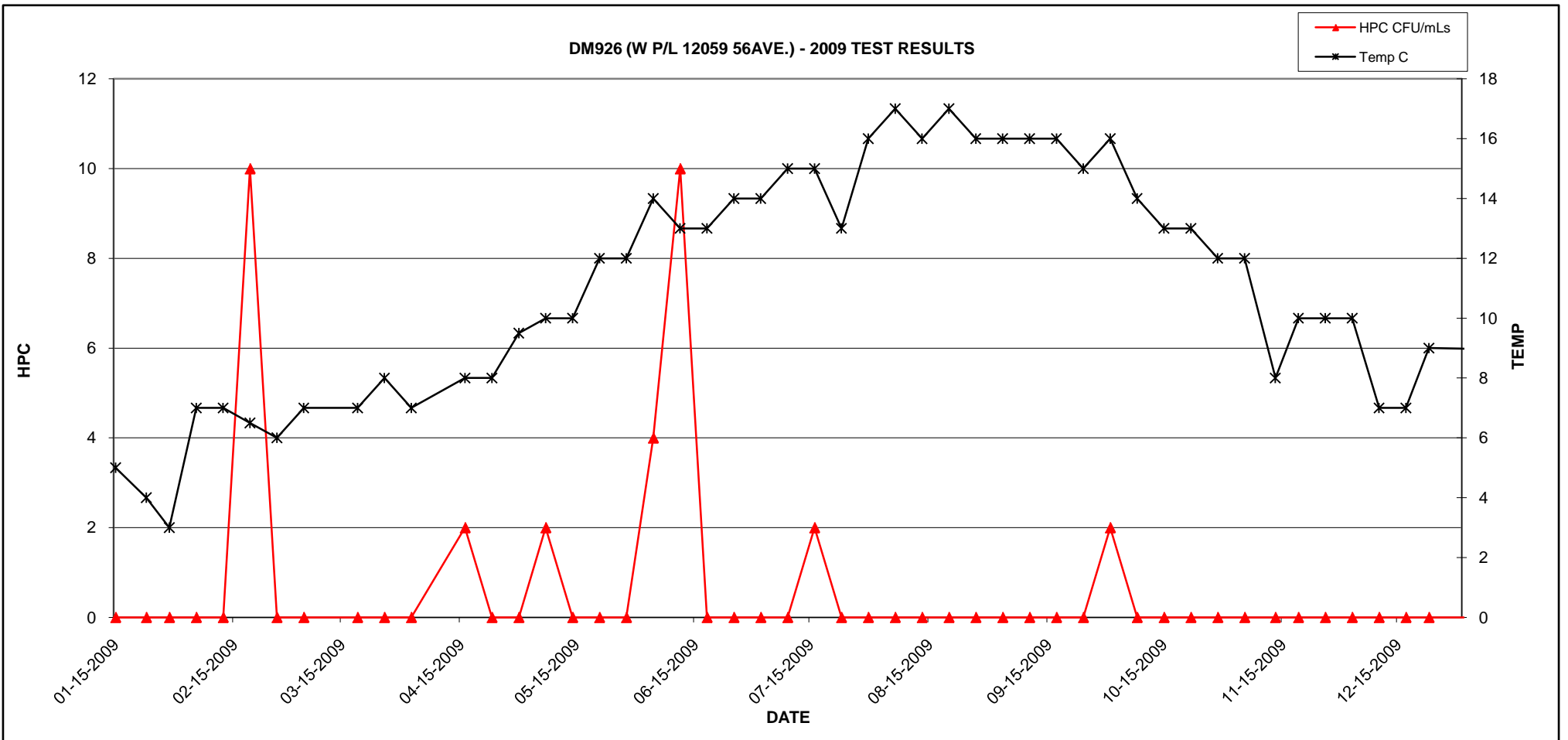


DM925 (NEWTON STATION 128 ST.) - 2009 TEST RESULTS



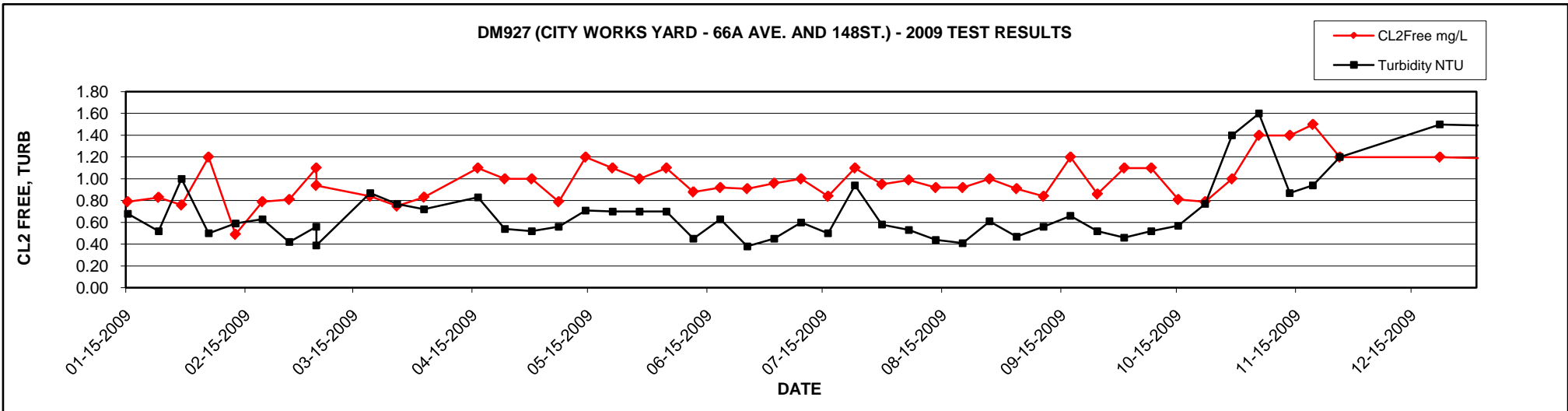
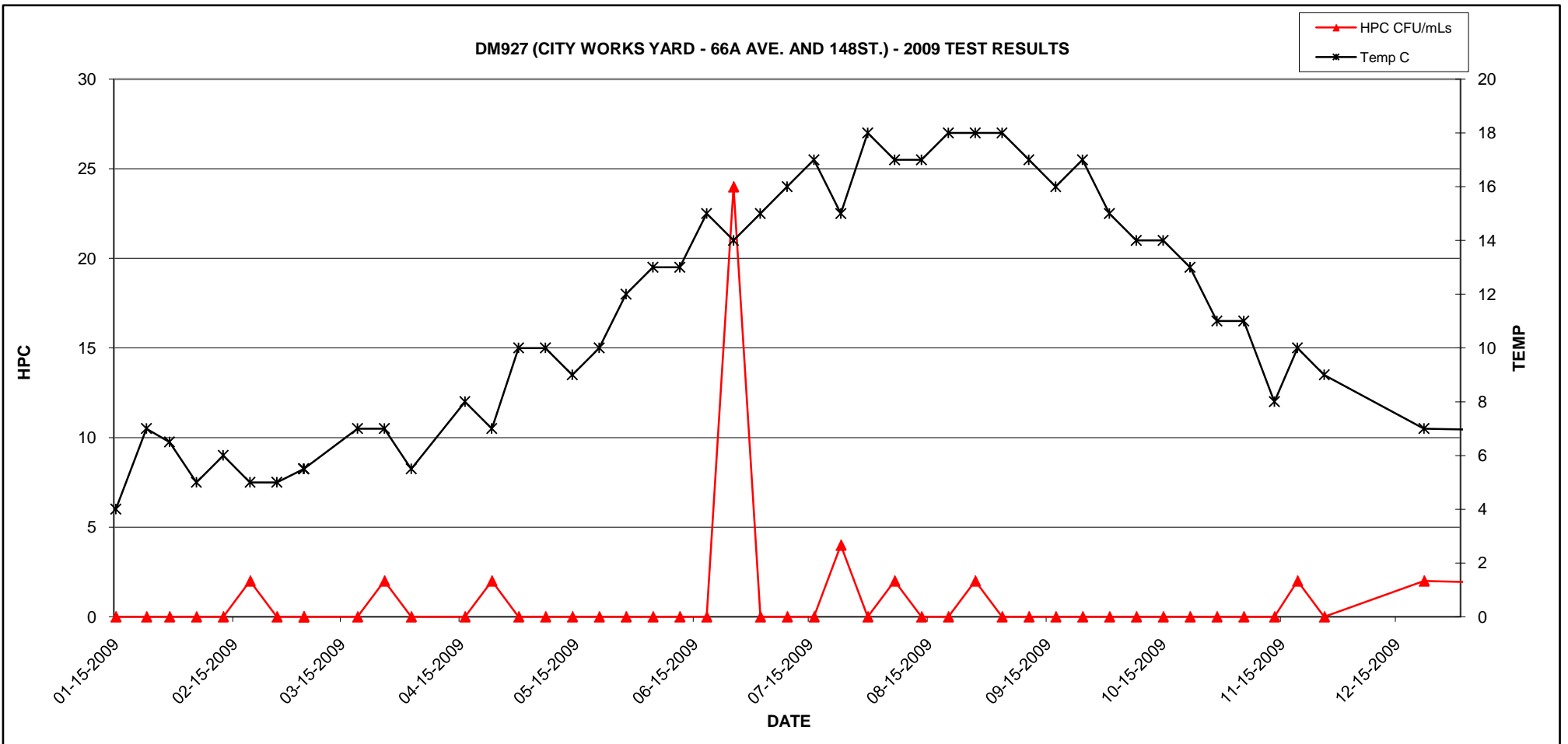
2009 Metro Vancouver Laboratory Report - DM926 (W P/L 12059 56AVE.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
15-Jan	0.77	<1	<2	<1	5	0.56
23-Jan	0.76	<1	<2	<1	4	0.54
29-Jan	0.62	<1	<2	<1	3	0.48
05-Feb	0.57	<1	<2	<1	7	0.51
12-Feb	0.44	<1	<2	<1	7	0.45
19-Feb	0.55	<1	10	<1	6.5	0.65
26-Feb	0.69	<1	<2	<1	6	0.59
05-Mar	0.69	<1	<2	<1	7	0.43
19-Mar	0.50	<1	<2	<1	7	0.60
26-Mar	0.56	<1	<2	<1	8	0.84
02-Apr	0.79	<1	<2	<1	7	0.67
16-Apr	0.62	<1	2	<1	8	0.57
23-Apr	0.78	<1	<2	<1	8	0.57
30-Apr	0.56	<1	<2	<1	9.5	0.53
07-May	0.59	<1	2	<1	10	0.49
14-May	0.69	<1	<2	<1	10	0.64
21-May	0.79	<1	<2	<1	12	0.66
28-May	0.75	<1	<2	<1	12	0.72
04-Jun	0.71	<1	4	<1	14	0.57
11-Jun	0.53	<1	10	<1	13	0.70
18-Jun	0.72	<1	<2	<1	13	0.57
25-Jun	0.66	<1	<2	<1	14	0.38
02-Jul	0.87	<1	<2	<1	14	0.46
09-Jul	0.76	<1	<2	<1	15	0.61
16-Jul	0.81	<1	2	<1	15	0.71
23-Jul	0.71	<1	<2	<1	13	0.57
30-Jul	0.86	CG	<2	CG	16	0.98
06-Aug	0.76	<1	<2	<1	17	0.54
13-Aug	0.54	<1	<2	<1	16	0.36
20-Aug	0.50	<1	<2	<1	17	0.41
27-Aug	0.92	<1	<2	<1	16	0.48
03-Sep	0.70	<1	<2	<1	16	0.44
10-Sep	0.74	<1	<2	<1	16	0.66
17-Sep	0.83	<1	<2	<1	16	0.54
24-Sep	0.69	<1	<2	<1	15	0.44
01-Oct	0.90	<1	2	<1	16	0.47
08-Oct	0.85	<1	<2	<1	14	0.61
15-Oct	0.63	<1	<2	<1	13	0.50
22-Oct	0.48	<1	<2	<1	13	0.39
29-Oct	0.31	<1	<2	<1	12	1.20
05-Nov	0.34	<1	<2	<1	12	1.10
13-Nov	1.00	<1	<2	<1	8	0.63
19-Nov	0.08	<1	<2	<1	10	0.54
26-Nov	0.96	<1	<2	<1	10	1.00
03-Dec	0.97	<1	<2	<1	10	0.56
10-Dec	0.86	<1	<2	<1	7	0.75
17-Dec	0.66	<1	<2	<1	7	0.86
23-Dec	0.77	<1	<2	<1	9	1.10
31-Dec	0.43	<1	NA	<1	8	0.62



2009 Metro Vancouver Laboratory Report - DM927 (CITY WORKS YARD - 66A AVE. AND 148ST.)

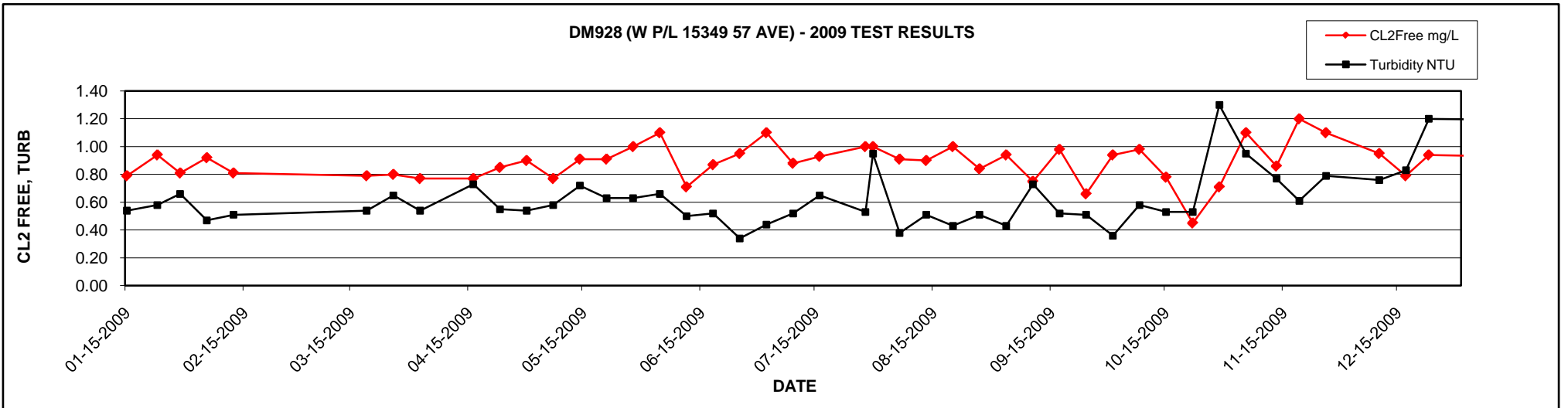
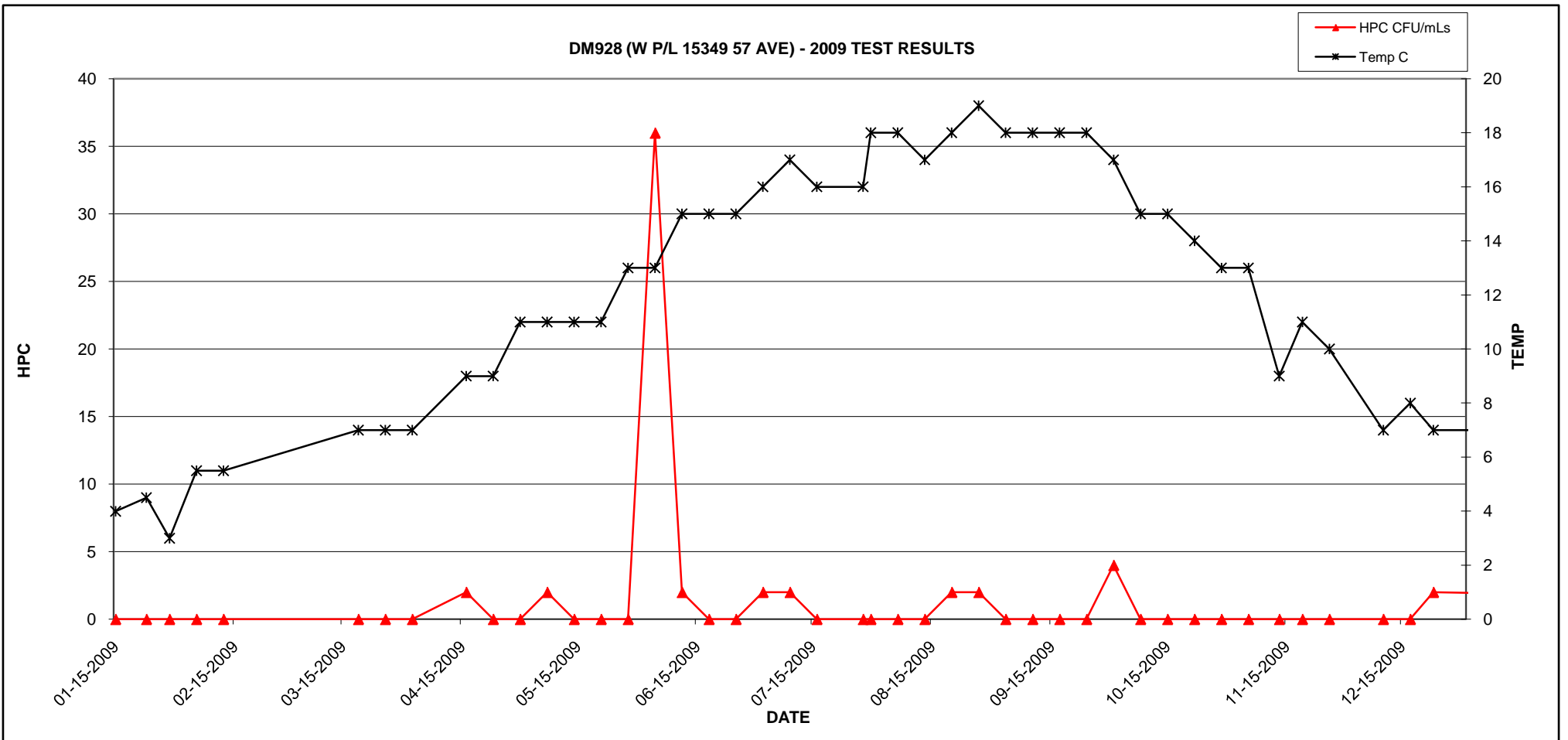
Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
15-Jan	0.79	<1	<2	<1	4	0.68
23-Jan	0.83	<1	<2	<1	7	0.52
29-Jan	0.76	<1	<2	<1	6.5	1.00
05-Feb	1.20	<1	<2	<1	5	0.50
12-Feb	0.49	<1	<2	<1	6	0.59
19-Feb	0.79	<1	2	<1	5	0.63
26-Feb	0.81	<1	<2	<1	5	0.42
05-Mar	1.10	<1	<2	<1	5.5	0.56
05-Mar	0.94	<1	<2	<1	5.5	0.39
19-Mar	0.84	<1	<2	<1	7	0.87
26-Mar	0.75	<1	2	<1	7	0.77
02-Apr	0.83	<1	<2	<1	5.5	0.72
16-Apr	1.10	<1	<2	<1	8	0.83
23-Apr	1.00	<1	2	<1	7	0.54
30-Apr	1.00	<1	<2	<1	10	0.52
07-May	0.79	<1	<2	<1	10	0.56
14-May	1.20	<1	<2	<1	9	0.71
21-May	1.10	<1	<2	<1	10	0.70
28-May	1.00	<1	<2	<1	12	0.70
04-Jun	1.10	<1	<2	<1	13	0.70
11-Jun	0.88	<1	<2	<1	13	0.45
18-Jun	0.92	<1	<2	<1	15	0.63
25-Jun	0.91	<1	24	<1	14	0.38
02-Jul	0.96	<1	<2	<1	15	0.45
09-Jul	1.00	<1	<2	<1	16	0.60
16-Jul	0.84	<1	<2	<1	17	0.50
23-Jul	1.10	<1	4	<1	15	0.94
30-Jul	0.95	<1	<2	<1	18	0.58
06-Aug	0.99	<1	2	<1	17	0.53
13-Aug	0.92	<1	<2	<1	17	0.44
20-Aug	0.92	<1	<2	<1	18	0.41
27-Aug	1.00	<1	2	<1	18	0.61
03-Sep	0.91	<1	<2	<1	18	0.47
10-Sep	0.84	<1	<2	<1	17	0.56
17-Sep	1.20	<1	<2	<1	16	0.66
24-Sep	0.86	<1	<2	<1	17	0.52
01-Oct	1.10	<1	<2	<1	15	0.46
08-Oct	1.10	<1	<2	<1	14	0.52
15-Oct	0.81	<1	<2	<1	14	0.57
22-Oct	0.79	<1	<2	<1	13	0.77
29-Oct	1.00	<1	<2	<1	11	1.40
05-Nov	1.40	<1	<2	<1	11	1.60
13-Nov	1.40	<1	<2	<1	8	0.87
19-Nov	1.50	<1	2	<1	10	0.94
26-Nov	1.20	<1	<2	<1	9	1.20
22-Dec	1.20	<1	2	<1	7	1.50
31-Dec	0.87	<1	NA	<1	6	1.20





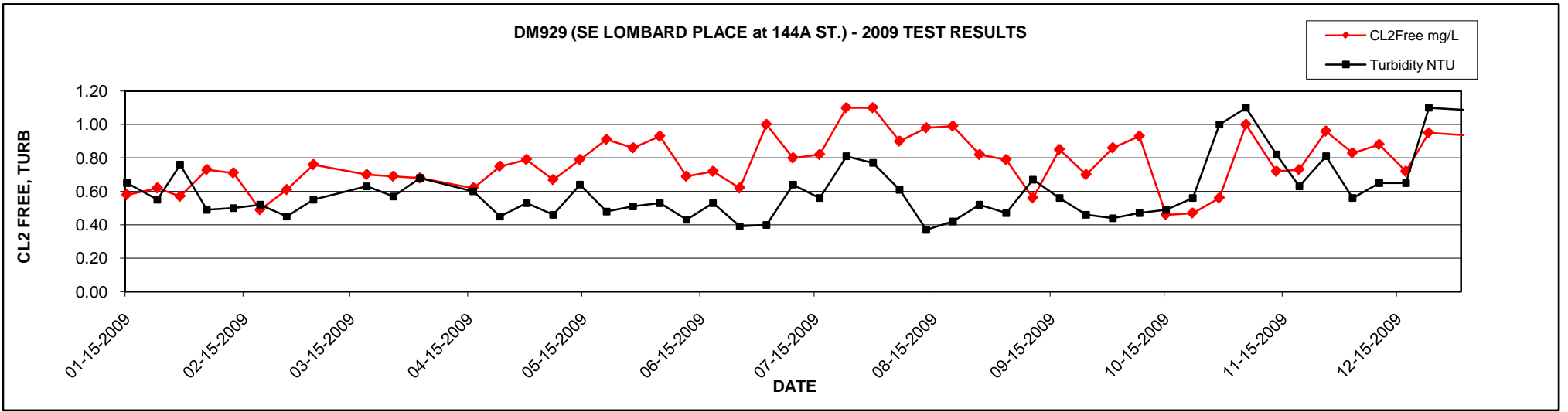
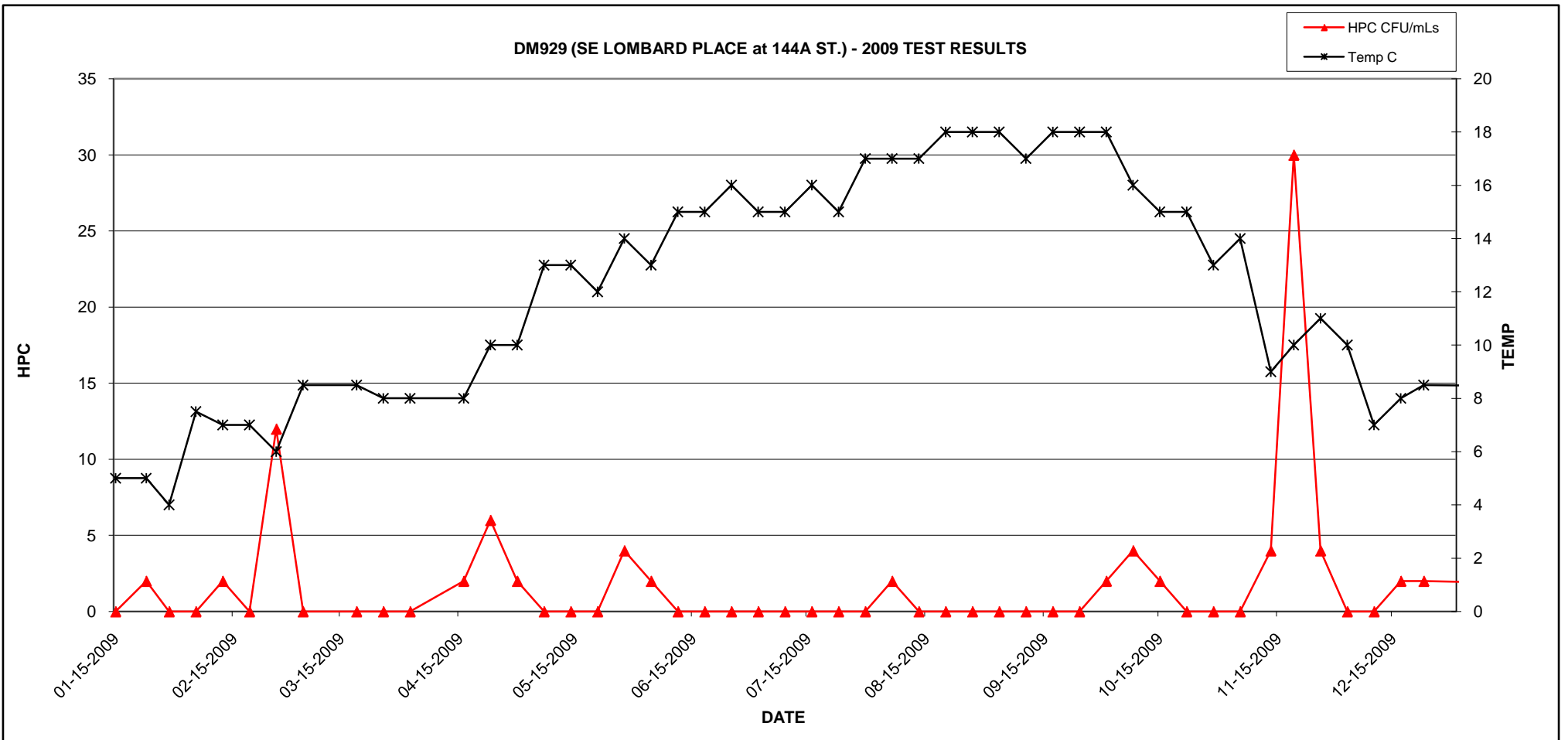
2009 Metro Vancouver Laboratory Report - DM928 (W P/L 15349 57 AVE)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
15-Jan	0.79	<1	<2	<1	4	0.54
23-Jan	0.94	<1	<2	<1	4.5	0.58
29-Jan	0.81	<1	<2	<1	3	0.66
05-Feb	0.92	<1	<2	<1	5.5	0.47
12-Feb	0.81	<1	<2	<1	5.5	0.51
19-Mar	0.79	<1	<2	<1	7	0.54
26-Mar	0.80	<1	<2	<1	7	0.65
02-Apr	0.77	<1	<2	<1	7	0.54
16-Apr	0.77	<1	2	<1	9	0.73
23-Apr	0.85	<1	<2	<1	9	0.55
30-Apr	0.90	<1	<2	<1	11	0.54
07-May	0.77	<1	2	<1	11	0.58
14-May	0.91	<1	<2	<1	11	0.72
21-May	0.91	<1	<2	<1	11	0.63
28-May	1.00	<1	<2	<1	13	0.63
04-Jun	1.10	<1	36	<1	13	0.66
11-Jun	0.71	<1	2	<1	15	0.50
18-Jun	0.87	<1	<2	<1	15	0.52
25-Jun	0.95	<1	<2	<1	15	0.34
02-Jul	1.10	<1	2	<1	16	0.44
09-Jul	0.88	<1	2	<1	17	0.52
16-Jul	0.93	<1	<2	<1	16	0.65
28-Jul	1.00	<1	<2	<1	16	0.53
30-Jul	1.00	<1	<2	<1	18	0.95
06-Aug	0.91	<1	<2	<1	18	0.38
13-Aug	0.90	<1	<2	<1	17	0.51
20-Aug	1.00	<1	2	<1	18	0.43
27-Aug	0.84	<1	2	<1	19	0.51
03-Sep	0.94	<1	<2	<1	18	0.43
10-Sep	0.75	<1	<2	<1	18	0.73
17-Sep	0.98	<1	<2	<1	18	0.52
24-Sep	0.66	<1	<2	<1	18	0.51
01-Oct	0.94	<1	4	<1	17	0.36
08-Oct	0.98	<1	<2	<1	15	0.58
15-Oct	0.78	<1	<2	<1	15	0.53
22-Oct	0.45	<1	<2	<1	14	0.53
29-Oct	0.71	<1	<2	<1	13	1.30
05-Nov	1.10	<1	<2	<1	13	0.95
13-Nov	0.86	<1	<2	<1	9	0.77
19-Nov	1.20	<1	<2	<1	11	0.61
26-Nov	1.10	<1	<2	<1	10	0.79
10-Dec	0.95	<1	<2	<1	7	0.76
17-Dec	0.79	<1	<2	<1	8	0.83
23-Dec	0.94	<1	2	<1	7	1.20
31-Dec	0.75	<1	NA	<1	7	1.10



