



ANNUAL WATER REPORT 2010

Date: 21 October, 2011

Introduction

The City of Langley (City) provides water for residents and businesses within the City limits. This report is provided to City Council for their information, and in fulfillment of the City's obligations under the Provincial Drinking Water Act and associated regulations, as well as the terms and conditions of the City's Water System Operating Permit. Enforcement of the regulations and issuance of water system permits is the responsibility of the Fraser Health Authority's Drinking Water Officer.

Water Supply

The City receives its water supply from the Coquitlam Lake reservoir. The water is supplied through the Greater Vancouver Water District (GVWD)'s trunk watermain. There is a primary ozone disinfection station at the Coquitlam reservoir and a secondary chlorination disinfection station at Clayton hill area in the City of Surrey. The City relies on Metro Vancouver staff for the quality of water delivered to the City.

Storage

The City has one water reservoir to serve our present and future water demand.

Should there be a disruption in the supply of water from the GVWD, there is adequate water capacity in the reservoir to serve our City for extended periods of time. The reservoir is equipped with an automatic shut off valve, which will close if flow is disrupted, including seismic events. The intention behind this design is that water is retained in the reservoir for domestic and firefighting use. Because the reservoir was constructed in two separate cells, our crews can clean and maintain one cell at a time, and still have sufficient clean water for our residents.

Distribution System

The City is divided into two pressure zones. These zones split in the area of 53rd Avenue with the northern zone being supplied by gravity from the Clayton reservoir in Surrey at all times and the southern zone being supplied directly from our reservoir. If the available pressure in the northern zone drops, automatic control valves located along 53rd Avenue will open allowing water from our reservoir to supply the north sector in the interim.

The reservoir is also supplied by the Clayton reservoir, located in Surrey, through trunk mains, which are isolated



from the rest of the system.

The City's water distribution system consists of 520 fire hydrants, 83 kilometers of watermains and 2 pressure zones. The type of water pipes that were used in the past was predominately Asbestos Cement (AC). Since 1980, all replacement water pipe has been PVC and recently the City is also using Ductile Iron (DI) pipe when replacing old AC pipe, depending on the soil conditions.

Maintenance Program

The City schedules flushing and cleaning all water mains every 2 years. The GVRD pressure zone was last flushed in the spring of 2007 and the Reservoir pressure zone will be flushed after blow off assemblies on dead end mains have been replaced.

The City's water reservoir is scheduled to be cleaned every 5 years. The reservoir floor was last cleaned in April 2007.

There are 92 dead ends in the City's water distribution system, most of them in cul-de-sacs and all of them have blow-off valves. The City schedules flushing of dead end mains annually, or more often as necessary. The City has replaced all of the old blow off assemblies and the dead ends can now be flushed on an annual basis.

If the City receives a complaint with regards to the quality of the water (i.e.

dirty water), the City will investigate and resolve the situation as quickly as possible. If the problem persists, the City will flush the watermain and if required, will have the water tested by an independent laboratory.

As bacterial regrowth is more susceptible in Asbestos Cement (AC) pipe, the City has a long-range plan of replacing all AC pipe with Ductile Iron or PVC pipe in the City. The schedule for AC water pipe replacement is based on the scheduled road pavement rehabilitation program. The City has replaced 206 metres of AC pipe in 2010.

Backup Water Supply

The City of Langley has an agreement with the Township of Langley that will allow us to open a valve, which are located on the municipal boundaries, when our main source is down with a watermain break or earthquake. This source is from various areas of the Township and there is enough water to last until repairs are done to ours or the GVWD's mains.

Water Sampling & Testing Program

Water sampling is being done every Tuesday of the week, 52 times a year. The City has installed new testing stations at the same locations as stated in the 2008 report. The reservoir has 1 sampling station for testing temperature, chlorine residual and turbidity of the water contained in the cell. The other 13 sampling stations, that are located



throughout the City, are used for taking water samples for the GVWD (see attached map). The City gathers all the water samples from each station and the GVWD picks up these samples the same day for testing at their laboratory. The test results are sent back to the City for review weekly.

The City has 52 samples tested every month, almost twice as many samples as is required under the Canadian Guidelines for Drinking Water Quality. Five testing stations are at low flow mains, one at the reservoir (because there is the only “source”), four at medium flow locations and one at a high flow location.

The testing of metals and disinfection byproducts at three testing sites are also being done by the GVWD – these results are attached to this report.

Water Consumption

The total water consumption for 2010 in the City was 1,450,000 cubic meters, down from 1,550,000 cubic meters in 2009.

New Connections

In 2010, the City issued permits for 235 multifamily units and 5 single family units.

System Upgrades

The City replaced several sections of watermains within the City, as follows:

1. 650m of new watermain on 208th Street from 48th to 52nd Avenue.

2. 175m of new watermain on Douglas Crescent from 204th Street to Park Avenue.

Utility Management

The City responds quickly to problems involving turbidity issues, leaking services or mains, and loss of water pressure. A standby person is on call at night and on weekends; and during normal working hours we have a maintenance crew that will respond immediately to any water complaints. We received twelve calls in 2010 relating to low water pressure. These problems usually occur during the summer months when people sprinkle their lawns and the water usage is greater than normal. The City received ten calls relating to dirty water when there were high turbidity levels.

Turbidity events from source-water quality are dealt with in conjunction with Metro Vancouver and Fraser Health, ensuring that the public is notified if conditions exist that may be a risk to health. Similar notification plans are in place if an area of the City’s system was experiencing high turbidity due to construction or a watermain break.

Problems/complaints from the public regarding issues such as chlorine levels, blue-green staining, ozone & secondary disinfection, or source turbidity, are asked to phone the Metro Vancouver Water Quality department for further information.



Emergency Response Plan

The City has an emergency response plan in case our water supply is interrupted for any reason. There are procedures that our Public Works crews follow whether it is a major or minor problem. Our Emergency Plan involves activating four distinct stages:

1. ALERT situation.
2. EMERGENCY RESPONSE to save as much water as possible & regulate water supply.
3. RECOVERY/RESTORATION to reinstate our water supply.
4. DEBRIEFING would take place when recovery operations are underway.

Conclusion

This 2010 City of Langley Water System Report is presented to the public, by way of posting on the City of Langley website, as required by the British Columbia Drinking Water Protection Act and Regulations, as well as to meet the terms and conditions of the City's Water System Operating Permit issued by the Fraser Health Drinking Water Officer.

Attachments:

1. Water consumption records for the City of Langley, 2010
2. 2010 Annual Water Quality Reports for test stations in the City of Langley.
Note regarding graphs: Temperature and HPC are on a logarithmic scale. HPC values shown as "1" are where the reading was given as "<2"
3. 2010 Annual Haloacetic Acids, Trihalomethanes, Metals and Vinyl Chloride Monitoring Report – Metro Vancouver, February 2011

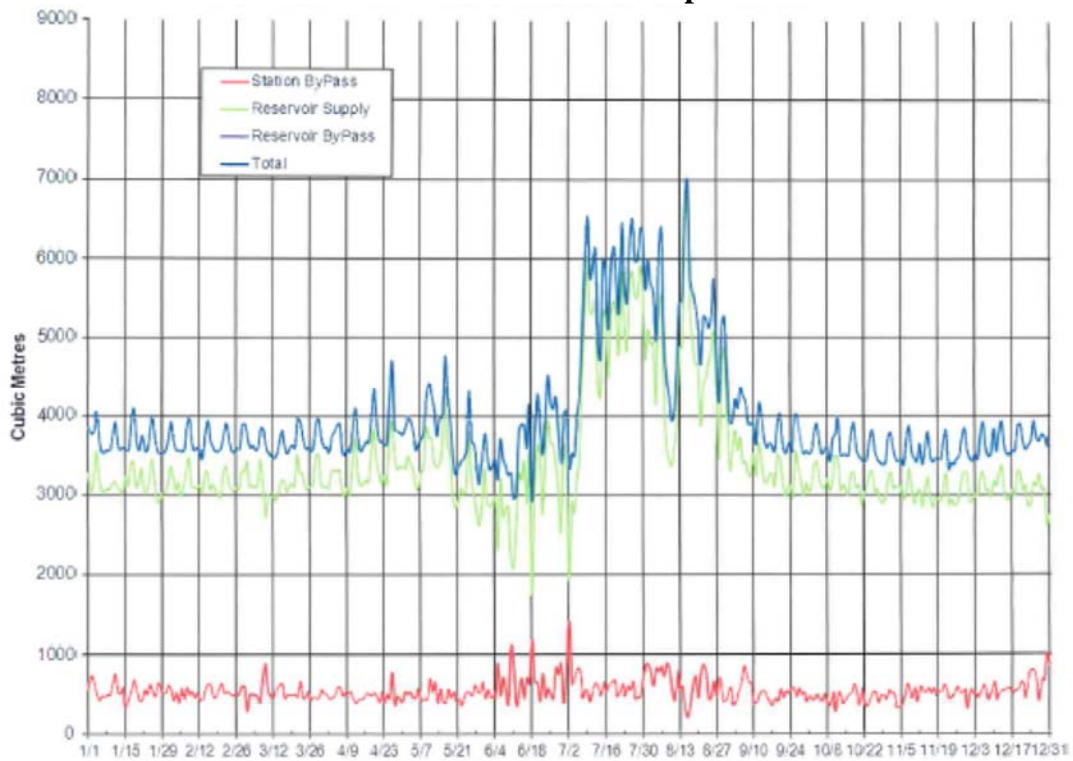


Mike Thomas P.Eng.
Manager of Engineering Services

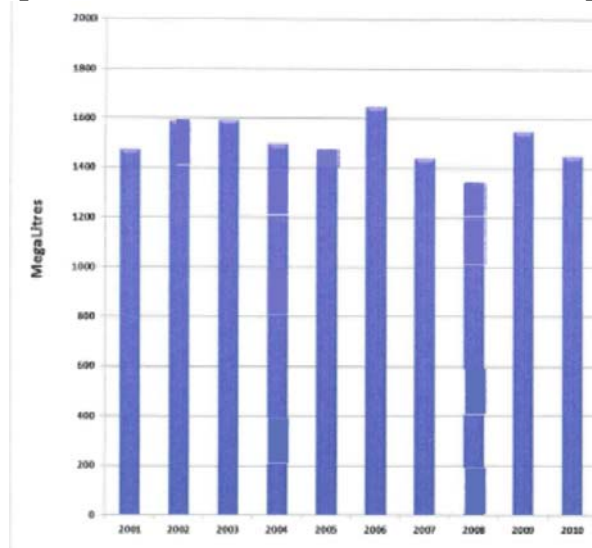
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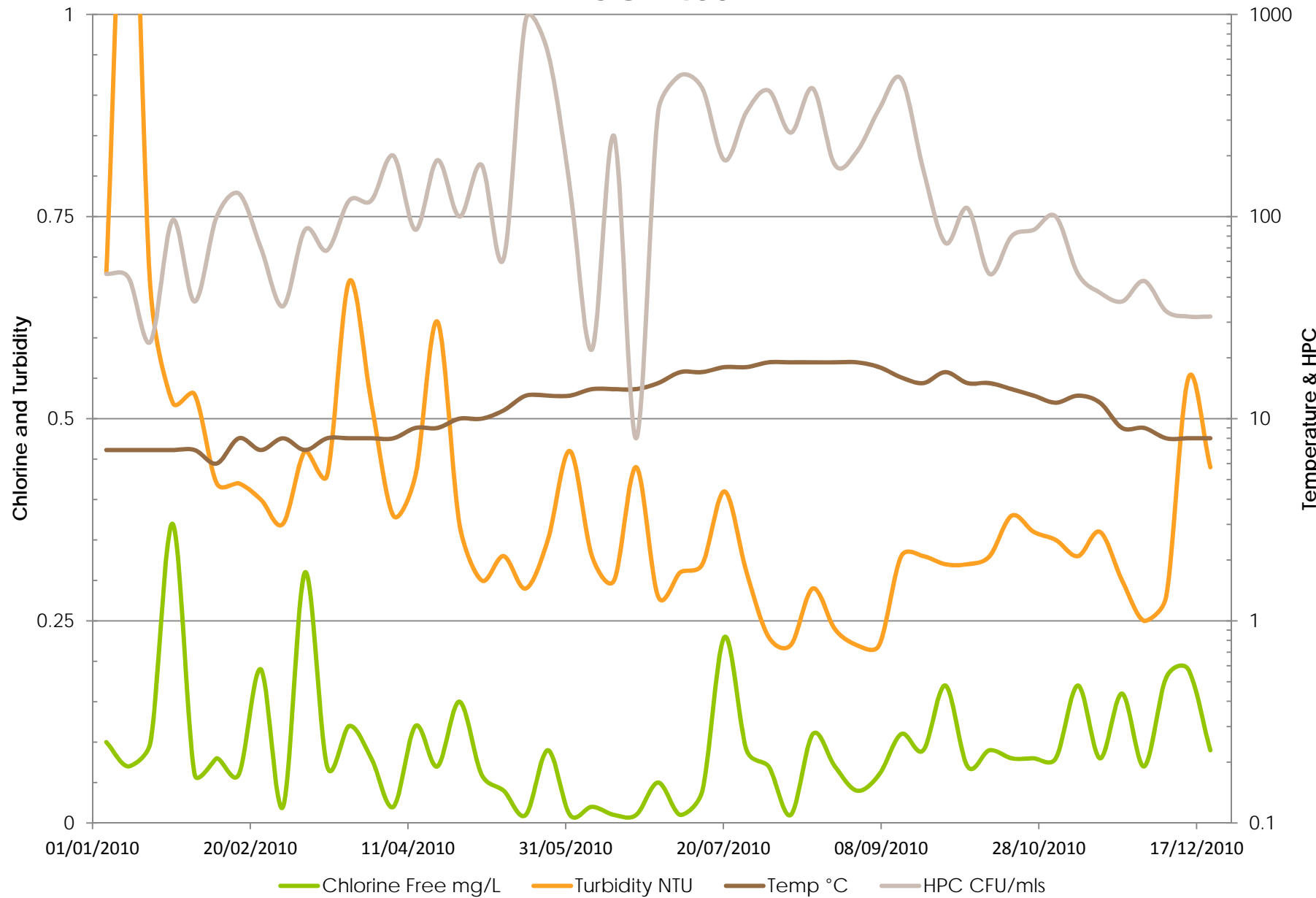
2010 Water Consumption Records – Total 1450ML



