REV	DATE	DESCRIPTION	DRAWN BY	CHECKED	APPROVED BY
0	07/17/06	ISSUED FOR APPROVAL	CM	Pu	
1	10/10/06	SYMBOLS CHANGED PER ENGINEER'S COMMENTS	,MP		
2	01/08/07	CHANCES & ADDITIONS PER ENGINEER'S COMMENTS	JAIP		

CITY OF WINNIPEG Water Treatment Plant

(x3) CT-1500 (680KG/Day) SKID ON-SITE SODIUM HYPOCHLORITE GENERATION SYSTEM PIPING AND INSTRUMENTATION DIAGRAM

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Earth Tech	(Canada) Inc.
Reviewed for general con Respons bility for detailer drawings rests with the C	
dimensions, fabrication p	and coordination of all parts
REVIEWED	
REVIEWED AS MODIFIED	
REVIEWED AS MODIFIED	
MICHAEL CARSO	

TRENT CLORTEC	(X3) CT-1500(680 KGS/DAY) RACK MOUNTED ON-SITE SODIUM HYPOCHLORITE GENERATION SYSTEM			
ZEED TOLUMBIA STREET TURNANCE, CALPTONNIA MODOS MISPORTANCE, CAUDINE STREET AN TAN CARD MIS ELEM MIS SIR SEA ANOMEDICATION				b
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XX	DWC No CPG04	65-1-01	1 1	- 7

9-11242-02-R Winnipeg WTP

	FIRST-LETTER	SUCCEEDING-LETTERS		
	MEASURED OR INITIATING VARIABLE	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	
A	ANALYSIS (1)	ALARM		
8	BURNER, COMBUSTION	CLOSED	CL.OSE	
C	CONDUCTIVITY		CONTROL	
D	DENSITY	OPEN	OPEN	
E	VOLTAGE	SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	FAILURE		
G	GAS	GLASS, VIEWING DEVICE		
н	HAND	HIGH		
1	CURRENT (ELECTRICAL)	INDICATE		
J	POWER			
K	TIME, TIME SCHEDULE		CONTROL STATION	
L	LEVEL	LOW, LIGHT		
м	MOTOR	OPERATING OR ON/OFF		
N	MOISTURE		START	
0		OVERLOAD	STOP	
P	PRESSURE, VACUUM	POINT (TEST) CONNECTION		
Q	COMMON	QUANTITY		
R	RADIATION	RECORD		
s	SPEED, FREQUENCY		SWITCH	
T	TEMPERATURE		TRANSMIT	
U	MULTIVARIABLE	MULTIFUNCTION	MULTIFUNCTION	
٧	VIBRATION, MECHANICAL ANALYSIS (1)		VALVE DAMPER, LOUVER	
w	WEIGHT, FORCE	WELL		
x	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	
Y	EVENT, STATE OR PRESENCE (2)		RELAY, COMPUTE, CONNERT (3)	
Z	POSITION, DIMENSION		DRIVER, ACTUATOR UNCLASSIFIED FINAL CONTROL ELEMENT	

1. IT IS EXPECTED THAT THE TYPE OF ANALYSIS BE DEFINED OUTSIDE THE TAGGING BUBBLE.

2. First letter y is intended for use when control or monitoring responces are event driven as opposed to time or time—schedule driven. The letter y, in this position, can also scorely presence or state.

3. IT IS EXPECTED THAT THE FUNCTIONS ASSOCIATED WITH THE USE OF SUCCEEDING LETTER Y WILL BE DEFINED OUTSIDE THE TACGING BUBBLE. THIS DEFINITION NEED NOT BE MADE WHEN THE FUNCTION IS SELF-EMPORT, AS FOR A SOLVINOU VALUE IN A FILLID SCHALL LINE.