2009 Metro Vancouver Laboratory Report - DM929 (SE LOMBARD PLACE at 144A ST.)

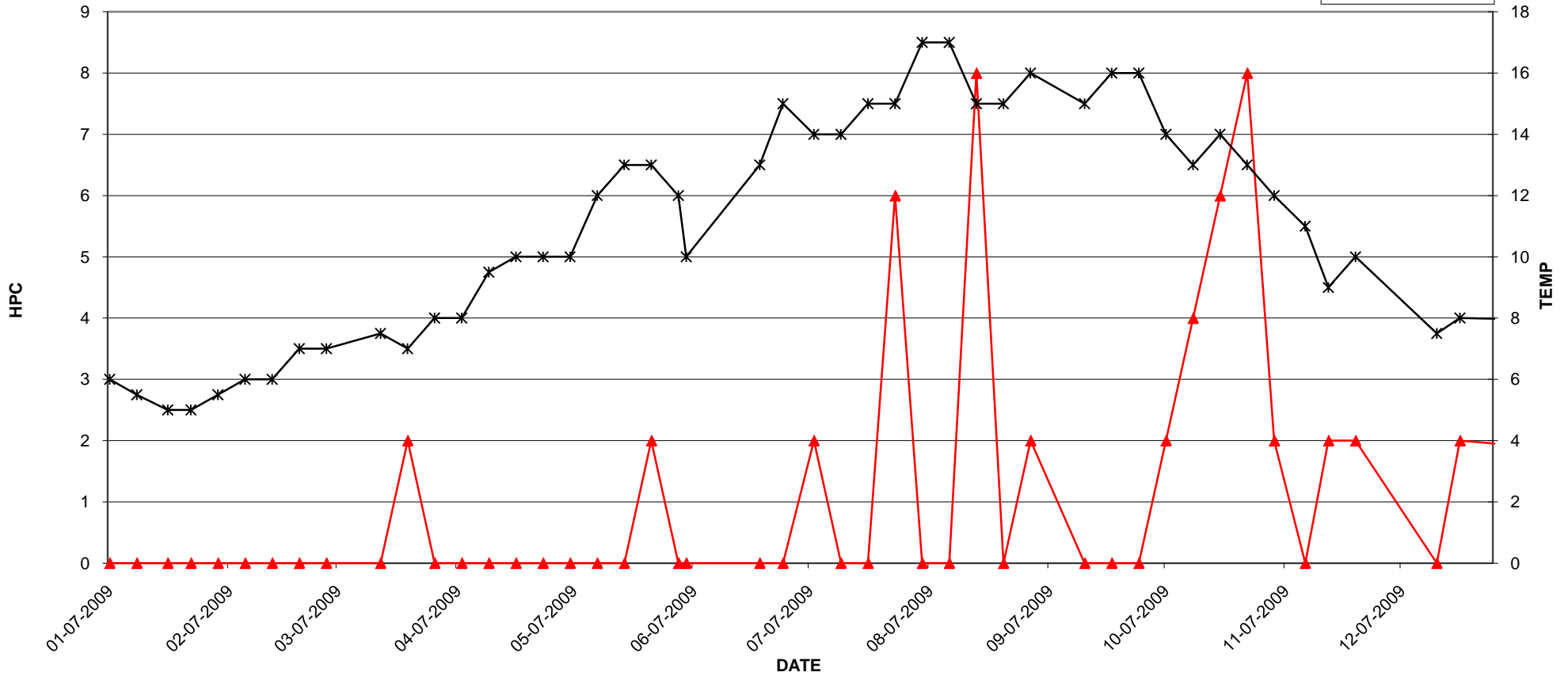
Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
15-Jan	0.58	<1	<2	<1	5	0.65
23-Jan	0.62	<1	2	<1	5	0.55
29-Jan	0.57	<1	<2	<1	4	0.76
05-Feb	0.73	<1	<2	<1	7.5	0.49
12-Feb	0.71	<1	2	<1	7	0.50
19-Feb	0.49	<1	<2	<1	7	0.52
26-Feb	0.61	<1	12	<1	6	0.45
05-Mar	0.76	<1	<2	<1	8.5	0.55
19-Mar	0.70	<1	<2	<1	8.5	0.63
26-Mar	0.69	<1	<2	<1	8	0.57
02-Apr	0.68	<1	<2	<1	8	0.68
16-Apr	0.62	<1	2	<1	8	0.60
23-Apr	0.75	<1	6	<1	10	0.45
30-Apr	0.79	<1	2	<1	10	0.53
07-May	0.67	<1	<2	<1	13	0.46
14-May	0.79	<1	<2	<1	13	0.64
21-May	0.91	<1	<2	<1	12	0.48
28-May	0.86	<1	4	<1	14	0.51
04-Jun	0.93	<1	2	<1	13	0.53
11-Jun	0.69	<1	<2	<1	15	0.43
18-Jun	0.72	<1	<2	<1	15	0.53
25-Jun	0.62	<1	<2	<1	16	0.39
02-Jul	1.00	<1	<2	<1	15	0.40
09-Jul	0.80	<1	<2	<1	15	0.64
16-Jul	0.82	<1	<2	<1	16	0.56
23-Jul	1.10	<1	<2	<1	15	0.81
30-Jul	1.10	<1	<2	<1	17	0.77
06-Aug	0.90	<1	2	<1	17	0.61
13-Aug	0.98	<1	<2	<1	17	0.37
20-Aug	0.99	<1	<2	<1	18	0.42
27-Aug	0.82	<1	<2	<1	18	0.52
03-Sep	0.79	<1	<2	<1	18	0.47
10-Sep	0.56	<1	LA	<1	17	0.67
17-Sep	0.85	<1	<2	<1	18	0.56
24-Sep	0.70	<1	<2	<1	18	0.46
01-Oct	0.86	<1	2	<1	18	0.44
08-Oct	0.93	<1	4	<1	16	0.47
15-Oct	0.46	<1	2	<1	15	0.49
22-Oct	0.47	<1	<2	<1	15	0.56
29-Oct	0.56	<1	<2	<1	13	1.00
05-Nov	1.00	<1	<2	<1	14	1.10
13-Nov	0.72	<1	4	<1	9	0.82
19-Nov	0.73	<1	30	<1	10	0.63
26-Nov	0.96	<1	4	<1	11	0.81
03-Dec	0.83	<1	<2	<1	10	0.56
10-Dec	0.88	<1	<2	<1	7	0.65
17-Dec	0.72	<1	2	<1	8	0.65
23-Dec	0.95	<1	2	<1	8.5	1.10
31-Dec	0.39	<1	NA	<1	8	0.60



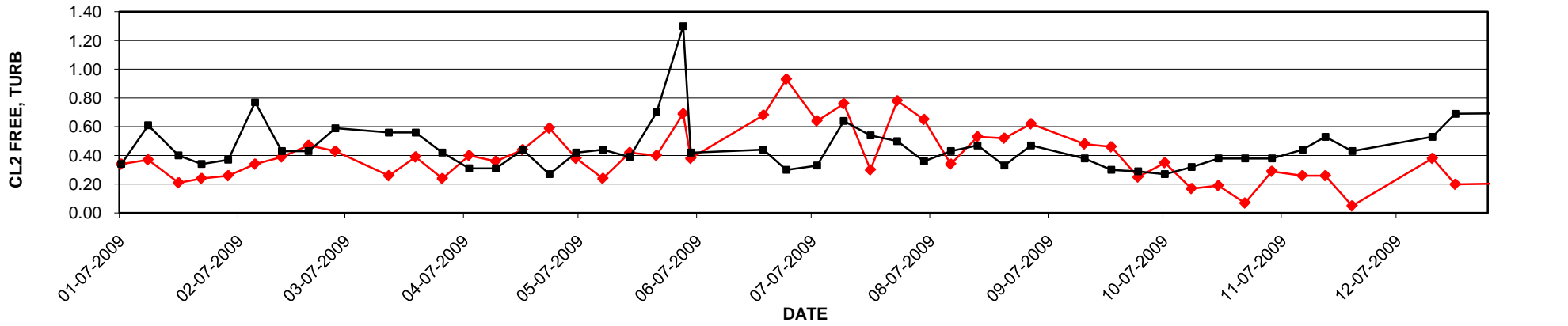
2009 Metro Vancouver Laboratory Report - DM930 (139 ST. SOUTH of NO. 3031)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
07-Jan	0.34	<1	<2	<1	6	0.34
14-Jan	0.37	<1	<2	<1	5.5	0.61
22-Jan	0.21	<1	<2	<1	5	0.40
28-Jan	0.24	<1	<2	<1	5	0.34
04-Feb	0.26	<1	<2	<1	5.5	0.37
11-Feb	0.34	<1	<2	<1	6	0.77
18-Feb	0.39	<1	<2	<1	6	0.43
25-Feb	0.47	<1	<2	<1	7	0.43
04-Mar	0.43	<1	<2	<1	7	0.59
18-Mar	0.26	<1	<2	<1	7.5	0.56
25-Mar	0.39	<1	2	<1	7	0.56
01-Apr	0.24	<1	<2	<1	8	0.42
08-Apr	0.40	<1	<2	<1	8	0.31
15-Apr	0.36	<1	<2	<1	9.5	0.31
22-Apr	0.44	<1	<2	<1	10	0.44
29-Apr	0.59	<1	<2	<1	10	0.27
06-May	0.38	<1	NA	<1	10	0.42
13-May	0.24	<1	<2	<1	12	0.44
20-May	0.42	<1	<2	<1	13	0.39
27-May	0.40	<1	2	<1	13	0.70
03-Jun	0.69	<1	<2	<1	12	1.30
05-Jun	0.38	<1	NA	<1	10	0.42
24-Jun	0.68	<1	<2	<1	13	0.44
30-Jun	0.93	<1	<2	<1	15	0.30
08-Jul	0.64	<1	2	<1	14	0.33
15-Jul	0.76	<1	<2	<1	14	0.64
22-Jul	0.30	<1	<2	<1	15	0.54
29-Jul	0.78	<1	6	<1	15	0.50
05-Aug	0.65	<1	<2	<1	17	0.36
12-Aug	0.34	<1	<2	<1	17	0.43
19-Aug	0.53	<1	8	1	15	0.47
26-Aug	0.52	<1	<2	<1	15	0.33
02-Sep	0.62	<1	2	<1	16	0.47
16-Sep	0.48	<1	<2	<1	15	0.38
23-Sep	0.46	<1	<2	<1	16	0.30
30-Sep	0.25	<1	<2	<1	16	0.29
07-Oct	0.35	<1	2	<1	14	0.27
14-Oct	0.17	<1	4	<1	13	0.32
21-Oct	0.19	<1	6	<1	14	0.38
28-Oct	0.07	<1	8	<1	13	0.38
04-Nov	0.29	<1	2	<1	12	0.38
12-Nov	0.26	<1	<2	<1	11	0.44
18-Nov	0.26	<1	2	<1	9	0.53
25-Nov	0.05	<1	2	<1	10	0.43
16-Dec	0.38	<1	<2	<1	7.5	0.53
22-Dec	0.20	<1	2	<1	8	0.69
30-Dec	0.37	<1	NA	<1	7	0.77

DM930 (139 ST. SOUTH of NO. 3031) - 2009 TEST RESULTS



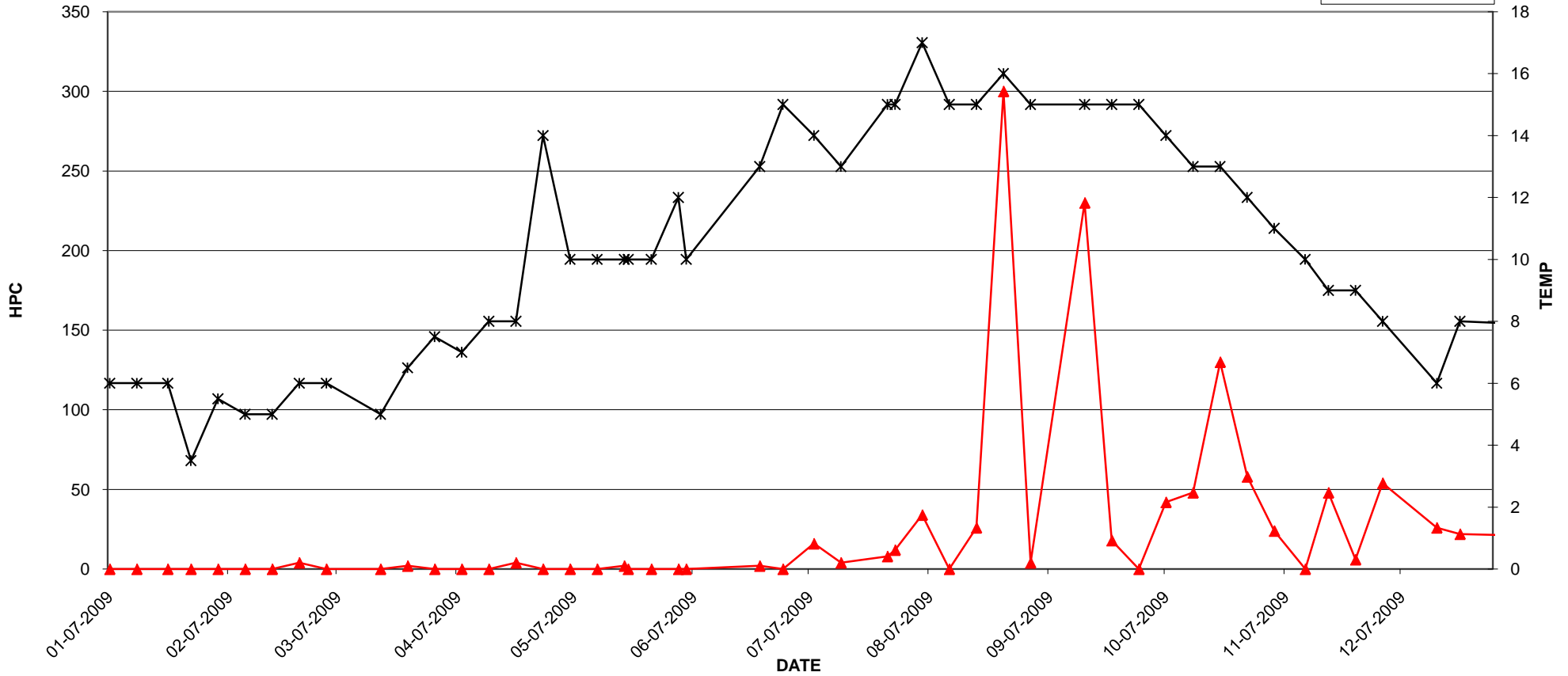
DM930 (139 ST. SOUTH of NO. 3031) - 2009 TEST RESULTS



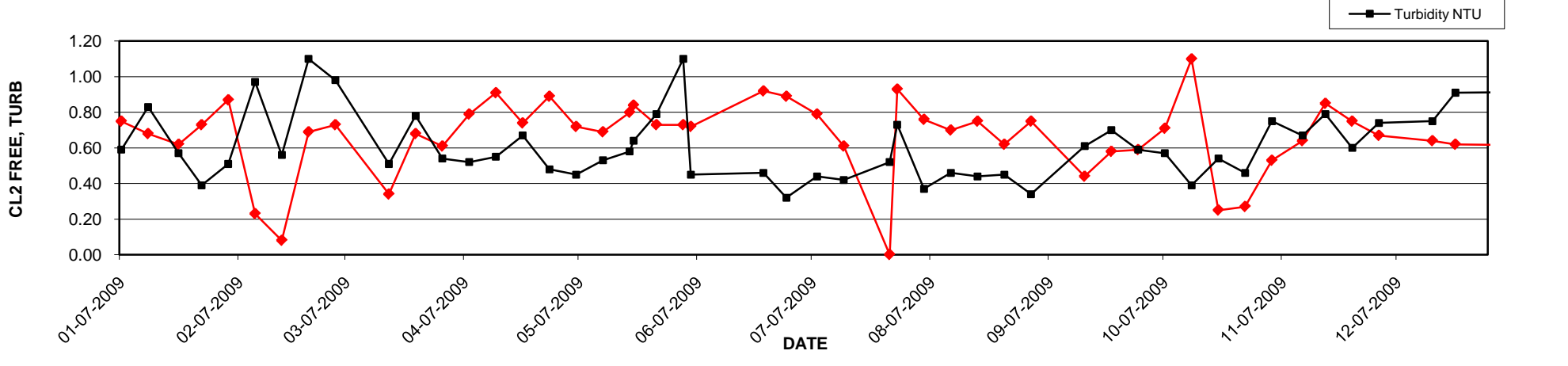
2009 Metro Vancouver Laboratory Report - DM931 (SW CORNER 124 ST. and 24 AVE.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
07-Jan	0.75	<1	<2	<1	6	0.59
14-Jan	0.68	<1	<2	<1	6	0.83
22-Jan	0.62	<1	<2	<1	6	0.57
28-Jan	0.73	<1	<2	<1	3.5	0.39
04-Feb	0.87	<1	<2	<1	5.5	0.51
11-Feb	0.23	<1	<2	<1	5	0.97
18-Feb	0.08	<1	<2	<1	5	0.56
25-Feb	0.69	<1	4	<1	6	1.10
04-Mar	0.73	<1	<2	<1	6	0.98
18-Mar	0.34	<1	<2	<1	5	0.51
25-Mar	0.68	<1	2	<1	6.5	0.78
01-Apr	0.61	<1	<2	<1	7.5	0.54
08-Apr	0.79	<1	<2	<1	7	0.52
15-Apr	0.91	<1	<2	<1	8	0.55
22-Apr	0.74	<1	4	<1	8	0.67
29-Apr	0.89	<1	<2	<1	14	0.48
06-May	0.72	<1	<2	<1	10	0.45
13-May	0.69	<1	<2	<1	10	0.53
21-May	0.84	<1	<2	<1	10	0.64
20-May	0.80	<1	2	<1	10	0.58
27-May	0.73	<1	<2	<1	10	0.79
03-Jun	0.73	<1	<2	<1	12	1.10
05-Jun	0.72	<1	<2	<1	10	0.45
24-Jun	0.92	<1	2	<1	13	0.46
30-Jun	0.89	<1	<2	<1	15	0.32
08-Jul	0.79	<1	16	<1	14	0.44
15-Jul	0.61	<1	4	<1	13	0.42
27-Jul	<0.01	<1	8	<1	15	0.52
29-Jul	0.93	<1	12	<1	15	0.73
05-Aug	0.76	<1	34	<1	17	0.37
12-Aug	0.70	<1	<2	<1	15	0.46
19-Aug	0.75	<1	26	<1	15	0.44
26-Aug	0.62	<1	300	<1	16	0.45
02-Sep	0.75	<1	4	<1	15	0.34
16-Sep	0.44	<1	230	<1	15	0.61
23-Sep	0.58	<1	18	<1	15	0.70
30-Sep	0.59	<1	<2	<1	15	0.59
07-Oct	0.71	<1	42	<1	14	0.57
14-Oct	1.10	<1	48	<1	13	0.39
21-Oct	0.25	<1	130	<1	13	0.54
28-Oct	0.27	<1	58	<1	12	0.46
04-Nov	0.53	<1	24	<1	11	0.75
12-Nov	0.64	<1	<2	<1	10	0.67
18-Nov	0.85	<1	48	<1	9	0.79
25-Nov	0.75	<1	6	<1	9	0.60
02-Dec	0.67	<1	54	<1	8	0.74
16-Dec	0.64	<1	26	<1	6	0.75
22-Dec	0.62	<1	22	<1	8	0.91
30-Dec	0.53	<1	NA	<1	6	0.98

DM931 (SW CORNER 124 ST. and 24 AVE.) - 2009 TEST RESULTS



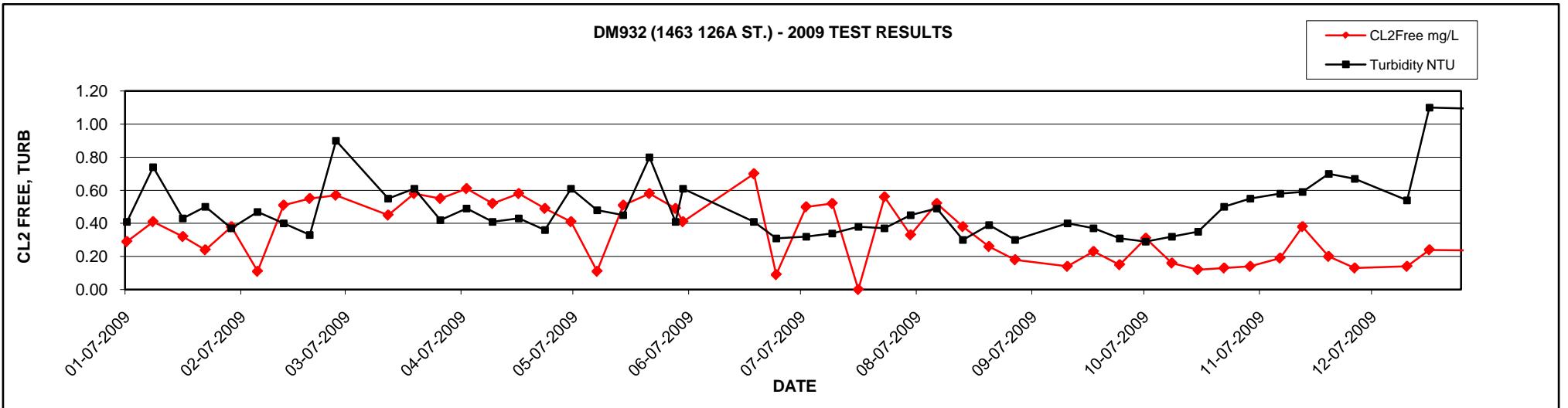
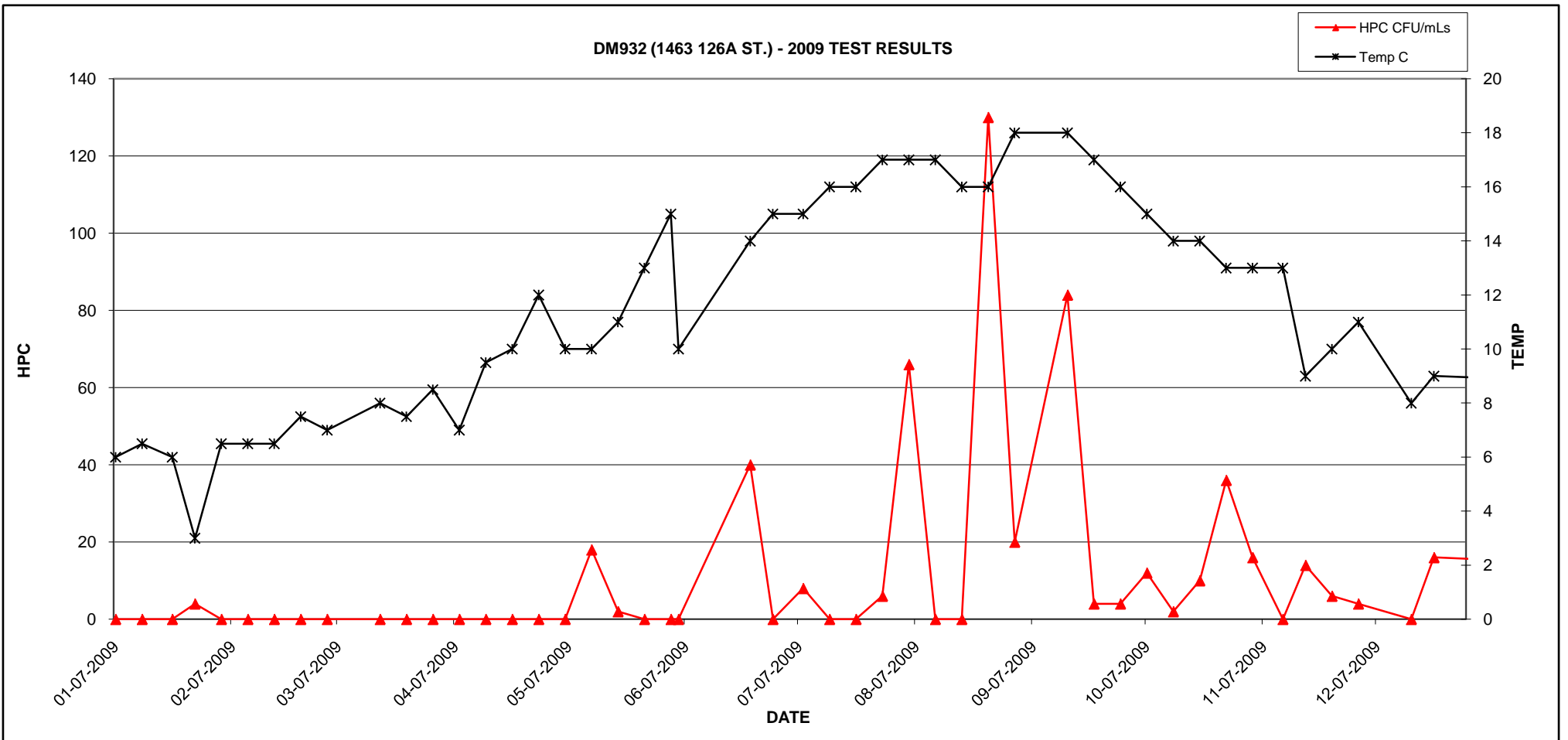
DM931 (SW CORNER 124 ST. and 24 AVE.) - 2009 TEST RESULTS





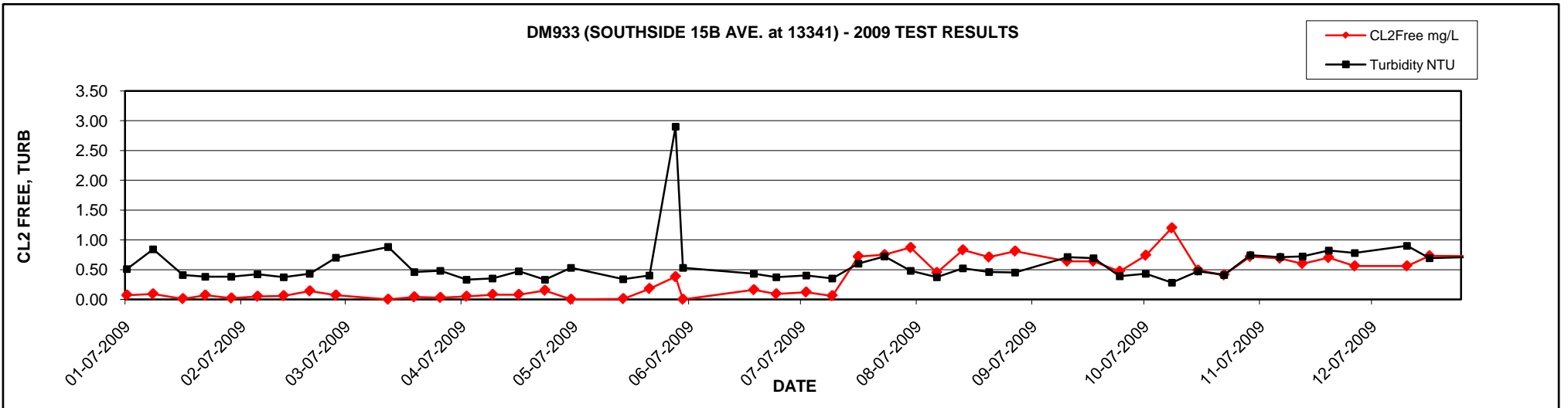
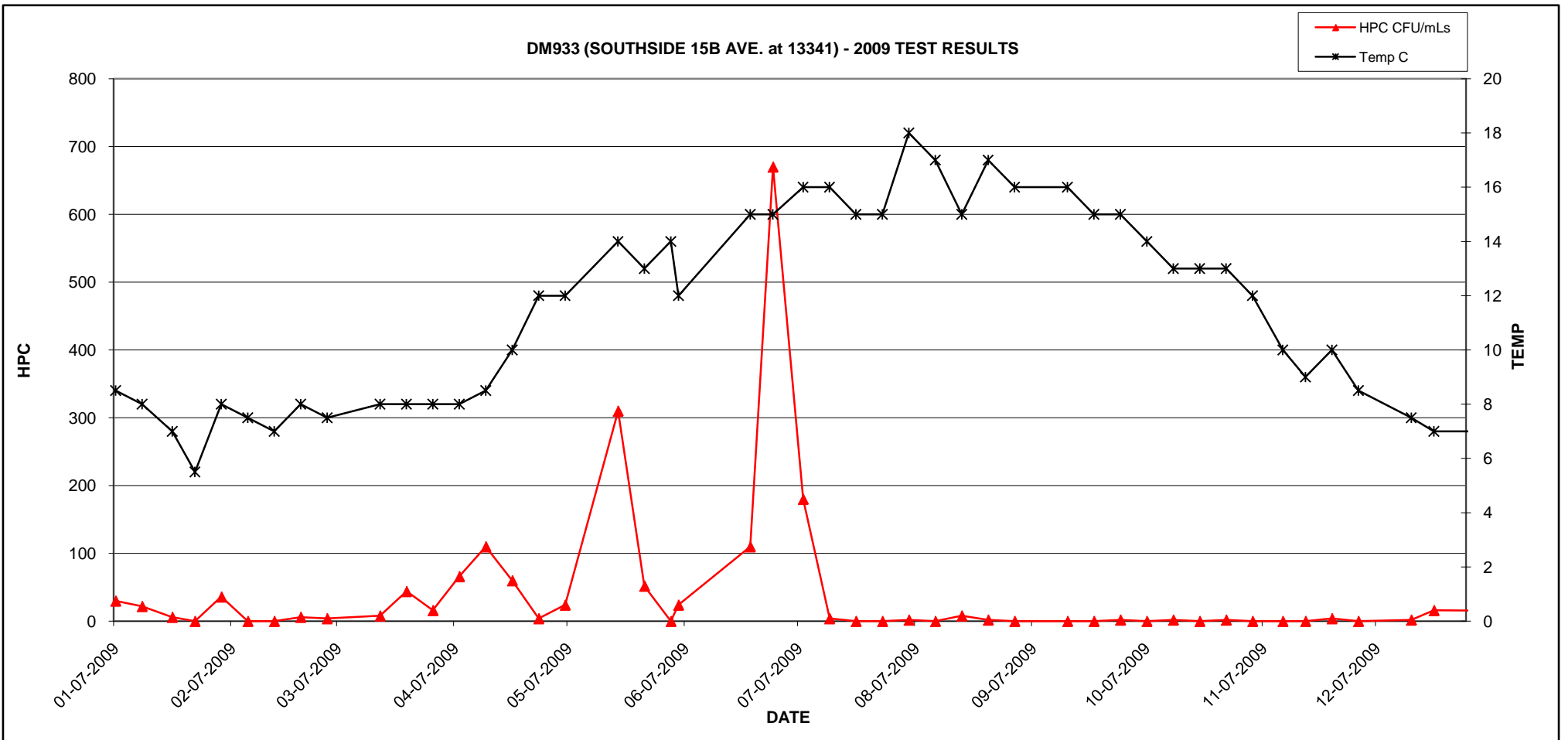
2009 Metro Vancouver Laboratory Report - DM932 (1463 126A ST.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
07-Jan	0.29	<1	<2	<1	6	0.41
14-Jan	0.41	<1	<2	<1	6.5	0.74
22-Jan	0.32	<1	<2	<1	6	0.43
28-Jan	0.24	<1	4	<1	3	0.50
04-Feb	0.38	<1	<2	<1	6.5	0.37
11-Feb	0.11	<1	<2	<1	6.5	0.47
18-Feb	0.51	<1	<2	<1	6.5	0.40
25-Feb	0.55	<1	<2	<1	7.5	0.33
04-Mar	0.57	<1	<2	<1	7	0.90
18-Mar	0.45	<1	<2	<1	8	0.55
25-Mar	0.58	<1	<2	<1	7.5	0.61
01-Apr	0.55	<1	<2	<1	8.5	0.42
08-Apr	0.61	<1	<2	<1	7	0.49
15-Apr	0.52	<1	<2	<1	9.5	0.41
22-Apr	0.58	<1	<2	<1	10	0.43
29-Apr	0.49	<1	<2	<1	12	0.36
06-May	0.41	<1	<2	<1	10	0.61
13-May	0.11	<1	18	<1	10	0.48
20-May	0.51	<1	2	<1	11	0.45
27-May	0.58	<1	<2	<1	13	0.80
03-Jun	0.49	<1	<2	<1	15	0.41
05-Jun	0.41	<1	<2	<1	10	0.61
24-Jun	0.70	<1	40	<1	14	0.41
30-Jun	0.09	<1	<2	<1	15	0.31
08-Jul	0.50	<1	8	<1	15	0.32
15-Jul	0.52	<1	<2	<1	16	0.34
22-Jul	<0.01	<1	<2	<1	16	0.38
29-Jul	0.56	<1	6	<1	17	0.37
05-Aug	0.33	<1	66	<1	17	0.45
12-Aug	0.52	<1	<2	<1	17	0.49
19-Aug	0.38	<1	<2	<1	16	0.30
26-Aug	0.26	<1	130	<1	16	0.39
02-Sep	0.18	<1	20	1	18	0.30
16-Sep	0.14	<1	84	<1	18	0.40
23-Sep	0.23	<1	4	<1	17	0.37
30-Sep	0.15	<1	4	<1	16	0.31
07-Oct	0.31	<1	12	<1	15	0.29
14-Oct	0.16	<1	2	<1	14	0.32
21-Oct	0.12	<1	10	<1	14	0.35
28-Oct	0.13	<1	36	<1	13	0.50
04-Nov	0.14	<1	16	<1	13	0.55
12-Nov	0.19	<1	<2	<1	13	0.58
18-Nov	0.38	<1	14	<1	9	0.59
25-Nov	0.20	<1	6	<1	10	0.70
02-Dec	0.13	<1	4	<1	11	0.67
16-Dec	0.14	<1	<2	<1	8	0.54
22-Dec	0.24	<1	16	<1	9	1.10
30-Dec	0.15	<1	NA	<1	7	0.88