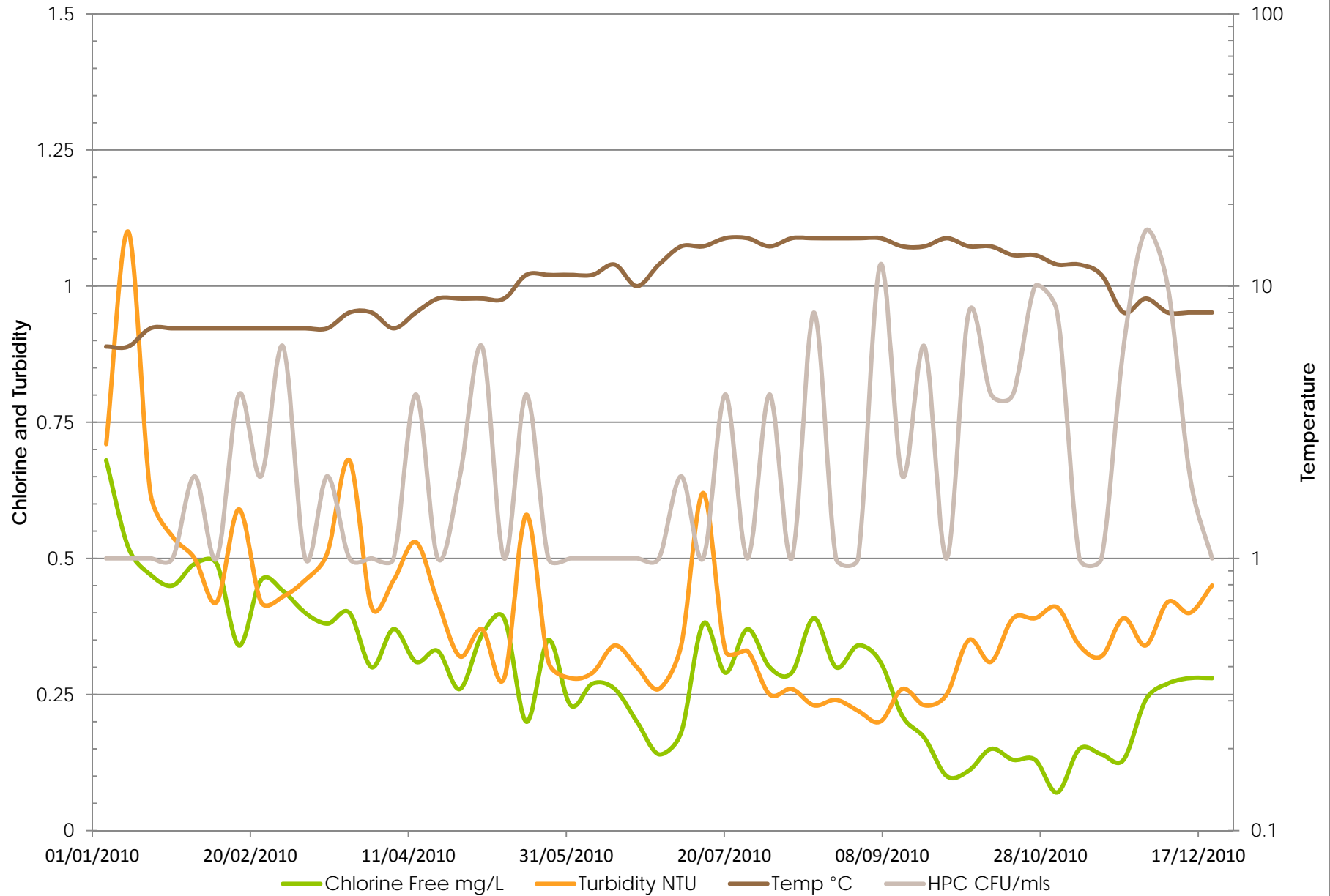
Comparison of Recent Annual Water Consumption



