



**The Corporation of the Township of Southgate
Water Operations Department**

Dundalk Drinking Water System Operational Plan



Approved by: Southgate Council

Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Table of Contents

Table of Contents	i
Schedule C	ii
Revision History	iii, iv, v and vi
Acceptance of Operational Plan, Drinking Water Works Permit and Municipal Drinking Water License.....	vi, vii
1 Quality Management System	1-1
2 Quality Management System Policy	2-1
3 Commitment and Endorsement	3-1
4 Quality Management System Representative	4-1
5 Document and Records Control	5-1
6 Drinking Water System	6-1
7 Risk Assessment	7-1
8 Risk Assessment Outcomes	8-1
9 Organizational Structure, Roles, Responsibilities and Authorities	9-1
10 Competencies	10-1
11 Personnel Coverage	11-1
12 Communications.....	12-1
13 Essential Supplies and Services	13-1
14 Review and Provision of Infrastructure	14-1
15 Infrastructure Maintenance, Rehabilitation and Renewal	15-1
16 Sampling, Testing and Monitoring.....	16-1
17 Measurement and Recording Equipment Calibration and Maintenance	17-1
18 Emergency Management	18-1
19 Internal Audits	19-1
20 Management Review.....	20-1
21 Continual Improvement.....	21-1
Appendix A	Risk Assessment Outcomes
Appendix B	Standard Operating Procedures
Appendix C	Standard Recovery Procedures
Appendix D	Emergency Operating Procedures
Appendix E	Forms

Schedule "C"

Subject System Description Form			
Municipal Residential Drinking Water System			
Owner of Municipal Residential Drinking Water System ¹ : Corporation of the Township of Southgate			
Name of Municipal Residential Drinking Water System ² : Dundalk Drinking Water System			
Subject Systems			
	Name of Operational Subsystems (if applicable) ³	Name of Operating Authority ⁵	DWS Number(s) ⁶
<input checked="" type="checkbox"/> Check here if the Municipal Residential Drinking Water System is operated by one operating authority. Enter the name of the operating authority in adjacent column ⁴		Township of Southgate	220001753
Operational Subsystem 1:			
Operational Subsystem 2:			
Operational Subsystem 3:			
Operational Subsystem 4:			
Add attachments if there are additional 'Operational Subsystems'			
Contact Information ⁷			
Name	Title	Phone No(s).	Email Address
Primary: Jim Ellis	Public Works Manager	519-378-3777	jellis@southgate.ca
Alternate: Dina Lundy	CAO	519-373-1305	dlundy@southgate.ca

Director's Directions for Operational Plans - July 2007

Revision History

Description	Elements Affected	Date	Approved by
Original Release	All	May 20, 2009	Jim Ellis
DCR 001	2, Page 2-1	June 16, 2009	Jim Ellis
DCR 002	Form 18	July 2, 2009	Jim Ellis
DCR 003	Appendix A	Nov 27, 2009	Jim Ellis
DCR 004	Figure 6-3	Nov 27, 2009	Jim Ellis
DCR 005	5.7, page 5-3	Jan 13, 2010	Jim Ellis
New Addition	Form 37	Jan 29, 2010	Jim Ellis
New Addition	SOP # 31	Feb 8, 2010	Jim Ellis
New Addition	Form 38	Feb 8, 2010	Jim Ellis
DCR 006	5.4, page 5-2	Feb 12, 2010	Jim Ellis
New Addition	Form 39	Feb 18, 2010	Jim Ellis
New Addition	SOP # 32	March 2, 2010	Jim Ellis
DCR 007	SGS form	July 9, 2010	Jim Ellis
DCR 008	Element 13	July 9, 2010	Jim Ellis
DCR 009	Title Page	August 17, 2010	Jim Ellis
DCR 010	Form 05	August 18, 2010	Jim Ellis
DCR 011	Form 06	August 18, 2010	Jim Ellis
DCR 012	Form 34	August 18, 2010	Jim Ellis
DCR 013	Element 5	August 19, 2010	Jim Ellis
DCR 014	Element 6	August 19, 2010	Jim Ellis
DCR 015	Element 7	August 19, 2010	Jim Ellis
DCR 016	Element 10	August 19, 2010	Jim Ellis
DCR 017	Element 11	August 19, 2010	Jim Ellis
DCR 018	Element 19	August 19, 2010	Jim Ellis
DCR 019	Element 20	August 19, 2010	Jim Ellis
DCR 020	Form 11	August 24, 2010	Jim Ellis
DCR 021	Element 5	Sept., 8, 2010	Jim Ellis
DCR 022	Figure 6-3	Oct 27, 2010	Jim Ellis
DCR 023	Element 6	Oct 27, 2010	Jim Ellis
DCR 024	Element 19.2	Nov 29, 2010	Jim Ellis
DCR 025	Element 18.8	Dec 3, 2010	Jim Ellis
DCR 026	EOP 1 page 3	Dec 3, 2010	Jim Ellis
DCR 027	EOP 4 page 12	Dec 3, 2010	Jim Ellis
DCR 028	Element 11.2	Dec 3, 2010	Jim Ellis
DCR 029	Element 9.1	Dec 3, 2010	Jim Ellis
DCR 030	Table of Contents	Dec 9, 2010	Jim Ellis
DCR 031	Appendix A	Dec 9, 2010	Jim Ellis
DCR 032	Element 10	Dec 21, 2010	Jim Ellis
DCR 033	Schedule C	Dec 21, 2010	Jim Ellis
DCR 034	Name Insertion on every page	Dec 21, 2010	Jim Ellis
DCR 035	Version, date, and page # insertion on every page	Dec 21, 2010	Jim Ellis
DCR 036	All SOP, SRP and EOP	Dec 21, 2010	Jim Ellis

New Addition	SOP #33	Dec 21, 2010	Jim Ellis
DCR-11-01	Forms 6,11, 34	Jan 4, 2011	Jim Ellis
DCR-11-02	Element 13	Jan 4, 2011	Jim Ellis
DCR-11-03	Form 38	Jan 7, 2011	Jim Ellis
DCR-11-04	Form 05	April 13, 2011	Jim Ellis
DCR-11-05	Forms 16,17,21,32,33,34, 35,36	April 29, 2011	Jim Ellis
DCR-11-06	Chain of Custody	April 29, 2011	Jim Ellis
DCR-11-07	Operational Plan and SOPs	April 29, 2011	Jim Ellis
DCR-11-08	Element 6	April 29, 2011	Jim Ellis
DCR-11-09	Appendix A, Form 31, SOP 34 & 35	April 29, 2011	Jim Ellis
DCR-11-10	Element 16-3	June 22, 2011	Jim Ellis
DCR-11-11	SOP 12 & 26	June 22, 2011	Jim Ellis
DCR-11-12	Form – Adverse Water (2011/04)	June 23, 2011	Jim Ellis
DCR-11-13	SOP 28	July 6, 2011	Jim Ellis
DCR-11-14	EOP 4	July 6, 2011	Jim Ellis
DCR-11-15	EOP 1	July 6, 2011	Jim Ellis
DCR-11-16	Element 18-8	Aug 24, 2011	Jim Ellis
DCR-11-17	Element 13-3	Dec 19, 2011	Jim Ellis
DCR-11-18	Form 21	Dec 19, 2011	Jim Ellis
DCR-11-19	Element 19	Dec 19, 2011	Jim Ellis
DCR-12-01	EOP #02	Jan 4, 2012	Jim Ellis
DCR-12-02	EOP #01	Jan 4, 2012	Jim Ellis
DCR-12-03	EOP #01	Jan 4, 2012	Jim Ellis
DCR-12-04	Element 11.2 & 18-8	Feb 15, 2012	Jim Ellis
DCR-12-05	Element 16-1	Feb 22, 2012	Jim Ellis
DCR-12-06	SRP #06	Apr 5, 2012	Jim Ellis
DCR-12-07	Form24 Watermain Break Report	Apr 5, 2012	Jim Ellis
DCR-12-08	Element 18-9 & 13	Apr 5, 2012	Jim Ellis
DCR-12-09	Element 12.4 & Form 38	May 3, 2012	Jim Ellis
DCR-12-10	Element 2	Oct 23, 2012	Jim Ellis
DCR-12-11	Element 11	Oct 23, 2012	Jim Ellis
DCR-12-12	Element 6	Oct 23, 2012	Jim Ellis
DCR-12-13	SOP #36	Oct 23, 2012	Jim Ellis
DCR-12-14	Operational Plan	Oct 31, 2012	Jim Ellis
DCR-12-15	Rick Assessment Outcomes	Dec 3, 2012	Jim Ellis
DCR-12-16	SOP 7-3	Dec 3, 2012	Jim Ellis
DCR-12-17	Element 8	Dec 3, 2012	Jim Ellis
DCR 12-18	Element 18 & EOP #1	Dec 3, 2012	Jim Ellis

DCR 12-19	Form 40 – Review Management Checklist	Dec 13,2012	Jim Ellis
DCR 13-01	Form 16	Jan 9, 2013	Jim Ellis
DCR 13-02	Forms 6, 11 & 34	Jan 9, 2013	Jim Ellis
DCR 13-03	Form 41 – Orbeco SC450 Colorimeter	Jan 10, 2013	Jim Ellis
DCR 13-04	Element 11.2	Jan 17, 2013	Jim Ellis
DCR 13-05	Forms 6, 11, 16, 34 & 41	Jan 30, 2013	Jim Ellis
DCR 13-06	Forms 6, 11, 16, 34 & 41	Sep 24, 2013	Jim Ellis
DCR 13-07	Updated phone numbers for water operators	Sep 24, 2013	Jim Ellis
DCR 13-08	2. Quality Management System Policy	Sep 24, 2013	Jim Ellis
DCR 13-09	3. Commitment and Endorsement	Sep 24, 2013	Jim Ellis
DCR 13-10	Environmental Services Manager to Public Works Manager	Sep 24, 2013	Jim Ellis
DCR 13-11	6.4 Update	Sep 24, 2013	Jim Ellis
DCR 13-12	9.1 Organization Chart	Sep 24, 2013	Jim Ellis
DCR 13-13	9.2 Changed owner	Sep 24, 2013	Jim Ellis
DCR 13-14	9.7 to lead hand and 9.8 to operator/labourer	Sep 24, 2013	Jim Ellis
DCR 13-15	11.2 Updated phone numbers	Sep 24, 2013	Jim Ellis
DCR 13-16	10 Competencies – added lead hand	Sep 24, 2013	Jim Ellis
DCR 13-17	13. Essential Supplies	Sep 24, 2013	Jim Ellis
DCR 13-18	Updated manual to be accessible font	Sep 24, 2013	Jim Ellis
DCR 13-19	SRP#6 Update Phone Numbers	Sep 24, 2013	Jim Ellis
DCR 13-20	EOP #1 Update phone numbers	Sep 24, 2013	Jim Ellis
DCR 13-21	EOP# 3 Update media contacts	Sep 24, 2013	Jim Ellis
DCR 13-22	EOP # 4 Revised date	Sep 24, 2013	Jim Ellis
DCR 13-23	EOP # 4 Updated contacts	Sep 24, 2013	Jim Ellis
DCR 13-24	Updated email addresses	Sep 24, 2013	Jim Ellis
DCR 13-25	Updated Environmental to Public Works	Sep 24, 2013	Jim Ellis
DCR 13-26	5.5 changed destroyed to shred	Oct 29, 2013	Jim Ellis
DCR 13-27	Table 16-2 Remove sodium form every 5 years	Oct 29, 2013	Jim Ellis
DCR 13-28	17-1 update model makes	Oct 29, 2013	Jim Ellis
DCR 13-29	Updated OP 21	Oct 29, 2013	Jim Ellis

DCR 13-30	SOP-15 Updated	Oct 29, 2013	Jim Ellis
DCR 13-31	SOP-22 Updated with Metal System phone number	Oct 29, 2013	Jim Ellis
DCR 13-32	SOP-33 Updated procedures	Oct 29, 2013	Jim Ellis
DCR 13-33	EOP-01 Added purpose	Oct 29, 2013	Jim Ellis
DCR 13-34	Spill Plan	Oct 29, 2013	Jim Ellis
DCR 13-35	Add Form 42 Improvement Corrective Action Record	Oct 29, 2013	Jim Ellis
DCR 13-36	OP 6.1	Oct 29, 2013	Jim Ellis
DCR 13-37	EOP01 Updated	Oct 29, 2013	Jim Ellis
DCR 13-38	EOP 05	Oct 29, 2013	Jim Ellis
DCR 13-39	SRP 02	Oct 29, 2013	Jim Ellis
DCR 13-40	OP 13	Nov 22, 2013	Jim Ellis
DCR 13-41	EOP 04	Dec 11, 2013	Jim Ellis
DCR 13-42	Add Form 42	Dec 11, 2013	Jim Ellis
DCR 13-43	Add Element 21 to Form 13	Dec 11, 2013	Jim Ellis
DCR 13-44	ICAR Log	Dec 20, 2013	Jim Ellis
ICAR 13-01	Updated Risk Assessment	Dec 20, 2013	Jim Ellis
ICAR 13-02	Produce training record	Dec 20, 2013	Jim Ellis
ICAR 13-03	Annual Testing Requirements – Form 43	Dec 20, 2013	Jim Ellis
ICAR 14-01	Updated forms 5, 6, 7, 24 & 34	Aug 20, 2014	Jim Ellis
DCR 14-01	Updated forms 5, 6, 7, 24 & 34	Aug 20, 2014	Jim Ellis
ICAR 14-02	Element 19.2 Audit Planning	Sept 3, 2014	Jim Ellis
DCR 14-02	Element 19.2 Audit Planning – removed checks from Element 21	Sept 3, 2014	Jim Ellis
DCR 14-03	Updated Appendix A to include Metal Systems	Sept 8, 2014	Jim Ellis
DCR 14-04	Element 6.2 Raw Water Paragraph 2 includes Metal System	Sept 8, 2014	Jim Ellis
DCR 14-05	Element 19.2 Remove check from August and add to October	Nov 13, 2014	Jim Ellis
DCR 14-06	Form 13 – Modify form to have grey shaded areas of which months are to be audited	Nov 13, 2014	Jim Ellis

DCR 14-07	Element 19.1 Added information to the element	Nov 13, 2014	Jim Ellis
DCR 15-01	EOP # 4 Updated contact information	January 12, 2015	Jim Ellis
DCR 15-02	SRP#6 – updated steps and added a flow chart	February 23, 2015	Jim Ellis
DCR 15-03	SOP #33 updated steps for D4 and added steps for D3	March 26, 2015	Jim Ellis
DCR 15-04	SOP # 23 & 24 – removed testing from document	March 26, 2015	Jim Ellis
DCR 15-05	SOP# 10 – updated steps	March 26, 2015	Jim Ellis
DCR 15-06	Elements 19 & 21 – updated process	April 8, 2015	Jim Ellis
DCR 15-07	Form 13 & 14 deleted	April 8, 2015	Jim Ellis
DCR 15-08	Form 45 – new form created	May 28, 2015	Jim Ellis
DCR 15-09	Form 46 – new form created	May 28, 2015	Jim Ellis
DCR 15-10	Element 14 – revisions	Sept 11, 2015	Cory Henry
DCR 15-11	Element 16 – revisions	Sept 11, 2015	Cory Henry
DCR 15-12	Entire Document – Version change to 2015-4	Sept 11, 2015	Cory Henry
DCR 15-13	Element 3.2 – updated contact information	Sept 11, 2015	Cory Henry
DCR 15-14	Element 2 – spelling update	Sept 11, 2015	Cory Henry
DCR 15-15	Form 24 – updated form with additional information	Sept 11, 2015	Cory Henry
DCR 15-16	Element 4 – updated information	Sept 11, 2015	Cory Henry
DCR 15-17	Element 5 – update information	Sept 11, 2015	Cory Henry
DCR 15-18	Element 5.8 – added information	Sept 11, 2015	Cory Henry
DCR 15-19	Element 6 – updated information	Sept 11, 2015	Cory Henry
DCR 15-20	Element 7 – Added information	Sept 11, 2015	Cory Henry
DCR 15-21	Element 9.5 & 9.7 – modified duties	Sept 11, 2015	Cory Henry
DCR 15-22	Element 9 – updated information	Sept 11, 2015	Cory Henry
DCR 15-23	Element 9.2 – Dundalk Drinking Water	Sept 11, 2015	Cory Henry

DCR 15-24	Element 10 – made modifications	Sept 11, 2015	Cory Henry
DCR 15-25	Element 11 – updated	Sept 11, 2015	Cory Henry
DCR 15-26	Element 11.2 – updated Element	Sept 11, 2015	Cory Henry
DCR 15-27	Element 12 – Updated phone numbers	Sept 11, 2015	Cory Henry
DCR 15-28	Element 13 – updated contact information	Sept 11, 2015	Cory Henry
DCR 15-29	Element 18 – added and updated contacts	Sept 11, 2015	Cory Henry
DCR 15-30	Element 20.1 – updated information	Sept 11, 2015	Cory Henry
DCR 15-31	Element 20.2 – updated information	Sept 11, 2015	Cory Henry
DCR 15-32	SOP 1 – updated	Sept 11, 2015	Cory Henry
DCR 15-33	SOP 3 – updated	Sept 11, 2015	Cory Henry
DCR 15-34	SOP 4 – updated	Sept 11, 2015	Cory Henry
DCR 15-35	SOP 11 – updated	Sept 11, 2015	Cory Henry
DCR 15-36	SOP 18 – updated	Sept 11, 2015	Cory Henry
DCR 15-37	SOP 20 – updated	Sept 11, 2015	Cory Henry
DCR 15-38	SOP 21 – updated	Sept 11, 2015	Cory Henry
DCR 15-39	SOP 31 – updated	Sept 11, 2015	Cory Henry
DCR 15-40	SOP Index – updated	Sept 11, 2015	Cory Henry
DCR 15-41	SRP 04 – updated	Sept 11, 2015	Cory Henry
DCR 15-42	SRP 07 – updated	Sept 11, 2015	Cory Henry
DCR 15-43	EOP 1 – added information	Sept 11, 2015	Cory Henry
DCR 15-44	EOP 2 – added information	Sept 11, 2015	Cory Henry
DCR 15-45	EOP 3 – updated information	Sept 11, 2015	Cory Henry
DCR 15-46	Form 31 – changed RTM to RRM	Sept 11, 2015	Cory Henry
DCR 15-47	Form 41 – deleted form	Sept 11, 2015	Cory Henry
DCR 15-48	Form 43 – updated information	Sept 11, 2015	Cory Henry
DCR 15-49	Form 38 – updated information	Sept 11, 2015	Cory Henry
DCR 15-50	Updated 3.2 to have Jim Ellis and not Cory Henry	Oct 15, 2015	Cory Henry
CAR 15-01	Updated 3.2	Oct 15, 2015	Cory Henry
CAR 15-02	Updated 9.7	Oct 15, 2015	Cory Henry
CAR 15-03	Internal audit plan non conformance	Oct 15, 2015	Cory Henry
CAR 15-04	Incomplete record of management review	Oct 15, 2015	Cory Henry
DCR 15-51	Updated 9.7	Oct 23, 2015	Cory Henry

DCR 15-52	Modify 19.2 & 19.3	Oct 28, 2015	Cory Henry
DCR 15-53	Added Categories A, B and C	Oct 28, 2015	Cory Henry
DCR 15-54	New Form 47	Oct 28, 2015	Cory Henry
DCR 15-55	New Form 48	Oct 28, 2015	Cory Henry
DCR 15-56	New Form 49	Oct 30, 2015	Cory Henry
DCR 15-57	Completed Risk Assessment evaluation	Nov 26, 2015	Cory Henry
DCR 15-58	Appendix A – added to Hazards	Nov 26, 2015	Cory Henry
DCR 16-01	Form 38	Jan 18, 2016	Cory Henry
DCR 16-02	New SOP 43	Jan 18, 2016	Cory Henry
DCR 16-03	New Form 50	Jan 18, 2016	Cory Henry
DCR 16-04	New Form 51	Jan 18, 2016	Cory Henry
DCR 16-05	New Form 52	Jan 18, 2016	Cory Henry
DCR 16-06	New SOP 38	Jan 18, 2016	Cory Henry
DCR 16-07	New SOP 39	Jan 18, 2016	Cory Henry
DCR 16-08	New SOP 40	Jan 18, 2016	Cory Henry
DCR 16-09	New Form 53	Jan 18, 2016	Cory Henry
DCR 16-10	New Form 54	Jan 18, 2016	Cory Henry
DCR 16-11	New Form 55	Jan 18, 2016	Cory Henry
DCR 16-12	Updated SRP 06	Jan 18, 2016	Cory Henry
DCR 16-13	Form 11 updated	Jan 18, 2016	Cory Henry
DCR 16-14	Form 38 updated	May 12, 2016	Cory Henry
DCR 16-15	New Form 56	May 12, 2016	Cory Henry
DCR 16-16	Appendix Update	May 11, 2016	Cory Henry
DCR 16-17	New SOP 41	May 11, 2016	Cory Henry
DCR 16-18	Appendix Update	May 11, 2016	Cory Henry
ICAR 16-01	EOP#1 – Updated Corrective Actions for Adverse Water Quality Results	August 19, 2016	Cory Henry
DCR 16-19	Form 24 Update	October 4, 2016	Cory Henry
DCR 16-20	Form 56 Update	October 4, 2016	Cory Henry
CAR 16-01	3.2 Commitment signed	November 2, 2016	Cory Henry
CAR 16-02	Form 9 Updated	Nov 2, 2016	Cory Henry
CAR 16-03	7.2 Changed to may	Nov 2, 2016	Cory Henry
CAR 16-04	Form 57 & SOP 42	Nov 2, 2016	Cory Henry
CAR 16-05	Element 19	Nov 2, 2016	Cory Henry
DCR 16-21	Form 9 updated	Nov 18, 2016	Cory Henry
DCR 16-22	OP 7.2 updated	Nov 18, 2016	Cory Henry
DCR 16-23	New Form 57	Nov 18, 2016	Cory Henry
DCR 16-24	New SOP #42	Nov 18, 2016	Cory Henry
DCR 16-25	Update Appendix A	Nov 25, 2016	Cory Henry
DCR 17-01	Added SOP 43	August 15, 2017	Cory Henry
DCR 17-02	Added SOP 44	August 15, 2017	Cory Henry

DCR 17-03	Element 4	August 15, 2017	Cory Henry
DCR 17-04	Element 5.4	August 15, 2017	Cory Henry
DCR 17-05	Element 5.6	August 15, 2017	Cory Henry
DCR 17-06	Element 5.8	August 15, 2017	Cory Henry
DCR 17-07	Element 6.1	August 15, 2017	Cory Henry
DCR 17-08	Element 9.7	August 15, 2017	Cory Henry
DCR 17-09	Element 11.2	August 15, 2017	Cory Henry
DCR 17-10	Element 13	August 15, 2017	Cory Henry
DCR 17-11	Element 17	August 15, 2017	Cory Henry
DCR 17-12	Element 18	August 15, 2017	Cory Henry
DCR 17-13	Added SOP 45	August 15, 2017	Cory Henry
DCR 17-14	Added SOP 46	August 15, 2017	Cory Henry
DCR 17-15	Element 6.3	August 15, 2017	Cory Henry
DCR 17-16	Element 10	August 15, 2017	Cory Henry
DCR 17-17	Element 10-2	August 15, 2017	Cory Henry
DCR 17-18	Element 16.1	August 15, 2017	Cory Henry
DCR 17-19	Table 16.2	August 15, 2017	Cory Henry
DCR 17-20	Element 16.2	August 15, 2017	Cory Henry
DCR 17-21	Table 16.2	August 15, 2017	Cory Henry
DCR 17-22	SOP Index Update	August 15, 2017	Cory Henry
DCR 18-01	Version update to 2018-1 MECP Standard 2.0	January 18, 2018	Cory Henry
DCR 18-02	Updated Spill Contingency Plan	Jan 18, 2018	Cory Henry
DCR 18-03	Changed customer to consumer	Jan 18, 2018	Cory Henry
DCR 18-04	Updated length of Watermain and Hydrants	Jan 18, 2018	Cory Henry
DCR 18-05	Element 7.0 to new standard 2.0	Jan 18, 2018	Cory Henry
DCR 18-06	Update Element 12.3	Jan 18, 2018	Cory Henry
DCR 18-07	Updated element 14	Jan 18, 2018	Cory Henry
DCR 18-08	Added 15.5 to element 15	Jan 18, 2018	Cory Henry
DCR 18-09	Updated element 20.2 to reflect calendar year	Jan 18, 2018	Cory Henry
DCR 18-10	Updated Element 21	Jan 18, 2018	Cory Henry
DCR 18-11	Added Temp to Form 5	Jan 18, 2018	Cory Henry
DCR 18-12	Added FreeCL2 to Form 8	Jan 18, 2018	Cory Henry
DCR 18-13	Modified Form 33	Jan 18, 2018	Cory Henry
DCR 18-14	Updated Form 39	Jan 18, 2018	Cory Henry
DCR 18-15	Updated Element 1	Jan 18, 2018	Cory Henry
DCR 18-16	Element 9.3 updated	Jan 18, 2018	Cory Henry
DCR 18-17	SOP 42 - updated	Jan 18, 2018	Cory Henry
DCR 18-18	Form 57 - updated	Jan 18, 2018	Cory Henry
DCR 18-19	Updated version chain of custody	Jan 18, 2018	Cory Henry

DCR 18-20	Updated version chain of custody lead	Jan 18, 2018	Cory Henry
DCR 18-21	Update element 9	Jan 18, 2018	Cory Henry
DCR 18-22	Distribution Map Updated	May 15, 2018	Cory Henry
DCR 18-23	Added Owner	May 15, 2018	Cory Henry
DCR 18-24	Update 6.2 Raw Water	May 15, 2018	Cory Henry
DCR 18-25	Update element 12	May 15, 2018	Cory Henry
DCR 18-26	Updated element 14	May 15, 2018	Cory Henry
DCR 18-27	Updated element 15	May 15, 2018	Cory Henry
DCR 18-28	Updated element 19	May 15, 2018	Cory Henry
DCR 18-29	Updated element 20	May 15, 2018	Cory Henry
DCR 18-30	New SOP 47	May 15, 2018	Cory Henry
DCR 18-31	New Form 58	May 15, 2018	Cory Henry
DCR 18-32	New Form 59	May 15, 2018	Cory Henry
DCR 18-33	Form 40 Updated	May 15, 2018	Cory Henry
DCR 18-34	Form 3 updated	May 15, 2018	Cory Henry
DCR 18-35	Form 57 updated	May 15, 2018	Cory Henry
DCR 18-36	OP 13-2, 18.10 & SOP 42 updated contact info	May 15, 2018	Cory Henry
DCR 18-37	Updated Risk Assessment	August 1, 2018	Cory Henry
DCR 18-38	Updated element 9 and 19	Nov 21, 2018	Cory Henry
DCR 18-39	Updated element 10	Nov 21, 2018	Cory Henry
DCR 18-40	Updated element 10	Nov 21, 2018	Cory Henry
DCR 18-41	Updated element 15	Nov 21, 2018	Cory Henry
DCR 18-42	Updated element 9	Nov 21, 2018	Cory Henry
DCR 18-43	Updated element 21	Nov 21, 2018	Cory Henry
DCR 18-44	Change to forms index Appendix E	Nov 21, 2018	Cory Henry
DCR 18-45	Removed forms 03, 04, 42, 58 and 59 and added forms 60 and 61	Nov 21, 2018	Cory Henry
DCR 18-46	Section 19.3 updated	Dec 11, 2018	Cory Henry
DCR 18-47	Revised "Appendix A" Risk Assessment Outcomes	Dec 11, 2018	Cory Henry
DCR 19-01	Updates to contact information in OP	Jan 18, 2019	Cory Henry
DCR 19-02	Removed SOP 34	Jan 18, 2019	Cory Henry
DCR 19-03	Updated EOP 04	Jan 18, 2019	Cory Henry
DCR 19-04	Update section 3.2	Jan 18, 2019	Cory Henry
DCR 19-05	Added Form 62	Jan 18, 2019	Cory Henry
DCR 19-06	Updated EOP 05	Jan 18, 2019	Cory Henry
DCR 19-07	Change "MOECC" to "MECP" on all documentation	Jan 18, 2019	Cory Henry
DCR 19-08	Update OnWARN contact information in OP and EOP-05	Jan 18, 2019	Cory Henry

DCR 19-09	Add Steve Cooke to forms 06,11, 16, and 34	Jan 18, 2019	Cory Henry
DCR 19-10	Update EOP 05 with more detailed information	Jan 18, 2019	Cory Henry
DCR 19-11	Update SOP 04 with more detailed information	Jan 18, 2019	Cory Henry
DCR 19-12	Update SOP 01 to include more detailed information	Jan 18, 2019	Cory Henry
DCR 19-13	Add 2 new SOP's – SOP 48 and SOP 49 and update SOP index to include new SOP's	Jan 18, 2019	Cory Henry
DCR 19-14	Add new "Water Main Commissioning Form" to Appendix E of the DWQMS and update list "Appendix E – Forms Index"	July 5, 2019	Cory Henry
DCR 19-15	Updated Form 05 to include Well D5	Sept 26, 2019	Cory Henry
DCR 19-16	Updated Form 29 to include Well D5	Sept 26, 2019	Cory Henry
DCR 19-17	Updated Form 31 to include Well D5	Sept 26, 2019	Cory Henry
DCR 19-18	Updated Form 38 to include Well D5	Sept 26, 2019	Cory Henry
DCR 19-19	Updated Form 36 to change "Week of" to "Day of" and "Wells D3 and D4" to "all sites"	Sept 26, 2019	Cory Henry
DCR 19-20	Updated Element 6.0 and subsections to add Well D5 information	Oct 16, 2019	Cory Henry
DCR 19-21	Updated Element 11.0 to add "3 Wells"	Oct 16, 2019	Cory Henry
DCR 19-22	Updated Table 16.1 to include Well D5 information	Oct 16, 2019	Cory Henry
DCR 19-23	Updated Element 18 to include well D5 information	Oct 16, 2019	Cory Henry
DCR 19-24	Updated SOP 01 to include well D5 information	Oct 16, 2019	Cory Henry
DCR 19-25	Updated SOP 06 to include well D5 information	Oct 16, 2019	Cory Henry

DCR 19-26	Updated SOP 09 to include well D5 information	Oct 16, 2019	Cory Henry
DCR 19-27	Updated SOP 12 to include well D5 information	Oct 16, 2019	Cory Henry
DCR 19-28	Updated SOP 17 to include well D5 information	Oct 16, 2019	Cory Henry
DCR 19-29	Updated SOP 19 to include well D5 information	Oct 16, 2019	Cory Henry
DCR 19-30	Updated SOP 21 to include well D5 information	Oct 16, 2019	Cory Henry
DCR 19-31	Updated SOP 33 to include well D5 information	Oct 16, 2019	Cory Henry
DCR 19-32	Updated SOP 38 to include well D5 information	Oct 16, 2019	Cory Henry
DCR 19-33	Updated EOP 01 to include well D5 information	Oct 16, 2019	Cory Henry
DCR 19-34	Updated Table 17.1 to include Well D5 information	Oct 16, 2019	Cory Henry
DCR 20-01	Updated Form 61 to include columns for "documentation" and "implementation"	Mar 20,2020	Cory Henry
DCR 20-02	Updated EOP#1 to delegate which staff perform certain duties	Mar 20, 2020	Cory Henry
DCR 20-03	Updated EOP #2 to delegate which staff perform certain duties	Mar 20, 2020	Cory Henry
DCR 20-04	Updated EOP #3 to delegate which staff perform certain duties	Mar 20, 2020	Cory Henry
DCR 20-05	Updated SOP #06 with OFI's from internal audit	Mar 20, 2020	Cory Henry
DCR 20-06	Created Form #64 as a corrective action	Mar 20, 2020	Cory Henry
DCR 20-07	Updated form #36 to make weekly checks on well autodials	Mar 20, 2020	Cory Henry
DCR 20-08	Created form # 65	Mar 25, 2020	Cory Henry

DCR 20-09	Created form # 66, removed OnWARN table from Element #18, updated list	Mar 31, 2020	Cory Henry
DCR 20-10	Adding Well #5	April 1, 2020	Cory Henry
DCR 20-11	House Keeping corrections	April 1, 2020	Cory Henry
DCR 20-12	Updated Element 10.1	April 1, 2020	Cory Henry
DCR 20-13	Updated Figure 6.3 – Distribution System	July 24, 2020	Cory Henry
DCR 20-14	Updated Element 6.0	July 28, 2020	Cory Henry
DCR 20-15	Updated Figure 6-3 Well D5 and added Figure 6-4 – Distribution system	July 30, 2020	Cory Henry
DCR 21-01	Adding Well 5	Jan 25, 2021	Cory Henry
DCR 21-02	Change D3 address	Jan 25, 2021	Cory Henry
DCR 21-03	Update Element 6.4	Jan 25, 2021	Cory Henry
DCR 21-04	Update Element 13	Jan 25, 2021	Cory Henry
DCR 21-05	Update SOP #1	Jan 25, 2021	Cory Henry
DCR 21-06	Update SOP #9	Jan 25, 2021	Cory Henry
DCR 21-07	Update SOP #17	Jan 25, 2021	Cory Henry
DCR 21-08	Update SOP #18	Jan 25, 2021	Cory Henry
DCR 21-09	Update SOP #19	Jan 25, 2021	Cory Henry
DCR 21-10	Update SOP #20	Jan 25, 2021	Cory Henry
DCR 21-11	Update Form #45	Jan 25, 2021	Cory Henry
DCR 21-12	Change call-out sequence	Feb 1, 2021	Cory Henry
DCR 21-13	Remove Steve Cooke and add Adam Nicholls	April 1, 2021	Cory Henry
DCR 22-01	Update Element #3.2	March 4,2022	Cory Henry
DCR 22-02	Update Element #6	March 4,2022	Cory Henry
DCR 22-03	Update SOP #12	March 4,2022	Cory Henry
DCR 22-04	Update SOP #16	March 4,2022	Cory Henry
DCR 22-05	Update SOP #41	March 4,2022	Cory Henry
DCR 22-06	Update SRP #06	March 4,2022	Cory Henry
DCR 22-07	Update Element #13	March 4,2022	Cory Henry
DCR 22-08	Update SOP #42	March 4,2022	Cory Henry
DCR 22-09	Update SOP #48	March 4,2022	Cory Henry
DCR 22-10	Create new SOP #51	March 4,2022	Cory Henry
DCR 22-11	Create new SOP #52	March 4,2022	Cory Henry
DCR 22-12	Update SOP #39	March 4,2022	Cory Henry
DCR 22-13	Update Form #66	March 4,2022	Cory Henry
DCR 22-14	Create new SOP #53	March 4,2022	Cory Henry
DCR 22-15	Update SOP #38	March 4,2022	Cory Henry
DCR 22-16	Update SOP #33	March 4,2022	Cory Henry
DCR 22-17	Update SOP Index	March 4, 2022	Cory Henry
DCR 22-18	Update Form #66	March 29,2022	Cory Henry
DCR 22-19	Update Form #2	Sept 12, 2022	Cory Henry
DCR 22-20	Update Form # 55	Sept 12, 2022	Cory Henry

DCR 22-21	Update Form # 23	Sept 12, 2022	Cory Henry
DCR 22-22	Update Form # 33	Sept 12, 2022	Cory Henry
DCR 22-23	Update Form # 46	Sept 12, 2022	Cory Henry
DCR 22-24	Update and restructure Element # 13	Sept 28, 2022	Cory Henry
DCR 22-25	Update SOP #42	Sept 28, 2022	Cory Henry
DCR 22-26	Update Cell Phone #'s	Sept 28, 2022	Cory Henry
DCR 22-27	SOP 21 – Water Sampling & Testing, Internal Audit & OFI's	Oct 5, 2022	Cory Henry
DCR 23-01	Update Commitment & Endorsement	Jan 20, 2023	Cory Henry
DCR 23-02	Create Form #67	Aug 4, 2023	Cory Henry
DCR 23-03	Add Water Tower to Form 5	Sept 13, 2023	Cory Henry
DCR 23-04	Update forms#6/11/16/34	Oct 12, 2023	Cory Henry
DCR 24-01	Add Water Tower	Jan 31, 2024	Cory Henry
DCR 24-02	Update distribution map	Jan 31, 2024	Cory Henry
DCR 24-03	Update Element #9	Jan 31, 2024	Cory Henry
DCR 24-04	Update Element #11	Jan 31, 2024	Cory Henry
DCR 24-05	Update Element #13	Jan 31, 2024	Cory Henry
DCR 24-06	Update Element #18	Jan 31, 2024	Cory Henry
DCR 24-07	Update Risk Assessment	Jan 31, 2024	Cory Henry
DCR 24-08	Update SOP 30 – Property Lead Sampling Protocol	Jan 31, 2024	Cory Henry
DCR 24-09	Update SOP 27 – Consultant Assistance	Jan 31, 2024	Cory Henry
DCR 24-10	Update EOP 01 – Adverse Water	Jan 31, 2024	Cory Henry
DCR 24-11	Update Form 08 – Distribution System Maintenance Log	Jan 31, 2024	Cory Henry
DCR 24-12	Update Form 45 – Measuring and Recording Equipment	Jan 31, 2024	Cory Henry



Government
of Canada

Gouvernement
du Canada

Canadian General
Standards Board

Office des normes
générales du Canada

Place du Portage III - 6B1
Hull, Quebec
K1A 1G6

Place du Portage III - 6B1
Hull (Québec)
K1A 1G6

Date: December 21, 2010

File No.: **OAP-110**

The Corporation of the Town of Southgate
185667 Grey Rd. #9 R.R. 1
Dundalk, Ontario
N0C 1B0

Dear Mr. Jim Ellis

On behalf of the Canadian General Standards Board (CGSB), I am pleased to inform you that The Corporation of the Town of Southgate has been successful in meeting the requirements of Ontario's Drinking Water Quality Management Standard to the satisfaction of the CGSB Accreditation Program for Operating Authorities. This notification is to inform you that we are formally awarding you a Limited Scope – Entire accreditation.

This is a substantial accomplishment, and one that should make your employees, your management team and your community proud. By achieving accreditation, you have demonstrated that you have an effective drinking water quality management system. You also demonstrate leadership in an area affecting the lives of many people.

On behalf of the CGSB, please accept my most sincere congratulations. If you have not already received your certificate(s) and related materials, they will be sent to you shortly. In addition, we will add your system(s) to the list that we maintain and display on our Web site of Accredited Operating Authorities.

We look forward to working in partnership with you in the future, as you strive for full scope accreditation.

Yours sincerely,

Martin Desnoyers
Manager
Canadian General Standards Board

Ministry of
the Environment

Drinking Water Management
Division

14th floor
135 St. Clair Avenue West
Toronto ON M4V 1P5

Ministère de
l'Environnement

Division de la gestion de la qualité de
l'eau potable

14^e étage
135, avenue St. Clair Ouest
Toronto (Ontario) M4V 1P5



RECEIVED FEB 28 2011

February 23, 2011

Carol Watson, Clerk
Township of Southgate
185667 Grey Road 9
RR 1
Dundalk ON
N0C 1B0

Att: Jim Ellis

On behalf of the Ministry of the Environment, I would like to congratulate you on receiving your Municipal Drinking Water Licence, Drinking Water Works Permit and Accreditation of your operating authority. Your successful efforts to implement a Quality Management System within your drinking water system are an important element of Ontario's drinking water safety net.

The Drinking Water Quality Management Standard (DWQMS) is a tool for owners and operators to help ensure that consistent processes and procedures are in place to manage the production and delivery of high quality drinking water. The DWQMS supports a proactive and preventative approach, which requires adoption of best practices and continuous improvement. These requirements help owners and operating authorities continually improve the performance of their drinking water system through management oversight of their policies, processes and procedures. These requirements also provide municipal officials with the tools necessary to continuously assess their systems to ensure that Standard of Care provisions, which come into effect in 2013, are met. It is an investment in the future and an important part of the licensing process.

Ontario is the first jurisdiction in North America to mandate a Quality Management System for municipal residential drinking water systems, and the introduction of the Municipal Drinking Water Licensing Program is one example of the measures put in place to keep Ontario's drinking water among the most protected in the world. Safeguarding Ontario's drinking water would not be possible without the commitment shown by you and your staff, and I would like to extend my congratulations for your accomplishments.

For more information on the Municipal Drinking Water Licensing Program, please visit our website at www.ontario.ca/drinkingwater, or contact us directly at mdwlp@ontario.ca or at 1-877-955-5455.

Sincerely,

A handwritten signature in black ink, appearing to read "John Stager".

John Stager
Chief Drinking Water Inspector/Assistant Deputy Minister
Drinking Water Management Division

CC: **Dave Milliner, CAO**
Township of Southgate

1. Quality Management System

Quality Management can be defined as the policy and associated organizational structures, procedures, responsibilities, and evaluation measures that ensure the capability of delivering a product to specified standards. The use of Quality Management systems by modern industry has steadily increased over the last 30 years, since the development of the first ISO standard in 1986. Whether implemented voluntarily or as a requirement of suppliers to larger manufacturers, Quality Management has repeatedly proven beneficial in terms of accountability, quality control, efficiency, and productivity.

Although historically used on a voluntary basis by some progressive water utilities, the idea of mandated province-wide implementation of a Quality Management Standard by drinking water system owners originated as a recommendation in the Part Two Report of the Walkerton Inquiry.

In brief, Recommendations 51 through 57 from the report state the following:

Drinking water systems should be operated by authorities that are accredited based on successful third party audits conducted by a certified accrediting body.

The Ministry of the Environment, in partnership with other relevant stakeholders, should develop a Drinking Water Quality Management Standard against which the third party audits will be conducted.

All municipalities should prepare Operational Plans describing how the requirements of the Quality Management Standard are achieved.

The Provincial Government has committed to implementing all recommendations tabled by the report author, The Honourable Dennis R. O'Connor.

In accordance with those recommendations, this Operational Plan serves as a Quality Management System Guidance Manual that describes the methods by which Dundalk Water Operations implements Quality Management. The Plan is written to meet or exceed the requirements of the Ministry of the Environment prescribed standard and is applicable to the management and operation of those works described in Element 6 of this Plan.

2. Quality Management System Policy

The Township of Southgate is committed to managing the treatment and supply of safe drinking water for all of its consumers. To this end, the following policy has been approved and adopted both by the QMS Team and by Council.

Drinking Water Quality Management System Policy

Through this policy, the Township of Southgate commits to:

- the provision of safe drinking water
- continual maintenance and improvement of the QMS and the Water Works system
- complying with relevant legislation and regulations
- conducting business in an environmentally responsible manner

This policy shall serve as the foundation of our Drinking Water Quality Management Standard. It will be communicated to all Operating Authority employees through orientation sessions and internal posting. It will be communicated to the public through posting of the policy in public areas in the Administration Centre in Hopeville, Dundalk and District Community Centre, Ruth Hargrave Memorial Library, Dundalk Works Depot, Well # 3, Well #4, Well #5 and on the Township of Southgate web site.

3. Commitment and Endorsement

The system owner, the Township of Southgate, and the operating authority, Southgate Water Operations, support the implementation, maintenance, and continual improvement of a Drinking Water Quality Management System (QMS) for the Southgate Water Operations system, as documented in this Operational Plan.

The owner, (represented by the Township of Southgate), and top management, (represented by the Chief Administrative Officer of Southgate Township and the Public Works Manager), acknowledges the need for, and supports the provision of sufficient resources to maintain and continually improve the QMS.

The designated QMS Representative, appointed by the CAO, acknowledges the roles and responsibilities of that appointment.

May 20, 2009
Date

original signed by Don Lewis
Don Lewis, Mayor

May 20, 2009
Date

original signed by Glen Irwin
Glen Irwin, Chair, Environmental Services

May 20, 2009
Date

original signed by Dave Milliner
Dave Milliner, Chief Administrative Officer

May 20, 2009
Date

original signed by Jim Ellis
Jim Ellis, Public Works Manager and
QMS Representative

3.2 Current Commitment and Endorsement

The system owner, the Township of Southgate, and the operating authority, Southgate Water Operations, support the implementation, maintenance, and continual improvement of a Drinking Water Quality Management System (QMS) for the Southgate Water Operations system, as documented in this Operational Plan.

The owner, (represented by the Council of the Township of Southgate), and top management, (represented by the Chief Administrative Officers of Southgate and the Public Works Manager), acknowledges the need for, and supports the provision of sufficient resources to maintain and continually improve the QMS.

The designated QMS Representative, appointed by the CAO, acknowledges the roles and responsibilities of the appointment.

Jan 18, 2023
Date

Original signed by Brian Milne
Brian Milne, Mayor

Jan 18, 2023
Date

Original signed by Barbara Dobreen
Barbara Dobreen, Deputy Mayor

Jan 18, 2023
Date

Original signed by Dina Lundy
Dina Lundy, Chief Administrative Officer

Jan 19, 2023
Date

Original signed by Jim Ellis
Jim Ellis, Public Works Manager

4. Quality Management System Representative

The Lead Hand in Dundalk will be the QMS Representative. In his or her absence, the Public Works Manager will delegate another Water Operations staff member to act as QMS Representative.

The QMS Representative will be responsible for the following:

- Ensuring that processes and procedures needed for the QMS are established and maintained
- Reporting to Top Management on the performance of the QMS and any need for improvement, as needed, or during the Management Review meetings
- QMS document and record control
- That through training, personnel are made aware of all applicable legislative and regulatory requirements that pertain to their duties for the operation of the subject system
- Promoting awareness of the QMS throughout the Water Operations Department

5. Document and Records Control

5.1 DWQMS Document Control

This procedure is applicable to the following QMS documents:

- Operational Plan
- Standard Operating Procedures
- Standard Recovery Procedures
- Emergency Operating Procedures
- Forms
- Equipment Manuals
- As-Built Drawings

5.2 Creating New or Updating Existing Documents

Any employee of the Dundalk Water Works may request the creation of a new DWQMS document or a change to an existing one. The request must be submitted on the Document Change Request Form (*Appendix E*) and submitted to the QMS Representative. The need for new or updated documents may also be identified by audits or by management review. The QMS Representative will be responsible for creating or revising these documents. This task may be delegated by the QMS Representative to the Administrative Assistant.

The request must include the following information:

1. Reason for new or revised document - must belong in one or more of these categories:
 - Required by the DWQMS
 - Enhances process control
 - Eliminates risk
 - Supports regulatory requirements
 - May improve operational efficiency.
2. Outline of document change or new document content.

5.3 Approving Documents

All QMS related documents created shall be approved by the QMS Representative before release. The QMS Representative shall be responsible for ensuring that copies of the new or changed document are distributed. Obsolete documents due to changes or updates shall be collected and destroyed by means of shredding by the QMS Representative.

5.4 Document Availability

All procedures and forms are retained in the DWQMS binders at wells D3, D4 and D5, at the office of the QMS Representative and at the Southgate Administration Centre. A digital version of these documents is also stored in a password protected area on the server at the Administration Centre. The Administrative Assistant has full access to these documents. Other staff will have read-only access.

Water treatment machinery and equipment manuals are in a series of five indexed binders titled 'Operation & Maintenance Manual' retained at wells D3 in the desk drawer, D4 in the flip-top desk and D5 in the desk. A complete set is retained at the office of the QMS Representative in the bookcase.

Water treatment and distribution drawings, specifications and manuals are stored at the appropriate wells and a copy is retained by the QMS Representative.

5.5 DWQMS Records Control

This procedure is applicable to all records that demonstrate conformance to DWQMS requirements. All records that demonstrate compliance are covered by Ontario Regulations 170/03 and 128/04.

All DWQMS records are retained for a minimum of 15 years. These records are retained at the Dundalk Depot for 5 years and the Hopeville Administration office for 10 years. However, if a DWQMS record is also a requirement of O. Reg. 170/03 and/or 128/04, then the retention time shall be as per the regulation. Once the record retention time has been reached, records shall be shred.

5.6 Manual Records

- All manual records shall only use approved QMS forms.
- The record title shall be clearly visible and legible.
- Manual records shall be legible. Pencil or any other erasable marker shall not be used to record process or product information or data.
- QMS records shall be filed by date.
- QMS related Water treatment and distribution records shall be stored and available at the Dundalk Depot. The Daily Water Reports, copies of the external lab reports and copies of resident comments are stored in the corner shelving unit in the front customer service area at the Administration Centre.
- QMS records may be stored in such a manner as to prevent deterioration.
- All manual records shall show the name or initials of the recorder and the date (and time if appropriate) the record was generated.

5.7 SCADA Records

- QMS SCADA summary records are printed and reviewed each day.
- A copy of SCADA records are sent from the SCADA system in Dundalk to a Township of Southgate Administration office's network drive (I: drive) and are then backed up daily to tapes stored in the Southgate Administration Centre vault.
- Printed copies of the SCADA monthly summaries are retained for management review purposes. These summaries shall be filed by the QMS Representative if being retained for compliance purposes.

5.8 Audits and Management Review Records

All documentation related to Internal Audits, External Audits and the Management Review process shall be kept in the Audit and Management Review binder in office of the QMS representative for 3 years. After 3 years these records are kept in the vault at the Township Administration office for fifteen years.

6. Drinking Water System

6.1 Overview

The Dundalk drinking water system is owned and operated by the Township of Southgate. The system is not connected to any other drinking water system.

Prior to 2004, the Township had 3 wells – D1, D2 and D3. The results of a Class Environmental Assessment commencing in 2001 by Anderson Geologic indicated that wells D1 and D2 were of insufficient capacity to justify upgrading to Ontario Drinking Water Standards. Wells D1 and D2 were decommissioned in the spring of 2005 as part of a major upgrade to the Township drinking water system. This upgrade included major refurbishing of well D3 and the drilling of a new well, D4. In 2017, with the coming growth of Dundalk and new regulations for capacity, a new well was drilled, Well D5. The pump house and reservoir were built in 2019.

The Township currently has three groundwater wells with submersible pumps that provide the water supply.

Well D3 was drilled in 1975 and is 86.9 metres deep with a 10 horsepower submersible pump. It fills a circular ground level baffled reservoir with a capacity of 1,364 cubic metres. Baffles were installed in 2005. The reservoir was inspected by Watech Services in December 2019 and was found to be in generally good condition. In August 2013 2 Pax mixers were installed in the reservoir.

Two ultra violet (UV) light disinfection chambers (1 duty and 1 standby) were installed in April 2011 as an additional barrier. The UV equipment uses a calculated dose control strategy where UV dose is monitored along with flow rate and UV transmittance with alarms and shut downs.

The pump house at well D3 also includes 2 fire pumps, one electrically driven and one diesel driven, to supply the fire suppression system at a neighbouring industrial facility that is the largest in Dundalk. The Township has the ability to manually use these pumps for other fire protection, if necessary. There is a 200 mm backflow preventer between the pump house and the factory.

Well D3 is equipped with a 80 kW diesel generator with automatic transfer switch for standby power.

Well D4 was drilled in 2004 and is 100.6 metres deep with a 15 horsepower submersible pump. It fills a rectangular ground level baffled reservoir with a capacity of 187.7 cubic metres.

There is a monitoring well beside the D4 pump house, also drilled in 2004 and also 100.6 metres deep.

Well D4 is equipped with a 100 kW diesel generator with automatic transfer switch for standby power.