ISA IDENTIFIER	INITIATING VARIABLE AND FUNCTION	ISA IDENTIFIER	INITIATING VARIABLE AND FUNCTION
AS	ANALYSIS SWITCH	Pl	PRESSURE INDICATOR
AE	ANALYSIS ELEMENT	PT	PRESSURE TRANSMITTER
AT	ANALYSIS TRANSMITTER	PIT	PRESSURE INDICATOR TRANSMITTER
cs	CONDUCTIVITY SWITCH	PS	PRESSURE SWITCH
CT	CONDUCTIVITY TRANSMITTER	sc	SPEED CONTROLLER
DS	DENSITY SWITCH	SI	SPEED INDICATOR
ET	VOLTAGE TRANSMITTER	ST	SPEED TRANSMITTER
FC	FLOW CONTROLLER	TC	TEMPERATURE CONTROLLER
FE	FLOW ELEMENT	TE	TEMPERATURE ELEMENT
FI	FLOW INDICATOR	п	TEMPERATURE INDICATOR
FS	FLOW SWITCH	TS	TEMPERATURE SWITCH
FT	FLOW TRANSMITTER	π	TEMPERATURE TRANSMITTER
FY	FLOW RELAY	TY	TEMPERATURE RELAY
FZ	FLOW DRIVE	UR	MULTIVARIABLE RECORDER
HS	HAND SWITCH	VT	VIBRATION TRANSMITTER
п	CURRENT TRANSMITTER	WE	WEIGHT ELEMENT
л	POWER TRANSMITTER	WT	WEIGHT TRANSMITTER
KC	TIME CONTROLLER	xx	UNCLASSIFIED
ю	ELAPSED TIME INDICATOR	YC	STATE CONTROL
LE	LEVEL ELEMENT	YN	STATE ON
U	LEVEL INDICATOR	YY	EVENT RELAY
LS	LEVEL SWITCH	YS	EVENT SWITCH
LT	LEVEL TRANSMITTER	ZS	POSITION SWITCH
LY	LEVEL RELAY	ZT	POSITION TRANSMITTER
PC	PRESSURE CONTROLLER	22	POSITION DRIVE

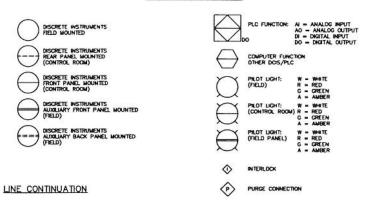
- Notes: 1. [●] Indicates supplied by others.

 2. Unit: mm [Inch]. Do not scale this drawing. All dimensions, sizing, orientations of piping, wiring and equipment, are estimations and approximations and are not to be used in other related design.
 - The information contained on this drawing is of confidential nature and shall not be used or reproduced without written consent from Metcon Sales and Engineering Limited.

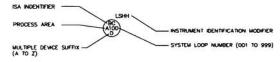
EQUIPMENT IDENTIFICATION AND TAGGING



INSTRUMENT SYMBOLS



INSTRUMENT DESIGNATION NUMBER



POSITION FORMATS

PROCESS AREA IDENTIFIER		PROCESS STREAM IDENTIFIER (LOOP NUMBER)
		(LOGP HOMBER)
CHEMICAL FEED	С	001 - 999
DEACON BOOSTER PUMP STATION	D	001 - 999
FILTRATION	F	001 - 999
PLANT UTILITIES:	н	
AIR PRESSURE ELECTRICAL DISTRIBUTION		
EMERGENCY GENERATOR		901 - 950
ELECTRICAL SUBSTATION		951 - 999
HVAC SUBSTATION		000 - 100
SITE COMMUNICATION		000 - 100
FLUSH WATER		
HATURAL GAS		
FIRE PUMPS		100 - 199
AUXILIARY BUILDINGS HVAC		200 - 299
BUILDING SAFETY & SECURITY		300 - 299
PROCESS SUMPS		400 - 499
SANITARY SUMPS		500 - 599
POTABLE WATER		700 - 799
INLET WORKS & RAW WATER		001 - 999
FREEZE THAW POND	Ĺ	001 - 999
GENERAL SITE SERVICES/ MISCELLANEOUS:	ŭ	001 - 999
YARD PIPING	77	001 - 856
YARD LIGHTING		
OZONE	0	001 - 999
FLOCULATION AND DAF	P	001 - 999
RESIDUALS HANDLING	R	001 - 999
BULK CHEMICAL STORAGE	S	001 - 999
TREATED WATER STORAGE & HANDLING (CLEARWELL)	T	001 - 999
ULTRAVIOLET LIGHT DISINFECTION	U	001 - 999
ON-SITE HYPOCHLORITE GENERATION	J	001 - 999