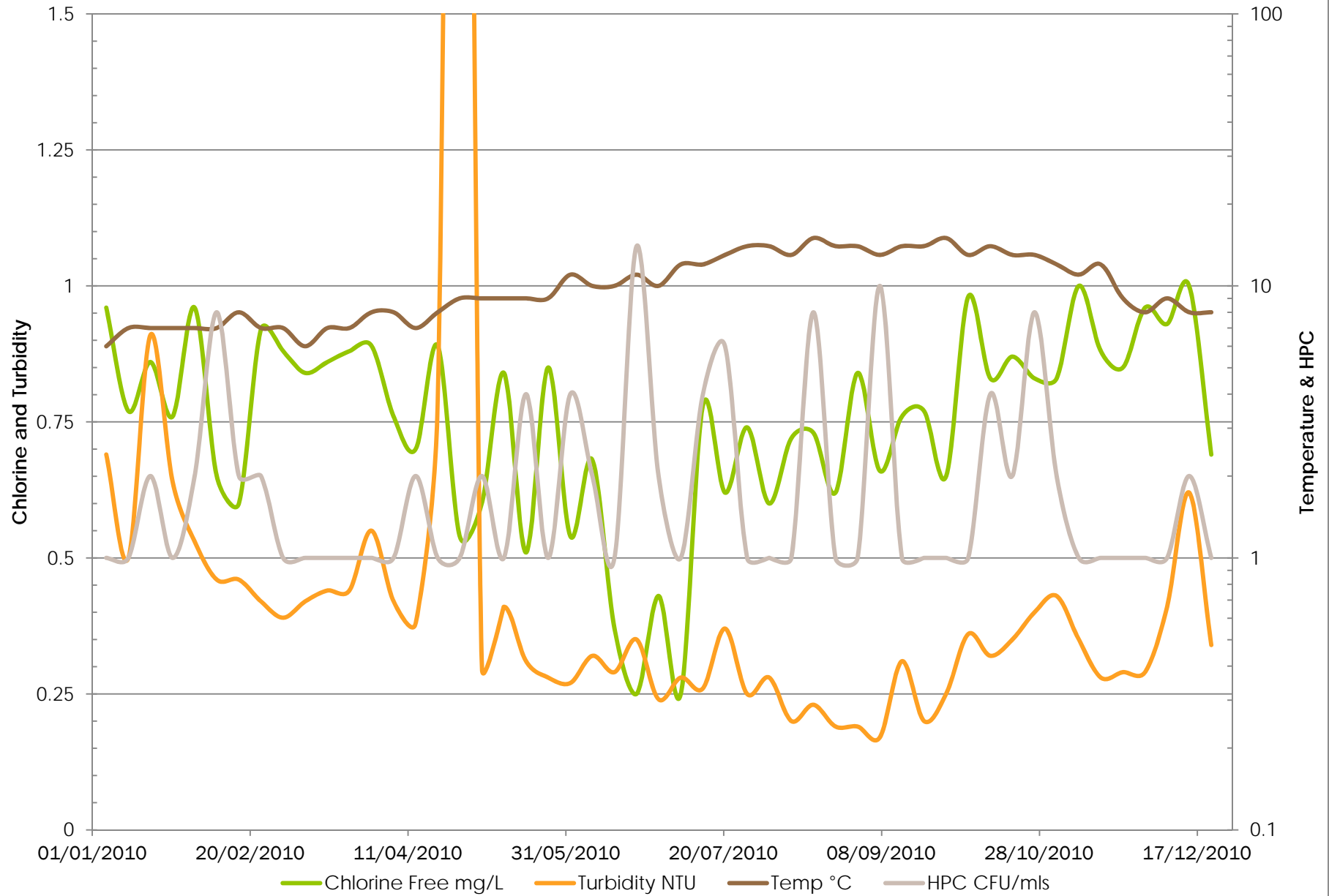
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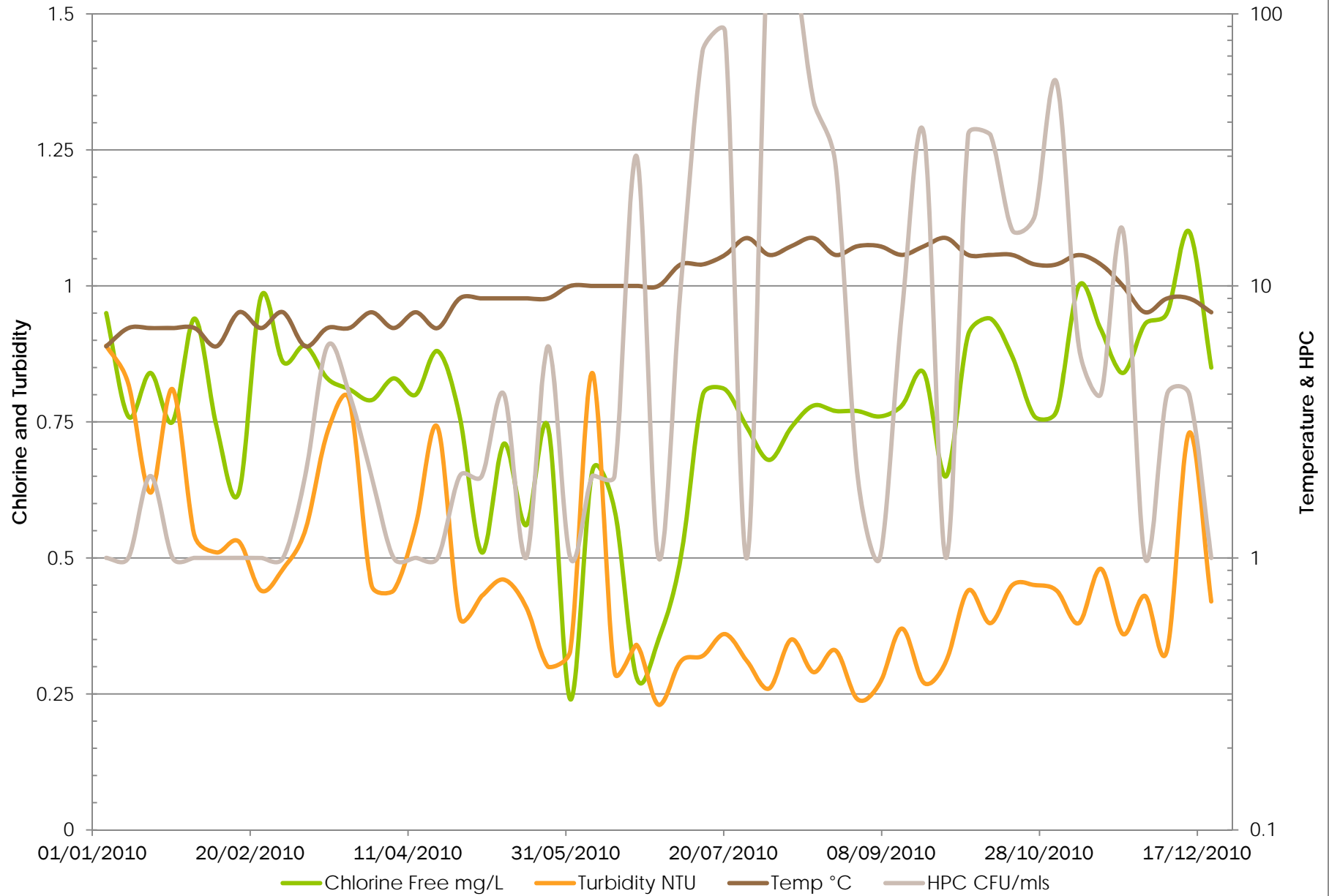
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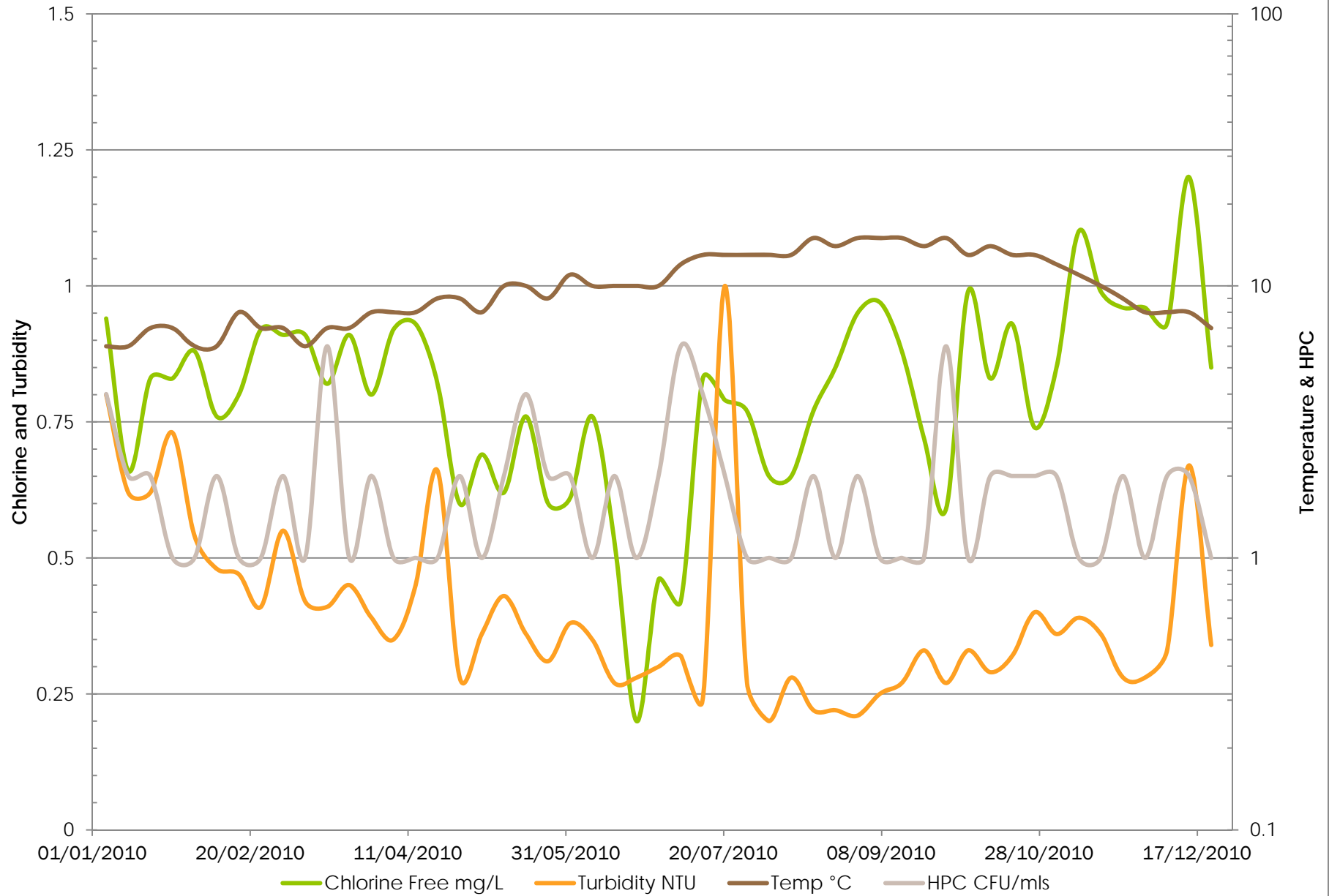
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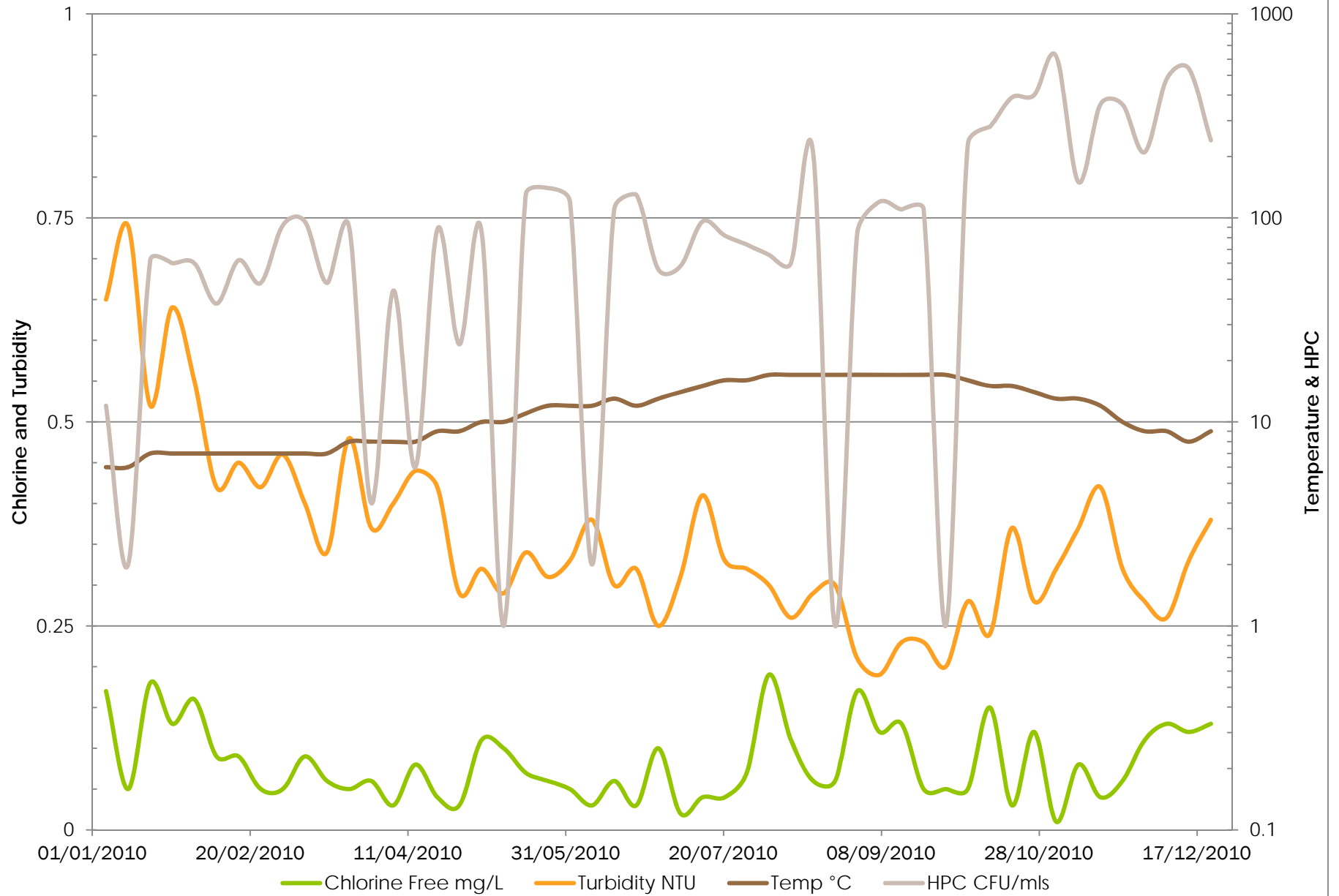
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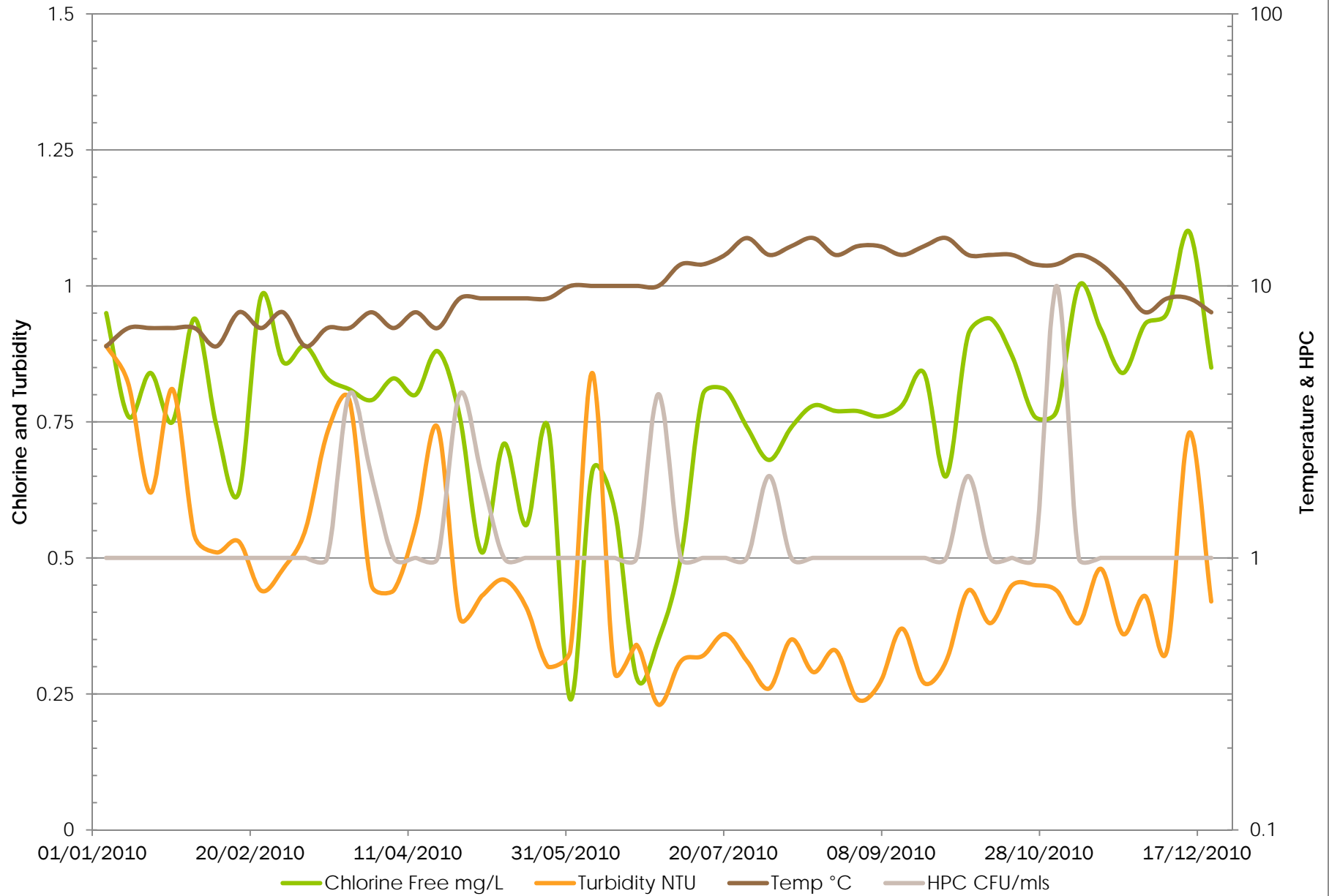
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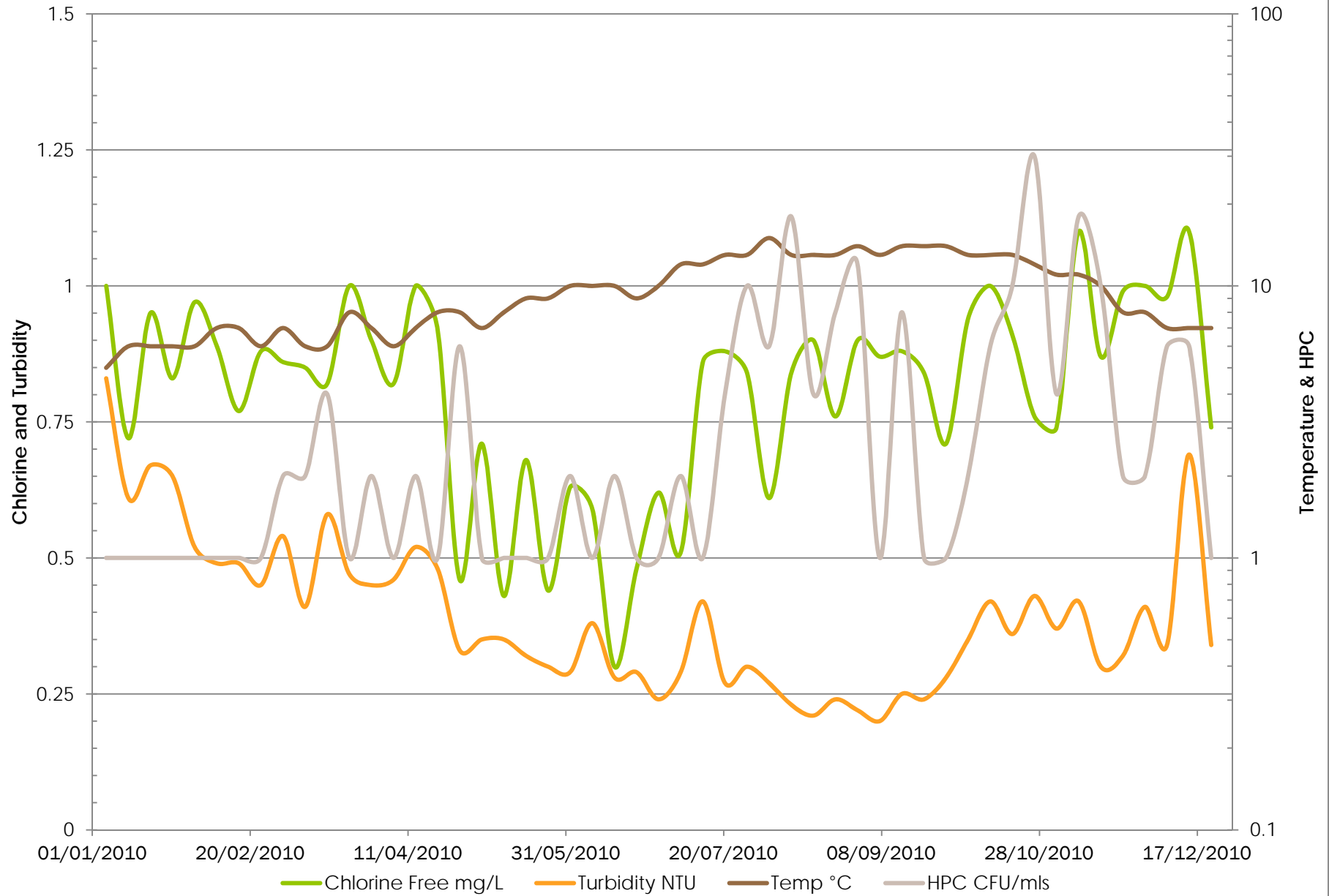
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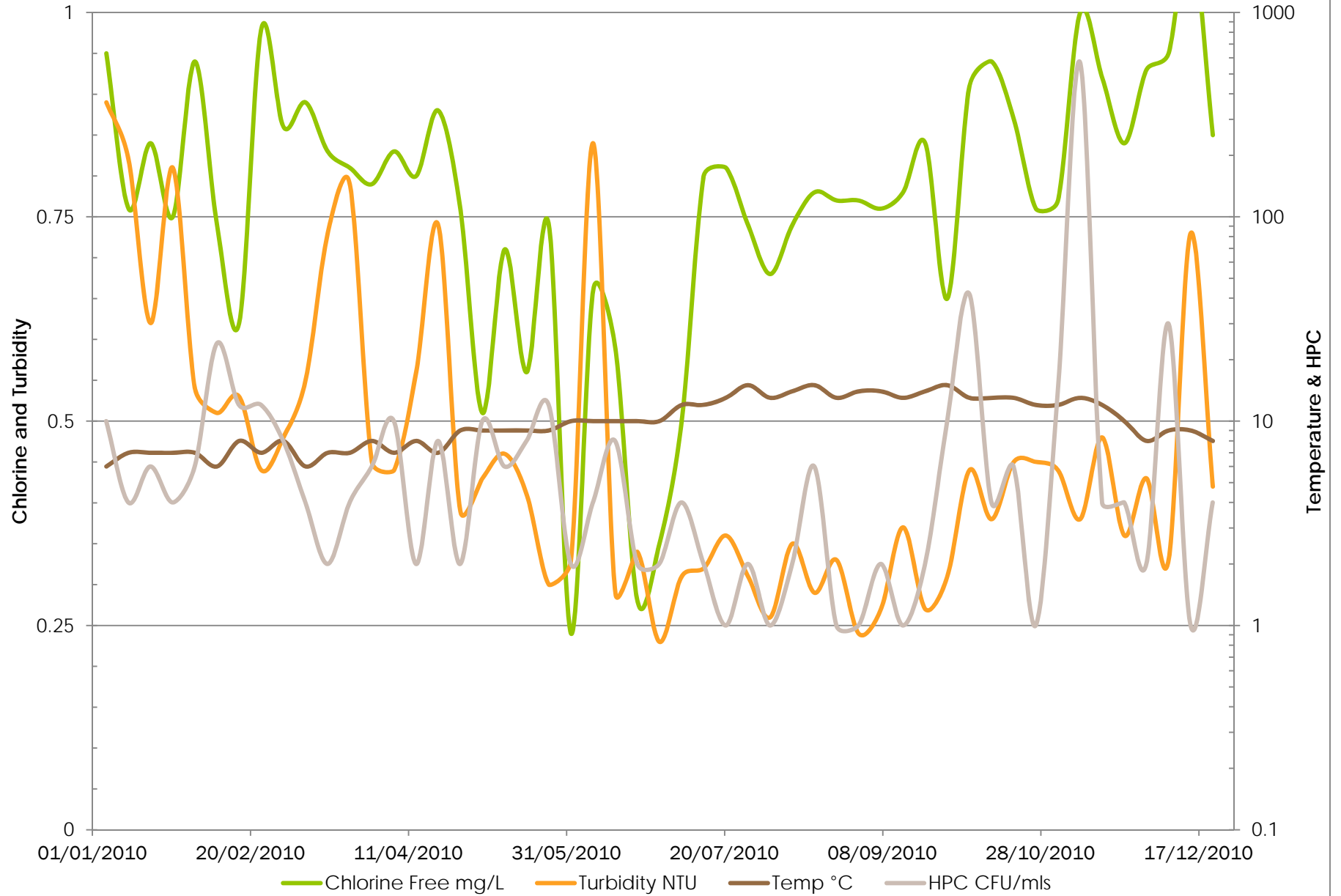
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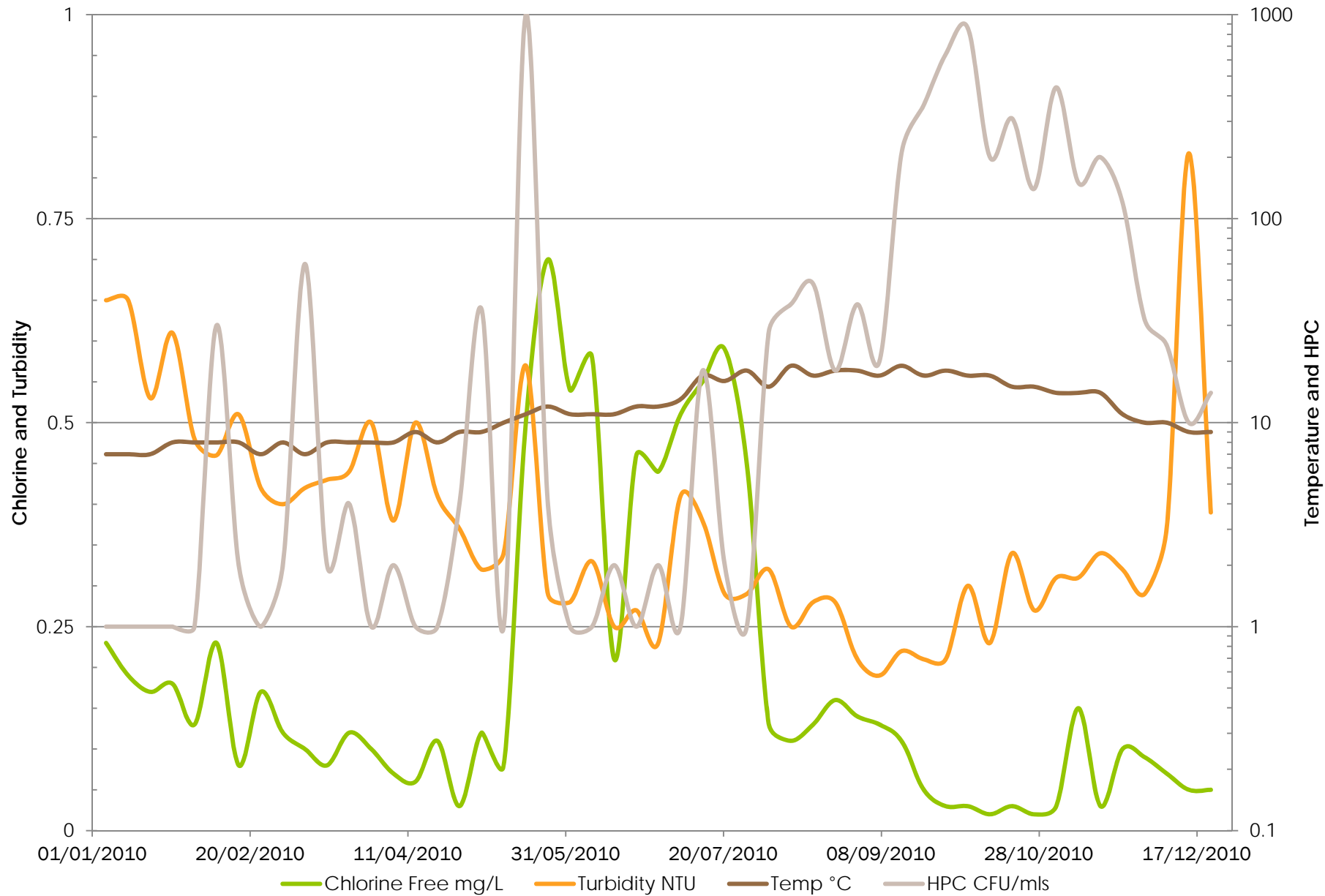
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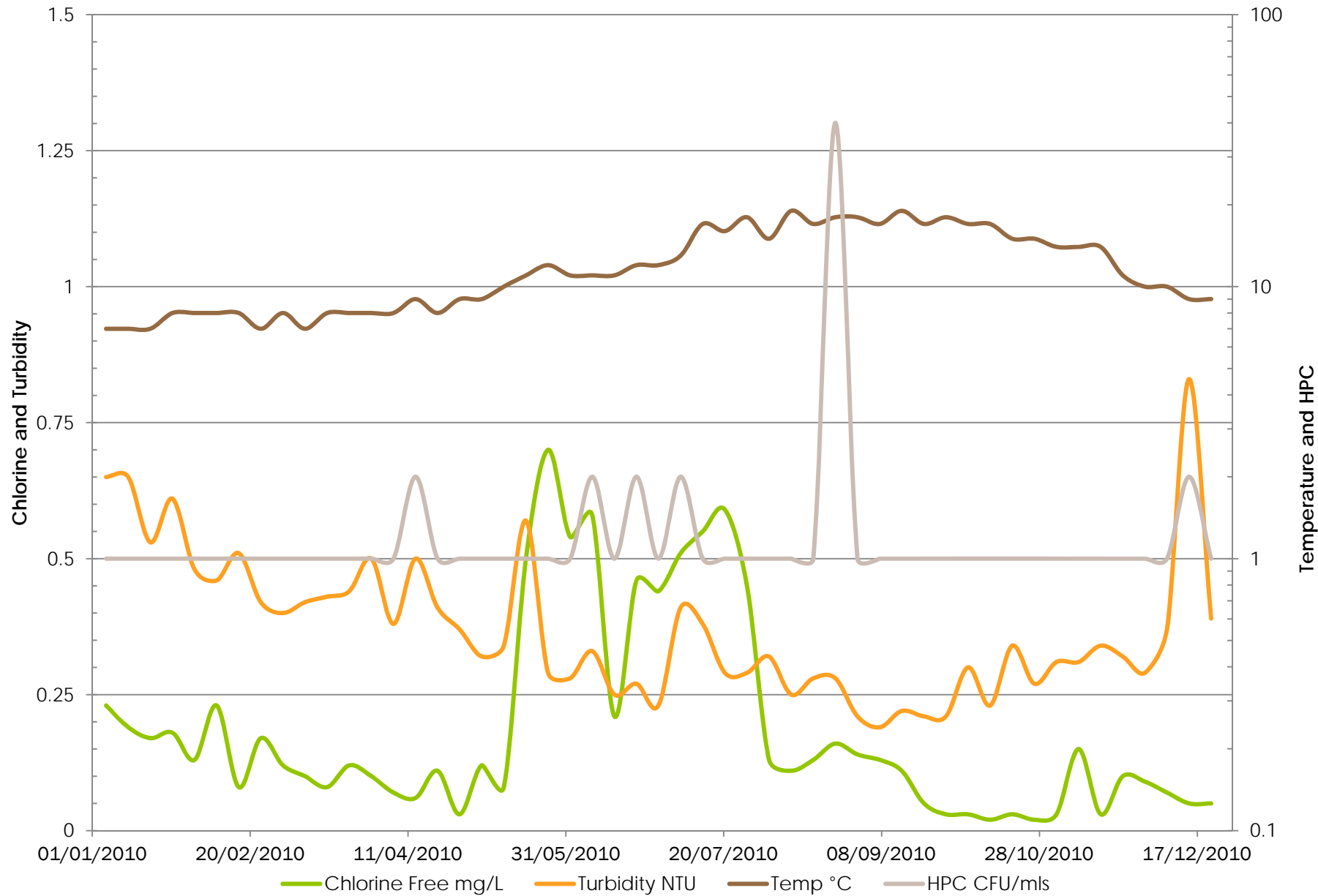
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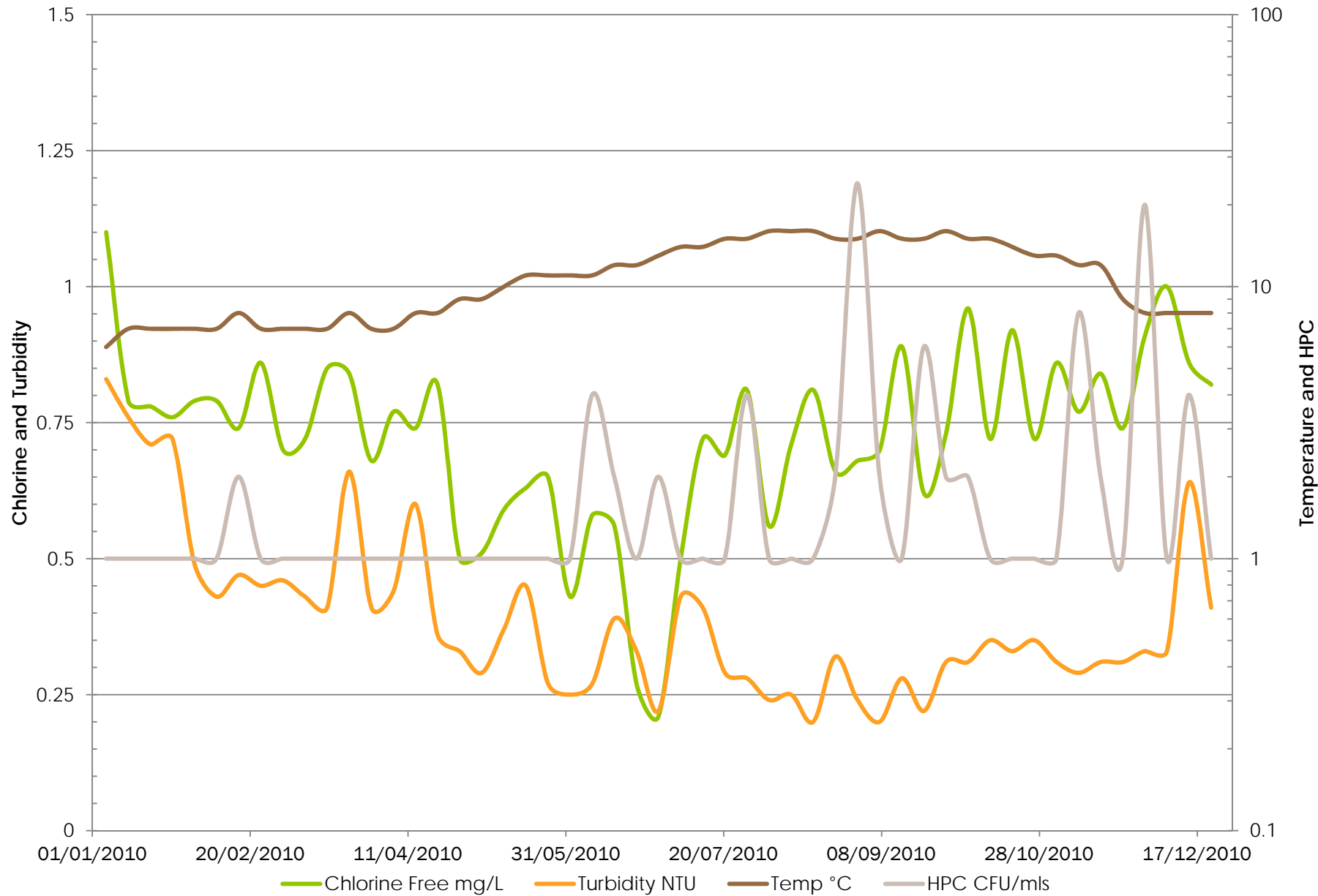
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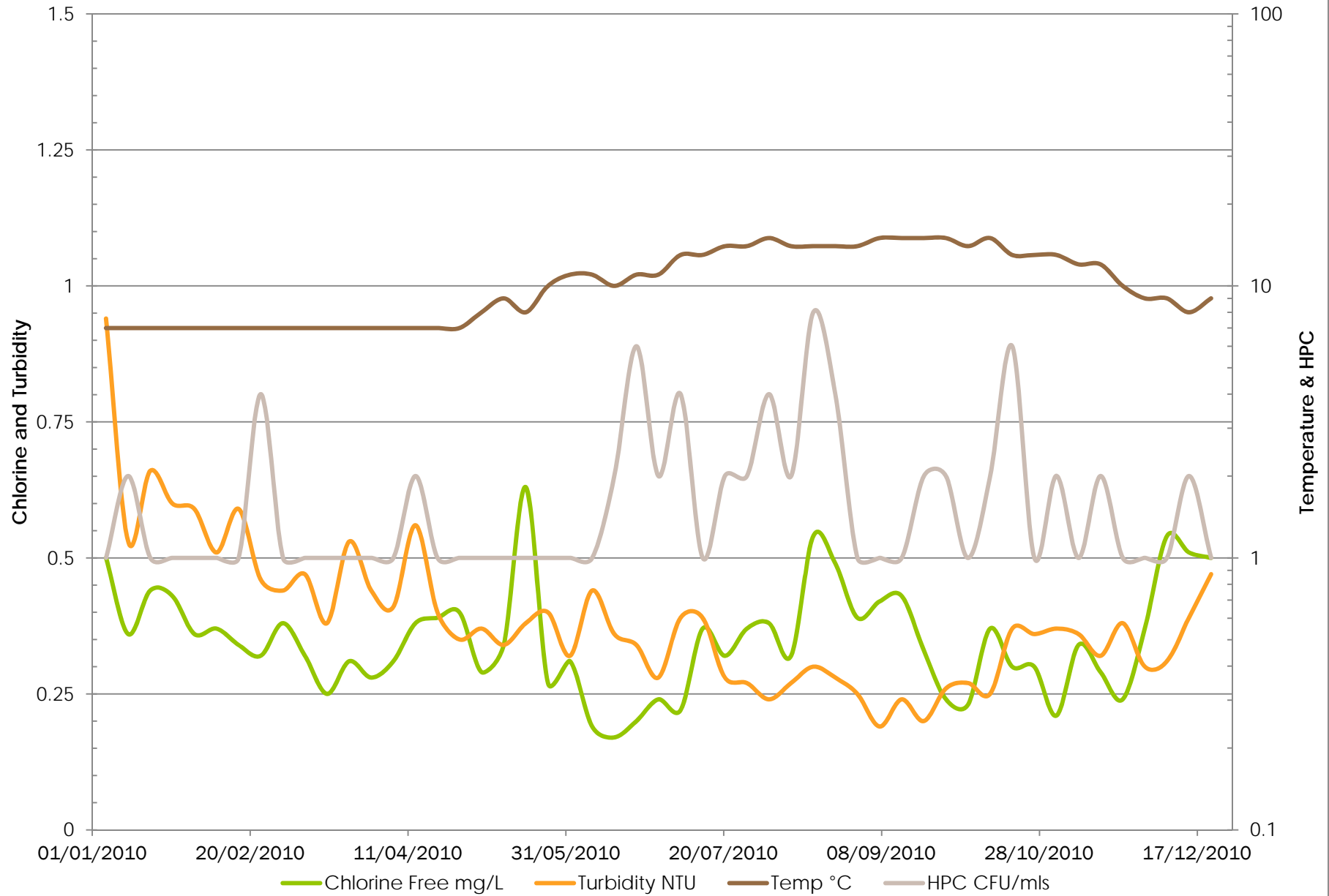
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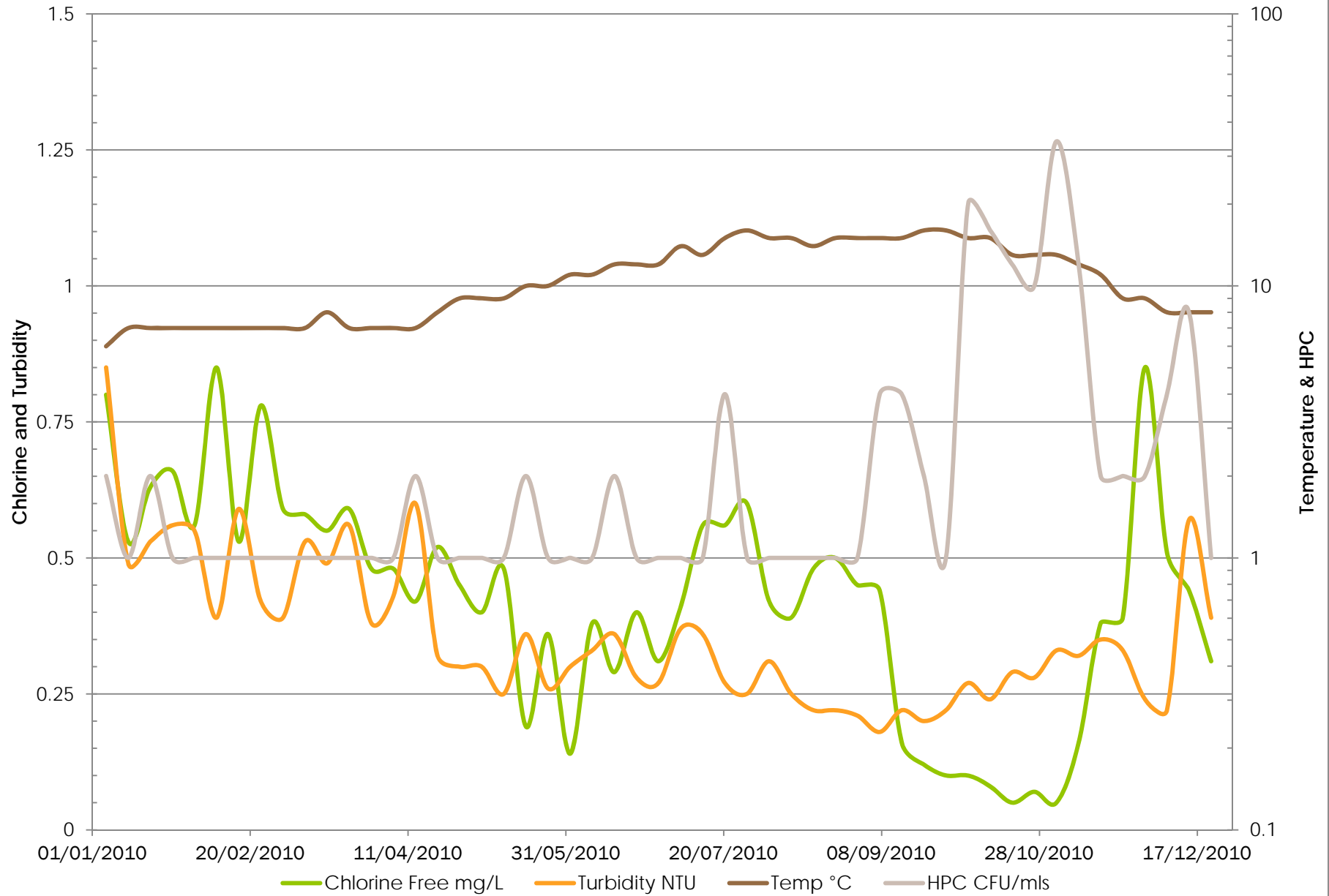
COL-482