Well D5 was drilled in 2017 with the well house and reservoir built in 2019. It is 96.2m deep with a 15 hp submersible pump. It fills a rectangular ground level baffled reservoir with a capacity of 536 cubic meters and operational volume of 420 cubic meters based on current operating levels.

Well D5 is equipped with a 150 KW diesel generator with automatic transfer switch for standby power.

In September of 2023, the Dundalk Water Tower was added to the system. It is located next to Well 4, which supplies the back up power for the tower. The tower can hold approximately 4000 cubic meters of water. There is a recirculation pump that can be used to cycle the water and also boost chlorine levels if needed. Heat tracer wire on the water lines in the pedestal keep the lines from freezing in the cold weather. The tower is approximately 46m (150 feet) tall.

System control is maintained by fully automated programmable logic controllers at all wells. Radio communications between the three sites feeds a computer dedicated to the SCADA software housed at the Dundalk Works Depot. The SCADA system provides continual monitoring and process control and keeps complete records of measured data, alarm events and other statistics for reporting and audit purposes. This computer has its own uninterruptible power supply and is hooked up to the fire hall generator.

6.2 Raw Water

The Village of Dundalk Ground Water Source Protection Program contains maps indicating 100 metre, 2, 5 & 25 year Time of Travel Zones for the wells and an assessment of vulnerabilities and threats.

As of 2018, two significant threats have been identified on two properties in Dundalk. Well D3 – the establishment, operation and maintenance of a waste disposal site within the meaning of part V of the environmental protection act. Well D5 – Sewage system or sewage works, onsite sewage systems.

The source water is generally considered to be well protected.

The raw water quality for wells D3, D4 and D5 was characterized as excellent with all parameters meeting the Ontario Drinking Water Standards. Being ground water sources the Dundalk Drinking Water System does not have any event-driven fluctuations that affect the water supply. Therefore there are no resulting challenges or threats. There are aesthetic / operational issues; the hardness concentration is consistently around 250 mg/L, pH is around 8.0 and sodium is around 20 mg/L.

April 2009, Well D3 was taken off line to conduct a hydrology study. The study concluded that Well D3 has in-situ filtration and was not considered GUDI. Well D3 was put back on line April 2011.

6.3 Water Disinfection

At well 3, UV is used for primary disinfection and sodium hypochlorite is used for secondary disinfection of the raw water before entering the baffled reservoirs to achieve contact time requirements for 2-log (99%) inactivation of pathogens.

At well 4, sodium hypochlorite is used for primary disinfection of the raw water before entering the baffled reservoirs to achieve contact time requirements for 2-log (99%) inactivation of pathogens.

At well 5, sodium hypochlorite is used for primary disinfection of the raw water before entering the baffled reservoirs to achieve contact time requirements for 2-log (99%) inactivation of pathogens.

The chlorine residual is monitored by on-line analyzers to ensure the chlorination system is operating properly. At all three wells, monitoring analyzers are both the raw water entering the reservoir and the treated water heading to the distribution system. All analyzers have alarms and shutdowns for low and high set points and automatically dial out to working or on-call operators who will respond appropriately.

The chemical feed system for all three wells consist of a 227L secondary contained storage tank with 3 chemical feed pumps, two for raw water that alternate duty and a trim pump for re-chlorination. Spare parts and equipment are available at well sites and the Dundalk Depot.

There are other alarms and call-outs for high and low pressure, high turbidity, UV major and critical, pump and generator failure, loss of chemical feed, high and low reservoir levels and building and security.

All three wells have secondary disinfection capabilities for low residuals with injection points on the treated lines immediately ahead of the distribution system.

6.4 Water Distribution

The distribution system services approximately 997 customers. The entire town is metered. There is approximately 19,846 metres of water main, typically 150 mm – 250 mm and mostly ductile or cast iron with some PVC. Soil types are non-acidic. There are 116 fire hydrants. Water pressure is typically maintained at 60 – 70 psi.

Common event fluctuations sometimes occur when there is a fire department pumper or tanker filling. This can reduce pressures while pumps are coming on and ramping up. The rush of water flowing sometimes causes discoloured water complaints. Consumers are advised to run a cold water tap and the discolouration clears in less than a ½ hour.

Figure 6-1 – Schematic Process Flow Diagram – Well D3

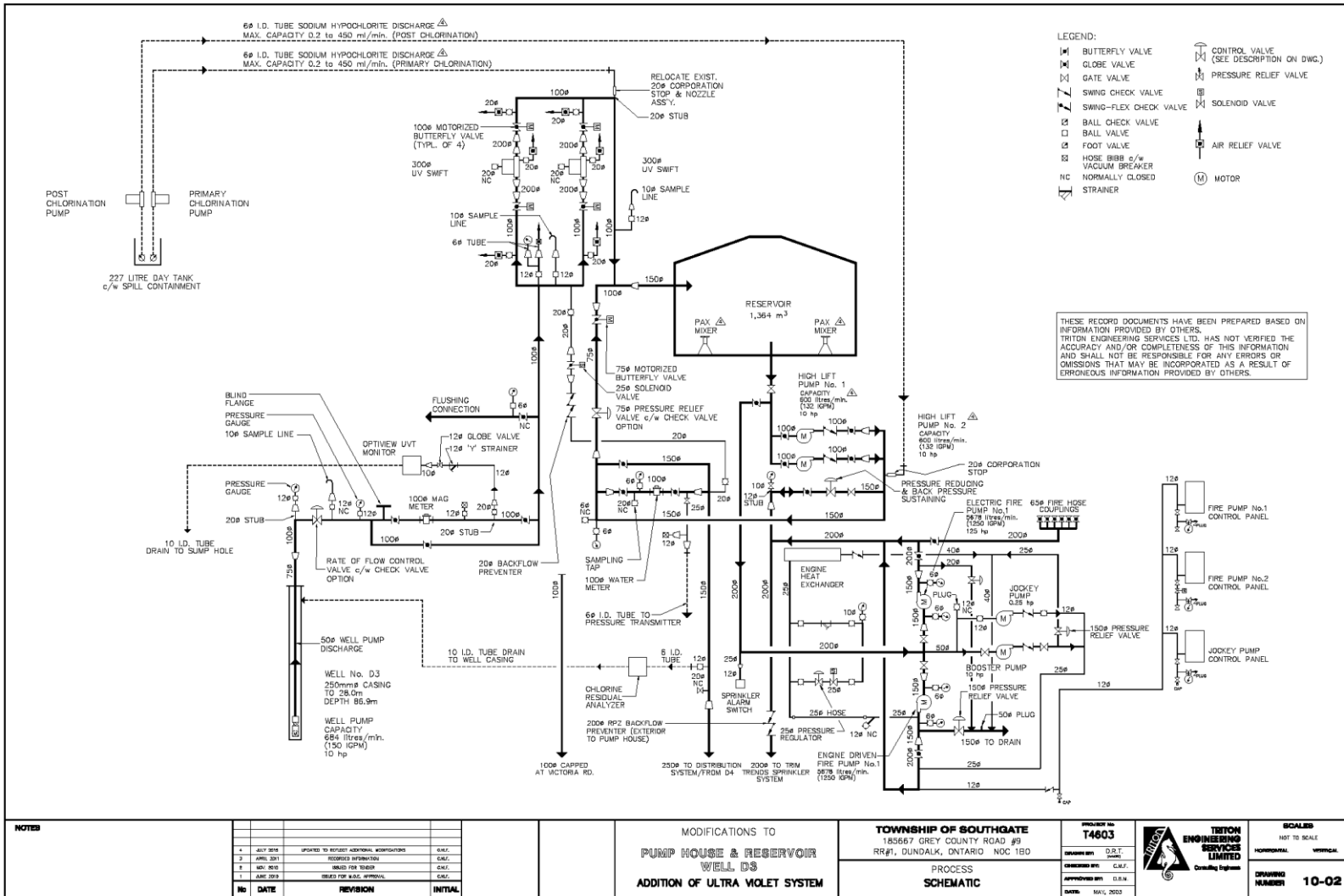


Figure 6-2 – Schematic Process Flow Diagram – Well D4

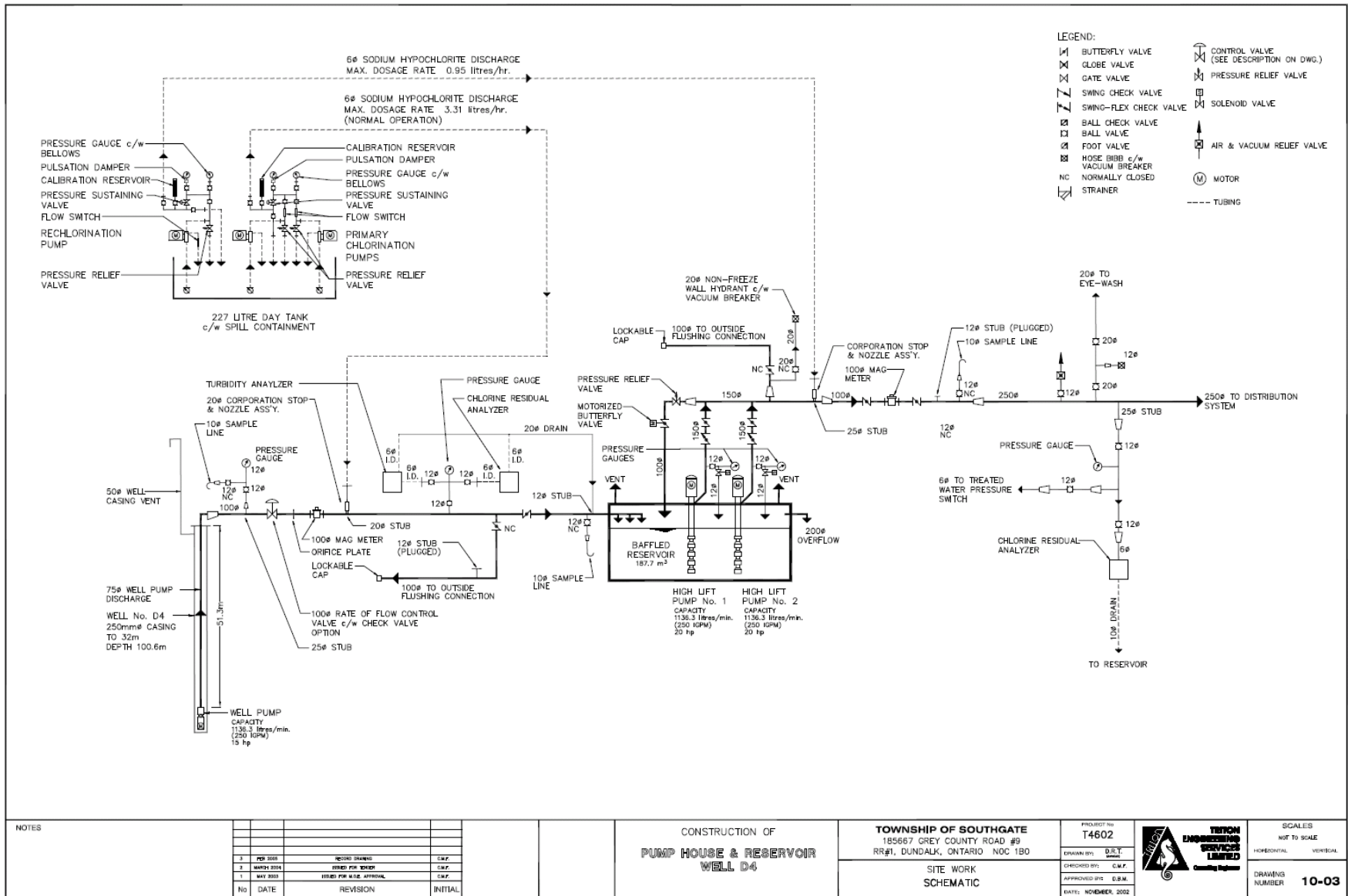


Figure 6-3 – Schematic Process Flow Diagram – Well D5

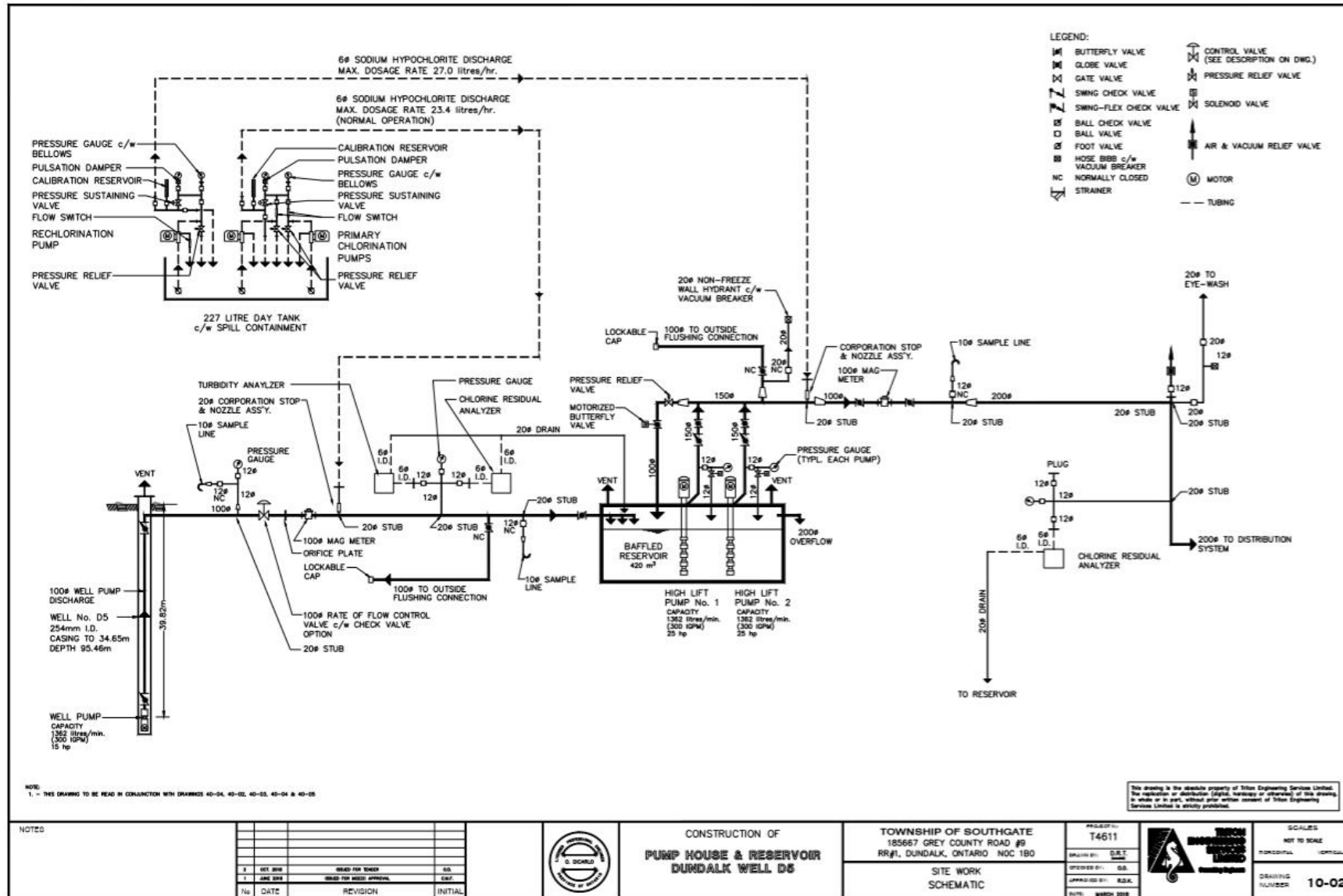
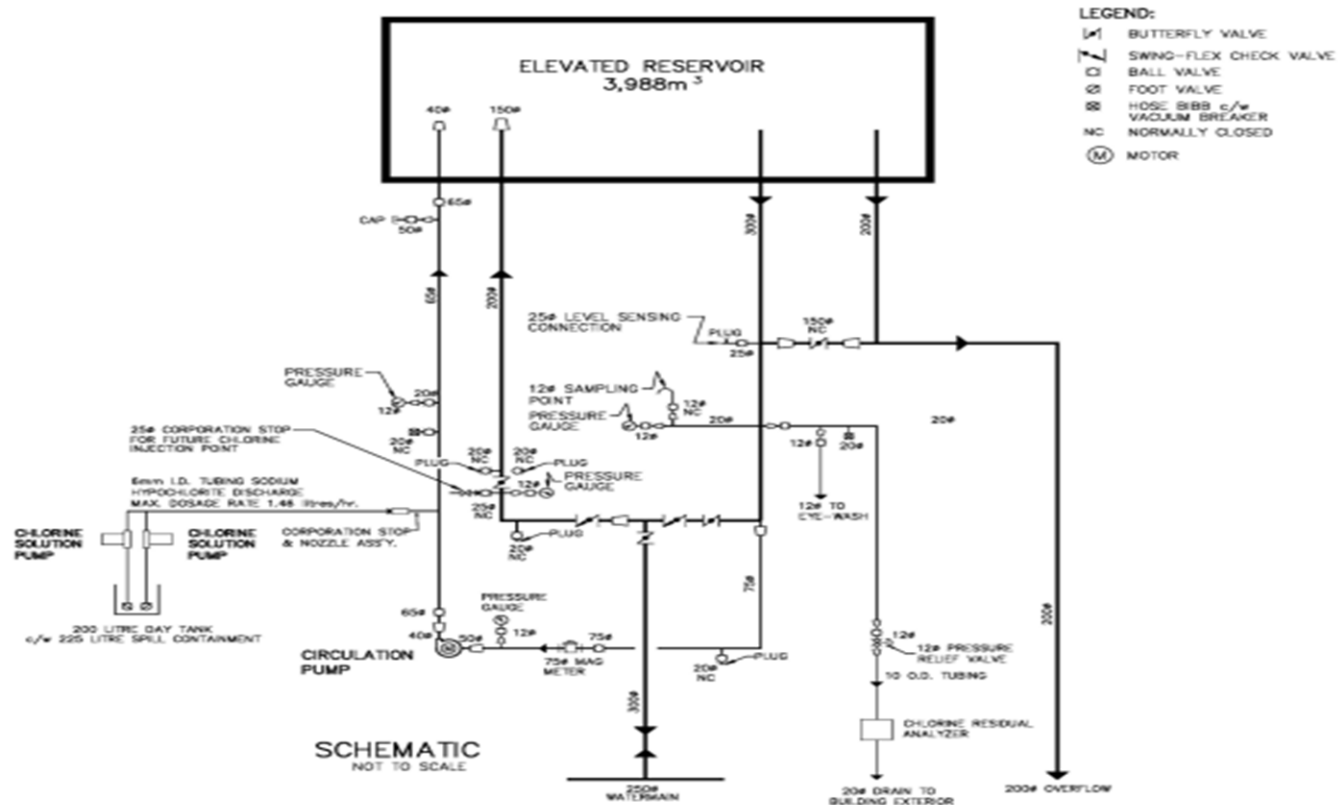


Figure 6-8 – Schematic Process Flow Diagram - Water Tower



NOTES 1. - ALL PIPING TYPIC SHALL BE 15# STAINLESS STEEL UNLESS OTHERWISE SHOWN. 2. - 2" BALL DIAMETER PIPING FOR CHLORINE SOLUTION WATER PIPING. CHLORINE RESIDUAL ANALYZER 1/2" TO 1/4" TO BE UNDRIVEN OR 1/2" TO 3/4" UNDRIVEN. WATER ALICE TO BE DRIVEN & SPECIFYING FOR WHAT IS TO BE DRIVEN. 3. - WELDED FLANGES SHALL TO BE 304 AND TYPIC SHALL BE 304SS. 4. - CONIC DRINKER PIPING TO BE 304 TYPIC SHALL. 5. - RESERVOIR INTERIOR PIPING TO BE 304 AS HEALTHY METAL, OUTSIDE OF RESERVOIR TO BE ST. STEEL. SEE FOR TYPIC SHALL.	No. DATE REVISION INITIAL			CONSTRUCTION OF ELEVATED WATER TOWER (VILLAGE OF DUNDALK)	TOWNSHIP OF SOUTHGATE 185667 GREY COUNTY ROAD #6 RR#1 DUNDALK, ONTARIO N0C 1B0 SECTIONS & SCHEMATIC	PROJECT No. T4612 DRAWN BY: J.L.L. CHECKED BY: S.C.L. APPROVED BY: R.E.C. DATE: OCTOBER 2011		SCALES AS SHOWN HORIZONTAL: VERTICAL: DRAWING NUMBER: 03 SHEET
	No. DATE REVISION INITIAL			CONSTRUCTION OF ELEVATED WATER TOWER (VILLAGE OF DUNDALK)	TOWNSHIP OF SOUTHGATE 185667 GREY COUNTY ROAD #6 RR#1 DUNDALK, ONTARIO N0C 1B0 SECTIONS & SCHEMATIC	PROJECT No. T4612 DRAWN BY: J.L.L. CHECKED BY: S.C.L. APPROVED BY: R.E.C. DATE: OCTOBER 2011		SCALES AS SHOWN HORIZONTAL: VERTICAL: DRAWING NUMBER: 03 SHEET

Figure 6-4 – Distribution System

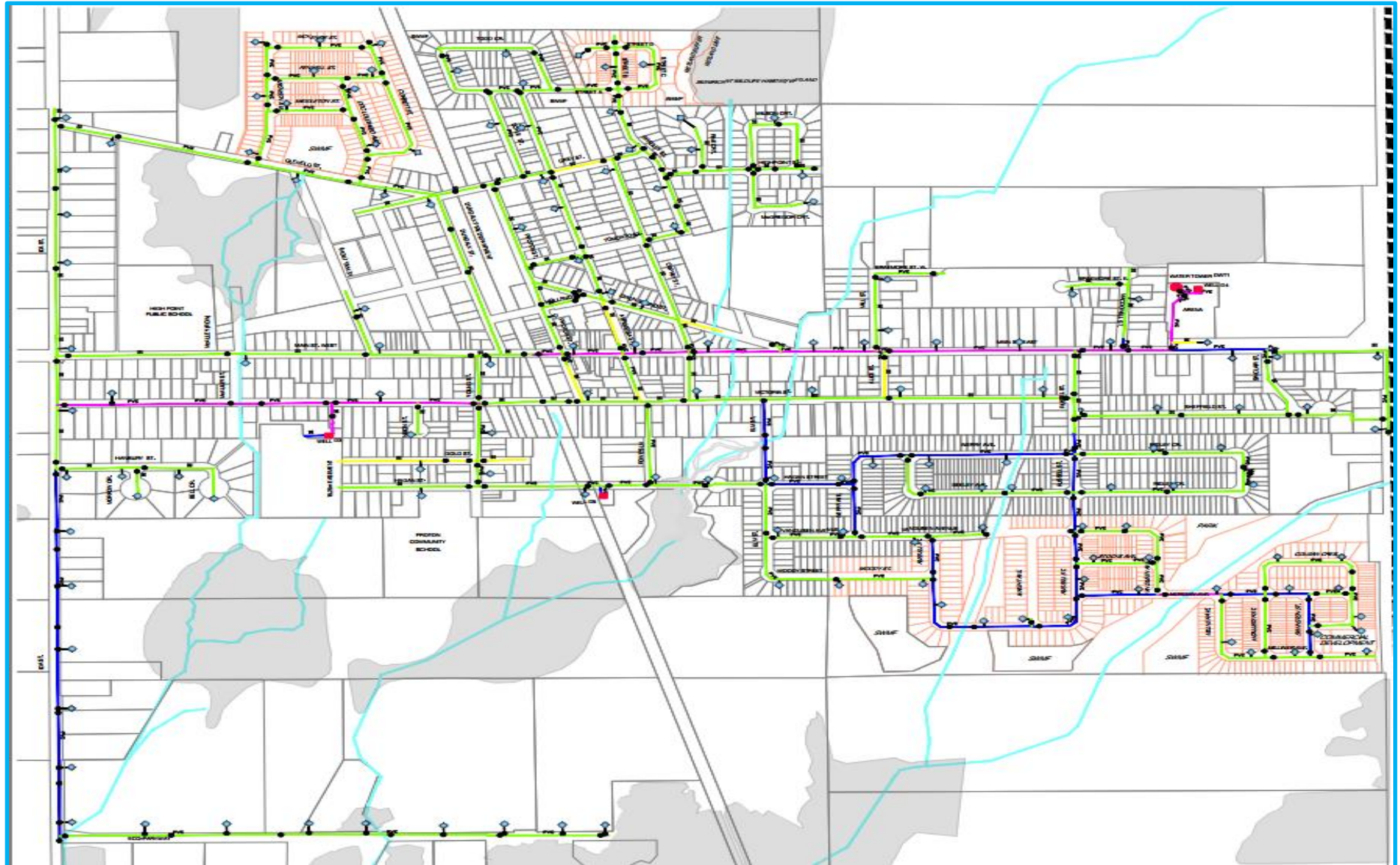


Figure 6 - 5 - Well 3 Process Flow Chart

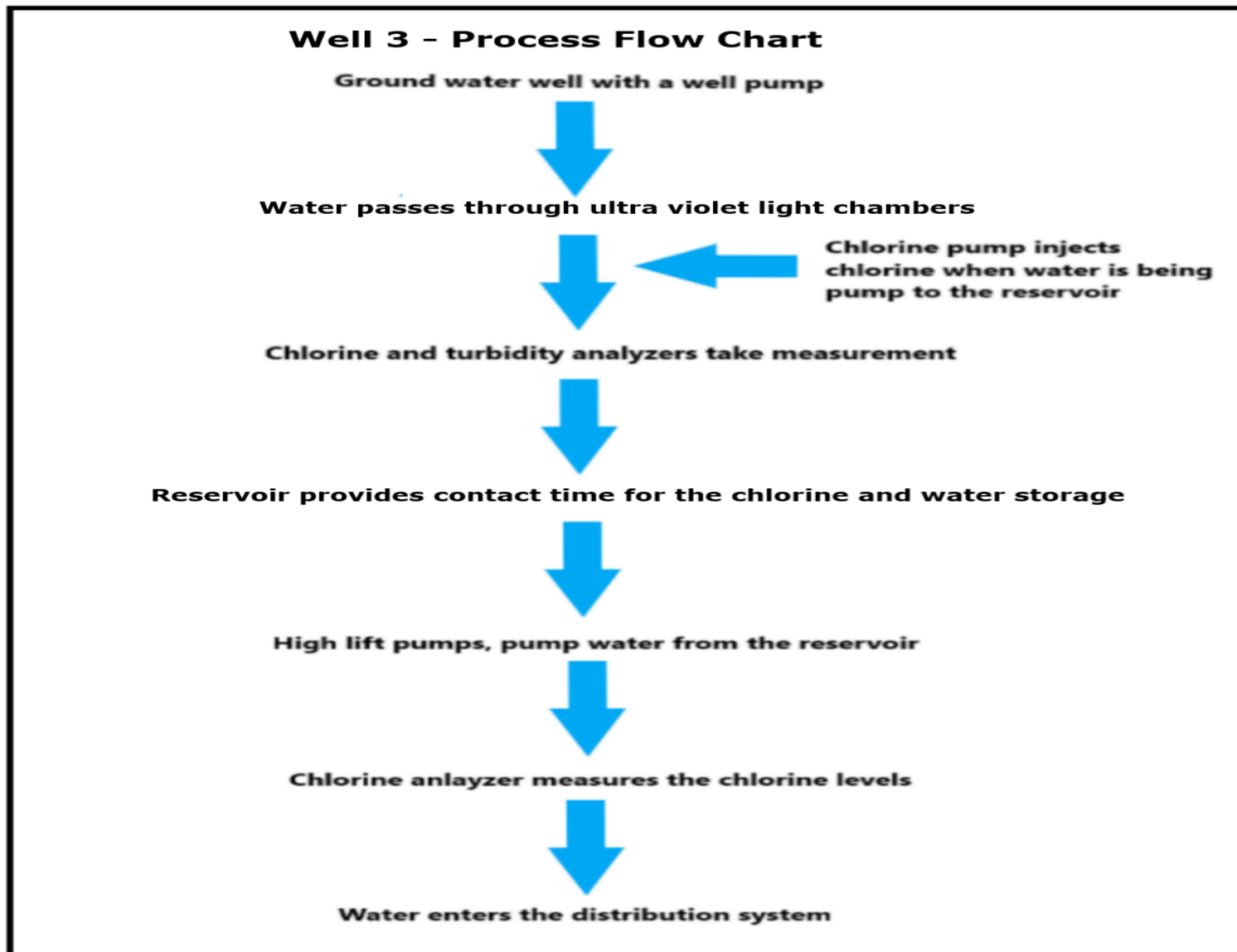


Figure 6 - 6 - Well 4 Process Flow Chart

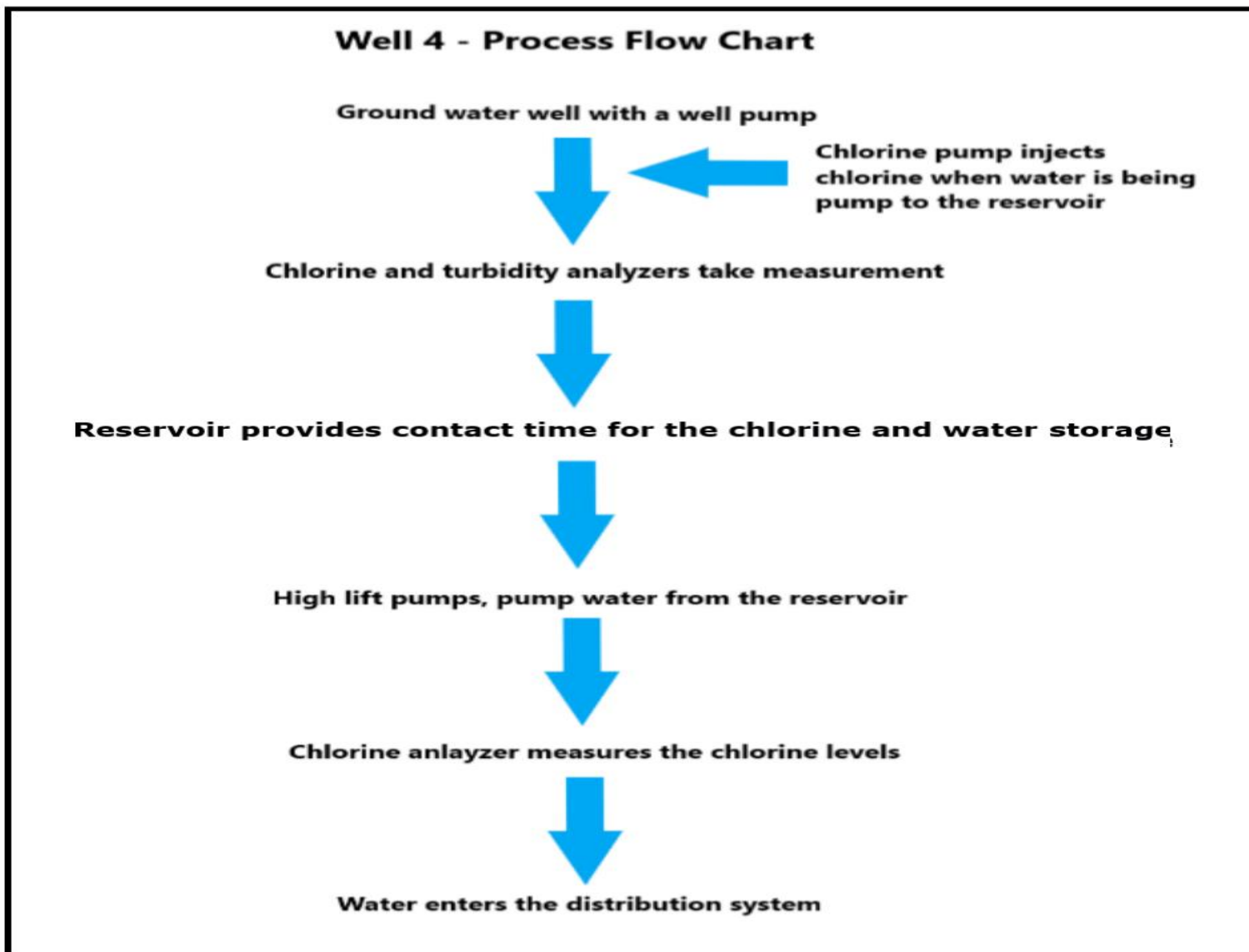
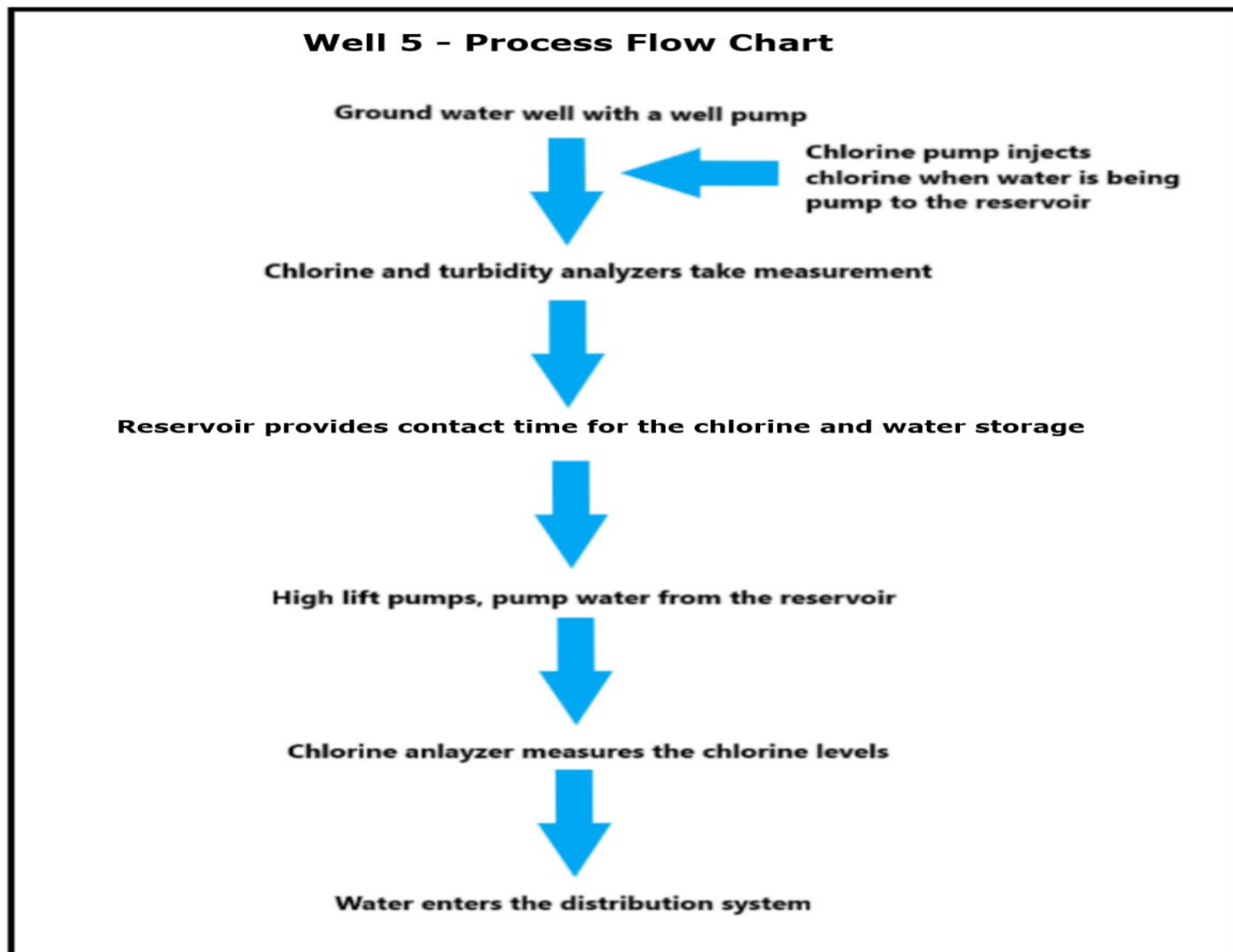


Figure 6-7 - Well 5 Process Flow Chart



7. Risk Assessment

7.1 Overview

The following procedure shall be used to assess risks to the drinking water system.

In general, the procedure will:

- identify and rank potential hazardous events for Municipal Residential Drinking Water Systems
- identifies additional potential hazardous events and associated hazards
- assesses the risks associated with the occurrence of hazardous events
- identify control measures to address hazards
- identify Critical Control Points (CCPs) and associated methods of monitoring and controlling them.
- Identify a method to verify, at least once every calendar year, the currency of the information and the validity of the assumptions used in the risk assessment
- Ensures that the risks are assessed at least once every thirty-six months in their entirety

The results of the assessment shall include:

- A list of ranked hazards complete with:
- control measures where appropriate
- CCPs
- control limits for CCPs
- monitoring methods for CCPs
- A method for reporting and recording deviations from CCP limits.

7.2 Risk Assessment Procedure

The QMS Representative shall assemble a team to discuss and identify all potential hazards to the water works. The team members at a minimum may include (other individuals with specific expertise may attend as appropriate):

- The Chief Administrative Officer
- The Public Works Manager
- QMS Representative/ Lead Hand
- The Water Operations Operator /Labourers
- Administrative Assistant

Each of the process areas of the water works shall be reviewed to identify hazards. The process areas will include, but will not necessarily be limited to, the following:

- Raw water
- Production and monitoring wells
- Well Infrastructure
- Reservoirs
- Disinfection systems
- Distribution infrastructure
- Control systems
- Facility and infrastructure security
- Considers the reliability and redundancy of equipment

Each hazard identified in Step 2 shall be “ranked” by the team as to their probability of it actually occurring; what the consequences might be, if it did occur, upon the raw water, the water works, and the processed water; and how detectable the hazard is.

The total risk rank shall be determined by multiplying the individual scores for probability, severity, and detectability as defined by the following table.

Probability		Consequences		Detectability	
1	May occur in rare circumstances – has not occurred in the past	1	Insignificant impact – little public exposure – little or no health risk	1	Online monitoring through SCADA and Call-out alarms
2	Could occur at some time – has occurred less than once every 5 or 10 years	2	Limited public exposure – minor health risk	2	Alarm present, but not in SCADA – may require operator to be present to notice alarm
3	Has occurred or may occur one or more times per year	3	Minor public exposure – health impact on a small part of the population	3	Visually detectable on rounds or through maintenance and regular lab testing.
4	Has occurred or may occur on a monthly to quarterly basis	4	Large part of the population at risk	4	Visually detectable, but not inspected on a regular basis – not detectable before problem becomes evident – lab tests are not done on a regular basis
5	One or more occurrences on a monthly or more frequent basis	5	Major impact for a large part of the population – complete failure of systems	5	Cannot be detected

Once the rankings are determined, the team shall identify the control measures, the critical control points, and methods to monitor all. The team shall also identify where procedures are needed to respond to any deviations from established critical control limits.

The QMS Representative shall draft the response procedures for deviations to the critical response limits.

Following the conclusion of the Risk Assessment process and the implementation of all resulting procedures and measures, The Risk Assessment Team shall meet at least once a calendar year to review the validity of the assumptions and the currency of the information used in the Risk Assessment. It may be appropriate for the Risk Assessment Team to meet more frequently if significant changes have occurred in the environment or within the infrastructure. A Risk Assessment will be conducted from scratch once every three years. Any changes to procedures shall be carried out by the QMS Representative.

In the event of equipment failure, both wells are equipped with the same types of analyzers as well as most other components. There are spare dosage pumps and turbidity metres and parts and maintenance packages are also available. Suppliers may offer other units if needed in an interim situation. Equipment is evaluated and replaced if there are operational issues, which ensures reliability and redundancy of equipment.

All notes, meeting minutes, action items, and decisions shall be documented and keep as part of the file for the process.

The QMS representative shall ensure that relevant information is circulated to all members of the Risk Assessment Team.

8. Risk Assessment Outcomes

8.1 Risks with Critical Control Points

The outcomes from the risk assessment process are documented in Appendix A. The following were determined to be Critical Control Points in the Dundalk drinking water system:

- Well Levels
- Primary Disinfection
- Secondary Disinfection
- Biological or Physical Contamination
- Turbidity
- System Pressure

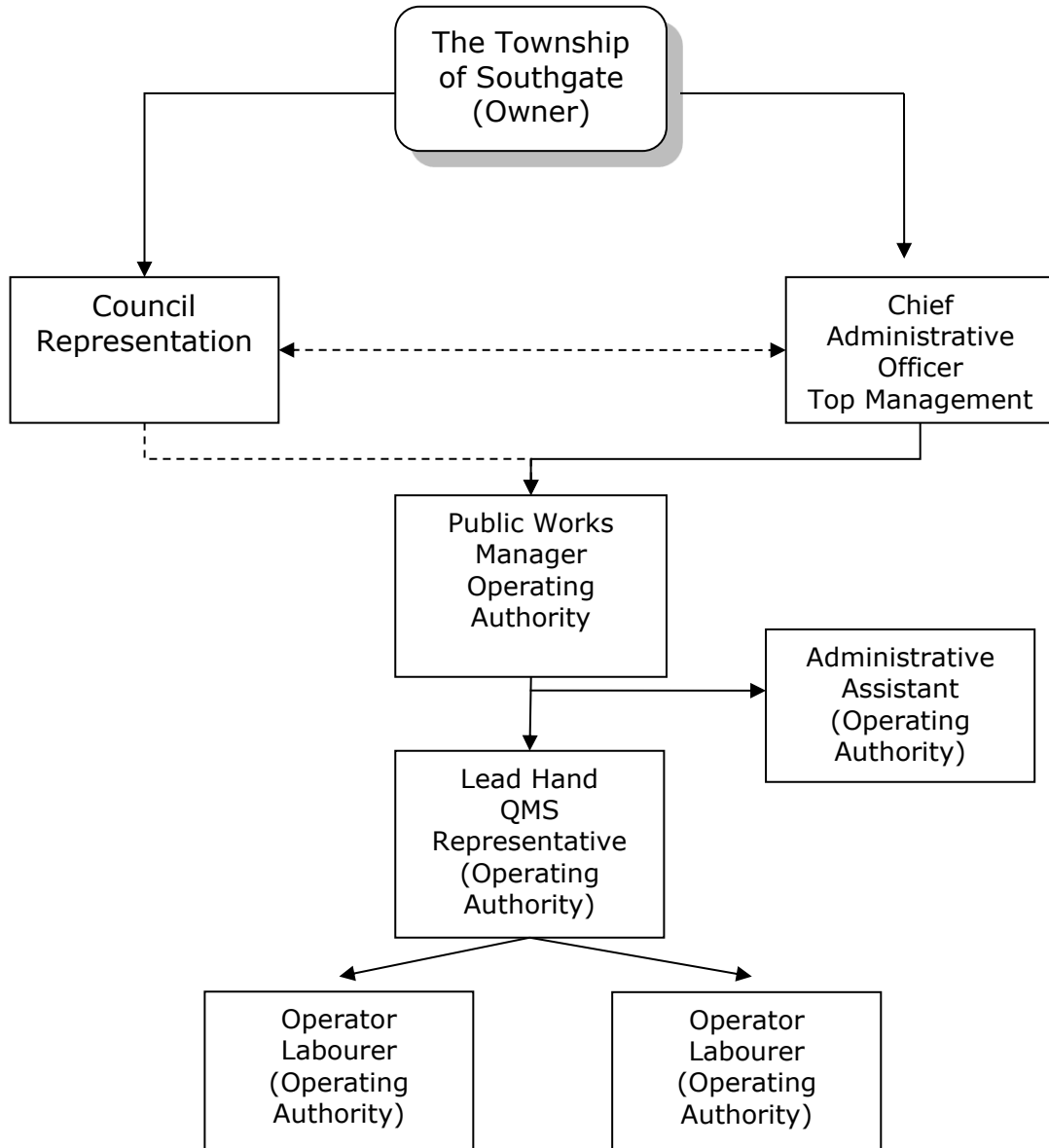
Control Limits have been established for the Critical Control Points and are documented in Appendix A. These Control Limits are within the regulatory limits set by the MOE. The Control Limits serve two functions; at points above the adverse water level, they act as warnings that adjustments to the treatment process may be required to prevent an adverse water condition incident and at the point of adverse water levels they will trigger a system shutdown to prevent the delivery of unsafe drinking water.

8.2 Reactions to Risks

The outcomes of the risk assessment process as documented in Appendix A indicate Standard Operating Procedures, Standard Recovery Procedures or Emergency Operating Procedures to be utilized by Water Operations staff as appropriate to the situation.

9. Organizational Structure, Roles, Responsibilities and Authorities

9.1 Organization Chart – Water Operations



9.2 The Township of Southgate (Owner)

The Township of Southgate have the overall responsibility and authority to ensure that the Dundalk Drinking Water System meets all legislation and regulatory requirements. They further have the responsibility and authority to allocate the necessary resources for the safe operation of the works based upon the recommendations of Water Operations.

Owner is defined in the Safe Drinking Water Act 2(1) which includes, in respect of a drinking water system, every person who is a legal or beneficial owner of all or part of the system, but does not include the Agency or any of its predecessors where the Agency or predecessor is registered on title as the owner of the system.

9.3 Council Representation

The Council Representation is a member of council and is responsible for the reporting of the performance of Water Operations to the Mayor and Council. The Council Representation is authorized to make recommendations to the Council concerning Water Operations based upon the input of the Public Works Manager, Water Operations staff and other interested parties, and make an undertaking to attend the Management Review

9.4 Chief Administrative Officer - CAO (Top Management)

The Chief Administrative Officer is the highest-ranking administrative official and has overall responsibility for the administration of all departments within the Township including the Water Operations Department.

The CAO is responsible for arranging reports to the Mayor and Council on the oversight of the Water Operations system. The CAO will receive reports from the Public Works Manager regarding issues that are relevant to the overall operation of the water system.

The CAO is authorized by Council to ensure that management staff is in place to ensure the municipal water system is supplying safe and reliable drinking water. The CAO also has the authority to delegate the responsibilities of Overall Responsible Operator to another Water Operations staff member the absence of the Public Works Manager.

The CAO make an undertaking to attend the Management Review

9.5 Public Works Manager (Operating Authority)

The Public Works Manager, as the Overall Responsible Operator, has the responsibility and authority to:

- Manage and direct the operations of Water Operations
- establish policies relating to the operation of Water Operations and its employees and contractors.

- delegate the responsibilities of Overall Responsible Operator to another Water Operations staff member in his or her absence.
- make recommendations to the Chief Administrative Officer, Council Representation and Council regarding Water Operations issues
- develop operating and capital budgets
- communicate infrastructure and resource requirements to the Chief Administrative Officer, Chair of Environmental Services and Council
- make an undertaking to attend the Management Review

9.6 Administrative Assistant (Operating Authority)

Under the direction of the Public Works Manager and the Lead Hand, the Administrative Assistant provides clerical support to the Water Operations Department. These duties include, but are not limited to:

- communication and liaison with Public Works Manager, and Labourer / Operators
- documentation and control of public complaints
- preparation of reports as required by regulations and circulation to management and for Council approval.
- documentation and record control for QMS including meeting minutes.
- communication during emergencies as directed by the Public Works Manager
- make an undertaking to attend the Management Review

9.7 Lead Hand (Operating Authority)

The Lead Hand Water Operation Operator/Labourer is responsible for monitoring and maintaining processed water quality, the maintenance of the supply system and the maintenance of the distribution system including valves, hydrants and flushing.

The Lead hand is also the QMS Representative. The QMS Representative shall be responsible for:

- ensuring that processes needed for the QMS are established, implemented and maintained,
- reporting to the Public Works Manager and Town Council on the performance of the QMS and any need for improvement,
- ensuring that the most current versions of documents required by the QMS are being used at all times,

- ensuring that personnel are aware of all current regulatory requirements that pertain to their duties within the operation of the drinking water system.
- ensuring the promotion of awareness and effectiveness of the QMS throughout the operating authority.
- ensuring that the annual Internal Audit is conducted once a calendar year.
- undertaking that the annual Management Review is conducted.

The Lead Hand of the Water Operator/Labourers as designated by the Public Works Manager or the CAO shall act as Overall Responsible Operator in the absence of the Public Works Manager.

The Lead Hand of the Water Operations Operator/Labourer shall comply with all relevant legislation and regulations, and undertake activities at the request of the Public Works Manager.

9.8 Operator/Labourer (Operating Authority)

The Water Operations Operator/Labourer is responsible for monitoring and maintaining processed water quality, the maintenance of the supply system and the maintenance of the distribution system including valves, hydrants and flushing.

One of the Water Operator/Labourers as designated by the Public Works Manager shall act as Operator-in-Charge during each shift.

The Water Operations Operator/Labourer shall comply with all relevant legislation and regulations, and undertake activities at the request of the Public Works Manager.

Operating Authority is defined in the Safe Drinking Water Act 2(1) as, in respect of a Subject System, the person or entity that is given responsibility by the Owner for the operation, management, maintenance or alternation of the Subject System.

10. Competencies

The following table lists the minimum levels of competencies required for trained staff whose performance will have a direct impact on drinking water quality.

Notes:	Public Works Manager	Lead hand	Operator/Labourer
<ul style="list-style-type: none"> • Roman numerals denote required operator certification • "0" indicates competency not required • "1" indicates basic level of competence • "2" indicates intermediate level of competence • "3" indicates advanced level of competence 			
Supervisory Skills	3	3	1
Verbal Communications	3	3	1
Written Communications	3	3	1
Long-term Planning	3	1	1
Scheduling/Work Planning	3	3	1
Record Keeping	3	3	2
Regulatory Requirements	3	3	2
Emergency Procedures	3	3	2
Water & Distribution Processes	3	3	1
Process troubleshooting	3	3	0
Fluid Mechanics	2	1	2
Laboratory techniques	1	1	1
Sampling/preservation	2	3	2
Pumps/valves/piping maintenance	3	3	2
Electrical instrumentation/controls	2	2	2
Motor controls	2	2	2
Interpreting plans/blue-prints	2	2	2
Computer skills	2	2	1
SCADA	3	3	2
Health and Safety	3	3	2

First Aid and CPR	3	3	2
Confined space	3	3	2
OWWOC Water Distribution and Supply	II	I	I

10.1 Levels of Competency

Level 1, a basic level of understanding is required. Level 1 understanding is normally acquired through a combination theoretical and practical instruction, on-the-job training and review of journal articles.

Level 2, an intermediate understanding of a particular subject area. Theoretical and working knowledge typically acquired through theoretical and practical instruction, on-the-job experience and participation in workshops and training sessions offered by professional training facilities.

Level 3, an advanced understanding of a particular subject area, particularly as it pertains to the person's responsibilities. Theoretical and working knowledge typically acquired through a minimum, 5 years experience of theoretical and practical instruction, on-the-job experience and participation in workshops and training sessions offered by professional training facilities.

10.2 Satisfying Competencies

Identified competency requirements for Water Operations staff are satisfied by the following:

Candidates considered for hire must submit proof of relevant post-secondary education and must demonstrate technical competency and communications skills to the hiring committee.

New employees undergo comprehensive on-the-job training at all facilities, conducted and documented by experienced staff. Training documentation is signed by the employee and trainer, acknowledging successful information transfer. Training files are maintained for all staff.