INSTRUMENT IDENTIFICATION MODIFIER

CAH	CONDUCTIVITY ALARM HIGH	LSH	LEVEL SWITCH HIGH	
COH	COMPUTER/OFF/HAND	LSL.	LEVEL SWITCH LOW	
DO	DISSOLVED OXYGEN	MCC	MOTOR CONTROL CENTRE	
D/P	DIFFERENTIAL PRESSURE	0/1	OVERLOAD	
FAH	FLOW ALARM HIGH	PAH	PRESSURE ALARM HIGH	
FAL	FLOW ALARM LOW	PAL	PRESSURE ALARM LOW	
FSH	FLOW SWITCH HIGH	pH	pH	
FSL	FLOW SWITCH LOW	PSH	PRESSURE SWITCH HIGH	
H/A	HAND / AUTO	PSL	PRESSURE SWITCH LOW	
HOA	HAND / OFF / AUTO	RTD	RESISTIVE TEMPERATURE DEVICE	
1/1	CURRENT / CURRENT ISOLATOR	s/s	START / STOP	
I/P	CURRENT / PRESSURE CONVERTER	SEL	SELECTOR	
IAH	CURRENT ALARM HIGH	SOL	SOLENOID	
LAH	LEVEL ALARM HIGH	T/C	THERMOCOUPLE	
LAL	LEVEL ALARM LOW	TAH	TEMPERATURE ALARM HIGH	
		TAL	TEMPERATURE ALARM LOW	
		TSH	TEMPERATURE SWITCH HIGH	
L/L	LEAD / LAG	TSL	TEMPERATURE SWITCH LOW	
LOS	LOCK-OFF-STOP	WDG	WINDING	
L/R	LOCAL / REMOTE			
	DBOCESS II	NE 00	DEC	

HYDROFLUOSILICIC ACID HYDROGEN PEROXIDE

PROCESS LINE CODES

COMMODITY

AS	AIR SCOUR (FILTERS)	HST	12% HYPOCHLORITE SOLUTION
AHP	AIR HIGH PRESSURE (OZONE)	HYP	D.B% HYPOCHLORITE SOLUTION
ALP	AIR LOW PRESSURE (OZONE)	ITA	INSTRUMENT AIR
BS	BRINE SOLUTION	LGO	LUBRICATING OIL
BWS	BACKWASH SUPPLY WATER	LOX	LIQUID OXYGEN
BWW	BACKWASH WASTE WATER	NG	GAS
CA	COMPRESSED AIR (DAF)	OF	OVERFLOW
CCW	CIRCULATING COOLING WATER	OZG	OZONE OFF GAS
CL2	CHLORINE	ozo	OZONATED OXYGEN
CLG	CHLORINE GAS	OZW	OZONATED WATER
as.	CHLORINE SOLUTION	PEF	PHOSPHATE FEED
CO2	CARBON DIOXIDE	PLD	DRY POLYMER
CRW	CLARIFIER DISCHARGE WATER	PLS	POLYMER SOLUTION
cs	CAUSTIC SODA	PSW	PLANT SERVICE WATER
DO	DEACON EFFLUENT (POST UV)	PW	POTABLE WATER
DOW	DEMINERALIZED WATER	RD	ROOF DRAIN
DEA	DILLITE ACID	RW	RAW WATER
DEC	DILUTE CAUSTIC	SAM	SAMPLE
DF	DAF FLOAT	SAN	SANITARY DRAINAGE
DFR	DIESEL FUEL RETURN	SBS	SODIUM BISULPHITE
DFS	DIESEL FUEL SUPPLY	SCA	SULPHURIC ACID
DO	DISOLVED OXYGEN	SHC	SODIUM HYPOCHLORITE
DRA	DRAINAGE (FLOORS)	SHD	SODIUM HYDROXIDE
DRN	DRAINS, CLEAN DRAINS	SPD	SUMP PUMP DISCHARGE
DS	DEACON SUCTION	STD	DRY SALT
DSW	DISTILLED WATER	SDR	DAF RECYCLE
DU	DEACON UV (PRE UV)	51.0	SEAL OIL
EE	ENGINE EXHAUST	SLU	SLUDGE
FC	FERRIC CHLORIDE	SUP	SUPERNATANT
FED	FILTER MEDIA EDUCTER	SWO	STORMWATER DRAINAGE
FIN	FILTER INFLUENT	SW	SEAL WATER
FPW	FIRE PROTECTION WATER	TRW	TREATED WATER
FTR	FILTER-TO-RECYCLE	TP	TRAP PRIMER
FW	FILTERED WATER	VA	VACUUM LABORATORY
GOX	GASEOUS OXYGEN	VTA	VENT TO ATMOSPHERE
нсо	HYDRAULIC OIL	W5	SOFTENED WATER
PIPE	EXPOSURE		