COL-483



COL-484



Sample name	Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	Total Coliform MF/100mLs	Temp °C	Turbidity NTU	HPC CFU/mls
COL-450	05/01/2010	0.1	<1	<1	7	0.68	52
COL-450	12/01/2010	0.07	<1	<1	7	1.3	50
COL-450	19/01/2010	0.1	<1	<1	7	0.66	24
COL-450	26/01/2010	0.37	<1	<1	7	0.52	96
COL-450	02/02/2010	0.06	<1	<1	7	0.53	38
COL-450	09/02/2010	0.08	<1	<1	6	0.42	100
COL-450	16/02/2010	0.06	<1	<1	8	0.42	130
COL-450	23/02/2010	0.19	<1	<1	7	0.4	70
COL-450	02/03/2010	0.02	<1	<1	8	0.37	36
COL-450	09/03/2010	0.31	<1	<1	7	0.46	86
COL-450	16/03/2010	0.07	<1	<1	8	0.43	68
COL-450	23/03/2010	0.12	<1	<1	8	0.67	120
COL-450	30/03/2010	0.08	<1	<1	8	0.52	120
COL-450	06/04/2010	0.02	<1	<1	8	0.38	200
COL-450	13/04/2010	0.12	<1	<1	9	0.43	86
COL-450	20/04/2010	0.07	<1	<1	9	0.62	190
COL-450	27/04/2010	0.15	<1	<1	10	0.37	100
COL-450	04/05/2010	0.06	<1	<1	10	0.3	180
COL-450	11/05/2010	0.04	<1	<1	11	0.33	62
COL-450	18/05/2010	0.01	<1	<1	13	0.29	940
COL-450	25/05/2010	0.09	<1	<1	13	0.35	650
COL-450	01/06/2010	0.01	<1	<1	13	0.46	140
COL-450	08/06/2010	0.02	<1	<1	14	0.33	22
COL-450	15/06/2010	0.01	<1	<1	14	0.3	250
COL-450	22/06/2010	0.01	<1	<1	14	0.44	8
COL-450	29/06/2010	0.05	<1	<1	15	0.28	330
COL-450	06/07/2010	0.01	<1	<1	17	0.31	500
COL-450	13/07/2010	0.04	<1	<1	17	0.32	430
COL-450	20/07/2010	0.23	<1	<1	18	0.41	190
COL-450	27/07/2010	0.09	<1	<1	18	0.31	330
COL-450	03/08/2010	0.07	<1	<1	19	0.23	420
COL-450	10/08/2010	0.01	<1	<1	19	0.22	260
COL-450	17/08/2010	0.11	<1	<1	19	0.29	430
COL-450	24/08/2010	0.07	<1	<1	19	0.24	180
COL-450	31/08/2010	0.04	<1	<1	19	0.22	210
COL-450	07/09/2010	0.06	<1	<1	18	0.22	340
COL-450	14/09/2010	0.11	<1	<1	16	0.33	480
COL-450	21/09/2010	0.09	<1	<1	15	0.33	170