All employees receive a minimum of 35 hours training in various topics including safety, treatment process operations, contingency plans, regulatory requirements, equipment operation, and new technologies. The training is provided by experienced utility staff, technical experts, or contracted professional trainers. Training provision and certification levels meet or exceed those required by legislation. At DWQMS staff meetings Water Operations employees are trained to recognize the importance of their duties and how they affect safe drinking water. Due diligence is emphasized as well as continual improvement of employee awareness of their role in providing safe drinking water.

Southgate Township provides incentive for staff wishing to upgrade their operating licenses as pay band increases with operator certification level. The Township covers the cost for examinations and license renewal.

The owner is provided copies of Management Review meeting minutes and recommendations, and annual operating reports.

Southgate Township provides funding to staff wishing to independently upgrade their education, provided the training is related to utility duties.

11. Personnel Coverage

On a daily basis a water operator will be available on call for emergency alarm responses after normal working hours. This is necessary in order to respond to alarm callouts from the 3 Municipal production wells and pump houses in the Village of Dundalk on a timely basis. The telephone at the Dundalk Depot is call forwarded to the on-call operators cellular phone of who is responsible for that week when a response is required to resolve operational problems or issues should they arise at the well locations. Township of Southgate is a non-unionized organization and the threat of labour disruption is minimal. In the event of a declared emergency situation, every effort will be made by staff to continue to perform their duties and responsibilities. Township of Southgate employees have been provided with employee identification badges to authorize the crossing of emergency barricades within the municipality.

11.1 Scheduling

The rotational schedule will alternate operators on a weekly basis starting each Monday and setup for a 90 day period. The schedule will be posted in the Dundalk Depot and distributed to all water operators and necessary management staff. Should a scheduled operator not be available for some justified reason such as sickness, family emergency, etc. to carry out the on-call duties, the operator must advise the Public Works Manager or the person in charge to assign a schedule switch and document same on the posted schedule.

11.2 Callout Sequence and Backup Plan

When an alarm occurs the dialer will call out in the following sequence, until it is acknowledged by the on call operator. If the alarm is not acknowledged for 1 hour other operators should take steps to ensure the alarm is addressed.

1. Dundalk Depot: (519) 923-5054
2. Dundalk Depot: (519) 923-5054
3. Water Lead Hand: (519) 270-6439
4. Water Operator: (519) 379-2585 (cell)
5. Water Operator: (519) 379-0119(cell)
6. Water Operator: (226) 379-0154(cell)
7. Water Operator 1-(519) 216-9386 (cell)
8. Public Works Manager: (519)-378-3777

12. Communications

This procedure describes how the Top Management communicates the QMS to the Township of Southgate (Owner), Southgate Public Works (Operating Authority), suppliers and the public.

12.1 Owner

The Public Works Manager or designate will provide an annual report on Water Operations and the QMS at public Council meetings. All proposed revisions will be communicated by the QMS Representative before seeking Council's authorization. The Mayor, Council and Chief Administrative Officer will be provided with a current copy of the QMS immediately following any revision.

12.2 Top Management

Information regarding the QMS is communicated to Top Management through the Management Review and reports to Council.

12.3 Operating Authority

Copies of the currently approved QMS Operational Plan will be kept at Wells D3, D4 and D5, the office of the QMS Representative and the Southgate Administration Centre. Communication to staff will be handled internally through informal meetings and feedback from operators.

12.4 Suppliers

Southgate Water Operations achieves oversight control over the activities of all suppliers and service providers through annual written communications and formal agreements. These suppliers have been identified as essential under Element 13 of this Standard.

The written communications inform each supplier / service provider of policies and regulations with which the Township must comply. The communication also provides a list of all documentation that is required, such as ANSI / NSF certification, MSDS's and proof of laboratory accreditation for the samples being analyzed.

12.5 Consumers

Copies of the QMS will be available for public viewing at the Southgate Administration Centre in Hopeville and the Township web site. The Public Works Manager will communicate updates and revisions of the QMS at an open public Council meeting.

In addition, Annual Water Treatment Plant reports, required by O. Reg. 170/03, are available to consumers in hard copy at the Public Works office and can also be viewed on the Southgate website. The public is made aware of the Annual Water Treatment Plant report and QMS through notices provided with the water bills.

Consumer water complaints can be handled through the Administration Centre or through any of the Water Operations personnel.

13. Essential Supplies and Services

This Element identifies the supplies and services deemed essential to the delivery of safe drinking water and how to ensure the quality of essential supplies and services that can affect water quality.

All process chemicals must meet applicable NSF, AWWA and ANSI standards. Proof of chemical product must be provided to the operator upon delivery, prior to unloading.

All testing conducted at laboratories must be conducted at laboratories that are accredited to conduct the tests.

The following products and services are deemed to be essential to the delivery of safe drinking water:

Chlorine:	Anchem	Order Desk	O: (800) 387 9799
	Cleartech	Order Desk	O: (800) 387 7503
Water testing:	SGS Lakefield	Patti Stark after hours	O: (705) 652-2047 O: (705) 760-3494
	Caduceon Environmental Lab	David Lang	O: (705) 252-5743 C: (416) 797-6400
UV:	Trojan	Kathy Rodriguez	easterncan@trojantechnologies.com

Other Supply and Support Services

Well Pump and high-lift pumps:	Interpump	Mike Bibby Bob Grimes	O: (800) 265 9355 mike.bibby@interpump.ca O: (519) 843 4232 H: (519) 843 2810
	Weitzel		O: (519) 625 8332
Miscellaneous parts:	Evans Supply	Order Desk	(800) 268-8309
	Carson's Supply	Order Desk	(800) 265-3716
	Wamco	Order Desk	(705) 734-3535
	Hach Canada	Order Desk	(800) 665-7635
Flow meter calibration, chlorine pumps	SCG	Stacey Nichol	O: (519) 870-3569
		Dave Howes	C: 416-579-1938
		Angus Golub	agolub@SCGprocess.com

Analyzer and handheld calibrations	ClearTech	Eugen Luca Order Desk	C: 416-452-7659 O: (800) 387 7503
Main breaks:			
Locates:	Ontario One Call ID #: 02346	24/7	O: (800)400-2255
Excavation:	Hydro One	24/7	O: (888) 664-9376
Backhoe:	Ministry of Labour Employer # 12271	24/7	O: (800) 265-2468
Vac Truck:	Mitch Rice	Mitch Rice	C:519-377-9235
Gravel:	CT Horizontal	Corey Allen	C: 519-444-8034
Staff	Cedarwell	Jerry Jack	O: (519) 364-0023 O: (519) 923-2194 C: (519) 373-7999
	Esker-Lee	Jim Ellis	O: (519) 923-2110 C: (519) 378-3777
	Public Works Manager		
Engineering:	Triton Engineering	Dustin Lyttle Oz DeCarlo	O: (519) 843-3920 dlyttle@tritoneng.on.ca O: (519) 362-7649
Chlorine and Turbidity Analyzers	Evoqua	Paul Dolin Kelly Brett	C: 416-996-1885 paul.dolan@evoqua.com Kelly.brett@evoqua.com
SCADA /PLC	SUMMA	Sasikumar Paramasivam Stas Gehfinbeim	C: 416-970-9787 sparamasivam@summaeng.com C: 905-301-9070 sgehfinbein@summaeng.com
Flow Meters	Selog	Peter Chung	O: 905-608-9737 C: 647-271-0616
Plumbing	Soloman Plumbing Inc McLellan's	Chris Soloman Jame McLellan Brian Mainland	C: 519-216-2780 O: 519-323-2000

	H2O Ontario		O: 519-662-1134 C: 519-897-1274
Electrical	DV Electric Dewer Electric	Darryl Verbeek Jamie Dewer	H: 519-923-6220 C: 519-375-5824 O: 519-323-9000 C: 519-323-7004
D3 Generator:	Wajax	Victor Jerse	O: (416) 259-3281 C: (416) 553-3079
D4 Generator:	GenCo	Kedric Foster	O: (800) 221-3432 C: (519) 656-0025 kedrick.foster@ttpowergroup.com
D5 Generator	Gal Power	Massimo Demaria Dave	C: 416-846-6330 M.Demaria@galpower.com C: 647-883-1721
Communication Equipment and Towers	Eh-Tel	Andrew McLean Leo Gainouline	Office: 519-594-0946 Cell: 519-760-9600 (24 hour) Cell: 416-315-3705 (24 hour)

- Each of these products or services is available from more than one source that is approved by the Water Department.
- With three treatment facilities, chemicals can be moved from one facility to another in the event of a shortage or an emergency.
- A minimum five-day supply of chemicals is maintained at all times.
- Instrumentation parts kits, per the manufacturer's recommendations, are maintained at each facility.

The Lead Hand is responsible for the maintenance of chemical and instrumentation parts inventories.

The Public Works Manager shall approve all other purchases prior to the purchase of goods and services.

14. Review and Provision of Infrastructure

The Township of Southgate maintains an Infrastructure Lifecycle Report that is updated every five years as part of its Development Charges review process as well as a rolling five year capital forecast.

The Public Works Manager conducts an annual analysis of the status of the wells, pumphouses, reservoirs and distribution infrastructure including the current and future ability to service the needs and demands of the municipality. He also considers the outcomes of the risk assessment documented under Element 8 and ensures that the adequacy of the infrastructures necessary to operate and maintain the Dundalk Water System which is reviewed once every Calendar Year (January 1 to December 31).

From this review, the Public Works Manager will develop a Program Plan including cost estimates for the following:

Buildings, storage and distribution:

1. New infrastructure required in the upcoming fiscal year (due to regulation, growth or unforeseen circumstances).
2. Recommended infrastructure maintenance for the upcoming fiscal years.
3. Recommended infrastructure rehabilitation or renewal for the upcoming year and looking forward for five years.
4. Recommended infrastructure upgrading or replacement for the upcoming year and looking forward for five years.

Machinery, equipment, software:

1. New machinery, equipment (includes tools and vehicles), computers, and software required in the upcoming fiscal year and looking forward for five years.
2. Planned and unplanned machinery and equipment maintenance and replacement parts for the upcoming fiscal year.
 - Machinery and equipment planned maintenance costs (based upon the original manufacturer's recommended maintenance frequency).
 - Machinery and equipment planned maintenance costs (based upon normal operating life and past planned and unplanned maintenance history).

The Program Plan will be presented to the CAO and the Council Representation for comment, and then forwarded to Council during budget deliberations.

Upon approval of the budget, the Public Works Manager will begin the process of implementing the Program Plan over the course of the fiscal year. The Public Works Manager (Operating Authority) shall communicate the findings of the infrastructure review to the Township of Southgate (Owner).

15. Infrastructure Maintenance, Rehabilitation and Renewal

The Public Works Manager shall ensure that all maintenance, rehabilitation and renewal contracting and purchasing is consistent with Township of Southgate policies and procedures.

15.1 Planned Maintenance: Buildings and distribution system

New construction or planned work to be done to existing structures shall be in conjunction/coordination with other operations departments whenever practical.

All new construction and work to existing structures shall comply with all relevant legislation and regulations. This work may be subcontracted or performed by Township personnel.

15.2 Unplanned maintenance: distribution system

Unplanned maintenance typically consists of watermain leaks/breaks, valve, hydrant and meter replacements. All operational work must be conducted by a certified operator as required by O. Reg. 128/04.

15.3 Planned Maintenance: Machinery and equipment

Planned maintenance includes visual inspections, lubrication, fluid changes and other activities as recommended by the manufacturer. A planned maintenance schedule shall be maintained by the Public Works Manager.

15.4 Planned and unplanned maintenance: Computers, software, SCADA

The Township of Southgate has a SCADA service provider for service and maintenance of hardware, software and the SCADA system. The appropriate personnel are notified prior to planned or unplanned maintenance activities taking place.

The Maintenance, Rehabilitation and Renewal program will be reviewed by the Public Works Manager who shall monitor the effectiveness of these programs. A summary shall be provided at the Management Review Meeting, after which the owner shall be informed through copy of the meeting minutes.

15.5 Long Term Forecast of Major Infrastructure Maintenance, Rehabilitation and Renewal

The Public Works Manager reviews the Capital Budget once every calendar year and provides details to Council regarding what future major infrastructure maintenance, rehabilitation and renewal programs are required. These forecasts are also discussed at the Annual Management Meeting.

16. Sampling, Testing and Monitoring

16.1 Description

Sampling and analysis of the water falls under the following two categories:

1. Regulatory sampling;
2. Operational or process monitoring and control.

Some of the regulatory sampling is also used in operational or process control.

Sampling that is taken in Distribution and Lab Results and becomes part of the Management Review and the Annual Water Report. Adverse Water Reports are immediately reported to the Medical Officer of Health, the Ministry of Environment, the CAO and members of Council.

Table 16-1 is a summary of the monitoring required and recommended. Consult the full texts of the Drinking Water Licence, Regulation 170/03 (as amended) Schedules 6, 7, 10 and 13 and the Ontario Drinking Water Quality Standards for specific details of the regulatory sampling requirements and maximum acceptable concentrations of the regulated parameters. All records and information relating to the regulatory monitoring, sampling and analyses must be kept for a minimum of five (5) years. In addition, if any of the wells are pumped above their permitted instantaneous rate or the permitted total daily taking, the time and duration of the event must be recorded along with the reasons for the occurrence.

Table 16-1

Location	Instantaneous Rate	Total Daily Taking
Well D3	Average 818 LPM (180 IGPM)	1,181.7 m ³ /day
Well D4	Average 1,137 LPM (250 IGPM)	1,636.6 m ³ /day
Well D5	Average 1362 LPM (300 IGPM)	1961.3 m ³ /day

All drinking water testing must be completed by a laboratory licensed by the Ministry of Environment. The Municipality is responsible to ensure that the laboratory that is being used for testing is licensed in accordance with Regulation 248/03 (as amended).

16.2 Sampling Protocol

Samples for treated water at each site are to be taken from the point at which water enters the drinking water system's distribution system following full treatment. Samples for raw water at each site are to be taken from a point prior to the addition of chlorine or any other treatment chemical.

When water samples are taken for microbiological parameter testing, another sample must be taken at the same time from the same location and be tested immediately for free chlorine residual.

All samples taken for laboratory analysis are to be grab samples. The following information is to be recorded for each grab sample taken: date, time, location where sample was taken and the name of the person who took the sample. For grab sample on-site operational checks (free chlorine residual and turbidity), also record the result of the test. Always follow all instructions for sampling, storage, preservation, chain-of-custody and transportation of samples provided by the licensed laboratory analyzing the samples. This protocol must be approved by the Ministry of Environment and follow the MOE's guidance document titled: Practices for the Collection and Handling of Drinking Water Samples. The following sampling descriptions are excerpts from Standard Methods for the Examination of Water and Wastewater, 20th edition, 1998 (Section 1060). The descriptions should be updated to be current with the latest edition of Standard Methods, or with Ministry of the Environment requirements/protocols as they become available.

[Excerpts from Standard Methods for the Examination of Water and Wastewater, 20th edition, 1998 (Section 1060)]

Ensure that all sampling equipment is clean and quality-assured before use. Use sample containers that are clean and free of contaminants. Fill sample containers without pre-rinsing with sample; pre-rinsing results in loss of any pre-added preservative and sometimes can bias results high when certain components adhere to the sides of the container. Depending on determinations to be performed, fill the container full (most organic determinations) or leave space for aeration, mixing, etc. (microbiological and inorganic analyses). If a bottle already contains preservative, take care not to overfill the bottle, as the preservative may be lost or diluted. Except when sampling for analysis of volatile organic compounds, leave an air space equivalent to approximately 1% of the container volume to allow for thermal expansion during shipment.

Before collecting samples from distributions systems, flush lines with three to five pump volumes (or until water is being drawn from the main source) to ensure that the sample is representative of the supply, taking into account the volume of pipe to be flushed and the flow velocity. If the distribution system volume is unavailable, flush

with tap fully open for at least 2 to 3 minutes before sampling. An exception to these guidelines, i.e. collecting a first draw sample, is when information on areas of reduced or restricted flow is desired or when samples for lead in drinking water are being collected.

It is important to note that the MOE and licensed laboratory procedures for taking and testing drinking water samples must be followed.

The testing requirements for raw and treated water samples found in the following table are to be completed at Wells D3, D4 and d5.

Water sampling and testing procedures can be found in Appendix B under SOP #21.

Table 16-2

Plant Sampling

Location	Regulatory	Additional Analyses Operational and Process Control
Raw Water	<p><u>Weekly</u></p> <ul style="list-style-type: none"> - Total Coliforms - <i>E Coli</i> or fecal coliforms - Heterotrophic <p><u>Monthly</u></p> <ul style="list-style-type: none"> - Turbidity (before chlorine added) 	<p><u>Daily</u></p> <ul style="list-style-type: none"> - pH - Temperature - Turbidity

Location	Regulatory	Additional Analyses Operational and Process Control
Treated Water	<p><u>Continuous Monitoring</u></p> <ul style="list-style-type: none"> - Free chlorine¹ -UV light disinfection: Dose control - flow rate, UV dose, UV lamp status, UV Transmittance <p><u>Weekly</u></p> <ul style="list-style-type: none"> - Total Coliforms - <i>E Coli</i> or fecal coliforms - Heterotrophic Plate Count or background count <p><u>Quarterly</u></p> <ul style="list-style-type: none"> - Nitrates and Nitrites <p><u>Yearly</u></p> <ul style="list-style-type: none"> - Radionuclides (at D3 only) (License #110-01 – Table 5) - Sodium (License #110-01 – Table 5) <p><u>Every 3 years</u></p> <ul style="list-style-type: none"> - Organic Parameters (Schedule 24, Reg 170/03) - Inorganic Parameters (Schedule 23. Reg 170/03) <p><u>Every 5 years</u></p> <ul style="list-style-type: none"> - Fluoride 	<p><u>Daily</u></p> <ul style="list-style-type: none"> - pH - Temperature

Location	Regulatory	Additional Analyses Operational and Process Control
Distribution System	<p><u>Weekly</u> (Minimum of 10 samples per month analysed for all four parameters, at least one sample each week)</p> <ul style="list-style-type: none"> -Total Coliforms -<i>Escherichia Coli</i> or fecal coliforms -At least 25% of all samples taken (not 25% of the minimum sample requirement) must be analysed for Heterotrophic Plate Count or background counts - Free chlorine <p><u>Quarterly</u></p> <ul style="list-style-type: none"> - Trihalomethanes² - Haloacetic Acid⁴ <p><u>Annually</u></p> <ul style="list-style-type: none"> - Lead³ <p><u>Daily</u></p> <ul style="list-style-type: none"> - Free chlorine residual 	

NOTES:

- 1 On-line analyzer
- 2 Trihalomethanes measured in the distribution system at a point reflecting the maximum residence time in the system.
- 3 Lead measured in the distribution system at a point reflecting the maximum residence time in the system. Also note that lead sampling protocols are contained in SOP 30 – Lead Sampling (Appendix B).
- 4 Haloacetic Acid measured in the distribution system at a point reflecting the minimum residence time in the system.

It is important to note that if a test result obtained under the Regulatory column above exceeds half of the standard prescribed for a parameter listed in Schedule 2 of the Ontario Drinking Water Quality Standards, the frequency of sampling and testing for that parameter must be increased so that at least one water sample is taken and tested every three months (quarterly). Increased sampling and testing can stop when for four consecutive three-month periods in which the system is in operation, none of the test results obtained for the parameter exceeds half of the standard for the parameter in Schedule 2 of the Ontario Drinking Water Quality Standards.

Continuous monitoring equipment must test for the measured parameter with at least the following minimum frequencies:

Table 16-3

Continuous Monitoring Equipment Testing, Recording and Alarming Standards

Parameter	Minimum Testing and Recording Frequency	Maximum Alarm Standard	Minimum Alarm Standard
Turbidity	15 minutes	1.0 NTU	Not applicable
Free Chlorine Residual	5 minutes	2.00 mg/L	0.25 mg/L or less free chlorine residual causing an alarm condition
UV Light Disinfection unit(s)	30 seconds / every 4 minutes	Not applicable	40 mj/cm ²

If the continuous monitoring equipment tests for a parameter more often than is required by the above table, then the equipment may instead of complying with the above table, record the minimum, maximum and average results of tests for the parameter for every period that is equal to the length of time noted in the above table along with the date of the tests conducted during the period and the time at the end of the period. In addition, the equipment must record the result of every test that causes an alarm at the minimum alarm standard noted in the above table.

All tests recorded by continuous monitoring equipment must be examined by a certified operator within 72 hours after the tests are conducted.

16.3 Sample Storage, Transportation and Shipping

Summer Shipping: After samples are collected refrigerate as soon as possible along with the shipping container (cooler). Prior to sample pick up time place samples in the cooler with sufficient ice packs. Optimal temperature for sample is less than 10°C.

Winter Shipping: Samples must be shipped and received without freezing. In order to achieve this, pack samples in well insulated shipping container (cooler) and use lukewarm water in an ice bottle to assist in temperature control.

All samples must be shipped to arrive at the lab before holding times for the samples expire.

For all shipping refer to Ministry of the Environment's *Practices for the Collection and Handling of Drinking-Water Samples Section 3.12 Sample Storage and Transportation*.

17. Measurement and Recording Equipment Calibration and Maintenance

17.1 On-Line Analyzers

The following table lists the on-line water quality analyzers in the water treatment plants.

Table 17-1

On-Line Analyzers

Type	Location	Target Range	Model	Calibration / Probe Cleaning Interval
Free Chlorine	Treated Water D3 & D4	0.5-1.5 mg/L	Wallace and Tiernan Deplox 3	Cleaned and calibrated by staff monthly. Calibrated annually by a certified third party person.
Free Chlorine	Treated Water D5	0.5-1.5 mg/L	Wallace and Tiernan Deplox 3 plus	Cleaned and calibrated by staff monthly. Calibrated annually by a certified third party person.
Free Chlorine	Raw Water D4	0.5-2 mg/L	Wallace and Tiernan Deplox 3	Cleaned and calibrated by staff monthly. Calibrated annually by a certified third party person.
Free Chlorine	Raw Water D3 & D5	0.5-10 mg/L	Wallace and Tiernan Deplox 3 plus	Cleaned and calibrated by staff monthly. Calibrated annually by a certified third party person.

Turbidity	Raw Water D3, D4 & D5	0-0.60 NTU	Scientific	Cleaned and calibrated by staff monthly. Calibrated annually by a certified third party person.
UV	Raw Water D3	40mj/cm ²	Trojan UV Swift 12	Cleaned and calibrated by staff monthly.

17.2 Maintenance

The flow meters for both raw and treated water must be calibrated at least once per year by third-party certified personnel to ensure their accuracy to within +/- 5% of actual rate of flow within the range of 10% to 100% of full scale reading of measuring devices, or as specified by the manufacturer.

The continuous water quality analyzers are maintained and calibrated as specified by the instrument manufacturer's instructions. A record of all the maintenance and calibrations is kept in the daily well logs.

Chlorine analyzers and turbidity meters are checked daily against the handhelds. If the Analyzers are over or under by .05 units, they are adjusted to the corresponding value.

The Analyzers are zero-calibrated monthly as directed in the manufacturer's manual. Calibration is also performed by third-party certified personnel yearly.

Handheld devices are calibrated weekly by Water Operators according to manufacturer's manual and annually by third-party certified personnel.

Before an analyzer or instrument is calibrated or taken out of service, ensure the SCADA system is inhibited accordingly as to not record false or erroneous measurements.

The Ultra Violet (UV) instruments are calibrated monthly by Southgate staff. The UV reference sensor shall be checked against a Master Reference Assembly at a minimum of once every three years.

18. Emergency Management

The definition of an emergency in terms of DWQMS is a potential situation or service interruption that may result in the loss of the ability to maintain a supply of safe drinking water to consumers.

The following constitute emergency situations:

- Adverse Water – Low Residual
- Adverse Water – High Residual
- Adverse Water – Turbidity
- Adverse Water – Loss of Pressure
- Adverse Water - Total Coliforms
- Adverse Water - E Coli or fecal coliforms
- Adverse Water – any other situation that exceeds chemical, radiological and physical (organic or inorganic) parameters as specified by Regulation 170/03

Southgate Township employs a series of Emergency Operating Procedures (EOPs) to deal with emergency situations. All Water Operations staff are trained in the use of these EOPs. These EOPs are tested on an annual basis by the Water Operations Department and may range from a desktop exercise to a full scale simulation. This testing may be conducted in conjunction with the annual testing of the Township's overall Emergency Plan.

The following are the Township's EOPs:

- Adverse Water
- Confined Space Rescue
- Emergency Public Communications
- Spills Contingency
- ON Warn Activation

18.1 EOP 01 – Adverse Water

Adverse water is a situation where there is some concern that water may not be safe for public consumption and may result from multiple sources as listed above.

18.2 EOP 02 - Confined Space Rescue

Confined Space Rescue is triggered when a person has become unconscious and/or trapped in a confined space.

18.3 EOP 03 – Emergency Public Communications

Emergency Public Communications is a situation where the public must be immediately notified of a problem with the drinking water supply.

18.4 EOP 04 – Spills Contingency

Spills Contingency is used in a situation where there is a significant spill of some substance which has the potential to affect the safety of the drinking water supply.

18.5 EOP 05 – On Warn Activation

On Warn activation is used in an emergency situation when Southgate requires assistance for manpower, machinery and/or equipment. In order to activate, use **Form 66 – OnWARN Contact List** after being directed by the Public Works Manager and/or the Community Emergency Management Coordinator.

18.6 Owner and Operating Authority Responsibilities

The Township of Southgate Council will be immediately informed of any emergency situation. There may be a need to implement the Township Emergency Plan under the direction of the Community Emergency Response Co-ordinator.

The Operating Authority under the direction of the Overall Responsible Operator shall execute responses appropriate to the nature of the emergency.

18.7 Communication Protocol

The Overall Responsible Operator shall be immediately informed of any emergency situation by the Operator in Charge. The Overall Responsible Operator shall ensure that The Chief Administrative Officer and Council are immediately informed of any emergency situation.

The Bruce-Grey-Owen Sound Medical Officer of Health (MOH) and the Ministry of Environment (MOE) Spills Action Centre shall be notified immediately by speaking directly to a person or by telephone to a person and in writing within 24 hours of any and all adverse water quality results.

18.8 Well Information

Well D3 - 174 Victoria Street West (Industry Road)
Dundalk, ON NOC 1BO
Auto dialer: (519) 923-3483

Well D4 - 550 Main Street, East
Dundalk, ON NOC 1BO
Auto dialer: (519) 923-5150

Well D5 - 250 Hagan Street, East
Dundalk, ON NOC 1BO
Auto dialer: (519) 923-9198

Waterworks Numbers: Dundalk Waterworks #220001753

18.9 Reporting phone numbers

Jim Ellis, Public Works Manager Phone: (519) 923-2110 ext 250

Manager or designate Cell: (519) 378-3777
Home: (519) 924-0741

Medical Officer of Health Phone: (800) 263-3456
or (519) 376-9420
Fax: (519) 376-6310
After hours:(519) 376-5420

Ministry of Environment
Spills Action Centre Phone: (800) 268-6060
or (416) 325-3000
Fax: (800) 268-6061
or (416) 325-3011

Ministry of Environment
Owen Sound office Phone: (519) 371-2901
Fax: (519) 371-2905

Dina Lundy, CAO Phone: (519) 923-2110
or (888) 560-6607
Cell: (519) 373-1305

Mayor Brian Milne Cell: (519) 477-0781

If additional operator assistance is required, contact the following
Township Staff:

Cory Henry Cell: (519) 270-6439

Lorne Fick Cell: (519) 379-2585

Grayson Hannivan Cell: (519) 379-0119
Home: (519) 923-6518

Adam Nicholls Cell: (519) 379-0154

Zach Hull Cell: 1(519) 216-9386

18.10 Other Well Support Personnel

Water Testing

Patti Starks SGS Lakefield
Phone: (705) 652-2047
After Hours: (705) 760-3494

Emily Crowley SGS London
Phone: (519) 672-4500

After Hours: (519) 870-7345

Julie Tillmanns Aquatic and Environmental Laboratory
Phone: (705) 722-5227

Caduceon Environmental Laboratory

Phone: (705) 252-5743

After Hours: (416) 797-6400

Engineers Dustin Lyttle (519) 362-7649
dlyttle@tritoneng.on.ca

Oz DeCarlo Triton Engineering
Phone: (519) 843-3920
Cell: (519) 766-5147

**Well Pump
& High Lift**

Service: Mike Bibby or Bob Grimes - Interpump

Phone: (519) 843-4232
or (800) 265-9355
or residence (519) 843-2810

Weitzel
Phone: (519) 625-8332

**Plumbing
Support:**

Chis Soloman Soloman Plumbing
Cell: (519) 216-2780

Brian Mainland - H2Ontario
Phone: (519) 662-1134
Cell: (519) 897-1274

Jamie McLellan McLellan Plumbing
Phone: (519) 323-2000

Electrician: D.V Electric Daryl Verbeek
Phone: (519) 923-6220
Cell: (519) 375-5824

Jamie Dewar Dewar Electric
Phone: (519) 323-9000

**SCADA
and PLC**

Sasikumar Paramasivam Summa
Cell: (416) 970-9787
Email: sasikumar.paramasivam@actemium.com

Peter Chung Selog (Oakville)
Phone: (905) 608-9737
Cell: (647) 271-0616

Chlorine: Anchem
Phone: (800) 387-9799
ClearTech (800) 387-7503

UV: Trojan Technologies
Phone: (800) 291-0218
Email: easterncan@trojantechnologies.com

19. Internal Audits

Internal audits are conducted to ensure that the QMS conforms to the requirements of the Drinking Water Quality Management Standard. The requirements include ensuring that the QMS has been effectively implemented and properly maintained.

The Township of Southgate may, from time-to-time, request that internal audits be conducted by a trained auditor from another municipality. The Township of Southgate may provide the same service to other municipalities as the case arises.

19.1 Auditors

Internal audits shall be conducted by persons approved by the QMS Representative. All internal auditors must have successfully completed a recognised 14 hour Internal Auditor workshop.

19.2 Audit Planning

The Township of Southgate will be using a Process Audit method. The processes have been divided up into 3 categories, A, B and C. Processes in category A are the most important and most critical. Category B process are used often but less critical than category A. Category C are the least critical processes. Category A process will be of highest priority to be audited. The Internal Auditor will pick one or more processes. They will then develop questions relating from those processes to each of the 21 Elements. As the audit is being performed more questions can be added to get as much information as possible that can be used to improve the QMS. This will be done once a calendar year. The records will be kept in the DWQMS Meetings, Audits, EOTP Binder. Also the Internal Audit Tracking Log will be used to record which processes were audited, the year, the elements that audit covered and if all the elements have been covered for that year.

19.3 Conducting the Audit

The Internal Auditor may choose any of the processes in the QMS, noting that category A processes are of the highest priority, followed by category B and then C. They will also pick the location of the audit, who they want to audit, whether to have a discussion about the processes being audited or to actually perform the processes being audited. Internal Audits can be conducted at the Hopeville Administration Centre, the Dundalk Works Depot and wells D3, D4 and D5. Personnel that may be audited include the CAO, Public Works Manager, Water Operators and the Administrative Assistant to the Water Department. The auditor will record the questions being asked as well as the

responses they receive, and what they see. The auditor must ensure that all 21 elements are covered at least once a year during the audit process. The auditor will use the Internal Audit Worksheet when conducting the audit and the Internal Audit Report to show their findings to the QMS Representative.

When a non-conformance to the DWQMS is found during the internal audit, this shall be communicated within the audit report by attaching the Corrective Action Request (CAR) form (Appendix E).

It is the responsibility of the QMS Representative to ensure that all CARs are followed up and responses to the CARs are provide to the internal auditor within 45 days of the internal audit.

When all CARs have been responded to, the internal audit report and response to CARs are submitted to the Management Review Committee. The internal audit shall be considered closed when this is complete.

19.4 Reporting the Results

The auditor shall submit a report of all of their questions, responses and observations. They shall highlight where each element fits in to the report, ensuring all elements are accounted for.

The report shall include any requirement for corrective actions to address gaps between the DWQMS and how the QMS is written and implemented. Corrective actions shall be communicated to the responsible individual and included as part of Management Review input.

Previous internal and external audit results can be found in the QMS Audit and Management Review binder located in the QMS representative's office.

19.5 Process Categories

Category A

EOP 01 Adverse Water	EOP 02 Confined Space Rescue
EOP 03 Public Communication – Emergency	EOP 04 Spill Contingency Plan
EOP 5 OnWARN Activation	SRP 06 Water Main Breaks
SOP 04 Hydrants	SOP 06 Isolate and Flush
SOP 08 Low Pressure	SOP 12 Reservoir Cleaning
SOP 16 Super Chlorinate and Flush	SOP 20 Valve Exercising
SOP 21 Water Sampling and Testing	SOP 30 Lead Sampling Protocol

Category B

SRP 02 Chlorination Pumps	SRP 03 Chlorine Residual Analyzers
SRP 04 High Lift Pumps	SRP 07 Well Pumps
SOP 01 Call Out Response	SOP 02 External Water Supply
SOP 03 Forensic Inspection	SOP 05 Internal Spills
SOP 07 Lock out & Tag out	SOP 09 Manual Operations
SOP 10 PH Meter Calibration	SOP 14 Residential Flushing
SOP 17 Switch to Alternate Well	SOP 19 System Shutdown
SOP 23 Well D3 Generator Maintenance Maintenance	SOP 24 Well D4 Generator
SOP 25 Well Inspection Inspection	SOP 26 Well D3 Reservoir Diving
SOP 27 Consultant Assistance	SOP 28 Confined Space Entry
SOP 29 Traffic Control Plan Change Out	SOP 31 Water Meter Installation /
SOP 32 Climbing D3 Elevated Storage Reservoir Start Up	SOP 33 Well D4 / D3 Generator
SOP 34 Trojan Swift UV Maintenance Maintenance	SOP 35 Trojan Optiview
SOP 36 Measuring Wells	

Category C

SRP 01 Alarm System	SRP 05 Turbidity Meters
SOP 11 Public Communication, Water Conservation	SOP 13 Reset Well Pump D4
SOP 15 SCADA Chlorinator	SOP 18 Switch to back up
SOP 22 Well D3 Fire System Maintenance	

20. Management Review

This procedure defines the process for the review of the effectiveness of the Drinking Water Quality Management System (QMS) by the DWQMS Management Review Committee.

Management reviews are conducted to assess and ensure the continuing suitability, adequacy, and effectiveness of the QMS.

20.1 Responsibility

Management reviews shall be conducted during a meeting of the following participants who belong to the DWQMS Management Review Committee:

- Chief Administrative Officer (Owner)
- Council Representation (Council)
- Public Works Manager (Top Management)
- Lead Hand (QMS Representative)
- Public Works Administrator (Secretary)

Other participants may be added at the discretion of the DWQMS Management Review Committee. The meeting is chaired by the QMS Representative or designated alternate.

20.2 Procedure

This procedure is applicable to Township of Southgate Council, Water System management and Water System operations that fall under the scope of the QMS.

A management review shall be conducted at least once every calendar year.

Prior to the Management Review Meeting, the QMS Representative or designated alternate shall provide a meeting agenda and summaries of the following information to the DWQMS Management Review Committee:

- a) incidents of regulatory non-compliance,
- b) Incidents of adverse drinking water tests,
- c) deviations from Critical Control Point limits and response actions,
- d) the effectiveness of the risk assessment process,
- e) internal and third-party Audit results,
- f) results of emergency response testing,
- g) operational performance,
- h) raw water supply and drinking water quality trends,
- i) follow-up on action items from previous management reviews,

- j) the status of management action items identified between reviews,
- k) changes that could affect the Quality Management System,
- l) consumer feedback,
- m) the resources needed to maintain the Quality Management System,
- n) the results of the infrastructure review,
- o) Operational Plan currency, content and updates,
- p) staff suggestions.

The Management Review Committee shall review and discuss all information presented. The Committee shall make recommendations and initiate an action plan, including the person responsible for delivering the action items and the proposed timelines, to improve the content and implementation of the Operational Plan and related procedures, and to ensure the provision of adequate resources.

Minutes of Management Review Committee meetings shall be maintained by the QMS Representative or designated alternate. The minutes shall document all new and outstanding action items as well as any decisions made by the Committee.

The QMS Representative shall be responsible for communication and implementation of the Management Review Committee action items as per the QMS Communication procedure.

The Public Works Manager or designated alternate will provide a copy of the minutes of the Management Review meeting to Council during the next council meeting.

21. Continual Improvement

The Township of Southgate will establish and maintain a Drinking Water Quality Management System that will be regularly reviewed, improved and upgraded by management and employees involved in the supply of drinking water.

Continual Improvement is a vital part of our Drinking Water Quality Management System. The Township of Southgate will review Best Management Practices, including any published by the MECP at www.ontario.ca/drinkingwater at a minimum of every thirty-six (36) months to continually improve its operations.

On an ongoing basis, the Township of Southgate will modify, update and adjust processes and procedures (while remaining in compliance with MOE regulations) to improve operations and consumer satisfaction through the Corrective Action Preventative Action process (CAPA). This process will allow us to track and measure our Continual Improvement.

Corrective action is a method of improvement that is performed in response to a non-conformity identified in an internal audit, external audit, or identified between audits.

Preventative action is a method of improvement that is performed proactively to prevent a non-conformity from occurring.

The CAPA (Form #60 and located in Appendix E) is used to manage and track Corrective Actions, Preventative Actions and Opportunities for Improvement/Suggestions. Inputs to the CAPA form can be driven from the following;

- a) Complaints
- b) Customer Feedback
- c) Management Reviews
- d) Non-Conformities/Non-Compliances (i.e. Regulatory, QMS, Processes)
- e) Internal/External Audit findings
- f) Suggestions (Staff/Public)
- g) Industry driven infrastructure improvements
- h) Education/Training
- i) Risk Assessments
- j) Best Management Practices Review, or;
- k) Other

The CAPA Form Tracking Log (form #61 and located in binder E-13 CAPA and DCR) is used to track CAPA forms and to provide trend data on the CAPA system for later Management Review.

The CAPA process is as follows:

1. Identified issue is entered into blank CAPA request form in detail. The requestor shall identify the type of issue:
 - a. Corrective Action – to report existing problems.
 - b. Preventative Action – to report potential problems.
 - c. Opportunity for Improvement/Suggestion - when the report is a pure improvement action, unrelated to any particular problem.
2. The requestor shall identify the source of the issue and the process affected.
3. The requestor shall indicate the priority (Low, Medium, High or Urgent/Critical) of the issue.
 - a. LOW – Respond as availability allows; may extend deadline with the permission of the QMS Representative.
 - b. MEDIUM – Respond as soon as feasible; deadline established but may be interrupted by higher priority activities.
 - c. HIGH – Respond by established deadline, which may interrupt staff working on low or medium priorities.
 - d. URGENT/CRITICAL – Respond immediately with sustained effort using all available resources until resolved. Legal or compliance risk exists.
4. The requestor shall submit the CAPA to the QMS Representative for approval.
5. The QMS Representative shall identify date CAPA received and shall identify if the CAPA is accepted or rejected. If CAPA is rejected, the QMS Representative shall note justification for rejection on the bottom of the form and return form to requestor. Rejected CAPA's shall be filed in the CAPA binder located in the Dundalk Works Office under the control of the QMS Representative. If CAPA is accepted, the QMS representative shall apply a sequential number and place active CAPA in the CAPA binder.

6. The QMS Representative shall perform a root cause analysis on active CAPA's upon acceptance. Root cause analysis is optional for Opportunities for Improvement. Dependant on the scope of the issue, root cause analysis can be performed by QMS Representative alone or by a group as identified by the QMS Representative. This exercise should be thoughtful and detailed, so as to ensure the actual root causes are being identified. Failure to properly conduct root cause analysis may result in the wrong root cause being acted upon, and thus the problem not being permanently resolved.
7. Once the root cause is identified, the QMS Representative and if required, other staff members, shall define an Action Plan aimed at eliminating the root cause, thus correcting, preventing or eliminating the problem. By eliminating the root cause, the problem should never occur or reoccur. For some preventative and corrective action issues, management may elect to perform a risk assessment as part of the action plan determination. This additional information shall be attached to the CAPA. The action plan shall define timelines and parties responsible for performing the implementation. Upon completion of implementation, the responsible party shall update the text of the action plan as it progresses. During this time the plan may change, or expand, etc., so the text must be updated to reflect the actions assigned and taken. Insert the date of completion and return the CAPA to the QMS Representative.
8. The QMS Representative shall perform independent verification of the actions taken to ensure the actions are effective in resolving the root cause(s). This verification should examine evidence and take into the consideration the following:
 - a. Has the action plan removed the root cause(s)?
 - b. Does the action plan appear to eliminate the original issue reported?
 - c. Were any related documents updated, as needed?
 - d. Was training conducted, if required?
 - e. Does the action require an update to the internal audit schedule?
 - f. Were all interested parties properly notified of the actions taken?

9. The effectiveness of the CAPA shall be recorded by the QMS Representative as a "Pass" or "Fail". In the event of a "Pass", the CAPA shall be closed and no further action is deemed necessary. In the event of a "Fail", the CAPA will trigger a second CAPA to open, to identify what caused the failure and the whole process will repeat until a "Pass" result can be achieved. The QMS Representative will record the results of the verification activity in the log.

Results of Continual Improvement shall be captured during Management Reviews which will show measurable/quantifiable improvements in our DWQMS.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Appendix A: Risk Assessment Outcomes														
2	Dundalk Drinking Water Systems														
3	Activity or Process Step	Hazardous Event	Hazard	Control Measures	Consequences Probability	Detectability	Total Risk	Critical Control Point?	Monitoring processes or procedure	Critical Control Limits	Response Procedures	Recommendations	Date Modified / Added	Probability Validation	
4	Raw water (Source)	External chemical spill (water supply shortfall)	Chemical - Contamination	Monitor & sample Well head protection	1 5 4 20	No	Monitor & sample		EOP 04 - Spills Contingency Plan SOP 17 - Switch to Alternate Well SOP 27 - Consultant Assistance		2021-12-13				
5	Raw water (Source)	Naturally occurring - (Sudden changes to raw water characteristics)	Biological - Contamination of the aquifer	Monitor & sample Well head protection	1 5 4 20	No	Monitor & sample		SOP 02 - External Water Supplies SOP 17 - Switch to Alternate Well SOP 27 - Consultant Assistance		2021-12-13				
6	Raw water (Source)	Naturally occurring - (Sudden changes to raw water characteristics with turbidity and pH)	Biological	Monitor & sample Well head protection	1 5 3 15	Yes	Monitor and sample	D3, D4 & D5- Turbidity analyzer - 0.9 NTU alarms out and 1.0 NTU well shutdown, pH must be > 6.5 < 8.5	SOP 17 - Switch to alternate well		2021-12-13				
7	Raw water (Source)	Naturally occurring - (Sudden changes to raw water characteristics)	Chemical	Monitor & sample Well head protection	5 3 3 45	Yes	Monitor and sample	Sodium and Flouride	Use Public Health directives and communicate to users		2021-12-13	Sodium - D3 & D4 continually. Flouride - D5 continually			
8	Well	Casing failure (water supply shortfall & sudden changes to raw water characteristics)	Physical - Loss of raw water supply	Alternate well	2 2 4 16	Yes	Monitor & sample	D3, D4 & D5 - Turbidity analyzer - 0.9 NTU alarms out and 1.0 NTU well shutdown	SOP 17 - Switch to Alternate Well		2021-12-13	Aug-17			
9	Well 3	Casing failure (water supply shortfall)	Contamination from surface water	Alternate well	2 2 4 16	No	Monitor & sample	D3 - Turbidity analyzer - 0.9 NTU alarms out and 1.0 NTU well shutdown	SOP 17 - Switch to alternate well		2021-12-13	2008			
10	Well 4	Casing failure (water supply shortfall)	Contamination from surface water	Alternate well	2 2 4 16	No	Monitor & sample	D4 - Turbidity analyzer - 0.9 NTU alarms out and 1.0 NTU well shutdown	SOP 17 - Switch to alternate well		2021-12-13	Aug-17			
11	Well 4 monitoring well	Casing failure	Contamination from surface water		1 1 4 4	No	Monitor		SOP 25 - Well Inspections		2021-12-13				
12	Well 5	Casing failure (water supply shortfall)	Contamination from surface water	Alternate well	1 2 4 8	No	Monitor & sample	D5 - Turbidity analyzer - 0.9 NTU alarms out and 1.0 NTU well shutdown	SOP 17 - Switch to alternate well		2021-12-13				
13	Well	Pump failure	Physical - Loss of raw water supply	Alternate well	1 1 1 1	No	Maintenance & Inspection		SOP 17 - Switch to Alternate Well SRP 07 - Well Pumps		2021-12-13				

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Appendix A: Risk Assessment Outcomes														
2	Dundalk Drinking Water Systems														
3	Activity or Process Step	Hazardous Event	Hazard	Control Measures	Consequences Probability	Detectability	Total Risk	Critical Control Point?	Monitoring processes or procedure	Critical Control Limits	Response Procedures	Recommendations	Date Modified / Added	Probability Validation	
14	Well	Pumping system failure	Physical - Loss of raw water supply	Alternate well	1 1	2 2	No	Maintenance & Inspection		SOP 17 - Switch to Alternate Well SRP 07 - Well Pumps		2021-12-13			
15	D4 monitoring well	Security	Physical - Tampering with well head	Security fence, locked cap, weekly security check	1 5	3 15	No	Sample & inspection		SOP 25 - Well Inspections SOP 21 - Water Sampling and Testing SOP 17 - Switch to Alternate Well SOP 03 - Forensic Inspection	Install camera security system	2021-12-13			
16	Well	Hydro electric outage	Physical - Generator not operational	D3 Genset -D4 Genset or D5 Genset or Fire system genset (D3)	2 1	1 2	No	Maintenance and testing		SOP 02 - External Water Supplies SOP 23 - Well D3 Generator Testing and Maintenance SOP 24 - Well D4 Generator Testing and Maintenance	Add SOP's for Well D5 & Water Tower	2022-11-22	D3 - August 2020		
17	Well	Pre-distribution piping and valves (water supply shortfall)	Physical - Loss of water supply	Alternate well	1 2	2 4	No	Monitoring processes or daily Inspection		SOP 17 - Switch to Alternate Well		2021-12-13			
18	Well	Low Well level (Water Supply Shortfall)	Physical - Loss of water supply	Alternate well	2 5	1 10	Yes	SCADA Summa	D3 - 3.0 meters D4 - 5.0 meters D5 - 5.0 meters	SOP 17 - Switch to Alternate Well	To create a procedure regarding drought conditions and water conservation-by-law	2023-11-20	Has not occurred in the last 10 years. Levelled dropped when filling the tower in Sept 2023, but did not cause loss of supply.		
19	Well 3	High Turbidity (water supply shortfall)	Biological and Physical - Loss of water supply	Alternate well	1 2	1 2	Yes	SCADA	D3 - Turbidity analyzer - 0.9 NTU alarms out and 1.0 NTU well shutdown	SOP 06 - Isolate and Flush		2021-12-13			
20	Well 4	High Turbidity (water supply shortfall)	Biological and Physical - Loss of water supply	Alternate well	1 2	1 2	Yes	SCADA	D4 - Turbidity analyzer - 0.9 NTU alarms out and 1.0 NTU well shutdown	SOP 06 - Isolate and Flush		2021-12-13			
21	Well 5	High Turbidity (water supply shortfall)	Biological and Physical - Loss of water supply	Alternate well	1 2	1 2	Yes	SCADA	D5 - Turbidity analyzer - 0.9 NTU alarms out and 1.0 NTU well shutdown	SOP 06 - Isolate and Flush		2021-12-13			

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Appendix A: Risk Assessment Outcomes														
2	Dundalk Drinking Water Systems														
3	Activity or Process Step	Hazardous Event	Hazard	Control Measures	Consequences Probability	Detectability	Total Risk	Critical Control Point?	Monitoring processes or procedure	Critical Control Limits	Response Procedures	Recommendations	Date Modified / Added	Probability Validation	
22	Well D3, D4 & D5	Diesel fuel tank spill (chemical spill impacting source water)	Contamination of aquafer	Spill contingency plans, double walled tank	1 5	4	20	No	Monitor & sample		EOP 04 - Spills Contingency Plan SOP 17 - Switch to Alternate Well SOP 27 - Consultant Assistance SOP 21 - Water sampling and testing	Secondary containment - risk management plans	2021-12-13		
23	Well 3 Ultra-Violet	Failure of redundant units 1 and 2 (water supply shortfall)	Physical - Loss of well water supply	Switch to alternate well	1 1	1	1	Yes	UV PLC and SCADA	<40 mj/cm ³	SOP 34 - Trojan Swift UV Maintenance SOP 35 - Trojan Optiview Maintenance		2021-12-13		
24	Ultra-Violet Optiview	Failure	Physical - UV will go to default settings	Fix optiview	2 1	2	4	Yes	UV PLC	<70% UV transmittancy - shut down <90% UV transmittancy - minor alarm	SOP 17 - Switch to Alternate Well SRP 07 - Well Pumps	Build in redundancy of optiview	2021-12-13	Has not failed in the last 10 years	
25	Chlorination	Internal chemical major (>10 Litres) spill	Physical - Staff safety	personal protective equipment, secondary containment and spill kit	1 1	3	3	No	Monitoring processes or daily inspection		SOP 05 - Internal spills		2021-12-13		
26	Chlorination	Failure of primary system	Physical - Raw well shutdown	Backup equipment	3 1	1	3	Yes	SCADA	D3, D4 & D5 - chlorine pump leak detector - shutdown D4 - <= 0.50 or >= 3.00 mg/l - shutdown D3 & D5 - <= 0.50 or >= 5.00 mg/L - shut down	SOP 18 - Switch to Backup Chlorinator SRP 02 - Chlorination Pumps		2023-11-20	D5 Element fail, 2023	
27	Chlorination	Failure of secondary system	Physical - Loss of water supply	Alternate well, weekly testing	2 2	1	4	Yes	SCADA	D3, D4 & D5 - chlorine pump leak detector - shutdown D3 - <= 0.35 or >= 1.90 mg/l - call-out D3 - <= .025 or >= 1.90 mg/l - shutdown D4 - <= 0.35 or >= 1.90 mg/l - call-out D4 - <= 0.25 or >= 1.90 mg/l - shutdown D5 - <=0.35 or >= 1.90 mg/L - call out D5 - <= 0.25 or >= 1.90 mg/L - shut down	SOP 17 - Switch to Alternate Well SRP 02 - Chlorination Pumps	To switch to alternate well if low chlorine occurs (Summa)	2022-11-22	D5 Element fail, 2023	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
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28	Reservoir - General	Contamination (water supply shortfall)	Physical	Security inspections	1 5 3 15		No				SOP 17 - Switch to Alternate Well SOP 16 - Super Chlorinate and Flush SOP 21 - Water Sampling and Testing		2021-12-13		
29	Reservoir - General	Contamination (water supply shortfall)	Biological	Alternate well	1 5 3 15		No				SOP 17 - Switch to Alternate Well SOP 16 - Super Chlorinate and Flush SOP 21 - Water Sampling and Testing		2021-12-13		
30	Reservoir - General	Contamination (water supply shortfall)	Chemical	Alternate well	1 5 3 15		No				SOP 17 - Switch to Alternate Well SOP 16 - Super Chlorinate and Flush SOP 21 - Water Sampling and Testing SOP - 12 Reservoir Cleaning		2021-12-13		
31	Reservoir - General	Reservoir piping failure	Physical - loss of reservoir, loss of fire protection		2 4 4 32		No			Low reservoir alarm, D3 - 2.5 meters, D4 - 0.7 meters, D5 - 1.0 meters	Notify the Insurance Company, Fire Department. SOP 44 - Water Main Repair Installation		2023-11-20	D3 - Nov 2020	
32	Monitoring equipment - Well 3	Turbidity analyzer failure	Physical - Raw well shutdown	Alternate well	1 1 1 1		Yes	SCADA	D3 - 0.90 NTU - call-out D3 - 1.00 NTU - shutdown	SOP 17 - Switch to Alternate Well SRP 05 - Turbidity Meters		2021-12-13			
33	Monitoring equipment - Well 4	Turbidity analyzer failure	Physical - Raw well shutdown	Alternate well	2 1 1 2		Yes	SCADA	D4 - 0.90 NTU - call-out D4 - 1.00 NTU - shutdown	SOP 17 - Switch to Alternate Well SRP 05 - Turbidity Meters		2021-12-13	D4 - Jan 2020		
34	Monitoring equipment - Well 5	Turbidity analyzer failure	Physical - Raw well shutdown	Alternate well	1 1 1 1		Yes	SCADA	D5 - 0.90 NTU - call-out D5 - 1.00 NTU - shutdown	SOP 17 - Switch to Alternate Well SRP 05 - Turbidity Meters		2021-12-13			
35	Monitoring equipment	PLC Failure (water supply shortfall, failure of primary and secondary disinfection)	Physical - Loss of water supply	Alternate well	2 1 2 4		No	Monitoring process or daily inspection		SOP 17 - Switch to Alternate Well SOP 27 - Consultant Assistance		2021-12-13	Has not failed in the last 10 years		