PIPE	MATERIAL		
CISP	CAST IRON SOIL PIPE	PCOP	PRESTRESSED CONCRETE CYLI
CLDI	CEMENT LINED DUCTILE IRON	PSTL	PYDF LINED STEEL
CMP	CORRUGATED METAL PIPE	PVC	POLYVINYL CHLORIDE
COP	COPPER	PVDF	POLYVINYLIDENE FLOURIDE
CPVC	CHILDRINATED PVC	RCP	REINFORCED CONCRETE PIPE
DI	DUCTILE IRON	RSTL	RUBBER LINED STEEL
FRPX	FIBERGLASS REINFORCED PLASTIC	SST	STAINLESS STEEL
GLDI	GLASS LINED DUCTILE IRON	STL	STEEL
CSP	GALVANISED STEEL PIPE	VC	WITRIFIED CLAY PIPE
HOPE	HIGH DENSITY POLYETHYLENE		

SUB SUBMERGED
ENC CONCRETE ENCASED

PHEUMATIC

PRESSURE TESTING HYDROSTATIC

9	IN SERVICE	NA	NOT APPLICABLE
		ABBREVIATI	<u>ONS</u>

ACK	ACKNOWLEDGE	E/A	EXHAUST AIR
ALM	ALARM	E/S	ELECTRICAL SUPPLY
A/M	AUTO/MANUAL	ESD	EMERGENCY SHUTDOWN
A/S	AIR SUPPLY	FCL	FAIL CLOSE
BRG	BEARING	FOP	FAIL OPEN
CURR	CURRENT	F/R	FORWARD OF REVERSE
DEC	DECREASE	н	HIGH
DE	DRIVE END	HP	HORSE POWER (kW)

CHECKED APPROVED BY BY DATE DESCRIPTION 0 07.17.06 ISSUED FOR APPROVAL СМ JPM 1 10/10/06 SYMBOLS CHANGED PER ENGINEER'S COMMENTS JMP 2 01/08/07 CHANGES & ADDITIONS PER ENGINEER'S COMMENTS .IMP

ABBREVIATIONS CONT

kW.	KILOWATT		
HVAC	HEATING/VENTILATION/AIR CONDITIONING	PWR	POWER
INC	NCREASE	RSP	REMOTE SET POINT
IN.	NJECTOR	RST	RESET
LO	LOW	SP	SAMPLE POINT or SET POINT
LOS	LOCAL/OFF/STOP		(Depending on Application)
L/R	LOCAL/REMOTE	STN	STATION
MLD	MEGALITERS PER DAY	SPD	SPEED
NC	NORMALLY CLOSED	STDBY	STANDBY
NLL	NORMALLY LIQUID LEVEL	STP	STOP
NNF	HORMALLY NO FLOW	STR	START
NO	NORMALLY OPEN	STS	STATUS
O/A	OUTSIDE AIR	TST	TEST
0/c	OPEN/CLOSED	TYP	TYPICAL
ODE	OPPOSITE DRIVE END	UV	ULTRA-WOLET LIGHT
PF	POWER FACTOR	U/S	UNDER SIDE
PO	PUMP OUT	VAC	VACUUM
PSO	PLANT SHUTDOWN	MB	VIBRATION
PV	PROCESS VARIABLE	W/S	WATER SUPPLY
		WDG	WINDING