2009 Metro Vancouver Laboratory Report - DM933 (SOUTHSIDE 15B AVE. at 13341)

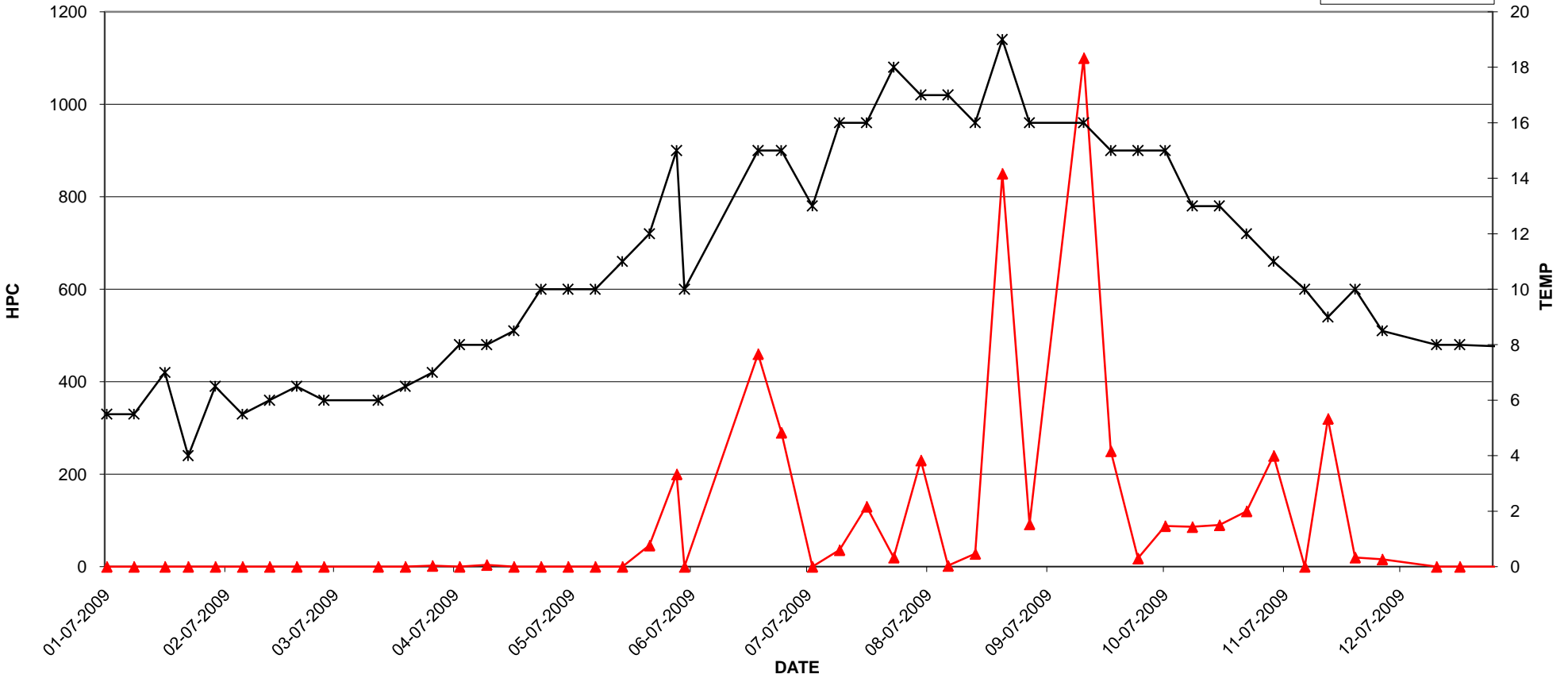
Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
07-Jan	0.07	<1	30	<1	8.5	0.51
14-Jan	0.09	<1	22	<1	8	0.84
22-Jan	0.01	<1	6	<1	7	0.41
28-Jan	0.07	<1	<2	<1	5.5	0.38
04-Feb	0.02	<1	36	<1	8	0.38
11-Feb	0.05	<1	<2	<1	7.5	0.42
18-Feb	0.06	<1	<2	<1	7	0.37
25-Feb	0.14	<1	6	<1	8	0.43
04-Mar	0.07	<1	4	<1	7.5	0.70
18-Mar	<0.01	<1	8	<1	8	0.88
25-Mar	0.04	<1	44	<1	8	0.46
01-Apr	0.03	<1	16	<1	8	0.48
08-Apr	0.05	<1	66	<1	8	0.33
15-Apr	0.08	<1	110	<1	8.5	0.35
22-Apr	0.08	<1	60	<1	10	0.47
29-Apr	0.15	<1	4	<1	12	0.33
06-May	<0.01	<1	24	<1	12	0.53
20-May	0.01	<1	310	<1	14	0.34
27-May	0.18	<1	52	<1	13	0.40
03-Jun	0.38	<1	<2	<1	14	2.90
05-Jun	<0.01	<1	24	<1	12	0.53
24-Jun	0.16	<1	110	<1	15	0.43
30-Jun	0.09	<1	670	<1	15	0.37
08-Jul	0.12	<1	180	<1	16	0.40
15-Jul	0.06	<1	4	<1	16	0.35
22-Jul	0.72	<1	<2	<1	15	0.60
29-Jul	0.75	<1	<2	<1	15	0.72
05-Aug	0.87	<1	2	<1	18	0.48
12-Aug	0.45	<1	<2	<1	17	0.37
19-Aug	0.83	<1	8	<1	15	0.52
26-Aug	0.71	<1	2	<1	17	0.46
02-Sep	0.81	<1	<2	<1	16	0.45
16-Sep	0.64	<1	<2	<1	16	0.71
23-Sep	0.64	<1	<2	<1	15	0.69
30-Sep	0.47	<1	2	<1	15	0.39
07-Oct	0.74	<1	<2	<1	14	0.43
14-Oct	1.20	<1	2	<1	13	0.28
21-Oct	0.49	<1	<2	1	13	0.47
28-Oct	0.41	<1	2	<1	13	0.41
04-Nov	0.72	<1	<2	<1	12	0.74
12-Nov	0.69	<1	<2	<1	10	0.71
18-Nov	0.60	<1	<2	<1	9	0.72
25-Nov	0.70	<1	4	<1	10	0.82
02-Dec	0.56	<1	<2	<1	8.5	0.78
16-Dec	0.56	<1	2	<1	7.5	0.90
22-Dec	0.73	<1	16	<1	7	0.69
30-Dec	0.59	<1	NA	<1	7	1.30



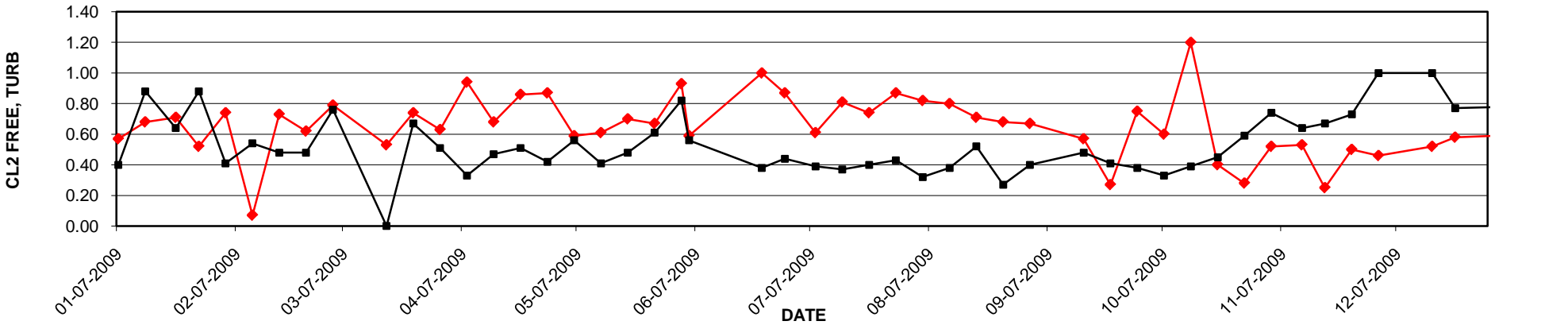
2009 Metro Vancouver Laboratory Report - DM934 (NE CORNER 146 ST & 16A AVE)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
07-Jan	0.57	<1	<2	<1	5.5	0.40
14-Jan	0.68	<1	<2	<1	5.5	0.88
22-Jan	0.71	<1	<2	<1	7	0.64
28-Jan	0.52	<1	<2	<1	4	0.88
04-Feb	0.74	<1	<2	<1	6.5	0.41
11-Feb	0.07	<1	<2	<1	5.5	0.54
18-Feb	0.73	<1	<2	<1	6	0.48
25-Feb	0.62	<1	<2	<1	6.5	0.48
04-Mar	0.79	<1	<2	<1	6	0.76
18-Mar	0.53	<1	<2	<1	6	na
25-Mar	0.74	<1	<2	<1	6.5	0.67
01-Apr	0.63	<1	2	<1	7	0.51
08-Apr	0.94	<1	<2	<1	8	0.33
15-Apr	0.68	<1	4	<1	8	0.47
22-Apr	0.86	<1	<2	<1	8.5	0.51
29-Apr	0.87	<1	<2	<1	10	0.42
06-May	0.59	<1	<2	<1	10	0.56
13-May	0.61	<1	<2	<1	10	0.41
20-May	0.70	<1	<2	<1	11	0.48
27-May	0.67	<1	46	<1	12	0.61
03-Jun	0.93	<1	200	<1	15	0.82
05-Jun	0.59	<1	<2	<1	10	0.56
24-Jun	1.00	<1	460	<1	15	0.38
30-Jun	0.87	<1	290	<1	15	0.44
08-Jul	0.61	<1	LA	<1	13	0.39
15-Jul	0.81	<1	36	<1	16	0.37
22-Jul	0.74	<1	130	<1	16	0.40
29-Jul	0.87	<1	20	<1	18	0.43
05-Aug	0.82	<1	230	<1	17	0.32
12-Aug	0.80	<1	2	<1	17	0.38
19-Aug	0.71	<1	28	<1	16	0.52
26-Aug	0.68	<1	850	<1	19	0.27
02-Sep	0.67	<1	92	<1	16	0.40
16-Sep	0.57	<1	1100	<1	16	0.48
23-Sep	0.27	<1	250	<1	15	0.41
30-Sep	0.75	<1	18	<1	15	0.38
07-Oct	0.60	<1	88	<1	15	0.33
14-Oct	1.20	<1	86	<1	13	0.39
21-Oct	0.40	<1	90	<1	13	0.45
28-Oct	0.28	<1	120	<1	12	0.59
04-Nov	0.52	<1	240	<1	11	0.74
12-Nov	0.53	<1	<2	<1	10	0.64
18-Nov	0.25	<1	320	<1	9	0.67
25-Nov	0.50	<1	20	<1	10	0.73
02-Dec	0.46	<1	16	<1	8.5	1.00
16-Dec	0.52	<1	<2	<1	8	1.00
22-Dec	0.58	<1	<2	<1	8	0.77
30-Dec	0.94	<1	NA	<1	6	1.00

DM934 (NE CORNER 146 ST & 16A AVE) - 2009 TEST RESULTS



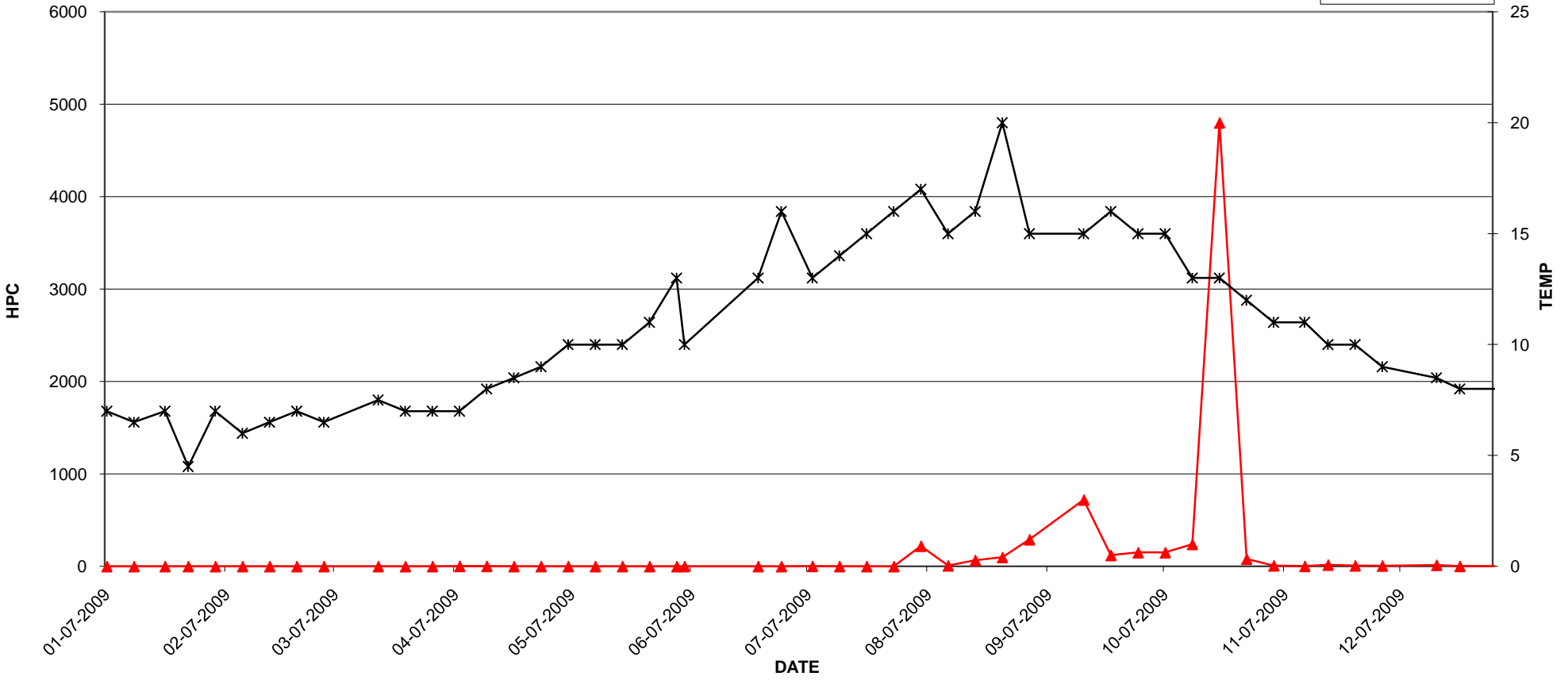
DM934 (NE CORNER 146 ST & 16A AVE) - 2009 TEST RESULTS



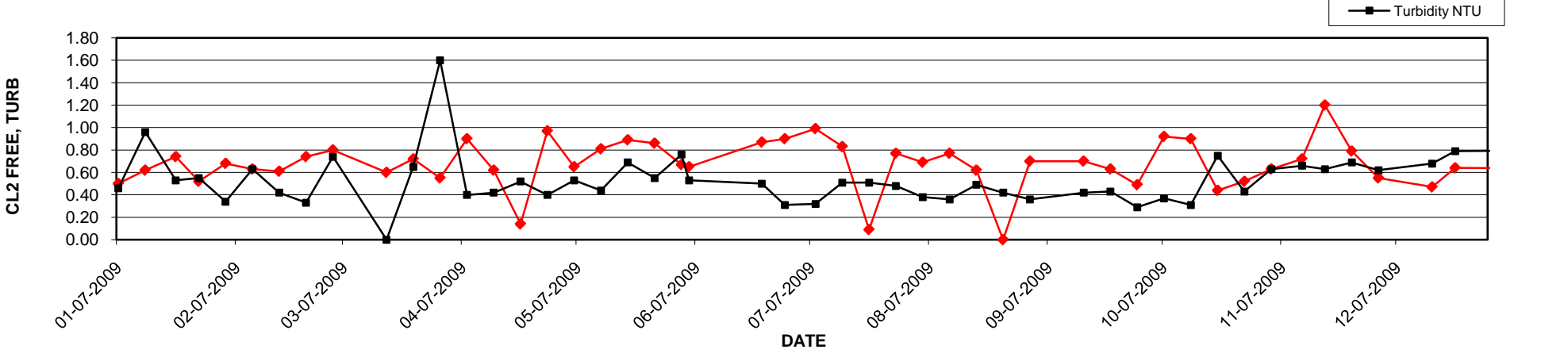
2009 Metro Vancouver Laboratory Report - DM935 (NW CORNER 11 AVE and 164 ST)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
07-Jan	0.50	<1	<2	<1	7	0.46
14-Jan	0.62	<1	<2	<1	6.5	0.96
22-Jan	0.74	<1	<2	<1	7	0.53
28-Jan	0.52	<1	<2	<1	4.5	0.55
04-Feb	0.68	<1	<2	<1	7	0.34
11-Feb	0.63	<1	<2	<1	6	0.63
18-Feb	0.61	<1	<2	<1	6.5	0.42
25-Feb	0.74	<1	<2	<1	7	0.33
04-Mar	0.80	<1	<2	<1	6.5	0.74
18-Mar	0.60	<1	<2	<1	7.5	na
25-Mar	0.72	<1	<2	<1	7	0.65
01-Apr	0.55	<1	<2	<1	7	1.60
08-Apr	0.90	<1	2	<1	7	0.40
15-Apr	0.62	<1	2	<1	8	0.42
22-Apr	0.14	<1	<2	<1	8.5	0.52
29-Apr	0.97	<1	<2	<1	9	0.40
06-May	0.65	<1	<2	<1	10	0.53
13-May	0.81	<1	<2	<1	10	0.44
20-May	0.89	<1	<2	<1	10	0.69
27-May	0.86	<1	<2	<1	11	0.55
03-Jun	0.67	<1	<2	<1	13	0.76
05-Jun	0.65	<1	<2	<1	10	0.53
24-Jun	0.87	<1	<2	<1	13	0.50
30-Jun	0.90	<1	<2	<1	16	0.31
08-Jul	0.99	<1	2	<1	13	0.32
15-Jul	0.83	<1	<2	<1	14	0.51
22-Jul	0.09	<1	<2	<1	15	0.51
29-Jul	0.77	<1	<2	<1	16	0.48
05-Aug	0.69	<1	220	<1	17	0.38
12-Aug	0.77	<1	8	<1	15	0.36
19-Aug	0.62	<1	66	<1	16	0.49
26-Aug	<0.01	<1	98	<1	20	0.42
02-Sep	0.70	<1	290	<1	15	0.36
16-Sep	0.70	<1	720	<1	15	0.42
23-Sep	0.63	<1	120	<1	16	0.43
30-Sep	0.49	<1	150	<1	15	0.29
07-Oct	0.92	<1	150	<1	15	0.37
14-Oct	0.90	<1	240	<1	13	0.31
21-Oct	0.44	<1	4800	<1	13	0.75
28-Oct	0.52	<1	80	<1	12	0.43
04-Nov	0.63	<1	8	<1	11	0.63
12-Nov	0.72	<1	2	<1	11	0.66
18-Nov	1.20	<1	16	<1	10	0.63
25-Nov	0.79	<1	8	<1	10	0.69
02-Dec	0.55	<1	6	<1	9	0.62
16-Dec	0.47	<1	14	<1	8.5	0.68
22-Dec	0.64	<1	2	<1	8	0.79
30-Dec	0.55	<1	NA	<1	8	0.88

DM935 (NW CORNER 11 AVE and 164 ST) - 2009 TEST RESULTS



DM935 (NW CORNER 11 AVE and 164 ST) - 2009 TEST RESULTS

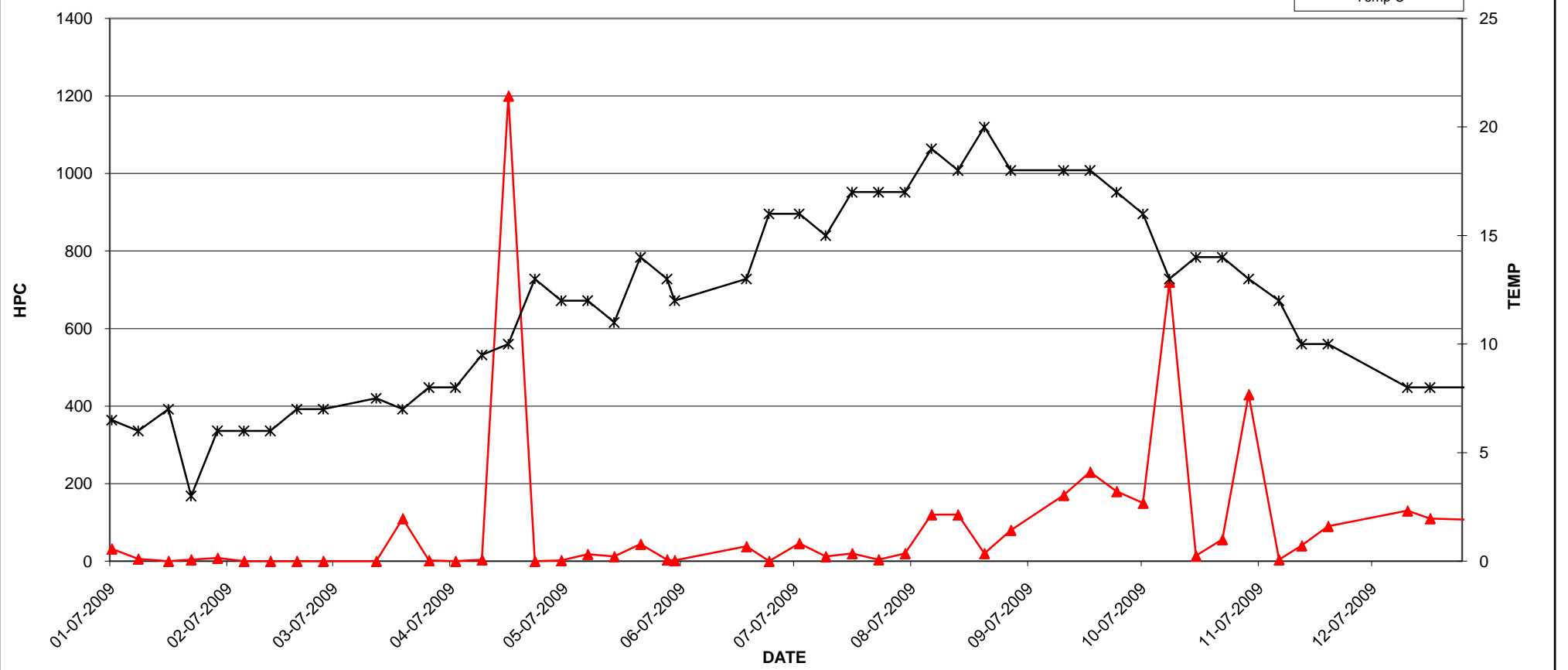




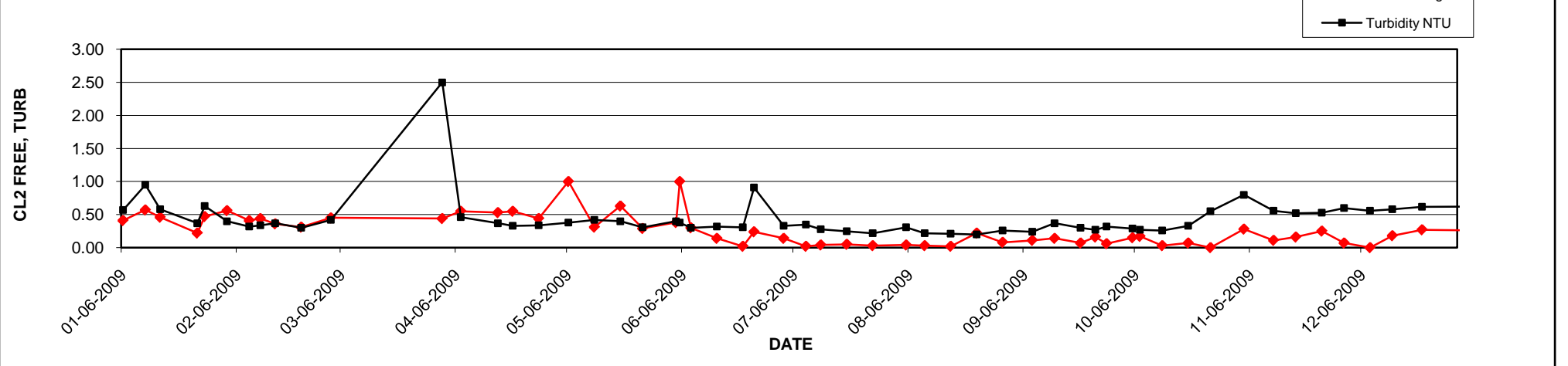
2009 Metro Vancouver Laboratory Report - DM936 (NW 0 AVE. at 172 ST.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
07-Jan	0.08	<1	32	<1	6.5	0.34
14-Jan	0.11	<1	6	<1	6	0.95
22-Jan	<0.01	<1	<2	<1	7	0.58
28-Jan	0.05	<1	4	<1	3	0.41
04-Feb	0.06	<1	8	<1	6	0.37
11-Feb	0.06	<1	<2	<1	6	0.64
18-Feb	0.16	<1	<2	<1	6	0.38
25-Feb	0.08	<1	<2	<1	7	1.10
04-Mar	0.12	<1	<2	<1	7	0.54
18-Mar	0.15	<1	<2	<1	7.5	0.50
25-Mar	0.20	<1	110	<1	7	0.67
01-Apr	0.14	<1	2	<1	8	0.65
08-Apr	0.45	<1	<2	<1	8	0.59
15-Apr	0.36	<1	4	<1	9.5	0.54
22-Apr	0.42	<1	1200	<1	10	0.65
29-Apr	0.35	<1	<2	<1	13	0.44
06-May	0.34	<1	2	<1	12	0.60
13-May	0.25	<1	18	<1	12	0.37
20-May	0.38	<1	12	<1	11	0.61
27-May	0.24	<1	44	<1	14	0.79
03-Jun	0.35	<1	4	<1	13	0.45
05-Jun	0.34	<1	2	<1	12	0.60
24-Jun	0.56	<1	38	<1	13	0.31
30-Jun	0.40	<1	<2	<1	16	NA
08-Jul	0.27	<1	46	<1	16	0.54
15-Jul	0.47	<1	12	<1	15	0.42
22-Jul	<0.01	<1	20	<1	17	0.41
29-Jul	0.43	<1	4	<1	17	0.52
05-Aug	0.24	<1	20	<1	17	0.33
12-Aug	0.11	<1	120	<1	19	0.32
19-Aug	0.21	<1	120	<1	18	0.44
26-Aug	0.07	<1	20	<1	20	0.27
02-Sep	0.15	<1	80	<1	18	0.26
16-Sep	0.03	<1	170	<1	18	0.42
23-Sep	0.05	<1	230	<1	18	0.29
30-Sep	0.06	<1	180	<1	17	0.36
07-Oct	0.17	<1	150	<1	16	0.55
14-Oct	0.01	<1	720	<1	13	4.40
21-Oct	0.11	<1	14	<1	14	0.53
28-Oct	0.04	<1	56	<1	14	0.35
04-Nov	0.06	<1	430	<1	13	0.43
12-Nov	0.06	<1	4	<1	12	0.58
18-Nov	0.24	<1	40	<1	10	0.44
25-Nov	0.09	<1	90	<1	10	0.48
16-Dec	0.08	<1	130	<1	8	0.59
22-Dec	0.11	<1	110	<1	8	0.71
30-Dec	0.08	<1	NA	<1	8	1.30

DM936 (NW 0 AVE. at 172 ST.) - 2009 TEST RESULTS



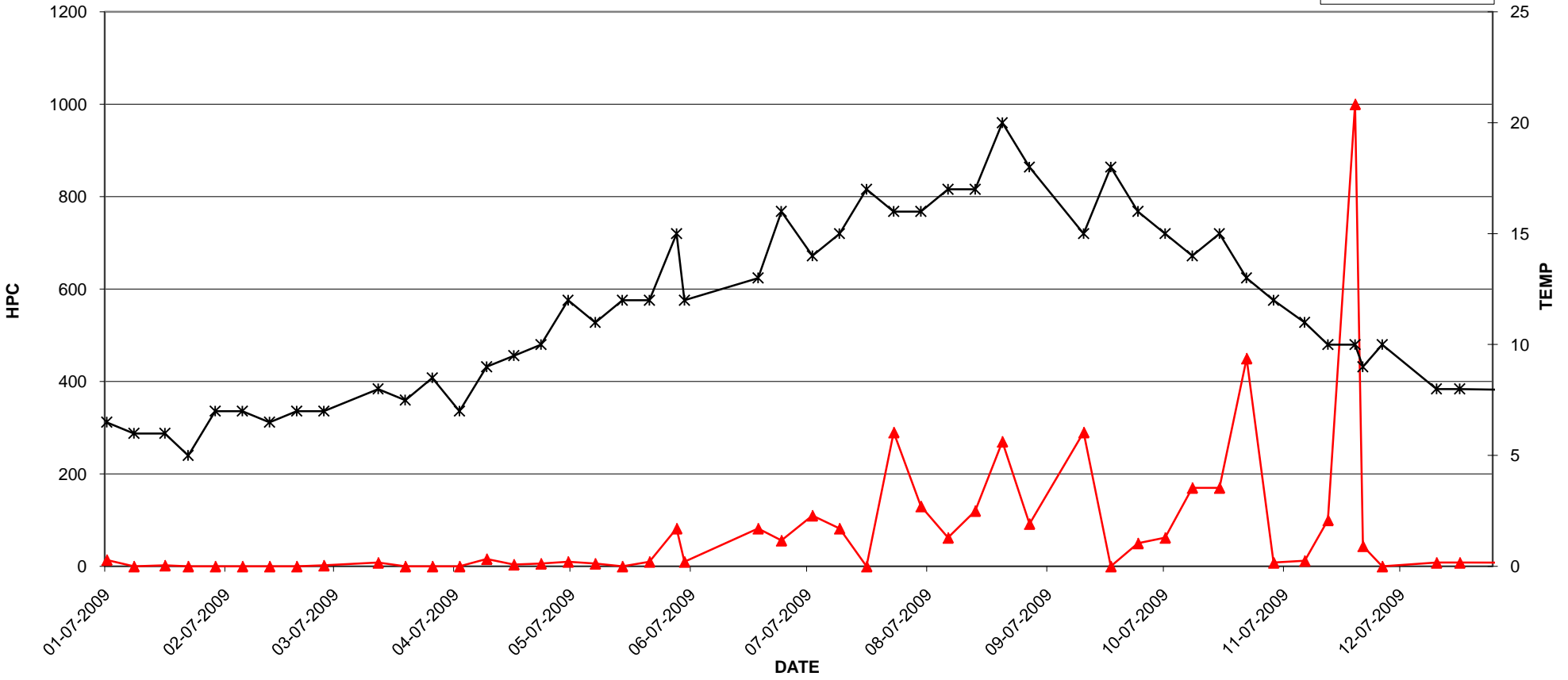
DM936 (NW 0 AVE. at 172 ST.) - 2009 TEST RESULTS