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
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36	Monitoring equipment	Pump house Communications Failure	Operational efficiency	manual override operation of wells	3	1	1	3	No	Monitoring process or daily inspection	SOP 09 - Manual Operations	Water tower will have communication availability	2021-12-13	Frequently since switch to Eh-Tel, move probability to a 5, unless problem gets resolved		
37	Monitoring equipment	SCADA failure	Physical - Loss of system monitoring and/or data loss	Manual override operation of wells	2	1	1	2	No	Monitoring process or daily inspection	SOP 15 - SCADA, SOP 27 - Consultance Assistance, SOP 09 - Manual Operations		2021-12-13	Has not failed in the last 10 years		
38	Monitoring equipment	Alarm system failure (auto dialer & telephone line)	Physical - Loss of call-out to operators	Alternate well	3	3	3	27	No	SCADA	SOP 17 - Switch to Alternate Well SRP 01 - Alarm Systems		2023-11-20	D4 - several times during water tower construction, 2023		
39	Distribution	High lift pump failure	Physical - Maintaining fire flow pressure	Alternate pump fire pump system - D3, alternate well	1	1	1	1	Yes	SCADA	D3 - <= 40 or >= 90 psi - call-out D4 - <= 30 or >= 90 psi - call-out, D5 - <= 30 or >= 90 psi - call-out	SOP 17 - Switch to Alternate Well SRP 04 - High Lift Pumps SOP 22 - Fire System Maintenance		2023-11-20		
40	Distribution	Water main break (water supply shortfall)	Physical and biological - Loss of service Potential contamination	Throttle water to isolated zone	3	3	3	27	No	SCADA		We are using the watermain disinfection procedure	2021-12-13	Last main break was in Nov 2022		
41	Distribution	Low pressure	Biological - Loss of service Potential contamination	Troubleshoot problem, backflow preventers	3	4	1	12	Yes	SCADA	D3 - <= 40 or >= 90 psi - call-out D4 - <= 30 or >= 90 psi - call-out, D5 - <= 30 or >= 90 psi - call-out Distribution - water meter backflow detection	SOP 08 - Low Pressure SRP 06 - Water Main Breaks or SOP 04 - Hydrants		2022-11-22	Water tower has reduced low pressure occurrences, Sept 2023	
42	Distribution	No pressure (sustained pressure loss)	Biological - Loss of service Contamination	Troubleshoot problem Determine distribution problem	3	5	1	15	Yes	SCADA	D3, D4 & D5 - < 20 psi - Best Management Practice	EOP 01 - Adverse Water (Loss of Pressure) SRP 04 - High Lift Pumps		2022-11-22	Foodland water main break, Feb 2013	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
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43	Distribution	No pressure (planned maintenance)	Biological - Loss of service Contamination	Watermain disinfection procedures	3	5	1	15	No				2022-11-22	Planned shut offs for repairs and connections. Victoria, 2023	
44	Distribution	Adverse residual - low	Biological - Adverse water	Daily residual testing	1	5	3	15	Yes	Daily residual testing	< 0.05 mg/l adverse report, rrechlorine pump engages as 0.35 mg/l and shut down at 0.25 mg/l	EOP 01 - Adverse Water (Low Residual) SOP 21 - Water Sampling and Testing	2021-12-13		
45	Distribution	Adverse residual - high	Chemical - Adverse water	Daily residual testing	1	5	3	15	Yes	Daily residual testing	> 4.00 mg/l adverse report, well monitoring shuts down at 2.0 mg/l chlorination into distribution	EOP 01 - Adverse Water (High Residual) SOP 21 - Water Sampling and Testing (High Residual)	2021-12-13		
46	Distribution	High Turbidity	Biological	Daily inspection Public complaint Weekly Testing	3	5	3	45	No	Visual inspection and testing	Adverse conditions > 1.0 NTU leaving pump house, adverse conditions > 5.0 NTU in the distribution system	EOP 01 - Adverse Water (High Turbidity) SOP 21 - Water Sampling and Testing	2023-11-20	Have not seen >1.0 leaving the pump house or >5.0 in the distribution systme in the last 10 years	
47	Distribution	Cross connections	Biological and Chemical - Contamination	Public education, Back Flow	3	4	4	48	No	Cross connection inspection - 2003, 2004, 2009 & 2010 Water meters with back flow detection, ICI Back Flow preventers installed 2010	Flag of reverse flow from water meter data collection	SOP 21 - Water Sampling and Testing EOP 01 - Adverse Water (Operator initiated) SOP 27 - Consultant Assistance SOP 06 - Isolate & Flush SOP 02 - External Water Supplies SOP 03 - Forensic Inspection	2022-11-22	Small backflow events seen on a few meter during an inspection on Neptune 360. Jan 2024	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
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48	Distribution	Backflow prevention device failure (Standard 2.0)	Biological & Chemical - Contamination	Annual inspection of device, Public education	3	4	4	36	No	Lab testing	Flag of reverse flow from water meter data collection	SOP 21 - Water Sampling and Testing EOP 01 - Adverse Water (Operator Initiated) SOP 27 - Consultant Assistance SOP 06 - Isolate & Flush SOP 02 - External Water Supplies SOP 03 - Forensic Inspection	Ongoing certification operator for municipal facilities	2022-11-22	Devices fail during testing and must be cleaned/repaired and retested.
49	Distribution Security	Hydrant access (Standard 2.0)	Physical, Chemical and Biological - Contamination	Lab testing SCADA	3	4	5	60	No			SOP 21 - Water Sampling and Testing EOP 01 - Adverse Water (Operator Initiated) SOP 27 - Consultant Assistance SOP 06 - Isolate & Flush SOP 02 - External Water Supplies SOP 03 - Forensic Inspection	If we suspect an area we can install hydrant locks, also look into bulk water station installation	2021-12-13	Vac trucks and other contractors help themselves to water from hydrants. Fill station might help with this. Harder to monitor with no flow meter on the tower.
50	Distribution	Biofilm	Biological - Concern	Lab testing	1	4	4	16	No	Lab testing		SOP 06 - Isolate and Flush SOP 16 - Super Chlorinate and Flush SOP 27 - Consultant Assistance	Spring swabbing for Hanbury Street	2022-11-22	
51	General	Failure to receive critical vendor supply	Physical	Alternate suppliers	2	5	3	30	No	Inventory control		SOP 02 - External Water Supplies, EOP 01 - Adverse Water		2021-12-13	Lab not receiving samples, switched to Caduceon in Oct 2019
52	General	Ability to get samples to Lab	Physical - Regulation compliance	Alternate transportation	3	3	3	27	No	Staff		SOP 21 - Water Sampling and Testing		2022-11-22	Lab not receiving samples, switched to Caduceon in Oct 2019
53	General	Lab unable to test	Physical - Regulation compliance	Alternate lab	3	3	3	27	No	Lab		SOP 21 - Water Sampling and Testing		2022-11-22	Frozen water samples, switched to Caduceon in Oct 2019
54	General	Fire flow events	Biological contamination, backflow and low pressure	Operate wells and fire pumps	3	4	4	48	No	Staff		SOP 09 - Manual Operations	Water tower will help with water supply	2021-12-13	There have been several fire events in or outside of Dundalk in the past couple years.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
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55	General	All wells fail (water supply shortfall)	Physical and Biological - Limited or loss of distribution supply	Alternate supplier	1 5	1 5	No	Staff		EOP 03 - Public Communications - Emergency Activate Township Emergency Procedure SOP 02 - External Water Supplies	Water Tower - New Well	2021-12-13			
56	Security	Vandalism - distribution system (Standard 2.0)	Physical - Property damage or theft	Building security Security fencing Neighbourhood Watch	3 4	4 4	36	No	Daily inspections		SOP 03 - Forensic Inspection		2021-12-13	Besides the taking of water from hydrants, believe there has not been vandalism in the distribution system	
57	Security	Vandalism - pump house (Standard 2.0)	Physical - Property damage or theft	Building security Security fencing Neighbourhood Watch	1 5	3 15	No	Daily inspections		SOP 03 - Forensic Inspection	Install security camera	2021-12-13			
58	Security	Terrorism (Standard 2.0)	Physical radiological, chemical and biological - Contamination - pump house - hydrants - reservoirs - private property	Building security Security fencing Neighbourhood Watch	1 5	3 15	No	Inspections & testing		SOP 21 - Water Sampling and Testing EOP 01 - Adverse Water (Operator Initiated) SOP 27 - Consultant Assistance SOP 06 - Isolate & Flush SOP 02 - External Water Supplies SOP 03 - Forensic Inspection		2021-12-13			
59	Severe Weather	Severe Weather - Extreme weather events including ice storm	Loss of Water Supply	D3 Genset D4 Genset or D5 Genset or Fire system genset (D3)	3 2	3 18	No			EOP 03 - Public Communications - Emergency EOP 05 - On WARN Activation		2021-12-13	Ice and snow storms are common but have not caused a loss of water supply in the past 10 years		
60	Severe Weather	Severe Weather - Extreme weather events including tornado	Loss of Water Supply	D3 Genset D4 Genset or D5 Genset or Fire system genset (D3)	2 5	3 30	No			EOP 03 - Public Communications - Emergency EOP 05 - On WARN Activation		2021-12-13	Tornadoes are not common in area but have occurred. They have not caused a loss of water supply in the last 10 years.		

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61	General	Long Term Impacts of Climate Change	Climate Change - flooding		1	2	3	6	No		EOP 01 - Adverse Water EOP 03 - Public Communications - Emergency EOP 04 - Spill Contingency Plan EOP 05 - On WARN Activation	Determine elevations of each well	2021-12-13		
62	General	Long Term Impacts of Climate Change	Climate Change - drought	Communication to residents to conserve water	1	5	1	5	No		SOP 11 - Water Conservation EOP 03 - Public Communications - Emergency	To create a procedure regarding drought conditions and water conservation-by-law	2021-12-13		
63	General	Sustained extreme temperatures heat wave	Power outage, increased water usage, fires	Communication to residents to conserve water	1	1	3	3	No		SOP 11 -Water Conservation		2021-12-13		
64	General	Sustained extreme temperatures deep freeze	Water main breaks, frozen water services	Form 51 - Dundalk Frozen Water Notice	2	3	4	24	No		EOP 03 - Public Communications SOP 37 - Frozen Water Services Frozen Water Policy		2021-12-13	2016, extreme cold, frozen water services	
65	Well 5 source water protection	135 Rowes Lane septic system in whpa 135 & 131 has been connected - 133 to be connected	Biological - Septic Failure		1	5	3	15	No			Connect to sanitary sewer in 2020 - 135 Rowes Lane septic system in whpa 135 & 131 has been connected - 133 to be connected. Subject to septic inspection program.	2022-11-22		

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66	Well 5 source water protection	Flato Block 75 sanitary sewer piping (apartment) project	Biological		1	4	3	12	No				Installation of sanitary sewer in 2020 - 5 year monitoring program & video service connection	2021-12-13	
67	General	Pandemic	Biological - Impact Staff	Social Distancing, PPE	3	4	3	36	No	Monitor for symptoms, complete pre-screening forms		COVID-19 Protocol - engage OCWA (Ontario Clean Water Agency) if needed	2021-12-13	Covid, 2019, 2020, 2021, 2022	
68	Water Tower	Chlorination - Distribution	Low chlorine	Daily testing	1	4	1	4	Yes	Daily inspections	Turn on 1.0mg litre Shutoff at 1.10 litre	SOP#21 Water sampling & testing EOP #01 Low residual & adverse water SOP#6 Isolate & flush	2023-10-20		
69	Water Tower	Contamination	Contamination	Screens & daily testing	1	5	3	15	No			SOP#6 Isolate & flush SOP#21 Water sampling & testing SOP #17 Switch to alternative well	2023-10-20		
70	Water Tower	Monitoring equipment - PLC	Failure of devices	SCADA	1	4	1	4	No			SOP #27 Consult assistance SOP #17 Switch to alternative well	2023-10-20		
71	Water Tower	Security	Physical - Property damage or theft	Building security Security fencing Neighbourhood Watch	1	4	4	16	No	Daily inspections		SOP 03 - Forensic Inspection	2023-10-20		
72	Water Tower	Internal piping failure	Flooding, losing source of water		1	1	3	3	No			SOP #27 Consult Assistance	2023-10-20		
73	Cyber Security	Hacking	Access to information Changing set points	Infinty and cloud back-up, manual control	2	2	4	16	No			SOP #27 Consult Assistance	Research best practices - speak with infinity 2023-10-20		2018

Standard Operating Procedures

Procedure Name	Created Version
SOP 01 Call-out Response	April 29, 2011
SOP 02 External Water Supplies	January 1, 2009
SOP 03 Forensic Inspection	January 1, 2009
SOP 04 Hydrants	January 1, 2009
SOP 05 Internal Spills	January 1, 2009
SOP 06 Isolate and Flush	January 1, 2009
SOP 07 Lock-out and Tag-out	January 1, 2009
SOP 08 Low Pressure	January 1, 2009
SOP 09 Manual Operations	January 1, 2009
SOP 10 pH Meter Calibration	January 1, 2009
SOP 11 Public Communications - Water Conservation	January 1, 2009
SOP 12 Reservoir Cleaning	June 22, 2011
SOP 13 Reset Well Pump D4	January 1, 2009
SOP 14 Residential Flushing	January 1, 2009
SOP 15 SCADA	January 1, 2009
SOP 16 Super Chlorinate and Flush	January 1, 2009
SOP 17 Switch to Alternate Well	January 1, 2009
SOP 18 Switch to Backup Chlorinator	April 29, 2011
SOP 19 System Shutdown	January 1, 2009
SOP 20 Valve Exercising	April 29, 2011
SOP 21 Water Sampling and Testing	April 29, 2011
SOP 22 Well D3 Fire System Maintenance	January 1, 2009
SOP 23 Well D3 Generator Maintenance	April 29, 2011
SOP 24 Well D4 Generator Maintenance	April 29, 2011
SOP 25 Well Inspections	January 1, 2009
SOP 26 Well D3 Reservoir Diving Inspection	June 22, 2011
SOP 27 Consultant Assistance	January 1, 2009
SOP 28 Confined Space Entry	July 6, 2011

Appendix B – SOP Index

Procedure Name	Created Version
SOP 29 Traffic Control Plan	January 1, 2009
SOP 30 Property Lead Sampling Protocol	April 29, 2011
SOP 31 Water Meter Installation/Change-Out	February 8, 2010
SOP 32 Climbing D3 Elevated Storage Reservoir	March 2, 2010
SOP 33 Well D4 Generator Start up	December 21, 2010
SOP 34 Trojan Swift UV Maintenance	April 29, 2011
SOP 35 Trojan Optiview Maintenance	April 29, 2011
SOP 36 Measuring Wells	October 23, 2012
SOP 37 Frozen Water Services	Jan 18, 2016
SOP 38 Daily Rounds	Jan 18, 2016
SOP 39 Customer Complaints	Jan 18, 2016
SOP 40 Boil Water Advisory	Jan 18, 2016
SOP 41 Reading Water Meters	May 12, 2016
SOP 42 Letter to Suppliers	May 15, 2018
SOP 43 Public Communication – Temporary Water Disruption	August 15, 2017
SOP 44 Water Main / Service – Repair / Replacement / Installation	August 15, 2017
SOP 45 UV Semi-Annual Maintenance Procedure	August 15, 2017
SOP 46 UV Reference Sensor Check Procedure	August 15, 2017
SOP 47 D3 Diesel Pump Monthly Maintenance	May 15, 2018
SOP 48 Running the trim Re-Chlor pump	January 18, 2019
SOP 49 Adjusting and Calibrating the Chlorine analyzers	January 18, 2019
SOP 50 Vac-Trailer Disinfection	July 30, 2020
SOP 51 GPS Instructions	March 4, 2022
SOP 52 SCADA Laptop	March 4, 2022
SOP 53 Performing a Document Change	March 4, 2022

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 01	Title: Call-out Response	
Page: 1 of 11	Created: January 1, 2009	Revised: January 31, 2024

Purpose:

Use this procedure when a call-out has been received.

Procedure:

When you receive an alarm call, to stop the dialing sequence, for D4 and D5 you can push "9" at the end of the message, or call the well back to acknowledge the alarm. For D3 you can push "555" when asked for the acknowledgement code, or call the well back to acknowledge the alarm. The Water Tower alarms will come from the Well 4 dialer as a "Water Tower General Alarm".

Well # 3 519-923-3483

Well # 4 519-923-5150

Well # 5 519-923-9198

Wells # 3, 4 and 5

Adverse Free Chlorine Residual Alarm

1. Contact supervisor
2. Put another well on override
3. Follow EOP 01 Adverse water
4. Troubleshoot and determine the cause of adverse chlorine residual
5. Make corrections
6. Hit Ack to clear the alarm
7. Disarm and arm the dialer

Reservoir High Level Alarm

1. Ensure that the well pump is turned off
2. Turn on a high lift pump to lower the water level in the reservoir
3. Hit the ACK button, alarm won't clear until the reservoir level is at normal level
4. Pump the reservoir down until the alarm clears
5. Disarm and arm the dialing system
6. Ensure all pumps are in auto before leaving the building

Reservoir Low Level Alarm

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 01	Title: Call-out Response	
Page: 2 of 11	Created: January 1, 2009	Revised: January 31, 2024

1. Troubleshoot cause of low reservoir level (well pump in off position, high flows for extended period)
2. Make necessary corrections if possible
3. Hit the ACK button to clear alarm, the alarm might not clear until the reservoir has reached normal levels
4. Disarm and arm the dialer

Security Alarm

1. Disarm the security system
2. Troubleshoot the cause of the alarm (ie. human error, door blown open, skylight sensor)
3. Make necessary corrections if any
4. Hit the ACK button to clear the alarm,
5. Disarm and arm the dialing system

Building Alarm (Smoke / Temp)

1. Enter building carefully, check for smoke and high / low temperature in the building
2. If there is smoke / fire use judgement as to whether or not call 911, extinguish fire, assess damage, alert supervisor
3. If it is a temperature alarm, check for temperature in the building, usually caused by a draft or exhaust fan being left on. Try to increase / decrease temp to in the building to clear the alarm.
4. You can adjust the temperature sensors to clear alarm
5. Hit the ACK button to clear the alarm
6. Disarm and arm the dialing system
7. Ensure the heaters are working before leaving the building

High Free Chlorine Alarm - Distribution

1. Take a test of chlorine residual with the hand-held device
2. If confirmed high, turn another well on override
3. Investigate the reason for the high residual (possible reasons – pumped above average amount of water, temperature change, recent increase on pump, etc.)
4. Hit the ACK button to clear the alarm
5. Disarm and arm the dialing system
6. Check residual daily and resume operations when the chlorine residual has come down

Low Free Chlorine Residual Alarm – Distribution

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 01	Title: Call-out Response	
Page: 3 of 11	Created: January 1, 2009	Revised: January 31, 2024

1. Take a test of chlorine residual with the hand-held device
2. If confirmed low, turn another well on override
3. Investigate the reason for the low residual (possible reasons – pump turned down, hole in line, temperature change, etc.)
4. Possibly dump some of the reservoir to waste and begin filling with a known good chlorine residual.
5. Hit the ACK button to clear the alarm
6. Disarm and arm the dialing system
7. Return to normal operation when chlorine residual is in normal operating range

High Free Chlorine Alarm – Well

1. Take a test of chlorine residual with the hand-held device
2. If confirmed high, investigate the cause (possible reasons – pump setting, change in flow, maintenance, etc)
3. Hit the ACK button to clear the alarm
4. Disarm and arm the dialing system

Low Free Chlorine Residual Alarm – Well

1. This occasionally occurs at start up, especially at Well 3. Acknowledge alarm and interlock to reset. UV's will start back up. If it continues to occur, take additional steps.
2. Take a test of chlorine residual with the hand-held device
3. If confirmed low, investigate the cause (possible reasons – pump setting, chlorine pump, chlorine line, etc)
4. Hit the ACK button to clear the alarm
5. Disarm and arm the dialing system

Communications Failure

1. Hit the ACK button to clear the alarm
2. If the alarm doesn't clear it is usually due to loss of internet connection
3. Disarm and arm the dialer
4. Investigate the loss of internet and try to restore
5. If necessary contact ~~Cottage Country Internet. Office 866-924-0534, 24 hour 866-924-0538~~ Eh-Tel Office 519-594-0946 ext. 1

Loss of Chemical Feed

1. Ensure the pump is in Auto

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 01	Title: Call-out Response	
Page: 4 of 11	Created: January 1, 2009	Revised: January 31, 2024

2. Troubleshoot the loss of pump, sometimes the pumps quit working due to power outages/surges. They need a power reset to get back to normal operation
3. Hit the ACK button to clear the alarm
4. Disarm and arm the dialer
5. Ensure the RPM's and direction are set correctly, pump is primed and lines are full
6. Monitor free chlorine residual

Well Pump Fail Alarm

1. Usually caused by UV alarm (See the UV section to troubleshoot UV alarms)
2. Troubleshoot the cause and make necessary corrections to clear alarm
3. If it appears to be the actual well pump, try running it manually, if it still won't run, contact supervisor
4. Hit ACK to clear any alarms
5. Disarm and arm the dialer

Chlorine Solution Tank Empty Alarm

1. Check the level of the chlorine in the tank
2. Check the level sensor and ensure it is not tangled with other piping in the tank and it at an appropriate level
3. Add chlorine to the tank if it is low, record amount
4. This alarm is usually caused when lifting the lid to add chlorine
5. Hit the ACK button to clear the alarm
6. Disarm and arm the dialer

High Lift Pump No 1 or 2 Fail Alarm

1. Contact supervisor
2. Troubleshoot the issue and contact contractor or electrician in needed. Element 13
3. Lock out and Tag out if necessary
4. Hit ACK to clear the alarm
5. Disarm and arm the dialer

Well Pump Low Level

1. Troubleshoot the issue (probe malfunction, drought,)
2. If you can't resolve it contact your supervisor and put another well on override
3. Hit ACK to clear the alarm
4. Disarm and arm the dialer

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 01	Title: Call-out Response	
Page: 5 of 11	Created: January 1, 2009	Revised: January 31, 2024

Diesel Generator Failure

1. Check the generator panel inside the building and the display on the generator to identify the issue.
2. Resolve the issue if possible
3. If not possible, look up the table in Element 13 and find the corresponding contacts for the desired generator
4. Hit ACK to clear the alarm
5. Disarm and arm the dialer

High Discharge Pressure Alarm

1. Troubleshoot the cause of the issue (pump in hand turned up too high, gauge malfunction, etc.)
2. Make corrections
3. Hit ACK to clear the alarm
4. Disarm and arm the dialer

Low Discharge Pressure Alarm

1. Troubleshoot the cause of the issue (water main break, fire dept, etc)
2. Make corrections if possible
3. Hit ACK to clear the alarm
4. Disarm and arm the dialer

Milltronics Failure Alarm

1. Try to troubleshoot and determine the cause of the alarm
2. If unable to fix the problem, alert supervisor
3. Hit the ACK button to clear the alarm, if the alarm won't clear put the other well on override
4. Disarm and arm dialer if possible
5. Contact electricians to investigate further, pg 13-2 of Operational Plan

Turbidity Alarm (Non-Emergency)

1. Troubleshoot to try and determine the cause of the alarm (dirty glass in turbidity analyzer, analyzer needs calibrated, etc.)
2. Once the issue has been resolved, run the well pump and take a few test with the portable turbidity kit to ensure good NTU before leaving system in auto
3. Hit ACK to clear the alarm
4. Disarm and arm the dialer

Turbidity Alarm (Emergency)

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 01	Title: Call-out Response	
Page: 6 of 11	Created: January 1, 2009	Revised: January 31, 2024

1. Troubleshoot to try and determine the cause of the alarm (dirty glass in turbidity analyzer, analyzer needs calibrated, etc.)
2. Take a reading with the portable turbidimeter. If the reading is over 1 NTU put the other well on override
3. Contact supervisor
4. Flush water to waste until the NTU level has come down
5. Hit ACK to clear the alarm
6. Disarm and arm the dialer

Well 3 only

UV Major and Minor Alarms

Low Water

1. Check water level in UV on the gauge
2. Raise water level if need by manually opening one of the rotork valves
3. Login to the UV unit and clear the alarm
4. Hit ACK to clear the alarm on the PLC panel
5. Disarm and arm the dialer

Plant Scada Comm Failure

1. Open the PLC door using a flat screwdriver
2. In the top left section, beside the key is a small plug with 3 wires going into the back of it.
3. Unplug it and wait 10 seconds, then plug it back in
4. Login to the UV and clear the alarm
5. Hit ACK to clear the alarm on the PLC panel
6. Disarm and arm the dialer

UV Lamp Failure

1. Determine which lamp has failed by looking at the alarm display, it will be lamp 1 or lamp 2
2. Shut the power off to the UV using the main breaker on the front of the UV panel
3. Remove the black cover to get access to the lamp
4. Remove the failed lamp and replace it with a new one
5. Connect the power cord, reinstall the black cover ensuring not to pinch any cables
6. Turn power on to the UV unit and let it go through the start up procedure
7. Login and clear all alarms

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 01	Title: Call-out Response	
Page: 7 of 11	Created: January 1, 2009	Revised: January 31, 2024

8. On the UV display go to Lamps and reset the lamp hours for the bulb that was replaced
9. Hit ACK to clear the alarm on the PLC panel
10. Disarm and arm the dialer

Hot Box Low Temperature Alarm

1. Troubleshoot the cause of the problem (heater quit working, thermostat not set properly, etc)
2. Make corrections if possible
3. Hit ACK to clear alarm
4. Disarm and arm the dialer

High Lift Sump Alarm

1. Check the water level in the sump hole
2. Troubleshoot the issue if the pump is not working (power, clogged, etc.)
3. Make necessary corrections
4. Hit ACK to clear the alarm
5. Disarm and arm the dialer

Well # 4 only

Monitoring Well Low Level

1. Troubleshoot the cause of the low level (probe malfunction, drought)
2. Take a manual measurement to determine if the probe is reading accurately
3. If it is low contact supervisor for instruction
4. If the probe is malfunctioning contact supervisor for instruction
5. Hit ACK to clear alarm if possible
6. Disarm and arm the dialer

Water Tower

Adverse Free Chlorine Residual Alarm

1. Contact supervisor

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 01	Title: Call-out Response	
Page: 8 of 11	Created: January 1, 2009	Revised: January 31, 2024

2. Put another well into override
3. Shut down the tower by isolating the main valve in the tower
4. Follow EOP 01 Adverse water
5. Troubleshoot and determine the cause of the adverse chlorine residual
6. Make corrections
7. Hit Ack to clear the alarm on Well 4 dialer
8. Disarm and arm the dialer

Water Tower High Level Alarm

1. Shut off all high lift pumps
2. Allow the tower to drain and supply the town
3. Allow the level to come down to clear the alarm, if necessary, alarm setpoints can be temporarily adjusted
4. Hit Ack to clear the alarm on the Well 4 dialer
5. Disarm and arm the dialer

Water Tower Low Level Alarm

1. Turn on high lift pumps to start raising the level in the tower. The flow must be more than the town demand in order to fill the tower
2. Troubleshoot cause of low level in the tower ie, was it filled the night before, are flows really high for some reason, is the system working as it should?
3. Make necessary corrections if possible
4. Hit the ACK button on the Well 4 dialer to clear alarm, the alarm might not clear until the reservoir has reached normal levels, setpoints can be temporarily adjusted
5. Disarm and arm the dialer

Security Alarm

1. Disarm the security system
2. Troubleshoot the cause of the alarm (ie. human error, door blown open)
3. Make necessary corrections if any
4. Hit the ACK button to clear the alarm,
5. Disarm and arm the dialing system

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 01	Title: Call-out Response	
Page: 9 of 11	Created: January 1, 2009	Revised: January 31, 2024

Building Alarm (Smoke / Temp)

1. Enter building carefully, check for smoke and high / low temperature in the building
2. If there is smoke / fire use judgement as to whether or not call 911, extinguish fire, assess damage, alert supervisor
3. If it is a temperature alarm, check for temperature in the building, usually caused by a draft or exhaust fan being left on. Try to increase / decrease temp to in the building to clear the alarm.
4. You can adjust the temperature sensors to clear alarm
5. Hit the ACK button to clear the alarm
6. Disarm and arm the dialing system
7. Ensure the heaters are working before leaving the building

High Free Chlorine Alarm - Distribution

1. Take a test of chlorine residual with the hand-held device
2. If confirmed high, turn another well on override
3. Isolate the tower from the system using the main valve in the tower
4. Investigate the reason for the high residual (possible reasons – chlorine pumps running in the tower, temperature change, incorrect setpoints on SCADA, distribution system chlorine levels, etc.)
5. Hit the ACK button on Well 4 dialer to clear the alarm
6. Disarm and arm the dialing system
7. Check residual daily and resume operations when the chlorine residual has come down

Low Free Chlorine Residual Alarm – Distribution

1. Take a test of chlorine residual with the hand-held device
2. If confirmed low, turn another well on override
3. Isolate the tower by using the main valve in the tower
4. Investigate the reason for the low residual (possible reasons – low residual in distribution system, temperature change, chlorine pumps not working, incorrect setpoints on SCADA, etc.)
5. Boost the residual using the recirculation pump in combination with the chlorine pumps.
6. Hit the ACK button on Well 4 dialer to clear the alarm
7. Disarm and arm the dialing system

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 01	Title: Call-out Response	
Page: 10 of 11	Created: January 1, 2009	Revised: January 31, 2024

8. Return to normal operation when chlorine residual is in normal operating range

Communications Failure

1. Hit the ACK button to clear the alarm
2. If the alarm doesn't clear it is usually due to loss of internet connection
3. Disarm and arm the dialer
4. Investigate the loss of internet and try to restore
5. If necessary, contact Eh-Tel. Office 519-594-0946 ext. 1

Loss of Chemical Feed

1. Ensure the pump is in Auto
2. Troubleshoot the loss of pump, sometimes the pumps quit working due to power outages/surges. They need a power reset to get back to normal operation
3. Hit the ACK button on Well 4 dialer to clear the alarm
4. Disarm and arm the dialer
5. Ensure the RPM's and direction are set correctly, pump is primed and lines are full
6. Monitor free chlorine residual

Chlorine Solution Tank Empty Alarm

1. Check the level of the chlorine in the tank
2. Check the level sensor and ensure it is not tangled with other piping in the tank and it at an appropriate level
3. Add chlorine to the tank if it is low, record amount
4. This alarm is usually caused when lifting the lid to add chlorine
5. Hit the ACK button on the Well 4 dialer to clear the alarm
6. Disarm and arm the dialer

Recirculation Pump Fail

1. Investigate the cause of pump fail alarm
2. Possibly try the pump in manual
3. Contact the manufacturer if needed
4. Hit the Ack button on the Well 4 dialer

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 01	Title: Call-out Response	
Page: 11 of 11	Created: January 1, 2009	Revised: January 31, 2024

5. Disarm and arm the dialer

Tracer wire alarm

1. Investigate the cause of the alarm. Possible causes are, the pipe is below the alarm temperature, heat tracer wire has failed, etc.
2. Solve the problem if possible
3. Contact manufacturer if needed
4. Hit the Ack button on the Well 4 dialer
5. Disarm and arm the dialer

Related Procedures:

- SOP 13 – Reset Well Pump D4
- SOP 17 – Switch to Alternate Well
- SOP 18 – Switch to Back Up Chlorinator
- SRP 02 – Chlorination Pumps
- SRP 03 – Chlorine Residual Analyzers
- SRP 04 – High Lift Pumps
- SRP 05 – Turbidimeters
- EOP 01 – Adverse Water

Dundalk Drinking Water System

Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0 Standard Operating Procedure

SOP #: 02	Title: External Water Supplies	
Page: 1 of 1	Created: January 1, 2009	Revised: January 18, 2018

Purpose:

Use this procedure when it is necessary to obtain water from sources other than the Water Operations Department.

Procedure:

Bottled Water

- Ice River Springs, Feversham Phone: 519-922-3303
- Arctic Clear, Fergus Phone: 519-843-4469

Bulk Tanker – Treated Water

- Grey Highlands, Markdale Waterworks Phone: 519-986-4784
- Town of Orangeville Bulk Water Station Phone: 519-941-0440

Bulk Raw Water

- Arctic Clear, Ken McLellan Phone: 519-843-4469
Home: 519-323-1629
- Dale Pallister Phone: 519-923-5811
Cell: 519-373-6763

Potable Water Haulers

- Dixon's Bulk Water Phone: 519-375-2866

Related Procedures:

None

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 03	Title: Forensic Inspection	
Page: 1 of 1	Created: January 1, 2009	Revised: January 18, 2018

Purpose:

Use this procedure when it is appropriate to involve the Ontario Provincial Police. This will normally occur when there is some breach of security.

Procedure:

1. Notify the Public Works Manger of the incident and the intention to contact the OPP. If the Public Works Manager is not available, notify the Chief Administrative Officer.
2. Contact the OPP to request an officer to attend at a specific location. Inform them that it is not a life-and-death situation.
 - Ontario Provincial Police, Central dispatch - 888-310-1122
 - Ontario Provincial Police, Chatsworth - 519-794-7827
3. Open a Forensic Incident Report noting the nature of the incident and the time of the call.
4. In the Forensic Incident report note the time of arrival of the officer as well as the officer's name and badge number.
5. Ask the officer to inform the Township of the results of their inspection and log any such results in the Forensic Incident Report.
6. Keep the Forensic Incident Report open until the OPP indicate that they have closed their file on the incident.
7. When the OPP have completed their investigation, the Forensic Incident Report should be closed and filed in the Incident Log.

Related Procedures:

None

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 04	Title: Hydrants	
Page: 1 of 2	Created: January 1, 2009	Revised: January 18, 2018

Purpose:

Use this procedure when flushing or performing maintenance on a fire hydrant

Procedure:

Manual Flushing

- Remove one of the side caps and ensure the remaining caps are tight
- Install the gate valve to the exposed port
- Attach hose and diffuser to the gate valve
- Insert de-chlor pucks into and around the diffuser
- Close the gate valve (clockwise)
- Slowly open the hydrant until it is fully open
- Slowly open the gate valve until you reach the desire flow volume
- Take a chlorine sample from the port on the gate valve
- When flushing is complete, slowly close the gate valve
- Slowly close the hydrant
- To allow the hydrant to drain, leave the cap loose to allow air into the hydrant
- Record all information on the Distribution System Maintenance Log (Date, hydrant #, activity performed, chlorine residual)

Automatic Flushing

- Remove one of the side caps and ensure the remaining caps are tight
- Install the automatic flusher to the exposed port
- Insert de-chlor pucks in to the automatic flusher
- Slowly open the hydrant
- On the timer, select the length of flush, generally close to 10 minutes
- Press and hold the right arrow, a timer will begin to count down from 10
- Install the cover on the time and insert into holder in the automatic flusher
- Close and lock the door before the time expires
- Once the timer reaches zero the automatic flusher will open and begin to flush

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 04	Title: Hydrants	
Page: 2 of 2	Created: January 1, 2009	Revised: January 18, 2018

- The flusher will automatically shut off when it reaches the desired time picked in step 5
- When the flusher stops, slowly close the hydrant all the way
- Remove the automatic flusher
- Grab a chlorine sample from the remaining water in the hydrant, if there is no water remaining, slightly open the hydrant to get the sample
- Record all information on the Distribution System Maintenance Log (Date, hydrant #, activity performed, chlorine residual)

Hydrant Maintenance

- Remove all caps from the hydrant
- Clean and lube all the threads on the caps and ports
- Remove bolt on operating nut and lube
- Visually inspect the hydrant
- Using a device such as a plum bob, determine if there is water in the barrel, there should not be any
- Fill out form 12, Hydrant Inspection Report
- Reinstall all caps

Related Procedures:

SOP 06 – Isolate and Flush

SOP 16 - Super Chlorinate and Flush

SOP 20 – Valve Exercising

SOP 21 – Water Sampling and Testing

SOP 30 – Property Lead Sampling Protocol

SOP 44 - Water Main / Service – Repair / Replacement / Installation

SRP 06 – Water Main Breaks

EOP 01 – Adverse Water

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 05	Title: Internal Spills	
Page: 1 of 1	Created: January 1, 2009	Revised: January 18, 2018

Purpose:

Use this procedure when a spill occurs within the pump house. This normally involves sodium hypochlorite but may also apply to other substances.

Procedure:

Operators must take several precautions when handling certain chemicals including wearing protective face shields, aprons and gloves.

Persons handling sodium hypochlorite solution must be competent and trained in the handling of the equipment and the use of personal protective equipment and other necessary safeguards. When working with sodium hypochlorite, follow established guidelines provided by Administrative staff and the Ministry of Labour. Storage tanks containing sodium hypochlorite emit off gases which are heavier than air.

Should a spill occur:

1. Use personal protective equipment while cleaning up any type of chemical spill.
2. Use spill kits that are at each well site to absorb the spilled product.
3. Once spill product has been absorbed by the kit materials, absorption booms should be placed in an area to dry for future use or be disposed of appropriately.
4. Report spill to Overall Responsible Operator for further action as appropriate.

Should a spill occur into the natural environment:

1. Contact the Public Works Manager and implement EOP 04 – Spills Contingency Plan.
2. Advise the CAO and the Community Emergency Management Coordinator of Spill.

Related Procedures:

EOP 04 – Spills Contingency Plan

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 06	Title: Isolate and Flush	
Page: 1 of 1	Created: January 1, 2009	Revised: March 20, 2020

Purpose :

Use this procedure when a portion of the distribution system needs to be isolated for any reason. This is normally the result of a watermain break, new water main work, valve replacements, valve exercising, but other circumstances may also invoke this SOP.

Procedure:

1. Determine the section of watermain needed to be isolated.
2. A map of the distribution system can be found on page 6-3 of the DWQMS Operational Plan.
3. Close main valves to manipulate the direction of water flow.
4. Equip hydrant with de-chlorinating devices.
5. Wells D3 and D4 should be synchronized to have high lift pumps running at each site.
6. Fully open hydrant and flush until satisfactory results are achieved.
7. Take a chlorine sample and record the result and flushing activity on Form 08.
8. Keep hydrant flushing until all closed valves are opened.
9. Fully close hydrant and let drain down with caps off.

Related Procedures:

SOP 04 Hydrants

SOP 20 Valve Exercising

SOP 44 Water Main / Service – Repair / Replacement / Installation

SRP 06 Water Main Breaks

EOP 01 Adverse Water

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 07	Title: Lock-out and Tag-out	
Page: 1 of 1	Created: January 1, 2009	Revised: January 18, 2018

Purpose:

Use this procedure when any electrical equipment is in need of de-energizing for repair, maintenance or removal from operations for external servicing.

Procedure:

1. Power needs to be removed from the device. The circuit breaker must be placed in the off position.
2. The operator or repair person shall then place a padlock on the circuit breaker to which operator or repair person would hold the only key.
3. The operator or repair person shall also tag the locked out circuit with:
 - Name of operator or repair person
 - Reason for lock-out
 - Date of lock-out
4. This activity shall then be documented in that Wells Operation Maintenance Log.
5. If repair was successful return equipment to full operation and record in the Wells Operations Maintenance Log.
6. Once Equipment is returned to operation the lock and tag can be removed and the device tested for proper operation.

Related Procedures:

None

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 08	Title: Low Pressure	
Page: 1 of 1	Created: January 1, 2009	Revised: January 18, 2018

Purpose:

When pressure in the distribution system falls below 40 psi. This is normally the result of a watermain break or open hydrant, but may have other causes. SCADA will issue a call-out.

Procedure:

1. Check SCADA to see if system is in emergency pressure mode.
2. Both well sites should be running.
3. Ensure high lift pumps are working.
4. Determine if it is a possible watermain break or if a hydrant is open.
5. Check with the Fire Department to see if they were involved in any water useage activities.
6. If pressure is below 20 psi other than an instantaneous event, the situation will be considered an adverse water quality indicator.

Related Procedures:

EOP 01 – Adverse Water

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 09	Title: Manual Operations	
Page: 1 of 2	Created: January 1, 2009	Revised: January 25, 2021

Purpose:

There are different scenarios and reasons to run the system in a manual operation. Possible reasons are, well maintenance, valve exercising, water main work, reservoir cleaning, etc.

Procedure:

If you want to run a High Lift Pump

1. On SCADA, click on the desired pump
2. Click on **Manual**
3. Click on **Start/Stop** as desired

If you want to run a Well Pump, there are two options:

1. On SCADA, click on the desired pump
2. Click on Manual
3. Click on Start/ Stop as desired or
4. Click on **Setpoints**
5. Click on **WP Control**
6. Click on Sampling Mode **Start/Stop** as desired

If you want one well to run and no others:

1. Put the desired well into override.

If you want two wells to run at the same time, but not the remaining well:

1. Put the two desired wells into override,

If you want all three wells running at the same time:

1. Put all three wells into override.

If you want to change the order the wells run in:

1. On SCADA, click **SETPOINTS**
2. Then click on **WELL SYSTEMS**
3. You can then select which well to be the **LEAD, LAG 1, and LAG 2**

If you want to take a well Out Of Service (**OOS**):

1. On SCADA, click **SETPOINTS**
2. Then click on **WELL SYSTEMS**
3. Click on **OOS** for the desired Well
4. Ensure to move the remaining Wells to **LEAD** and **LAG 1**
5. Ensure to adjust **Target Daily Volume** to meet daily demand

If you want to change the Target Daily Volume:

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 09	Title: Manual Operations	
Page: 2 of 2	Created: January 1, 2009	Revised: January 25, 2021

1. On SCADA, go to the desired Well and click **Setpoints**
2. Then click on **Well Systems**
3. Adjust the **Target Daily Volume** and click apply

If you want to shut the entire system down:

1. On SCADA, click **Setpoints**
2. Then click on **Well Systems**
3. Put each Well in **OOS**
4. Proceed to wells and turn all pumps to off, lock out and tag if required

Related Procedures:

- SOP 01 – Call-out Response
- SOP 17 – Switch to Alternate Well
- SOP 19 – System Shutdown
- SOP 20 – Valve Exercising

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 10	Title: pH Meter Calibration	
Page: 1 of 1	Created: January 1, 2009	Revised: January 18, 2018

Purpose:

Use this procedure to calibrate the pH Meter.

Procedure:

1. Rinse the PH probe in distilled water. Dry the end of the probe with paper towel.
2. Turn on the PH meter.
3. After the meter has gone through the start-up procedure press the "2nd" button. 2nd will appear on the screen.
4. Press the button that says "Cal", Cal will appear on the screen and P1 will be flashing.
5. Submerge the end of the probe in PH buffer 7, gently stir until the reading has stabilized.
6. Once the reading has stabilized adjust the reading to 7.00 using the up and down arrows, then press the "Cal" button. It will then flash P2.
7. Remove the probe from the buffer solution and rinse in distilled water. Dry the end of the probe with paper towel.
8. Submerge the end of the probe in PH buffer 4, gently stir until the reading has stabilized.
9. Once the reading has stabilized adjust the reading to 4.00 using the up and down arrows, then press the "Cal" button. The meter will then give you the slope and return to normal measuring mode.
10. Remove the probe from the buffer solution and rinsed in distilled water. Dry the end of the probe with paper towel.
11. Proceed with normal PH measuring.

Related Procedures:

None

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 11	Title: Public Communications - Water Conservation	
Page: 1 of 1	Created: January 1, 2009	Revised: January 18, 2018

Purpose:

Use this procedure when there is some concern that the Waterworks System may be unable to supply safe water in normal volumes. This may be initiated by low well water volumes, the loss of one well or other situations.

Procedure:

1. Create the appropriate documents. Such documents shall include newspaper advertisements, flyers, web site, social media or other documents. The widest possible coverage should be initiated. The Administrative Centre may be able to assist in the production of documents and other Southgate Township Departments can be enlisted to ensure full distribution.
2. In the case of newspaper advertising, provide the Administrative Centre with a copy of the ad as well as the frequency of publishing.
3. In the case of flyers, provide the Administrative Centre with a copy of the flyer and ask for an appropriate supply to post in all public buildings as well as retail outlets that have agreed to post such notices.
4. In the case of a web site posting and social media, provide the Administrative Centre with a copy of the web site posting.

Related Procedures:

None

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 12	Title: Reservoir Cleaning	
Page: 1 of 3	Created: January 1, 2009	Revised: January 31, 2024

Purpose:

Use this procedure when cleaning the reservoirs.

Procedure:

Reservoirs should be internally inspected every 3-5 years and cleaning maintenance based on inspection findings. The cleaning and disinfection of the reservoir will be carried out according to the ANSI/AWWA Standard C-652-02.

1. Take well out of service by logging onto SCADA, open desired well, click on **Setpoints**, then **Well Systems**. Click **OOS** for desired well and move remaining wells to **Lead** and **Lag 1** as desired. For the water tower, close the main valve in the tower to isolate it from the system. On SCADA, go to any well, click on **Setpoints** and then switch the system from **level mode**, to **pressure mode**.
2. Empty and drain the Reservoir.
3. Lock and tag out well pump and high lift pumps.
4. Set up tripod retrieval system.
5. Disinfect all equipment and rubber boots that will be entering the reservoir.
6. Monitor and record air quality measurements.
7. Pressure wash baffle curtains and walls down.
8. Start from the influent end and hose floor to high lift pump sump. Pump the waste material out of the sump area with a vacuum or trash pump.
9. Disinfection of the Reservoir will be carried out as stated in ANSI/AWWA Standard C-652-02 in Section 4.3.3 which is Chlorination Method 3:

Water and chlorine shall be added to the reservoir in amounts that the solution will initially contain 50 mg/L available chlorine and fill approximately 5% of the total storage volume. The following are the calculations for each well:

Well D3

Total Storage = 1365 m³

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 12	Title: Reservoir Cleaning	
Page: 2 of 3	Created: January 1, 2009	Revised: January 31, 2024

$$5\% = 68.25 \text{ m}^3$$

$$\text{Litres 12\% Hypo} = \frac{\text{mg/L} \times \text{m}^3}{123}$$

$$\text{L 12\% Hypo} = \frac{50 \times 68.25}{123} = \frac{3412.5}{123} = 27.5\text{L}$$

Well D4

$$\text{Total Storage} = 187.7 \text{ m}^3$$

$$5\% = 9.385\text{m}^3$$

$$\text{Litres 12\% Hypo} = \frac{\text{mg/L} \times \text{m}^3}{123}$$

$$\text{L 12\% Hypo} = \frac{50 \times 9.385}{123} = \frac{469.25}{123} = 3.8\text{L}$$

Well D5

$$\text{Total Storage} = 536 \text{ m}^3$$

$$5\% = 0.05 \times 536 = 26.8\text{m}^3$$

$$\text{Litres 12\% Hypo} = \frac{\text{mg/L} \times \text{m}^3}{123}$$

$$\text{L 12\% Hypo} = \frac{50 \times 26.8}{123} = \frac{1340.0}{123} = 10.9\text{L}$$

Water Tower

$$\text{Total Storage} = 3999 \text{ m}^3$$

$$5\% = 0.05 \times 3999 = 199.95 \text{ m}^3$$

$$\text{Litres 12\% Hypo} = \frac{\text{mg/L} \times \text{m}^3}{123}$$

$$\text{L 12\% Hypo} = \frac{50 \times 199.95}{123} = \frac{9997.5}{123} = 81.3\text{L}$$

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 12	Title: Reservoir Cleaning	
Page: 3 of 3	Created: January 1, 2009	Revised: January 31, 2024

1. This solution will be held for a period not less than 6 hrs.
2. Fill the reservoir to overflow with potable water.
3. It shall be held for a period not less than 24 hrs.
4. All highly chlorinated water shall then be purged from the drain piping.
5. After chlorination procedure is completed bacteriological sampling shall be dipped from the reservoir for E-coli, Total Coliform and H.P.C. A second set of samples will then be taken 24 hrs apart and submitted to the Lab.
6. When verification of two consecutive acceptable samples are received, the reservoir may be put back into service.

Related Procedures:

EOP 01 – Adverse Water

EOP 02 – Confined Space Rescue

SOP 07 – Lock-out and Tag-out

SOP 26 – Well D3 Reservoir and Water Tower Diving and Remote Camera Inspection

SOP 32 – Climbing D3 Elevated Storage Reservoir and Water Tower

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 13	Title: Reset Well Pump D4	
Page: 1 of 1	Created: January 1, 2009	Revised: January 18, 2018

Purpose:

Use this procedure when it is necessary to reset Well Pump D4.

Procedure:

1. Shut off breaker switch to allow opening the MCC panel door.
2. Use High Voltage gloves (desk drawer) while performing this procedure.
3. With a pair of insulated pliers turn the main power back on.
4. On circuit board in the panel find the bottom red reset button.
5. Press and hold the reset button for 5 seconds to reinitialize the well pump startup circuit.
6. Shut the MCC panel door.
7. Start the well pump.
8. Check the parameters on the Moeller Redi-start panel by the following procedure:
 - Press "Menu"
 - Press "Quick Start"
 - Confirm the following values.
 - Enter – Motor FLA = 18A
 - Enter – Service Fact = 1.15
 - Enter – Ramp Time = 3 Seconds
 - Press "Menu" to exit
 - At main menu screen press "Motor Protection"
 - Confirm the following value.
 - Enter – Line Frequency = 72H

Related Procedures:

None

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 14	Title: Residential Flushing	
Page: 1 of 1	Created: January 1, 2009	Revised: January 18, 2018

Purpose:

Use this procedure when it is necessary to flush parts of the residential distribution system.

Procedure:

Follow Standard M17 of the American Water Works Association. A copy of this document is kept at each well.

Related Procedures:

None

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 15	Title: SCADA	
Page: 1 of 1	Created: January 1, 2009	Revised: January 18, 2018

Purpose:

Use this procedure when using the SCADA software.

