Control Room Companion		Control Room Companion							
Imperial Units of Measure	Metric Units of Measure	Poriodic Table of the							
1 in = 2.54 cm = $1/12^{\text{th}}$ ft 1 ft = 0.205m = 12in = 0.422noi	f_{1} km = 0.62 mile = 3281 ft $\left(\left(\begin{array}{c} 1 \\ 17 \\ 35 \\ 45 \end{array} \right) \right)$								
$a = 0.305 \text{m} - 12 \text{m} - 0.435 \text{ps}_{H20}$ a = 1 vd = 3 ft = 36 in = 0.9144 m	$1 \text{ m}^2 = 1.19 \text{ yds}^2 = 10.76 \text{ ft}^2$								
1 mile = 1.61 Km = 5280 ft	$\frac{1}{2}$ 1 Hectare (ha) = 10,000 m ² = 2.47 acre	3 4			halogens	nobel gase	es 5	6 7 8	9 10
$1 \text{ ft}^2 = 144 \text{in}^2 = 0.0929 \text{ m}^2 = 929 \text{ cm}^2$	$\frac{6}{2}$ 1 m ³ = 264.17gal(us) = 219.97 gal(imp)	Li Be			metalloids	nonmetals	B	CNC	F Ne
$a = 1 \text{ yd}^2 = 9 \text{ ft}^2 = 1296 \text{ in}^2 = 0.836 \text{ m}^2$	$\frac{1}{2}$ 1 MLD = 11.57 L/s = 3.06 gal(us)/s	11 12	_ (H·	✐	radioactive	r.e. alkaline m	etals 13	14 15 10	6 17 18
= 0.405Ha = 43.560ft = 4047m ²	$^{2}1 \text{ Kg} = 2.205 \text{ lbs} = 35.20z = 0.1575 \text{ stone}$	Na IVI		22 23 24	25 26	ls alkali-meta	als Al 30 31	SI P S	CI Ar 1 35 36
$1 \text{ ft}^3 = 7.48 \text{ gal}_{\text{Hs}} = 28.32 \text{ L} = 957.5 \text{ oz}_{\text{Fl}}$	$1 \text{ tonne_metric} = 1.1 \text{ ton}_{\text{us}} = 2204.6 \text{ lbs} = 1000 \text{ kg}$	K Ca	Sc	Ti V Cr	Mn Fe (Co Ni Cu	I Zn Ga	Ge As S	e Br Kr
$_{\rm u}$ 1 acre-ft = 0.3259 Mgal(us) = 1233.5 m ³	1 meter head = $9.8 \text{ kPa} = 1.41 \text{ psi}$	37 38	39	40 41 42	43 44	45 46 47	48 49	50 51 52	53 54
$a_{1} = 4546 \text{ J} = 12802 \text{ = } 4qt \text{ = } 8.34 \text{ lbs}$		Rb Si	Y	Zr Nb Mo	TC Ru	Rh Pd Ag	J Cd In	Sn Sb To	e I Xe
1 oz = 29.57 mL	5275 - 550 kPa = 40 - 80 psi 100 kPa = 14.5 nsi (nsi to kPa $\approx x7$)	55 56 Cs Ba		72 73 74 Hf Ta W	75 76 Re Os	77 78 79 Ir Pt Δι	BO 81 J Ha TI	⁸² 83 84 Pb Bi P	• At R n
$1 qt_{us} = 0.946 L = 946.4 mL = 32 oz$		87 88	- H	104 105 106	107 108	109 110 111			
1 lb = 0.544 kg = 0.071stone = 16 oz	Other Conversions of Interest	Fr Ra	3	Rf Db Sg	Bh Hs I	Mt Ds Rg	9	H Benzene; Ring	Domain
$=1 \text{ ton}_{us} = 2000 \text{ lbs}$	1 Candlepower– 111-Illunination@ I flaway=12.57lumens $10x10x10ft \text{ or } 1000ft^3 = 16.48 \text{ cfm}=28 \text{m}^3/\text{hr}$							H C C H	Kingdom
$1 \text{ psi} = 2.31 \text{ ft}_{H-} \text{ H}_{O} = 6.805 \text{ kP}_{O}$	Population Equivilant _{hvdraulic} = 378.5 L/person/dav	57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 Phylum							
$r_{2} = 0.033 \text{ km}^{2}$	Population Equivilant _{organic} = 0.077kg-BOD/person/d	La C	Ce Pr	Nd Pm Sr	n Eu Gd	Tb Dy Ho	Er Tm	Yb Lu	Class
	1Hp = 0.746 kW = 746W = 33,000 ft-lbs/min	s/min 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 AC Th Pa II Nn Pu Am Cm Rk Cf Ec Em Md No Lr							
Specific Gravities	1000 population \approx 1MW power \approx 1ML water Cla Topper = 910kg Cl = 1700 kg total full								
HSF (Hydrofluorocilicic) (a) 24% - 1.234 Cl ₂ (a) 0° C ~ 1.467	Cl_2 68kg Cyl=150lbs _{Cl} =Total: 262lbs=120kg	Newton (N) - Force - Symbol F - Units: kg•m/s ²							
Hypo-NaClO (a)12% ~ 1.17	Decklowingtion Agents	F	lertz (F	iz) - Freque	ncy - Greek	nu- v - Uni	ts: s ⁻¹		Strain
KOH (Potasium Hydr.)- 45%/15C ~ 1.457	To dechlorinate 1.000.000 L by 1mg/L								
NaOH (Sodium Hydroxide) $@50\% \sim 1.52$	SO (Sulfur Dioxide) 0.0504 K g	Disinfection of Water Storage Facilities - AWWA Standard C652							