Sample name	Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	Total Coliform MF/100mLs	Temp °C	Turbidity NTU	HPC CFU/mls
COL-450	28/09/2010	0.17	<1	<1	17	0.32	74
COL-450	05/10/2010	0.07	<1	<1	15	0.32	110
COL-450	12/10/2010	0.09	<1	<1	15	0.33	52
COL-450	19/10/2010	0.08	<1	<1	14	0.38	80
COL-450	26/10/2010	0.08	<1	<1	13	0.36	86
COL-450	02/11/2010	0.08	<1	<1	12	0.35	100
COL-450	09/11/2010	0.17	<1	<1	13	0.33	52
COL-450	16/11/2010	0.08	<1	<1	12	0.36	42
COL-450	23/11/2010	0.16	<1	<1	9	0.3	38
COL-450	30/11/2010	0.07	<1	<1	9	0.25	48
COL-450	07/12/2010	0.18	<1	<1	8	0.28	34
COL-450	14/12/2010	0.19	<1	<1	8	0.55	32
COL-450	21/12/2010	0.09	<1	<1	8	0.44	32

Sample name	Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	Total Coliform MF/100mLs	Temp °C	Turbidity NTU	HPC CFU/mls
COL-451	05/01/2010	0.68	<1	<1	6	0.71	<2
COL-451	12/01/2010	0.52	<1	<1	6	1.1	<2
COL-451	19/01/2010	0.47	<1	<1	7	0.62	<2
COL-451	26/01/2010	0.45	<1	<1	7	0.54	<2
COL-451	02/02/2010	0.49	<1	<1	7	0.5	2
COL-451	09/02/2010	0.49	<1	<1	7	0.42	<2
COL-451	16/02/2010	0.34	<1	<1	7	0.59	4
COL-451	23/02/2010	0.46	<1	<1	7	0.42	2
COL-451	02/03/2010	0.44	<1	<1	7	0.43	6
COL-451	09/03/2010	0.4	<1	<1	7	0.46	<2
COL-451	16/03/2010	0.38	<1	<1	7	0.51	2
COL-451	23/03/2010	0.4	<1	<1	8	0.68	<2
COL-451	30/03/2010	0.3	<1	<1	8	0.41	<2
COL-451	06/04/2010	0.37	<1	<1	7	0.46	<2
COL-451	13/04/2010	0.31	<1	<1	8	0.53	4
COL-451	20/04/2010	0.33	<1	<1	9	0.42	<2
COL-451	27/04/2010	0.26	<1	<1	9	0.32	2
COL-451	04/05/2010	0.36	<1	<1	9	0.37	6
COL-451	11/05/2010	0.39	<1	<1	9	0.28	<2
COL-451	18/05/2010	0.2	<1	<1	11	0.58	4
COL-451	25/05/2010	0.35	<1	<1	11	0.31	<2
COL-451	01/06/2010	0.23	<1	<1	11	0.28	<2
COL-451	08/06/2010	0.27	<1	<1	11	0.29	<2
COL-451	15/06/2010	0.26	<1	<1	12	0.34	<2
COL-451	22/06/2010	0.2	<1	<1	10	0.3	<2
COL-451	29/06/2010	0.14	<1	<1	12	0.26	<2
COL-451	06/07/2010	0.18	<1	<1	14	0.34	2
COL-451	13/07/2010	0.38	<1	<1	14	0.62	<2
COL-451	20/07/2010	0.29	<1	<1	15	0.33	4
COL-451	27/07/2010	0.37	<1	<1	15	0.33	<2
COL-451	03/08/2010	0.3	<1	<1	14	0.25	4
COL-451	10/08/2010	0.29	<1	<1	15	0.26	<2
COL-451	17/08/2010	0.39	<1	<1	15	0.23	8
COL-451	24/08/2010	0.3	<1	<1	15	0.24	<2
COL-451	31/08/2010	0.34	<1	<1	15	0.22	<2
COL-451	07/09/2010	0.31	<1	<1	15	0.2	12
COL-451	14/09/2010	0.21	<1	<1	14	0.26	2
COL-451	21/09/2010	0.17	<1	<1	14	0.23	6

Sample name	Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	Total Coliform MF/100mLs	Temp °C	Turbidity NTU	HPC CFU/mls
COL-451	28/09/2010	0.1	<1	<1	15	0.25	<2
COL-451	05/10/2010	0.11	<1	<1	14	0.35	8
COL-451	12/10/2010	0.15	<1	<1	14	0.31	4
COL-451	19/10/2010	0.13	<1	<1	13	0.39	4
COL-451	26/10/2010	0.13	<1	<1	13	0.39	10
COL-451	02/11/2010	0.07	<1	<1	12	0.41	8
COL-451	09/11/2010	0.15	<1	<1	12	0.34	<2
COL-451	16/11/2010	0.14	<1	<1	11	0.32	<2
COL-451	23/11/2010	0.13	<1	<1	8	0.39	6
COL-451	30/11/2010	0.24	<1	<1	9	0.34	16
COL-451	07/12/2010	0.27	<1	<1	8	0.42	10
COL-451	14/12/2010	0.28	<1	<1	8	0.4	2
COL-451	21/12/2010	0.28	<1	<1	8	0.45	<2

Sample name	Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	Total Coliform MF/100mLs	Temp °C	Turbidity NTU	HPC CFU/mls
COL-452	05/01/2010	0.96	<1	<1	6	0.69	<2
COL-452	12/01/2010	0.77	<1	<1	7	0.5	<2
COL-452	19/01/2010	0.86	<1	<1	7	0.91	2
COL-452	26/01/2010	0.76	<1	<1	7	0.64	<2
COL-452	02/02/2010	0.96	<1	<1	7	0.53	2
COL-452	09/02/2010	0.65	<1	<1	7	0.46	8
COL-452	16/02/2010	0.6	<1	<1	8	0.46	2
COL-452	23/02/2010	0.92	<1	<1	7	0.42	2
COL-452	02/03/2010	0.88	<1	<1	7	0.39	<2
COL-452	09/03/2010	0.84	<1	<1	6	0.42	<2
COL-452	16/03/2010	0.86	<1	<1	7	0.44	<2
COL-452	23/03/2010	0.88	<1	<1	7	0.44	<2
COL-452	30/03/2010	0.89	<1	<1	8	0.55	<2
COL-452	06/04/2010	0.76	<1	<1	8	0.42	<2
COL-452	13/04/2010	0.7	<1	<1	7	0.38	2
COL-452	20/04/2010	0.89	<1	<1	8	0.78	<2
COL-452	27/04/2010	0.54	<1	<1	9	3.8	<2
COL-452	04/05/2010	0.6	<1	<1	9	0.3	2
COL-452	11/05/2010	0.84	<1	<1	9	0.41	<2
COL-452	18/05/2010	0.51	<1	<1	9	0.31	4
COL-452	25/05/2010	0.85	<1	<1	9	0.28	<2
COL-452	01/06/2010	0.54	<1	<1	11	0.27	4
COL-452	08/06/2010	0.68	<1	<1	10	0.32	2
COL-452	15/06/2010	0.37	<1	<1	10	0.29	<2
COL-452	22/06/2010	0.25	<1	<1	11	0.35	14
COL-452	29/06/2010	0.43	<1	<1	10	0.24	2
COL-452	06/07/2010	0.25	<1	<1	12	0.28	<2
COL-452	13/07/2010	0.78	<1	<1	12	0.26	4
COL-452	20/07/2010	0.62	<1	<1	13	0.37	6
COL-452	27/07/2010	0.74	<1	<1	14	0.25	<2
COL-452	03/08/2010	0.6	<1	<1	14	0.28	<2
COL-452	10/08/2010	0.72	<1	<1	13	0.2	<2
COL-452	17/08/2010	0.73	<1	<1	15	0.23	8
COL-452	24/08/2010	0.62	<1	<1	14	0.19	<2
COL-452	31/08/2010	0.84	<1	<1	14	0.19	<2
COL-452	07/09/2010	0.66	<1	<1	13	0.17	10
COL-452	14/09/2010	0.76	<1	<1	14	0.31	<2
COL-452	21/09/2010	0.77	<1	<1	14	0.2	<2

Sample name	Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	Total Coliform MF/100mLs	Temp °C	Turbidity NTU	HPC CFU/mls
COL-452	28/09/2010	0.65	<1	<1	15	0.25	<2
COL-452	05/10/2010	0.98	<1	<1	13	0.36	<2
COL-452	12/10/2010	0.83	<1	<1	14	0.32	4
COL-452	19/10/2010	0.87	<1	<1	13	0.35	2
COL-452	26/10/2010	0.83	<1	<1	13	0.4	8
COL-452	02/11/2010	0.83	<1	<1	12	0.43	2
COL-452	09/11/2010	1	<1	<1	11	0.35	<2
COL-452	16/11/2010	0.88	<1	<1	12	0.28	<2
COL-452	23/11/2010	0.85	<1	<1	9	0.29	<2
COL-452	30/11/2010	0.96	<1	<1	8	0.29	<2
COL-452	07/12/2010	0.93	<1	<1	9	0.41	<2
COL-452	14/12/2010	1	<1	<1	8	0.62	2
COL-452	21/12/2010	0.69	<1	<1	8	0.34	<2

Sample name	Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	Total Coliform MF/100mLs	Temp °C	Turbidity NTU	HPC CFU/mls
COL-453	05/01/2010	0.95	<1	<1	6	0.89	<2
COL-453	12/01/2010	0.76	<1	<1	7	0.82	<2
COL-453	19/01/2010	0.84	<1	<1	7	0.62	2
COL-453	26/01/2010	0.75	<1	<1	7	0.81	<2
COL-453	02/02/2010	0.94	<1	<1	7	0.54	<2
COL-453	09/02/2010	0.74	<1	<1	6	0.51	<2
COL-453	16/02/2010	0.62	<1	<1	8	0.53	<2
COL-453	23/02/2010	0.98	<1	<1	7	0.44	<2
COL-453	02/03/2010	0.86	<1	<1	8	0.48	<2
COL-453	09/03/2010	0.89	<1	<1	6	0.55	2
COL-453	16/03/2010	0.83	<1	<1	7	0.73	6
COL-453	23/03/2010	0.81	<1	<1	7	0.79	4
COL-453	30/03/2010	0.79	<1	<1	8	0.45	2
COL-453	06/04/2010	0.83	<1	<1	7	0.44	<2
COL-453	13/04/2010	0.8	<1	<1	8	0.56	<2
COL-453	20/04/2010	0.88	<1	<1	7	0.74	<2
COL-453	27/04/2010	0.76	<1	<1	9	0.39	2
COL-453	04/05/2010	0.51	<1	<1	9	0.43	2
COL-453	11/05/2010	0.71	<1	<1	9	0.46	4
COL-453	18/05/2010	0.56	<1	<1	9	0.41	<2
COL-453	25/05/2010	0.74	<1	<1	9	0.3	6
COL-453	01/06/2010	0.24	<1	<1	10	0.33	<2
COL-453	08/06/2010	0.66	<1	<1	10	0.84	2
COL-453	15/06/2010	0.59	<1	<1	10	0.29	2
COL-453	22/06/2010	0.28	<1	<1	10	0.34	30
COL-453	29/06/2010	0.35	<1	<1	10	0.23	<2
COL-453	06/07/2010	0.5	<1	<1	12	0.31	10
COL-453	13/07/2010	0.8	<1	<1	12	0.32	74
COL-453	20/07/2010	0.81	<1	<1	13	0.36	86
COL-453	27/07/2010	0.74	<1	<1	15	0.31	<2
COL-453	03/08/2010	0.68	<1	<1	13	0.26	220
COL-453	10/08/2010	0.74	<1	<1	14	0.35	170
COL-453	17/08/2010	0.78	<1	<1	15	0.29	48
COL-453	24/08/2010	0.77	<1	<1	13	0.33	28
COL-453	31/08/2010	0.77	<1	<1	14	0.24	2
COL-453	07/09/2010	0.76	<1	<1	14	0.27	<2
COL-453	14/09/2010	0.78	<1	<1	13	0.37	8
COL-453	21/09/2010	0.84	<1	<1	14	0.27	36

Sample name	Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	Total Coliform MF/100mLs	Temp °C	Turbidity NTU	HPC CFU/mls
COL-453	28/09/2010	0.65	<1	<1	15	0.31	<2
COL-453	05/10/2010	0.91	<1	<1	13	0.44	36
COL-453	12/10/2010	0.94	<1	<1	13	0.38	36
COL-453	19/10/2010	0.87	<1	<1	13	0.45	16
COL-453	26/10/2010	0.76	<1	<1	12	0.45	18
COL-453	02/11/2010	0.77	<1	<1	12	0.44	56
COL-453	09/11/2010	1	<1	<1	13	0.38	6
COL-453	16/11/2010	0.92	<1	<1	12	0.48	4
COL-453	23/11/2010	0.84	<1	<1	10	0.36	16
COL-453	30/11/2010	0.93	<1	<1	8	0.43	<2
COL-453	07/12/2010	0.95	<1	<1	9	0.33	4
COL-453	14/12/2010	1.1	<1	<1	9	0.73	4
COL-453	21/12/2010	0.85	<1	<1	8	0.42	<2