Procedure:

Follow the SCADA manual. There is a copy at the SCADA Work Station office.

Related Procedures:

None

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 16	Title: Super Chlorinate and Flush	
Page: 1 of 1	Created: January 1, 2009	Revised: March 4, 2022

Purpose:

Use this procedure when it is necessary to super chlorinate and flush any part of the water system. Some examples of when to use this procedure are: when commissioning a new water main and when disinfecting a reservoir after cleaning or maintenance.

Procedure:

Follow the American Water Works Association Standards C651-14 Disinfecting Water Mains and C652-11 Disinfection of Water Storage Facilities. Also follow the MECP Water Main Disinfection Procedure.

Related Procedures:

- SOP 06 – Isolate and Flush
- SOP 12 – Reservoir Cleaning
- SRP 06 – Water Main Breaks

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 17	Title: Switch to Alternate Well	
Page: 1 of 1	Created: January 1, 2009	Revised: January 25, 2021

Purpose:

Use this procedure when wanting or needing to shut one well down and have another well take over.

Procedure:

Temporary or short-term situation

1. Log on to SCADA, go to a Well that you want to run
2. Go to **Setpoints**
3. Go to **Well Systems**
4. Enable override for the desired well

Long term situation (a day or longer)

1. Log on to SCADA, go to the Well that you are switching from
2. Go to **Setpoints**
3. Go to **Well Systems**
4. Place the desired Well to **OOS (Out Of Service)**
5. Move the remaining Wells to **Lead** and **Lag 1**
6. Adjust the Daily flow targets, if necessary
7. If necessary, go to site and shut high lift pumps and well pump off.
8. If necessary, Lock-out and Tag-out pumps.

Related Procedures:

- SOP 01 – Call-out Response
- SOP 07 – Lock-out & Tag-out
- SOP 09 – Manual Operations
- SOP 20 – Valve Exercising
- EOP 01 – Adverse Water

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 18	Title: Switch to Standby Chlorinator	
Page: 1 of 1	Created: January 1, 2009	Revised: January 25, 2021

Purpose:

Use this procedure when it is necessary to switch to the backup chlorinator. Backup chlorinators and spare parts are kept at each well.

Procedure:

1. To switch the standby chlorinator, log into SCADA
2. Go to the desired Well
3. Go to **Setpoints**
4. Go to **CFP Controls**
5. Locate the standby pump and click **Duty**, the current duty pump will automatically switch to Standby.
6. If wanting the pumps to keep rotating, ensure it is in **Auto** mode
7. If wanting just one of the pumps to run, ensure it is in **Manual** mode, this will stop the pumps from rotating

Related Procedures:

- Manufacture manuals
- SOP 01 – Call-out Response
- SRP 02 – Chlorination Pumps

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 19	Title: System Shutdown	
Page: 1 of 1	Created: January 1, 2009	Revised: January 31, 2024

Purpose:

Use this procedure when it is necessary to shut down all wells and the water tower.

Procedure:

Proceed to each well site and do the following:

1. Turn high lift pumps off and lock-out and tag-out
2. Turn well pump off and lock-out and tag-out
3. Disarm the dialer
4. Log in to SCADA
5. Go to **Setpoints**
6. Go to **Well Controls**
7. Put each site into **OOS (Out of Service)**
8. Close the main valve in the water tower

Related Procedures:

SOP 07 – Lock-out & Tag-out

EOP 01 – Adverse Water

EOP 03 – Public Communication - Emergency

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 20	Title: Valve Exercising	
Page: 1 of 2	Created: January 1, 2009	Revised: January 25, 2021

Purpose:

Use this procedure for the annual inspection of all water shut-offs and valves.

Procedure:

1. Inventory all shut-offs and valves each year in the distribution system for additions.
2. On a distribution map, assign a number to each valve in the system. The same number as the year before unless it is a new valve. Note the valves that are EOL (End Of Line) and highlight to not be operated
3. Design a route which will allows to exercise a few valves and then flush a hydrant to remove any debris created from the exercising. Consider, which well is running, the direction of water flow, places that might be affected, (ie, schools), etc.
4. Prepare the vac trailer with pylons, cap remover, paint, flashlight, hand-held device, etc. Start the vac trailer and connect the hand-held to the trailer through the Bluetooth option.
5. Upon arrival at the valve to be exercised, set up pylons and other traffic control devices needed for safety.
6. Enter valve information if it is not already in the hand-held device. This information includes: Valve ID, size, normal position, close direction, condition, type, depth, street, cross street, notes, etc.
7. Open the valve, do a visual inspection with the flashlight. If there is debris, use the vacuum and water system on the trailer to clean out the valve casing
8. Insert the valve wrench on to the operating nut
9. Swing out the vac trailer arm, use the green but to allow it to move, insert the valve wrench in to the vac trailer arm
10. You are ready to exercise the valve, hit **Start** in the controller screen. The hand-held records GPS, date, start time, end time, turns, high torque, operated by, remarks.
11. Once the valve is operated, ensure the valve is in the original position, usually open, you might have to in **Jog LH** or **Jog RH**. When the valve is fully open, give it a quarter turn closed.
12. That valve is complete, pack up everything, leaving the traffic protection until the end. Move on to the next valve or hydrant for flushing.

Related Procedures:

Owners Manual

SOP 06 – Isolate and Flush

SOP 09 – Manual Operations

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 20	Title: Valve Exercising	
Page: 2 of 2	Created: January 1, 2009	Revised: January 25, 2021

SOP 17 – Switch to Alternate Well

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 21	Title: Water Sampling and Testing	
Page: 1 of 9	Created: January 1, 2009	Revised: October 5, 2022

Purpose:

Use this procedure on a regular basis for water quality sampling.

Procedure:

- A. Daily Requirements for all wells.
1. Check and record free chlorine residuals.
 - i. Treated water shall be sampled prior to discharge to the distribution at each well facility.
 - ii. Residuals at Municipal Wells D3, D4 and D5 shall be checked prior to discharge into the reservoir and prior to discharge from the reservoir prior to entering the distribution system.
 - iii. The free residual should be above 0.2 mg/L at all times. If the free residual is less than 0.25 mg/L at the well site or less than 0.2 mg/L in the distribution system, notify the Overall Responsible Operator for instructions on corrective action to be taken.
 - iv. If a free residual is less than 0.05 mg/L, the result is an adverse water quality indicator.
 - v. Record in the log book all corrective actions undertaken.
 - vi. If chlorine dose is increased or decreased, record the free chlorine result before and after the feed rate was changed and ensure that the log book indicates a chlorine feed rate adjustment.
 2. Check and record turbidity.
 - i. Turbidity should be less than 1.0 NTU at all times.
 - ii. If turbidity levels are above 0.6 NTU, notify the Overall Responsible Operator for instructions on corrective action to be taken. A turbidity of more than 1.0 NTU at the well is an adverse water quality indicator.
 - iii. Record in the log book all corrective actions undertaken.
 3. Check and record water meter readings and calculate volume of water pumped from the well pump discharge and the high lift pump discharge.
 4. Check and record volume of sodium hypochlorite consumed, dosage and feed rate.
 5. All daily record sheets shall include date, start time, completion time of testing, Operator's name and signature. A visitors log must be signed by all internal and external staff that visit that well.
 6. Record when samples are taken for analysis, all process adjustments (chlorine dosing, flow rates and calibration) and maintenance activities

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 21	Title: Water Sampling and Testing	
Page: 2 of 9	Created: January 1, 2009	Revised: October 5, 2022

(diesel generator testing, flow meter calibration and pump maintenance) in the Well Log Book.

7. Check and record well water level, reservoir level, flow rate per minute, system pressure, pH, water temperature and pump hours from each municipal well to assess impact on well interference with other municipal and private wells. The permitted flow rate for each well pump is stated in the Municipal Drinking Water License # 110-101.
- B. Special Daily Requirements for Individual Wells
1. Well D3 and D4 check and record Reservoir Level from the Milltronics System on a daily basis.
 2. Well D3 ultra violet dosage and transmittance levels recorded.
- C. Weekly Requirements for Individual Wells
1. Check all items on the Weekly Property and Security Checklist.
- D. Twice per month requirements for Individual Wells
1. Test and inspect backup generator systems at Well D3 and D4.
- E. Yearly Requirements for All Wells
1. Calibrate all flow meters and hand-held analyzers annually.
- F. Other Requirements for All Wells
1. Recalibrate continuous water quality analyzers and indicators with alarm systems as specified by the manufacturer's instructions or at minimum intervals which ensure operation during at least 95% of plant operating time within the quality control band limits for free chlorine residual analyzer quality control band: ± 0.1 mg/L and the portable turbidity analyzer quality control band: ± 0.1 NTU.
 2. Inspect, clean or disinfect reservoirs once every three to five (3-5) years in accordance with requirements set out in American Water Works Association Standard 0652-92 or latest edition. Notify and co-ordinate operation with Trim Trends when required at well D3.
- G. Water Quality Monitoring Requirements

The following monitoring program has been proposed in the Engineer's Report completed in May, 2001 and will require confirmation upon issuance of the Drinking Water License by the MOE.

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 21	Title: Water Sampling and Testing	
Page: 3 of 9	Created: January 1, 2009	Revised: October 5, 2022

Raw Water Monitoring General Requirements (All Wells)

Column A Parameter	Column B Testing Requirements
Microbiological including: a) Total Coliforms b) Escherichia coli (E. Coli) c) HPC	Minimum of one test completed once a week for a), b) and c) in column A for each well. Present/Absent testing is acceptable. However, a numerical testing result would be beneficial to assess the severity of the contamination.
Turbidity	Minimum of one grab sample once a month at each well.
Operation Sampling at the Request of Engineers or MOE	
Colour	Minimum of one grab sample once a year at each well.
pH	Minimum of one grab sample once a year at each well.
Conductivity	Minimum of one grab sample once a year at each well.
Hardness	Minimum of one grab sample once a year at each well.
Iron	Minimum of one grab sample once a year at each well.
Manganese	Minimum of one grab sample once a year at each well.
Chloride	Minimum of one grab sample once a year at each well.
Sodium	Minimum of one grab sample once a year at each well.
Sulphate	Minimum of one grab sample once a year at each well.
Nitrates	Minimum of one grab sample once a year at each well.
Nitrites	Minimum of one grab sample once a year at each well.
Organic Nitrogen	Minimum of one grab sample once a year at each well.
Total Kjeldahl Nitrogen	Minimum of one grab sample once a year at each well.
Alkalinity	Minimum of one grab sample once a year at each

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 21	Title: Water Sampling and Testing	
Page: 4 of 9	Created: January 1, 2009	Revised: October 5, 2022

	well.
Zinc	Minimum of one grab sample once a year at each well.
Lead	Minimum of one grab sample once a year at each well.
Dissolved Organic Carbon	Minimum of one grab sample once a year at each well.
Gross Alpha Scan	Minimum of one grab sample once a year at each well.
Gross Beta Scan	Minimum of one grab sample once a year at each well.

Raw Water Monitoring Additional Site Specific Requirements

Column A Parameter	Column B Testing Requirements
Well depth of monitoring wells	Well D4 on a Monthly basis.

Treated Water Monitoring General Requirements (All Wells)

All treated water samples to be taken from the point at which the treated water enters the distribution system.

Column A Parameter	Column B Testing Requirements
Turbidity	Minimum of one grab sample once a day at each well or continuous monitoring using in-line monitoring equipment.
Free Chlorine Residual	Minimum of one grab sample once a day at each well or continuous monitoring using in-line monitoring equipment. Testing equipment to have accuracy of +/- 0.1 mg/l.
Flouride	Minimum of one grab sample once every 5 years at each well.
Organics	Minimum of one grab sample every 3 year at each of the wells for all parameters listed in Schedule 24 attached.
Inorganics	Minimum of one grab sample every 3 years at each well for all parameters listed in Schedule 23.

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 21	Title: Water Sampling and Testing	
Page: 5 of 9	Created: January 1, 2009	Revised: October 5, 2022

Sodium	Minimum of one grab sample every year (12 months) at each of the wells.
Nitrates	Minimum of one grab sample every quarter (3 months) at each well.
Nitrites	Minimum of one grab sample every quarter (3 months) at each well.
Radionuclides	Minimum of one grab sample every year (12 months) at each well.

Water Storage Reservoir

Column A Parameter	Column B Testing Requirements
Turbidity	Minimum of 1 grab sample a day at the reservoir outlet in the well or by using continuous in-line monitoring equipment
Free Chlorine Residual	Minimum of one grab sample daily at each well and continuous using in-line monitoring equipment. Testing equipment to have accuracy of +/- 0.1 mg/l.

Distribution System Monitoring

Column A Parameter	Column B Testing Requirements
Microbiological including: a) Total Coliforms b) Escherichia coli (E. Coil) c) HPC	Minimum of 10 samples per month for a) and b) in column A taken at points significantly beyond the point at which treated water enters the distribution system with all the samples collected must be analyzed for heterotrophic plate count or background. 10 samples per month analyzed for heterotrophic plate count Present/Absent testing is acceptable.
Turbidity	Minimum of 10 grab sample a month in the distribution system.
Free Chlorine Residual	Sampling frequency is one sample daily and also at locations where samples are collected at the same time and locations as the samples sent to the lab for testing for microbiological parameters are taken.
Trihalomethanes	One grab sample every quarter (3 months) taken at points significantly beyond the point at which

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 21	Title: Water Sampling and Testing	
Page: 6 of 9	Created: January 1, 2009	Revised: October 5, 2022

	treated water enters the distribution system.
Haloacetic Acids	One grab sample every quarter (3 months) taken at points that have the least residence time in the water main from the sources.
Lead	As per Reg 170/03 Schedule 15

When increased chlorine dosing at the well heads is required to consistently meet a free chlorine residual of 0.2 mg/L in the distribution system, the potential for increased chlorine by-product formation may increase. It is recommended that testing for trihalomethanes be completed weekly for one (1) month immediately following a substantial chlorine dose increase and reduced to monthly for five (5) months thereafter.

Distribution Sampling Protocol (Weekly)

The purpose of the protocol is to sample all areas of the Dundalk Waterworks System by focusing on large institution buildings, public facilities and dead ends on a rotating monthly basis. Each week sample 4 locations in the distribution system.

Weekly Sampling

1. Run water at the sampling faucet location a minimum of 5 minutes. Select a test location that is not in a food preparation area, be sure it is a metal faucet that will withstand heat and preferably a tap without any threads.
2. Complete proper paperwork, bottle labeling and affix Drinking Water Regulation Sample label to each sample bottle.
3. Flame the faucet with a propane torch for 10 seconds.
4. Continue to run the water.
5. Complete Chlorine testing on the water sample for Free CL₂ Residual and record results on the Chain of Custody Form and on the Daily Water Testing Report Form.
6. Complete Turbidity testing on the water sample and record results on the Daily Water Testing Report Form.
7. Remove the sample bottle cap with care not to touch the top of the bottle or the inside of the cap area.
8. Fill the sample bottle to the fill line on the side of the bottle and recap the sample.
9. Complete specific bottle labeling with Location, Samplers Name, Time and Date of sampling.
10. Place sample bottle in cooler to protect water from extreme temperature change.

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 21	Title: Water Sampling and Testing	
Page: 7 of 9	Created: January 1, 2009	Revised: October 5, 2022

11. Record on the Chain of Custody Form time of sampling, date, location sampled and check analysis boxes for EC /TC & Background as well for all samples.
12. Repeat procedures until all sampling has been completed.
13. Once all samples are taken prepare cooler and complete paperwork (example attached) for shipping. Retain white copy of Chain of Custody Form and ship the rest of the copies with samples.
14. Retain all paperwork to attach with laboratory results when received.

Quarterly & Annual Sampling

1. Run water at the sampling faucet location a minimum of 5 minutes. Select a test location that is not in a food preparation area, be sure it is a metal faucet that will withstand heat and preferably a tap without any threads.
2. Complete proper paperwork, bottle labeling and affix Drinking Water Regulation Sample label to each sample bottle.
3. Flame the faucet with a propane torch for 10 seconds.
4. Continue to run the water.
5. Complete Chlorine testing on the water sample for Free CL₂ Residual and record results on the Labs Chain of Custody Form and on the Daily Water Testing Report Form.
6. Complete Turbidity testing on the water sample and record results on the Daily Water Testing Report.
7. Remove the sample bottle cap with care not to touch the top of the bottle or the inside of the cap area.
8. Fill the sample bottle to the fill line on the side of the bottle and recap the sample.
9. Complete specific bottle labeling with Location, Samplers Name, Time and Date of sampling.
10. Place sample bottle in cooler to protect water from extreme temperature change.
11. Record on Lab sheets the information regarding each specific parameter below:
 - Trihalomethanes — Sampled Quarterly (3 months) Max residence time
 - Haloacetic Acids – Sampled Quarterly (3 months) Min residence time
 - Lead—Yearly

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 21	Title: Water Sampling and Testing	
Page: 8 of 9	Created: January 1, 2009	Revised: October 5, 2022

12. Record on the Chain of Custody Form the time of sampling, date, location sampled and in the analysis requested boxes print the name of each of parameters sampled on the above list as required.
13. Repeat procedures until all sampling has been completed.
14. Once all samples are taken prepare cooler and complete paperwork (example attached) for shipping. Retain white copy of the Chain of Custody Form and ship the rest of the copies with samples.
15. Retain all paperwork to attach with laboratory results when received

Sampling Locations:

Institutional / Public Locations

- Proton Community School
- Highpoint Community School
- Dundalk Community Centre / Arena
- Highland Gas Bar
- Dundalk Town Hall
- Jug City
- Southgate Works Garage – Dundalk
- Victoria Apartments
- Highview Apartments
- Dunerie Apartments
- Esso on the Run
- Lystek
- Fire Hall
- Vanalstine Auto
- Braemore Sampling Station
- Medical Building
- Post Office
- Memorial Park
- Moody St Sampling Station
- Todd Crescent Sampling Station

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 21	Title: Water Sampling and Testing	
Page: 9 of 9	Created: January 1, 2009	Revised: October 5, 2022

- Doyle St Sampling Station
- Grey County Works Garage
- Home Hardware
- Library
- MacIntyre Building
- The Junction Restaurant
- Ridley Crescent Sampling Station
- Seeley Ave Sampling Station

Dead End Locations

- Industrial Subdivision
- Nixon Street
- Hagan Street
- Gold Street West
- Gold Street East
- Rowes Lane
- Elm Street
- Doyle Street
- Bradley Street
- Pine Court
- McGregor Court
- Mill Street
- Braemore Street
- Eco Parkway

Related Prodecures:

SOP 25 - Well Inspections

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 22	Title: Well D3 Fire System Maintenance	
Page: 1 of 2	Created: January 1, 2009	Revised: January 18, 2018

Purpose:

Use this procedure when testing the Metal Systems fire protection system connected to well D3.

Procedure:

1. Notify Metal Systems at 519-923-2017 and the alarm system monitoring company. See Element 13 – Essential Supplies and Services of the Operational Plan for contact information.
2. Verify that the Fire Discharge Valve (clearly labeled) is in the open position.
3. Close the Fire Discharge Valve.
4. Slowly open the throttle valve and ensure that 100 psi. is maintained on the sprinkler system pressure gauge to avoid triggering the sprinkler system.
5. Open the cap on the cooling water discharge that is located outside of the building at the bottom of the piping between the system control panels.
6. De-energize Fire Pump # 1.
7. Between the Fire Pump Electrical Panel and the Fire Pump Diesel Panel is a valve labeled Line Pressure Drain and at the bottom of the piping is a drain plug. Unscrew this plug and open the valve to drop the pressure in the system. The loss of pressure starts the diesel generator.
8. Ensure that cooling water continues to discharge through the outlet pipe on the outside of the building.
9. If alarming, acknowledge the alarm by pushing the bell and horn silence button on the alarm control panel.
10. When testing of operations is complete, turn diesel generator off at the control panel.
11. Close the valve at the bottom of the pressure line and re-install the drain plug.
12. While depressing the "Stop" on the panel, re-energize Fire Pump # 1.
13. Open the Fire Discharge Valve.

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 22	Title: Well D3 Fire System Maintenance	
Page: 2 of 2	Created: January 1, 2009	Revised: January 18, 2018

14. Re-install the cap on the cooling system water discharge line outside the building.
15. Notify Metal Systems and the alarm system monitoring company that the system is back in normal operation.
16. Record activity in the Well Maintenance log.

Related Procedures:

None

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 23	Title: Well D3 Generator Maintenance	
Page: 1 of 1	Created: January 1, 2009	Revised: January 18, 2018

Purpose:

Use this procedure for maintenance of the generator at Well D3.

Procedure:

Follow the Onsite Energy manual. A copy is kept at the well.

Related Procedures:

None

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 24	Title: Well D4 Generator Maintenance	
Page: 1 of 1	Created: January 1, 2009	Revised: January 18, 2018

Purpose:

Use this procedure for maintenance of the generator at Well D4.

Procedure:

Follow the Genco generator manual. A copy is kept at the well.

Related Procedures:

None

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 25	Title: Well Inspections	
Page: 1 of 1	Created: January 1, 2009	Revised: January 18, 2018

Purpose:

Use this procedure for the regular inspection of production and monitoring wells.

Procedure:

Visual Inspection (monthly)

1. Ensure well cap is securely in place and gasket is present.
2. Ensure all connections and openings (electrical and piping) are sealed.
3. Ensure the well vent screen is in place and is not blocked.

Raw Water Quality

1. Sample raw water as per SOP 21 – Water Sampling and Testing
2. Check results of raw water quality tests as they become available.
3. Re-test raw water upon an adverse water result.
4. Implement EOP 01 – Adverse Water if two consecutive samples indicate adverse water.

Down Hole Well Inspection

1. Complete a videotaped (or other permanent visual record) inspection of the well and the well casing when the well pump is removed for maintenance or every ten years.

Related Procedures:

SOP 21 - Water Sampling and Testing

EOP 01 – Adverse Water

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 26	Title: Well D3 Reservoir and Water Tower Diving and Remote Camera Inspection	
Page: 1 of 1	Created: January 1, 2009	Revised: January 31, 2024

Purpose:

Use this procedure for diving and camera inspections of the reservoir at Well D3 and the water tower.

Procedure:

Disinfection procedures when conducting underwater inspection of water storage facilities will be carried out according to ANSI/AWWA Standard C-652-02

1. Lock and tag out well pump and high lift pumps.
2. Contractor will carry out diving and camera operations as specified in ANSI/AWWA Standard C-652-02.
3. After diving or camera work is completed bacteriological sampling shall be dipped from the reservoir or water tower and tested for E-coli, total Coliform and H.P.C. A second set of samples will then be taken 24 hrs apart and submitted to the Lab.
4. When verification of two consecutive acceptable samples are received, the reservoir or water tower may be put back in service.

Related Procedures:

SOP 07 - Lock-out Tag-out

SOP 12 - Reservoir Cleaning

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 28	Title: Confined Space Entry	
Page: 1 of 1	Created: January 1, 2009	Revised: January 18, 2018

Purpose:

Use this procedure when there is a confined space entry.

Procedure:

1. Review Confined Space Entry Plan in the Township of Southgate Occupational Health & Safety Policy.
2. If required, set up Traffic Protection as stated in Ontario Traffic Manual Book 7
3. Set up tripod or retrieval system and entrant put on body harness and personal protective equipment.
4. Sniffer test gas monitor and place into confined space opening.
5. Purge and ventilate area.
6. De-energize any possible energy using SOP 07 – Lock-out and Tag-out.
7. Attendant must fill out Confined Space Entry Permit and record and monitor atmospheric conditions, continually.
8. Entrant may enter when the atmospheric conditions are within the Ontario Regulation 632/05 guidelines, attached to the retrieval system.

Related Procedures:

SOP 07 - Lock out Tag out

SOP 29 - Traffic Protection Plan

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 29	Title: Traffic Protection Plan	
Page: 1 of 1	Created: January 1 2009	Revised: January 18, 2018

Purpose:

Use this procedure when traffic control and protection are required.

Procedure:

All traffic protection and control plans to be followed are laid out in the Ontario Traffic Manual Book 7.

A documented Traffic Protection Plan (TPP-14) is required to be filled out

Related Procedures:

None

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 30	Title: Property Lead Sampling Protocol	
Page: 1 of 4	Created: January 1, 2009	Revised: January 31, 2024

Purpose:

Use this procedure when conducting lead sampling at private, non-private or distribution locations. Follow OReg 170/03 Schedule 15.

Procedure:

1. Frequency of Sampling:

- Twice each year:
 - between December 15th to April 15th each year and between June 15th & October 15th each year.

2. Number of Sampling Locations Required each Collection Period:

- Private residences – 20 (reduced sampling requirements 10)
- Non-Private Locations – 2 (reduced sampling requirements 1)
- Distribution Locations – 4 (reduced sampling requirements 2)

Note: For reduced sampling to be implemented the following results are required by OReg 170/03 Schedule 15:

- Not more than 10% of the samples from plumbing systems exceed half of the standard (5ul per litre)
- No samples exceed the standard (10ul per litre)
- The results are maintained for 4 consecutive sampling periods.

Note: If doing the reduced sampling, you may be exempt from sampling private residences and non-private residences, if the following requirements are met as per OReg 170/03, Schedule 15:

- In each of two consecutive periods, not more than 10 per cent of all the samples from plumbing taken from private or non-private locations that were tested for lead exceed the standard prescribed for lead.
- When the requirements for taking samples from private and non-private locations cease to apply, the owner of the drinking water system and the operating authority for the system shall ensure that samples are taken in the distribution system and tested as below:
 - To test for total alkalinity and for pH during each of the periods, winter and summer, in every 12-month period; and
 - To test for lead during each of the periods, winter and summer, in every third 12-month period.

Note: For the samples taken in the distribution system:

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 30	Title: Property Lead Sampling Protocol	
Page: 2 of 4	Created: January 1, 2009	Revised: January 31, 2024

- Alkalinity sample bottles must have no preservative in them.
- Lead sample bottles may have a Nitric Acid (HNO₃) preservative.

3. Sampling Procedures/Protocol at Residential & Non-residential Properties:

- Sampling location at a faucet in the plumbing where human consumption occurs most frequently with tap aerators in place and treatment equipment & filters bypassed or removed.
- Sampling preparation requires the plumbing system to be flushed for a period of 5 minutes.
- Water must then remain in the plumbing system with no flow in the building for > 30 and < 35 minute period.
- The 3 samples are then taken one after the other without delays at a normal tap flow rate without splashing loss
- The first 2 samples taken are in 1 litre bottles for lead testing at the lab.
- A 3rd sample is required for pH testing by the operator.
- The lab results for lead from the 2 samples taken at the same location must be recorded at the higher of the two results and the lower is not considered or recorded.

4. Sampling Procedures/Protocol in the Distribution System:

- Flush the sample location to ensure a good fresh representative distribution sample.
- Immediately after flushing take the first one litre sample for lead, the second one litre sample for alkalinity testing and the third sample for pH testing locally.

5. Designated Facilities (Schools, Daycares, Senior's Facilities, etc.)

- Lead testing is regulated under Ontario Regulation 243/07
- Those facilities are required to complete sampling for lab testing.
- Municipalities may test at these locations as well.

6. Reporting Requirements of Results taken from Residential and Non-Residential Plumbing Systems:

- The Waterworks Operating Authority and/or Waterworks Owner must ensure that once a lab report on lead sample is received whether under or over the limit that within 7 days a report must be provided to the occupant of the property that includes the following information:

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 30	Title: Property Lead Sampling Protocol	
Page: 3 of 4	Created: January 1, 2009	Revised: January 31, 2024

- A copy of the Lab report
- A statement of whether the report exceeds the Ontario lead standard
- Advice from the Medical Officer of Health on steps the occupant should take.
- A telephone number of a person who is available to answer questions.

7. Reporting Requirements if a Sample Exceeds the Provincial Standard:

- Provide a written report within 24 hours to:
 - Medical Officer of Health
 - Spills Action Centre
 - Designated Facility - the interested authority of the facility should be notified within is notified preferably within 24 hours or as soon as is reasonably possible.

8. Corrective Action Individual Properties:

- Corrective steps are as directed by the Medical Officer of Health.
- Operating Authority provides information to the occupant of the premises.

9. Corrective Action for Water Authorities with over 100 residences:

- Corrective action in the water system is required:
 - If 2 out of 3 sample periods testing for lead exceeds the Provincial Standard of 10 ul/litre in more than 10% of all plumbing
 - Or, if in the 2 periods mentioned above, the number of tested locations exceed the standard for lead is at least 2 samples.
- A corrosion control plan must be prepared & submitted to the Director within one year of the last day of the last sample period in question.
- The plan must be submitted in a form and manner approved by the Director
- The plan should include the following:
 - Analyze the potential for lead leaching into the water as a result of corrosion that occurs in the system's distribution or connected plumbing.
 - List & analyze possible measures to reduce the potential for lead leaching

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 30	Title: Property Lead Sampling Protocol	
Page: 4 of 4	Created: January 1, 2009	Revised: January 31, 2024

- Identify the preferred measure or measures
- Set out an implementation schedule
- A program for ongoing monitoring as to the effectiveness of the preferred measure or measures.

Related Procedures:

SOP 21 – Water Sampling and Testing

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 31	Title: Water Meter Installation /Change-Out	
Page: 1 of 1	Created: February 8 2010	Revised: January 18, 2018

Purpose:

Installation of Neptune E-coder 900i water meter

Procedure:

1. Turn main water control valve off.
2. Drain water piping.
3. Remove water spacer and replace with water meter, having the flow direction arrow in the direction of flow.
4. If needed to change the positioning of the radio read head, this can be done by knocking out the black pin. Turn head to desired location and insert new pin.
5. Tighten connections and pull tampering wire through the top of meter, then loop through inlet side of flange and secure tag
6. If meter is mounted horizontally, mount a ground clamp on the piping on each side of the meter and attach ground wire.
7. Open control valve and check for leaks.
8. Record meter information on water meter installation/change-out form #39.

Related Procedures:

None

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 32	Title: Climbing D3 Elevated Storage Reservoir and Water Tower	
Page: 1 of 1	Created: March 2, 2010	Revised: January 31, 2024

Purpose:

Use this procedure when climbing D3 elevated storage reservoir and Water Tower.

Procedure:

1. 2 personnel, buddy system, must be on site, 1 climber and 1 ground-safety staffer.
2. The climber will inspect and don proper fall-arrest equipment, including full body harness, lanyard and personal protection equipment.
3. Unlock the access panel door to the ladder, D3 only.
4. Attach rail-riding "slider" device into the D ring on the harness.
5. Maintain 3 points of contact while moving.
6. At the water tower, use the swinging seats to take a break from climbing as needed
7. Ensure all hatches are closed correctly and securely
8. The ground-safety staffer will have means to communicate to 911, if an emergency situation arises, and will remain on site.

Related Procedures:

None

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 33	Title: Well D4/D3/D5 Generator Start Up	
Page: 1 of 2	Created: September 24, 2013	Revised: March 4, 2022

Purpose:

To start up the Well D4/D3/D5 Generator

Procedure for D4:

1. Before testing the generator, check fluid levels and top up if necessary. Mark in the comments if fluids were adjusted.
2. Locate the "ASCO Transfer Control Center" to the left of the PLC
3. Open the panel door
4. Push the "Transfer Test" button to start the generator
5. Wait approximately 1 minute to make sure generator has started and is running. Then press the "Transfer Test" button again to transfer power to the generator. The generator is programmed to run for 20 minutes and then transfer power back to utility power automatically. It will then run for a 5 minute cool down period and shut off.
6. After the generator has ran over 10 minutes, put on ear muffs, get generator testing paper work and proceed outside to collect information from the generator. Record: date, test or power failure, engine hours (after generator has shut off), ambient temp, amps, volts, frequency, oil pressure, water temp, RPM.
7. If you want to transfer power back to utility power before the 20 minute run time is up, push the "Retransfer to Normal" button. Power will be transferred and the generator will run for a 5 minute cool down period and then shut off.

Procedure for D3:

1. Before testing generator, check fluid levels and top up if necessary. Mark in the comments if fluids were adjusted.
2. Locate the transfer switch located on the wall above the High Lift Pump Controls.
3. To start generator, press #3 (test), press #3 (XFR Load), enter access code 121212, press #3 (Load XFR). The generator will run for 15 minutes. If wanting to stop before 15 minutes, press #2 (cancel), press #4 (bypass) to return to normal. A 5 minute cool down will begin. Press #4 (bypass) to skip the cool down if needed. Press #2 (yes) to finish process

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 33	Title: Well D4/D3/D5 Generator Start Up	
Page: 2 of 2	Created: September 24, 2013	Revised: March 4, 2022

4. After the generator has ran over 10 minutes, put on ear muffs, get generator testing paper work and proceed outside to collect information from the generator. Record: date, test or power failure, engine hours (after generator has shut off), ambient temp, amps, volts, frequency, oil pressure, water temp, RPM.

Note: If the well pump is running at D3, shut it off while doing your generator testing. Then turn it back to auto after utility power is restored. This will save the UV's from cycling during the transfers of power.

Procedure for D5:

1. Before testing the generator, check fluid levels and top up if necessary. Mark in the comments if fluids were adjusted.
2. Locate the "ASCO Transfer Control Center" to the left of the PLC.
3. Turn the key to "Transfer Test"
4. The generator will start and automatically transfer power.
5. After the generator has run for approximately 10 minutes, put on hearing protection, get the generator testing paperwork and proceed outside to collect information from the generator.
Record: date, test or power failure, water temp, RPM.
6. Turn key back to "Retransfer Delay Bypass" after a short delay, power will automatically transfer back and the generator will begin a five minute cool down.

Related Procedures:

None

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 34	Title: Trojan Swift UV Maintenance	
Page: 1 of 1	Created: May 26, 2011	Revised: January 18, 2018

Purpose:

Use this procedure for regular testing and maintenance of the Ultra Violet (UV) equipment at well D3.

Procedure:

Follow the Trojan UV manual. A copy is kept at the well.

Silver Maintenance & Service package purchased from H2Flow.

Related Procedures:

None

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 35	Title: Trojan Optiview Maintenance	
Page: 1 of 1	Created: May 26, 2011	Revised: January 18, 2018

Purpose:

Use this procedure for regular testing and maintenance of the UV Optiview at well D3.

Procedure:

Follow the Optiview manual page #25. A copy is kept at the well.

Related Procedures:

None

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 36	Title: Measuring Wells	
Page: 1 of 2	Created: October 23, 2012	Revised: January 18, 2018

Purpose:

Use this procedure when performing the monthly task of measuring monitoring wells.

Procedure:

1. Copy form #32, "Well D4 Monthly Monitoring Report", from DWQMS.
2. Go to D4 and get the measuring device, allen key, $\frac{3}{4}$ wrench, paper towel, chlorine for disinfection. Note if D4 well pump is running or not.
3. Proceed to Abbott residence.
4. Disinfect the probe on the measuring device and wipe clean with paper towel.
5. Behind the house you will locate the well.
6. Remove top with allen keys
7. Insert the measuring device.
8. Slowly lower device with tone at a low level.
9. When you hear a fluctuation in the tone slowly wind it in. When tone stops completely that is the water level in the well.
10. Record the water level, time, operator and well on/off.
11. Remove measuring device and replace cap.
12. Proceed to Keating residence.
13. Disinfect the probe on the measuring device.
14. Using the $\frac{3}{4}$ wrench, remove lid.
15. Follow steps 7 to 11.
16. Proceed to D4 monitoring well, behind building.
17. Disinfect probe on the measuring device.
18. Using gate key remove lid.
19. Follow steps 7 to 11.

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 36	Title: Measuring Wells	
Page: 2 of 2	Created: October 23, 2012	Revised: January 18, 2018

20. Proceed inside the building and from the displays reading "Deep well #1" and "Deep well #2", minus these numbers from 48.5. Record the result, time, operator and if D4 was running or not.

Related Procedures:

None

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 37	Title: Frozen Water Services	
Page: 1 of 3	Created: January 18, 2016	Revised: January 18, 2018

Purpose:

To prevent and react to frozen water services.

Notices:

The Township of Southgate has a list of addresses that are prone to frozen water lines. These addresses will receive a letter to run their cold water faucets when the Township's staff decide that the threat of frozen services approaching. In the case where extreme cold is threatening other areas and possibly the entire village of Dundalk residents will receive a letter delivered to their door advising them to continuously run their cold water faucet. In this case EOP # 03 Public Communications will come into effect immediately.

Procedure:

Received a call of no water:

1. Get the customers information: name, address, phone number, etc.
2. Fill out Form # 50 – Water Frozen Locations Form
3. Advise the customer to place a heater on the water pipes coming into the house.
4. Provide the customer with information to contact a plumber to investigate the situation. If the plumber can solve the problem and determines it is on the homeowner's property, the homeowner will be responsible to pay the plumber's bill. If the plumber solves the problem but determines that the problem was on the Township's property, the Township will pay the plumber's bill. If the plumber cannot solve the problem, Township staff will hook up a temporary service line from a neighbouring resident or hydrant if possible. They will dig at the property line (curb stop) to try to solve the issue, as time permits.

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 37	Title: Frozen Water Services	
Page: 2 of 3	Created: January 18, 2016	Revised: January 18, 2018

Installing Temporary Service:

From neighbouring resident:

1. Make contact with the neighbouring property owner to advise them of the situation and the plan for the temporary water service to their neighbour.
2. Install hoses from hose bib to hose bib and insulate with snow or straw.
3. Turn water on and check for leaks.
4. Advise resident to run a cold water faucet so that the hose does not freeze. (It will be at the customer's expense if Township staff have to thaw the hose due to the customer shutting off of their tap. A data logger may be conducted to help determine if a tap was shut off.)

From fire hydrant:

1. Remove hydrant cap and install a backflow preventer.
2. Run 2" temporary water main from the hydrant to the desired location.
3. Slowly turn the hydrant on to fill the temporary water main.
4. Check for leaks.
5. Flush the temporary water main through the hose bib.
6. Connect the temporary water main to the customer's hose bib.
7. Turn water on and check for leaks.
8. Advise customer to run a cold water faucet so that the hose does not freeze. (It will be at customer's expense if Township staff have to thaw the hose due to the shutting off of their tap.)

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 37	Title: Frozen Water Services	
Page: 3 of 3	Created: January 18, 2016	Revised: January 18, 2018

Digging at Property Line (curb stop)

1. Locate curb stop.
2. Call for locates.
3. Arrange for back hoe or vac truck.
4. Excavate curb stop.
5. Remove the service line from the homeowner's side of the curb stop.
6. Connect the Magikist thawing machine to the curb stop.
7. Use the Magikist thawing machine to thaw the line.
8. Reconnect all water lines.
9. Turn water on and check for leaks.
10. Check the flow inside the house.
11. Flush lines and test for free chlorine.
12. Advise customer to keep a cold faucet running until further notice.
13. Backfill and barricade if necessary.

Related Procedures:

SOP # 14 Residential Flushing

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 38	Title: Daily Rounds	
Page: 1 of 6	Created: January 18, 2016	Revised; March 4, 2022

Purpose:

Use this procedure when performing the daily rounds for water.

Procedure:

Daily Report:

1. Retrieve the Well System Daily Report (usually on the printer).
2. Take note of any deviations of the set points. (The box will be shaded red)
3. Investigate and document the reason for the deviation
4. Sign and date the bottom of the form

Start up with SCADA:

1. Login to SCADA
2. Go to **Well 3**, then **Setpoints**, then **WP Control**, then hit **Start**. This will start the UV and well pump. The high lift pump should already be running.
3. Go to **Well 5**, then **Setpoints**, then **WP Control**, then hit **Start**. This will start the well pump.
4. Click on the **Lag** high lift pump. Switch to **Manual** and hit **Start**.
5. Proceed to Well 5 with the pocket colorimeter, turbidity kit and water binder.

Well D5:

1. Enter building and disarm security system
2. Sign in: Signature, name and time
3. On Form 64 – Daily Calculations Form, record the current readings on the distribution and raw flow meters. Also, the pump hours for the high lift pumps and the well pump. Subtract the corresponding numbers for the previous day, giving you the flow volumes and pump hours for the day.
4. On Form 64, subtract the current well level from 40.0. This will give you the well level. If the well pump is not running this will give you the static well level. Record the well level on the well pumping log. Insert "*" if it is the static level.
5. Get the temperatures and pH numbers off the analyzers and record on the PH, Temperature, Pressure and Analyzer Log.

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 38	Title: Daily Rounds	
Page: 2 of 6	Created: January 18, 2016	Revised; March 4, 2022

6. Record the current pressure on the PH, Temperature, Pressure and Analyzer Log.
7. Record the flow meter reading and the flow volumes on the corresponding log sheets.
8. Record the pump hours on the corresponding log sheets.
9. Add chlorine to the chlorine storage tank until the level in the tank is even with the bottom of the grey pipe. Take note of how much chlorine was added. Record amount on the Well Pumping Log and the Daily Water Report. Ensure to wear proper PPE.
10. Run the water from the distribution sampling point.
11. Get samples and test for free chlorine and turbidity. Take note of the reading on the chlorine analyzer. If the result of the sample taken and reading have a difference of more than 0.05, then adjust the analyzer to match the sample result.
12. Record the results on the Distribution Pumping Log and Daily Water Report.
13. Record the chlorine analyzer reading, before adjustment, on the PH, Temperature, Pressure and Analyzer Log.
14. Run the water from the well sampling point.
15. Repeat step 11, record results on the Well Pumping Log and Daily Water Report.
16. Fill out the Operations Maintenance Log with any activity performed that day. (ie. Adjusting analyzer, running trim pump, running generator, calibrating PH meter, security check, etc.)
17. Calculate dosage rate by taking the chlorine added, divided by the volume pumped and multiply by 120. Record on Daily Water Report and Well Pumping Log.
18. Ensure all paperwork is filled out.
19. Put all pumps back to normal operation modes. Chlorine pumps, high lift pumps and well pump.
20. Ensure the dialer is enabled.
21. Sign out: time.
22. Arm the security.
23. Exit the building, ensure the door is locked and closed.
24. Proceed to Well 3.

Well D3:

1. Enter building and disarm the security system.

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 38	Title: Daily Rounds	
Page: 3 of 6	Created: January 18, 2016	Revised; March 4, 2022

2. Sign in: name, signature, and time.
3. Go outside to the weather station and record the current, high and low temperatures for the day. Measure and record the precipitation. Reset the thermometer to record high and low for the next day.
4. On Form 64 – Daily Calculations Form, record the current readings on the distribution and raw flow meters. Also, the pump hours for the high lift pumps and the well pump. Subtract the corresponding numbers from the previous day, giving you the flow volumes and pump hours for the day.
5. On Form 64, subtract the current well level from 28.5. This will give you the well level. If the well pump is not running, this will give you the static well level. Record the well level on the well pumping log. Insert "*" if it is the static level
6. Record the flow meter reading and the flow volumes on the corresponding log sheets.
7. Record the pump hours on the corresponding log sheets.
8. Record the current pressure and PH, on the PH, Temperature, Pressure and Analyzer log.
9. Chlorine at D3 is added straight to the storage tank. Fill the tank to designated mark. Record the amount of chlorine used on the Well Pumping Log and Daily Water Report. Ensure to wear proper PPE.
10. Run the water from the distribution sampling point.
11. Get samples and test for free chlorine and turbidity. Take note of the reading on the chlorine analyzer. If the result of the sample taken and the reading have a difference of more than 0.05, then adjust the analyzer to match the sample result.
12. Record results on the Distribution Pumping Log and Daily Water Report.
13. Insert the digital thermometer to get the temperature of the water. Keep the thermometer in the stream of water until the reading stays constant. Record temperature on the PH, Temperature, Pressure and Analyzer Log.
14. Run the water from the well sampling point.
15. Repeat step 11. Record the results on the Well Pumping Log and Daily Water Report.

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 38	Title: Daily Rounds	
Page: 4 of 6	Created: January 18, 2016	Revised; March 4, 2022

16. Fill out the Operations Maintenance Log with any activity performed that day. (ie. Adjusting the analyzer, running trim pump, running generator, calibrating pH meter, security check, etc.)
17. Calculate dosage rate by taking the chlorine added, divided by the volume pumped and multiply by 120. Record on Daily Water Report and Well Pumping Log.
18. Fill out the Daily Water Report with the proper information.
19. Ensure all paperwork is filled out.
20. Put all pumps into normal operation mode.
21. On the Well 3 Scada, go to **Well 4**, then **Setpoints**, then **WP Control**, the hit **Start**. This will start the well pump.
22. Click on the **Lag** high lift pump. Switch it to **Manual** and hit **Start**.
23. Ensure the dialer is enabled.
24. Sign out: time.
25. Rearm the security system.
26. Exit building, ensure the door is closed and locked.
27. Proceed to Well 4.

Well D4:

1. Enter building and disarm the security system.
2. Sign in: name, signature and time.
3. On Form 64 – Daily Calculations Form record the current readings on the distribution and raw flow meters. Also the pump hours for the high lift pumps and the well pump. Subtract the corresponding numbers from the previous day, giving you the flow volumes and pump hours for the day.
4. On Form 64, subtract the current well level from 48.5. This will give you the well level. If the well pump is not running, this will give you the static well level. Record the well level on the well pumping log. Insert "*" if it is the static level.
5. Record the flow meter reading and the flow volumes on the corresponding log sheets.
6. Record the pump hours on the corresponding log sheets.
7. The chlorine at D4 is diluted with treated water at a ratio of 2 parts water : 1 part chlorine. Add chlorine and water to the storage tank at that ratio until it is at the designated mark on the tank. Record

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 38	Title: Daily Rounds	
Page: 5 of 6	Created: January 18, 2016	Revised; March 4, 2022

the amount of chlorine used on the Well Pumping Log and Daily Water Report. Ensure to wear all required PPE.

8. Run the water from the distribution sampling point.
9. Get samples and test for free chlorine and turbidity. Take note of the reading on the chlorine analyzer. If the result of the sample taken and the reading have a difference of more than 0.05, then adjust the analyzer to match the sample result.
10. Record results on the Distribution Pumping Log and Daily Water Report.
11. Record the chlorine analyzer reading, before adjustment, on the PH, Temperature, Pressure and Analyzer Log.
12. Insert the digital thermometer to get the temperature of the water. Keep the thermometer in the stream of water until the reading stays constant. Record temperature on the PH, Temperature, Pressure and Analyzer Log.
13. Grab a sample and check it for the PH level. Insert the probe into the sample and gently agitate until the reading remains constant. Record the result on the PH, Temperature, Pressure and Analyzer log.
14. Record the current pressure on the PH, Temperature, Pressure and Analyzer log.
15. Run the water from the well sampling point.
16. Repeat steps 9. Record the results on the Well Pumping Log and Daily Water Report.
17. Repeat steps 11, 12 and 13.
18. Fill out the Operations Maintenance Log with any activity performed that day. (ie. Adjusting the analyzer, running trim pump, running generator, calibrating ph meter, security check, etc.)
19. Calculate the dosage rate by taking the chlorine added, divided by the volume pumped and multiply by 120. Record on Daily Water Report and Well Pumping Log.
20. Fill out the Daily Water Report with the proper information.
21. Ensure all paperwork is filled out.
22. Put all pumps into normal operation mode.
23. Ensure the dialer is enabled.
24. Sign out: time.
25. Rearm the security system.

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 38	Title: Daily Rounds	
Page: 6 of 6	Created: January 18, 2016	Revised; March 4, 2022

26. Exit building, ensure the door is closed and locked.

Distribution Sample:

1. At least one sample per day, must be taken from somewhere in the distribution system and tested for free chlorine. There is a list of acceptable sampling locations on page 8 of SOP # 21.

Related Procedures:

SOP #9 Manual Operations

SOP # 10 PH Meter Calibration

SOP #21 Water Sampling and Testing

SOP # 48 Running the trim Re-chlor pump

SOP # 49 Adjusting and Calibration Chlorine Analyzers

SOP# 33 Well D4 / D3 / D5 Generator Start Up

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 39	Title: Customer Complaints	
Page: 1 of 3	Created: January 18, 2016	Revised: March 4, 2022

Purpose:

Use this procedure when receiving a customer complaint.

Procedure:

1. Retrieve form #20 Resident Comment Report.
2. Fill out form completely with as much information as possible.
3. Notify the appropriate people.
4. Investigate the complaint.
5. Try to solve the issue, ensure that the water is safe to consume.
6. Be polite and courteous to the customer.
7. If possible determine a root cause of the complaint.
8. Record all relevant information including, actions taken and possible cause of the complaint.
9. Fax or email the Resident Comment Report to the Public Works Manager for review.

Here are some questions that might help resolve the issue or give good info for further investigation. If it can be solved over the phone that is great. Make sure to still document. If not, do not hesitate to contact water department for troubleshooting or investigation.

Odour

1. Do you detect the odour in all facets in the house?

Yes – go to question 2

No – If it is a single faucet or a couple, it could possibly be the drain.

When water is run it stirs up the debris in the drain causing the release of odours. Have the person pour a cup of water, walk away from the sink and smell the cup of water. If no odour exists, they need to clean their drain. Disinfection and flushing can resolve this issue.

2. Is it both hot and cold water that have an odour?

Yes – go to question 3

No – if it is only hot water, their hot water tank could need to be disinfected and flushed.

3. Does the odour go away after running the tap for a few minutes?

Yes – if the odour goes away their internal plumbing could have some contamination.

No – go to question 4

4. What does it smell like?

Chlorine / bleach – suggest for drinking, to keep a jug of

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 39	Title: Customer Complaints	
Page: 2 of 3	Created: January 18, 2016	Revised: March 4, 2022

water in the fridge. This will allow for the smell to dissipate and solve the issue.

Anything else – document all the above information and contact the water department for further investigation

Low Pressure

1. Is the low pressure throughout the whole house or localized?

Localized – it is an internal problem, try your best to help

Whole house – could still be an internal problem but could potentially be something on the Township end.

Localized

1. Where is it localized too?
2. Is there an aerator on the faucet that needs to be cleaned?
3. Do you have a water softener? Have you tried bypassing it? If bypassing solves the issue, the softener needs to be serviced
4. Is there any possibility of a line being partially frozen? (only ask in winter months)
5. Is it possible of the line being built up with calcium?

Whole House

1. Do you have a water softener? Have you tried bypassing it? If bypassing solves the issue, the softener needs to be serviced
2. Have you ever had issues with freezing? (only ask in winter months)
3. Is it hot and cold water?

Hot only – could be an issue with hot water tank, internal issue

Discolored Water

This is most likely due to maintenance of the distribution system. Ie, hydrant flushing, valve exercising, hydrant flow testing, etc. Advise the person to run their cold water tap until water clears. Contact the water department to find out if the possible cause and follow up with the resident. Document incident.

Contact info:

Cory Henry	Lead Hand	519-270-6439	waterworks@southgate.ca
Jim Ellis	Public Works Manager	519-378-3777	jellis@southgate.ca
Lorne Fick	Operator	519-379-2585	
Grayson Hannivan	Operator	519-387-2625	
Adam Nicholls	Operator	226-668-2643	

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 39	Title: Customer Complaints	
Page: 3 of 3	Created: January 18, 2016	Revised: March 4, 2022

Related Procedures:

None

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 40	Title: Boil Water Advisory	
Page: 1 of 1	Created: January 18, 2016	Revised: January 18, 2018

Purpose:

Use this procedure when issuing a boil water advisory. EOP #3 Public Communication - Emergency will be implemented to advise the public as efficiently as possible. Possible causes of a boil water advisory are: Low pressure (<20psi), adverse water results, contamination of the system, an act of terrorism.