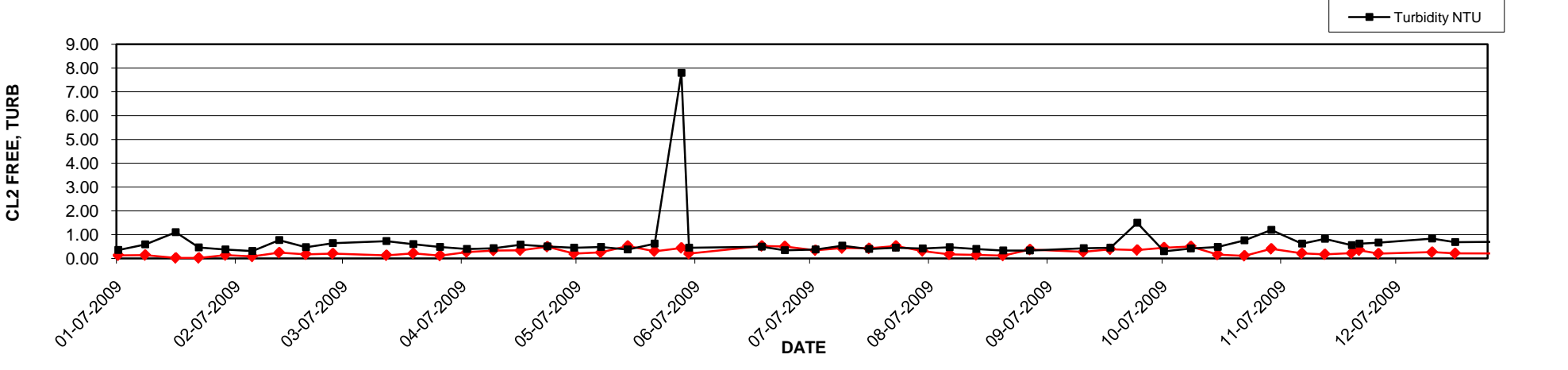
2009 Metro Vancouver Laboratory Report - DM937 (NE CORNER 21A AVE. at 180 ST.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
07-Jan	0.13	<1	14	<1	6.5	0.35
14-Jan	0.14	<1	<2	<1	6	0.59
22-Jan	0.02	<1	2	<1	6	1.10
28-Jan	0.02	<1	<2	<1	5	0.46
04-Feb	0.14	<1	<2	<1	7	0.37
11-Feb	0.08	<1	<2	<1	7	0.31
18-Feb	0.24	<1	<2	<1	6.5	0.77
25-Feb	0.17	<1	<2	<1	7	0.47
04-Mar	0.20	<1	2	<1	7	0.64
18-Mar	0.13	<1	8	<1	8	0.73
25-Mar	0.21	<1	<2	<1	7.5	0.60
01-Apr	0.12	<1	<2	<1	8.5	0.48
08-Apr	0.26	<1	<2	<1	7	0.40
15-Apr	0.33	<1	16	<1	9	0.43
22-Apr	0.34	<1	4	<1	9.5	0.58
29-Apr	0.49	<1	6	<1	10	0.50
06-May	0.20	<1	10	<1	12	0.45
13-May	0.25	<1	6	<1	11	0.48
20-May	0.52	<1	<2	<1	12	0.37
27-May	0.30	<1	10	<1	12	0.62
03-Jun	0.44	<1	82	<1	15	7.80
05-Jun	0.20	<1	10	<1	12	0.45
24-Jun	0.52	<1	82	<1	13	0.49
30-Jun	0.50	<1	56	<1	16	0.34
08-Jul	0.34	<1	110	<1	14	0.37
15-Jul	0.43	<1	82	<1	15	0.54
22-Jul	0.42	<1	<2	<1	17	0.40
29-Jul	0.52	<1	290	<1	16	0.45
05-Aug	0.31	<1	130	<1	16	0.42
12-Aug	0.17	<1	62	<1	17	0.47
19-Aug	0.15	<1	120	<1	17	0.40
26-Aug	0.12	<1	270	<1	20	0.33
02-Sep	0.37	<1	92	<1	18	0.33
16-Sep	0.27	<1	290	<1	15	0.43
23-Sep	0.38	<1	<2	<1	18	0.45
30-Sep	0.35	<1	50	<1	16	1.50
07-Oct	0.45	<1	62	<1	15	0.30
14-Oct	0.50	<1	170	<1	14	0.42
21-Oct	0.16	<1	170	<1	15	0.48
28-Oct	0.11	<1	450	<1	13	0.76
04-Nov	0.40	<1	8	<1	12	1.20
12-Nov	0.21	<1	12	<1	11	0.62
18-Nov	0.17	<1	100	<1	10	0.82
25-Nov	0.22	CG	1000	CG	10	0.56
27-Nov	0.34	<1	44	<1	9	0.62
02-Dec	0.20	<1	<2	<1	10	0.66
16-Dec	0.26	<1	8	<1	8	0.83
22-Dec	0.21	<1	8	<1	8	0.68
30-Dec	0.11	<1	NA	<1	7	1.20

DM937 (NE CORNER 21A AVE. at 180 ST.) - 2009 TEST RESULTS



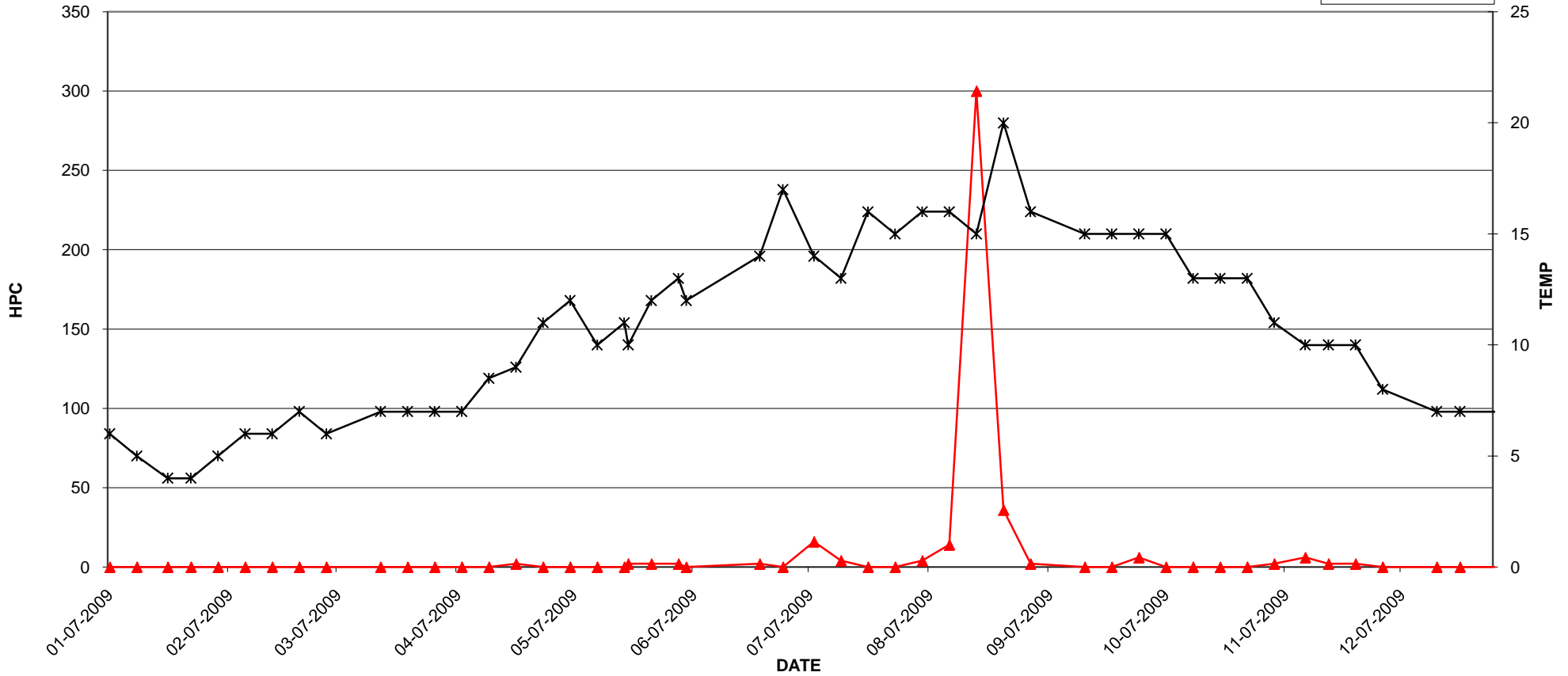
DM937 (NE CORNER 21A AVE. at 180 ST.) - 2009 TEST RESULTS



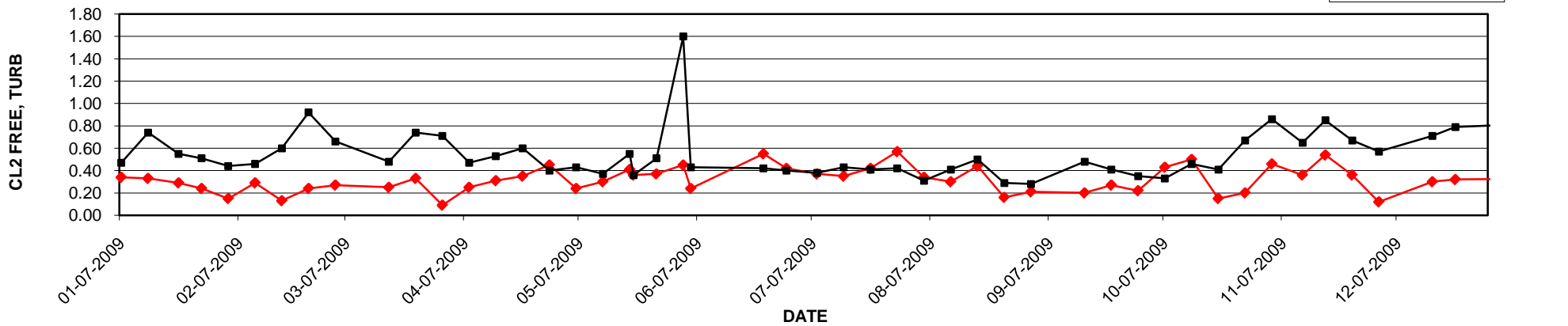
2009 Metro Vancouver Laboratory Report - DM938 (SE CORNER 172 ST. and 31 AVE.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
07-Jan	0.34	<1	<2	<1	6	0.47
14-Jan	0.33	<1	<2	<1	5	0.74
22-Jan	0.29	<1	<2	<1	4	0.55
28-Jan	0.24	<1	<2	<1	4	0.51
04-Feb	0.15	<1	<2	<1	5	0.44
11-Feb	0.29	<1	<2	<1	6	0.46
18-Feb	0.13	<1	<2	<1	6	0.60
25-Feb	0.24	<1	<2	<1	7	0.92
04-Mar	0.27	<1	<2	<1	6	0.66
18-Mar	0.25	<1	<2	<1	7	0.48
25-Mar	0.33	<1	<2	<1	7	0.74
01-Apr	0.09	<1	<2	<1	7	0.71
08-Apr	0.25	<1	<2	<1	7	0.47
15-Apr	0.31	<1	<2	<1	8.5	0.53
22-Apr	0.35	<1	2	<1	9	0.60
29-Apr	0.45	<1	<2	<1	11	0.40
06-May	0.24	<1	<2	<1	12	0.43
13-May	0.30	<1	<2	<1	10	0.37
21-May	0.36	<1	2	<1	10	0.36
20-May	0.41	<1	<2	<1	11	0.55
27-May	0.37	<1	2	<1	12	0.51
03-Jun	0.45	<1	2	<1	13	1.60
05-Jun	0.24	<1	<2	<1	12	0.43
24-Jun	0.55	<1	2	<1	14	0.42
30-Jun	0.42	<1	<2	<1	17	0.40
08-Jul	0.37	<1	16	<1	14	0.38
15-Jul	0.35	<1	4	<1	13	0.43
22-Jul	0.42	<1	<2	<1	16	0.41
29-Jul	0.57	<1	<2	<1	15	0.42
05-Aug	0.34	<1	4	<1	16	0.31
12-Aug	0.30	<1	14	<1	16	0.41
19-Aug	0.44	<1	300	<1	15	0.50
26-Aug	0.16	<1	36	<1	20	0.29
02-Sep	0.21	<1	2	<1	16	0.28
16-Sep	0.20	<1	<2	<1	15	0.48
23-Sep	0.27	<1	<2	<1	15	0.41
30-Sep	0.22	<1	6	<1	15	0.35
07-Oct	0.43	<1	<2	<1	15	0.33
14-Oct	0.50	<1	<2	<1	13	0.46
21-Oct	0.15	<1	<2	<1	13	0.41
28-Oct	0.20	<1	<2	<1	13	0.67
04-Nov	0.46	<1	2	<1	11	0.86
12-Nov	0.36	<1	6	<1	10	0.65
18-Nov	0.54	<1	2	<1	10	0.85
25-Nov	0.36	<1	2	<1	10	0.67
02-Dec	0.12	<1	<2	<1	8	0.57
16-Dec	0.30	<1	<2	<1	7	0.71
22-Dec	0.32	<1	<2	<1	7	0.79
30-Dec	0.41	<1	NA	<1	7	1.30

DM938 (SE CORNER 172 ST. and 31 AVE.) - 2009 TEST RESULTS

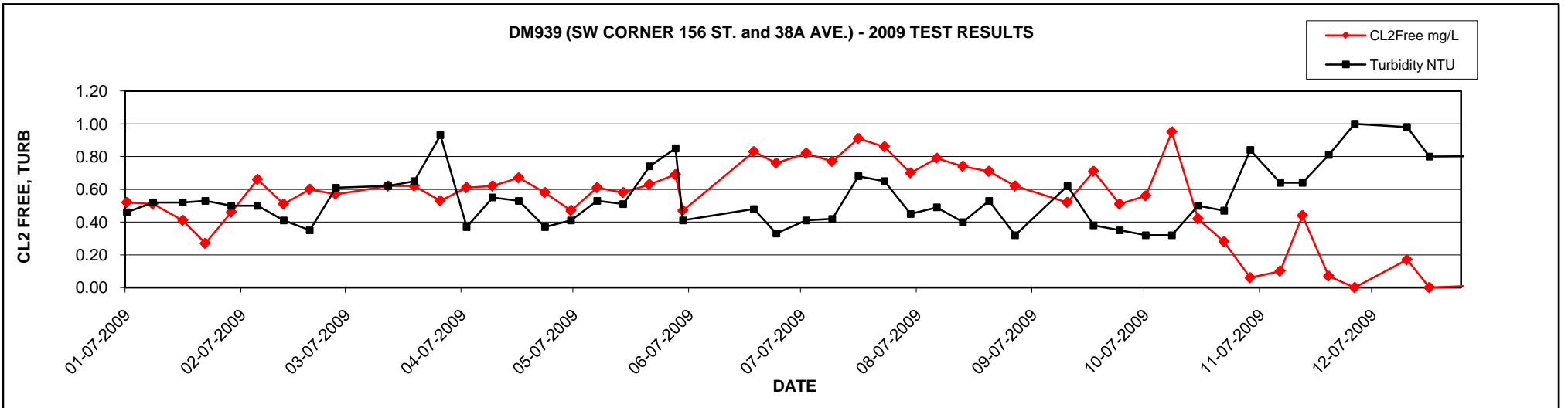
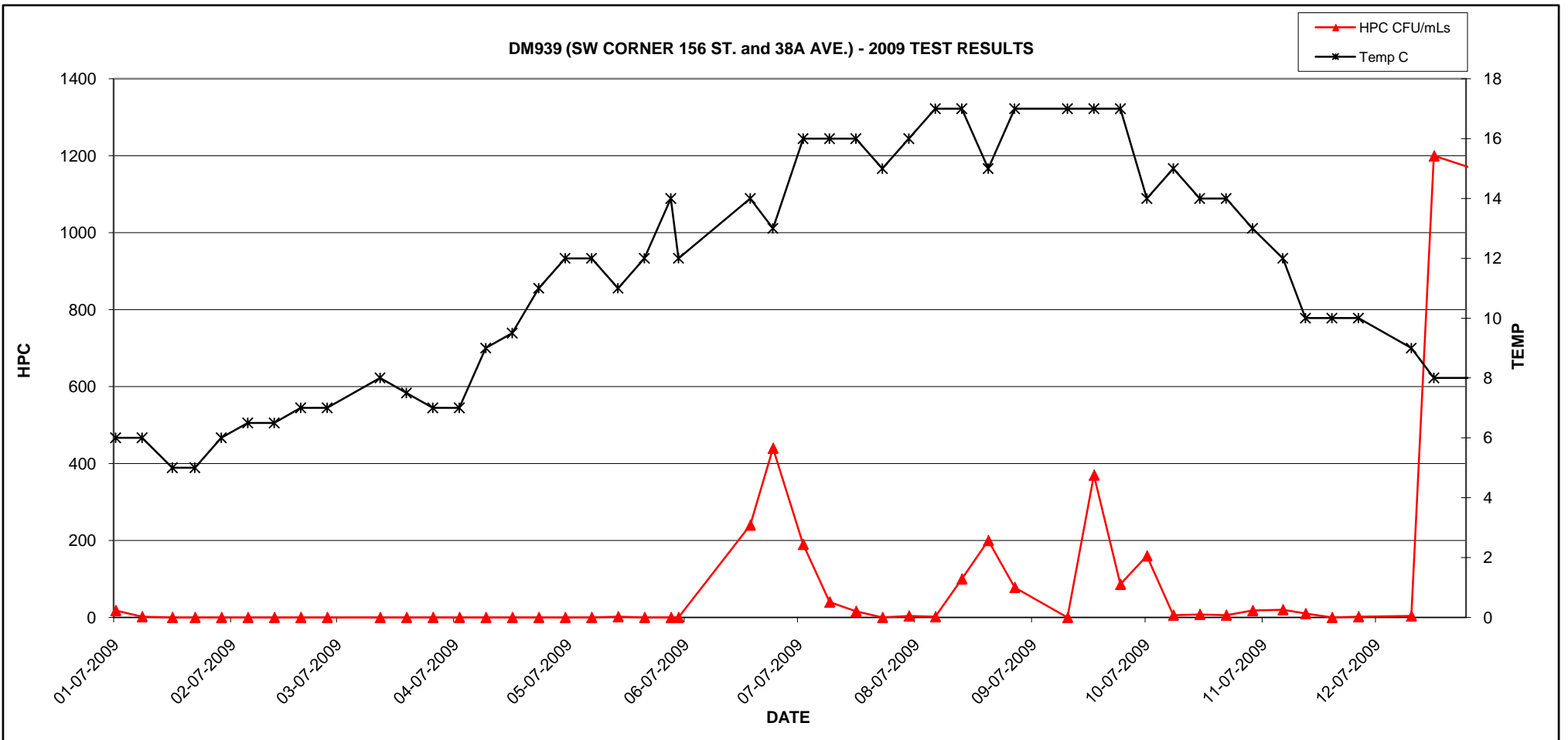


DM938 (SE CORNER 172 ST. and 31 AVE.) - 2009 TEST RESULTS



2009 Metro Vancouver 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
07-Jan	0.52	<1	18	<1	6	0.46
14-Jan	0.51	<1	2	<1	6	0.52
22-Jan	0.41	<1	<2	<1	5	0.52
28-Jan	0.27	<1	<2	<1	5	0.53
04-Feb	0.46	<1	<2	<1	6	0.50
11-Feb	0.66	<1	<2	<1	6.5	0.50
18-Feb	0.51	<1	<2	<1	6.5	0.41
25-Feb	0.60	<1	<2	<1	7	0.35
04-Mar	0.57	<1	<2	<1	7	0.61
18-Mar	0.62	<1	<2	<1	8	0.62
25-Mar	0.62	<1	<2	<1	7.5	0.65
01-Apr	0.53	<1	<2	<1	7	0.93
08-Apr	0.61	<1	<2	<1	7	0.37
15-Apr	0.62	<1	<2	<1	9	0.55
22-Apr	0.67	<1	<2	<1	9.5	0.53
29-Apr	0.58	<1	<2	<1	11	0.37
06-May	0.47	<1	<2	<1	12	0.41
13-May	0.61	<1	<2	<1	12	0.53
20-May	0.58	<1	2	<1	11	0.51
27-May	0.63	<1	<2	<1	12	0.74
03-Jun	0.69	<1	<2	<1	14	0.85
05-Jun	0.47	<1	<2	<1	12	0.41
24-Jun	0.83	<1	240	<1	14	0.48
30-Jun	0.76	<1	440	<1	13	0.33
08-Jul	0.82	<1	190	<1	16	0.41
15-Jul	0.77	<1	40	<1	16	0.42
22-Jul	0.91	<1	16	<1	16	0.68
29-Jul	0.86	<1	<2	<1	15	0.65
05-Aug	0.70	<1	4	<1	16	0.45
12-Aug	0.79	<1	2	<1	17	0.49
19-Aug	0.74	<1	100	<1	17	0.40
26-Aug	0.71	<1	200	<1	15	0.53
02-Sep	0.62	<1	78	<1	17	0.32
16-Sep	0.52	<1	<2	<1	17	0.62
23-Sep	0.71	<1	370	<1	17	0.38
30-Sep	0.51	<1	86	<1	17	0.35
07-Oct	0.56	<1	160	<1	14	0.32
14-Oct	0.95	<1	6	<1	15	0.32
21-Oct	0.42	<1	8	<1	14	0.50
28-Oct	0.28	<1	6	<1	14	0.47
04-Nov	0.06	<1	18	<1	13	0.84
12-Nov	0.10	<1	20	<1	12	0.64
18-Nov	0.44	<1	10	<1	10	0.64
25-Nov	0.07	<1	<2	<1	10	0.81
02-Dec	<0.01	<1	2	<1	10	1.00
16-Dec	0.17	<1	4	<1	9	0.98
22-Dec	<0.01	<1	1200	4	8	0.80
30-Dec	0.35	<1	NA	<1	8	0.86

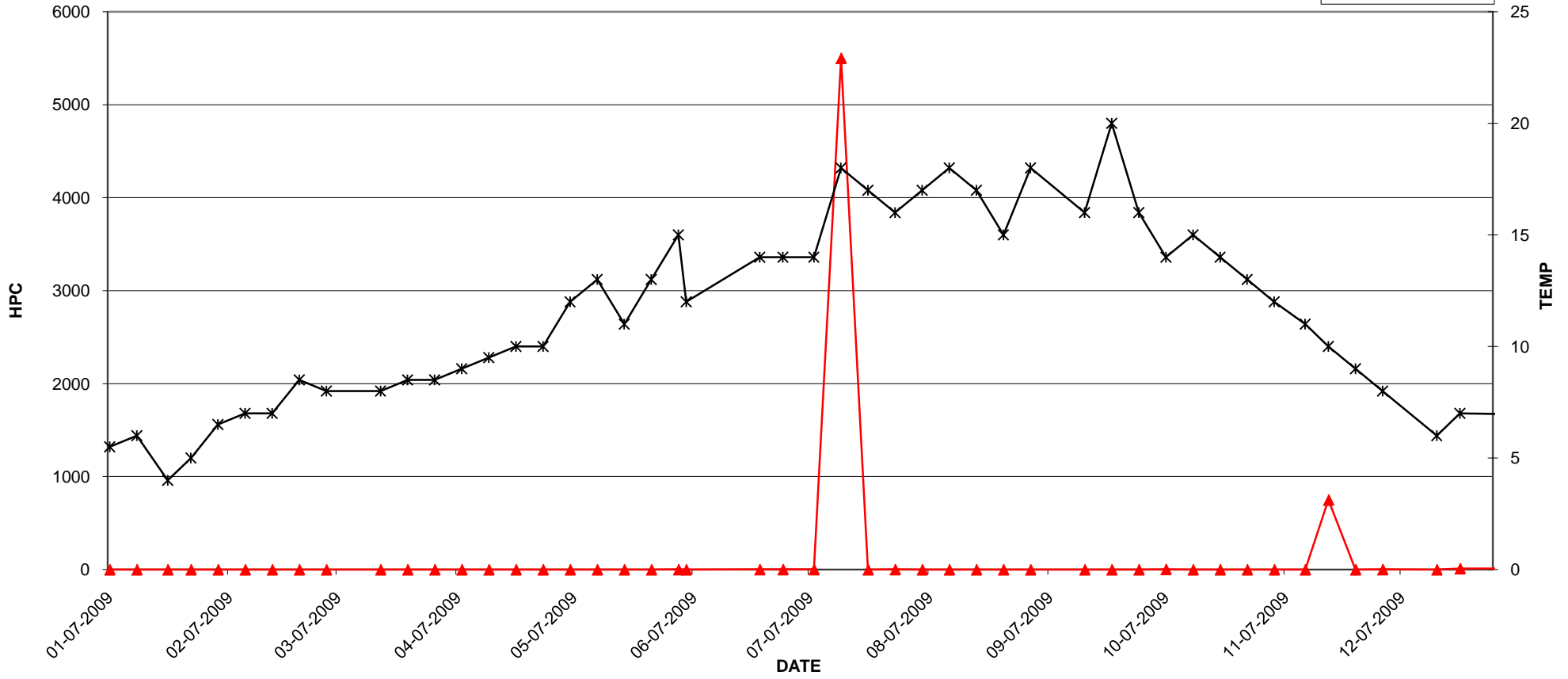




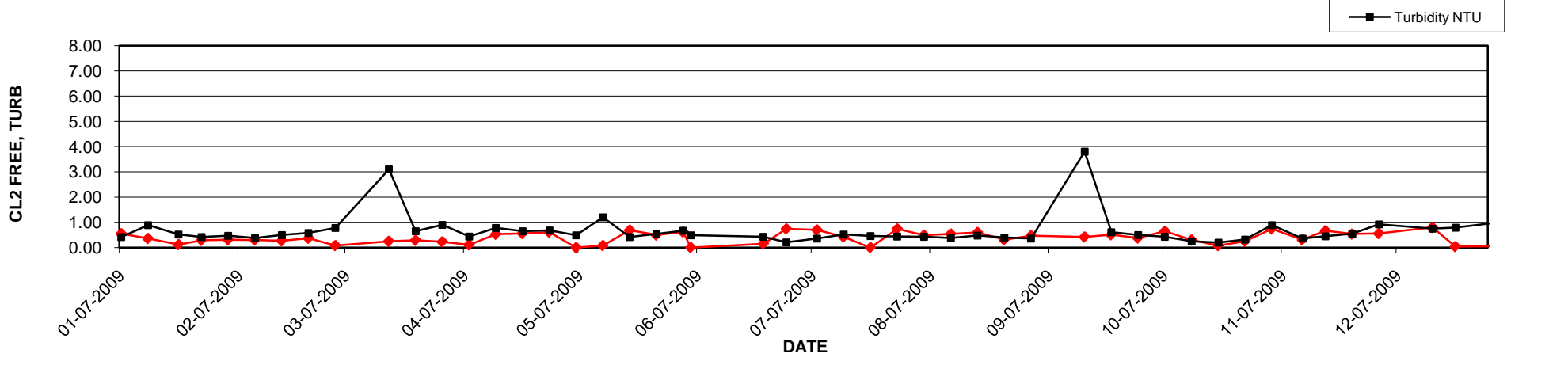
2009 Metro Vancouver Laboratory Report - DM940 (SOUTHSIDE 24 AVE. at S DEPOT)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
07-Jan	0.55	<1	<2	<1	5.5	0.42
14-Jan	0.36	<1	<2	<1	6	0.89
22-Jan	0.12	<1	<2	<1	4	0.52
28-Jan	0.29	<1	<2	<1	5	0.42
04-Feb	0.31	<1	<2	<1	6.5	0.47
11-Feb	0.30	<1	<2	<1	7	0.38
18-Feb	0.27	<1	<2	<1	7	0.50
25-Feb	0.37	<1	<2	<1	8.5	0.58
04-Mar	0.08	<1	<2	<1	8	0.78
18-Mar	0.25	<1	<2	<1	8	3.10
25-Mar	0.29	<1	<2	<1	8.5	0.65
01-Apr	0.23	<1	<2	<1	8.5	0.90
08-Apr	0.11	<1	<2	<1	9	0.44
15-Apr	0.53	<1	<2	<1	9.5	0.78
22-Apr	0.56	<1	<2	<1	10	0.65
29-Apr	0.61	<1	<2	<1	10	0.68
06-May	<0.01	<1	<2	<1	12	0.49
13-May	0.08	<1	<2	<1	13	1.20
20-May	0.69	<1	<2	<1	11	0.42
27-May	0.50	<1	<2	<1	13	0.54
03-Jun	0.62	<1	2	<1	15	0.67
05-Jun	<0.01	<1	<2	<1	12	0.49
24-Jun	0.15	<1	2	<1	14	0.43
30-Jun	0.74	<1	2	<1	14	0.21
08-Jul	0.70	<1	2	<1	14	0.36
15-Jul	0.42	<1	5500	<1	18	0.52
22-Jul	<0.01	<1	<2	<1	17	0.46
29-Jul	0.74	<1	2	<1	16	0.44
05-Aug	0.49	<1	<2	<1	17	0.43
12-Aug	0.54	<1	<2	<1	18	0.38
19-Aug	0.60	<1	<2	<1	17	0.48
26-Aug	0.31	<1	<2	<1	15	0.40
02-Sep	0.47	<1	<2	<1	18	0.36
16-Sep	0.42	<1	<2	<1	16	3.80
23-Sep	0.51	<1	<2	<1	20	0.61
30-Sep	0.38	<1	<2	<1	16	0.50
07-Oct	0.65	<1	4	<1	14	0.43
14-Oct	0.30	<1	<2	<1	15	0.25
21-Oct	0.08	<1	<2	<1	14	0.20
28-Oct	0.25	<1	<2	<1	13	0.32
04-Nov	0.74	<1	<2	<1	12	0.89
12-Nov	0.31	<1	<2	<1	11	0.36
18-Nov	0.67	<1	750	<1	10	0.45
25-Nov	0.54	<1	<2	<1	9	0.55
02-Dec	0.56	<1	2	<1	8	0.92
16-Dec	0.80	<1	<2	<1	6	0.75
22-Dec	0.04	<1	12	<1	7	0.79
30-Dec	0.51	<1	NA	<1	6	7.60

DM940 (SOUTHSIDE 24 AVE. at S DEPOT) - 2009 TEST RESULTS



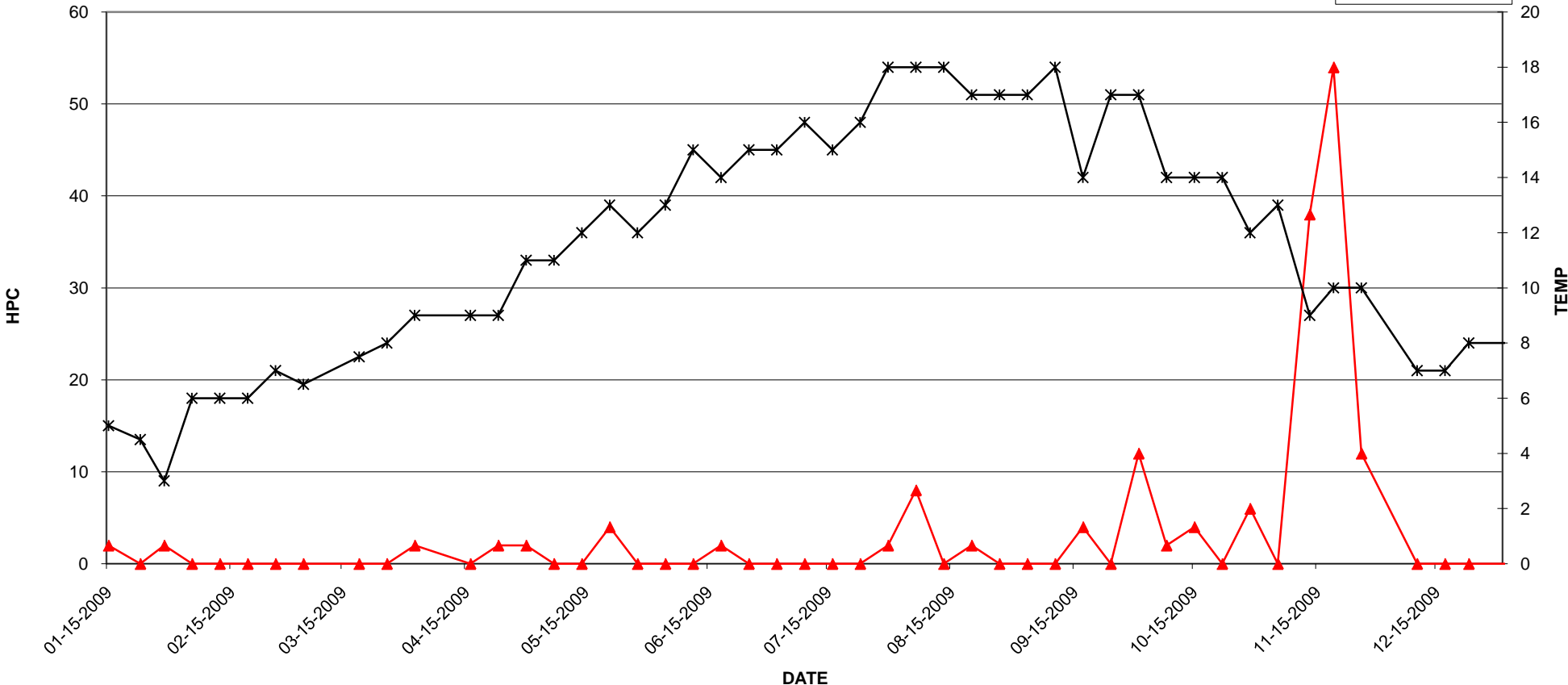
DM940 (SOUTHSIDE 24 AVE. at S DEPOT) - 2009 TEST RESULTS