Sample name	Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	Total Coliform MF/100mLs	Temp °C	Turbidity NTU	HPC CFU/mls
COL-455	05/01/2010	0.94	<1	<1	6	0.8	4
COL-455	12/01/2010	0.66	<1	<1	6	0.62	2
COL-455	19/01/2010	0.83	<1	<1	7	0.62	2
COL-455	26/01/2010	0.83	<1	<1	7	0.73	<2
COL-455	02/02/2010	0.88	<1	<1	6	0.54	<2
COL-455	09/02/2010	0.76	<1	<1	6	0.48	2
COL-455	16/02/2010	0.8	<1	<1	8	0.47	<2
COL-455	23/02/2010	0.92	<1	<1	7	0.41	<2
COL-455	02/03/2010	0.91	<1	<1	7	0.55	2
COL-455	09/03/2010	0.91	<1	<1	6	0.42	<2
COL-455	16/03/2010	0.82	<1	<1	7	0.41	6
COL-455	23/03/2010	0.91	<1	<1	7	0.45	<2
COL-455	30/03/2010	0.8	<1	<1	8	0.39	2
COL-455	06/04/2010	0.92	<1	<1	8	0.35	<2
COL-455	13/04/2010	0.93	<1	<1	8	0.45	<2
COL-455	20/04/2010	0.82	<1	<1	9	0.66	<2
COL-455	27/04/2010	0.6	<1	<1	9	0.28	2
COL-455	04/05/2010	0.69	<1	<1	8	0.36	<2
COL-455	11/05/2010	0.62	<1	<1	10	0.43	2
COL-455	18/05/2010	0.76	<1	<1	10	0.36	4
COL-455	25/05/2010	0.6	<1	<1	9	0.31	2
COL-455	01/06/2010	0.61	<1	<1	11	0.38	2
COL-455	08/06/2010	0.76	<1	<1	10	0.35	<2
COL-455	15/06/2010	0.53	<1	<1	10	0.27	2
COL-455	22/06/2010	0.2	<1	<1	10	0.28	<2
COL-455	29/06/2010	0.46	<1	<1	10	0.3	2
COL-455	06/07/2010	0.42	<1	<1	12	0.32	6
COL-455	13/07/2010	0.83	<1	<1	13	0.24	4
COL-455	20/07/2010	0.79	<1	<1	13	1	2
COL-455	27/07/2010	0.77	<1	<1	13	0.27	<2
COL-455	03/08/2010	0.65	<1	<1	13	0.2	<2
COL-455	10/08/2010	0.65	<1	<1	13	0.28	<2
COL-455	17/08/2010	0.77	<1	<1	15	0.22	2
COL-455	24/08/2010	0.85	<1	<1	14	0.22	<2
COL-455	31/08/2010	0.95	<1	<1	15	0.21	2
COL-455	07/09/2010	0.97	<1	<1	15	0.25	<2
COL-455	14/09/2010	0.88	<1	<1	15	0.27	<2
COL-455	21/09/2010	0.72	<1	<1	14	0.33	<2

Sample name	Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	Total Coliform MF/100mLs	Temp °C	Turbidity NTU	HPC CFU/mls
COL-455	28/09/2010	0.59	<1	<1	15	0.27	6
COL-455	05/10/2010	0.99	<1	<1	13	0.33	<2
COL-455	12/10/2010	0.83	<1	<1	14	0.29	2
COL-455	19/10/2010	0.93	<1	<1	13	0.32	2
COL-455	26/10/2010	0.74	<1	<1	13	0.4	2
COL-455	02/11/2010	0.85	<1	<1	12	0.36	2
COL-455	09/11/2010	1.1	<1	<1	11	0.39	<2
COL-455	16/11/2010	0.99	<1	<1	10	0.36	<2
COL-455	23/11/2010	0.96	<1	<1	9	0.28	2
COL-455	30/11/2010	0.96	<1	<1	8	0.28	<2
COL-455	07/12/2010	0.93	<1	<1	8	0.33	2
COL-455	14/12/2010	1.2	<1	<1	8	0.67	2
COL-455	21/12/2010	0.85	<1	<1	7	0.34	<2

Sample name	Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	Total Coliform MF/100mLs	Temp °C	Turbidity NTU	HPC CFU/mls
COL-456	05/01/2010	0.17	<1	<1	6	0.65	12
COL-456	12/01/2010	0.05	<1	<1	6	0.74	2
COL-456	19/01/2010	0.18	<1	<1	7	0.52	62
COL-456	26/01/2010	0.13	<1	<1	7	0.64	60
COL-456	02/02/2010	0.16	<1	<1	7	0.55	60
COL-456	09/02/2010	0.09	<1	<1	7	0.42	38
COL-456	16/02/2010	0.09	<1	<1	7	0.45	62
COL-456	23/02/2010	0.05	<1	<1	7	0.42	48
COL-456	02/03/2010	0.05	<1	<1	7	0.46	92
COL-456	09/03/2010	0.09	<1	<1	7	0.4	96
COL-456	16/03/2010	0.06	<1	<1	7	0.34	48
COL-456	23/03/2010	0.05	<1	<1	8	0.48	90
COL-456	30/03/2010	0.06	<1	<1	8	0.37	4
COL-456	06/04/2010	0.03	<1	<1	8	0.4	44
COL-456	13/04/2010	0.08	<1	<1	8	0.44	6
COL-456	20/04/2010	0.04	<1	<1	9	0.42	88
COL-456	27/04/2010	0.03	<1	<1	9	0.29	24
COL-456	04/05/2010	0.11	<1	<1	10	0.32	86
COL-456	11/05/2010	0.1	<1	<1	10	0.29	<2
COL-456	18/05/2010	0.07	<1	<1	11	0.34	130
COL-456	25/05/2010	0.06	<1	<1	12	0.31	140
COL-456	01/06/2010	0.05	<1	<1	12	0.33	120
COL-456	08/06/2010	0.03	<1	<1	12	0.38	2
COL-456	15/06/2010	0.06	<1	<1	13	0.3	110
COL-456	22/06/2010	0.03	<1	<1	12	0.32	130
COL-456	29/06/2010	0.1	<1	<1	13	0.25	56
COL-456	06/07/2010	0.02	<1	<1	14	0.31	58
COL-456	13/07/2010	0.04	<1	<1	15	0.41	96
COL-456	20/07/2010	0.04	<1	<1	16	0.33	82
COL-456	27/07/2010	0.07	<1	<1	16	0.32	74
COL-456	03/08/2010	0.19	<1	<1	17	0.3	66
COL-456	10/08/2010	0.11	<1	<1	17	0.26	60
COL-456	17/08/2010	0.06	<1	<1	17	0.29	210
COL-456	24/08/2010	0.06	<1	<1	17	0.3	<2
COL-456	31/08/2010	0.17	<1	<1	17	0.21	84
COL-456	07/09/2010	0.12	<1	<1	17	0.19	120
COL-456	14/09/2010	0.13	<1	<1	17	0.23	110
COL-456	21/09/2010	0.05	<1	<1	17	0.23	110

Sample name	Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	Total Coliform MF/100mLs	Temp °C	Turbidity NTU	HPC CFU/mls
COL-456	28/09/2010	0.05	<1	<1	17	0.2	<2
COL-456	05/10/2010	0.05	<1	<1	16	0.28	230
COL-456	12/10/2010	0.15	<1	<1	15	0.24	280
COL-456	19/10/2010	0.03	<1	<1	15	0.37	390
COL-456	26/10/2010	0.12	<1	<1	14	0.28	400
COL-456	02/11/2010	0.01	<1	<1	13	0.32	620
COL-456	09/11/2010	0.08	<1	<1	13	0.37	150
COL-456	16/11/2010	0.04	<1	<1	12	0.42	360
COL-456	23/11/2010	0.06	<1	<1	10	0.32	360
COL-456	30/11/2010	0.11	<1	<1	9	0.28	210
COL-456	07/12/2010	0.13	<1	<1	9	0.26	480
COL-456	14/12/2010	0.12	<1	<1	8	0.33	540
COL-456	21/12/2010	0.13	<1	<1	9	0.38	240

Sample name	Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	Total Coliform MF/100mLs	Temp °C	Turbidity NTU	HPC CFU/mls
COL-457	05/01/2010	0.66	<1	<1	6	0.72	<2
COL-457	12/01/2010	0.65	<1	<1	7	0.46	<2
COL-457	19/01/2010	0.78	<1	<1	8	0.51	<2
COL-457	26/01/2010	0.6	<1	<1	7	0.55	<2
COL-457	02/02/2010	0.64	<1	<1	8	0.49	<2
COL-457	09/02/2010	1	<1	<1	6	0.44	<2
COL-457	16/02/2010	0.56	<1	<1	8	0.41	<2
COL-457	23/02/2010	0.63	<1	<1	8	0.44	<2
COL-457	02/03/2010	0.59	<1	1	8	0.49	<2
COL-457	09/03/2010	0.7	<1	<1	8	0.5	<2
COL-457	16/03/2010	0.64	<1	<1	7	0.38	<2
COL-457	23/03/2010	0.59	<1	<1	8	0.59	4
COL-457	30/03/2010	0.45	<1	<1	8	0.4	2
COL-457	06/04/2010	0.59	<1	<1	9	0.48	<2
COL-457	13/04/2010	0.67	<1	<1	9	0.48	<2
COL-457	20/04/2010	0.64	<1	<1	7	0.28	<2
COL-457	27/04/2010	0.74	<1	<1	9	0.3	4
COL-457	04/05/2010	0.33	<1	<1	9	0.3	2
COL-457	11/05/2010	0.37	<1	<1	9	0.28	<2
COL-457	18/05/2010	0.55	<1	<1	11	0.35	<2
COL-457	25/05/2010	0.51	<1	<1	11	0.24	<2
COL-457	01/06/2010	0.45	<1	<1	12	0.24	<2
COL-457	08/06/2010	0.46	<1	<1	12	0.27	<2
COL-457	15/06/2010	0.57	<1	<1	11	0.35	<2
COL-457	22/06/2010	0.3	<1	<1	12	0.25	<2
COL-457	29/06/2010	0.46	<1	<1	11	0.25	4
COL-457	06/07/2010	0.36	<1	<1	14	0.34	<2
COL-457	13/07/2010	0.73	<1	<1	14	0.35	<2
COL-457	20/07/2010	0.61	<1	<1	16	0.23	<2
COL-457	27/07/2010	0.63	<1	<1	16	0.26	<2
COL-457	03/08/2010	0.56	<1	<1	16	0.28	2
COL-457	10/08/2010	0.67	<1	<1	14	0.23	<2
COL-457	17/08/2010	0.75	<1	<1	17	0.2	<2
COL-457	24/08/2010	0.74	<1	<1	17	0.2	<2
COL-457	31/08/2010	0.58	<1	<1	17	0.17	<2
COL-457	07/09/2010	0.61	<1	<1	14	0.22	<2
COL-457	14/09/2010	0.67	<1	<1	15	0.22	<2
COL-457	21/09/2010	0.7	<1	<1	15	0.28	<2

Sample name	Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	Total Coliform MF/100mLs	Temp °C	Turbidity NTU	HPC CFU/mls
COL-457	28/09/2010	0.58	<1	<1	14	0.24	<2
COL-457	05/10/2010	0.69	<1	<1	16	0.3	2
COL-457	12/10/2010	0.72	<1	<1	15	0.25	<2
COL-457	19/10/2010	0.68	<1	<1	12	0.34	<2
COL-457	26/10/2010	0.69	<1	<1	14	0.29	<2
COL-457	02/11/2010	0.79	<1	<1	13	0.31	10
COL-457	09/11/2010	0.71	<1	<1	13	0.29	<2
COL-457	16/11/2010	0.61	<1	<1	12	0.38	<2
COL-457	23/11/2010	0.9	<1	<1	10	0.31	<2
COL-457	30/11/2010	1.2	<1	<1	8	0.27	<2
COL-457	07/12/2010	0.87	<1	<1	9	0.27	<2
COL-457	14/12/2010	0.84	<1	<1	9	0.51	<2
COL-457	21/12/2010	0.91	<1	<1	9	0.36	<2

Sample name	Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	Total Coliform MF/100mLs	Temp °C	Turbidity NTU	HPC CFU/mls
COL-458	05/01/2010	1	<1	<1	5	0.83	<2
COL-458	12/01/2010	0.72	<1	<1	6	0.61	<2
COL-458	19/01/2010	0.95	<1	<1	6	0.67	<2
COL-458	26/01/2010	0.83	<1	<1	6	0.65	<2
COL-458	02/02/2010	0.97	<1	<1	6	0.52	<2
COL-458	09/02/2010	0.89	<1	<1	7	0.49	<2
COL-458	16/02/2010	0.77	<1	<1	7	0.49	<2
COL-458	23/02/2010	0.88	<1	<1	6	0.45	<2
COL-458	02/03/2010	0.86	<1	<1	7	0.54	2
COL-458	09/03/2010	0.85	<1	<1	6	0.41	2
COL-458	16/03/2010	0.82	<1	<1	6	0.58	4
COL-458	23/03/2010	1	<1	<1	8	0.47	<2
COL-458	30/03/2010	0.9	<1	<1	7	0.45	2
COL-458	06/04/2010	0.82	<1	<1	6	0.46	<2
COL-458	13/04/2010	1	<1	<1	7	0.52	2
COL-458	20/04/2010	0.92	<1	<1	8	0.48	<2
COL-458	27/04/2010	0.46	<1	<1	8	0.33	6
COL-458	04/05/2010	0.71	<1	<1	7	0.35	<2
COL-458	11/05/2010	0.43	<1	<1	8	0.35	<2
COL-458	18/05/2010	0.68	<1	<1	9	0.32	<2
COL-458	25/05/2010	0.44	<1	<1	9	0.3	<2
COL-458	01/06/2010	0.63	<1	<1	10	0.29	2
COL-458	08/06/2010	0.59	<1	<1	10	0.38	<2
COL-458	15/06/2010	0.3	<1	<1	10	0.28	2
COL-458	22/06/2010	0.48	<1	<1	9	0.29	<2
COL-458	29/06/2010	0.62	<1	<1	10	0.24	<2
COL-458	06/07/2010	0.51	<1	<1	12	0.29	2
COL-458	13/07/2010	0.86	<1	<1	12	0.42	<2
COL-458	20/07/2010	0.88	<1	<1	13	0.27	4
COL-458	27/07/2010	0.84	<1	<1	13	0.3	10
COL-458	03/08/2010	0.61	<1	<1	15	0.27	6
COL-458	10/08/2010	0.84	<1	<1	13	0.23	18
COL-458	17/08/2010	0.9	<1	<1	13	0.21	4
COL-458	24/08/2010	0.76	<1	<1	13	0.24	8
COL-458	31/08/2010	0.9	<1	<1	14	0.22	12
COL-458	07/09/2010	0.87	<1	<1	13	0.2	<2
COL-458	14/09/2010	0.88	<1	<1	14	0.25	8
COL-458	21/09/2010	0.84	<1	<1	14	0.24	<2

Sample name	Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	Total Coliform MF/100mLs	Temp °C	Turbidity NTU	HPC CFU/mls
COL-458	28/09/2010	0.71	<1	<1	14	0.28	<2
COL-458	05/10/2010	0.94	<1	<1	13	0.35	2
COL-458	12/10/2010	1	<1	<1	13	0.42	6
COL-458	19/10/2010	0.91	<1	<1	13	0.36	10
COL-458	26/10/2010	0.76	<1	<1	12	0.43	30
COL-458	02/11/2010	0.74	<1	<1	11	0.37	4
COL-458	09/11/2010	1.1	<1	<1	11	0.42	18
COL-458	16/11/2010	0.87	<1	<1	10	0.3	10
COL-458	23/11/2010	0.99	<1	<1	8	0.32	2
COL-458	30/11/2010	1	<1	<1	8	0.41	2
COL-458	07/12/2010	0.98	<1	<1	7	0.34	6
COL-458	14/12/2010	1.1	<1	<1	7	0.69	6
COL-458	21/12/2010	0.74	<1	<1	7	0.34	<2