Procedure:

1. Immediately contact the appropriate personal and advise of the situation.
2. Initiate EOP # 3 Public Communication – Emergency with the details of the situation
3. Take any appropriate steps to improve the situation. ie. Flushing, sampling, repairs, etc.
4. Document any and all relevant information.
5. When appropriate actions have been taken and results are satisfactory to lift the boil water, use the radio, social media and any other means necessary to let the public know that the water is safe.

Related Procedures:

EOP #3

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 41	Title: Reading Water Meters	
Page: 1 of 2	Created: May 12, 2016	Revised: March 4, 2022

Purpose:

Use this when performing meter reading for billing or getting a read for a single meter. The Neptune 360 website can be used to look up meter information as well.

Procedure:

To perform any task in the field, two items are required. The belt clip and a device with the Neptune 360 mobile app downloaded on it. You can use a tablet or cell phone.

When collecting reads for billing:

1. Office staff will complete billing. A list of the meters that were missed can be downloaded. You must be connected to wifi to download the routes, and sync the reads after collecting them.
2. Turn on the belt clip by holding power button for 2 seconds. Let it start up, green lights indicate that it is ready.
3. Power on you tablet or phone and open the Neptune 360 Mobile app. Login = waterworks@southgate.ca Password = w1nJackpot
4. Open the menu in the top left corner. Click "Receiver". The belt clip ID number will appear (BC.....). Click on it to pair the devices. A blue light on the belt clip will appear when they are paired. The belt clip ID and battery power will be displayed on the bottom of the screen on you device.
5. On the main screen, click "Meter Reading".
6. Click on each route and assign it to your account.
7. Hit "Start" at the bottom of the screen.
8. Hit "Select", all routes should have check marks.
9. Hit "Work Routes", you can now select if you want to see "All, Missed or Captured".
10. Drive to each location with the belt clip and device. Allow a few minutes for the device to collect the read. If after several minutes a read is not collected, you can skip the meter. Click on the meter, click "skip read". Then scroll to "skip defective meter" and click it. When you back out to the main list you will hear a ping confirming the meter has been skipped.
11. After collecting or skipping all the meters on the list, go back to the office. Log onto Neptune 360 website and check that the meters skipped have not been sending reads or are defective. Verify information is correct if it is a new meter, meter ID specifically.

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 41	Title: Reading Water Meters	
Page: 2 of 2	Created: May 12, 2016	Revised: March 4, 2022

12. When all information has been confirmed, make sure the device is connected to wifi and hit "sync". There should be no devices left on the screen.
13. Exit all programs and power down devices.

When collecting a single meter reads

1. This will mostly be used only if a read can not be obtained from the Neptune 360 website or wanting to confirm website information.
2. Turn on the belt clip by holding power button for 2 seconds. Let it start up, green lights indicate that it is ready.
3. Power on you tablet or phone and open the Neptune 360 Mobile app. Login = waterworks@southgate.ca Password = w1nJackpot
4. Open the menu in the top left corner. Click "Receiver". The belt clip ID number will appear (BC.....). Click on it to pair the devices. A blue light on the belt clip will appear when they are paired. The belt clip ID and battery power will be displayed on the bottom of the screen on you device.
5. Drive to the desired address.
6. On the app main screen, click "RF Test".
7. Enter the meters remote ID and hit start, give the devices a few minutes to collect the read. If not reading after several minutes, the meter may be defective.

Related Procedures:

SOP 31 – Water Meter Installation/Change-Out

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 42	Title: Letter to Suppliers	
Page: 1 of 1	Created: November 18, 2016	Updated: March 4, 2022

Purpose:

Use this procedure to email letter to suppliers to ensure the quality of their product or service.

Procedure:

1. In January of each year email suppliers Form 57, Supplier Letter.
2. Print of Form 57, Supplier Letter
3. Date the letter
4. Scan the letter
5. Email the letter to the following suppliers:
 - a. Anchem (orders @anchemsales.com)
 - b. Cleartech (orders@cleartech.ca)
 - c. SGS Lakefield (Patti.Stark@sgs.com)
 - d. Evoqua (kelly.brett@evoqua.com, george.matsugu@evoqua.com)
 - e. Caduceon Environmental Lab (dlang@caduceonlabs.com)
 - f. Trojan Technologies (easterncan@trojantechnologies.com)
6. Keep a copy of the email and all replies in known location, so it can be easily available.
7. Request a delivery receipt from each supplier above.

Related Procedures:

None

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 43	Title: Public Communication – Temporary Water Disruption	
Page: 1 of 1	Created: August 15, 2017	Revised: January 18, 2018

Purpose:

Use this procedure to notify public of a temporary water disruption. The possible causes for water disruption could be: water main break repair, water service leak repair, water main replacement, water main valve repair or replacement, emergency situations.

Procedure:

1. Determine the cause of the temporary water disruption.
2. Determine the area that will be affected by the temporary water disruption.
3. Determine the approximate timeline of the temporary water disruption.
4. Determine if there are any high priority customers that should be notified immediately. (ie, schools, Hospitals, restaurants, etc.)
5. Complete form #57 with the above information.
6. Send a copy of a completed form #57 to the Water Administrative Assistant, to be posted on the Township of Southgate Website, and The Township of Southgate Facebook page.
7. Send a copy to the Arena Manager, to be posted on the message board.
8. Send a copy to the Librarian, to be posted on the message board.

If applicable:

1. Contact radio stations with the information on form #57.
 - Bayshore Broadcasting Phone: 519-376-2030
 Email: news@bayshorebroadcasting.ca
 - CKNX Radio Phone: 519-357-1310
 Email: news@cknradio.com
 - The Dock 92.3 Radio Phone: 519-470-6397
 Email: news@923thedock.com
2. Create a flyer with the information from form #57 to be distributed door to door in the affected area.

Related Procedures:

None

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 44	Title: Water Main / Service – Repair / Replacement / Installation	
Page: 1 of 3	Created: August 15, 2017	Revised: January 18, 2018

Purpose:

Use this procedure when performing a repair on a service line, replacing or installing an appurtenances or section of water main.

Planning:

1. Acquire locates
2. Acquire a trench number from the Ministry of Labour
3. Notify all possible affected customers
4. Arrange for excavation: back hoe, vac truck
5. Make a traffic control plan if work will affect traffic, notify emergency services if they are affected
6. Order all parts necessary
7. Ensure all tools necessary are available
8. Have required paperwork and forms ready
9. Know which valves will have to be isolated, and that they are working properly

Procedure:

1. Set up signage for traffic control
2. Cut asphalt
3. Excavate
4. Create an air gap between the bottom of the trench and the water main, maintain the air gap throughout the procedure
5. Install shoring
6. Isolate valves
7. Perform a test to ensure the pipe is isolated, such as opening a hydrant, checking residential plumbing. **Do not** remove bolts or cut pipe until this test is performed.
8. Disinfect all tools, parts and water main with a 1% sodium hypochlorite solution throughout the procedure
9. Perform the repair, replacement, or installation.
10. Once complete, if there is a possibility of air being trapped in the line, find a way to let it out before opening any valves. ie. fire hydrant, blow off, residential plumbing, etc.
11. Open the valve a couple of turns to begin filling the line with water, be patient, allow the line to slowly fill. Once the pipe is full and air has escaped,

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 44	Title: Water Main / Service – Repair / Replacement / Installation	
Page: 2 of 3	Created: August 15, 2017	Revised: January 18, 2018

- slowly open the valve the rest of the way. (No one should be in the trench while the pipe is filling)
12. Flush so that the water is flowing through the repair and out.
 13. Flush the line until water is clear and chlorine residual is satisfactory
 14. Once flushing is complete, check the repaired section for leaks
 15. If no leaks are present backfilling can begin, if leaks are present take action to eliminate all leaks, then begin backfilling
 16. Pack and tamp as required for sufficient compaction, especially in a road way
 17. Remove traffic control signage if it is safe to do so.
 18. Document all information required

Related Procedures:

SOP 06 Isolate and Flush

SOP 08 Low Pressure

SOP 21 Water Sampling and Testing

SOP 29 Traffic Control Plan

EOP 01 Adverse Water

Watermain Disinfection Procedure

Tools Required:

1. Shovel
2. Pick
3. Cut off saw
4. Cart saw
5. Strap
6. Ratchet Set
7. Valve Wrenches
8. Valve Cap Remover
9. Hydrant Flushing Equipment
10. Level
11. 1% Chlorine Solution
12. NSF Lube

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 44	Title: Water Main / Service – Repair / Replacement / Installation	
Page: 3 of 3	Created: August 15, 2017	Revised: January 18, 2018

- 13. Traffic Control Signs
- 14. Pylons
- 15. Pipe Scraper
- 16. Rags
- 17. Trash Pump and Hoses
- 18. Ladder
- 19. Gas detector

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 45	Title: UV Semi-Annual Maintenance Procedure	
Page: 1 of 3	Created: August 15, 2017	Revised: January 18, 2018

Purpose:

Use this procedure to perform 6 month maintenance on the UV units.

Procedure:

1. Shut off main power to the UVR, lock out and tag, so power can't be turned on accidentally
2. Drain the water from the UVR
3. Remove the cover from the UVR
4. Remove the motor and set on top of the UVR so it is out of the way
5. Remove both sensors from the UVR and put in a safe place, keep track of which is sensor 1, and which is sensor 2.
6. Remove both UV bulbs from the UVR and place in a safe place, keep track of which is bulb 1 and which is bulb 2
7. Remove the sensor gland plates
8. Remove the sleeves by pulling straight out, there will be some resistance pulling it through the wiper, place in a safe place
9. Remove the UV bulb outer gland plates
10. Remove the UV bulb sleeves by pulling straight out, there will be some resistance pulling through the wiper, place in a safe place
11. Clean all sleeves with a mild acidic solution, the rinse with water, inspect for cracks or breaks, keep the inside of the sleeve dry
12. Remove the UV bulb wiper collar by loosen the 2 bolts that are securing it. Then remove the sensor wiper collar by sliding it to the bigger opening while pressing the spring loaded pin, ensure not to drop the collar once it is free. Repeat for other side
13. With all the sleeves removed, manually cycle the yoke to the back of the UVR, make note of any spots that it is difficult to or has resistance, correct if possible, cycle the yoke back to the front of the UVR and align the "Home" sensor
14. Using a 3/4" wrench, remove the water level sensor, clean, rinse and reinstall
15. Remove rubber wipers from the collars using a flat head screwdriver. Inspect the rubbers wipers and bearings and replace if necessary (recommended to replace wipers and bearing yearly)
16. Clean the collars while the rubber wipers and bearing are removed, then reinstall or replace wipers and bearings
17. Using a Philips screwdriver, remove the cap plate and pressure membrane

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 45	Title: UV Semi-Annual Maintenance Procedure	
Page: 2 of 3	Created: August 15, 2017	Revised: January 18, 2018

18. Check for deterioration of the membrane and debris in the membrane chamber. Replace the membrane if damaged
19. Reassemble the membrane and cap plate
20. Reinstall sensor collar by inserting into larger hole and then sliding it into position while pressing the spring loaded pin, release pin to hold collar in place. It does have play when first installed.
21. Install the sensor sleeve, some ActiClean gel on the end of the sleeve will help get it started through the wiper. Look into the UV bulb opening to ensure the sleeve is in the sleeve holder at the back of the UVR, install the O-ring onto the sensor sleeve
22. Install the sensor collar and tighten the two bolts, the pressure membrane should be on the bottom
23. Install UV bulb sleeve, some Acticlean gel on the end of the sleeve will help get it started through the wiper, using a flash light, look down the sleeve and ensure it is in the sleeve holder
24. To recharge the collar with ActiClean gel, insert pump into the bottle of ActiClean gel. Attach the pump connection to the bottom nipple and the drain connection to the top nipple
25. Hand pump the gel into the collar. When the gel starts to come out of the drain connection at the top the collar is full. Ensure that the drain hose is free of air for at least two pumps
26. Remove the bottom hose(pump) first and then the top hose(drain). This will ensure that the wiper collar does not become pressurized
27. Repeat steps 12-24 for the other side
28. Reinstall sensor gland plate, ensure O-ring is present and in good condition, replace if necessary, tighten bolts in a crisscross pattern so the plate tightens evenly and doesn't apply too much pressure to one point of the sleeve
29. Reinstall the UV bulb inner gland plate, ensure the O-ring is present and in good condition, replace if necessary. Use the shorter bolts of the UVR cover to tighten it down. Tighten bolts in a crisscross pattern so the plate tightens evenly, remove short bolts
30. Install the O-ring onto the UV bulb sleeve, then install the outer gland plate, using the regular bolts, tighten in a crisscross pattern
31. Repeat steps 26-28 for the other side
32. Install both UV sensor in the correct sleeves, put some Di-electric grease into the electrical connection to prevent corrosion, then plug in and secure electrical connection

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 45	Title: UV Semi-Annual Maintenance Procedure	
Page: 3 of 3	Created: August 15, 2017	Revised: January 18, 2018

33. Install the UV bulbs into the correct sleeves, make sure they are aligned correctly, plug in and secure electrical connection.
34. Reinstall the UVR motor
35. When all maintenance is complete, before installing the UVR covers, manually open a valve to fill the UVR with water. Open drain valve to flush the remaining debris from UVR. Check for leaks. If no leaks are present, install UVR covers.
36. Turn the power on and clear any alarms.
37. Perform a manual wipe and listen for irregular noises.
38. Start the reactor and let run for 5 minutes to observe normal start up, operation and shut down procedures.

Tools Required:

Flat screw driver

Flash Light

3/16" Hex screwdriver

¼" Hex screwdriver

3/16" T handle Allen wrench

1/8" T handle Allen wrench

Related Procedures:

SOP 07 Lock-out and Tag-out

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 46	Title: UV Reference Sensor Check Procedure	
Page: 1 of 2	Created: August 15, 2017	Revised: January 18, 2018

Purpose:

Use this procedure when performing the monthly UV reference sensor check.

Procedure:

1. Disarm the dialer.
2. Remove cover and close the cover switch using vice grips.
3. Turn **Quick Start** on
4. Wait for UV to fully start.
5. Go to **Settings**
6. Go to **Controls**
7. Switch system control mode to **Manual**
8. Return to **Home** screen.
9. If manual power does not show 100%, change it so it does an push **Accept**
10. Enter lamps, and record lamp age.
11. Enter sensors, reset runtime days.
12. Press **Entry** to enter reference sensor procedure. (Note: if you do not switch system to manual, you will not be able to proceed).
13. UV will wipe 3 times.
14. Screen will appear that says, "reactor power level control", leave at 100%.
15. Hit **Next**
16. Record sensor 1 and 2 "Saved MA" reading.
17. Disconnect desired sensor.
18. Hit **Next**
19. Install UV reference sensor and connect.
20. Hit **Next**
21. Record "Present MA" reading.
22. Reinstall the removed sensor, lube the electrical connection with di-electric grease and connect.
23. Hit **Next**
24. Repeat steps 16 to 22 for the remaining sensor.
25. When both sensors are completed hit **Exit**
26. Hit **Done**
27. Go to **Settings**
28. Then **Controls**
29. Switch system control mode to **Auto**
30. Hit **Home**
31. Turn quick start off, wait for UV to fully cool.

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 46	Title: UV Reference Sensor Check Procedure	
Page: 2 of 2	Created: August 15, 2017	Revised: January 18, 2018

32. Turn quick start on and begin procedure on opposite UV unit.
33. When both UV units are completed and put back together, clear all alarms on the UV units, the PLC, rearm the dialer.

Related Procedures:

SOP 34 – Trojan Swift UV Maintenance

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 47	Title: D3 Diesel Pump Monthly Maintenance	
Page: 1 of 3	Created: May 15, 2018	Revised:

Purpose:

Use this procedure when performing the monthly maintenance on the diesel pump at D3.

Procedure:

1. Turn off alarm in plant. Disarm TYCO plant alarm located outside compressor in corner by pressing 1,2,3,4 on keypad. The red "ARMED" light will go out and the green "READY" light will come on.
2. Call TYCO alarm service to request the alarm system be placed on test for two hours, inform plant supervisor that the fire protection alarm is off, and that they should be on fire alertness. TYCO phone # 1-800-289-2647 ID Code 45182 and your name. System # H890380603
3. Enter the pump house and disarm the security system.
4. Sign in.
5. Turn on the exhaust fan.
6. Isolate the discharge valve by unlocking the chain and turning the handle clockwise until the indicator shows the valve to be closed. See picture # 1
7. Check oil level in the diesel motor, make sure it falls within the upper and lower level limits. See picture #2
8. Locate the log book, located on top of the red panel, and read the last entry to ensure that the hour meter reading corresponds to the recorded data. Record hour / motor start.
9. Put on you hearing protection and prepare for the diesel to start
10. Open the drain valve located on the left hand side of the red panel, water will drain out and the pressure on the gauge will drop, close the valve once the diesel starts. See picture #3
11. The diesel should start as well as the electric fire pump, you **must** turn the electric pump off by pressing and holding the red stop button the adjacent panel to the red panel. See picture #4
12. Turn off the audible alarm. See picture #5
13. With the diesel running, you shall wait 15 minutes before recording its vital signs, eg. Oil pressure, water temp, RPM, etc.

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 47	Title: D3 Diesel Pump Monthly Maintenance	
Page: 2 of 3	Created: May 15, 2018	Revised:

14. While the diesel is warming up, exit the building and observe that water is discharging out of the pipe on the south side of the building and that water is flowing through the diesel's cooling system, as it is a constant loss cooling system.
15. Check the diesel fuel level, if it is below 67% notify your supervisor.
16. With the diesel warmed up, record onto the log book oil pressure, water temp, RPM, water psi on both sides of diesel pump, suction / discharge, etc.
17. After 30 minutes approximately try to shut down the diesel on the hour meter 30 minute reading.
18. To stop the diesel, press the red button on the red panel. See picture #6
19. Recored the hour meter reading into the log book as well as all other information required, place log book back on top of red panel.
20. Open the discharge valve and chain and lock into the open position.
21. Turn off the exhaust fan
22. Sign out
23. Arm the security system
24. Exit the building
25. Make sure the water has stopped outside.
26. Call TYCO, 1-800-289-2647, ID code 45182 System # H890380603. Have the operator place the system back on, ask if all looks okay.
27. Inform the supervisor that fire protection has resumed
28. Turn on alarm system inside the plant. Return to TYCO keypad and key in 1,2,3,4. Green "Ready" light will go out. Red "Armed" light will go on.

Troubleshooting

1. If the diesel shuts down due to over temperature open valve to cool diesel and restart the diesel. See picture # 8

Dundalk Drinking Water System

Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 47	Title: D3 Diesel Pump Monthly Maintenance	
Page: 3 of 3	Created: May 15, 2018	Revised:

2. Note: When starting the diesel, observe which meter draws current by looking at the meters, the system should alternate between batteries during each start up
3. Normal operating temp is between 165 and 187 degrees
4. RPM 3200
5. If diesel shuts down due to over speed reset the solenoid and start again, if problem persists call The Pump Guy 1-877-599-7867
6. Metal Systems phone number: 519-923-2017

Picture # 1



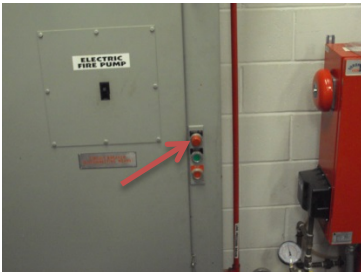
Picture # 2



Picture # 3



Picture # 4



Picture # 5



Picture # 6



Related Procedures:

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 48	Title: Running the trim Re-Chlor pump	
Page: 1 of 2	Created: January 18, 2019	Revised: March 4, 2022

Purpose:

Use this procedure when exercising the trim pump at Well 3, Well 4 and Well 5

Procedure:

To exercise the trim pump using SCADA:

1. Login to SCADA
2. Click on the desired well
3. Click on the re-chlor pump
4. Switch the pump from Auto to Manual
5. Start the pump and let run until the chlorine residual rises on the distribution analyzer.
6. Stop the pump and put back into Auto

To exercise the pump not using SCADA:

To put the pump from auto to manual mode:

1. Turn the switch from **ENABLE** to **DISABLE**
2. Hit **MENU**
3. Scroll to **SETUP** and hit **ENTER**
4. Scroll to **REMOTE STOP** and hit **ENTER**
5. It will say, disable remote stop, scroll to **YES** and hit **ENTER**
6. Scroll to **OPEN=RUN** and hit **ENTER**
7. Scroll to **MANUAL ONLY** and hit **ENTER**
8. Wait a few seconds until the screen changes and the scroll to **EXIT** and hit **ENTER**
9. Scroll to **EXIT** again and hit **ENTER**
10. Hit **START** to turn the pump on
11. Hit **STOP** to turn the pump to off

To put the pump for manual to auto mode:

1. If the pump is running hit **STOP**
2. Hit **MENU**

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 48	Title: Running the trim Re-Chlor pump	
Page: 2 of 2	Created: January 18, 2019	Revised: March 4, 2022

3. Scroll to **SETUP** and hit **ENTER**
4. Scroll to **REMOTE STOP** and hit **ENTER**
5. It will say, disable remote stop, scroll to **NO** and hit **ENTER**
6. Scroll to **OPEN=STOP** and hit **ENTER**
7. Wait a couple of seconds until the screen changes, then scroll to **EXIT** and hit **ENTER**
8. Scroll to **EXIT** again and hit **ENTER**
9. Now hit **ENTER** and then **START**
10. Turn the switch from **DISABLE** to **ENABLE**

Related Procedures:

None

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 49	Title: Adjusting and Calibrating the Chlorine Analyzers	
Page: 1 of 2	Created: January 18, 2019	Revised: January 18, 2019

Purpose:

Use this procedure when adjusting or calibrating the chlorine analyzers.

Legend:

- ☆ - **Acknowledge Alarm**
- - **Escape**
- △ - **Up Arrow**
- ▽ - **Down Arrow**
- F** - **Display next menu**
- E** - **Enter**

Procedure:

Chlorine Calibration:

Span Calibration

1. Press **F** key until "Calibration" is displayed
2. Press **down** key until "DIS Span" is reached
3. Press **enter**
4. Use the arrow keys to adjust to the desired number
5. Press **enter** to store the value
6. Press the **circle** key twice to return to the basic display

Zero Calibration:

1. Press **F** key until "Calibration" is displayed
2. Press **down** key until "CL2 zero" is displayed
3. Turn the flow of water to the analyzer off
4. Let sit until the reading becomes stable
5. Press the **enter** key twice to zero calibrate, the reading will display 0.00
6. Press the **circle** key twice to return to the basic display
7. Turn the flow of water to the analyzer on
8. Clear any alarms by hitting the star button

pH Calibration:

pH offset calibration: (When pH offset is greater than 0.15, perform a zero or span calibration)

1. Insert the probe into a known pH buffer solution and let the reading stabilize

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 49	Title: Adjusting and Calibrating the Chlorine Analyzers	
Page: 2 of 2	Created: January 18, 2019	Revised: January 18, 2019

2. Press the **F** key until "Calibration" is displayed
3. Press the **E** key
4. Press the **up** and **down** arrows until the offset value is the difference of the value displayed pH value compared to the manually measured value. (ie. For pH buffer 7, if the basic display reads 7.15, the offset value will be adjusted -0.15 because the value must come down from 7.15 to 7.00)
5. Press the **E** key to store the value
6. Press the **circle** key twice to return to the basic display

pH zero calibration:

1. Press the **F** key until "Calibration" is displayed
2. Press the **down** key until "pH zero" is displayed
3. Dip the probe into PH buffer solution and agitate lightly until the reading stabilizes
4. Press the **E** key
5. Use the **up** and **down** arrows until the displayed value agrees with the pH buffer solution
6. Press the **E** key to store the value
7. Press the **circle** key twice to return to the basic display

pH span calibration: (must used PH buffer solution 4 and/or 10)

1. Press the **F** key until "Calibration" is displayed
2. Press the **down** key until "pH span" is displayed
3. Dip the probe into PH buffer solution and agitate lightly until the reading stabilizes
4. Press the **E** key
5. Use the **up** and **down** arrows until the displayed value agrees with the pH buffer solution
6. Press the **E** key to store the value
7. Press the **circle** key twice to return to the basic display

Related Procedures:

None

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 50	Title: Vac-Trailer Disinfection	
Page: 1 of 1	Created: July 31, 2020	Created: July 31, 2020

Purpose:

Use this procedure when the vac-trailer is being used to work on the drinking water system.

Procedure:

1. Wipe the suction hose and nozzle, and pressure washer hose and nozzle to remove larger debris.
2. Spray these parts with a 1% Sodium Hypochlorite solution to disinfect them.

Related Procedures:

None.

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 51	Title: GPS Instructions	
Page: 1 of 3	Created: March 4, 2022	Revised: March 4, 2022

Purpose :

Use this procedure when wanting to use the GPS unit to mark or locate infrastructure.

Procedure:

This procedure is for use of the Trimble Catalyst unit.

1. Turn on patrol cell phone, unlock screen 0309. Go to settings, connections, turn on hotspot
2. Turn on the tablet (must be android) by pressing the power button
3. Swipe to unlock
4. Enter the password: password
5. Go to settings, connections, wifi, connect to the cell phone
6. Open the Trimble Mobile Manager app. If you need to log in: waterworks@southgate.ca, password: w1nJackpot
7. Plug the battery pack into the Catalyst antenna and turn the battery pack on, green light should come on
8. Plug the antenna into the tablet. Have the camera to the right so it is not in line with the pole
9. Allow access to the Trimble unit
10. In the home screen of the TMM (Trimble Mobile Manager) app, turn on the connection to the position source, it will start searching for satellites. Wait for desired accuracy.
11. Without closing TMM, open the "Field Maps" app. If you need to login: waterworks@southgate.ca, password: w1nJackpot.
12. In Field Maps, go to Southgate GPS offline areas, then select the current offline area.
13. You must work in an "offline area". You can add or remove "offline areas" by clicking the three dots on the right side of the "Southgate GPS" map icon. To create an "offline area" click the three dots, then click "add offline area". A map appears. At the bottom it says "level of detail" this gives you options to the size of area you want to create, it shows up as a white box. You can zoom and change the size of the box to cover the area you require and then hit download. This does not need to be done every time. If there is one existing, you can work from it.

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 51	Title: GPS Instructions	
Page: 2 of 3	Created: March 4, 2022	Revised: March 4, 2022

14. Use the icon with the three vertical lines at the bottom of the screen to switch back and forth between the two apps. Close all other apps. You must be connect to wifi to access your subscription. Open TMM, on the home screen you will see your subscription and time remaining on it. If needing to renew, speak to supervisor.
15. Start your subscription if desired. You are now ready to head out into the field and start collecting data. If you are on a monthly subscription it will automatically be activated.
16. **For best results**, we have found to keep the TMM app open until ready to mark your point. Then switch to Field Maps. Then switch back to TMM until you get to the next point.
17. Set the point of the pole on the object to be marked. Use the level on the pole to make sure it is straight. In the "Field Maps" app you can see the accuracy. When it is at the desired level hit the blue plus sign in the bottom right hand corner. A menu will pop up.
18. Click "Feature Type", select the item from the list. Ie. Main valve, curb stop, manhole, etc.
19. Add any "notes" if desired
20. Add an "ID: if desired
21. Click the checkmark to submit the point.
22. **For best results**, we have found that to keep low accuracy, it is best to mark several points, then go back and take the required photos. Click on the desired point, go to edit, click on "Take Photo", take a photo of the object. If the photo is good, click "OK" if not "retake". Then click the checkmark to submit the update.
23. When all work is completed, click the check mark in the top/right corner to submit the point. Points can be edited after submitting.
24. When marking is complete. Connect to wifi. Make any edits that you desire, such as adding ID numbers or notes. Then hit the sync button (two arrows in a circle). After a few minutes, when the syncing is complete, it will say "no pending edits" which means the sync was successful.
25. You can close all apps, power off devices and plug in to charge for next time. Ensure to turn the hotspot off on the cell phone

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 51	Title: GPS Instructions	
Page: 3 of 3	Created: March 4, 2022	Revised: March 4, 2022

Related Procedures:

None

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 52	Title: SCADA Laptop	
Page: 1 of 1	Created: March 4, 2022	Revised: March 4, 2022

Purpose :

Use this procedure to login and use the SCADA laptop.

Procedure:

1. Turn on the laptop
2. Login to the computer. User name: operator Password: Southgate
3. On the left side of the screen, go to "Open VPN GUI" and right click, select "run as administrator"
4. When asked "Do you want to allow this app to make changes to your device?" click "yes"
5. On the bottom right of the screen click the arrow and then the VPN (looks like a screen with a lock)
6. Sign in. Login: ddepot Password: Dundalk
7. The Scada screen should appear and you are able to use it as you would the other screens at the depot or the wells.
8. Use your login and password to do the work that is required
9. If needing to login to the SCADA computer, the login is: operator and the password is Southgate
10. Another login and password that would be used when needing to log in to the Microsoft user for the main SCADA computer is: login: Administrator Password : P@55w0rd (0 is zero)

Related Procedures:

- SOP 01 – Call-out Response
- SOP 09 – Manual Operations
- SOP 15 – SCADA
- SOP 19 – System Shutdown
- SOP 38 – Daily Rounds
- EOP 01 – Adverse Water

Dundalk Drinking Water System
Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Operating Procedure		
SOP #: 53	Title: Performing a Document Change	
Page: 1 of 1	Created: March 4, 2022	Revised: March 4, 2022

Purpose:

Use this procedure when performing a document change.

Procedure:

1. Request a document change using Form 9 – Document Change Request.
2. Submit the request to the QMS Rep.
3. If approved, follow the below steps. If rejected, the QMS Rep can complete the rejected Document Change Request and file accordingly.
4. The QMS Rep or Admin Assistant will log onto the I:drive to make changes.
5. A new version of the document being changed will be created. For example, if an SOP is being updated and currently has 3 versions, a fourth will be created by copying and pasting, then renaming.
6. On this new version, the changes can be made. If deleting, strikethrough the wanted word or words and change to red, ie. ~~deletions~~. If adding, show additions in red, without the strikethrough, ie. **additions**.
7. Once all deletions and additions have been complete, save and print the document. It will be attached to the Document Change request to show all changes made.
8. Next, create another version, ie Version 4.1 by copying, pasting and renaming version 4. Open the document and delete all items in red with the strikethrough and turn all additions in red, black. This will be the final copy for the changes.
9. When the final version is complete, save and print. This will also be attached to the Document Change Request to show the final version.
10. The Document Change Request form can be completed by the QMS Rep.
11. Form 10 – Document Change Request Log should be updated as well as the Document Change Revision History. If performing several document changes at the same time, the Document Change Revision History can be updated at the end with all changes.
12. Make 9 copies of the final document to be distributed.
13. Update CAPA if needed.

Standard Recovery Procedures

Procedure Name	Created Version
SRP 01 Alarm System	January 1, 2009
SRP 02 Chlorination Pumps	January 1, 2009
SRP 03 Chlorine Residual Analyzers	January 1, 2009
SRP 04 High Lift Pumps	January 1, 2009
SRP 05 Turbidity Meters	January 1, 2009
SRP 06 Water Main Breaks	January 1, 2009
SRP 07 Well Pumps	January 1, 2009

Dundalk Drinking Water System

Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Recovery Procedure		
SRP #: 01	Title: Alarm System	
Page: 1 of 1	Created: January 1, 2009	Revised: January 18, 2018

Purpose:

Use this procedure for maintenance, troubleshooting and repair of the alarm system.

Procedure:

Follow the Raco Verbation manual. A copy is kept at each well.

For additional support:

Supplier: Summa Engineering Phone: 905-678-3388

Service: H2O (Brian Melan) Phone: 519-581-6657

Related Procedures:

None

Dundalk Drinking Water System

Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Recovery Procedure		
SRP #: 02	Title: Chlorination Pumps	
Page: 1 of 1	Created: January 1, 2009	Revised: January 25, 2021

Purpose:

Use this procedure for maintenance, troubleshooting and repair of the chlorination pumps.

Procedure:

Well D3: Watson Marlow 520V

Well D4: Watson Marlow 520V

Well D5: Watson Marlow 520V

There is a spare pump at each well as well as repair parts.

Follow the US Filter manuals. A copy is kept at each well.

For additional support:

Supplier: Metcon

Dave Howes

Phone:

905-738-2355

Related Procedures:

None

Dundalk Drinking Water System

Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Recovery Procedure		
SRP #: 03	Title: Chlorine Residual Analyzers	
Page: 1 of 1	Created: January 1, 2009	Revised: January 18, 2018

Purpose:

Use this procedure for maintenance, troubleshooting and repair of the chlorine residual analyzers.

Procedure:

Depolox 3 Plus Residual Analyzer.

Follow the US Filter manuals. A copy is kept at each well.

Additional grit is kept at each well to support ongoing maintenance as well as a pH meter and Portable Chlorine Colorimeter to make calibration adjustments to the analyzer.

For additional support:

Supplier: US Filter - Wallace & Tiernan

Derek Proulx or Paul Dolan Phone: 905-944-2800

Related Procedures:

None

Dundalk Drinking Water System

Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Recovery Procedure		
SRP #: 04	Title: High Lift Pumps	
Page: 1 of 1	Created: January 1, 2009	Revised: January 25, 2021

Purpose:

Use this procedure when it is necessary to maintain or repair high lift pumps.

Procedure:

Well D3 – Maintenance Manual Volume #3 Section 11C Vertical Turbine High Lift Pumps

Well D4 –Maintenance Manual Volume #3 Section 11C Vertical Turbine High Lift Pumps

Well D5 - Maintenance Manual Volume #3 Section 11C Vertical Turbine High Lift Pumps

Follow the manufacturer's manual. A copy is kept at each well.

For additional support:

Electrical: D V Electric

Phone: 519-923-6220

Cell: 519-375-5824

Pumps: Interpump,

Phone: 800-265-9355

Home: 519-843-4232

International Pumps

Phone 519-843-4232

Related Procedures:

None

Dundalk Drinking Water System

Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Recovery Procedure		
SRP #: 05	Title: Turbidity Meters	
Page: 1 of 1	Created: January 1, 2009	Revised: January 25, 2021

Purpose:

Use this procedure for maintenance, troubleshooting and repair of the turbidity meter at Wells D3, D4, and D5.

Procedure:

US Filter TMS-561 On-Line Turbidity Meter

Follow the US Filter manuals. A copy is kept at the well.

For additional support:

Supplier: US Filter - Wallace & Tiernan

Derek Proulx or Paul Dolan Phone: 905-944-2800

Related Procedures:

None

Dundalk Drinking Water System

Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Recovery Procedure		
SRP #: 06	Title: Water Main Breaks	
Page: 1 of 4	Created: January 1, 2009	Revised: March 4, 2022

Purpose:

Use this procedure when there is a suspected or confirmed water main break.

Procedure:

1. Print off Form # 24, fill out during the process to ensure accurate information.
2. Call for emergency utility locates.
 - Locates- Ontario One Call - 800-400-2255 (Contractor identification #: 02346).
 - Hydro One Locates - 888-664-9376.
3. Notify Public Works Manager and Public Works Admin Assistant of information such as location, area affected, traffic control plan, road closure, etc
 - Public Works Manger, Jim Ellis, 519-378-3777, jellis@southgate.ca
 - Public Works Admin Assistant, Lisa Wilson, 519-923-2110 ext. 252, lwilson@southgate.ca
4. Arrange for a backhoe and gravel if necessary.
 - Glen Irwin - B & M – Phone: 519-923-2433 - Cell 519-372-5434
 - Jerry Jack - Eskerlee – Phone: 519-923-2194 – Cell: 519-373-7999
5. Locate valves to isolate break. Do not close valves completely so that positive pressure is maintained until an air gap is created to prevent contamination of the water main.
6. Contact Ministry of Labour for number - 800-265-2468 (Employer #: 12271). A trench notification can also be made online at <https://www.labour.gov.on.ca/english/hs/forms/>
7. Make a traffic control plan, closure of the road is the safest option if possible.
8. If closing a road is necessary, the following emergency services should be notified. The most efficient way is to send an email including OPP, EMS and Fire Chief.
 - Ontario Provincial Police, Central dispatch - 888-310-1122
 - Ontario Provincial Police, Chatsworth - 519-794-7827 opp.grey.bruce@opp.ca
 - E.M.S. - 519-379-4616 duty.supervisor@grey.ca
 - Dundalk Fire Department - 519-923-2402
 - Fire Chief– Cell: 519-373-1139 firechief@southgate.ca
9. If the road closure is on Grey Road # 9 notify Grey County Roads

Dundalk Drinking Water System

Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Recovery Procedure		
SRP #: 06	Title: Water Main Breaks	
Page: 2 of 4	Created: January 1, 2009	Revised: March 4, 2022

- Dispatch - Phone: 519-376-7337, press #1.
 - Foreman - Phone: 519-924-2630 Cell: 519-372-6227.
 - After hours - Patrol – Phone: 519-372-5438.
10. Excavate in accordance with Ministry of Labour regulations for trench excavations.
 11. Maintain positive pressure until an air gap is created between the main and trench/water.
 12. When the break is located and air gap created, disinfect pipe and repair clamp. Lube repair clamp and install.
 13. Backfill with A-gravel, ensure good compaction and support of the water main.
 14. Open a valve to allow water to flow through the repair and out a hydrant. Flush hydrant for 10 – 15 minutes and obtain a chlorine residual near typical for the area.
 15. The OIC should decide if there is any evidence or suspicion of contamination. No = Category 1, Yes = Category 2. **Take necessary steps (refer to below steps with Category 1 or Category 2).**

Steps for Watermain Break

1. Watermain break is detected
2. Maintain flow (if possible) and excavate to below break
3. OIC visually inspects excavated main to determine nature of break
4. Is contamination evident or suspected? No = Category 1, Yes = Category 2

Category 1

1. Notification to Ministry and local MOH is not required (unless MOH provides direction to do so).
2. Disinfect pipe and repair parts with minimum 1% sodium hypochlorite solution.
3. Install repair parts such that the watermain remains free of contaminants.
4. Conduct post-repair flushing through location of repair.
5. Continue to flush until at least 0.2 mg/L (free) or 1.0 mg/L (combined) chlorine residual is achieved
6. Return system to normal service
7. Document Repair

Category 2

1. Was contaminated water directed to users? **Yes** = immediately report as an observation of improper disinfection as per Section 16-4 of Schedule 16 of O. Reg. 170/03. Take corrective action as per Schedule 17 or 18 of O. Reg. 170/03.

Dundalk Drinking Water System

Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Recovery Procedure		
SRP #: 06	Title: Water Main Breaks	
Page: 3 of 4	Created: January 1, 2009	Revised: March 4, 2022

2. **No** – Is there evident or suspected sewage or chemical contamination? **Yes = Continue to Evident or suspected sewage or chemical contamination below.** **No** = Notification to local ministry office is not require for Category 2 main breaks (unless a BWA/DWA is issued by the local MOH).
3. Take additional steps to remove contaminants from watermain.
4. Disinfect pipe and repair parts with minimum 1% sodium hypochlorite solution.
5. Use additional disinfection procedures as appropriate.
6. Install repair parts such that the watermain remains free of contaminants.
7. Conduct post-repair flushing through location of repair.
8. Continue to flush until at least 0.2 mg/L (free) or 1.0 mg/L (combined) chlorine residual is achieved.
9. Take at least one microbiological sample.
10. Return system to normal service.
11. Document repair.

Evident or Suspected Sewage or Chemical Contamination

1. Special Case – Sewage or Chemical Contamination
2. Notify local Ministry office and MOH as soon as reasonably possible.
3. Develop and implement site-specific sampling/disinfection/decontamination plan.
4. If chemical contamination, finalize plan in agreement with the local ministry Office and MOH.
5. Complete corrective actions and sampling plan to the satisfaction of local Ministry office and MOH.
6. If sewage contamination, take minimum two sets of microbiological samples at least 24 hours apart.
7. Return system to normal service.
8. Document repair.

Related Procedures:

- SOP 04 – Hydrants
- SOP 06 – Isolate and Flush
- SOP 08 – Low Pressure
- SOP 16 – Super Chlorinate and Flush
- SOP 21 – Water Sampling and Testing
- SOP 29 – Traffic Control Plan
- SOP 40 – Boil Water Advisory

Dundalk Drinking Water System

Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Recovery Procedure		
SRP #: 06	Title: Water Main Breaks	
Page: 4 of 4	Created: January 1, 2009	Revised: March 4, 2022

EOP 01 – Adverse Water

Form 24 – Water Main Break Report

Dundalk Drinking Water System

Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Standard Recovery Procedure		
SRP #: 07	Title: Well Pumps	
Page: 1 of 1	Created: January 1, 2009	Revised: January 18, 2018

Purpose:

Use this procedure when it is necessary to maintain or repair well pumps.

Procedure:

Well D4 – Maintenance Manual Volume #3 Section 11E Goulds Submersible Well Pump

Follow the manufacturer's manual. A copy is kept at each well.

For additional support:

Electrical: DV Electric, Daryl Verbeek

Phone: 519-923-6220

Cell: 519-375-5824

Pumps: Interpump,

Phone: 800-265-9355

Home: 519-843-4232

Weitzel Pumps

Phone: 519-625 8825

Related Procedures:

None

Emergency Operating Procedures

Procedure Name	Created Version
EOP 01 Adverse Water	August 19, 2016
EOP 02 Confined Space Rescue	January 12, 2012
EOP 03 Public Communications – Emergency	January 1, 2009
EOP 04 Spill Contingency Plan	July 6, 2011
EOP 05 OnWARN Activation	Oct 29, 2013

Dundalk Drinking Water System

Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Emergency Operating Procedure		
EOP #: 01	Title: Adverse Water	
Page: 1 of 6	Created: January 1, 2009	Revised: January 31, 2023

Purpose:

Use this procedure when any of the following situations occur:

- Adverse water results
- Loss of Pressure
- Low Residual
- High Residual
- High Turbidity
- Total Coliforms
- Ecoli

Procedure:

In all cases, these situations require the following notifications:

- Bruce-Grey-Owen Sound Medical Officer of Health
- Ministry of Environment (Spills Action Centre)
- Public Works Manager
- Chief Administrative Officer
- Mayor and Council of Southgate Township

The Bruce-Grey-Owen Sound Medical Officer of Health (MOH) and the Ministry of Environment (MOE) Spills Action Centre must be notified immediately by speaking directly to a person or by telephone to a person and in writing within 24 hours of any and all adverse water quality results. A copy of the notification form for Adverse Water to be filed with MOH and MOE is in Appendix E: Forms.

Notice must be given if analysis of a water sample from the distribution system or a sample of treated water:

- a) shows that a parameter exceeds the Maximum Acceptable Concentration (MAC) or Interim Maximum Acceptable Concentration (IMAC) for the parameters listed in Schedule 2 (Chemical Standards) and Schedule 3 (Radiological Standards) of Ont. Regulation # 169/03.
- b) shows that a parameter that is identified in a Certificate of Approval or Ministry of Environment Order/Direction as a health-related parameter and that is not mentioned in section a) that exceeds the maximum acceptable concentration set out for that parameter in the Certificate of Approval or MOE Order/Direction.
- c) is an indicator of adverse water quality described in Schedule 1 (Microbiological Standards) of Ont. Regulation # 169/03.

This could result in:

Dundalk Drinking Water System

Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Emergency Operating Procedure		
EOP #: 01	Title: Adverse Water	
Page: 2 of 6	Created: January 1, 2009	Revised: January 31, 2023

1. Pre-cautionary boil water order
2. Boil water order
3. Do not use water order

Well Location Addresses:

Well D3 - 174 Victoria Street West (Industry Road)
Dundalk, ON NOC 1B0
Autodialer: 519-923-3483

Well D4 - 550 Main Street, East
Dundalk, ON NOC 1B0
Autodialer: 519-923-5150

Well D5 - 250 Hagan St East
Dundalk, ON NOC 1B0
Autodialer: 519-923-9198

Waterworks Numbers:

Dundalk Waterworks #220001753

Reporting phone numbers

Jim Ellis, Public Works Manager
or designate

Phone: 519-923-2110 ext. 250
Cell: 519-378-3777
Home: 519-924-0741

Medical Officer of Health

Phone: 800-263-3456
or 519-376-9420
Fax: 519-376-6310
After hours: 519-376-5420

Ministry of Environment
Spills Action Centre

Phone: 800-268-6060
or 416-325-3000
Fax: 800-268-6061
or 416-325-3011

Ministry of Environment
Owen Sound office

Phone: 519-371-2901
Fax: 519-371-2905

Dina Lundy, CAO

Phone: 519-923-2110 ext. 210
or 888-560-6607
Cell: 519-373-1305

Mayor Brian Milne

Cell: 519-3477-0781

Dundalk Drinking Water System

Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Emergency Operating Procedure		
EOP #: 01	Title: Adverse Water	
Page: 3 of 6	Created: January 1, 2009	Revised: January 31, 2023

If additional operator assistance is required, contact the following Township Staff:

Cory Henry	Cell:	519-270-6439
Lorne Fick	Cell:	519-379-2585
Grayson Hannivan	Home:	519-923-6518
	Cell:	519-379-0119
Adam Nicholls	Cell:	519-379-0154
Zach Hull	Cell:	1-519-216-9386

Other Well Support Personnel

Engineers: Oz DeCarlo - Triton Engineering

Phone: 519-843-3920

Cell: 519-766-5147

Dustin Lyttle Triton Engineering

Cell: 519-362-7649

Well Pump & High Lift

Service: Interpump

Phone: 519-843-4232

or 800-265-9355

or residence 519-843-2810

Plumbing

Support: Chris Soloman Soloman Plumbing Inc

Cell: 519-216-2780

Brian Mainland - H2Ontario

Phone: 519-662-1134

Cell: 519-897-1274

Electrician: Daryl Verbeek DV Electric

Phone: 519-923-6220

Cell: 519-375-5824

PLC Peter Chung - Selog (Oakville)

Phone: 905-608-9737

Cell: 647-271-0616

SCADA Sasikumar Paramasivam Summa

Cell: 416-970-9787

Email: sasikumar.paramasivam@actemium.com

Dundalk Drinking Water System

Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Emergency Operating Procedure		
EOP #: 01	Title: Adverse Water	
Page: 4 of 6	Created: January 1, 2009	Revised: January 31, 2023

Chlorine: Anchem Phone: 800-387-9799

Corrective Action for Adverse Water Quality Results

In the case of adverse water at the **Wells** the result will be **low or high chlorine residual** and/or **high turbidity**. The system will automatically shut down at the set critical control points. The following steps should be taken by the designated staff: **PWM**(Public Works Manger), **LH** (Lead Hand), **OL**(Operator/Labourer):

1. **OL or LH** - Switch to alternate well (SOP 17 Switch to Alternate Well)
2. **LH, PWM or OL** - Notify: MOH, SAC, Public Works Manager, CAO, Mayor and Council. Follow any additional direction provided by the MOH or SAC
3. **OL or LH** - Troubleshoot cause of adverse water and rectify
4. **OL or LH** - Flush system (SOP 5 Isolate and Flush)
5. **OL or LH** - Restore chlorine residual to <0.20 mg/L and turbidity to >1.00 NTU

In the case of adverse water in the **distribution** system for results of **low or high chlorine residual** and/or **high turbidity**. The following steps should be taken:

1. **LH, PWM or OL** - Notify: MOH, SAC, Public Works Manager, CAO, Mayor and Council. Follow any additional direction provided by the MOH or SAC
2. **LH or OL** - Troubleshoot cause of adverse water and rectify
3. **OL or LH** - Flush system (SOP 5 Isolate and Flush)
4. **OL or LH** - Restore chlorine residual to <0.05mg/L and turbidity to >5.00 NTU

If a reportable adverse water quality result occurs under either a) or b) of this document, **Chemical** or **Radiological Standards**, the following steps should be taken:

1. **LH, PWM or OL** - Notify: MOH, SAC, Public Works Manager, CAO, Mayor and Council. Follow any additional direction provided by the MOH or SAC
2. **OL or LH** - Immediately resample and test

If a reportable adverse water quality result occurs under item c),

Dundalk Drinking Water System

Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Emergency Operating Procedure		
EOP #: 01	Title: Adverse Water	
Page: 5 of 6	Created: January 1, 2009	Revised: January 31, 2023

Microbiological Standards (Total Coliform, Ecoli), of this document the following steps should be taken:

1. **LH, PWM or OL** - Notify: MOH, SAC, Public Works Manager, CAO, Mayor and Council. Follow any additional direction provided by the MOH or SAC
2. **OL or LH** - Immediately resample and test
3. **OL or LH** - Flush system
4. **OL or LH** - Restore chlorine residual to 0.20 mg/L and maintain
5. **OL or LH** - Resample between 24 and 48 hours from the original sample
6. **OL or LH** - Continue to resample and test until Total Coliforms and Ecoli are not detected in any of the samples from 2 consecutive sets of samples taken 24 to 48 hours apart or as otherwise directed by the MOH

In the case of an adverse water event due to **a loss of pressure >20PSI** the following steps should be taken:

1. **LH, PWM or OL** - Notify: MOH, SAC, Public Works Manager, CAO, Mayor and Council. Follow any additional direction provided by the MOH or SAC
2. **LH or OL** - Identify reason for loss of pressure, i.e. water main break, fire department, pump failure. Rectify, isolate, restore situation.
3. **LH or OL** - Check water meters for flow reversal backflow activity.

Related Procedures:

SOP 01 Call-out Response

SOP 05 Isolate and Flush

SOP 08 Low Pressure

SOP 17 Switch to Alternate Well

SOP 19 System Shutdown

SOP 21 Water Sampling and Testing

SOP 40 Boil Water Advisory

SRP 06 Water Main Breaks

Dundalk Drinking Water System

Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Emergency Operating Procedure		
EOP #: 01	Title: Adverse Water	
Page: 6 of 6	Created: January 1, 2009	Revised: January 31, 2023

EOP 03 Public Communication – Emergency

Dundalk Drinking Water System

Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Emergency Operating Procedure		
EOP #: 02	Title: Confined Space Rescue	
Page: 1 of 1	Created: January 1, 2009	Revised: March 20,2020

Purpose:

Use this procedure when there is a concern that someone is having difficulty in a confined space. The following steps should be taken by the designated staff: **PWM**(Public Works Manager), **LH**(Lead Hand), **OL**(Operator/Laborer)

Procedure:

1. **LH or OL** - Under no circumstances should anyone enter the confined space without a self-contained breathing apparatus to retrieve an unconscious victim.
2. **LH or OL** - Call 9-1-1 for assistance, ask the dispatcher for the Owen Sound Fire Department.
3. **LH or OL** - If it is a trench rescue, inform responding firefighters to dispatch the Owen Sound Fire Department call 519-376-2512.
4. **LH or OL** - If it is a trench rescue, try to retrieve the victim by the retrieval system to which they are attached – **Do Not Enter The Confined Space.**
5. **LH or OL** - When the victim is retrieved, initiate CPR until trained assistance arrives.