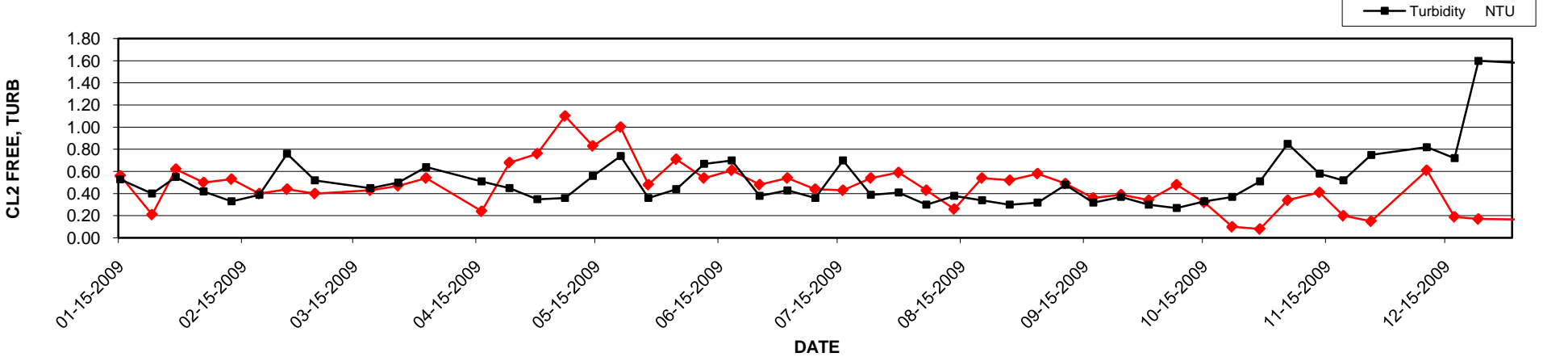
2009 Metro Vancouver Laboratory Report - DM941 (SE CORNER BELL ROAD and OLD McLELLAN ROAD)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
15-Jan	0.56	<1	2	<1	5	0.53
23-Jan	0.21	<1	<2	<1	4.5	0.40
29-Jan	0.62	<1	2	<1	3	0.55
05-Feb	0.50	<1	<2	<1	6	0.42
12-Feb	0.53	<1	<2	<1	6	0.33
19-Feb	0.40	<1	<2	<1	6	0.39
26-Feb	0.44	<1	<2	<1	7	0.76
05-Mar	0.40	<1	<2	<1	6.5	0.52
19-Mar	0.43	<1	<2	<1	7.5	0.45
26-Mar	0.47	<1	<2	<1	8	0.50
02-Apr	0.54	<1	2	<1	9	0.64
16-Apr	0.24	<1	<2	<1	9	0.51
23-Apr	0.68	<1	2	<1	9	0.45
30-Apr	0.76	<1	2	<1	11	0.35
07-May	1.10	<1	<2	<1	11	0.36
14-May	0.83	<1	<2	<1	12	0.56
21-May	1.00	<1	4	<1	13	0.74
28-May	0.48	<1	<2	<1	12	0.36
04-Jun	0.71	<1	<2	<1	13	0.44
11-Jun	0.54	<1	<2	<1	15	0.67
18-Jun	0.61	<1	2	<1	14	0.70
25-Jun	0.48	<1	<2	<1	15	0.38
02-Jul	0.54	<1	<2	<1	15	0.43
09-Jul	0.44	<1	<2	<1	16	0.36
16-Jul	0.43	<1	<2	<1	15	0.70
23-Jul	0.54	<1	<2	<1	16	0.39
30-Jul	0.59	<1	2	<1	18	0.41
06-Aug	0.43	<1	8	<1	18	0.30
13-Aug	0.26	<1	<2	<1	18	0.38
20-Aug	0.54	<1	2	<1	17	0.34
27-Aug	0.52	<1	<2	<1	17	0.30
03-Sep	0.58	<1	<2	<1	17	0.32
10-Sep	0.49	<1	<2	<1	18	0.48
17-Sep	0.36	<1	4	<1	14	0.32
24-Sep	0.39	<1	<2	<1	17	0.37
01-Oct	0.34	<1	12	<1	17	0.30
08-Oct	0.48	<1	2	<1	14	0.27
15-Oct	0.32	<1	4	<1	14	0.33
22-Oct	0.10	<1	<2	<1	14	0.37
29-Oct	0.08	<1	6	<1	12	0.51
05-Nov	0.34	<1	<2	<1	13	0.85
13-Nov	0.41	<1	38	<1	9	0.58
19-Nov	0.20	<1	54	<1	10	0.52
26-Nov	0.15	<1	12	<1	10	0.75
10-Dec	0.61	<1	<2	<1	7	0.82
17-Dec	0.19	<1	<2	<1	7	0.72
23-Dec	0.17	<1	<2	<1	8	1.60
31-Dec	<0.01	<1	NA	<1	8	0.89

DM941 (SE CORNER BELL ROAD and OLD McLELLAN ROAD) - 2009 TEST RESULTS



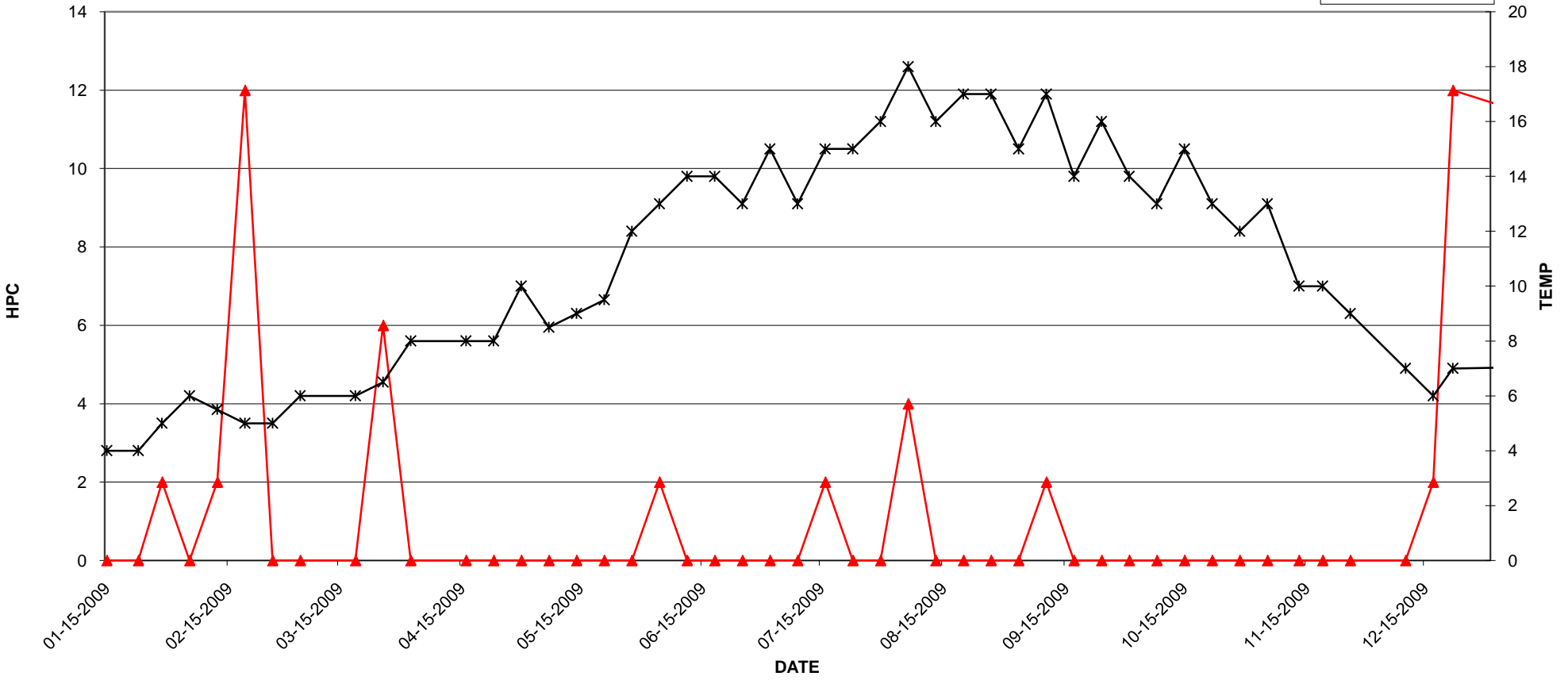
DM941 (SE CORNER BELL ROAD and OLD McLELLAN ROAD) - 2009 TEST RESULTS



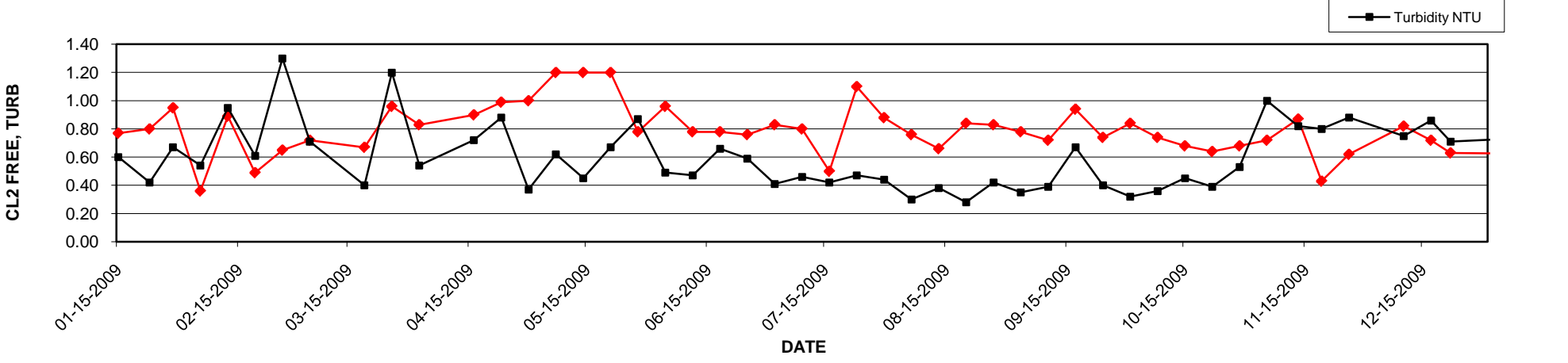
2009 Metro Vancouver Laboratory Report - DM942 (In Lane at 5963 176 St.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
15-Jan	0.77	<1	<2	<1	4	0.60
23-Jan	0.80	<1	<2	<1	4	0.42
29-Jan	0.95	<1	2	<1	5	0.67
05-Feb	0.36	<1	<2	<1	6	0.54
12-Feb	0.89	<1	2	<1	5.5	0.95
19-Feb	0.49	<1	12	<1	5	0.61
26-Feb	0.65	<1	<2	<1	5	1.30
05-Mar	0.72	<1	<2	<1	6	0.71
19-Mar	0.67	<1	<2	<1	6	0.40
26-Mar	0.96	<1	6	<1	6.5	1.20
02-Apr	0.83	<1	<2	<1	8	0.54
16-Apr	0.90	<1	<2	<1	8	0.72
23-Apr	0.99	<1	<2	<1	8	0.88
30-Apr	1.00	<1	<2	<1	10	0.37
07-May	1.20	<1	<2	<1	8.5	0.62
14-May	1.20	<1	<2	<1	9	0.45
21-May	1.20	<1	<2	<1	9.5	0.67
28-May	0.78	<1	<2	<1	12	0.87
04-Jun	0.96	<1	2	<1	13	0.49
11-Jun	0.78	<1	<2	<1	14	0.47
18-Jun	0.78	<1	<2	<1	14	0.66
25-Jun	0.76	<1	<2	<1	13	0.59
02-Jul	0.83	<1	<2	<1	15	0.41
09-Jul	0.80	<1	<2	<1	13	0.46
16-Jul	0.50	<1	2	<1	15	0.42
23-Jul	1.10	<1	<2	<1	15	0.47
30-Jul	0.88	<1	<2	<1	16	0.44
06-Aug	0.76	<1	4	<1	18	0.30
13-Aug	0.66	<1	<2	<1	16	0.38
20-Aug	0.84	<1	<2	<1	17	0.28
27-Aug	0.83	<1	<2	<1	17	0.42
03-Sep	0.78	<1	<2	<1	15	0.35
10-Sep	0.72	<1	2	<1	17	0.39
17-Sep	0.94	<1	<2	<1	14	0.67
24-Sep	0.74	<1	<2	<1	16	0.40
01-Oct	0.84	<1	<2	<1	14	0.32
08-Oct	0.74	<1	<2	<1	13	0.36
15-Oct	0.68	<1	<2	<1	15	0.45
22-Oct	0.64	<1	<2	<1	13	0.39
29-Oct	0.68	<1	<2	<1	12	0.53
05-Nov	0.72	<1	<2	<1	13	1.00
13-Nov	0.87	<1	<2	<1	10	0.82
19-Nov	0.43	<1	<2	<1	10	0.80
26-Nov	0.62	<1	<2	<1	9	0.88
10-Dec	0.82	<1	<2	<1	7	0.75
17-Dec	0.72	<1	2	<1	6	0.86
22-Dec	0.63	<1	12	<1	7	0.71
31-Dec	0.53	<1	NA	<1	8	1.20

DM942 ( In Lane at 5963 176 St.) - 2009 TEST RESULTS



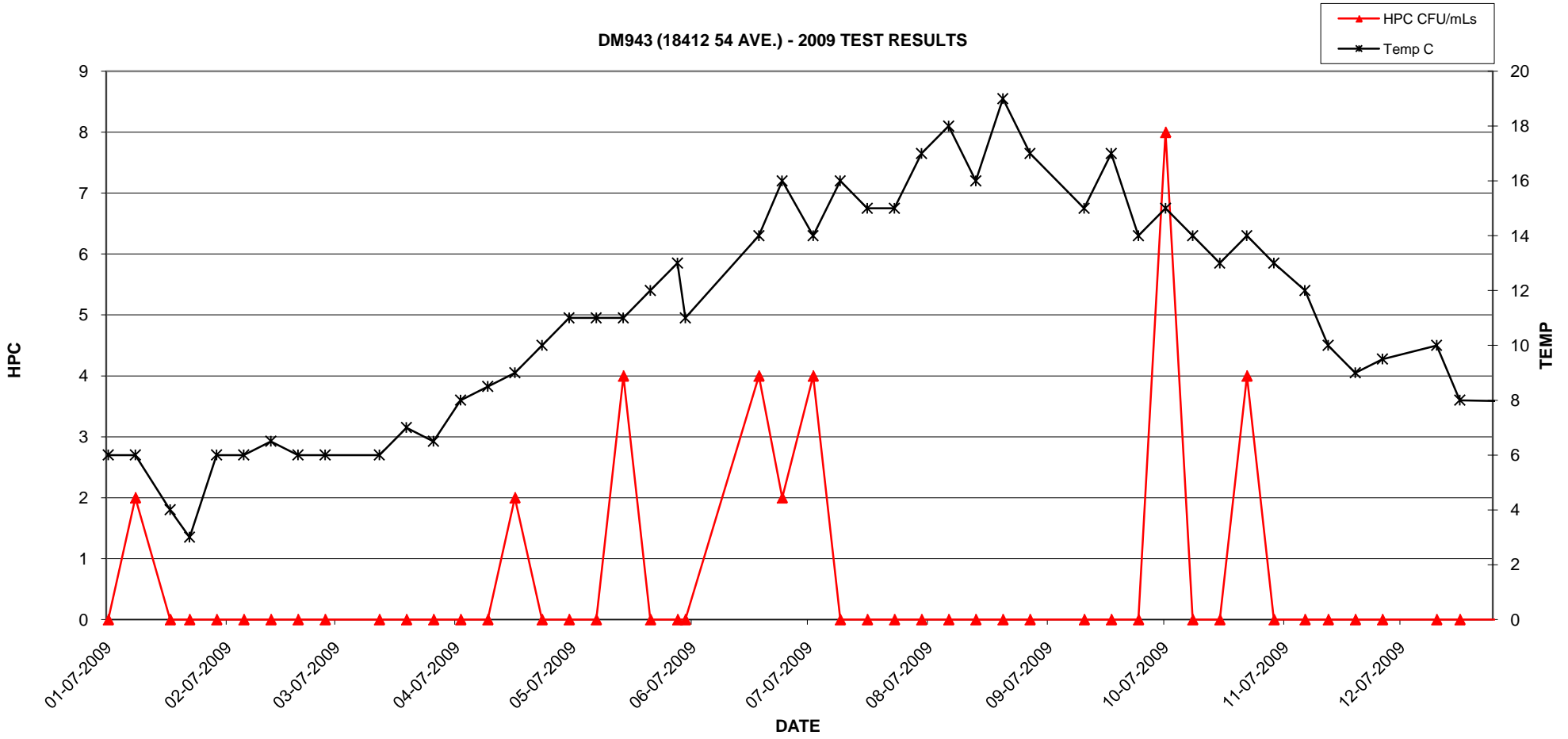
DM942 ( In Lane at 5963 176 St.) - 2009 TEST RESULTS



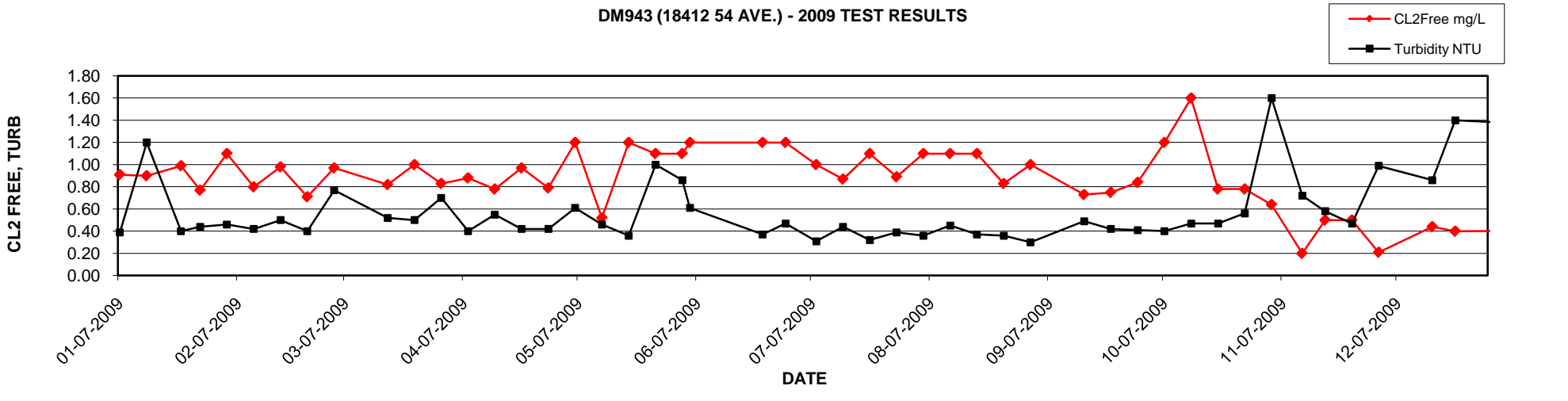
2009 Metro Vancouver Laboratory Report - DM943 (18412 54 AVE.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
07-Jan	0.91	<1	<2	<1	6	0.39
14-Jan	0.90	<1	2	<1	6	1.20
23-Jan	0.99	<1	<2	<1	4	0.40
28-Jan	0.77	<1	<2	<1	3	0.44
04-Feb	1.10	<1	<2	<1	6	0.46
11-Feb	0.80	<1	<2	<1	6	0.42
18-Feb	0.98	<1	<2	<1	6.5	0.50
25-Feb	0.71	<1	<2	<1	6	0.40
04-Mar	0.97	<1	<2	<1	6	0.77
18-Mar	0.82	<1	<2	<1	6	0.52
25-Mar	1.00	<1	<2	<1	7	0.50
01-Apr	0.83	<1	LA	<1	6.5	0.70
08-Apr	0.88	<1	<2	<1	8	0.40
15-Apr	0.78	<1	<2	<1	8.5	0.55
22-Apr	0.97	<1	2	<1	9	0.42
29-Apr	0.79	<1	<2	<1	10	0.42
06-May	1.20	<1	<2	<1	11	0.61
13-May	0.52	<1	<2	<1	11	0.46
20-May	1.20	<1	4	<1	11	0.36
27-May	1.10	<1	<2	<1	12	1.00
03-Jun	1.10	<1	<2	<1	13	0.86
05-Jun	1.20	<1	<2	<1	11	0.61
24-Jun	1.20	<1	4	<1	14	0.37
30-Jun	1.20	<1	2	<1	16	0.47
08-Jul	1.00	<1	4	<1	14	0.31
15-Jul	0.87	<1	<2	<1	16	0.44
22-Jul	1.10	<1	<2	<1	15	0.32
29-Jul	0.89	<1	<2	<1	15	0.39
05-Aug	1.10	<1	<2	<1	17	0.36
12-Aug	1.10	<1	<2	<1	18	0.45
19-Aug	1.10	<1	<2	<1	16	0.37
26-Aug	0.83	<1	<2	<1	19	0.36
02-Sep	1.00	<1	<2	<1	17	0.30
16-Sep	0.73	<1	<2	<1	15	0.49
23-Sep	0.75	<1	<2	<1	17	0.42
30-Sep	0.84	<1	<2	<1	14	0.41
07-Oct	1.20	<1	8	<1	15	0.40
14-Oct	1.60	<1	<2	<1	14	0.47
21-Oct	0.78	<1	<2	<1	13	0.47
28-Oct	0.78	<1	4	<1	14	0.56
04-Nov	0.64	<1	<2	<1	13	1.60
12-Nov	0.20	<1	<2	<1	12	0.72
18-Nov	0.50	<1	<2	<1	10	0.58
25-Nov	0.50	<1	<2	<1	9	0.47
02-Dec	0.21	<1	<2	<1	9.5	0.99
16-Dec	0.44	<1	<2	<1	10	0.86
22-Dec	0.40	<1	<2	<1	8	1.40
30-Dec	0.54	<1	NA	<1	7	0.78

DM943 (18412 54 AVE.) - 2009 TEST RESULTS



DM943 (18412 54 AVE.) - 2009 TEST RESULTS

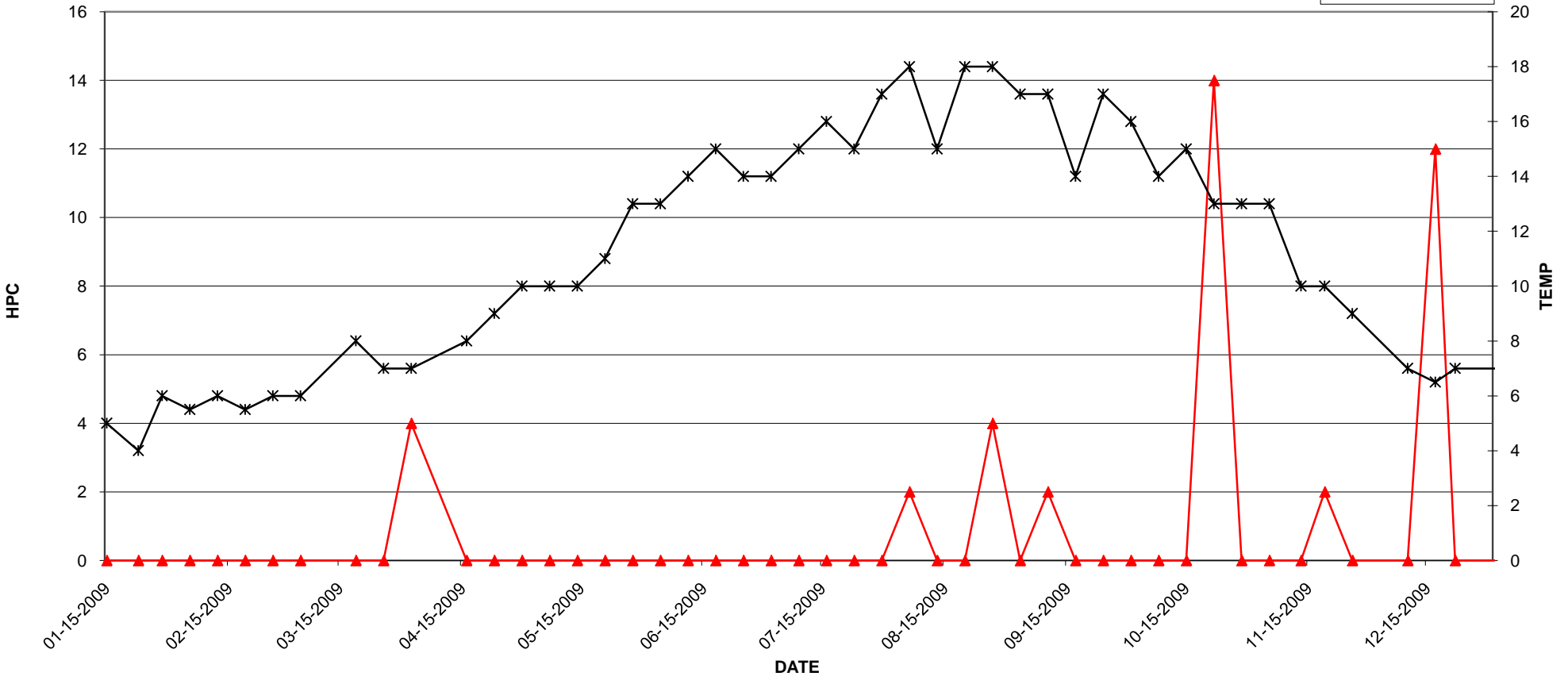




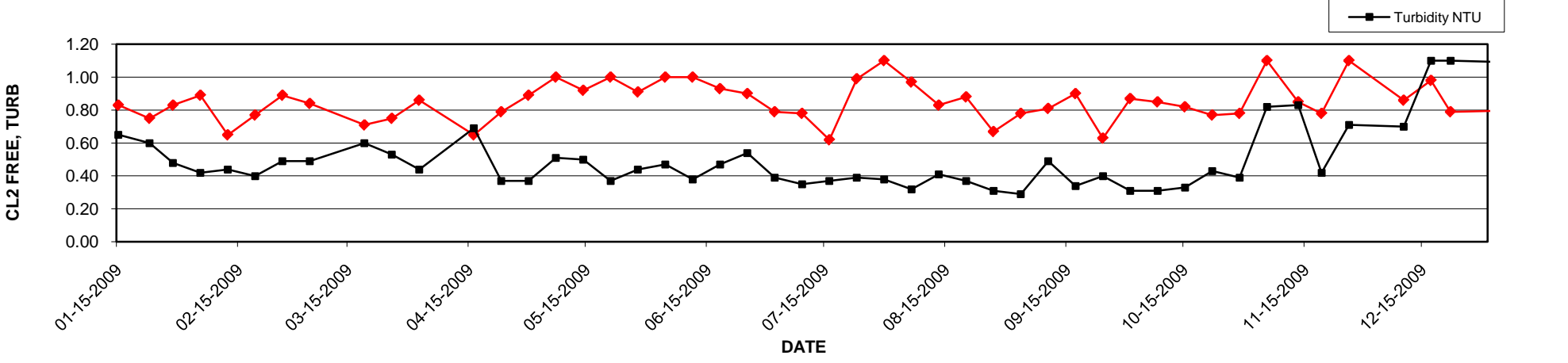
2009 Metro Vancouver Laboratory Report - DM944 (NE CORNER 60 AVE and 189 ST.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
15-Jan	0.83	<1	<2	<1	5	0.65
23-Jan	0.75	<1	<2	<1	4	0.60
29-Jan	0.83	<1	<2	<1	6	0.48
05-Feb	0.89	<1	<2	<1	5.5	0.42
12-Feb	0.65	<1	<2	<1	6	0.44
19-Feb	0.77	<1	<2	<1	5.5	0.40
26-Feb	0.89	<1	<2	<1	6	0.49
05-Mar	0.84	<1	<2	<1	6	0.49
19-Mar	0.71	<1	<2	<1	8	0.60
26-Mar	0.75	<1	<2	<1	7	0.53
02-Apr	0.86	<1	4	<1	7	0.44
16-Apr	0.65	<1	<2	<1	8	0.69
23-Apr	0.79	<1	<2	<1	9	0.37
30-Apr	0.89	<1	<2	<1	10	0.37
07-May	1.00	<1	<2	<1	10	0.51
14-May	0.92	<1	<2	<1	10	0.50
21-May	1.00	<1	<2	<1	11	0.37
28-May	0.91	<1	<2	<1	13	0.44
04-Jun	1.00	<1	<2	<1	13	0.47
11-Jun	1.00	<1	<2	<1	14	0.38
18-Jun	0.93	<1	<2	<1	15	0.47
25-Jun	0.90	<1	<2	<1	14	0.54
02-Jul	0.79	<1	<2	<1	14	0.39
09-Jul	0.78	<1	<2	<1	15	0.35
16-Jul	0.62	<1	<2	<1	16	0.37
23-Jul	0.99	<1	<2	<1	15	0.39
30-Jul	1.10	<1	<2	<1	17	0.38
06-Aug	0.97	<1	2	<1	18	0.32
13-Aug	0.83	<1	<2	<1	15	0.41
20-Aug	0.88	<1	<2	<1	18	0.37
27-Aug	0.67	<1	4	<1	18	0.31
03-Sep	0.78	<1	<2	<1	17	0.29
10-Sep	0.81	<1	2	<1	17	0.49
17-Sep	0.90	<1	<2	<1	14	0.34
24-Sep	0.63	<1	<2	<1	17	0.40
01-Oct	0.87	<1	<2	<1	16	0.31
08-Oct	0.85	<1	<2	<1	14	0.31
15-Oct	0.82	<1	<2	<1	15	0.33
22-Oct	0.77	<1	14	<1	13	0.43
29-Oct	0.78	<1	<2	<1	13	0.39
05-Nov	1.10	<1	<2	<1	13	0.82
13-Nov	0.85	<1	<2	<1	10	0.83
19-Nov	0.78	<1	2	<1	10	0.42
26-Nov	1.10	<1	<2	<1	9	0.71
10-Dec	0.86	<1	<2	<1	7	0.70
17-Dec	0.98	<1	12	<1	6.5	1.10
22-Dec	0.79	<1	<2	<1	7	1.10
31-Dec	1.00	<1	NA	<1	7	0.86

DM944 (NE CORNER 60 AVE and 189 ST.) - 2009 TEST RESULTS



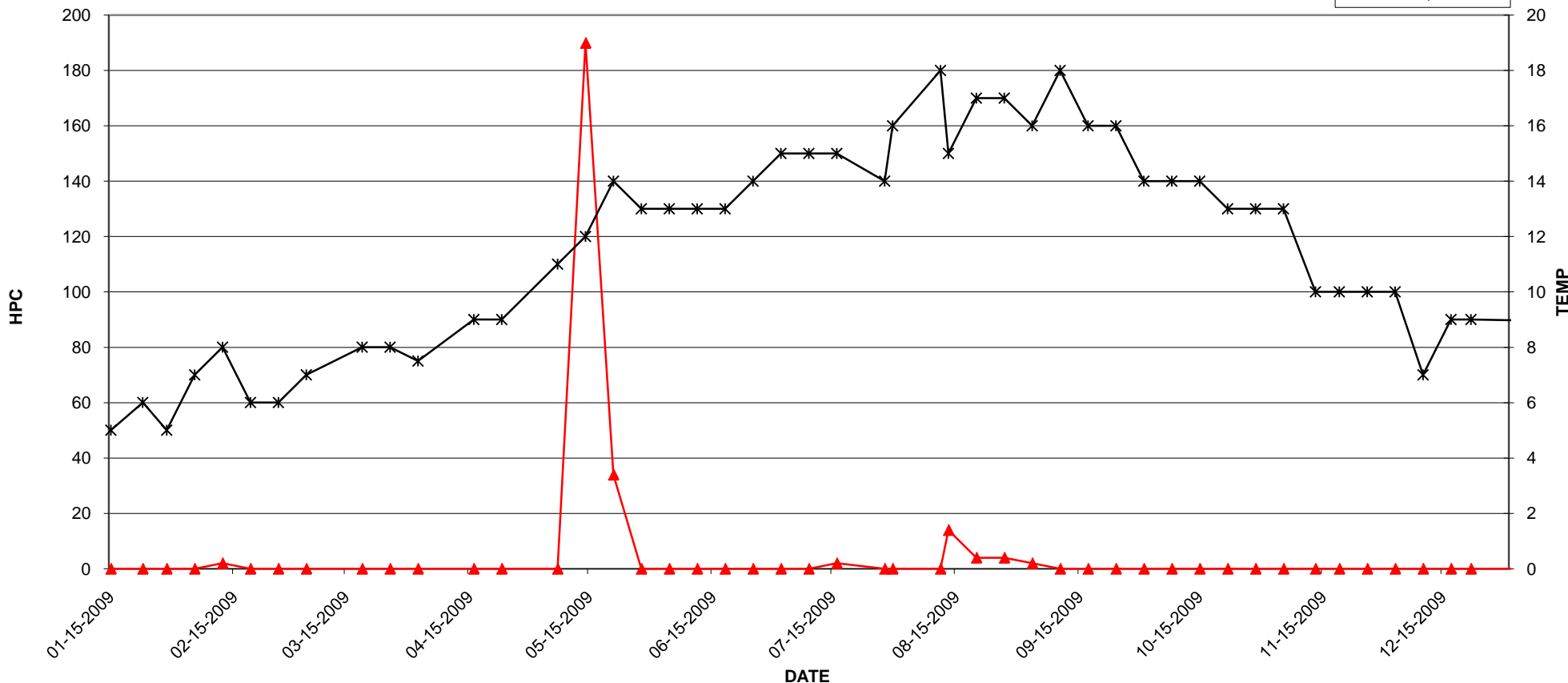
DM944 (NE CORNER 60 AVE and 189 ST.) - 2009 TEST RESULTS