NaMnO ₄ (Sodium Permang.)(a) 15% ~ 1.11 $7_{p_2}(PO_4)_2(Orthophosphate)(a)40\% ph~1.46$	NaHSO ₂ (Bisulfate) - 1.42 Kg	AWWA - Chlorination Method 1 - AWWA Standard C652 (summarized)							
Al2(SO4)s (Alum) $(a)25^{\circ}C-24.6\% \sim 1.27$	Na_2SO_3 (Sulfite) - 1.68 Kg	The water-storage facility is filled to the overflow with potable water and enough							
Soda Ash - Sodium carbonate (Na ₂ CO ₃)	$Na_2S_2O_3-5H_2O$ (Sodium Thio.) - 1.42 Kg	chlorine to achieve a free chlorine residual not less than 10mg/L after 24-hrs							
Lime - Calcium hydroxide (Ca(OH) ₂)	H_2O_2 (peroxide) 48% w/w (@35% - 1.19L	(6hrs it chlorine was uniformly gas/pump fed during fill).							
Abbreviations	Chlorinate with Calcium Hypochlorite	A solution of at least 200-mg/L chlorine is applied directly to all surfaces of the							
Anhydrous - Dry	For 50mg/L per 100ft length of pipe	storage facility in contact with water when the facility is full to overflow elevation.							
Q - Flow (Velocity×Area)	HTH = High Test Hypochlorite (calcium) - 65-70% Cl	AWWA - Chlorination Method 3 - AWWA Standard C652 (summarized)							
DO - Dissolved Oxygen	4 100 0.04 0.018	Fill approximately 5% of the total storage volume with 50 mg/L free chlorine. Hold in							
NOM - Natural Organic Matter	6 150 0.09 0.04 8 200 0.17 0.08	the facility for not less than 6 hr. Then tank filled to the overflow with potable							
kPa - kilopascals (Pascal = kg/m•s ² or N/m ²)	10 250 0.26 0.12	Refer to the latest AWWA C652 Standard for up-to-date Forms of Chlorine, Chlorination Methods and detail to the methods above							
VFD - Variable Frequency Drive	12 300 0.38 0.17 14 350 0.51 0.23								
THM - Trihalomethanes	16 400 0.67 0.30 20 500 1.05 0.47	Maximum Flow & Velocity with Headloss - Pipe Chart							
TSS - Total Suspended Solids	20 300 1.03 0.47	Si	ze		Metric		Head Loss	Impe	erial
TDS - Total Dissolved Solids	mg/L - Milligrams per Litre	Wetric	05	FIOW (max.)	Flow-Q	Velocoty	m/100m, or ft/100ft	FIOW (max.)	Velocity
psi - Pounds per Square Inch	ppm - Parts per Million	mm	Incn"	L/min	IVILD(max.)	m/s	101001	gai/min	π/s
TOC - Total Organic Carbon	µg/L - Micrograms per Litre ◀	50	2	170.3	0.245	1.3	3.9	45	4.3 5
AOC-Assimilable Organic Carbon	ppb - Parts per Billion	75	3	492.1	0.709	1.7	3.9	130	5.6
VOC- Volatile Organic Compound		100	4	984.2	1.417	2.0	4	260	6.6
RAS - Return Activated Sludge	The SI or Metric System	150	6	3028.3	4.361	2.7	4	800	8.9
HGL - Hydraulic Grade Line	mage M = 1,000,000 X have unit	200	8	6056.7	8.722	3.1	3.8	1,600	10.3
HLP - High Lift Pump (High pressure)	Kilo k $-1,000,000$ X base unit	300	10	17791.4	25.620	4.1	4	4,700	13.4
LLY - LOW LIπ PUMP (LOW pressure) PID - Proportional Integral Derivative	hecta, h - 100 X base unit	350	14	22712.5	32.706	4.3	4	6,000	14.2
P&ID - Piping & Instrumentation Diagram	deca, da - 10 X base unit $\sqrt{3}$	400	16	30283.3	43.608	4.4	3.5	8,000	14.5
1 MI D = 11 5 L/s = 0.264 MOD	The Base Unit	450	18	37854.1	54.510	4.4	3	10,000	14.3
1 MGD = 43.6 L/s = 3.79 MGD	deci, d - 0.1 X base unit	600	20	45424.9 68137.4	65.412 98.118	4.2 4.2	2.4	18,000	13.8
1% Strength = 10,000 mg/L	milli, m - 0.001 X base unit								
1000population≈1MWpower≈1ML Water	micro, μ - 0.0001 X base unit	Visit us today at www.oetc.ca							





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