Related Procedures:

- SOP – 12 Reservoir Cleaning
- SOP – 26 Well D3 Reservoir Diving Inspection
- SOP – 28 Confined Space Entry
- SOP – 44 Water Main / Service – Repair / Replacement / Installation
- SRP – 06 Water Main Breaks

Dundalk Drinking Water System

Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Emergency Operating Procedure		
EOP #: 03	Title: Public Communications - Emergency	
Page: 1 of 2	Created: January 1, 2009	Revised: March 20, 2020

Purpose:

Use this procedure when there is a situation that requires the immediate notification of the public concerning the safety of the drinking water. This would normally be in conjunction with an Adverse Water report and may involve all or parts of the population. The following steps should be taken by the designated staff: **PWM**(Public Works Manger), **LH** (Lead Hand), **OL**(Operator/Labourer), **OS**(office staff) **CI**(clerk), **FD**(Fire Department):

Procedure:

- **CL, OS, & PWM** - Create the appropriate documents. Such documents shall include newspaper advertisements, flyers, web site postings, radio advertisements, social media or other documents. The widest possible coverage should be initiated. The Administrative Centre may be able to assist in the production of documents.
- **All staff** - Southgate Township Departments can be enlisted to ensure full and immediate distribution.
- **CL, OS & PWM** - In the case of newspaper advertising, provide the Clerks Department with a copy of the ad as well as the frequency of publishing.
- **CL, OS & PWM** - In the case of flyers, provide the Clerks Department with a copy of the flyer and ask for an appropriate supply to be hand-delivered to residents and to post in all public buildings as well as retail and commercial outlets that have agreed to post such notices.
- **CL, OS & PWM** - In the case of a web site posting, provide the Clerks Department with a copy of the web site posting.
- **CL, OS & PWM** - In the case of media advertisements, provide the Clerks Department with the text of the advertisement and a list of the media stations to be involved.
 - Bayshore Broadcasting Phone: (519) 376-2030
Email: news@bayshorebroadcasting.ca
 - CKNX Radio Phone: (519) 357-1310
Email: news@cknxradio.com
 - The Dock 92.3 Radio Phone: (519) 470-6397
Email: news@923thedock.com
 - CTV Barrie Phone: (705) 734-2061
Email: barrieneews@ctv.ca
 - Dundalk Herald Newspaper Phone: (519) 923-2203
 - Mount Forest Confederate Phone: (519) 323-1550
 - Owen Sound Suntimes Phone: (519) 376-2250

Dundalk Drinking Water System

Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Emergency Operating Procedure		
EOP #: 03	Title: Public Communications - Emergency	
Page: 2 of 2	Created: January 1, 2009	Revised: March 20, 2020

Related Procedures:

- SOP 40 Boil Water Advisory
- EOP 01 Adverse Water
- EOP 04 Spill Contingency Plan

Dundalk Drinking Water System

Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Emergency Operating Procedure		
EOP #: 04	Title: Spill Contingency Plan	
Page: 1 of 1	Created: January 1, 2009	Revised: February 1, 2023

Purpose:

To address any chemical or petroleum spills in the Township of Southgate.

Procedure:

See attached document *Spill Contingency Plan*

Related Procedures:

None

TOWNSHIP OF SOUTHGATE EMERGENCY PLAN

Spill Contingency Plan

Date: July 6, 2011
Revised: January 26, 2013
Revised: January 12, 2015
Revised: January 18, 2018
Revised: February 02, 2021
Revised: February 01, 2023

Table of Contents

1.0	Aim	1
2.0	Scope.....	1
3.1	Definitions	2
3.2	Interpretation and Application Part X, Section 92/93 – Spills, Environmental Protection Act	2
3.3	Abnormal Discharge.....	2
3.4	Notice of Spills	3
3.5	Notice to Ministry by Person Investigating.....	3
3.6	Duty to Mitigate and Restore.....	3
4.1	Assessment Of Spill Magnitude	4
4.2	Minor Spill	4
4.2	Moderate Spill	4
4.3	Major Spill.....	5
4.4	Emergencies	5
5.1	Spill Responsibilities	6
5.2	Minor Spill	6
5.3	Moderate Spill	6
5.4	Major Spill.....	6
6.1	Procedures on the Handling of Spills of Hazardous Materials	7
6.2	Office Staff Procedures	7
6.3	List of Spill Investigation Personnel.....	7
6.4	Protection Procedures.....	8
6.5	Procedures	8
7.0	Communication.....	10
8.0	Equipment	11
9.1	Three Part Plan.....	12
9.2	Prevent Spill from Continuing	12
9.3	Containment and Product Recovery	12
9.4	Disposal and Restoration.....	12
10.0	Review and Amendment.....	14
	appendix 1 – Spill Occurrence Report.....	15
	appendix 2 – Important Telephone Numbers	16
	appendix 3- Well Head Protection Mapping.....	18

The Spill Contingency Plan was developed for the Township of Southgate, comprised of the Village of Dundalk, the Township of Proton and the Township of Egremont.



1.0 Aim

The aim of the plan is to establish in advance certain working arrangements which will be necessary to establish control in the event of a spill (a discharge of a pollutant into the natural environment from a container, structure, or vehicle that is abnormal in its quantity or quality) or release of oil or other hazardous substances. It includes the measures that may have to be taken to safeguard property and the health and welfare of the residents of the Township of Southgate when faced with an emergency. The effectiveness of the response depends entirely upon the extent in which preparations have been made and the interest for speed and efficiency of their response.

2.0 Scope

Emergency action will include the earliest possible recognition of the response to the situation by all services, the earliest possible establishment of overall control of emergency operations by Southgate authorities, the provision of essential aid and assistance for persons affected by the emergency, the recording of decisions taken by municipal authorities and of costs incurred in relation to the emergency, and the timely provision of information on the emergency to all services and agencies responding to the public and the media and to senior governments.

Emergencies can arise with or without warning. The plan is intended to deal with the worst case, the situation that develops without warning.

3.1 Definitions

3.2 Interpretation and Application, Part X, Section 92/93 – Spills, Environmental Protection Act

“municipality” means an upper-tier municipality, a lower-tier municipality or a single-tier municipality;

“owner of the pollutant” means the owner of the pollutant immediately before the first discharge of the pollutant, whether into the natural environment or not, in an abnormal quantity or quality at the location where the discharge occurs, and the “owner of a pollutant” has a corresponding meaning;

“person having control of a pollutant” means the person and the person’s employee or agent, if any, having the charge, management or control of a pollutant immediately before the first discharge of the pollutant, whether into the natural environment or not, in an abnormal quantity or a quality at the location where the discharge occurs, and “person having control of the pollutant” has a corresponding meaning;

“pollutant” means a contaminant other than heat, sound, vibration or radiation and includes any substance from which a pollutant is derived;

“practicable” means capable of being effected or accomplished;

“restore the natural environment” when used with reference to a spill of a pollutant means restore all forms of life, physical conditions, the natural environment and things existing immediately before the spill of the pollutant that are affected or that may reasonably be expected to be affected by the pollutant and “restoration of the natural environment”, when used with reference to a spill of a pollutant, has a corresponding meaning;

“spill” when used with reference to a pollutant means a discharge,
(a) into the natural environment,
(b) from or out of a structure, vehicle or other container, and
(c) that is abnormal in quality or quantity in light of all the circumstances of the discharge and when used as a verb has a corresponding meaning;

“substance” means any solid, liquid or gas, or any combination of any of them.

3.3 Abnormal Discharge

A discharge of a pollutant designated by the regulations at a location designated by the regulations shall be deemed to be in a quantity or with a quality abnormal at the location.

3.4 Notice of Spills

Every person having control of a pollutant that is spilled and every person who spills or causes or permits a spill of a pollutant that causes or is likely to cause an adverse effect shall forthwith notify the following persons of the spill, of the circumstances thereof, and of the action that the person has taken or intends to take with respect thereto,

- (a) the Ministry;
- (b) any municipality within the boundaries of which the spill occurred or, if the spill occurred within the boundaries of a regional municipality, the regional municipality;
- (c) where the person is not the owner of the pollutant and knows or is able to ascertain readily the identity of the owner of the pollutant; and
- (d) where the person is not the person having control of the pollutant and knows or is able to ascertain readily the identity of the person having control of the pollutant, the person having control of the pollutant.

3.5 Notice to Ministry by Person Investigating

A member of a police force or an employee of a municipality or other public authority who is informed of or who investigates the spill of a pollutant shall forthwith notify the Ministry of the spill of the pollutant unless he or she has reasonable grounds for believing that such notice has been given to the Ministry by another person.

3.6 Duty to Mitigate and Restore

The owner of a pollutant and the person having control of a pollutant that is spilled and that causes or is likely to cause an adverse effect shall forthwith do everything practicable to prevent and eliminate the adverse effect and to restore the natural environment.

4.1 Assessment of Spill Magnitude

Before any effective action can be undertaken to redeem the effects of a spill of any kind, it is necessary to make an assessment of the magnitude and type of the spill and speed in making the assessment will be very important. It is essential that a responsible person from the Township of Southgate investigate without delay any report of a spill of any magnitude.

The Ontario Ministry of the Environment (Environmental Protection Act, RSO 1990, Part X Emergency Plans Act) defines a spill as:

A discharge of a pollutant into the natural environment from or out of a structure, vehicle or other container which is abnormal in quality or quantity in light of all the circumstances of the discharge. If a spill causes, or is likely to cause, any of the following adverse effects, it must be reported and cleaned up:

- impairment of the quality of the natural environment for any use that can be made of it;
- injury of damage to property or to plant or animal life;
- harm or material discomfort to any person;
- adverse effects on the health of any person;
- impairment of the safety of any person;
- the rendering of any property or plant or animal life unfit for use by humans;
- the loss of enjoyment of normal use of property; or,
- interference with the normal conducts of business.

4.2 Minor Spill

A spill of such magnitude and nature that it does not cause significant adverse effects or public concerns, where the spiller can, utilizing their/her own resources, undertake the necessary measures to control, contain and clean up the material spilled. During a spill of size, the following people should be contacted

(for contact information see Appendix 2):

Township of Southgate	Chief Administrative Officer Dina Lundy
	Public Works Manager Jim Ellis
	Public Works Foreman John Watson
	Water Lead Hand Cory Henry

All spills, no matter the magnitude, should be documented and kept on file.

4.3 Moderate Spill

A spill of such magnitude and nature that it causes significant adverse effects in the immediate vicinity of the spill where the resources under a municipal or co-operative contingency plan may be required to effectively contain and clean up the material spilled. During a spill of such magnitude, contact the list under 4.3 Major Spill (see below). When dealing with a moderate and major spill the Chief Administrative Officer should use their discretion on contacting authorities.

5.1 Spill Responsibilities

In accordance with the Ministry of the Environment, the following section outlines responsibilities during minor, moderate, and major spills;

5.2 Minor Spill

1. The spiller shall take immediate measures to control and contain the spill.
2. The spiller shall notify the Ministry and in some situations the owner and person in control if they are not already aware.
3. The spiller shall clean up the spilled pollutant and restore the natural environment using their/her own resources or those of a contractor.
4. Public agencies shall maintain surveillance where necessary and provide advice to the spiller or the spiller's forces.
5. The Ministry shall provide advice and direction while enforcing the duties and responsibilities imposed by Ministry legislation. The need for on-site Ministry inspection/surveillance is assessed on a case-by-case basis.

5.3 Moderate Spill

1. The spiller shall take immediate measures to control and contain the spill.
2. The spiller shall notify the Ministry and in some situations the owner and person in control if they are not already aware. The spiller may contact an industry co-operative for assistance, if needed.
3. Southgate or the industry co-operative agency shall perform appropriate contingency action, as required. Contractor services shall be obtained, as needed.
4. Southgate shall maintain surveillance where necessary and provide advice to those in control.
5. The Ministry shall provide advice and direction while enforcing duties and responsibilities imposed by Ministry legislation. The need for prompt on-site Ministry inspection/surveillance is assessed on a case-by-case basis.

5.4 Major Spill

1. The spiller shall take immediate measures to control, contain and clean-up spilled material.
2. The spiller shall notify the Ministry and in some situations the owner and person in control if they are not already aware.
3. The Ministry, in consultation with other agencies, shall assume control of containment, clean-up and disposal as required. Prompt Ministry on-site inspection is essential.
4. Minister's Directions or Orders under Section 94 or Section 97 of the Environmental Protection Act shall be issued as required for cost recovery, right of entry and limited liability purposes. The Ministry shall invoke the "Province of Ontario Contingency Plan for Spills of Oil and other Hazardous Materials" as appropriate to obtain additional assistance from Provincial and Federal agencies; or the Ministry shall contact the resources of a private sector.

6.1 Procedures on the Handling of Spills of Hazardous Materials

6.2 Office Staff Procedures

Notification of a spill could be received from many sources, including the Ministry of the Environment, a municipal or regional department, industry, private individual, or agency. In any case, the receiver will then turn the call over to the Chief Administration Officer or Public Works Staff. The staff member receiving the call will fill out a spill report (Appendix 1) and get as much information as possible from the caller.

6.3 List of Spill Investigation Personnel

Upon receiving a report of a spill occurrence which may only be minor or a suspected case, the Chief Administrative Officer, or staff available will direct a patrol foreman in the area to proceed to the scene to conduct an investigation. In a case where senior positions are not available, the personnel next in line will attend, until someone is available to attend the scene.

1. Chief Administrative Officer Dina Lundy
2. Public Works Manager Jim Ellis
3. Public Works Foreman John Watson
4. Water Lead Hand Cory Henry

*Contact information is available in Appendix 2.

If the initial call is from a responsible individual or agency and a request is made for the plan to be implemented, this should be done. If the initial call indicates only a suspicion of a spill, the receiver will notify the local fire department and the appropriate staff to investigate the scene and make a report to the initial receiver to determine the appropriate course of action.

On receipt of a confirmed spill report requiring the response of Southgate, Public Works staff will perform the following actions:

- arrange for notification of the situation to the local fire department, police services, the Ministry of the Environment and a private agency, if required, if they are not already aware of the situation;
- have staff remain within the office while remaining staff or a staff member attends the scene;
- once all have arrived, an assessment can be made and all the necessary actions to control and contain the spill can be undertaken;
- if required, inform pollution and water plants in the vicinity of the spill, it's location, contents and what is being done;
- remaining staff in the office will coordinate equipment, spill control and clean up contractors to the site as required by on-site staff.

Staff remaining in the office, as required will:

- test police, fire and public work networks;
- ensure that the appropriate personnel including the Ministry of the Environment are on their way to the spill site;

- alert transportation services patrol, the traffic section, if assistance is required;
- arrange for standby power units for site, if necessary;
- arrange for site photographs or video tape of the spill incidents;
- provide support to the individuals in the field, as requested.

If a spill occurrence happens at night, whoever receives the notification will ensure that information regarding the spill is received and documented. He or she will then contact the appropriate personnel within the Public Works Department, who will then continue from there as listed above.

6.4 Protection Procedures

- always stay upwind of a spill.
- leave plenty of room between the spill and yourself.
- do not walk in or touch the material.
- avoid inhaling all gases, fumes, and smoke at any time.

6.5 Procedures

In handling any spill whether on a road or property within Southgate, the following procedures should be followed:

1. On coming upon a spill affecting our facilities or roads, immediately contact the Chief Administration Officer requesting Public Works staff and other departments and agencies to respond if required. Identify what the material is if possible.
2. If a carrier is involved and the driver is able to assist, find out what the material is. Check for placards at a safe distance and inform Public Works staff who and/or what you are dealing with.
3. For a spill no matter what the size is, small or large, liquid or solid, that cannot be identified; you should contact Public Works staff and inform them of the following:
 - estimated size of spill, calculating the magnitude of the spill.
 - actual location, closest crossroad.
 - approximate amount involved, if possible.
 - identification of any odours emitting from the product
4. Environmental Services staff will then contact a sampling company so that samples can be taken to identify the product in question.
5. If the product is in liquid form and can easily spread and is in a path of traffic, it is important to direct traffic away from the spill area. In this instance you would inform Public Works staff and they in turn would contact the police/fire services of the situation and location.
6. Use common sense; in the majority of cases the material would be identifiable. It is vital that you make notes of all spill information which would affect the roads and facilities within Southgate.

7. Public Works staff, along with vital services, or a private agency will respond to the site if necessary and will work together until an effective cleanup has been completed.
8. Any chemical related spill should be approached with caution and at no time should the product be mixed with any other product, liquid or solid, until the chemical is identified, and the proper handling procedures are identified.
9. Staff who has the chance to contain the spill which may migrate and collect in other areas, such as a ditch, should do so in a safe manner if the material is identifiable. The construction of a temporary dike using materials on hand such as sand, dirt or snow may contain the spill until proper clean up procedures are implemented.
10. At all times staff should never put themselves into a position of danger.
11. Public Works staff should be aware of all procedures being undertaken at all times and the appropriate personnel should be at the location as quickly as possible to handle the situation.
12. All reports should be given to Public Works staff and filed for an appropriate length of time.

7.0 Communication

Communication is vital to the success of an emergency response. A list of contact information is collected as Appendix 2 and includes the office of the Township of Southgate, cellular telephone numbers and email for key personnel, as well as home telephone numbers in case a spill occurs during non-regular office hours. The calling chain should include the Chief Administrative Officer and so on as listed above under investigation personnel.

8.0 Equipment

Equipment within the Township of Southgate is as follows:

3 – rubber tire loaders (2 ½ yard bucket)

3 – tractors with loader

1 – skid steer

Dump trucks are located at all Southgate facilities.

Information regarding the whereabouts and condition of the above equipment should be collected from the Public Works Manager. Their information should be regularly monitored in case of changes to the above list.

9.1 Three Part Plan

9.2 Prevent Spill from Continuing

Action should be taken to stop the spill from continuing.

9.3 Containment and Product Recovery

Action to be taken will depend entirely on the type and extent of the situation. All agencies on-site must, after assessing the situation, decide on the necessary measures to be taken, and put them into effect. These procedures will be dictated by the materials at hand.

The pollutant and any materials which may be in contact with the pollutant should be contained and rendered harmless.

9.4 Disposal and Restoration

Remove the pollutant and everything that has been contaminated and restore the natural environment to a state as if the spill did not occur. This may require continuing environmental monitoring by a qualified consultant.

Record of Activities

Any Southgate personnel on-site shall keep a record of all activities completed during the spill response.

Disposal Methods

The method of disposal regarding contaminated absorbents, soils, water, etc. will be decided by the on-site agencies in conjunction with Ministry of the Environment (MOE). Licensed contractors or agencies may be used.

Summary

The response to any type of hazardous spill will be a joint effort with Southgate, the County, and the MOE. The Public Works personnel first on the scene will make an assessment and take the proper steps to put the plan in motion. Speed in making decisions is very important.

Other Resources

The following resources will be available and will be called upon as required:

- Engineering services for the Township of Southgate
- Ministry of Transportation
 - provision of personnel, vehicles and equipment required.
- Environmental Consultants
 - providing specialized engineering and technical services at the site
- Fire
- Health
 - if there is any likelihood of contamination of food or food storage areas, or the presence of toxic gases is confirmed or suspected, or any danger to health or municipal water systems or private wells becoming contaminated.

- Police
 - to seal off the area and to evacuate personnel from the area, if this is considered necessary.
- Social Services
 - in the event that an evacuation occurs, they would be responsible for registering evacuees, feeding and sheltering evacuees and transportation of evacuees.

A contact list is located in Appendix 2.

10.0 Review and Amendment

The plan will be reviewed annually. Any changed circumstance in the municipal situation, giving rise to the need for interim amendments shall be brought to the attention of the Chief Administration Officer of the Township of Southgate immediately. Such matters as change of incumbents in positions, telephone and address changes shall be noted in the plan as soon as possible.

Appendix 1
Spill Occurrence Report

Received by: _____ Date: _____ Time: _____

Reported by: _____ of: _____ Phone: _____

Identification	Contacts
<p>Location: (911 and road name if avail) _____</p> <hr/> <p>Time of accident/spill: _____ am or pm</p> <p>Material _____ type: _____</p> <p>Amount spilled: _____</p> <p>Odour: _____</p> <p>Is it still spilling? _____</p> <p>Vehicle identification (if applicable) make/model/plate# _____</p> <p>Affected Area (provide road name(s)):</p> <p><input type="checkbox"/> Roads _____</p> <p><input type="checkbox"/> Ditches _____</p> <p><input type="checkbox"/> Storm sewer: _____</p> <p><input type="checkbox"/> Sanitary sewer: _____</p> <p><input type="checkbox"/> Other (provide details): _____</p> <p>_____</p> <p>_____</p> <p><u>Personnel on-site (list names):</u> _____</p> <p>_____</p> <p>_____</p>	<p>Must Call:</p> <p><input type="checkbox"/> Public Works cell 519-378-3777</p> <p><input type="checkbox"/> CAO tel 519-923-2110x210 cell 519-373-1305</p> <p><input type="checkbox"/> MOE local office 519-371-2901</p> <p><input type="checkbox"/> Spills Action Centre 800-268-6060</p> <p><input type="checkbox"/> Dundalk Fire Dept 519-923-2402 Dundalk Fire Chief cell 519-373-1139</p> <p><input type="checkbox"/> Durham Fire Chief 519-369-8767</p> <p><input type="checkbox"/> Wellington North Fire Chief 519-323-1441</p> <p><input type="checkbox"/> Local Police Dept 519-794-7827</p> <p>NOTE: Emergency Police/Fire 911</p> <hr/> <p><u>Initial Comments:</u></p> <p>_____</p> <p>_____</p> <p>_____</p> <hr/> <p align="center">CLEAN UP</p> <p>Required:</p> <p><input type="checkbox"/> Sand</p> <p><input type="checkbox"/> Pumps</p> <p><input type="checkbox"/> Absorbents _____</p> <p><input type="checkbox"/> Other: _____</p>
<p>Note if spill affects:</p> <ul style="list-style-type: none"> • Public Works Manager – Jim Ellis office 519-923-2110 x 250 cell 519-378-3777 email jellis@southgate.ca • Health hazard contact Public Health, Ministry of Health Tel 519-376-9420 • Emergency Alert contact Community Emergency Management Coordinator office 519-923-2402 cell 519-373-1139 email firechief@southgate.ca 	
<p>Supervisor's Comments:</p> <p>_____</p> <p>_____</p> <p>_____</p>	

Appendix 2
Important Telephone Numbers

Spills Action Centre		800-268-6060
Township of Southgate	Toll Free:	888-560-6607
Mayor Brian Milne	Cell:	519-477-0796
Email: bmilne@southgate.ca	Home:	519-375-7836
Chief Administrative Officer	Office:	519-923-2110 x 210
Dina Lundy	Cell:	519-373-1305
Email: dlundy@southgate.ca	Home:	519-216-3922
Community Emergency Management Coordinator		
Derek Malynyk	Office:	519-923-2402
Email: firechief@southgate.ca	Cell:	519-373-1139
Public Works Manager	Office:	519-923-2110 x 250
Jim Ellis	Cell:	519-378-3777
Email: jellis@southgate.ca	Home:	519-924-0741
Treasurer William Gott	Office:	519-923-2110 x 220
Email: wgott@southgate.ca	Cell:	519-550-0381
Police		Emergency: 911
Dundalk Community Policing Office (OPP)		519-923-2144
OPP North Grey Detachment-administration		519-376-3433
OPP Local & Province Wide Inquires		888-310-1122
Fire		Emergency: 911
Dundalk Fire Department	Business:	519-923-2402
Chief Derek Malynyk	Cell:	519-373-1139
Email: firechief@southgate.ca		
Durham & District Fire Department	Cell:	519-369-8767
Mount Forest & District Fire	Cell:	519-323-1441
Hospitals		
Grey Bruce Health Services – Markdale Hospital 55 Isla Street, Markdale		519-986-3040
Louise Marshall Hospital 630 Dublin Street, Mount Forest		519-323-2210
South Bruce Grey Health Care Centre – Durham Hospital 320 College Street North, Durham		519-369-2340
Headwaters Health Care Centre – Orangeville Hospital 100 Rollinghills Drive, Orangeville		519-941-2410

Contractors

Cedar Well	519-369-5564
Esker-Lee	519-923-5591
B & M Construction	519-372-5434

Environmental Consultants

Rubicon Environmental Inc.	Office: 519-923-3025 Cell: 519-942-7353
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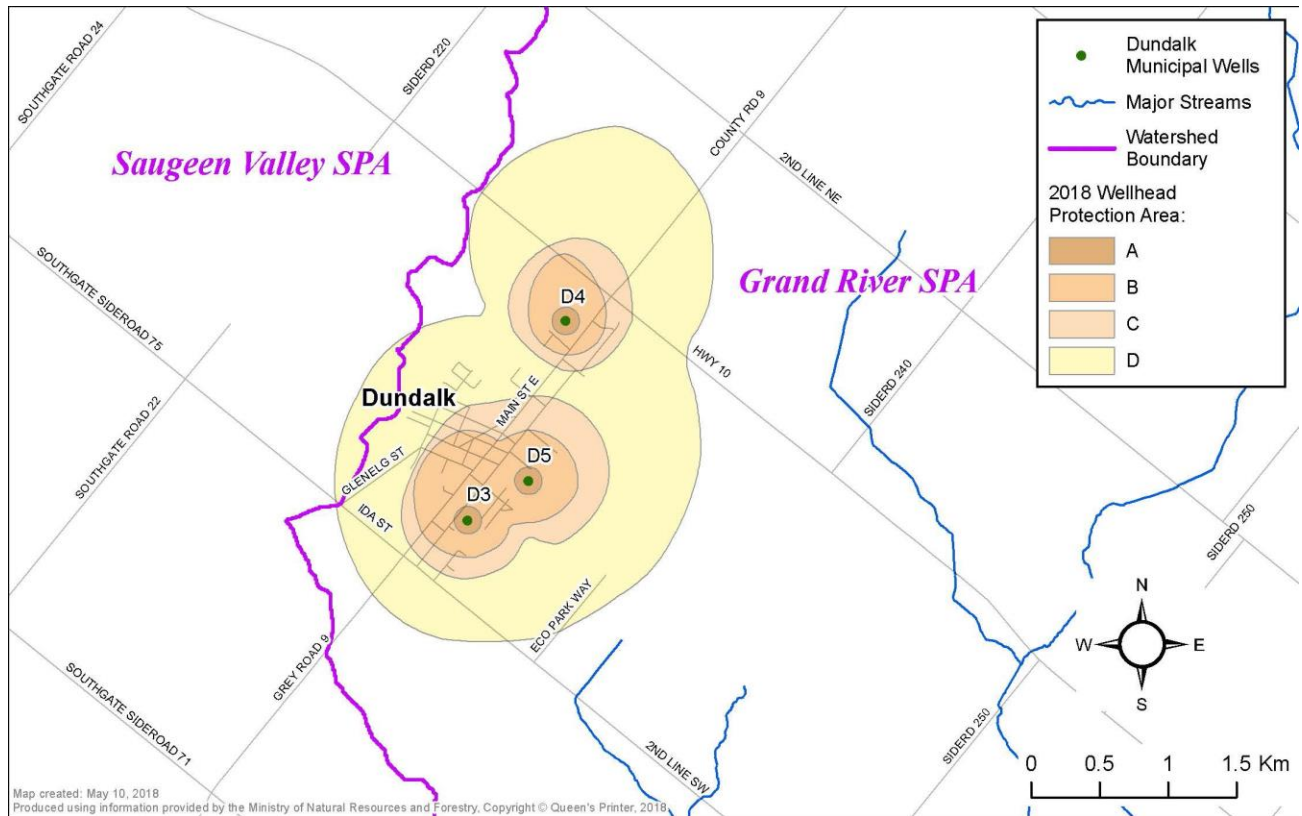
Other Resources

Grand River Conservation Authority	519-621-2761
Ministry of Labour	800-387-0774
Public Health Office – Durham	800-394-6643
Ministry of the Solicitor General and Corrections	416-314-3723

Services through Emergency Measures Ontario

Union Gas	877-969-0999
Hydro One	800-267-0706
Bell	310-2355
Enbridge	866-763-5427

Appendix 3 Well Head Protection Mapping



Dundalk Drinking Water System

Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Emergency Operating Procedure		
EOP #: 05	Title: OnWARN Activation	
Page: 1 of 6	Created: September 24, 2013	Revised: January 18, 2019

Purpose:

Use this procedure when in need of additional assistance. Usually during an emergency event. OnWARN contributors can provide, manpower, equipment, supplies, etc.

Procedure:

Receive direction from Emergency management to communicate with OnWARN contacts. Reference OnWarn contact list in Operational Plan section 18-5.

- **OnWARN Activation** – Appendix “A” describes the OnWARN Activation and Communication procedure.
- **Pre-Event Activation** - Some types of emergencies (e.g. severe storms or hurricanes) can be characterized as “warning” or “notice” events due to a build-up of intensity over time and/or scientific methods of predicting an event. This type of event allows Members to anticipate the magnitude of damage and therefore response needs. Activating prior to the disaster opens the lines of communication and coordination among Members which helps to ensure a timely and proactive response. The Requesting Member can initiate the following activities:
 - Notify Members of the expected conditions;
 - Maintain contact with Members about changing conditions and information;
 - Receive requested resources and identify follow-up actions.
- **Notification** – occurs when a Requesting Member notifies that they need resources. The OnWARN Activation Form (Appendix “B”) prompts the Requesting Member to include required information in the notification. Initial communication occurs via e-mail, a phone call, website or other methods. Verbal notifications between Requesting and Responding Members are confirmed via written communication (on the OnWARN Activation Form). The Member requesting mutual aid / assistance gathers and documents the following information:
 - Type of incident;
 - Impact on Member;
 - Number of agencies in response;

Dundalk Drinking Water System

Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Emergency Operating Procedure		
EOP #: 05	Title: OnWARN Activation	
Page: 2 of 6	Created: September 24, 2013	Revised: January 18, 2019

- Known limitations or restrictions;
- Available communication tools.

In all cases in which the OnWARN Agreement is activated, participating Members notify the OnWARN Steering Committee via e-mail (info@onwarn.org) or telephone to the OnWARN Chair that the request has been made and met with resources from another member.

- **Response to a Request for Assistance** – A Member is not obligated to respond to a request. Once a Member receives a request for assistance, the Authorized Official evaluates whether or not to respond. The Authorized Official considers these questions:
 - Does my utility have the resource requested?
 - Do the resources meet the operational requirements that the Requesting Member identified?
 - Did this event impact normal operation?
 - If we provide resources, can we maintain our ability to respond to unanticipated needs?

If the Authorized Official determines that resources are available to respond to the Requesting Member, the Member is then referred to as a Responding Member. The Authorized Official of the Responding Member communicates, as soon as possible, with the Requesting Member that it is available to respond and provides the approximate arrival time of such assistance. When possible, the Authorized Officials of both the Requesting and Responding Members will confirm all verbal agreements with written documentation (fax or e-mail).

In addition, the Authorizing Officials will clarify and agree upon the following items:

- Requesting Member's ability to provide food, sleeping arrangements, first aid, etc. for personnel and resources;
- Reimbursement process to determine whether the Responding Member follows the reimbursement article of the OnWARN Agreement; and

Dundalk Drinking Water System

Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Emergency Operating Procedure		
EOP #: 05	Title: OnWARN Activation	
Page: 3 of 6	Created: September 24, 2013	Revised: January 18, 2019

– What aid the Responding Member can provide, the cost, and confirmation of the approval from the Authorized Official and the Member’s management to provide aid.

If agreement is reached on the above items, the Authorized Officials will complete and transmit the authorization in writing.

- **After Action Report** - After an exercise or an incident, all OnWARN Members involved with the mutual aid/assistance response are encouraged to meet and complete an After Action Report and consider creating an Improvement Plan. It is recommended that all key players and groups involved in the response and recovery provide input. Therefore, if the incident is small and only involves a small number of OnWARN Members, the affected Member may complete the After Action Report (Appendix "C"). If the incident is large and involves many jurisdictions, the OnWARN Steering Committee may coordinate the after action review and report process. OnWARN Operational Plan 3 of 7

Response Considerations

- **Requesting Member** – responsible for the following tasks:
 - Determine how to describe the resources required and which Members can potentially meet that need.
 - Discuss resource needs and conditions of use with potential Responding Members.
 - After the Responding Member(s) confirms available resources and estimated costs; review and determine whether to accept this mutual aid/assistance proposal.
 - Provide status updates to the OnWARN Steering Committee so that OnWARN Members are aware that needs are met or not.
 - Assign a Mutual Aid Coordinator to address care, feeding, and other support for incoming mutual aid personnel.
 - Notify local emergency management coordinating partners of the incoming mutual aid.
 - Identify a Staging Area and assign a Staging Area Manager for incoming mutual aid.

Dundalk Drinking Water System

Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Emergency Operating Procedure		
EOP #: 05	Title: OnWARN Activation	
Page: 4 of 6	Created: September 24, 2013	Revised: January 18, 2019

- Identify work assignments for the incoming mutual aid.
 - Consider how to integrate incoming mutual aid resources with existing workforce.
 - Develop a demobilization plan that includes protocols on how and when mutual aid resources will be released.
- **Responding Member** – is responsible to complete the following tasks:
 - Contact the Requesting Member to notify them of available resources
 - If mutual aid/assistance is requested, review and determine whether it can meet this request.
 - Estimate the cost of response. These costs will then be reported to the Requesting Member for consideration.
 - Identify supervisors and staff to send to the Requesting Member’s emergency, and consider which employees can adapt to the environment of the incident (consider physical and mental health impacts).
 - Develop an internal Communications Plan between supervisors of the responding teams and the Responding Member.
 - Conduct a pre-deployment briefing with all responding team staff. Include the following items:
 - o Health and safety considerations, including but not limited to immunizations, special tools, or clothing;
 - o Environmental conditions onsite;
 - o Care and shelter arrangements;
 - o Rules of conduct during deployment, including but not limited to, activities allowed after work hours; and
 - o Review of procedures.
 - Inform Requesting Member of the Responding Member’s deployment and estimated time of arrival

Dundalk Drinking Water System

Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Emergency Operating Procedure		
EOP #: 05	Title: OnWARN Activation	
Page: 5 of 6	Created: September 24, 2013	Revised: January 18, 2019

- **Requesting Member Demobilization** – following standard Incident Management System practices of demobilization, the Requesting Member writes a demobilization plan on how to coordinate the return of resources, including the debriefing of staff and the inspection of equipment and materials. The plan should:
 - Capture personnel evaluations and identify future tactical resource needs. This would be conducted by both the Requesting Member prior to releasing the personnel, as well as by the Responding Member once its personnel are back.
 - Identify release priorities and procedures. This would include internal resources, mutual aid resources, and any contracted resources.
- **Responding Member Demobilization** - while preparing to demobilize and prior to leaving, the Responding Member's team is responsible to complete the following tasks:
 - Deliver documentation collected during response to the Requesting Member;
 - Return any sensitive or confidential information to the Requesting Member;
 - Collect all information on costs and process it through the Requesting Member's Finance and Administration;
 - Keep copies of all cost documentation for Responding Member. Information includes:
 - o Injury reports;
 - o Timesheets;
 - o Material purchased;
 - o Equipment used and duration of use.

The Responding Member will prepare appropriate invoices as described in the OnWARN Agreement.

Related Procedures:

None

Dundalk Drinking Water System

Version 2018-1 Release Date: January 18, 2018 MECP Version 2.0

Emergency Operating Procedure		
EOP #: 05	Title: OnWARN Activation	
Page: 6 of 6	Created: September 24, 2013	Revised: January 18, 2019

Form Name	Form #	Version Created
Adverse Water Report (Ministry of Environment)		2011/04
Adverse Water Report - Internal	01	May 20, 2009
Chain of Custody (SGS Labs)		February 9, 2011
Chain of Custody – Lead (SGS Labs)		February 9, 2011
Chlorine Analyzer Test to Colour Standards Log	02	May 20, 2009
Daily Water Report	05	April 29, 2011
Distribution Pumping Log	06	January 10, 2013
Distribution Sampling and Lab Results Log	07	May 20, 2009
Distribution System Maintenance Log	08	May 20, 2009
Document Change Request	09	November 18, 2016
Document Change Request Log	10	May 20, 2009
Free Chlorine Residual Distribution	11	January 10, 2013
Hydrant Inspection Report	12	May 20, 2009
Internal Audit Checklist – Do Not Use	13	May 20, 2009
Internal Audit Worksheet – Do Not Use	14	May 20, 2009
Operator On-call Schedule	15	May 20, 2009
Operator Sign in Log	16	January 10, 2013
Operations Maintenance Log	17	April 29, 2011
pH, Temperature, Pressure and Analyzer Log	18	Sept 18, 2009
Property Lead Sampling Report	19	May 20, 2009
Resident Comment Report	20	May 20, 2009
Shipping Document	21	April 29, 2011
Training Course Report	22	May 20, 2009
Turbidity Analyzer Test to Standards Log	23	May 20, 2009
Water Main Break Report	24	April 5, 2012
Water Shut-off and Turn-on Log	25	May 20, 2009

Water Shut-offs and Valve Exercising Log	26	May 20, 2009
Water Training Log	27	May 20, 2009
Weekly Weather Data	28	May 20, 2009
Well Alarm Test Checklist	29	May 20, 2009
Well Alarms Log	30	May 20, 2009
Well D3/D4 Generator Check List	31	April 29, 2011
Well D4 Monthly Monitoring Report	32	April 29, 2011
Well Maintenance Checklist	33	April 29, 2011
Well Pumping Log	34	January 10, 2013
Well Visitors Log	35	April 29, 2011
Weekly Property and Security Checklist	36	April 29, 2011
Well Inspection Checklist	37	January 29, 2010
DWQMS OP Revision Distribution List	38	May 3, 2012
Water Meter Installation & Change Out Form	39	February 18, 2010
Review Management Checklist	40	December 13, 2012
Annual Testing Requirements	43	December 11, 2013
Improvement Corrective Action Request Log	44	December 20, 2013
Measuring and Recording Equipment	45	May 28, 2015
Chlorine Analyzer Test to Colour Standards Log	46	May 28, 2015
Internal Audit Worksheet	47	October 28, 2015
Internal Audit Report	48	October 28, 2015
Internal Process Audit Tracking Log	49	October 28, 2015
Dundalk Water Frozen Locations	50	Jan 18, 2016
Dundalk Frozen Water Notice "Cold Tap Running"	51	Jan 18, 2016
Dundalk Frozen Water Notice "Water Turn Off Notice" double sided	52	Jan 18, 2016
Boil Water Advisory Lifted	53	Jan 18, 2016
Boil Water Advisory Order	54	Jan 18, 2016

Hach Turbidimeter Calibration Record	55	Jan 18, 2016
Watermain / Service – Repair, Replacement, or Installation	56	May 12, 2016
Supplier Letter	57	November 18, 2016
CAPA Request Form	60	October 18, 2018
CAPA Tracking Log	61	October 18, 2018
UV Reference Sensor Procedure Data Sheet	62	January 18, 2018
Water Main Commissioning Form	63	July 5, 2019
Daily Calculations Form	64	March 20, 2020
Alarm Acknowledgement on Laptop of SCADA	65	March 25, 2020
ONWARN Contact List	66	March 31, 2020
Infrastructure Program Plan	67	August 4, 2023
Water Tower Log	68	Sept 11, 2023
Water Tower – pH, Temperature, Pressure and Analyser Log	69	Sept 11, 2023

Adverse Water Report - Internal

- | | |
|--|--|
| <input type="checkbox"/> Dundalk Waterworks #: 220001753 | <input type="checkbox"/> Holstein Depot #: 733000328 |
| <input type="checkbox"/> Hopeville Depot #: 733000417 | <input type="checkbox"/> Holstein Park #: 733000443 |
| <input type="checkbox"/> Hopeville Park #: 733000442 | <input type="checkbox"/> Swinton Park #: 733000252 |

Sample Date and Time: _____

Lab Call Information

Date: _____	Time: _____
Caller: _____	<input type="checkbox"/> E coli
Adverse Count: _____	<input type="checkbox"/> Total Coliform
AWQI # : _____	<input type="checkbox"/> Background

MOE Spills Center

Verbal Communications:	Date: _____	Time: _____
	Contact: _____	
	Title: _____	
Hard Copy Faxed:	Date: _____	Time: _____

Health Unit

Verbal Communications:	Date: _____	Time: _____
	Contact: _____	
	Title: _____	
Hard Copy Faxed:	Date: _____	Time: _____

Adverse Water Report - Internal

Facility Status Report: _____

Retest Requirements by Regs: _____

Resolution Action

<u>Action Steps</u>	<u>Date</u>	<u>Time</u>
Chlorination of Well	_____	_____
Flushing of Well	_____	_____
Chlorination of Internal Plumbing	_____	_____
Flushing of Plumbing System	_____	_____
Ministry Signage Installed	_____	_____
Alternate Water Source Available	_____	_____
_____ bottles and _____ 20 litre jugs	_____	_____
First Resample	_____	_____
Second Resample	_____	_____
Boil Water Ordered by Health Unit	_____	_____
Maintenance Activity Completed	_____	_____

Remarks: _____

Operator: _____

Township of Southgate - Dundalk Water Works Daily Water Report

Date: _____

Well Report	Chlorine Residual	Turbidity	Flow Volume	Chlorine Consumption	Chlorine Dosage	Time Sampled
Test Location	Free					
Well 3 into Reservoir						
Well 3 into Distribution						
Well 4 into Reservoir						
Well 4 into Distribution						
Well 5 into Reservoir						
Well 5 into Distribution						
Water Tower						
Goals	> 0.25	< 0.60	m3	Litres	mg / l	< Measure

Distribution Report				Well 3	Well 4	Well 5
Location	Free	Turbidity	Temp	Pressure_____ psi	Pressure_____ psi	Pressure_____ psi
				UV Unit # 1 or 2 (circle) UV Dose: _____		
				UV Transmittance: _____		
Goals	> 0.20	< 0.60				

Operator testing: _____

Operator in Charge: _____

Created: August 18, 2010
Revised: Sept 13, 2023

Distribution Pumping Log

Well # : _____

Month / Year: _____

Hypochlorite:

Operator Initials	Day	Meter Reading	Cubic Metres Pumped	HL #1 Pump Hrs.	HL #2 Pump Hrs.	Flow Rate	Reservoir Level	Free Resid. mg / l	Turbidity
	Previous								
	1								
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9								
	10								
	11								
	12								
	13								
	14								
	15								
	16								
	17								
	18								
	19								
	20								
	21								
	22								
	23								
	24								
	25								
	26								
	27								
	28								
	29								
	30								
	31								
	Measure	m ³	m ³	Hours	Hours	l / min.	metres	mg / l	NTU

Attach this form to draft document, when applicable.

DCR #	Document Change Request
--------------	--------------------------------

Request date:	<input type="checkbox"/> Operational Plan _____
Requested by:	<input type="checkbox"/> Form _____
	<input type="checkbox"/> Procedure _____
	<input type="checkbox"/> Other _____

Reason for New or Revised Document
<input type="checkbox"/> Required by the DWQMS
<input type="checkbox"/> Enhances process control
<input type="checkbox"/> Eliminates risk
<input type="checkbox"/> Supports regulatory requirements
<input type="checkbox"/> May improve operational efficiency

This section to be completed when requesting a change to an existing document
Description of change(s)

This section to be completed when requesting approval of a new document
Attached draft document. If no draft exists, describe document purpose and scope below:

<input type="checkbox"/> DCR Accepted	Reason(s) For Rejection:
<input type="checkbox"/> DCR Rejected	
Date & Initials	

Document Change Request Log

DCR #:	Date Issued	Brief Description	Disposition	Disposition Date
			Approved: <input type="checkbox"/> Rejected: <input type="checkbox"/>	
			Approved: <input type="checkbox"/> Rejected: <input type="checkbox"/>	
			Approved: <input type="checkbox"/> Rejected: <input type="checkbox"/>	
			Approved: <input type="checkbox"/> Rejected: <input type="checkbox"/>	
			Approved: <input type="checkbox"/> Rejected: <input type="checkbox"/>	
			Approved: <input type="checkbox"/> Rejected: <input type="checkbox"/>	
			Approved: <input type="checkbox"/> Rejected: <input type="checkbox"/>	
			Approved: <input type="checkbox"/> Rejected: <input type="checkbox"/>	
			Approved: <input type="checkbox"/> Rejected: <input type="checkbox"/>	
			Approved: <input type="checkbox"/> Rejected: <input type="checkbox"/>	

Free Chlorine Residual Distribution Log

Month: _____

Year: _____

Operator's Initials	Day	Free Chlorine Residual	Temp	Location Tested	Address
	1				
	2				
	3				
	4				
	5				
	6				
	7				
	8				
	9				
	10				
	11				
	12				
	13				
	14				
	15				
	16				
	17				
	18				
	19				
	20				
	21				
	22				
	23				
	24				
	25				
	26				
	27				
	28				
	29				
	30				
	31				

Initials: JE = Jim Ellis, CH = Cory Henry, LF = Lorne Fick, GH = Grayson Hannivan, AN = Adam Nicholls, ZH = Zach Hull

Hydrant Inspection Report

Date: _____

Inspected by: _____

Hydrant Number: _____
Location: _____
Make: _____
Model: _____
Year: _____

Visual Inspection

	OK	NOT OK	Comment:
Port Height	[]	[]	
Operating Nut	[]	[]	
Caps	[]	[]	
Paint	[]	[]	
Chains	[]	[]	
Traffic Flange	[]	[]	
Water In Barrel	[]	[]	

Preventative Maintenance

<u>Free Chlorine Residual:</u>		Comment:
	<u>Compl.</u>	
Lubricate OP Mech.	[]	
Insp/Clean Noz. Thrds.	[]	
Insp/Clean Cap Thrds.	[]	
Lub. Noz Thrds.	[]	
Flush Hydrant	[]	

General Operation

Satisfactory [] **Not Satisfactory** []

Comments:

Operator On-Call Schedule - Dundalk Waterworks

On Call Operator Schedule			Schedule Switches	
Week	Monday Start Date	On-Call Operator	Date	Operator Approval
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				

Note: Schedule starts at 7:00 am each Monday morning & ends at 6:59 am the following Monday.

Operator Sign In Log

Well #: _____

Month / Year: _____

OIC's Initials	Date	Name (Print)	Signature	Time In	Time Out
	1				
	2				
	3				
	4				
	5				
	6				
	7				
	8				
	9				
	10				
	11				
	12				
	13				
	14				
	15				
	16				
	17				
	18				
	19				
	20				
	21				
	22				
	23				
	24				
	25				
	26				
	27				
	28				
	29				
	30				
	31				

Initials: JE = Jim Ellis, CH = Cory Henry, LF = Lorne Fick,
 GH = Grayson Hannivan, AN = Adam Nicholls, ZH = Zach Hull

Operations Maintenance Log

Well # _____ Month / Year: _____

Day 1	Dosage Pump #1 RPM _____
	Dosage Pump #2 RPM _____ CL2 Analyzer Reading: _____
Description of Work Performed:	
Day 2	Dosage Pump #1 RPM _____
	Dosage Pump #2 RPM _____ CL2 Analyzer Reading: _____
Description of Work Performed:	
Day 3	Dosage Pump #1 RPM _____
	Dosage Pump #2 RPM _____ CL2 Analyzer Reading: _____
Description of Work Performed:	
Day 4	Dosage Pump #1 RPM _____
	Dosage Pump #2 RPM _____ CL2 Analyzer Reading: _____
Description of Work Performed:	
Day 5	Dosage Pump #1 RPM _____
	Dosage Pump #2 RPM _____ CL2 Analyzer Reading: _____
Description of Work Performed:	

Operations Maintenance Log

Well # _____

Month / Year: _____

Day 6	Dosage Pump #1 RPM _____
	Dosage Pump #2 RPM _____ CL2 Analyzer Reading: _____
Description of Work Performed:	
Day 7	Dosage Pump #1 RPM _____
	Dosage Pump #2 RPM _____ CL2 Analyzer Reading: _____
Description of Work Performed:	
Day 8	Dosage Pump #1 RPM _____
	Dosage Pump #2 RPM _____ CL2 Analyzer Reading: _____
Description of Work Performed:	
Day 9	Dosage Pump #1 RPM _____
	Dosage Pump #2 RPM _____ CL2 Analyzer Reading: _____
Description of Work Performed:	
Day 10	Dosage Pump #1 RPM _____
	Dosage Pump #2 RPM _____ CL2 Analyzer Reading: _____
Description of Work Performed:	

Operations Maintenance Log

Well # _____

Month / Year: _____

Day 11	Dosage Pump #1 RPM _____
	Dosage Pump #2 RPM _____ CL2 Analyzer Reading: _____
Description of Work Performed:	
Day 12	Dosage Pump #1 RPM _____
	Dosage Pump #2 RPM _____ CL2 Analyzer Reading: _____
Description of Work Performed:	
Day 13	Dosage Pump #1 RPM _____
	Dosage Pump #2 RPM _____ CL2 Analyzer Reading: _____
Description of Work Performed:	
Day 14	Dosage Pump #1 RPM _____
	Dosage Pump #2 RPM _____ CL2 Analyzer Reading: _____
Description of Work Performed:	
Day 15	Dosage Pump #1 RPM _____
	Dosage Pump #2 RPM _____ CL2 Analyzer Reading: _____
Description of Work Performed:	

Operations Maintenance Log

Well # _____ Month / Year: _____

Day 16	Dosage Pump #1 RPM _____
	Dosage Pump #2 RPM _____ CL2 Analyzer Reading: _____
Description of Work Performed:	
Day 17	Dosage Pump #1 RPM _____
	Dosage Pump #2 RPM _____ CL2 Analyzer Reading: _____
Description of Work Performed:	
Day 18	Dosage Pump #1 RPM _____
	Dosage Pump #2 RPM _____ CL2 Analyzer Reading: _____
Description of Work Performed:	
Day 19	Dosage Pump #1 RPM _____
	Dosage Pump #2 RPM _____ CL2 Analyzer Reading: _____
Description of Work Performed:	
Day 20	Dosage Pump #1 RPM _____
	Dosage Pump #2 RPM _____ CL2 Analyzer Reading: _____
Description of Work Performed:	

Operations Maintenance Log

Well # _____

Month / Year: _____

Day 21	Dosage Pump #1 RPM _____
	Dosage Pump #2 RPM _____ CL2 Analyzer Reading: _____
Description of Work Performed:	
Day 22	Dosage Pump #1 RPM _____
	Dosage Pump #2 RPM _____ CL2 Analyzer Reading: _____
Description of Work Performed:	
Day 23	Dosage Pump #1 RPM _____
	Dosage Pump #2 RPM _____ CL2 Analyzer Reading: _____
Description of Work Performed:	
Day 24	Dosage Pump #1 RPM _____
	Dosage Pump #2 RPM _____ CL2 Analyzer Reading: _____
Description of Work Performed:	
Day 25	Dosage Pump #1 RPM _____
	Dosage Pump #2 RPM _____ CL2 Analyzer Reading: _____
Description of Work Performed:	

Operations Maintenance Log

Well # _____

Month / Year: _____

Day 26	Dosage Pump #1 RPM _____
	Dosage Pump #2 RPM _____ CL2 Analyzer Reading: _____
Description of Work Performed:	
Day 27	Dosage Pump #1 RPM _____
	Dosage Pump #2 RPM _____ CL2 Analyzer Reading: _____
Description of Work Performed:	
Day 28	Dosage Pump #1 RPM _____
	Dosage Pump #2 RPM _____ CL2 Analyzer Reading: _____
Description of Work Performed:	
Day 29	Dosage Pump #1 RPM _____
	Dosage Pump #2 RPM _____ CL2 Analyzer Reading: _____
Description of Work Performed:	
Day 30	Dosage Pump #1 RPM _____
	Dosage Pump #2 RPM _____ CL2 Analyzer Reading: _____
Description of Work Performed:	

Operations Maintenance Log

Well # _____ Month / Year: _____

Day 31	Dosage Pump #1 RPM _____				
	Dosage Pump #2 RPM _____		CL2 Analyzer Reading: _____		
Description of Work Performed: _____					
Chlorine Dosing Pump Feed Rate					
Start of Month:					
Trim Pump		RPM: _____			
End of Month:					
Trim Pump		RPM: _____			
Date Diesel Generator Tested: _____					
Reservoir Level					
Date	Level	Date	Level	Date	Level
1		11		21	
2		12		22	
3		13		23	
4		14		24	
5		15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	
				31	

pH, Temperature, Pressure and Analyzer Log

Well # _____

Month: _____

Year: _____

Day	Well pH	Water Temperature into Reservoir	Reservoir pH	Water Temperature into Distribution	Well-Free Residual Analyzer Reading	Well-Turbidity Analyzer Reading	Reservoir-Free Residual Analyzer Reading	System Pressure
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
Measures		degrees C		degrees C	mg / l	NTU	mg / l	psi

**Township of Southgate
Property Lead Sampling Report**

Property Occupant: _____

Property Owner: _____

Address: _____
Dundalk ON N0C 1B0

Phone Number: _____

Email Address: _____

Lab results from Lead sample taken on _____ / _____ / _____
Month Day Year

Attached is a lab report from SGS Lakefield that indicates your water sample is under the Ontario Drinking Water Standard for Lead of 10ug/litre (micro-grams per litre of water) Yes or No

Attached is a lab report from SGS Lakefield that indicates your water sample is over the Ontario Drinking Water Standard for Lead of 10ug/litre (micro-gram per litre of water) Yes or No

The Medical Officer of Health has given the Township of Southgate the following direction related to the lead testing exceeding the Provincial Standards.