		WDG	WINDING
	EQUIPMENT DESI	GNATIO	NS
ARV	AIR RELEASE VALVE	HWP	HOT WATER PUMP
ACU	AIR CONDITIONING UNIT	MP	INSTRUMENT MARSHALLING PANEL
ACR	ACCESS CARD READER	KP	KEY PAD
AD	AIR DRYER	LOP	LOCAL CONTROL PANEL
AHU	AIR HANDLING UNIT	LCV	LEVEL CONTROL VALVE
ATS	AUTOMATIC TRANSFER SWITCH	LJB	LOCAL JUNCTION BOX
BAT	BATTERY	LOP	LUBE OIL PUMP
BB BD	BASEBOARD HEATER BACKDRAFT DAMPER	LV	LEVEL CONTROL VALVE (OPEN/CLOSE)
BFP	BACK FLOW PREVENTER	MAU	MOTOR
BPV	BACK-PRESSURE VALVE	MCC	MAKE-UP AIR UNIT MOTOR CONTROL CENTRE
BKR	BREAKER	MD	MOTION DETECTOR
BLR	BOILER	MOV	MUD VALVE
BLW	BLOWER	MP	METERING PUMP
CAL	CALIBRATION COLUMN	MXX	MIXER
CC	COOLING COIL	OP	ORIFICE PLATE
CCTV	CLOSED CIRCUIT TELEVISION	P	PUMP
COR	CONDENSER	PCT	PARTICLE COUNTER
COU	CATALYTIC DESTRUCT UNIT	PCU	POLYMER BULK BAG UNLOADER
CE	CENTRIFUGE	PCV	PRESSURE CONTROL VALVE
CFR	CHEMICAL FEEDER (POLYMER, CHLORINATOR, ETC.) CHILLER	PFC	POWER FACTOR CORRECTION
CHR	BATTERY CHARGER	PFLT	POWER FILTER (UNE REACTOR, ETC) PANEL BOARD
CMP	COMPRESSOR	PLC	PROGRAMMABLE LOCIC CONTROLLER
CON	CONVEYOR	PPU	POLYMER PREPARATION UNIT
CP	PLC CONTROL PANEL	PRV	PRESSURE REGULATING / REDUCING VALVE
CPU	COMPUTER	PSU	POWER SUPPLY UNIT
CRN	CRANE OR HOIST	PSV	PRESSURE / VACUUM RELIEF VALVE
CTS	CATHOOK TEST STATION	PV	PRESSURE VESSEL
CV	CHECK VALVE	RV	RELIEF VALVE / RUPTURE DISC
DC	DOOR CONTACT	SOL	SOLENOID ACTUATOR
DEM	DEMISTER	SCRB	SCRUBBER
DES	DESICCANT DRYER	SE	SAMPLER ELEMENT
DV	DIAPHRAGM VALVE	SF SP	SUPPLY FAN SAMPLE PUMP
DF	DAF SKIMMER	21.0	SLUICE GATE
DIF	DIFFUSER	SLR	SILENCER
E EF	ENGINE EXHAUST FAN	SMP	SUMP PUMP
EL.	ELECTROLYTIC CELL	SPS	SUPERNATANT PUMP STATION
EPR	EVAPORATOR	STA	STATIC MIDER
ETM	ELAPSED TIME METER	STR	STRAINER
ETNK	EXPANSION TANK	SUB	SUBSTATION
F	FAN	SWOR	SWITCHGEAR
FAP	FIRE ALARM ANNUNICATOR PANEL	SWP	SWASH PLATE
FC	FLOCCULATION CHAMBER	TCV	TRAP TEMPERATURE CONTROL VALVE
FCV	FLOW CONTROL VALVE	TNK	TANK (NON-PRESSURIZED)
FF	FORCE FLOW HEATER	TOTE	TOTE TANK
FG FLC	FLAP GATE FLOCCULATOR	TV	TEMPERATURE / VIBRATION MONITOR
FLT	FILTER	UH	UNIT HEATER ELECTRIC AND NON-ELECTRIC
FY	FLOW CONTROL VALVE (OPEN/CLOSE)	UPS	UNINTERRUPTIBLE POWER SUPPLY
GEN	GENERATOR	UVR	ULTRA-WOLET LIGHT REACTOR
GF	GAS FILTER	VFD	VARIABLE FREQUENCY DRIVE
GV	GATE VALVE	AZO	VARIABLE SPEED DRIVE
CP CT	GLYCOL PUMP	V	VALVE
GT HC	GRAVITY THICKENER	WP	VAPOURIZER
HCX	HEAT COIL HEAT EXCHANGER	WP.	WELL PUMP WEST
HWH		WRT	
	HOT WATER HEATER	WSF	WASHWATER RECOVERY TANK WATER SOFTENER
HTR	ELECTRIC HEATER	XFMR	TRANSFORMER
HRC	HEAT RECOVERY COIL	86	EQUIPMENT LOCKOUT RELAY
HV	HAND VALVE	638	
15.10	. "	T	CITY OF WINNIPEG

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CITY OF WINNIPEG

WATER TREATMENT PLANT Winnipeg, Canada

(X3)CT-1500(680 KGS/DAY) RACK MOUNTED ON-SITE SODIUM HYPOCHLORITE
GENERATION SYSTEM
PIPING & INSTRUMENTATION DIAGRAM PIPING & INSTRUMENTATION DIAGRAM NTS CPG0465

CPG0465-I-01