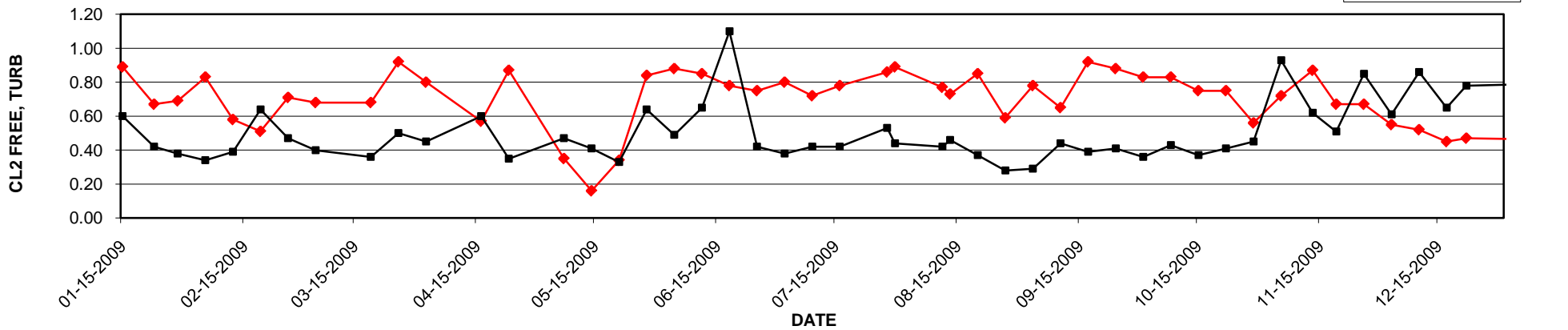
2009 Metro Vancouver Laboratory Report - DM945 (PRODUCTION BLVD. and 55 AVE)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
15-Jan	0.89	<1	<2	<1	5	0.60
23-Jan	0.67	<1	<2	<1	6	0.42
29-Jan	0.69	<1	<2	<1	5	0.38
05-Feb	0.83	<1	<2	<1	7	0.34
12-Feb	0.58	<1	2	<1	8	0.39
19-Feb	0.51	<1	<2	<1	6	0.64
26-Feb	0.71	<1	<2	<1	6	0.47
05-Mar	0.68	<1	<2	<1	7	0.40
19-Mar	0.68	<1	<2	<1	8	0.36
26-Mar	0.92	<1	<2	<1	8	0.50
02-Apr	0.80	<1	<2	<1	7.5	0.45
16-Apr	0.57	<1	<2	<1	9	0.60
23-Apr	0.87	<1	<2	<1	9	0.35
07-May	0.35	<1	<2	<1	11	0.47
14-May	0.16	<1	190	<1	12	0.41
21-May	0.34	<1	34	<1	14	0.33
28-May	0.84	<1	<2	<1	13	0.64
04-Jun	0.88	<1	<2	<1	13	0.49
11-Jun	0.85	<1	<2	<1	13	0.65
18-Jun	0.78	<1	<2	<1	13	1.10
25-Jun	0.75	<1	<2	<1	14	0.42
02-Jul	0.80	<1	<2	<1	15	0.38
09-Jul	0.72	<1	<2	<1	15	0.42
16-Jul	0.78	<1	2	<1	15	0.42
28-Jul	0.86	<1	<2	<1	14	0.53
30-Jul	0.89	<1	<2	<1	16	0.44
11-Aug	0.77	<1	<2	<1	18	0.42
13-Aug	0.73	<1	14	<1	15	0.46
20-Aug	0.85	<1	4	<1	17	0.37
27-Aug	0.59	<1	4	<1	17	0.28
03-Sep	0.78	<1	2	<1	16	0.29
10-Sep	0.65	<1	<2	<1	18	0.44
17-Sep	0.92	<1	<2	<1	16	0.39
24-Sep	0.88	<1	<2	<1	16	0.41
01-Oct	0.83	<1	<2	<1	14	0.36
08-Oct	0.83	<1	<2	<1	14	0.43
15-Oct	0.75	<1	<2	<1	14	0.37
22-Oct	0.75	<1	<2	<1	13	0.41
29-Oct	0.56	<1	<2	<1	13	0.45
05-Nov	0.72	<1	<2	<1	13	0.93
13-Nov	0.87	<1	<2	<1	10	0.62
19-Nov	0.67	<1	<2	<1	10	0.51
26-Nov	0.67	<1	<2	<1	10	0.85
03-Dec	0.55	<1	<2	<1	10	0.61
10-Dec	0.52	<1	<2	<1	7	0.86
17-Dec	0.45	<1	<2	<1	9	0.65
22-Dec	0.47	<1	<2	<1	9	0.78
31-Dec	0.33	<1	NA	<1	8	1.00

DM945 (PRODUCTION BLVD. and 55 AVE) - 2009 TEST RESULTS

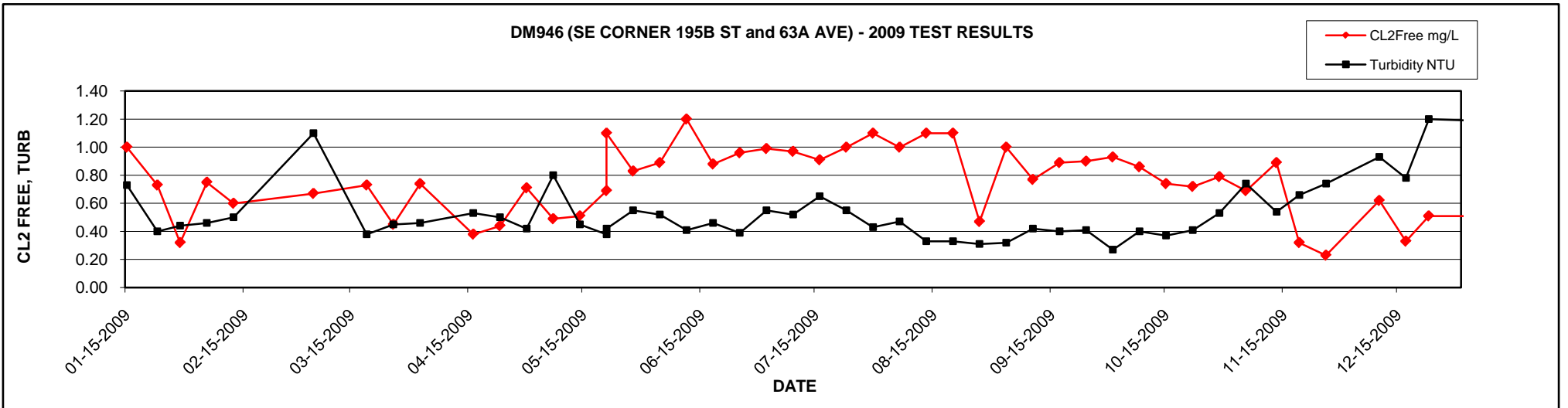
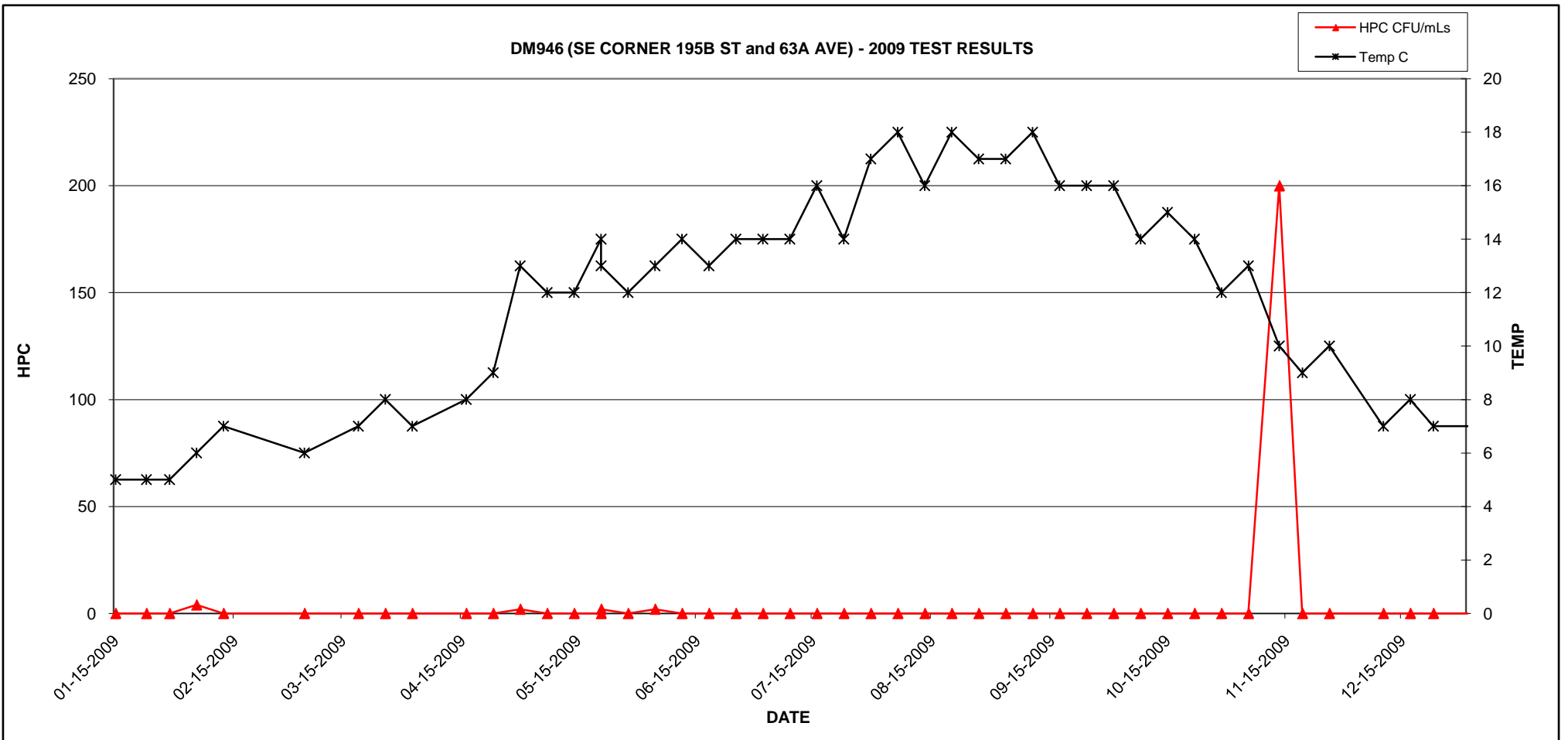


DM945 (PRODUCTION BLVD. and 55 AVE) - 2009 TEST RESULTS



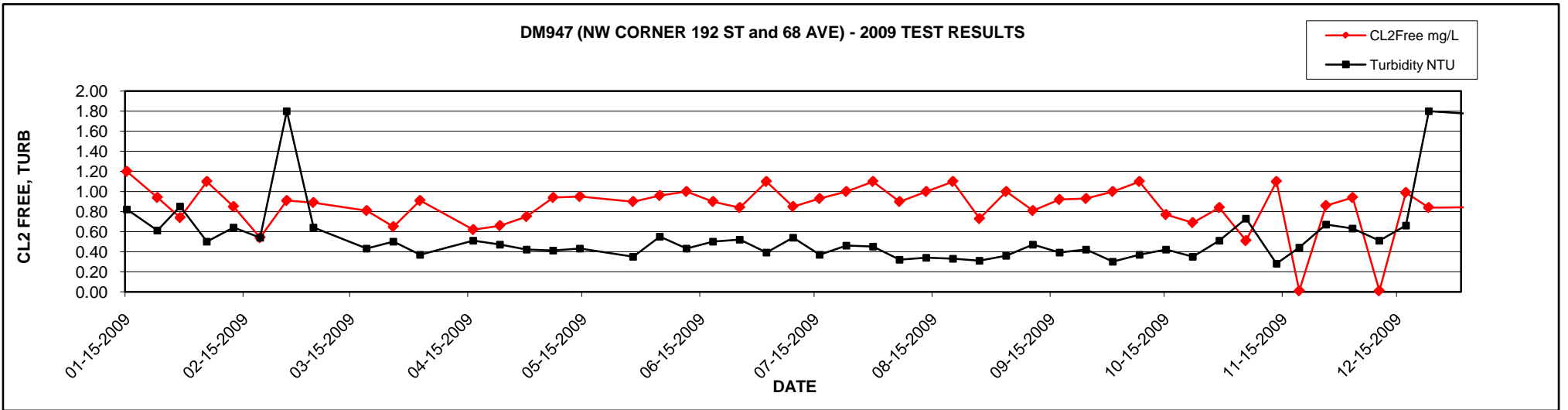
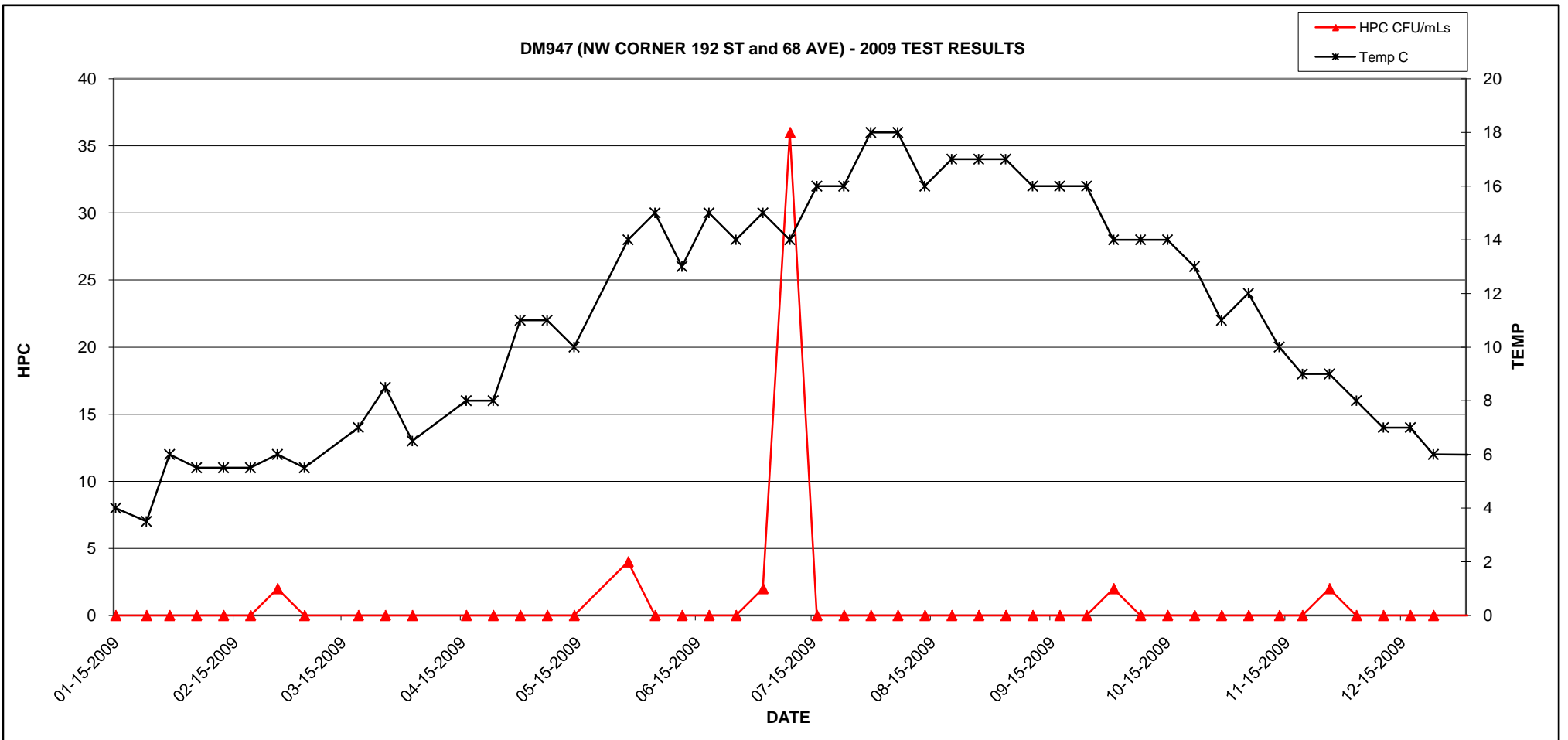
2009 Metro Vancouver Laboratory Report - DM946 (SE CORNER 195B ST and 63A AVE)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
15-Jan	1.00	<1	<2	<1	5	0.73
23-Jan	0.73	<1	<2	<1	5	0.40
29-Jan	0.32	<1	<2	<1	5	0.44
05-Feb	0.75	<1	4	<1	6	0.46
12-Feb	0.60	<1	<2	<1	7	0.50
05-Mar	0.67	<1	<2	<1	6	1.10
19-Mar	0.73	<1	<2	<1	7	0.38
26-Mar	0.45	<1	<2	<1	8	0.45
02-Apr	0.74	<1	<2	<1	7	0.46
16-Apr	0.38	<1	<2	<1	8	0.53
23-Apr	0.44	<1	<2	<1	9	0.50
30-Apr	0.71	<1	2	<1	13	0.42
07-May	0.49	<1	<2	<1	12	0.80
14-May	0.51	<1	<2	<1	12	0.45
21-May	0.69	<1	<2	<1	14	0.38
21-May	1.10	<1	2	<1	13	0.42
28-May	0.83	<1	<2	<1	12	0.55
04-Jun	0.89	<1	2	<1	13	0.52
11-Jun	1.20	<1	<2	<1	14	0.41
18-Jun	0.88	<1	<2	<1	13	0.46
25-Jun	0.96	<1	<2	<1	14	0.39
02-Jul	0.99	<1	<2	<1	14	0.55
09-Jul	0.97	<1	<2	<1	14	0.52
16-Jul	0.91	<1	<2	<1	16	0.65
23-Jul	1.00	<1	<2	<1	14	0.55
30-Jul	1.10	<1	<2	<1	17	0.43
06-Aug	1.00	<1	<2	<1	18	0.47
13-Aug	1.10	<1	<2	<1	16	0.33
20-Aug	1.10	<1	<2	<1	18	0.33
27-Aug	0.47	<1	<2	<1	17	0.31
03-Sep	1.00	<1	<2	<1	17	0.32
10-Sep	0.77	<1	<2	<1	18	0.42
17-Sep	0.89	<1	<2	<1	16	0.40
24-Sep	0.90	<1	<2	<1	16	0.41
01-Oct	0.93	<1	<2	<1	16	0.27
08-Oct	0.86	<1	<2	<1	14	0.40
15-Oct	0.74	<1	<2	<1	15	0.37
22-Oct	0.72	<1	<2	<1	14	0.41
29-Oct	0.79	<1	<2	<1	12	0.53
05-Nov	0.69	<1	<2	<1	13	0.74
13-Nov	0.89	<1	200	<1	10	0.54
19-Nov	0.32	<1	<2	<1	9	0.66
26-Nov	0.23	<1	<2	<1	10	0.74
10-Dec	0.62	<1	<2	<1	7	0.93
17-Dec	0.33	<1	<2	<1	8	0.78
23-Dec	0.51	<1	<2	<1	7	1.20
31-Dec	0.51	<1	NA	<1	7	0.87



2009 Metro Vancouver Laboratory Report - DM947 (NW CORNER 192 ST and 68 AVE)

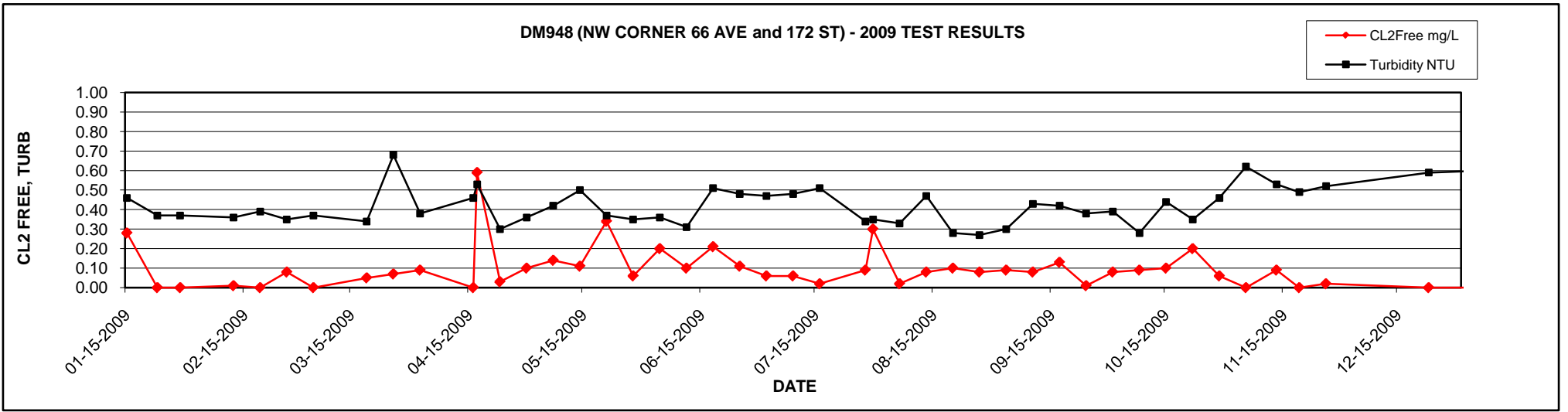
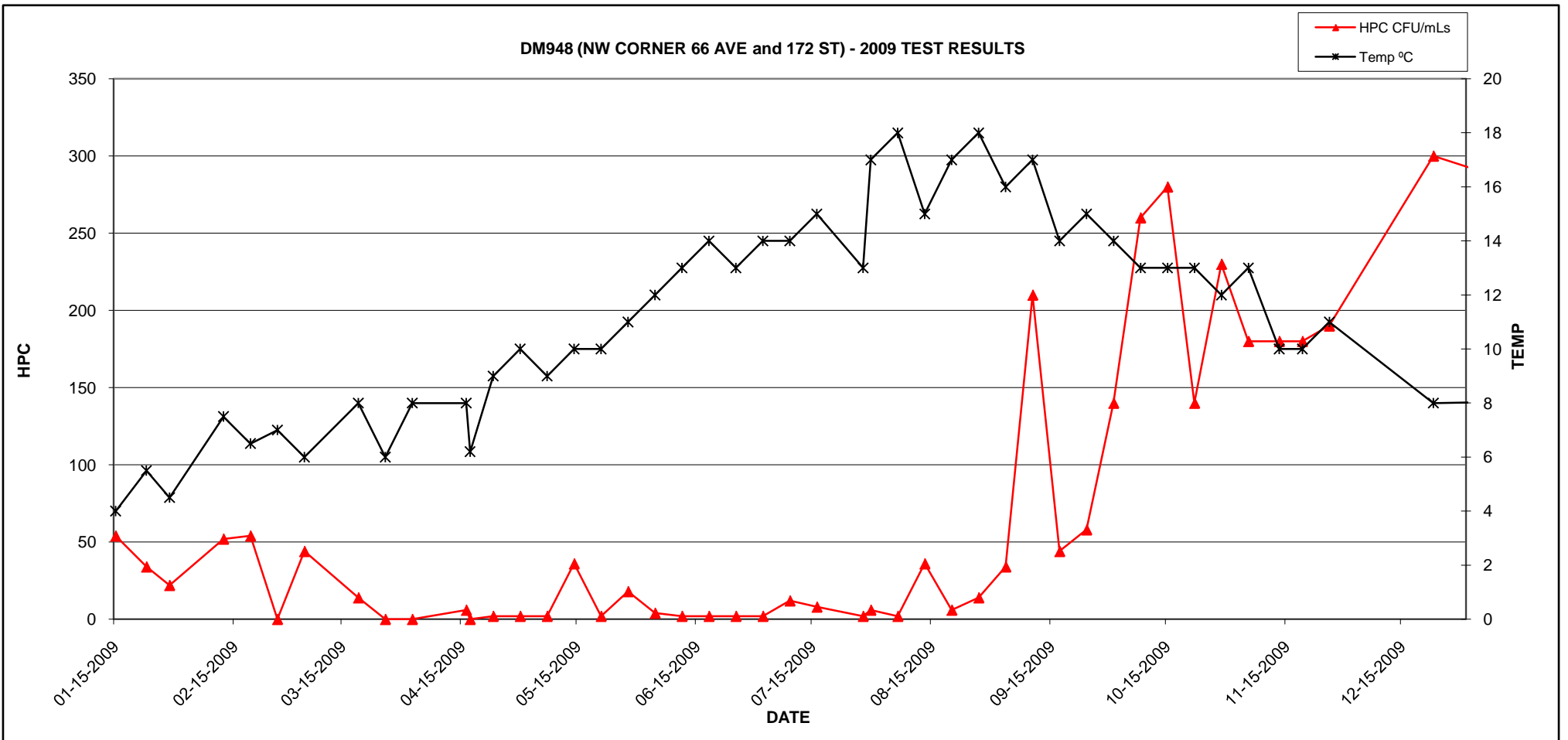
Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
15-Jan	1.20	<1	<2	<1	4	0.82
23-Jan	0.94	<1	<2	<1	3.5	0.61
29-Jan	0.74	<1	<2	<1	6	0.85
05-Feb	1.10	<1	<2	<1	5.5	0.50
12-Feb	0.85	<1	<2	<1	5.5	0.64
19-Feb	0.54	<1	<2	<1	5.5	0.54
26-Feb	0.91	<1	2	<1	6	1.80
05-Mar	0.89	<1	<2	<1	5.5	0.64
19-Mar	0.81	<1	<2	<1	7	0.43
26-Mar	0.65	<1	<2	<1	8.5	0.50
02-Apr	0.91	<1	<2	<1	6.5	0.37
16-Apr	0.62	<1	<2	<1	8	0.51
23-Apr	0.66	<1	<2	<1	8	0.47
30-Apr	0.75	<1	<2	<1	11	0.42
07-May	0.94	<1	<2	<1	11	0.41
14-May	0.95	<1	<2	<1	10	0.43
28-May	0.90	<1	4	<1	14	0.35
04-Jun	0.96	<1	<2	<1	15	0.55
11-Jun	1.00	<1	<2	<1	13	0.43
18-Jun	0.90	<1	<2	<1	15	0.50
25-Jun	0.84	<1	<2	<1	14	0.52
02-Jul	1.10	<1	2	<1	15	0.39
09-Jul	0.85	<1	36	<1	14	0.54
16-Jul	0.93	<1	<2	<1	16	0.37
23-Jul	1.00	<1	<2	<1	16	0.46
30-Jul	1.10	<1	<2	<1	18	0.45
06-Aug	0.90	<1	<2	<1	18	0.32
13-Aug	1.00	<1	<2	<1	16	0.34
20-Aug	1.10	<1	<2	<1	17	0.33
27-Aug	0.73	<1	<2	<1	17	0.31
03-Sep	1.00	<1	<2	<1	17	0.36
10-Sep	0.81	<1	<2	<1	16	0.47
17-Sep	0.92	<1	<2	<1	16	0.39
24-Sep	0.93	<1	<2	<1	16	0.42
01-Oct	1.00	<1	2	<1	14	0.30
08-Oct	1.10	<1	<2	<1	14	0.37
15-Oct	0.77	<1	<2	<1	14	0.42
22-Oct	0.69	<1	<2	<1	13	0.35
29-Oct	0.84	<1	<2	<1	11	0.51
05-Nov	0.51	<1	<2	<1	12	0.73
13-Nov	1.10	<1	<2	<1	10	0.28
19-Nov	0.01	<1	<2	<1	9	0.44
26-Nov	0.86	<1	2	<1	9	0.67
03-Dec	0.94	<1	<2	<1	8	0.63
10-Dec	0.01	<1	<2	<1	7	0.51
17-Dec	0.99	<1	<2	<1	7	0.66
23-Dec	0.84	<1	<2	<1	6	1.80
31-Dec	0.99	<1	NA	<1	5.5	0.85