Sample name	Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	Total Coliform MF/100mLs	Temp °C	Turbidity NTU	HPC CFU/mls
COL-459	05/01/2010	0.17	<1	<1	6	0.66	10
COL-459	12/01/2010	0.09	<1	<1	6	0.58	4
COL-459	19/01/2010	0.3	<1	<1	7	0.61	6
COL-459	26/01/2010	0.57	<1	<1	7	0.56	4
COL-459	02/02/2010	0.41	<1	<1	7	0.49	6
COL-459	09/02/2010	0.43	<1	<1	7	0.44	24
COL-459	16/02/2010	0.35	<1	<1	8	0.6	12
COL-459	23/02/2010	0.35	<1	<1	7	0.45	12
COL-459	02/03/2010	0.33	<1	<1	7	0.44	8
COL-459	09/03/2010	0.47	<1	<1	7	0.46	4
COL-459	16/03/2010	0.42	<1	<1	7	0.53	2
COL-459	23/03/2010	0.47	<1	<1	8	0.54	4
COL-459	30/03/2010	0.38	<1	<1	8	0.47	6
COL-459	06/04/2010	0.3	<1	<1	7	0.47	10
COL-459	13/04/2010	0.35	<1	<1	8	0.65	2
COL-459	20/04/2010	0.41	<1	<1	9	0.33	8
COL-459	27/04/2010	0.34	<1	<1	9	0.31	2
COL-459	04/05/2010	0.22	<1	<1	9	0.39	10
COL-459	11/05/2010	0.33	<1	<1	10	0.28	6
COL-459	18/05/2010	0.34	<1	<1	11	0.37	8
COL-459	25/05/2010	0.29	<1	<1	11	0.28	12
COL-459	01/06/2010	0.13	<1	<1	11	0.29	2
COL-459	08/06/2010	0.28	<1	<1	11	0.34	4
COL-459	15/06/2010	0.21	<1	<1	12	0.31	8
COL-459	22/06/2010	0.33	<1	<1	10	0.31	2
COL-459	29/06/2010	0.16	<1	<1	12	0.29	2
COL-459	06/07/2010	0.27	<1	<1	14	0.37	4
COL-459	13/07/2010	0.48	<1	<1	14	0.4	2
COL-459	20/07/2010	0.43	<1	<1	14	0.3	<2
COL-459	27/07/2010	0.51	<1	<1	14	0.4	2
COL-459	03/08/2010	0.33	<1	<1	15	0.45	<2
COL-459	10/08/2010	0.39	<1	<1	15	0.25	2
COL-459	17/08/2010	0.43	<1	<1	15	0.22	6
COL-459	24/08/2010	0.36	<1	<1	15	0.26	<2
COL-459	31/08/2010	0.39	<1	<1	15	0.2	<2
COL-459	07/09/2010	0.32	<1	<1	16	0.19	2
COL-459	14/09/2010	0.28	<1	<1	15	0.28	<2
COL-459	21/09/2010	0.2	<1	<1	15	0.25	2

Sample name	Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	Total Coliform MF/100mLs	Temp °C	Turbidity NTU	HPC CFU/mls
COL-459	28/09/2010	0.2	<1	<1	15	0.25	10
COL-459	05/10/2010	0.11	<1	<1	14	0.33	42
COL-459	12/10/2010	0.19	<1	<1	14	0.25	4
COL-459	19/10/2010	0.17	<1	<1	13	0.37	6
COL-459	26/10/2010	0.19	<1	<1	13	0.32	<2
COL-459	02/11/2010	0.13	<1	<1	12	0.39	14
COL-459	09/11/2010	0.18	<1	<1	12	0.34	570
COL-459	16/11/2010	0.15	<1	<1	12	0.34	4
COL-459	23/11/2010	0.18	<1	<1	9	0.4	4
COL-459	30/11/2010	0.27	<1	<1	9	0.36	2
COL-459	07/12/2010	0.32	<1	<1	8	0.34	30
COL-459	14/12/2010	0.23	<1	<1	9	0.47	<2
COL-459	21/12/2010	0.53	<1	<1	8	0.39	4

Sample name	Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	Total Coliform MF/100mLs	Temp °C	Turbidity NTU	HPC CFU/mls
COL-480	05/01/2010	0.23	<1	<1	7	0.65	<2
COL-480	12/01/2010	0.19	<1	<1	7	0.65	<2
COL-480	19/01/2010	0.17	<1	<1	7	0.53	<2
COL-480	26/01/2010	0.18	<1	<1	8	0.61	<2
COL-480	02/02/2010	0.13	<1	<1	8	0.48	<2
COL-480	09/02/2010	0.23	<1	<1	8	0.46	30
COL-480	16/02/2010	0.08	<1	<1	8	0.51	2
COL-480	23/02/2010	0.17	<1	<1	7	0.42	<2
COL-480	02/03/2010	0.12	<1	<1	8	0.4	2
COL-480	09/03/2010	0.1	<1	<1	7	0.42	60
COL-480	16/03/2010	0.08	<1	<1	8	0.43	2
COL-480	23/03/2010	0.12	<1	<1	8	0.44	4
COL-480	30/03/2010	0.1	<1	<1	8	0.5	<2
COL-480	06/04/2010	0.07	<1	<1	8	0.38	2
COL-480	13/04/2010	0.06	<1	<1	9	0.5	<2
COL-480	20/04/2010	0.11	<1	<1	8	0.41	<2
COL-480	27/04/2010	0.03	<1	<1	9	0.37	4
COL-480	04/05/2010	0.12	<1	<1	9	0.32	36
COL-480	11/05/2010	0.08	<1	<1	10	0.34	<2
COL-480	18/05/2010	0.5	<1	<1	11	0.57	1000
COL-480	25/05/2010	0.7	<1	<1	12	0.29	4
COL-480	01/06/2010	0.54	<1	<1	11	0.28	<2
COL-480	08/06/2010	0.58	<1	<1	11	0.33	<2
COL-480	15/06/2010	0.21	<1	<1	11	0.25	2
COL-480	22/06/2010	0.46	<1	<1	12	0.27	<2
COL-480	29/06/2010	0.44	<1	<1	12	0.23	2
COL-480	06/07/2010	0.51	<1	<1	13	0.41	<2
COL-480	13/07/2010	0.55	<1	<1	17	0.38	18
COL-480	20/07/2010	0.59	<1	<1	16	0.29	2
COL-480	27/07/2010	0.45	<1	<1	18	0.29	<2
COL-480	03/08/2010	0.13	<1	<1	15	0.32	28
COL-480	10/08/2010	0.11	<1	<1	19	0.25	38
COL-480	17/08/2010	0.13	<1	<1	17	0.28	48
COL-480	24/08/2010	0.16	<1	<1	18	0.28	18
COL-480	31/08/2010	0.14	<1	<1	18	0.21	38
COL-480	07/09/2010	0.13	<1	<1	17	0.19	20
COL-480	14/09/2010	0.11	<1	<1	19	0.22	210
COL-480	21/09/2010	0.05	<1	<1	17	0.21	360

Sample name	Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	Total Coliform MF/100mLs	Temp °C	Turbidity NTU	HPC CFU/mls
COL-480	28/09/2010	0.03	<1	<1	18	0.21	640
COL-480	05/10/2010	0.03	<1	<1	17	0.3	860
COL-480	12/10/2010	0.02	<1	<1	17	0.23	200
COL-480	19/10/2010	0.03	<1	<1	15	0.34	310
COL-480	26/10/2010	0.02	<1	<1	15	0.27	140
COL-480	02/11/2010	0.03	<1	<1	14	0.31	440
COL-480	09/11/2010	0.15	<1	<1	14	0.31	150
COL-480	16/11/2010	0.03	<1	<1	14	0.34	200
COL-480	23/11/2010	0.1	<1	<1	11	0.32	120
COL-480	30/11/2010	0.09	<1	<1	10	0.29	32
COL-480	07/12/2010	0.07	<1	<1	10	0.37	24
COL-480	14/12/2010	0.05	<1	<1	9	0.83	10
COL-480	21/12/2010	0.05	<1	<1	9	0.39	14

Sample name	Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	Total Coliform MF/100mLs	Temp °C	Turbidity NTU	HPC CFU/mls
COL-481	05/01/2010	1.1	<1	<1	6	0.83	<2
COL-481	12/01/2010	0.79	<1	<1	7	0.76	<2
COL-481	19/01/2010	0.78	<1	<1	7	0.71	<2
COL-481	26/01/2010	0.76	<1	<1	7	0.72	<2
COL-481	02/02/2010	0.79	<1	<1	7	0.49	<2
COL-481	09/02/2010	0.79	<1	<1	7	0.43	<2
COL-481	16/02/2010	0.74	<1	<1	8	0.47	<2
COL-481	23/02/2010	0.86	<1	<1	7	0.45	<2
COL-481	02/03/2010	0.7	<1	<1	7	0.46	<2
COL-481	09/03/2010	0.72	<1	<1	7	0.43	<2
COL-481	16/03/2010	0.85	<1	<1	7	0.41	<2
COL-481	23/03/2010	0.84	<1	<1	8	0.66	<2
COL-481	30/03/2010	0.68	<1	<1	7	0.41	<2
COL-481	06/04/2010	0.77	<1	<1	7	0.44	<2
COL-481	13/04/2010	0.74	<1	<1	8	0.6	2
COL-481	20/04/2010	0.82	<1	<1	8	0.36	<2
COL-481	27/04/2010	0.5	<1	<1	9	0.33	<2
COL-481	04/05/2010	0.51	<1	<1	9	0.29	<2
COL-481	11/05/2010	0.59	<1	<1	10	0.37	<2
COL-481	18/05/2010	0.63	<1	<1	11	0.45	<2
COL-481	25/05/2010	0.65	<1	<1	11	0.27	<2
COL-481	01/06/2010	0.43	<1	<1	11	0.25	<2
COL-481	08/06/2010	0.58	<1	<1	11	0.27	2
COL-481	15/06/2010	0.56	<1	<1	12	0.39	<2
COL-481	22/06/2010	0.27	<1	<1	12	0.33	2
COL-481	29/06/2010	0.21	<1	<1	13	0.22	<2
COL-481	06/07/2010	0.5	<1	<1	14	0.43	2
COL-481	13/07/2010	0.72	<1	<1	14	0.41	<2
COL-481	20/07/2010	0.69	<1	<1	15	0.29	<2
COL-481	27/07/2010	0.81	<1	<1	15	0.28	<2
COL-481	03/08/2010	0.56	<1	<1	16	0.24	<2
COL-481	10/08/2010	0.71	<1	<1	16	0.25	<2
COL-481	17/08/2010	0.81	<1	<1	16	0.2	<2
COL-481	24/08/2010	0.66	<1	<1	15	0.32	40
COL-481	31/08/2010	0.68	<1	<1	15	0.24	<2
COL-481	07/09/2010	0.7	<1	<1	16	0.2	<2
COL-481	14/09/2010	0.89	<1	<1	15	0.28	<2
COL-481	21/09/2010	0.62	<1	<1	15	0.22	<2

Sample name	Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	Total Coliform MF/100mLs	Temp °C	Turbidity NTU	HPC CFU/mls
COL-481	28/09/2010	0.73	<1	<1	16	0.31	<2
COL-481	05/10/2010	0.96	<1	<1	15	0.31	<2
COL-481	12/10/2010	0.72	<1	<1	15	0.35	<2
COL-481	19/10/2010	0.92	<1	<1	14	0.33	<2
COL-481	26/10/2010	0.72	<1	<1	13	0.35	<2
COL-481	02/11/2010	0.86	<1	<1	13	0.31	<2
COL-481	09/11/2010	0.77	<1	<1	12	0.29	<2
COL-481	16/11/2010	0.84	<1	<1	12	0.31	<2
COL-481	23/11/2010	0.74	<1	<1	9	0.31	<2
COL-481	30/11/2010	0.91	<1	<1	8	0.33	<2
COL-481	07/12/2010	1	<1	<1	8	0.33	<2
COL-481	14/12/2010	0.86	<1	<1	8	0.64	2
COL-481	21/12/2010	0.82	<1	<1	8	0.41	<2

Sample name	Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	Total Coliform MF/100mLs	Temp °C	Turbidity NTU	HPC CFU/mls
COL-482	05/01/2010	0.5	<1	<1	7	0.94	<2
COL-482	12/01/2010	0.36	<1	<1	7	0.53	<2
COL-482	19/01/2010	0.44	<1	<1	7	0.66	<2
COL-482	26/01/2010	0.43	<1	<1	7	0.6	<2
COL-482	02/02/2010	0.36	<1	<1	7	0.59	<2
COL-482	09/02/2010	0.37	<1	<1	7	0.51	2
COL-482	16/02/2010	0.34	<1	<1	7	0.59	<2
COL-482	23/02/2010	0.32	<1	<1	7	0.46	<2
COL-482	02/03/2010	0.38	<1	<1	7	0.44	<2
COL-482	09/03/2010	0.32	<1	<1	7	0.47	<2
COL-482	16/03/2010	0.25	<1	<1	7	0.38	<2
COL-482	23/03/2010	0.31	<1	<1	7	0.53	<2
COL-482	30/03/2010	0.28	<1	<1	7	0.44	<2
COL-482	06/04/2010	0.31	<1	<1	7	0.41	<2
COL-482	13/04/2010	0.38	<1	<1	7	0.56	<2
COL-482	20/04/2010	0.39	<1	<1	7	0.4	<2
COL-482	27/04/2010	0.4	<1	<1	7	0.35	<2
COL-482	04/05/2010	0.29	<1	<1	8	0.37	<2
COL-482	11/05/2010	0.34	<1	<1	9	0.34	<2
COL-482	18/05/2010	0.63	<1	<1	8	0.38	<2
COL-482	25/05/2010	0.27	<1	<1	10	0.4	<2
COL-482	01/06/2010	0.31	<1	<1	11	0.32	4
COL-482	08/06/2010	0.19	<1	<1	11	0.44	2
COL-482	15/06/2010	0.17	<1	<1	10	0.36	<2
COL-482	22/06/2010	0.2	<1	<1	11	0.34	2
COL-482	29/06/2010	0.24	<1	<1	11	0.28	<2
COL-482	06/07/2010	0.22	<1	<1	13	0.39	<2
COL-482	13/07/2010	0.37	<1	<1	13	0.39	<2
COL-482	20/07/2010	0.32	<1	<1	14	0.28	4
COL-482	27/07/2010	0.37	<1	<1	14	0.27	<2
COL-482	03/08/2010	0.38	<1	<1	15	0.24	<2
COL-482	10/08/2010	0.32	<1	<1	14	0.27	<2
COL-482	17/08/2010	0.54	<1	<1	14	0.3	2
COL-482	24/08/2010	0.49	<1	<1	14	0.28	24
COL-482	31/08/2010	0.39	<1	<1	14	0.25	2
COL-482	07/09/2010	0.42	<1	<1	15	0.19	<2
COL-482	14/09/2010	0.43	<1	<1	15	0.24	6
COL-482	21/09/2010	0.33	<1	<1	15	0.2	2

Sample name	Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	Total Coliform MF/100mLs	Temp °C	Turbidity NTU	HPC CFU/mls
COL-482	28/09/2010	0.24	<1	<1	15	0.26	2
COL-482	05/10/2010	0.23	<1	<1	14	0.27	<2
COL-482	12/10/2010	0.37	<1	<1	15	0.25	<2
COL-482	19/10/2010	0.3	<1	<1	13	0.37	<2
COL-482	26/10/2010	0.3	<1	<1	13	0.36	<2
COL-482	02/11/2010	0.21	<1	<1	13	0.37	8
COL-482	09/11/2010	0.34	<1	<1	12	0.36	2
COL-482	16/11/2010	0.29	<1	<1	12	0.32	<2
COL-482	23/11/2010	0.24	<1	<1	10	0.38	20
COL-482	30/11/2010	0.37	<1	<1	9	0.3	<2
COL-482	07/12/2010	0.54	<1	<1	9	0.31	4
COL-482	14/12/2010	0.51	<1	<1	8	0.39	<2
COL-482	21/12/2010	0.5	<1	<1	9	0.47	<2