Southgate Contact:

For further information contact Jim Ellis, Water Operations Manager, at the Township of Southgate by calling: Office: (519) 923-5054, Cell: (519) 378-3777 or by email at waterworks@southgate.ca

Occupants Acknowledgement:

Name Signature Dated

Copy to Property Owner: _____

Township of Southgate – Dundalk Water Works

Resident Comment Report

Date Comment Received: _____

Comment Received By: _____

Location of Concern: _____

Description: _____

Identification of Commenter:

Name: _____

Address: _____

Telephone #: _____

Staff Assigned: _____

Solution: _____

Further Follow-up?: Yes No

Date Received by Public Works Manager: _____

Remarks: _____

Shipping Document

Destination (City / Town) Name: D3 or D4 (circle) Address:			Consignor Name: Address:			
Name of Carrier Prepaid <input type="checkbox"/> Collect <input type="checkbox"/>			Transport Unit No.			
Point of Origin	Shipping Date			Shippers No.		
REGULATED DANGEROUS GOODS 24 HOUR NUMBER: ERP reference and telephone number (if required):						
Shipping Name (technical name) if applicable	Class Primary	Class Subsidiary	UN Number	Packing Group / Risk Group	Quantity	Packages Requiring Labels
Sodium Hypochlorite more than 7% available	8		1791	III	_____ x 20 l	already labeled
THIS IS TO CERTIFY THAT THE ABOVE NAMED ARTICLES ARE PROPELY CLASSIFIED, DESCRIBED PACKAGED, MARKED AND LABELLED AND ARE IN PROER CONDITION FOR TRANSPORTATION OF DANGEROUS GOODS LEGISLATION						
Special Instructions						
Non Regulated Goods						
Packages	Description of articles				Weight	
Received in apparent good order				Shipper's signature		
Consignee's signature						
Received in apparent good order		Driver's signature			Driver's No.	

Training Course Report

Course Title: _____

Instructor: _____

Date of Course: _____

Start Time: _____

End Time: _____

Total Training Hours	
Hours:	CEUs:

Training Methods Used: _____

Manual Title: _____

DVD or Video Tape Title: _____

Handouts Title: _____

Topics Covered:

- 1 _____
- 2 _____
- 3 _____
- 4 _____
- 5 _____

Attendees: _____

Township of Southgate
Water Main Break Report

Date: _____ Year: _____

Location: _____

Reported to: _____ Time: _____

Backhoe called: _____ Arrived: _____ Finished: _____ Operator: _____

Locates called in: _____ Locate ticket #: _____

Bell locator arrived: _____ Completed: _____

Gas locator arrived: _____ Completed: _____

Hydro locator arrived: _____ Completed: _____

Water/Sewer located by: _____ Completed: _____

Ministry of Labour #: _____

Water shutoffs turned off: _____

Started to dig: _____ Flow maintained until air gap created: Yes / No

Water main size: _____ Water main material: _____

Depth: _____ Type of water main break: _____

Clamp Installed: _____ Air gap maintained throughout repair: Yes / No

Shutoffs Turned On: _____ Suspected contamination: Yes(Cat 2) / No(Cat 1)

Type of repair: _____ Pipe and repair parts disinfected: Yes / No

Post repair flushing undertaken: Yes / No Hydrants flushed: _____ Free Cl2 _____

Microbiological samples taken: Yes / No

Location: _____ Time: _____ Free Cl2: ___ TC: ___ EC: ___ HPC: _____

Location: _____ Time: _____ Free Cl2: ___ TC: ___ EC: ___ HPC: _____

Return to normal service: Yes / No Time: _____

Public Agency Notified: MOH / MOE / SAC

Category 2: Additional Steps: Yes / No Describe: _____

Disinfectant Used: Yes / No Initial Concentration: _____ Contact Time: _____

Final Concentration: ___ Final Concentration as % of Initial Concentration: _____ %

Comments: _____

On site supervisor: _____ OIC: _____

Water Training Log

Operator: _____

Year: _____

Date	Location	Course, Seminar or Meeting Name	Hours	CEU Points

Weekly Weather Data

Month / Year: _____

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Day							
Max Temp							
Min Temp							
Precipitation							
Day							
Max Temp							
Min Temp							
Precipitation							
Day							
Max Temp							
Min Temp							
Precipitation							
Day							
Max Temp							
Min Temp							
Precipitation							
Day							
Max Temp							
Min Temp							
Precipitation							

Well Alarm Test Checklist

Date of Testing: _____

	Test	Method	Well D3 Trigger	Well D4 Trigger	Well D5 Trigger	Notes
<input type="checkbox"/>	High discharge pressure	Change SCADA setpoints				
<input type="checkbox"/>	Low discharge pressure	Change SCADA setpoints				
<input type="checkbox"/>	Building alarm	Enter building with alarm armed				
<input type="checkbox"/>	Security alarm	Simulate entry with alarm armed				
<input type="checkbox"/>	Power failure	De-energize building with alarm disarmed				
<input type="checkbox"/>	Chlorine tank empty	Disable flow sensor with well pump running				
<input type="checkbox"/>	Loss of chemical feed	Disable flow sensor with well pump running				
<input type="checkbox"/>	Well pump low level	Change SCADA setpoints				
<input type="checkbox"/>	Well pump failure	De-energize well pump when it should be running				
<input type="checkbox"/>	High lift pump #1 failure	De-energize and override with pumps not running				
<input type="checkbox"/>	High lift pump # 2 failure	De-energize and override with pumps not running				
<input type="checkbox"/>	Reservoir high level alarm	Change SCADA setpoints				
<input type="checkbox"/>	Reservoir low level alarm	Change SCADA setpoints				
<input type="checkbox"/>	High free chlorine alarm	Change SCADA setpoints				
<input type="checkbox"/>	Low free chlorine alarm	Change SCADA setpoints				
<input type="checkbox"/>	Adverse free chlorine alarm	Change SCADA setpoints				
	Test	Confirmation				
<input type="checkbox"/>	Trim pumps					
<input type="checkbox"/>	Cell phones operational					
<input type="checkbox"/>	Alarm callout sequence					
<p>Operator: _____</p> <p>Remarks: _____</p> <p>_____</p> <p>_____</p>						

**Township of Southgate
Dundalk Water Works**

Well Alarms Log

Well #: _____

Month: _____

Year: _____

Operator	Date	Time	Alarm #	Alarm Details

Township of Southgate – Dundalk Water Works Well D3/D4/D5 Generator Checklist

Date	Test or Power Failure	Engine Hours	Hours Running	Ambient Temp	Oil Level	Water Level	Fuel Level	Heaters	Belts	Battery Charger	Battery Levels & Cables
Date	Leaks (oil, water or fuel)	Amp	Volts	Freq	Oil Pressure	Water Temp	BC Amp	RPM	ATS	Mechanic	Comments

Township of Southgate - Dundalk Waterworks

Well D4 Monthly Monitoring Report

Month: _____ Year: _____

Well Location	Date	Time	Was Well D4 Running?	Well Level in Metres	Operator
Abbott Residence					
Keating Residence					
Well D4 Monitor					
Deep Well #1					
Deep Well #2					

Well Maintenance Checklist

Well #: _____

Date Inspected : _____

- Clean & inspect chlorine suction line, strainer and valve.
- Clean & inspect chlorine feed line to water main inlet.
- Clean & inspect watermain chlorine injection point and valve.
- Clean & inspect well chlorinator and valves.
- Clean & inspect water analyzer vessel and zero calibrate analyzer.
- Water flow meters all working
- Pressure guages all working
- Inspect safety equipment. (apron, gloves and goggles)
- Check spare parts for chlorinators and line valves.
- Clean and inspect UV optiview.
- Clean and calibrate turbidity meter.
- Perform UV reference check procedure
- Check for expired or near expired standards, buffers, electrolyte, etc.

Parts Replaced and/or Required

Rep.	Req.	Quantity	Part Description	Equipment Used On

General Concerns: _____

Operator-in-Charge: _____

Well Pumping Log

Well # : _____

Month: _____

Monthly Raw Water Turbidity: _____ Date: _____

Operator Initials	Day	Meter Reading	Cubic Metres Pumped	Pump Hrs.	Pump Flow Rate	Well Level	Hypochlorite:		Turbidity	UV Dose mj/cm ²	
							Solt'n. Added	Chlorine Dosage Rate			
	Previous										
	1										
	2										
	3										
	4										
	5										
	6										
	7										
	8										
	9										
	10										
	11										
	12										
	13										
	14										
	15										
	16										
	17										
	18										
	19										
	20										
	21										
	22										
	23										
	24										
	25										
	26										
	27										
	28										
	29										
	30										
	31										
	Measure	m ³	m ³	Hours	l / min.	* metres	litres	mg / l	mg / l	NTU	mj/cm ²

* S = Static water level

Weekly Property and Security Checklist

Month: _____ Week of: _____ Year: _____

Operator: _____

All Sites

- Fences and gates in good condition
- Required signage posted and legible
- Reservoir hatches and ladders locked and secure
- Flushing connections caps and screen secure
- Doors locked and secure
- Communication poles and antennas in good condition

Well D3

- Fire System Generator fuel tanks in good condition
- Hot box secure and in good condition
- Call dialer to ensure operational (519-923-3483)

Well D4

- Monitoring well cap secure
- Call dialer to ensure operational (519-923-5150)

Well D5

- Call dialer to ensure operational (519-923-9198)

Defects and Corrective Action:

Township of Southgate - Dundalk Waterworks

Well Inspection Checklist

Well Site: _____

Year: _____

MONTH	Well Cap Secure	Well Cap Gasket Condition	Well Openings at the top of the Casing are Sealed	Well Vent Screen is in place and is open	Corrective Actions, if any, or General Comments	Operator's Signature
January						
February						
March						
April						
May						
June						
July						
August						
September						
October						
November						
December						

Township of Southgate

Water Meter Installation and Change Out Form

Date: _____

Address: _____

Dundalk ON N0C 1B0

Owner's Name: _____

Phone Number: _____

Installer/Operator: _____

Install Type	Material	Meter Size	Line Size
<input type="checkbox"/> Cut in	<input type="checkbox"/> Copper	<input type="checkbox"/> 5/8"	<input type="checkbox"/> 1/2"
<input type="checkbox"/> Meter Spacer	<input type="checkbox"/> PVC	<input type="checkbox"/> 5/8" x 3/4"	<input type="checkbox"/> 5/8"
<input type="checkbox"/> Change Head	<input type="checkbox"/> Galvanized	<input type="checkbox"/> 3/4"	<input type="checkbox"/> 3/4"
<input type="checkbox"/> Change base	<input type="checkbox"/> Other	<input type="checkbox"/> 1"	<input type="checkbox"/> 1"
<input type="checkbox"/> Change whole meter		<input type="checkbox"/> 1"+	<input type="checkbox"/> 1"+
		<input type="checkbox"/> 2"	<input type="checkbox"/> 2"
		_____ other	_____ other

Old Information

Meter Serial #: _____

Remote ID #: _____

Final Meter Read (low): _____

Final Meter Read (high): _____

Valve Working

Y	N
Y	N

Meter Sealed

Y	N
Y	N

Meter Stopped

Bypass Sealed

New Information

Meter Serial #: _____

Remote ID #: _____

Meter Location: _____

Check List:

- Not backwards
- Sealed
- No plumbing leaks
- Cleaned up
- Hot/Cold water on
- Customer Signature
- Ground wire & clamp required

Customer Signature: _____

**Annual Testing Requirements
Township of Southgate
Dundalk Waterworks Department**

Test	Frequency	Location	Last Sample	Month Test Completed			
Trihalomethane	Quarterly	DW - 1 per Well					
Nitrates & Nitrites	Quarterly	TW - Wells					
Sodium	Annually	TW - Wells					
Radionuclides	Annually	TW - Wells					
Lead	2 x Annually	DW					
Organics	3 years	TW - Wells					
Inorganics	3 years	TW - Wells					
Fluoride	5 years	TW - Wells					

Improvement Corrective Action Request Log

ICAR #:	Date Issued	Brief Description	Disposition	Disposition Date
			Approved: <input type="checkbox"/> Rejected: <input type="checkbox"/>	
			Approved: <input type="checkbox"/> Rejected: <input type="checkbox"/>	
			Approved: <input type="checkbox"/> Rejected: <input type="checkbox"/>	
			Approved: <input type="checkbox"/> Rejected: <input type="checkbox"/>	
			Approved: <input type="checkbox"/> Rejected: <input type="checkbox"/>	
			Approved: <input type="checkbox"/> Rejected: <input type="checkbox"/>	
			Approved: <input type="checkbox"/> Rejected: <input type="checkbox"/>	
			Approved: <input type="checkbox"/> Rejected: <input type="checkbox"/>	
			Approved: <input type="checkbox"/> Rejected: <input type="checkbox"/>	
			Approved: <input type="checkbox"/> Rejected: <input type="checkbox"/>	

Measuring and Recording Equipment

Equipment	Location	Unit #	Serial Number	Calibration Date	Due Date
Distribution Flow Meter	Well 4	FIT 402	769001F16000		
Distribution Chlorine Analyzer	Well 4	AIT 403B	BH 92481-12		
Pressure Gauge	Well 4	PIT 401	V6025515198		
Well Flow Meter	Well 4	FIT 401	69002116000		
Well Chlorine Analyzer	Well 4	AIT 402	BL 91566-09		
NTU Turbidity Analyzer	Well 4	AIT 401	201902601		
Reservoir Level	Well 4	LIT 403	D12104140XB		
Distribution Flow Meter	Well 3	FIT 302	A971527/1/7		
Distribution Chlorine Analyzer	Well 3	AIT 303B	BH 91628-09		
Well Flow Meter	Well 3	FIT 301	69002016000		
Well Chlorine Analyzer	Well 3	AIT 302	8106174		
Pressure	Well 3	PIT 301	04-9161235-001		
Reservoir Level	Well 3	LIT 303	100404151WY		
Well NTU Analyzer	Well 3	AIT 301	201903401		
Distribution Flow Meter	Well 5	FIT 502	P6012816000		
Distribution Chlorine Analyzer	Well 5	AIT 503B	8106187		
Well Flow Meter	Well 5	FIT 501	P6012716000		
Well Chlorine Analyzer	Well 5	AIT 502	8106182		
Well NTU Analyzer	Well 5	AIT 501	201903404		
Pressure	Well 5	PIT 501	P600b91509C		
Reservoir Level	Well 5	LIT 503	PBD/L7080506		
Distribution Chlorine Analyzer	Water Tower	AIT01	2300516		
Recirculation Pump Flow Meter	Water Tower	FIT01	V300F416000		
Pressure	Water Tower	LIT01	V2010515129		
Hach CL2 Colorimeter	Hand Held		14060E248781		
Hach CL2 Colorimeter	Hand Held		1809E368633		
2100P Turbidimeter	Hand Held		041000038010		
2100P Turbidimeter	Hand Held		000400024712		
2100Q Turbidimeter	Hand Held		15010C038031		
Lovibond CL2 Colorimeter	Hand Held		19/54026		
Lovibond CL2 Colorimeter	Hand Held		20/57950		
Thermo Orion PH meter	Hand Held		G17693		
MD 100 Colorimeter HR	Hand Held		23/79464		
Thermo Star A326 DO & PH	Lagoon		G12285		
Influent Flow Meter	Lagoon		7ML50332AA001A		
Effluent Flow Meter	Lagoon		111903137		
Flow Meter	SPS	FIT01	3K672022320315		
Level	SPS	LIT01	PBD-P3270001		

**The Township of Southgate
Internal Audit Worksheet**

Process	Elements Covered	Contact	Date

Auditor question and required response:
Response from Contact:

Auditor question and required response:
Response from Contact:

Auditor question and required response:
Response from Contact:

Auditor question and required response:
Response from Contact:

**The Township of Southgate
Internal Audit Report**

Process	Contact	Area Audited

Observations / Non-Conformances / CARS / OFI

Observations / Non-Conformances / CARS / OFI

Observations / Non-Conformances / CARS / OFI

Observations / Non-Conformances / CARS / OFI

Observations / Non-Conformances / CARS / OFI

Observations / Non-Conformances / CARS / OFI

Observations / Non-Conformances / CARS / OFI

Observations / Non-Conformances / CARS / OFI

Auditor	Signature	Date

Township of Southgate
185667 Grey County Road 9,
Dundalk, ON N0C 1B0
Jim Ellis, Public Works Manager
jellis@southgate.ca



Phone: 519-923-2110 ext. 250
Toll Free: 1-888-560-6607
Fax: 519-923-9262

Date: _____

Dundalk Frozen Water Notice

All Dundalk residents are required to keep **one cold water tap running continually to ensure water service.** The flow of water should be maintained at ½ inch in diameter, which is approximately 1 cup of water in 10 seconds. **This applies until further notice.**

Water bills will be adjusted to compensate for this period of time.

Thank you, Public Works

Township of Southgate
185667 Grey County Road 9,
Dundalk, ON N0C 1B0
Jim Ellis, Public Works Manager
jellis@southgate.ca



Phone: 519-923-2110 ext. 250
Toll Free: 1-888-560-6607
Fax: 519-923-9262

Date: _____

Please turn your continually running water tap off.

The Public Works department would like to thank all residents for their cooperation for leaving your water running to prevent frozen water services in the past couple of months.

Future Water Billing:

Your _____ Water Bills for _____ consumption will be adjusted to compensate for your extra water running through this period of time. The Township has collected information from your November/December 201____ and _____ readings to estimate what your consumption should be for this billing period.

Water Turn Off Notice



Boil Water Advisory Lifted

Date: _____

The Grey Bruce Health Unit has lifted the boil water advisory for residents in Dundalk.

Southgate had taken two consecutive water samples that have received test results indicting the Dundalk water is **safe** to drink.

Thank you for patience.

Jim Ellis
Public Works Manager



Boil Water Advisory Order

Please be advised that a **BOIL WATER ORDER** has been placed on the Village of Dundalk as of:

Time: _____ Date: _____, 20__
by the Grey-Bruce Health Unit. The order is supported by the Township of Southgate to ensure Public Safety and a secure water supply.

Cause: _____

Reason for the Advisory Order: _____

Direction to Users:

Before using water from the system for drinking purposes or brushing your teeth, you must boil the water rapidly for 1 minute prior to consumption. Note, the water is safe for washing clothes and showering.

Resolution & Future Communications:

Staff will communicate to Dundalk Village once the advisory has been lifted via the Township website, Facebook and local radio stations.

Township of Southgate

Water Main / Service – Repair / Replacement / Installation

Date: _____ Year: _____

Location: _____

Type of work: _____

Backhoe called: _____ Arrived: _____ Finished: _____ Operator: _____

Locates called in: _____ Locate ticket #: _____

Bell locator arrived: _____ Completed: _____

Gas locator arrived: _____ Completed: _____

Hydro locator arrived: _____ Completed: _____

Water/Sewer located by: _____ Completed: _____

Ministry of Labour #: _____

Water shutoffs turned off: _____

Started to dig: _____ Flow maintained until air gap created: Yes / No

Water main size: _____ Water main material: _____

Reason for repair / replacement / installation: _____

Parts Installed: _____ Air gap maintained throughout repair: Yes / No

Shutoffs Turned On: _____ Suspected contamination: Yes(Cat 2) / No(Cat 1)

Type of repair: _____ Pipe and repair parts disinfected: Yes / No

Post repair flushing undertaken: Yes / No Hydrants flushed: _____ Free Cl₂ _____

Microbiological samples taken: Yes / No

Location: _____ Time: _____ Free Cl₂: _____ TC: _____ EC: _____ HPC: _____

Location: _____ Time: _____ Free Cl₂: _____ TC: _____ EC: _____ HPC: _____

Return to normal service: Yes / No Time: _____

Public Agency Notified: MOH / MOE / SAC

Category 2: Additional Steps: Yes / No Describe: _____

Disinfectant Used: Yes / No Initial Concentration: _____ Contact Time: _____

Final Concentration: _____ Final Concentration as % of Initial Concentration: _____%

Comments: _____

On site supervisor: _____ OIC: _____

**Township of Southgate
Administration Office**

185667 Grey County Road 9, RR 1
Dundalk, ON N0C 1B0



Phone: 519-923-2110
Toll Free: 1-888-560-6607
Fax: 519-923-9262
Web: www.southgate.ca

Date:

Dear Supplier;

This is a general letter to essential suppliers and labs that the Township of Southgate uses for the production and delivery of safe drinking water. As a municipal drinking water supplier we are required to follow regulations and legislations as well as the Drinking Water Quality Management System (DWQMS). Part of our due diligence is to ensure that we receiving quality product and service from your company.

Would you please send us proof of your ANSI/NSF certification, MSDS and/or proof of lab accreditation, if applicable. If your company is not required to meet any of the standards listed but meets an industry required standard would you inform us of those standards.

If none of the above apply to your company would you please confirm the receipt of this letter.

If you have any questions, please contact me.

Thank you,

Cory Henry
QMS Representative / Lead Hand

CAPA (Corrective Action Preventative Action) Request Form	CAPA #
--	---------------

Type <i>check one</i>	<input type="checkbox"/> Corrective Action	<input type="checkbox"/> Opportunity for Improvement	Name: _____
	<input type="checkbox"/> Preventative Action		Date: _____

Source of Issue: _____	Process affected: _____
------------------------	-------------------------

Priority <i>check one</i>	<input type="checkbox"/> Low	<input type="checkbox"/> Medium	<input type="checkbox"/> High
	<input type="checkbox"/> Urgent/Critical		

Describe the issue or problem in detail:

Stop here. Submit the CAPA to QMS Representative.

CAPA assigned to: _____	Date assigned: _____	Respond by: _____
-------------------------	----------------------	-------------------

Root Cause Analysis *(add extra sheets if required):*

Why: _____

Why: _____

Why: _____

Why: _____

Why: _____

Root Cause: _____

To be completed by the Assignee.

Action Plan *(actions taken to eliminate root cause, resolve issue and prevent reoccurrence):*

Date Action Completed: _____	Name: _____
------------------------------	-------------

Stop here. Submit the CAPA to QMS Representative.

CAPA effectiveness verified by: _____	Date of verification: _____
Result: <input type="checkbox"/> PASS	<input type="checkbox"/> FAIL - Returned for further processing

Notes and Justification *(add extra sheets if required):*

Water Main Commissioning Form

Sampling

Note: Option #1 - take two sets of samples 16 hours apart. Option #2 - Let the water main sit for 16 hours, then take two sets of samples, 15 minutes apart, while leaving the taps running between samples.

Sample Location	1st set of samples					2nd set of samples				
	Date	Time	EC	TC	HPC	Date	Time	EC	TC	HPC

Sketch of Sampling Locations:

Connection

Date:	Was less than one length of pipe used for connection? Yes <input type="checkbox"/> No <input type="checkbox"/>
If yes, complete lines 1-4. If no, complete lines -5-9	
1. Length of connection piece:	Was a certified operator present? Yes <input type="checkbox"/> No <input type="checkbox"/>
2. If yes, name of certified operator:	If no, bacti sample result: EC <input type="checkbox"/> TC <input type="checkbox"/> HPC <input type="checkbox"/> CL2 <input type="checkbox"/>
3. If yes, were sanitary conditions met and proper disinfection completed? Yes <input type="checkbox"/> No <input type="checkbox"/>	
4. CL2 residual after water main is flushed and put into service:	
5. Reason for exception to 1 pipe length rule:	
6. Length of connection:	Name of certified operator:
7. Were sanitary conditions met and proper disinfection completed? Yes <input type="checkbox"/> No <input type="checkbox"/>	
8. Bacti results, sample 1: EC <input type="checkbox"/> TC <input type="checkbox"/> HPC <input type="checkbox"/> CL2 <input type="checkbox"/>	Bacti results, sample 2: EC <input type="checkbox"/> TC <input type="checkbox"/> HPC <input type="checkbox"/> CL2 <input type="checkbox"/>
9. CL2 residual after water main is flushed and put into service:	

Note: Procedures are referenced from AWWA C651-14 Disinfecting Water Main and the MECP Water Main Disinfection Procedures.

OnWARN Member Emergency Contact List

Last updated: 2022-01-07

Member Name	Location	Region	24-hour #	Role	Contact Name	Phone	Cell	E-mail
Asphodel Norwood (Township of)	Norwood	Eastern	705-926-0179	Authorized Official	Kyle Beacock	705-933-4371	705-933-4371	kbeacock@antownship.ca
				Alternate	Jeff Waldon	705-930-0697	705-930-0697	jwaldon@antownship.ca
				Records	Kyle Beacock			
				Other				
Aurora (Town of)	Aurora	Golden Horseshoe		Authorized Official	Lindsay Hayworth	905-727-3123	905-505-5398	lhayworth@aurora.ca
				Alternate	Anthony Del Balso	905-727-3123	905-505-5617	adelbalso@aurora.ca
				Records	Iustina Voinea	905-727-3123		ivoinea@aurora.ca
				Other	Laura Beaton	905-727-3123		lbeaton@aurora.ca
Aylmer (Town of)	Aylmer	Western	519-773-3164	Authorized Official	Robert Johnson	519-773-3164	519-808-7500	riohnson@town.aylmer.on.ca
				Alternate	Connor Bailey	519-773-4949	519-808-0722	cbailey@town.aylmer.on.ca
				Records	Josh Brick	519-773-3164		jbrick@town.aylmer.on.ca
				Other				
Bayham (Municipality of)	Staffordville	Western	519-866-5521	Authorized Official	Ed Roloson	519-874-4761	519-636-6368	eroloson@bayham.on.ca
				Alternate	Paul Shipway	519-866-5521	905-490-0049	pshipway@bayham.on.ca
				Records				
				Other				
The Blue Mountains (Town of)	Thornbury	Western	Water: 226-665-0707 Wastewater: 705-446-5041	Authorized Official	Shawn Carey	519-599-3131	705-441-6194	directorops@thebluemountains.ca
				Alternate	Allison Kershaw	519-599-3131	705-446-4535	managerwww@thebluemountains.ca
				Other	Scott Hill		705-441-6601	watersupervisor@thebluemountains.ca
				Other	Mark Service		705-351-0672	wwwsupervisor@thebluemountains.ca
Brockville (City of)	Brockville	Eastern	Water / Wastewater: 613-498-1362 After Hours: 613-498-1261	Authorized Official	Craig Drake	613-342-8772	613-802-0087	cddrake@brockville.com
				Authorized Official	Brandon Goddard	613-342-8772	613-803-2184	bgoddard@brockville.com
				Alternate (Water & Records / Other	Peter Raabe (Director)	613-342-8772	613-802-2297	praabe@brockville.com
				Other				
Carleton Place (Town of)	Carleton Place	Eastern	613-257-2253	Authorized Official	Guy Bourgon	613-257-6209	613-451-5950	gbourgon@carletonplace.ca
				Alternate	Graham Patterson	613-257-3920	613-229-4134	gpatterson@carletonplace.ca
				Records	Sharyl Andrews	613-257-2253		sandrews@carletonplace.ca
				Other				
Casselman (Village of)	Casselman	Eastern	613-223-8975	Authorized Official	Pierre-Paul Beauchamp	613-764-3139		ppbeauchamp@casselman.ca
				Alternate	Eric Gadoua	613-764-3139		egadoua@casselman.ca
				Records				
				Other				
Centre Wellington (Township of)	Elora	Western	844-693-6221	Authorized Official	Colin Baker	519-846-9691	519-831-3400	cbaker@centrewellington.ca
				Alternate	Dino Masiero	519-846-9691	226-820-5181	dmasiero@centrewellington.ca
				Records	Karen McMillan	519-846-9691	519-820-3152	kmcmillan@centrewellington.ca
				Other (Water)	Rick Chilton	519-846-9691	519-820-6228	rchilton@centrewellington.ca
				Other (Wastewater)	Anton Wasilka	519-846-9691	519-994-0302	awasilka@centrewellington.ca
Chatham-Kent Public Utilities Commission	Chatham	Western	519-436-0119	Authorized Official	Tim Sunderland	519-436-0119	226-229-0094	tims@chatham-kent.ca
				Alternate	Darren Galbraith	519-436-0119	519-350-1552	darrenga@chatham-kent.ca
				Records	Scott Sparling	519-436-0119	519-350-0116	scott.sparling@chatham-kent.ca
				Other				
Clearview (Township of)	Stayner	Western	705-445-2100	Authorized Official	Mike Rawn	705-428-6230	705-441-6935	mrawn@clearview.ca
				Alternate	Todd Patton	705-428-5024	705-441-4917	tpatton@clearview.ca
				Records	Stephanie Schell	705-428-5024		sschell@clearview.ca
				Other				
Deseronto (Town of)	Deseronto	Eastern	800-342-6442	Authorized Official	Rob Galt	613-396-3436	613-536-9222	rgalt@deseronto.ca
				Alternate				
				Records				
				Other				
Dryden	Dryden	Northern		Authorized Official	Dean Walker	807-223-2367	807-221-9480	dwalker@dryden.ca
				Alternate	Blake Poole	807-223-2367	807-221-8883	bpoole@dryden.ca
				Records				
				Other				
Durham (Regional Municipality)	Whitby	Golden Horseshoe	905-668-7711	Authorized Official	Ian McIlwham	905-668-7711	905-431-7813	ian.mcilwham@durham.ca
				Alternate	Rich Tindall	905-668-7711	905-260-3871	rich.tindall@durham.ca
				Records	Janine DeBoer	905-668-7711	905-260-1017	janine.deboer@durham.ca
				Other				

OnWARN Member Emergency Contact List

Last updated: 2022-01-07

Member Name	Location	Region	24-hour #	Role	Contact Name	Phone	Cell	E-mail
Dutton Dunwich (Municipality of)	Dutton	Western	519-762-2748	Authorized Official	Tim Hansen	519-762-2733	519-933-6483	thansen@duttondunwich.on.ca
				Alternate	Archie Leitch	519-762-2733	519-476-8784	aleitch@duttondunwich.on.ca
				Records	Tim Hansen			
				Other				
East Gwillimbury (Town of)	East Gwillimbury	Golden Horseshoe	905-478-4282 (M-F 8:30-4:30) 1-866-262-4157 (after hours)	Authorized Official	Kristy Baidy	905-478-4283	905-955-7351	kbaidy@eastgwillimbury.ca
				Alternate	Jeff Meggitt	905-478-4283		jmeggitt@eastgwillimbury.ca
				Records	Dave Dodwell	905-478-4283	905-955-4493	ddodwell@eastgwillimbury.ca
				Other				
Edwardsburgh / Cardinal (Township of)	Cardinal	Eastern	613-342-0521	Authorized Official	Gord Shaw	613-658-3001	613-349-4539	gshaw@twpec.ca
				Alternate	Eric Wemerman	613-657-3765	613-213-2171	ewemerman@twpec.ca
				Records	Aaron Campbell	613-657-3765	613-340-8608	acampbell@twpec.ca
				Other				
Elgin Area Primary Water Supply System	London	Western	519-782-3101	Authorized Official	Andrew Henry	519-930-3505	519-854-2459	ahenry@huroneginwater.ca
				Alternate	John Walker	519-930-3505	226-268-5162	iwalker@huroneginwater.ca
				Records	Erin McLeod	519-930-3505	226-448-6730	emcleod@huroneginwater.ca
				Other				
Erin (Town of)	Hillsburgh	Western	519-766-6564	Authorized Official	Nathan Hyde	519-855-4407		nathan.hyde@erin.ca
				Alternate				
				Records				
				Other				
Gananoque Public Utilities	Gananoque	Eastern	Pager: 613-541-3897 Gananoque Police Dispatch: 613-382-4509	Authorized Official	Don Richards	613-382-2149	613-561-7760	utilitysuperintendent@gananoque.ca
				Alternate	David Armstrong	613-382-2149		PWManager@gananoque.ca
				Records	Christine Brennan			utilitycompliance@gananoque.ca
				Other				
Greater Napanee (Town of)	Greater Napanee	Eastern	613-561-3188	Authorized Official	Kyle Sinclair	613-354-5931	613-561-3188	ksinclair@greaternapanee.com
				Alternate	Peter Dafoe	613-354-5931	613-561-2032	pdafoe@greaternapanee.com
				Records	Kristie Kelly	613-354-5931	613-561-2941	kkelly@greaternapanee.com
				Other				
Greater Sudbury (City of)	Sudbury	Northern	705-671-2489	Authorized Official	Shawn Chrétien	705-674-4455		shawn.chretien@greatersudbury.ca
				Alternate	Brittany Hallam	705-674-4455	705-690-5389	brittany.hallam@greatersudbury.ca
				Records	Amanda Desjardins	705-674-4455	705-665-1588	amanda.desjardins@greatersudbury.ca
				Other	Julie Friel	705-674-4455	705-677-9208	julie.friel@greatersudbury.ca
Grey Highlands (Municipality of)	Markdale	Western	519-986-4784	Authorized Official	Shawn Moyer	519-986-1216	519-373-9741	movers@greyhighlands.ca
				Alternate	Jeff Elchuk	519-986-1216	519-373-9242	elchukj@greyhighlands.ca
				Records	Jenn Eagan	519-986-1216	519-373-4249	eaganj@greyhighlands.ca
				Other				
Guelph (City of)	Guelph	Western	519-831-0273 (Water Mgmt. on-call)	Authorized Official	Wayne Galliher	519-822-1260	519-803-1276	wayne.galliher@guelph.ca
				Authorized Official	Tim Robertson	519-822-1260	519-803-8447	tim.robertson@guelph.ca
				Alternate (Water)	Emily Stahl	519-822-1260	226-820-6477	emily.stahl@guelph.ca
				Alternate (WWT)	Mari MacNeil	519-822-1260	226-332-4349	mari.macneil@guelph.ca
				Records (Water)	Kristin Pressey	519-822-1260	226-821-4100	kristin.pressey@guelph.ca
				Records (WWT)				
Guelph / Eramosa (Township of)	Rockwood	Western	519-856-9596 x 150	Authorized Official	Harry Niemi		519-835-6726	hniemi@get.on.ca
				Alternate	Jason Jones		519-835-0238	jjones@get.on.ca
				Records	Donna Button	519-856-9596		dbutton@get.on.ca
				Other				
Kawartha Lakes (City of)	Lindsay	Northern	705-324-9411 (day) 705-879-7189 (24 hr)	Authorized Official	Amber Hayter	705-324-9411	705-879-7189	achayter@city.kawarthalakes.on.ca
				Alternate	Terry Farr		705-879-7160	tfarr@city.kawarthalakes.on.ca
				Alternate	Nathan Braund		705-340-3255	nbraund@city.kawarthalakes.on.ca
				Records	Julie Henry	705-324-9411		jhenry@city.kawarthalakes.on.ca
Kincardine (Municipality of)	Kincardine	Western	519-396-1511	Authorized Official	Jeff Johnston	519-396-4660	519-389-7357	orokincwaterserv@kincardine.ca
				Alternate	Adam Weishar	519-396-3468	519-389-1819	aweishar@kincardine.ca
				Records	Lisa Crimmings	519-396-4660		lcrimmings@kincardine.ca
				Other				

OnWARN Member Emergency Contact List

Last updated: 2022-01-07

Member Name	Location	Region	24-hour #	Role	Contact Name	Phone	Cell	E-mail
King (Township of)	King City	Golden Horseshoe	905-833-5321	Authorized Official	Nick Vertelman	905-833-5321		nvertelman@king.ca
				Alternate	Matt Wideman	905-833-4085		mwideman@king.ca
				Records	Irene Palazzolo	905-833-5321		ipalazzolo@king.ca
				Other				
Utilities Kingston	Kingston	Eastern	613-546-1181	Authorized Official	Heather Roberts	613-546-1181		hroberts1@utilitieskingston.com
				Alternate	Chris Leeman	613-546-1181	613-876-7546	cleeman@utilitieskingston.com
				Alternate	Kurt Clark	613-546-1181		kclark@utilitieskingston.com
				Other				
Kitchener (City of)	Kitchener	Western	519-741-2345	Authorized Official	Denise McGoldrick	519-741-2600	519-503-4675	denise.mcgoldrick@kitchener.ca
				Alternate	Greg St. Louis	519-741-2600	226-749-3525	greg.stlouis@kitchener.ca
				Records	Angela Mick	519-741-2600	519-497-8045	angela.mick@kitchener.ca
				Other	Bu Lam	519-741-2600	519-502-1716	bu.lam@kitchener.ca
Lake Huron Primary Water Supply System	London	Western	519-238-8466	Authorized Official	Andrew Henry	519-930-3505	519-854-2459	ahenry@huroneiginwater.ca
				Alternate	John Walker	519-930-3505	226-268-5162	iwalker@huroneiginwater.ca
				Records	Erin McLeod	519-930-3505	226-448-6730	emcleod@huroneiginwater.ca
				Other				
Lakefront Utilities Services Inc.	Cobourg	Eastern	905-372-2193	Authorized Official	Larry Spyrka	905-372-2193	905-373-3011	lspyrka@lusi.on.ca
				Alternate	Adam Taggart	905-372-2193	905-375-4845	ataggart@lusi.on.ca
				Records	Mina Aminnejad	905-372-2193	905-376-1241	maminnejad@lusi.on.ca
				Other				
London (City of)	London	Western	519-661-4965	Authorized Official	John Simon	519-661-2500	519-630-6694	jsimon@london.ca
				Authorized Official	Rick Pedlow	519-661-2489	519-636-6108	rpedlow@london.ca
				Alternate	City of London Dispatch	519-661-4965		
				Records (Water)	Scott Koshowski	519-661-2500	519-619-9155	skoshows@london.ca
				Records (Wastewater)	Brad Weber	519-661-2489	226-688-6651	bweber@london.ca
				Other				
Malahide (Township of)	Aylmer	Western		Authorized Official	Sam Gustavson	519-773-5344	519-495-6375	sgustavson@malahide.ca
				Alternate	Matt Sweetland	519-773-5344		msweetland@malahide.ca
				Records				
				Other				
Marmora and Lake (Municipality of)	Marmora	Eastern	800-342-6442	Authorized Official	Victor Reid	613-472-6285	613-849-9719	v.reid@marmoraandlake.ca
				Alternate	Kayla Mclean	613-472-6285	613-921-0623	k.mclean@marmoraandlake.ca
				Records				
				Other				
Midland (Town of)	Midland	Western	705-526-4275 (day) 705-526-2201 (night)	Authorized Official	André Pepin	705-526-4275		apepin@midland.ca
				Alternate	Andy Campbell	705-526-2267		acampbell@midland.ca
				Records				
				Other				
Minto (Town of)	Harriston	Western	519-323-8213	Authorized Official	Todd Rogers	519-338-2511	519-323-8213	todd@town.minto.on.ca
				Alternate	Mike McIsaac	519-338-2511	519-323-6204	mike@town.minto.on.ca
				Records	Jackie Hymers	519-338-2511		jackie@town.minto.on.ca
				Other				
Mississippi Mills (Town of)	Almonte	Eastern	613-256-3167	Authorized Official	John Gleeson	613-256-2064	613-880-7108	jgleeson@mississippimills.ca
				Alternate	Cory Smith	613-256-2064	613-913-6857	csmith@mississippimills.ca
				Records	Cindy Hartwick	613-256-2064	613-229-1521	chartwick@mississippimills.ca
				Other				
Muskoka (District of)	Bracebridge	Northern	705-645-6764	Authorized Official	Muskoka Public Works ORC	705-644-5660		publicworks@muskoka.on.ca
				Alternate	Mark Pringle	705-645-6764	705-644-2277	mark.pringle@muskoka.on.ca
				Records	Jaymie Costantino	705-645-6764	705-644-0913	jaymie.costantino@muskoka.on.ca
				Other				
Niagara Region	Thorold	Golden Horseshoe	905-984-3690 or 877-552-5579 or 905-227-7731	Authorized Official	Joe Tonellato	905-980-6000	905-321-8508	joseph.tonellato@niagararegion.ca
				Alternate	John Brunet	905-980-6000	289-668-0538	john.brunet@niagararegion.ca
				Records	Molly MacDonald	905-980-6000	289-241-0644	molly.macdonald@niagararegion.ca
				Other				

OnWARN Member Emergency Contact List

Last updated: 2022-01-07

Member Name	Location	Region	24-hour #	Role	Contact Name	Phone	Cell	E-mail
North Glengarry (Township of)	Alexandria	Eastern	613-525-1110	Authorized Official				
				Alternate	Dean McDonald	613-551-1110	613-551-2756	dean@northglengarry.ca
				Records				
				Other				
North Grenville (Municipality of)	Kemptville	Eastern	613-787-5651	Authorized Official	Karen Dunlop	613-258-9569	613-229-6489	kdunlop@northgrenville.on.ca
				Alternate	Mike Finley	613-258-9569	613-668-4234	mfinley@northgrenville.on.ca
				Records				
				Other				
North Perth (Municipality of)	Listowel	Western	519-291-2940	Authorized Official	Mark Hackett	519-292-2069	519-590-3958	mhackett@northperth.ca
				Alternate	Scott Brooks	519-291-1080	519-573-1064	sbrooks@northperth.ca
				Records				
				Other				
Ontario First Nations Technical Services Corporation	Offices in Thunder Bay and Mississaugas of the New Credit First Nation areas	Ontario-wide: North, South, Central	226-388-0438	Authorized Official	Paul Otis, Mgr.		226-388-0438	potis@ofntsc.org
				Alternate	Don Nicholson, Coord.		519-440-6013	dnicholson@ofntsc.org
				Records				
				Other				
Oro-Medonte (Township of)	Oro-Medonte	Western	705-487-2171	Authorized Official	Michelle Jakobi	705-487-2171	705-794-6385	mjakobi@oro-medonte.ca
				Alternate	Chad Robinson	705-487-2171	705-238-6273	crobinson@oro-medonte.ca
				Records				
				Other	Jennifer Barrick	705-487-2171	705-790-3511	jbarrick@oro-medonte.ca
Oxford (County of)	Woodstock	Western	866-537-7778	Authorized Official	Don Ford	519-539-9800	519-859-9185	dford@oxfordcounty.ca
				Alternate	David Simpson	519-539-9800	519-537-1335	dsimpson@oxfordcounty.ca
				Records	Jessica Happl	519-539-9800		jhappl@oxfordcounty.ca
				Other				
Perth (Town of)	Perth	Eastern	613-267-1072	Authorized Official	Grant Machan	613-267-3311	613-390-1048	gmachan@perth.ca
				Alternate	Derek Franklin	613-267-3311	613-812-1737	utilities@perth.ca
				Records				
				Other				
Peterborough Utilities Services Inc.	Peterborough	Eastern	705-748-9300	Authorized Official	Pat Devlin	705-748-9301	705-741-6714	pdevlin@peterboroughutilities.ca
				Alternate	Patricia Skopelianos	705-748-9301	705-760-1091	pskopelianos@peterboroughutilities.ca
				Records	Patricia Skopelianos			
				Other				
Prescott (Town of)	Prescott	Eastern	613-802-9721	Authorized Official 1	Matthew McCaw	613-925-4312	613-802-9721	waterworks@prescott.ca
				Authorized Official 2	Dion Willcott	613-925-4312	613-803-8137	waterworks@prescott.ca
				Alternate	Nathan Richard	613-925-2812	613-802-1747	nrichard@prescott.ca
				Records	Cassidy Cameron	613-925-2812	613-340-7966	ccameron@prescott.ca
Quinte West (City of)	Quinte West	Eastern	613-392-2841	Authorized Official	Chris Angelo	613-392-2841	613-961-9264	chrisa@quintewest.ca
				Alternate	Matt Tracey	613-392-2841	613-813-9111	matt@quintewest.ca
				Records	Amy Nye	613-392-2841	613-920-1892	amyn@quintewest.ca
				Other				
Renfrew (Town of)	Renfrew	Eastern	613-432-8166	Authorized Official	Michel Asselin	613-432-8166	613-302-0789	masselin@renfrew.ca
				Alternate	Connor Jamieson	613-432-8166		cjamieson@renfrew.ca
				Records				
				Other				
Russell Public Utilities (Township of)	Embrun	Eastern	613-443-1747	Authorized Official	Jacques Grégoire	613-229-3831		jacquesgregoire@russell.ca
				Alternate	Chris Muto	613-880-6633		chrismuto@russell.ca
				Records	Matthew Gulliver	613-443-1747		infrastructure@russell.ca
				Other				
Severn (Township of)	Orillia	Northern	705-325-2315 (day) 855-527-8841 (after hours)	Authorized Official	Derek Burke	705-325-2315	705-345-7880	dburke@severn.ca
				Alternate	Tony Drouin	705-325-2315	705-345-1841	tdrouin@severn.ca
				Records				
				Other				utilities@townshipofsevern.com
Smiths Falls (Town of)	Smiths Falls	Eastern	613-430-9027	Authorized Official	Jason Barlow	613-283-4124	613-430-9027	ibarlow@smithsfalls.ca
				Alternate	Jason Dalgleish	613-283-4124	613-430-9067	idalgleish@smithsfalls.ca
				Records	Sarah Cooke	613-283-4124	613-284-6441	scooke@smithsfalls.ca
				Other				

OnWARN Member Emergency Contact List

Last updated: 2022-01-07

Member Name	Location	Region	24-hour #	Role	Contact Name	Phone	Cell	E-mail
Southgate (Township of) (Dundalk Drinking Water & Wastewater)	Dundalk	Western	519-378-3777	Authorized Official	Jim Ellis	519-923-2110	519-378-3777	jeellis@southgate.ca
				Alternate	Cory Henry	519-923-5054	519-270-6439	waterworks@southgate.ca
				Records	Lindsey Green	519-923-2110	519-379-3183	lgreen@southgate.ca
				Other	Dave Milliner (CAO)	519-923-2110	519-375-0122	dmilliner@southgate.ca
Southwold (Municipality of)	Fingal	Western	519-769-2010	Authorized Official	Paul Van Vaerenbergh	519-769-2010	519-671-0071	roads@southwold.ca
				Alternate	Lisa Higgs	519-769-2010	519-671-0385	cao@southwold.ca
				Records				
				Other				
St. Thomas (City of)	St. Thomas	Western	519-631-0368	Authorized Official	Chris Andrew	519-631-0368	519-494-5850	candrew@stthomas.ca
				Alternate	Justin Lawrence	519-631-1680	519-808-1342	jlawrence@stthomas.ca
				Records				
				Other				
Stirling-Rawdon (Township of)	Stirling	Eastern	613-395-3380	Authorized Official	Roxanne Hearn	613-395-3380	613-849-4762	cao-treasurer@stirling-rawdon.com
				Alternate	Matthew Richmond	613-395-3380	613-848-1439	wso@stirling-rawdon.com
				Records				
				Other				
Stratford (City of)	Stratford	Western	519-271-0250	Authorized Official	Johnny Bowes	519-271-0250	519-272-7563	jbowes@stratford.ca
				Alternate	Todd Smythe	519-271-4703	519-272-7549	tsmythe@stratford.ca
				Records				
				Other				
Strathroy-Caradoc (Municipality)	Strathroy	Western	519-435-6491	Authorized Official	Paul Zuberbuhler	519-245-1105	519-520-6193	pzuberbuhler@strathroy-caradoc.ca
				Alternate	Jake Straus	519-245-1105	519-709-5581	istraus@strathroy-caradoc.ca
				Records				
				Other				
Trent Hills (Municipality)	Campbellford	Eastern	705-653-2610	Authorized Official	Scott White	705-653-1900	705-653-8569	scott.white@trenthills.ca
				Alternate	Scott Campbell	705-653-2382	705-653-7141	scott.campbell@trenthills.ca
				Records	Doug Irwin	705-653-1900		doug.irwin@trenthills.ca
				Other				
Waterloo (City of)	Waterloo	Western	519-886-2310	Authorized Official	Leigh McDermott	519-886-2310		Leigh.McDermott@waterloo.ca
				Alternate	Natasha Glauser	519-886-2310		natasha.glauser@waterloo.ca
				Records				
				Other				
Whitchurch-Stouffville (Town of)	Stouffville	Golden Horseshoe	905-640-1900	Authorized Official	Peter Wyllie	905-640-1910	416-989-4169	peter.wyllie@townofws.ca
				Alternate	Matt Sullivan	905-640-1910	416-678-0271	matt.sullivan@townofws.ca
				Records				
				Other				

Dundalk Waterworks Infrastructure Program Plan

Author: [Enter relevant information here]

Date: [Enter relevant information here]

Section 1: Buildings, Storage and Distribution:

1.1 Buildings:

[Enter relevant information here]

1.2 Storage:

[Enter relevant information here]

1.3 Distribution:

[Enter relevant information here]

Section 2: Machinery, Equipment and Software:

[Enter relevant information here]

Water Tower Log

Month / Year: _____

							Hypochlorite:	
Operator Initials	Day	Recirculation Pump Meter Reading	Cubic Metres Recirculated	Recirculation Pump Hrs.	Flow Rate	Tower Level	Free Resid. mg / l	Turbidity
	Previous							
	1							
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
	11							
	12							
	13							
	14							
	15							
	16							
	17							
	18							
	19							
	20							
	21							
	22							
	23							
	24							
	25							
	26							
	27							
	28							
	29							
	30							
	31							
	Measure	m³	m³	Hours	l / min	m	mg / l	NTU

Initials: JE = Jim Ellis, CH = Cory Henry, LF = Lorne Fick, GH = Grayson Hannivan, AN = Adam Nicholls, ZH = Zach Hull

pH, Temperature, Pressure and Analyzer Log

Water Tower

Month: _____

Year: _____

Day	Water Tower pH	Water Temperature into Distribution	Chlorine Consumption	Chlorine Dosage	Water Tower-Free Residual Analyzer Reading	System Pressure
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
Measures		degrees C	Litres	mg/l	mg / l	psi