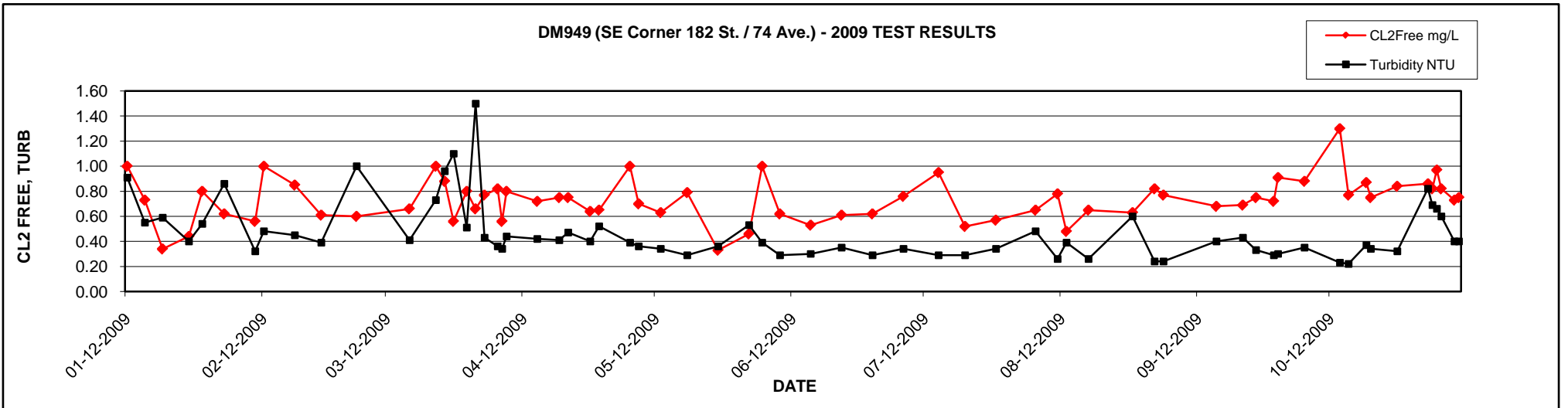
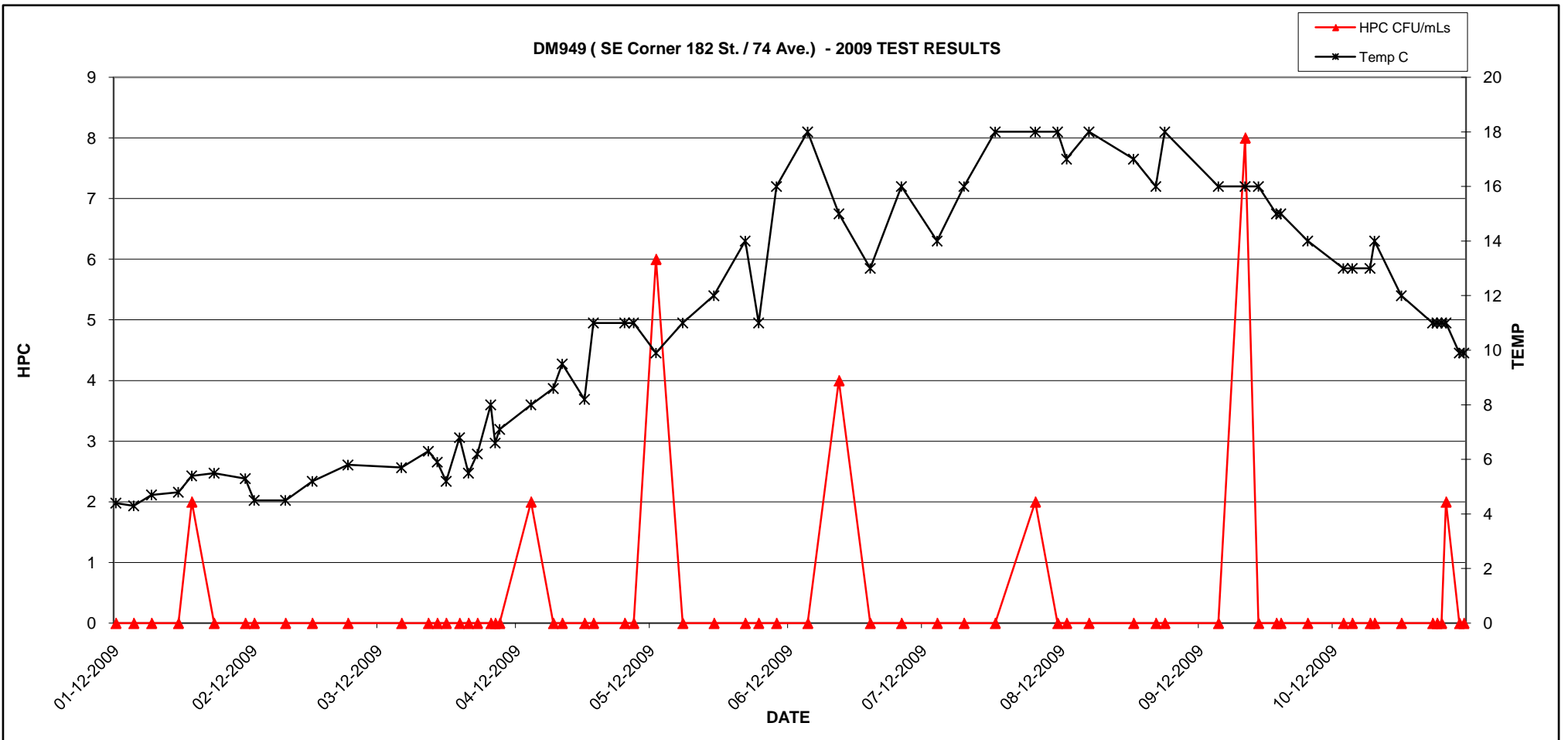
2009 Metro Vancouver Laboratory Report - DM948 (NW CORNER 66 AVE and 172 ST)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp °C	Turbidity NTU
15-Jan	0.28	<1	54	<1	4	0.46
23-Jan	<0.01	<1	34	<1	5.5	0.37
29-Jan	<0.01	<1	22	<1	4.5	0.37
12-Feb	0.01	<1	52	<1	7.5	0.36
19-Feb	<0.01	<1	54	<1	6.5	0.39
26-Feb	0.08	CG	LA	CG	7	0.35
05-Mar	<0.01	<1	44	<1	6	0.37
19-Mar	0.05	<1	14	<1	8	0.34
26-Mar	0.07	<1	<2	<1	6	0.68
02-Apr	0.09	<1	<2	<1	8	0.38
16-Apr	<0.01	<1	6	<1	8	0.46
17-Apr	0.59	<1	<2	<1	6.2	0.53
23-Apr	0.03	<1	2	<1	9	0.30
30-Apr	0.10	<1	2	<1	10	0.36
07-May	0.14	<1	2	<1	9	0.42
14-May	0.11	<1	36	<1	10	0.50
21-May	0.34	<1	2	<1	10	0.37
28-May	0.06	<1	18	<1	11	0.35
04-Jun	0.20	<1	4	<1	12	0.36
11-Jun	0.10	<1	2	1	13	0.31
18-Jun	0.21	<1	2	<1	14	0.51
25-Jun	0.11	<1	2	<1	13	0.48
02-Jul	0.06	<1	2	<1	14	0.47
09-Jul	0.06	<1	12	<1	14	0.48
16-Jul	0.02	<1	8	<1	15	0.51
28-Jul	0.09	<1	2	<1	13	0.34
30-Jul	0.30	<1	6	<1	17	0.35
06-Aug	0.02	<1	2	<1	18	0.33
13-Aug	0.08	<1	36	<1	15	0.47
20-Aug	0.10	<1	6	<1	17	0.28
27-Aug	0.08	<1	14	<1	18	0.27
03-Sep	0.09	<1	34	<1	16	0.30
10-Sep	0.08	<1	210	<1	17	0.43
17-Sep	0.13	<1	44	<1	14	0.42
24-Sep	0.01	<1	58	<1	15	0.38
01-Oct	0.08	<1	140	<1	14	0.39
08-Oct	0.09	<1	260	<1	13	0.28
15-Oct	0.10	<1	280	<1	13	0.44
22-Oct	0.20	<1	140	<1	13	0.35
29-Oct	0.06	<1	230	<1	12	0.46
05-Nov	<0.01	<1	180	<1	13	0.62
13-Nov	0.09	<1	180	<1	10	0.53
19-Nov	<0.01	<1	180	<1	10	0.49
26-Nov	0.02	<1	190	<1	11	0.52
23-Dec	<0.01	<1	300	<1	8	0.59
31-Dec	0.01	<1	NA	<1	9	0.86



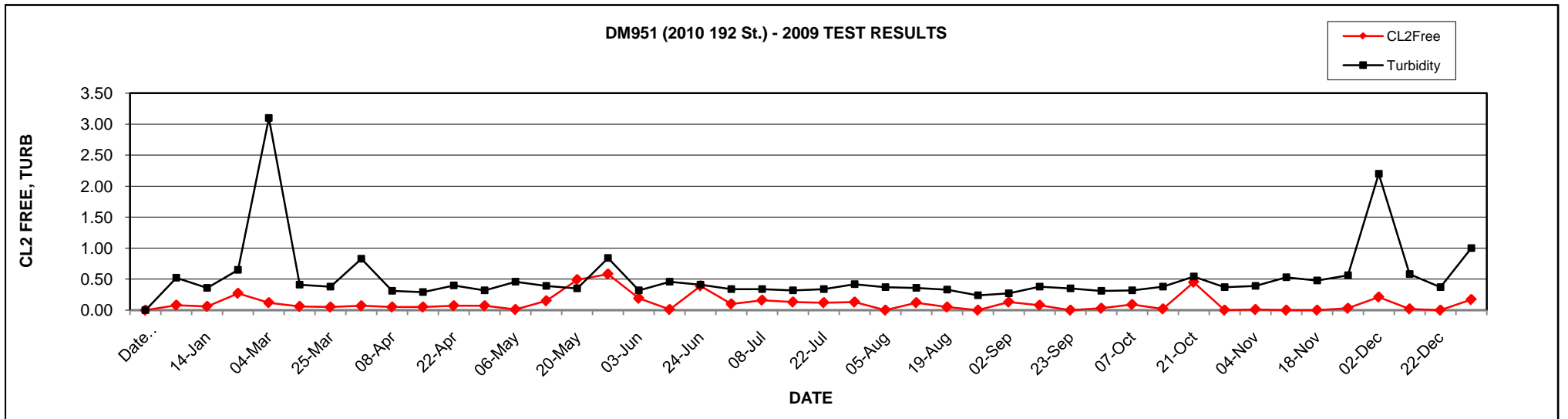
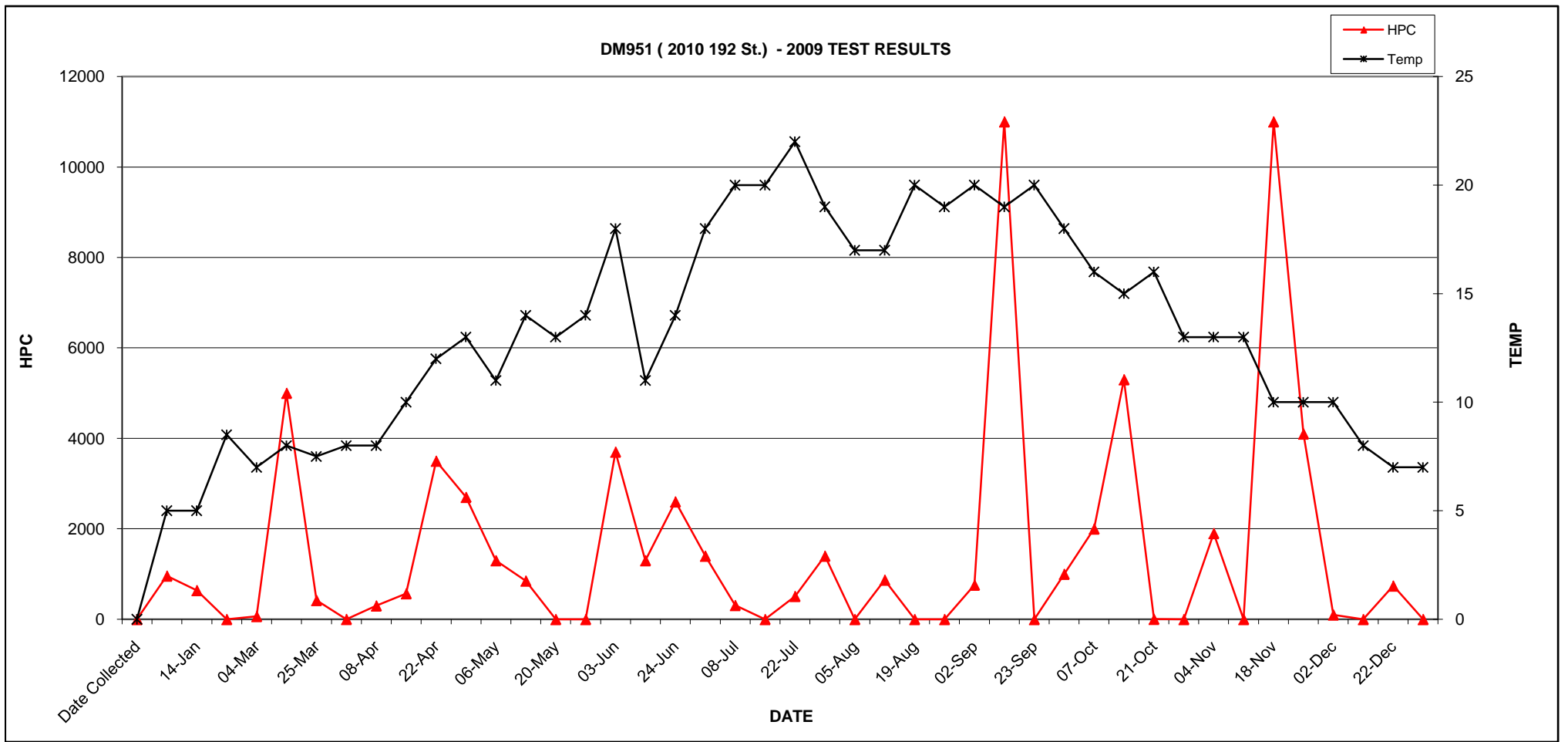
2009 Metro Vancouver Laboratory Report - DM949 (SE Corner 182 St. / 74 Ave.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoili MF/100mLs	Temp C	Turbidity NTU
12-Jan	1.00	<1	<2	<1	4.4	0.91
16-Jan	0.73	<1	<2	<1	4.3	0.55
20-Jan	0.34	<1	<2	<1	4.7	0.59
26-Jan	0.44	<1	<2	<1	4.8	0.40
29-Jan	0.80	<1	2	<1	5.4	0.54
03-Feb	0.62	<1	<2	<1	5.5	0.86
10-Feb	0.56	<1	<2	<1	5.3	0.32
12-Feb	1.00	<1	<2	<1	4.5	0.48
19-Feb	0.85	<1	<2	<1	4.5	0.45
25-Feb	0.61	<1	<2	<1	5.2	0.39
05-Mar	0.60	<1	<2	<1	5.8	1.00
17-Mar	0.66	<1	<2	<1	5.7	0.41
23-Mar	1.00	<1	<2	<1	6.3	0.73
25-Mar	0.88	<1	<2	<1	5.9	0.96
27-Mar	0.56	<1	<2	<1	5.2	1.10
30-Mar	0.80	<1	<2	<1	6.8	0.51
01-Apr	0.66	<1	<2	<1	5.5	1.50
03-Apr	0.77	<1	<2	<1	6.2	0.43
06-Apr	0.82	<1	<2	<1	8	0.36
07-Apr	0.56	<1	<2	<1	6.6	0.34
08-Apr	0.80	<1	<2	<1	7.1	0.44
15-Apr	0.72	<1	2	<1	8	0.42
20-Apr	0.75	<1	<2	<1	8.6	0.41
22-Apr	0.75	<1	<2	<1	9.5	0.47
27-Apr	0.64	<1	<2	<1	8.2	0.40
29-Apr	0.65	<1	<2	<1	11	0.52
06-May	1.00	<1	<2	<1	11	0.39
08-May	0.70	<1	<2	<1	11	0.36
13-May	0.63	<1	6	<1	9.9	0.34
19-May	0.79	<1	<2	<1	11	0.29
26-May	0.33	<1	<2	<1	12	0.36
02-Jun	0.46	<1	<2	<1	14	0.53
05-Jun	1.00	<1	<2	<1	11	0.39
09-Jun	0.62	<1	<2	<1	16	0.29
16-Jun	0.53	<1	<2	<1	18	0.30
23-Jun	0.61	<1	4	<1	15	0.35
30-Jun	0.62	<1	<2	<1	13	0.29
07-Jul	0.76	<1	<2	<1	16	0.34
15-Jul	0.95	<1	<2	<1	14	0.29
21-Jul	0.52	<1	<2	<1	16	0.29
28-Jul	0.57	<1	<2	<1	18	0.34
06-Aug	0.65	<1	2	<1	18	0.48
11-Aug	0.78	<1	<2	<1	18	0.26
13-Aug	0.48	<1	<2	<1	17	0.39
18-Aug	0.65	<1	<2	<1	18	0.26
28-Aug	0.63	<1	<2	<1	17	0.60
02-Sep	0.82	<1	<2	<1	16	0.24
04-Sep	0.77	<1	<2	<1	18	0.24
16-Sep	0.68	<1	<2	<1	16	0.40
22-Sep	0.69	<1	8	<1	16	0.43
25-Sep	0.75	<1	<2	<1	16	0.33
29-Sep	0.72	<1	<2	<1	15	0.29
30-Sep	0.91	<1	<2	<1	15	0.30
06-Oct	0.88	<1	<2	<1	14	0.35
14-Oct	1.30	<1	<2	<1	13	0.23
16-Oct	0.77	<1	<2	<1	13	0.22
20-Oct	0.87	<1	<2	<1	13	0.37
21-Oct	0.75	<1	<2	<1	14	0.34
27-Oct	0.84	<1	<2	<1	12	0.32
03-Nov	0.86	<1	<2	<1	11	0.82
04-Nov	0.82	<1	<2	<1	11	0.69
05-Nov	0.97	<1	<2	<1	11	0.66
06-Nov	0.82	<1	2	<1	11	0.60
09-Nov	0.73	<1	<2	<1	9.9	0.40
10-Nov	0.75	<1	<2	<1	9.9	0.40
16-Nov	0.59	<1	<2	<1	9.4	0.59
18-Nov	0.68	<1	<2	<1	9	0.80
19-Nov	0.68	<1	<2	<1	10	0.46
23-Nov	0.81	<1	<2	<1	9.7	0.65
25-Nov	0.69	<1	<2	<1	9.8	0.62
01-Dec	0.66	<1	<2	<1	8.8	0.52
03-Dec	0.72	<1	<2	<1	9.1	0.50
08-Dec	0.66	<1	<2	<1	8.2	0.58
10-Dec	0.83	<1	<2	<1	7.7	0.54
15-Dec	0.83	<1	<2	<1	7.5	0.46
16-Dec	0.82	<1	2	<1	7.4	0.49
22-Dec	0.87	<1	<2	<1	6.7	0.79
29-Dec	0.81	<1	NA	<1	6.4	0.61



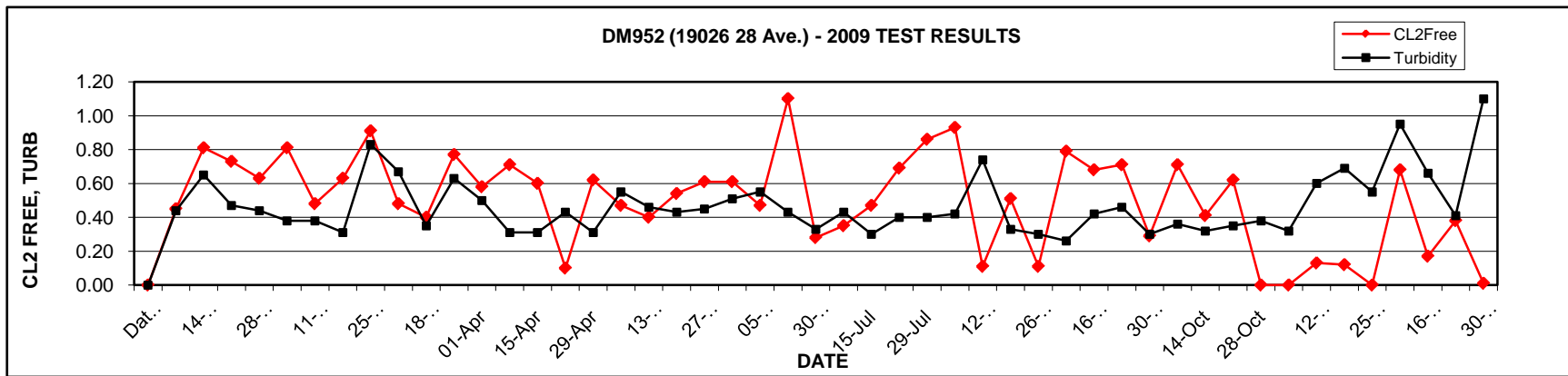
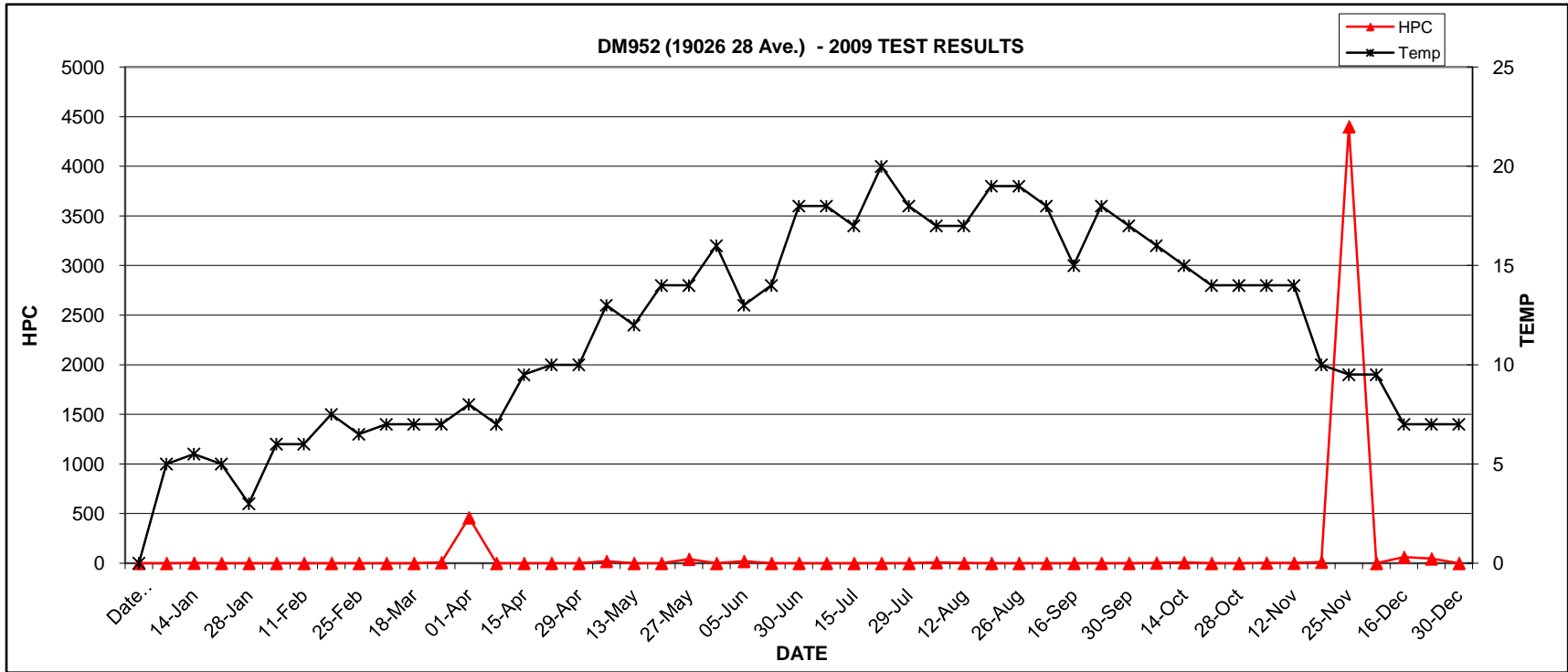
2009 GVRD Laboratory Report - DM951 (2010 192 St.)

Date Collected	CL2Free mg/L	Ecoli MF/100mLs	HPC CFU/mLs	Tcoli MF/100mLs	Temp C	Turbidity NTU
07-Jan	0.08	<1	960	<1	5	0.52
14-Jan	0.06	<1	640	<1	5	0.36
25-Feb	0.27	<1	<2	<1	8.5	0.65
04-Mar	0.12	<1	66	<1	7	3.10
18-Mar	0.06	<1	5000	<1	8	0.41
25-Mar	0.05	<1	420	<1	7.5	0.38
01-Apr	0.07	<1	2	<1	8	0.83
08-Apr	0.05	<1	300	<1	8	0.31
15-Apr	0.05	<1	570	<1	10	0.29
22-Apr	0.07	<1	3500	<1	12	0.40
29-Apr	0.07	<1	2700	<1	13	0.32
06-May	0.01	<1	1300	<1	11	0.46
13-May	0.15	<1	850	<1	14	0.39
20-May	0.49	<1	>11000	<1	13	0.35
27-May	0.58	<1	<2	<1	14	0.84
03-Jun	0.19	<1	3700	<1	18	0.32
05-Jun	0.01	<1	1300	<1	11	0.46
24-Jun	0.39	<1	2600	<1	14	0.41
30-Jun	0.10	<1	1400	<1	18	0.34
08-Jul	0.16	<1	310	<1	20	0.34
15-Jul	0.13	<1	>11000	<1	20	0.32
22-Jul	0.12	<1	510	<1	22	0.34
29-Jul	0.13	<1	1400	<1	19	0.42
05-Aug	<0.01	<1	>11000	<1	17	0.37
12-Aug	0.12	<1	870	<1	17	0.36
19-Aug	0.05	<1	>11000	<1	20	0.33
26-Aug	<0.01	<1	>11000	<1	19	0.24
02-Sep	0.13	<1	760	<1	20	0.27
16-Sep	0.08	<1	11000	<1	19	0.38
23-Sep	<0.01	<1	>11000	<1	20	0.35
30-Sep	0.03	<1	1000	<1	18	0.31
07-Oct	0.09	<1	2000	<1	16	0.32
14-Oct	0.02	<1	5300	<1	15	0.38
21-Oct	0.45	<1	4	<1	16	0.54
28-Oct	<0.01	<1	>11000	<1	13	0.37
04-Nov	0.01	<1	1900	<1	13	0.39
12-Nov	<0.01	<1	>11000	<1	13	0.53
18-Nov	<0.01	<1	11000	<1	10	0.48
25-Nov	0.03	<1	4100	<1	10	0.56
02-Dec	0.21	<1	100	<1	10	2.20
16-Dec	0.02	<1	>11000	<1	8	0.58
22-Dec	<0.01	<1	740	<1	7	0.37
30-Dec	0.17	<1	NA	<1	7	1.00



2009 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
07-Jan	0.45	<1	<2	<1	5	0.44
14-Jan	0.81	<1	2	<1	5.5	0.65
22-Jan	0.73	<1	<2	<1	5	0.47
28-Jan	0.63	<1	<2	<1	3	0.44
04-Feb	0.81	<1	<2	<1	6	0.38
11-Feb	0.48	<1	<2	<1	6	0.38
18-Feb	0.63	<1	<2	<1	7.5	0.31
25-Feb	0.91	<1	<2	<1	6.5	0.83
04-Mar	0.48	<1	<2	<1	7	0.67
18-Mar	0.40	<1	<2	<1	7	0.35
25-Mar	0.77	<1	8	<1	7	0.63
01-Apr	0.58	<1	460	<1	8	0.50
08-Apr	0.71	<1	<2	<1	7	0.31
15-Apr	0.60	<1	<2	<1	9.5	0.31
22-Apr	0.10	<1	<2	<1	10	0.43
29-Apr	0.62	<1	<2	<1	10	0.31
06-May	0.47	<1	20	<1	13	0.55
13-May	0.40	<1	<2	<1	12	0.46
20-May	0.54	<1	<2	<1	14	0.43
27-May	0.61	<1	42	<1	14	0.45
03-Jun	0.61	<1	<2	<1	16	0.51
05-Jun	0.47	<1	20	<1	13	0.55
24-Jun	1.10	<1	<2	<1	14	0.43
30-Jun	0.28	<1	<2	<1	18	0.33
08-Jul	0.35	<1	<2	<1	18	0.43
15-Jul	0.47	<1	<2	<1	17	0.30
22-Jul	0.69	<1	<2	<1	20	0.40
29-Jul	0.86	<1	<2	<1	18	0.40
05-Aug	0.93	<1	8	<1	17	0.42
12-Aug	0.11	<1	2	<1	17	0.74
19-Aug	0.51	<1	<2	<1	19	0.33
26-Aug	0.11	<1	<2	<1	19	0.30
02-Sep	0.79	<1	<2	<1	18	0.26
16-Sep	0.68	<1	<2	<1	15	0.42
23-Sep	0.71	<1	<2	<1	18	0.46
30-Sep	0.29	<1	<2	<1	17	0.30
07-Oct	0.71	<1	4	<1	16	0.36
14-Oct	0.41	<1	8	<1	15	0.32
21-Oct	0.62	<1	<2	<1	14	0.35
28-Oct	<0.01	<1	<2	<1	14	0.38
04-Nov	<0.01	<1	4	<1	14	0.32
12-Nov	0.13	<1	2	<1	14	0.60
18-Nov	0.12	<1	12	<1	10	0.69
25-Nov	<0.01	<1	4400	<1	9.5	0.55
02-Dec	0.68	<1	<2	<1	9.5	0.95
16-Dec	0.17	<1	62	<1	7	0.66
22-Dec	0.38	<1	46	<1	7	0.41
30-Dec	0.01	<1	NA	<1	7	1.10





**Table 3: Number of Year 2009 Water Test Samples**

SITE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Station Total
901	5	2	4	4	5	6	5	5	5	5	4	5	55
902	6	5	4	5	5	6	5	5	4	5	4	5	59
903	5	5	1	5	4	6	5	5	5	5	4	5	55
904	2	5	3	5	4	6	5	4	5	5	4	5	53
905	6	5	4	5	4	6	5	5	5	5	4	5	59
906	1	0	4	6	4	4	5	4	3	6	5	4	46
907	3	5	4	5	4	6	5	5	5	5	4	5	56
908	4	5	4	5	4	6	5	5	5	5	4	5	57
909	2	7	6	6	4	3	6	5	6	8	6	6	65
910	6	6	6	6	4	3	6	5	6	8	6	7	69
911	1	3	6	7	4	3	6	5	6	8	6	7	62
912	1	6	6	7	4	3	6	5	6	8	6	7	65
913	2	6	6	6	4	3	6	5	6	7	6	7	64
914	3	6	6	7	4	3	6	5	6	8	6	7	67
915	4	6	5	7	4	3	6	5	9	8	6	3	66
916	2	6	6	6	4	3	6	5	6	7	6	6	63
917	2	6	6	6	4	3	6	5	6	7	6	6	63
918	4	6	5	6	4	3	6	5	6	7	6	6	64
919	2	2	4	6	4	5	5	4	3	6	5	2	48
920	3	4	4	6	4	5	6	5	3	6	5	7	58
921	4	4	4	6	4	5	5	4	3	6	5	7	57
922	3	4	4	6	4	5	4	5	3	6	5	7	56
923	1	7	6	6	4	3	6	5	6	8	6	7	65
924	4	5	4	6	4	6	5	4	3	6	5	7	59
925	3	4	3	4	4	4	5	4	4	5	4	5	49
926	3	4	3	4	4	4	5	4	4	5	4	5	49
927	3	4	4	4	4	4	5	4	4	5	4	2	47
928	3	2	2	4	4	4	5	4	4	5	4	4	45
929	3	4	3	4	4	4	5	4	4	5	4	5	49
930	4	4	3	5	4	4	4	4	4	4	4	3	47
931	4	4	3	5	5	4	4	4	4	4	4	4	49
932	4	4	3	5	4	4	4	4	4	4	4	4	48
933	4	4	3	5	3	4	4	4	4	4	4	4	47
934	4	4	3	5	4	4	4	4	4	4	4	4	48
935	4	4	3	5	4	4	4	4	4	4	4	4	48
936	4	4	3	5	4	4	4	4	4	4	4	3	47
937	4	4	3	5	4	4	4	4	4	4	5	4	49
938	4	4	3	5	5	4	4	4	4	4	4	4	49
939	4	4	3	5	4	4	4	4	4	4	4	4	48
940	4	4	3	5	4	4	4	4	4	4	4	4	48
941	3	4	3	4	4	4	5	4	4	5	4	4	48
942	3	4	3	4	4	4	5	4	4	5	4	4	48
943	4	4	3	5	4	4	4	4	4	4	4	4	48
944	3	4	3	4	4	4	5	4	4	5	4	4	48
945	3	4	3	3	4	4	5	4	4	5	4	5	48
946	3	2	3	4	5	4	5	4	4	5	4	4	47
947	3	4	3	4	3	4	5	4	4	5	4	5	48
948	3	3	3	5	4	4	5	4	4	5	4	2	46
949	5	5	6	10	5	6	4	5	7	6	11	8	78
951	2	1	3	5	4	4	4	4	4	4	4	4	43
952	4	4	3	5	4	4	4	4	4	4	4	4	48
<b>Monthly Total</b>	171	217	196	268	208	215	251	224	232	277	240	249	2748
<b>Monthly Minimum</b>	171												
<b>Monthly Maximum</b>	277												
<b>Monthly Median</b>	228												

2009 Water Quality Data Summary

Sampling Site	No. of Samples Tested	No. of HPC Results >500	% of HPC Results >500	No. of CL2 Occurrences...			% of CL2 Occurrences...		
				< 0.1	< 0.05	<0.01	< 0.1	< 0.05	<0.01
901	55	0	0.00%	9	3	1	16.36%	5.45%	1.82%
902	59	0	0.00%	29	17	5	49.15%	28.81%	8.47%
903	55	0	0.00%	17	11	2	30.91%	20.00%	3.64%
904	53	0	0.00%	2	1	0	3.77%	1.89%	0.00%
905	59	0	0.00%	9	5	1	15.25%	8.47%	1.69%
906	46	0	0.00%	3	1	0	6.52%	2.17%	0.00%
907	56	0	0.00%	0	0	0	0.00%	0.00%	0.00%
908	57	0	0.00%	18	8	2	31.58%	14.04%	3.51%
909	65	0	0.00%	0	0	0	0.00%	0.00%	0.00%
910	69	0	0.00%	4	1	0	5.80%	1.45%	0.00%
911	62	0	0.00%	9	3	1	14.52%	4.84%	1.61%
912	65	0	0.00%	7	2	0	10.77%	3.08%	0.00%
913	64	0	0.00%	0	0	0	0.00%	0.00%	0.00%
914	67	0	0.00%	3	0	0	4.48%	0.00%	0.00%
915	66	0	0.00%	0	0	0	0.00%	0.00%	0.00%
916	63	0	0.00%	3	1	0	4.76%	1.59%	0.00%
917	63	0	0.00%	0	0	0	0.00%	0.00%	0.00%
918	64	0	0.00%	5	0	0	7.81%	0.00%	0.00%
919	48	0	0.00%	0	0	0	0.00%	0.00%	0.00%
920	58	0	0.00%	1	0	0	1.72%	0.00%	0.00%
921	57	0	0.00%	2	1	0	3.51%	1.75%	0.00%
922	56	0	0.00%	4	0	0	7.14%	0.00%	0.00%
923	65	0	0.00%	1	1	0	1.54%	1.54%	0.00%
924	59	0	0.00%	0	0	0	0.00%	0.00%	0.00%
925	49	0	0.00%	0	0	0	0.00%	0.00%	0.00%
926	49	0	0.00%	1	0	0	2.04%	0.00%	0.00%
927	47	0	0.00%	0	0	0	0.00%	0.00%	0.00%
928	45	0	0.00%	0	0	0	0.00%	0.00%	0.00%
929	49	0	0.00%	0	0	0	0.00%	0.00%	0.00%
930	47	0	0.00%	2	0	0	4.26%	0.00%	0.00%
931	49	0	0.00%	2	1	1	4.08%	2.04%	2.04%
932	48	0	0.00%	2	1	1	4.17%	2.08%	2.08%
933	47	1	2.13%	19	8	3	40.43%	17.02%	6.38%
934	48	2	4.17%	1	0	0	2.08%	0.00%	0.00%
935	48	2	4.17%	2	1	1	4.17%	2.08%	2.08%
936	47	2	4.26%	18	5	2	38.30%	10.64%	4.26%
937	49	1	2.04%	3	2	0	6.12%	4.08%	0.00%
938	49	0	0.00%	1	0	0	2.04%	0.00%	0.00%
939	48	1	2.08%	4	2	2	8.33%	4.17%	4.17%
940	48	2	4.17%	7	4	3	14.58%	8.33%	6.25%
941	48	0	0.00%	2	1	1	4.17%	2.08%	2.08%
942	48	0	0.00%	0	0	0	0.00%	0.00%	0.00%
943	48	0	0.00%	0	0	0	0.00%	0.00%	0.00%
944	48	0	0.00%	0	0	0	0.00%	0.00%	0.00%
945	48	0	0.00%	0	0	0	0.00%	0.00%	0.00%
946	47	0	0.00%	0	0	0	0.00%	0.00%	0.00%
947	48	0	0.00%	2	2	0	4.17%	4.17%	0.00%
948	46	0	0.00%	31	15	8	67.39%	32.61%	17.39%
949	78	0	0.00%	0	0	0	0.00%	0.00%	0.00%
951	43	24	55.81%	26	14	7	60.47%	32.56%	16.28%
952	48	1	2.08%	4	4	3	8.33%	8.33%	6.25%
		<b>Mean Percent</b>	<b>1.59%</b>		<b>Mean Percent</b>	<b>9.62%</b>	<b>4.42%</b>	<b>1.76%</b>	