Sample name	Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	Total Coliform MF/100mLs	Temp °C	Turbidity NTU	HPC CFU/mls
COL-483	05/01/2010	0.89	<1	<1	6	0.77	<2
COL-483	12/01/2010	0.69	<1	<1	7	0.49	2
COL-483	19/01/2010	0.96	<1	<1	7	0.52	<2
COL-483	26/01/2010	0.81	<1	<1	7	0.54	<2
COL-483	02/02/2010	0.65	<1	<1	6	0.49	<2
COL-483	09/02/2010	0.69	<1	<1	7	0.5	<2
COL-483	16/02/2010	0.59	<1	<1	8	0.48	<2
COL-483	23/02/2010	0.73	<1	<1	7	0.39	4
COL-483	02/03/2010	0.81	<1	<1	7	0.44	<2
COL-483	09/03/2010	0.78	<1	<1	7	0.42	<2
COL-483	16/03/2010	0.75	<1	<1	7	0.41	<2
COL-483	23/03/2010	0.68	<1	<1	8	0.59	<2
COL-483	30/03/2010	0.82	<1	<1	8	0.35	<2
COL-483	06/04/2010	0.64	<1	<1	8	0.38	<2
COL-483	13/04/2010	0.71	<1	<1	8	0.65	2
COL-483	20/04/2010	0.7	<1	<1	8	0.48	<2
COL-483	27/04/2010	0.5	<1	<1	9	0.31	<2
COL-483	04/05/2010	0.57	<1	<1	9	0.35	<2
COL-483	11/05/2010	0.72	<1	<1	10	0.34	<2
COL-483	18/05/2010	0.53	<1	<1	10	0.33	<2
COL-483	25/05/2010	0.63	<1	<1	11	0.32	<2
COL-483	01/06/2010	0.61	<1	<1	11	0.32	<2
COL-483	08/06/2010	0.51	<1	<1	12	0.34	<2
COL-483	15/06/2010	0.48	<1	<1	12	0.26	2
COL-483	22/06/2010	0.46	<1	<1	11	0.36	6
COL-483	29/06/2010	0.2	<1	<1	12	0.29	2
COL-483	06/07/2010	0.47	<1	<1	13	0.37	4
COL-483	13/07/2010	0.51	<1	<1	14	0.4	LA
COL-483	20/07/2010	0.67	<1	<1	15	0.3	2
COL-483	27/07/2010	0.74	<1	<1	15	0.36	2
COL-483	03/08/2010	0.6	<1	<1	17	0.4	4
COL-483	10/08/2010	0.66	<1	<1	16	0.36	2
COL-483	17/08/2010	0.78	<1	<1	17	0.24	8
COL-483	24/08/2010	0.78	<1	<1	17	0.23	4
COL-483	31/08/2010	0.68	<1	<1	17	0.23	<2
COL-483	07/09/2010	0.81	<1	<1	15	0.27	<2
COL-483	14/09/2010	0.64	<1	<1	16	0.29	<2
COL-483	21/09/2010	0.63	<1	<1	16	0.36	2

Sample name	Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	Total Coliform MF/100mLs	Temp °C	Turbidity NTU	HPC CFU/mls
COL-483	28/09/2010	0.58	<1	<1	15	0.35	2
COL-483	05/10/2010	0.56	<1	<1	15	0.42	<2
COL-483	12/10/2010	0.76	<1	<1	15	0.3	2
COL-483	19/10/2010	0.66	<1	<1	14	0.37	6
COL-483	26/10/2010	0.67	<1	<1	13	0.31	<2
COL-483	02/11/2010	0.87	<1	<1	12	0.33	2
COL-483	09/11/2010	0.81	<1	<1	13	0.37	<2
COL-483	16/11/2010	0.73	<1	<1	13	0.34	2
COL-483	23/11/2010	0.93	<1	<1	9	0.29	<2
COL-483	30/11/2010	0.78	<1	<1	9	0.33	<2
COL-483	07/12/2010	0.8	<1	<1	9	0.29	<2
COL-483	14/12/2010	0.87	<1	<1	8	0.53	2
COL-483	21/12/2010	0.77	<1	<1	8	0.3	<2

Sample name	Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	Total Coliform MF/100mLs	Temp °C	Turbidity NTU	HPC CFU/mls
COL-484	05/01/2010	0.8	<1	<1	6	0.85	2
COL-484	12/01/2010	0.53	<1	<1	7	0.49	<2
COL-484	19/01/2010	0.63	<1	<1	7	0.53	2
COL-484	26/01/2010	0.66	<1	<1	7	0.56	<2
COL-484	02/02/2010	0.56	<1	<1	7	0.55	<2
COL-484	09/02/2010	0.85	<1	<1	7	0.39	<2
COL-484	16/02/2010	0.53	<1	<1	7	0.59	<2
COL-484	23/02/2010	0.78	<1	<1	7	0.42	<2
COL-484	02/03/2010	0.59	<1	<1	7	0.39	<2
COL-484	09/03/2010	0.58	<1	<1	7	0.53	<2
COL-484	16/03/2010	0.55	<1	<1	8	0.49	<2
COL-484	23/03/2010	0.59	<1	<1	7	0.56	<2
COL-484	30/03/2010	0.48	<1	<1	7	0.38	<2
COL-484	06/04/2010	0.48	<1	<1	7	0.43	LA
COL-484	13/04/2010	0.42	<1	<1	7	0.6	2
COL-484	20/04/2010	0.52	<1	<1	8	0.32	<2
COL-484	27/04/2010	0.45	<1	<1	9	0.3	<2
COL-484	04/05/2010	0.4	<1	<1	9	0.3	<2
COL-484	11/05/2010	0.48	<1	<1	9	0.25	<2
COL-484	18/05/2010	0.19	<1	<1	10	0.36	2
COL-484	25/05/2010	0.36	<1	<1	10	0.26	<2
COL-484	01/06/2010	0.14	<1	<1	11	0.3	<2
COL-484	08/06/2010	0.38	<1	<1	11	0.33	<2
COL-484	15/06/2010	0.29	<1	<1	12	0.36	2
COL-484	22/06/2010	0.4	<1	<1	12	0.28	<2
COL-484	29/06/2010	0.31	<1	<1	12	0.27	<2
COL-484	06/07/2010	0.41	<1	<1	14	0.37	<2
COL-484	13/07/2010	0.56	<1	<1	13	0.36	<2
COL-484	20/07/2010	0.56	<1	<1	15	0.27	4
COL-484	27/07/2010	0.6	<1	<1	16	0.25	<2
COL-484	03/08/2010	0.42	<1	<1	15	0.31	<2
COL-484	10/08/2010	0.39	<1	<1	15	0.25	<2
COL-484	17/08/2010	0.48	<1	<1	14	0.22	<2
COL-484	24/08/2010	0.5	<1	<1	15	0.22	<2
COL-484	31/08/2010	0.45	<1	<1	15	0.21	<2
COL-484	07/09/2010	0.44	<1	<1	15	0.18	4
COL-484	14/09/2010	0.16	<1	<1	15	0.22	4
COL-484	21/09/2010	0.12	<1	<1	16	0.2	2

Sample name	Sampled date	Chlorine Free mg/L	Ecoli MF/100mLs	Total Coliform MF/100mLs	Temp °C	Turbidity NTU	HPC CFU/mls
COL-484	28/09/2010	0.1	<1	<1	16	0.22	<2
COL-484	05/10/2010	0.1	<1	<1	15	0.27	20
COL-484	12/10/2010	0.08	<1	<1	15	0.24	16
COL-484	19/10/2010	0.05	<1	<1	13	0.29	12
COL-484	26/10/2010	0.07	<1	<1	13	0.28	10
COL-484	02/11/2010	0.05	<1	<1	13	0.33	34
COL-484	09/11/2010	0.16	<1	<1	12	0.32	12
COL-484	16/11/2010	0.38	<1	<1	11	0.35	2
COL-484	23/11/2010	0.39	<1	<1	9	0.33	2
COL-484	30/11/2010	0.85	<1	<1	9	0.24	2
COL-484	07/12/2010	0.51	<1	<1	8	0.22	4
COL-484	14/12/2010	0.44	<1	<1	8	0.57	8
COL-484	21/12/2010	0.31	<1	<1	8	0.39	<2

Operations & Maintenance Department
Quality Control Division

February 21, 2011

File No.: WA-10-01-DBP

Dear Mr. Hummel,

Please find enclosed analytical results for 2010, from your municipality's distribution system for: disinfection by-products, (Haloacetic Acids⁽⁵⁾ and Trihalomethanes), metals and vinyl chloride. This monitoring is required under the [Water Quality Monitoring and Reporting Plan for the GVRD and Member Municipalities](#). The current standards for the parameters in this report are included in the table below, as well as a link to the Guidelines for Canadian Drinking Water Quality for your information.

Parameter	Guidelines for Canadian Drinking Water Quality
Total Trihalomethanes	100 µg/L (ppb) or 0.1 mg/L (ppm)
Total Haloacetic Acids ⁽⁵⁾	80 µg/L (ppb) or 0.080 mg/L (ppm)
Copper	≤1000 µg/L (ppb) or ≤ 1.0 mg/L (AO)
Iron	≤ 300 µg/L (ppb) or ≤0.3 mg/L (AO)
Lead	10 µg/L (ppb) or 0.01 mg/L (MAC)
Zinc	≤ 5000 µg/L (ppb) or ≤ 5.0 mg/L (AO)
Vinyl Chloride	2 µg/L (ppb) or 0.002 mg/L (MAC)

(MAC) Maximum Acceptable Concentration (AO) Aesthetic Objective

The following reports are enclosed:

1. A report containing the data from the analyses carried out each quarter for the individual compounds in each group of disinfection by-products. The standard for these compounds is based on the total amount of the group detected therefore the total for each group has been calculated for each site.
2. A report containing the year of calculated running average results for total Trihalomethanes and total Haloacetic Acids for individual sites.
3. A report containing the data for metals analysis done semi annually. Copper, Iron, Lead and Zinc are the parameters that are required under the [Water Quality Monitoring and Reporting Plan for the GVRD and Member Municipalities](#), but since the method of analysis produces other metals results they are included for your benefit.
4. A report containing the data for vinyl chloride analysis done semi annually. [The Water Quality Monitoring and Reporting Plan for the GVRD and Member Municipalities](#) states that this should be conducted at sites where PVC pipe is used in the distribution system; if your municipality does not have any potentially affected sites you may not have any results.

2010 was an exciting year for Metro Vancouver with the Seymour Capilano Filtration Plant in operation for the entire year. Metro Vancouver discontinued chlorination of the Seymour source at Seymour Fall Dam on July 29th, 2010; however chlorination remains in place after filtration and UV treatment at The Seymour Capilano Filtration Plant. In many cases the THAA values on Seymour source water dropped in the third quarter but this may not be have been noticeable in the running annual averages as results from previous quarters may have help to keep the running averages high.

If you have any questions about the results or would like more information, please call me at 604.451.6014.

Regards,

Eileen Butler
Municipal Water Quality Coordinator
Quality Control Division
Metro Vancouver



Metro Vancouver
 Quality Control Division - Chemistry Lab
 1299 Derwent Way, Delta BC V3M 5V9
 Phone: (604) 523-7173 / 7174 Fax: (604) 525-0932

**METRO
 VANCOUVER**

Sample Name	Sample Reported Name	Date 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	
COL-455	20200 Blk. of Michaud Crescent	6/8/2010	0.09	<0.01	0	<0.02	<0.0005	1.2	<0.001	<0.001	0.005	0.05	<0.001	0.09	0.006	<0.002	<0.001	<0.01	<0.001	<0.001	7.1	0.003
COL-455	20200 Blk. of Michaud Crescent	11/16/2010	0.09	<0.01	0	<0.02	<0.0005	1	<0.001	<0.001	0.004	0.05	<0.001	0.08	0.002	<0.002	<0.001	<0.01	<0.001	<0.001	7.6	<0.002
COL-458	5400 Blk of Brydon Crescent	6/8/2010	0.09	<0.01	0	<0.02	<0.0005	1	<0.001	<0.001	0.006	0.05	<0.001	0.1	0.008	<0.002	<0.001	<0.01	<0.001	<0.001	6.9	0.003
COL-458	5400 Blk of Brydon Crescent	11/16/2010	0.09	<0.01	0	<0.02	<0.0005	0.9	<0.001	<0.001	0.005	0.05	<0.001	0.09	0.002	<0.002	<0.001	<0.01	<0.001	<0.001	7.7	0.002
COL-481	20400 Blk of 54 Ave.	6/8/2010	0.08	<0.01	0	<0.02	<0.0005	1.1	<0.001	<0.001	0.006	0.05	<0.001	0.08	0.003	<0.002	<0.001	<0.01	<0.001	<0.001	6.6	0.004
COL-481	20400 Blk of 54 Ave.	11/16/2010	0.09	<0.01	0	<0.02	<0.0005	1	<0.001	<0.001	0.003	0.05	<0.001	0.08	0.002	<0.002	<0.001	<0.01	<0.001	<0.001	7.5	<0.002

Sample	Date Sampled	THM (ppb)					Total THM Quarterly Average	HAA (ppb)						Total HAA Quarterly Average
		Bromodichloromethane	Bromoform	Chlorodibromomethane	Chloroform	Total Trihalomethanes		Dibromoacetic Acid	Dichloroacetic Acid	Monobromoacetic Acid	Monochloroacetic Acid	Trichloroacetic Acid	Total Haloacetic Acid	
COL-451	5/26/2009 8:12	<1	<1	<1	22	22		<0.5	18	<1	10	22	50	
COL-451	8/18/2009 8:07	<1	<1	<1	25	25		<0.5	10	<1	6	16	32	
COL-451	11/24/2009 8:59	<1	<1	<1	35	35		<0.5	13	<1	4	26	44	
COL-451	1/19/2010 8:51	<1	<1	<1	37	37	30	<0.5	25	<1	6	47	78	51
COL-451	5/17/2010 7:52	<1	<1	<1	41	41	35	<0.5	16	<1	2	37	55	52
COL-451	9/14/2010 8:56	1	<1	<1	38	39	38	<0.5	9	<1	<2	24	34	53
COL-451	11/23/2010 8:59	1	<1	<1	59	60	44	<0.5	24	<1	3	64	92	65
COL-457	5/26/2009 9:24	<1	<1	<1	25	25		<0.5	18	<1	11	16	45	
COL-457	8/18/2009 9:15	<1	<1	<1	28	28		<0.5	18	<1	7	21	46	
COL-457	11/24/2009 10:10	<1	<1	<1	38	38		<0.5	25	<1	16	45	87	
COL-457	1/19/2010 10:04	<1	<1	<1	30	30	30	<0.5	28	<1	16	39	83	65
COL-457	5/17/2010 9:00	<1	<1	<1	34	34	33	<0.5	26	<1	12	41	79	74
COL-457	9/14/2010 10:01	<1	<1	<1	32	32	34	<0.5	13	<1	<2	19	32	70
COL-457	11/23/2010 10:10	<1	<1	<1	43	43	35	<0.5	38	<1	25	82	145	85
COL-480	5/26/2009 8:41	<1	<1	<1	29	29		<0.5	11	<1	6	19	36	
COL-480	8/18/2009 8:35	1	<1	<1	42	43		<0.5	10	<1	4	21	35	
COL-480	11/24/2009 9:28	<1	<1	<1	46	46		<0.5	14	<1	4	54	72	
COL-480	1/19/2010 9:20	<1	<1	<1	39	39	39	<0.5	17	<1	7	47	72	54
COL-480	5/17/2010 8:20	<1	<1	<1	32	32	40	<0.5	17	<1	5	22	44	56
COL-480	9/14/2010 9:22	1	<1	<1	41	42	40	<0.5	2	<1	<2	17	19	52
COL-480	11/23/2010 9:31	1	<1	<1	58	59	43	<0.5	12	<1	3	85	100	59

Vinyl Chloride Results

Municipality	Sample Site
City of Langley	451
	452
	480

1st half of 2010	Vinyl Chloride
Date Sampled	µg/L
08-Jun-10	<0.5
08-Jun-10	<0.5
08-Jun-10	<0.5

2nd half of 2010	Vinyl Chloride
Date Sampled	µg/L
16-Nov-10	<0.5
16-Nov-10	<0.5
16-Nov-10	<0.5