# **APPENDIX ‘B’**

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## **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 (21<sup>st</sup> 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 $\beta$ -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
Nitritotriacetic 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 <sub>2</sub> 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 H<sub>2</sub>S) 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**

<b>City</b>	<b>Population (2004)</b>	<b>Number of Sample Sites</b>	<b>Minimum Number of Samples per Month as Required by Schedule B of the DWPR</b>
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
<b>Total</b>	<b>2,126,292</b>	<b>379</b>	<b>1238</b>

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( $\alpha$ )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**

<b>Title</b>	<b>Report Content</b>	<b>Target Audience</b>	<b>Frequency</b>
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) <sup>1</sup>	Immediate
Municipal <i>E. Coli</i> Positive Sample	Laboratory <sup>2</sup> Municipality <sup>3</sup>	MHO (or delegate)	Immediate
Chemical Contamination - GVRD	GVRD	GVRD MHO Municipality(ies) <sup>1</sup>	Immediate
Chemical Contamination - Municipality	Municipality	MHO (or delegate)	Immediate
Turbidity > 5 NTU	GVRD	GVRD MHO Municipality(ies) <sup>1</sup>	Immediate
Disinfection Failure – Source Water (Primary Disinfection)	GVRD	GVRD MHO Municipality(ies) <sup>1</sup>	Immediate (As per DWPA)
Disinfection Failure – Rechlorination (Secondary Disinfection)	GVRD	GVRD MHO Municipality(ies) <sup>1</sup>	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 <sup>4</sup> – Municipality	Municipality	MHO (or delegate)	As required by Health Regions
Line Break <sup>4</sup> – GVRD	GVRD	Municipality(ies)	As required by Municipalities
Line Break <sup>5</sup> – Municipality	Municipality	MHO (or delegate)	Immediate
Line Break <sup>5</sup> – GVRD	GVRD	GVRD MHO Municipality(ies) <sup>1</sup>	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’**

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## **B.C. Drinking Water Protection Regulation**

### **Guidelines for Canadian Drinking Water Quality – Summary Table**

# **B.C Drinking Water Protection Regulation**

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**IMPORTANT INFORMATION**

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. 363/2008, December 4, 2008]

***Contents***

- 1 Definitions
- 2 Standards for potable water
- 3 Domestic water system
- 3.1 Exemptions
  - 4 Prescribed water supply systems
  - 5 Treatment
  - 6 Construction permits
  - 7 Operating permits and fees
- 7.1 Decals
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- 7.3 Temporary facilities
  - 8 Water monitoring analysis
  - 9 Immediate reporting standard
- 10 Public notification
- 11 Time limits for publication
- 12 Qualification standards for persons operating water supply systems
- 13 Emergency response and contingency plan
- 14 Well floodproofing
- 15 Assessment response plan

**Schedule A**

**Water Quality Standards for Potable Water**

**Schedule B**

**Frequency of Monitoring Samples for**

**Prescribed Water Supply Systems**

**Schedule C**

**Operating Permit Fees**

**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.

**"strata corporation system"** means a water supply system that

(a) serves the members of a strata corporation as defined in the *Strata Property Act*, and

(b) receives water from a water supply system.

[en. B.C. Reg. 352/2005, s. 1; am. B.C. Regs. 5/2007, App. 1, s. 1; 363/2008, 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 strata corporation system.

[en. B.C. Reg. 352/2005, s. 2; am. B.C. Reg. 363/2008, 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)*

<b>Parameter:</b>	<b>Standard:</b>
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**

<b>Water Supply System:</b>	<b>Number of Samples Per Month:</b>
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]

**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

May 2008

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## Introduction

The *Guidelines for Canadian Drinking Water Quality* are published by Health Canada on behalf of the Federal-Provincial-Territorial Committee on Drinking Water (CDW). This summary table is updated regularly and published on Health Canada's website ([www.healthcanada.gc.ca/waterquality](http://www.healthcanada.gc.ca/waterquality)). It supersedes all previous versions, as well as the published booklet of the *Sixth Edition of the Guidelines for Canadian Drinking Water Quality*.

These guidelines are 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;
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, at a level that is of possible health significance.

If a contaminant of interest does not meet all these criteria, the Federal-Provincial-Territorial Committee on Drinking Water may choose not to establish a numerical guideline or develop a Guideline Technical Document. In that case, a Guidance Document may be developed.

Guidance Documents undergo a process similar to Guideline Technical Documents, including public consultations through the Health Canada web site. They are offered as information for drinking water authorities, and help provide guidance relating to contaminants, drinking water management issues or emergency situations. Consultation documents, Guideline Technical Documents and Guidance documents are available from the Health Canada website ([www.healthcanada.gc.ca/waterquality](http://www.healthcanada.gc.ca/waterquality)).

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

Inquiries can be directed to: [water\\_eau@hc-sc.gc.ca](mailto:water_eau@hc-sc.gc.ca)

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

### Jurisdictional representatives

Alberta	Department of Environment	Mr. Karu Chinniah
British Columbia	Ministry of Health Services	Mr. Barry Boettger
Manitoba	Department of Water Conservation	Mr. Don Rocan
New Brunswick	Department of Health and Wellness	Ms. Karen White
Newfoundland and Labrador	Department of Environment and Conservation	Mr. Martin Goebel
Northwest Territories	Stanton Territorial Health Authority	Mr. Duane Fleming
Nova Scotia	Department of Environment and Labour	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	Department 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
Canadian Advisory Council on Plumbing	Mr. William Fallow

### Committee secretary

Health Canada (Water, Air and Climate Change Bureau, Safe Environments Programme, Healthy Environments and Consumer Safety Branch)	Mr. David Green
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## Guidelines for Canadian Drinking Water Quality—Summary Table

**New, revised, reaffirmed and upcoming guidelines**

Guidelines for several chemical, physical and microbiological parameters are new or have been revised since the publication of the *Sixth Edition of the Guidelines for Canadian Drinking Water Quality* in 1996. These new and revised guidelines are presented in Table 1.

**Table 1. New and revised guidelines**

Parameter	Guideline (mg/L)	Previous guideline (mg/L)	CHE approval
<i>Microbiological parameters</i> <sup>a</sup>			
Bacteriological		0 coliforms/100 mL	
<i>E. coli</i>	0 per 100 mL		2006
Total coliforms	0 per 100 mL		2006
Heterotrophic plate count	No numerical guideline required		2006
Emerging pathogens	No numerical guideline required		2006
Protozoa	No numerical guideline required	None	2004
Enteric viruses	No numerical guideline required	None	2004
Turbidity	0.3/1.0/0.1 NTU <sup>b</sup>	1.0 NTU	2004
<i>Chemical and physical parameters</i>			
Aluminum	0.1/0.2 <sup>c</sup>	None	1999
Antimony	0.006	None	1997
Arsenic	0.010	0.025	2006
Bromate	0.01	None	1999
Bromodichloromethane (BDCM)	0.016	None	2006
Chlorate	1.0	None	2008
Chlorite	1.0	None	2008
Cyanobacterial toxins—microcystin-LR	0.0015	None	2002
Fluoride	1.5	1.5	1996
Formaldehyde	No numerical guideline required	None	1998
Haloacetic Acids—Total (HAAs)	0.080	None	2008
Methyl <i>tertiary</i> -butyl ether (MTBE)	0.015	None	2006
Trichloroethylene (TCE)	0.005	0.05	2005
Trihalomethanes—Total (THMs)	0.100	0.100	2006
Uranium	0.02	0.1	2000

<sup>a</sup>Refer to section on Guidelines for microbiological parameters.

<sup>b</sup>Based on conventional treatment/slow sand or diatomaceous earth filtration/membrane filtration.

<sup>c</sup>This is an operational guidance value, designed to apply only to drinking water treatment plants using aluminum-based coagulants. The operational guidance values of 0.1 mg/L applies to conventional treatment plants, and 0.2 mg/L applies to other types of treatment systems.

*Guidelines for Canadian Drinking Water Quality—Summary Table*

The Federal-Provincial-Territorial Committee on Drinking Water has established a science-based process to systematically review older guidelines to assess the need to update them. Table 2 provides the list of parameters whose guidelines remain appropriate and have been reaffirmed as a result of this review. Health Canada and the FPT Committee on Drinking Water will continue to monitor research on these parameters and recommend any revision(s) to the guidelines that is deemed necessary.

**Table 2. Reaffirmed guidelines (2005)**

Asbestos	Cyanazine	Iron	Taste
Azinphos-methyl	Diazinon	Magnesium	Temperature
Bendiocarb	Dicamba	Malathion	Terbufos
Benzo(a)pyrene	2,4-Dichlorophenol	Methoxychlor	2,3,4,6-Tetrachlorophenol
Bromoxynil	Diclofop-methyl	Metribuzin	Toluene
Cadmium	Dimethoate	Odour	2,4,6-Trichlorophenol
Calcium	Diquat	Paraquat	Trifluralin
Carbaryl	Diuron	Pentachlorophenol	Xylenes
Carbofuran	Ethylbenzene	Phorate	Zinc
Chloride	Gasoline	Picloram	
Colour	Glyphosate	Silver	

Table 3 outlines documents which are being or have been developed and are awaiting approval through the Federal-Provincial-Territorial process.

**Table 3. Upcoming documents (not yet finalized/approved)**

Parameter or subject	Document type (GTD or guidance)	Current status
Protozoa	GTD	In preparation <sup>b</sup>
Enteric viruses	GTD	In preparation <sup>b</sup>
Ammonia	GTD	In preparation <sup>b</sup>
Boil water advisories	Guidance	In preparation <sup>a</sup>
Benzene	GTD	Consultation concluded <sup>a</sup>
Carbon tetrachloride	GTD	In preparation <sup>b</sup>
Chloral hydrate	Guidance	Consultation concluded <sup>a</sup>
Chlorine	GTD	Consultation concluded <sup>a</sup>
Corrosion control	Guidance	Consultation concluded <sup>a</sup>
Drinking water avoidance advisories	Guidance	In preparation <sup>a</sup>
Fluoride	GTD	In preparation <sup>b</sup>
2-Methyl-4-chlorophenoxyacetic acid (MCPA)	GTD	In preparation <sup>c</sup>
Nitrate/Nitrite	GTD	In preparation <sup>b</sup>

## Guidelines for Canadian Drinking Water Quality—Summary Table

Parameter or subject	Document type (GTD or guidance)	Current status
N-Nitrosodimethylamine (NDMA)	GTD	In preparation <sup>b</sup>
Potassium from water softeners	Guidance	In preparation <sup>a</sup>
Radiological characteristics	GTD	Consultation concluded <sup>a</sup>

<sup>a</sup>Final guideline technical document or guidance document in preparation for final approval/posting

<sup>b</sup>Guideline technical document or guidance document being prepared for public consultation

<sup>c</sup>Guideline technical document being prepared for second public consultation due to new scientific information

## Guidelines for microbiological parameters

Currently available detection methods do not allow for the routine analysis of all microorganisms that could be present in inadequately treated drinking water. Instead, microbiological quality is determined by testing drinking water for *Escherichia coli*, a bacterium that is always present in the intestines of humans and other animals and whose presence in drinking water would indicate faecal contamination of the water.

### Bacteriological guidelines

#### *Escherichia coli*

The maximum acceptable concentration (MAC) of *Escherichia coli* in public, semi-public, and private drinking water systems is none detectable per 100 mL.

Testing for *E. coli* should be carried out in all drinking water systems. The number, frequency, and location of samples for *E. coli* testing will vary according to the type and size of the system and jurisdictional requirements.

#### Total coliforms

The MAC of total coliforms in water leaving a treatment plant in a public system and throughout semi-public and private supply systems is none detectable per 100 mL.

For distribution systems in public supplies where fewer than 10 samples are collected in a given sampling period, no sample should contain total coliform bacteria. In distribution systems where greater than 10 samples are collected in a given sampling period, no consecutive samples from the same site or not more than 10% of samples should show the presence of total coliform bacteria.

Testing for total coliforms should be carried out in all drinking water systems. The number, frequency, and location of samples for total coliform testing will vary according to the type and size of the system and jurisdictional requirements.

#### Heterotrophic plate count

No MAC is specified for heterotrophic plate count (HPC) bacteria in water supplied by public, semi-public, or private drinking water systems. Instead, increases in HPC concentrations above baseline levels are considered undesirable.

#### Emerging pathogens

No MAC for current or emerging bacterial waterborne pathogens has been established. Current bacterial waterborne pathogens include those that have been previously linked to gastrointestinal illness in human populations. Emerging bacterial waterborne pathogens include, but are not limited to,

*Legionella*, *Mycobacterium avium* complex, *Aeromonas hydrophila*, and *Helicobacter pylori*.

### Protozoa

Although *Giardia* and *Cryptosporidium* can be responsible for severe and, in some cases, fatal gastrointestinal illness, it is not possible to establish MACs for these protozoa in drinking water at this time. Routine methods available for the detection of cysts and oocysts suffer from low recovery rates and do not provide any information on their viability or human infectivity. Nevertheless, until better monitoring data and information on the viability and infectivity of cysts and oocysts present in drinking water are available, measures should be implemented to reduce the risk of illness as much as possible. If the presence of viable, human-infectious cysts or oocysts is known or suspected in source waters, or if *Giardia* or *Cryptosporidium* has been responsible for past waterborne outbreaks in a community, a treatment and distribution regime and a watershed or wellhead protection plan (where feasible) or other measures known to reduce the risk of illness should be implemented. Treatment technologies in place should achieve at least a 3-log reduction in and/or inactivation of cysts and oocysts, unless source water quality requires a greater log reduction and/or inactivation.

### Viruses

Although enteric viruses can be responsible for severe and, in some cases, fatal illnesses, it is not possible to establish MACs for enteric viruses in drinking water at this time. Treatment technologies and watershed or wellhead protection measures known to reduce the risk of waterborne outbreaks should be implemented and maintained if source water is subject to faecal contamination or if enteric viruses have been responsible for past waterborne outbreaks. Where treatment is required, treatment technologies should achieve at least a 4-log reduction and/or inactivation of viruses.

### Turbidity

Waterworks systems that use a surface water source or a groundwater source under the direct influence of surface water should filter the source water to meet the following health-based turbidity limits, as defined for specific treatment technologies. 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. Where this is not achievable, the treated water turbidity levels from individual filters:

1. For **chemically assisted filtration**, shall be less than or equal to **0.3 NTU** in at least 95% of the measurements made, or at least 95% of the time each calendar month, and shall not exceed 1.0 NTU at any time.
2. For **slow sand or diatomaceous earth filtration**, shall be less than or equal to **1.0 NTU** in at least 95% of the measurements made, or at least 95% of the time each calendar month, and shall not exceed 3.0 NTU at any time.
3. For **membrane filtration**, shall be less than or equal to **0.1 NTU** in at least 99% of the measurements made, or at least 99% of the time each calendar month, and shall not exceed 0.3 NTU at any time. If membrane filtration is the sole treatment technology employed, some form of virus inactivation\* should follow the filtration process.

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\*Some form of virus inactivation is required for all technologies. The difference is that chemically assisted, slow sand and diatomaceous earth filters are credited with log virus reductions and membrane filters receive no credit.

### Guidelines for chemical and physical parameters

Table 4 provides the complete list of all current numerical Guidelines for chemical and physical parameters. Guidelines are either health-based and listed as Maximum Acceptable Concentrations (MAC), based on aesthetic considerations and listed as aesthetic objectives (AO) or established based on operational considerations and listed as Operational Guidance Values (OG). Parameters for which the health-based guideline was developed as an interim maximum acceptable concentration (IMAC) are identified with an asterisk (\*) in the table below. The use of these ‘interim’ MACs was discontinued by the Federal-Provincial-Territorial Committee on Drinking Water in 2003. For more information on specific guidelines, please refer to the guideline technical document for the parameter of concern.

**Table 4. Health-based and aesthetic guidelines**

Parameter	MAC (mg/L)	AO [or OG] (mg/L)	Year of approval (or reaffirmation)
Aldicarb	0.009		1994
Aldrin + dieldrin	0.0007		1994
Aluminum <sup>a</sup>		[0.1/0.2]	1998
*Antimony <sup>b</sup>	0.006		1997
Arsenic	0.010		2006
*Atrazine + metabolites	0.005		1993
Azinphos-methyl	0.02		1989 (2005)
Barium	1		1990
Bendiocarb	0.04		1990 (2005)
Benzene	0.005		1986
Benzo[a]pyrene	0.00001		1988 (2005)
*Boron	5		1990
*Bromate	0.01		1998
Bromodichloromethane (BDCM)	0.016		2006
*Bromoxynil	0.005		1989 (2005)
Cadmium	0.005		1986 (2005)
Carbaryl	0.09		1991 (2005)
Carbofuran	0.09		1991 (2005)
Carbon tetrachloride	0.005		1986
Chloramines—total	3		1995
Chlorate	1.0		2008
Chloride		≤250	1979 (2005)
Chlorite	1.0		2008
Chlorpyrifos	0.09		1986
Chromium	0.05		1986
Colour <sup>d</sup>		≤15 TCU	1979 (2005)

## Guidelines for Canadian Drinking Water Quality—Summary Table

Parameter	MAC (mg/L)	AO [or OG] (mg/L)	Year of approval (or reaffirmation)
Copper <sup>b</sup>		≤1.0	1992
*Cyanazine	0.01		1986 (2005)
Cyanide	0.2		1991
Cyanobacterial toxins—Microcystin-LR <sup>c</sup>	0.0015		2002
Diazinon	0.02		1986 (2005)
Dicamba	0.12		1987 (2005)
1,2-Dichlorobenzene <sup>e</sup>	0.2	≤0.003	1987
1,4-Dichlorobenzene <sup>e</sup>	0.005	≤0.001	1987
*1,2-Dichloroethane	0.005		1987
1,1-Dichloroethylene	0.014		1994
Dichloromethane	0.05		1987
2,4-Dichlorophenol,	0.9	≤0.0003	1987 (2005)
*2,4-Dichlorophenoxyacetic acid (2,4 -D)	0.1		1991
Diclofop-methyl	0.009		1987 (2005)
*Dimethoate	0.02		1986 (2005)
Dinoseb	0.01		1991
Diquat	0.07		1986 (2005)
Diuron	0.15		1987 (2005)
Ethylbenzene		≤0.0024	1986 (2005)
Fluoride	1.5		1996
*Glyphosate	0.28		1987 (2005)
Haloacetic Acids—Total (HAAs)	0.080		2008
Iron		≤0.3	1978 (2005)
Lead <sup>b</sup>	0.01		1992
Malathion	0.19		1986 (2005)
Manganese		≤0.05	1987
Mercury	0.001		1986
Methoxychlor	0.9		1986 (2005)
Methyl tertiary-butyl ether (MTBE)		0.015	2006
*Metolachlor	0.05		1986
Metribuzin	0.08		1986 (2005)
Monochlorobenzene	0.08	≤0.03	1987
Nitrate <sup>f</sup>	45		1987
Nitritotriacetic acid (NTA)	0.4		1990
Odour		Inoffensive	1979 (2005)



## Guidelines for Canadian Drinking Water Quality—Summary Table

Parameter	MAC (mg/L)	AO [or OG] (mg/L)	Year of approval (or reaffirmation)
*Paraquat (as dichloride) <sup>e</sup>	0.01		1986 (2005)
Parathion	0.05		1986
Pentachlorophenol	0.06	≤0.030	1987 (2005)
pH <sup>h</sup>		6.5–8.5	1995
Phorate	0.002		1986 (2005)
*Picloram	0.19		1988 (2005)
Selenium	0.01		1992
*Simazine	0.01		1986
Sodium <sup>i</sup>		≤200	1992
Sulphate <sup>j</sup>		≤500	1994
Sulphide (as H <sub>2</sub> S)		≤0.05	1992
Taste		Inoffensive	1979 (2005)
Temperature		≤15°C	1979 (2005)
*Terbufos	0.001		1987 (2005)
Tetrachloroethylene	0.03		1995
2,3,4,6-Tetrachlorophenol	0.1	≤0.001	1987 (2005)
Toluene		≤0.024	1986 (2005)
Total dissolved solids (TDS)		≤500	1991
Trichloroethylene	0.005		2005
2,4,6-Trichlorophenol	0.005	≤0.002	1987 (2005)
*Trifluralin	0.045		1989 (2005)
Trihalomethanes-total (THMs) <sup>k</sup>	0.100		2006
Turbidity <sup>l</sup>			2004
*Uranium	0.02		1999
Vinyl chloride	0.002		1992
Xylenes—total		≤0.3	1986 (2005)
Zinc <sup>b</sup>		≤5.0	1979 (2005)

<sup>a</sup>This is an operational guidance value, designed to apply only to drinking water treatment plants using aluminum-based coagulants. The operational guidance values of 0.1 mg/L applies to conventional treatment plants, and 0.2 mg/L applies to other types of treatment systems.

<sup>b</sup>Faucets should be thoroughly flushed before water is taken for consumption or analysis.

<sup>c</sup>The guideline is considered protective of human health against exposure to all microcystins that may be present.

<sup>d</sup>TCU = true colour unit.

<sup>e</sup>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.

<sup>f</sup>Equivalent to 10 mg/L as nitrate–nitrogen. Where nitrate and nitrite are determined separately, levels of nitrite should not exceed 3.2 mg/L.

<sup>g</sup>Equivalent to 0.007 mg/L for paraquat ion.

<sup>h</sup>No units.

<sup>i</sup>It is recommended that sodium be included in routine monitoring programmes, as levels may be of interest to authorities who wish to prescribe sodium-restricted diets for their patients.

<sup>j</sup>There may be a laxative effect in some individuals when sulphate levels exceed 500 mg/L.

<sup>k</sup>Expressed as a running annual average. The guideline is based on the risk associated with chloroform, the trihalomethane most often present and in greatest concentration in drinking water.

<sup>l</sup>Refer to section on Guidelines for microbiological parameters for information related to various treatment processes.

### Parameters without guidelines

Some chemical and physical parameters for which a Guideline Technical Document is available have been identified as not requiring a numerical guideline, because currently available data indicate that it poses no health risk or aesthetic problem at the levels generally found in drinking water in Canada.

**Table 5. Parameters without numerical guidelines**

Ammonia	Asbestos
Calcium	Formaldehyde
Gasoline	Hardness <sup>a</sup>
Magnesium	Radon
Silver	

<sup>a</sup>Public acceptance of hardness varies considerably. Generally, hardness levels between 80 and 100 mg/L (as CaCO<sub>3</sub>) are considered acceptable; levels greater than 200 mg/L are considered poor but can be tolerated; those in excess of 500 mg/L are normally considered unacceptable. Where water is softened by sodium ion exchange, it is recommended that a separate, unsoftened supply be retained for culinary and drinking purposes.

### Archived parameters

The Federal-Provincial-Territorial Committee on Drinking Water has established a science-based process to systematically review older guidelines and archive older guidelines which are no longer required. Guidelines are archived for parameters which are no longer found in Canadian drinking water supplies at levels that could pose a risk to human health, including pesticides which are no longer registered for use in Canada, and for mixtures of contaminants that are addressed individually. Table 6 provides the list of parameters whose guidelines have been archived as a result of this review.

**Table 6. Parameters that have been archived<sup>a</sup>**

Chlordane (total isomers) <sup>b</sup>	Polychlorinated biphenyls (PCBs)
Dichlorodiphenyltrichloroethane (DDT) + metabolites <sup>b</sup>	Polycyclic aromatic hydrocarbons (PAH) <sup>c</sup>
Endrin <sup>b</sup>	Resin acids
Heptachlor + heptachlor epoxide <sup>b</sup>	Tannin
Lignin <sup>b</sup>	Temephos <sup>d</sup>
Lindane <sup>b</sup>	Total organic carbon (TOC)
Methyl-parathion <sup>b</sup>	Toxaphene <sup>b</sup>
Mirex	Triallate <sup>d</sup>
Pesticides (total)	2,4,5-Trichlorophenoxyacetic acid (2,4,5-T) <sup>d</sup>
Phenols (total)	2,4,5-Trichlorophenoxypropionic acid (2,4,5-TP) <sup>b</sup>
Phthalic acid esters (PAE)	

<sup>a</sup>Published in the 1978 version of the *Supporting Documentation* for these parameters (available upon request).

<sup>b</sup>In 1978 'Pesticides' Supporting Documentation.

<sup>c</sup>Other than benzo[a]pyrene.

<sup>d</sup>No documentation available.

## Guidelines for radiological parameters

In setting dose guidelines for radionuclides in drinking water, it is recognized that water consumption contributes only a portion of the total radiation dose and that some radionuclides present are natural in origin and therefore cannot be excluded. Consequently, maximum acceptable concentrations for radionuclides in drinking water have been derived based on a committed effective dose of 0.1 mSv\*\* from one year's consumption of drinking water. This dose represents less than 5% of the average annual dose attributable to natural background radiation.

To facilitate the monitoring of radionuclides in drinking water, the reference level of dose is expressed as an activity concentration, which can be derived for each radionuclide from published radiological data. The National Radiological Protection Board has calculated dose conversion factors (DCFs) for radionuclides based on metabolic and dosimetric models for adults and children. Each DCF provides an estimate of the 50-year committed effective dose resulting from a single intake of 1 Bq\*\*\* of a given radionuclide.

The MACs of radionuclides in public water supplies are derived from adult DCFs, assuming a daily water intake of 2 L, or 730 L/year, and a maximum committed effective dose of 0.1 mSv, or 10% of the International Commission on Radiological Protection limit on public exposure:

$$\text{MAC (Bq/L)} = \frac{1 \times 10^{-4} \text{ (Sv/year)}}{730 \text{ (L/year)} \times \text{DCF (Sv/Bq)}}$$

When two or more radionuclides are found in drinking water, the following relationship should be satisfied:

$$\frac{C_1}{\text{MAC}_1} + \frac{C_2}{\text{MAC}_2} + \dots + \frac{C_i}{\text{MAC}_i} \leq 1$$

where  $C_i$  and  $\text{MAC}_i$  are the observed and maximum acceptable concentrations, respectively, for each contributing radionuclide.

MACs for radionuclides that should be monitored in water samples are listed in Table 7. If a sample is analysed by gamma-spectroscopy, additional screening for radionuclides that may be present under certain conditions can be performed. MACs for a number of additional radionuclides, both natural and artificial, can be found in the sixth edition of the guidelines booklet.

Water samples may be initially screened for radioactivity using techniques for gross alpha and gross beta activity determinations. Compliance with the guidelines may be inferred if the measurements for gross alpha and gross beta activity are less than 0.1 Bq/L and 1 Bq/L, respectively, as these are lower than the strictest MACs. Sampling and analyses should be carried out often enough to accurately characterize the annual exposure. If the source of the activity is known, or expected, to be changing rapidly with time, then the sampling frequency should reflect this factor. If there is no reason to suppose that the source varies with time, then the sampling may be done annually. If measured concentrations are consistent and well below the reference levels, this would be an argument for reducing the sampling frequency. On the other hand, the sampling frequency should be maintained, or even increased, if

\*\* Sievert (Sv) is the unit of radiation dose. It replaces the old unit, rem (1 rem = 0.01 Sv)

\*\*\* Becquerel (Bq) is the unit of activity of a radioactive substance, or the rate at which transformations occur in the substance. One becquerel is equal to one transformation per second and approximately equal to 27 picocuries (pCi).

## Guidelines for Canadian Drinking Water Quality—Summary Table

concentrations are approaching the reference levels. In such a case, the specific radionuclides should be identified and individual activity concentrations measured.

**Table 7. Primary list of radionuclides**

Radionuclide		Half-life $t_{1/2}$	DCF (Sv/Bq)	MAC (Bq/L)
<i>Natural radionuclides</i>				
Lead-210	$^{210}\text{Pb}$	22.3 years	$1.3 \times 10^{-6}$	0.1
Radium-224	$^{224}\text{Ra}$	3.66 days	$8.0 \times 10^{-8}$	2
Radium-226	$^{226}\text{Ra}$	1600 years	$2.2 \times 10^{-7}$	0.6
Radium-228	$^{228}\text{Ra}$	5.76 years	$2.7 \times 10^{-7}$	0.5
Thorium-228	$^{228}\text{Th}$	1.91 years	$6.7 \times 10^{-8}$	2
Thorium-230	$^{230}\text{Th}$	$7.54 \times 10^4$ years	$3.5 \times 10^{-7}$	0.4
Thorium-232	$^{232}\text{Th}$	$1.40 \times 10^{10}$ years	$1.8 \times 10^{-6}$	0.1
Thorium-234	$^{234}\text{Th}$	24.1 days	$5.7 \times 10^{-9}$	20
Uranium-234 <sup>a</sup>	$^{234}\text{U}$	$2.45 \times 10^5$ years	$3.9 \times 10^{-8}$	4
Uranium-235 <sup>a</sup>	$^{235}\text{U}$	$7.04 \times 10^8$ years	$3.8 \times 10^{-8}$	4
Uranium-238 <sup>a</sup>	$^{238}\text{U}$	$4.47 \times 10^9$ years	$3.6 \times 10^{-8}$	4
<i>Artificial radionuclides</i>				
Cesium-134	$^{134}\text{Cs}$	2.07 years	$1.9 \times 10^{-8}$	7
Cesium-137	$^{137}\text{Cs}$	30.2 years	$1.3 \times 10^{-8}$	10
Iodine-125	$^{125}\text{I}$	59.9 days	$1.5 \times 10^{-8}$	10
Iodine-131	$^{131}\text{I}$	8.04 days	$2.2 \times 10^{-8}$	6
Molybdenum-99	$^{99}\text{Mo}$	65.9 hours	$1.9 \times 10^{-9}$	70
Strontium-90	$^{90}\text{Sr}$	29 years	$2.8 \times 10^{-8}$	5
Tritium <sup>b</sup>	$^3\text{H}$	12.3 years	$1.8 \times 10^{-11}$	7000

<sup>a</sup> The activity concentration of natural uranium corresponding to the chemical guideline of 0.02 mg/L (see separate guideline technical document on uranium) is about 0.5 Bq/L.

<sup>b</sup> Tritium is also produced naturally in the atmosphere in significant quantities.

# **APPENDIX 'D'**

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**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/mm<sup>3</sup>.
- 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](http://www.HealthLinkBC.ca/healthfiles/index.stm) or your local public health unit.

Click on [www.HealthLinkBC.ca](http://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.