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Client/Client
PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

Project title/Titre du projet
GLACIER NATIONAL PARK WATER SOURCE CONVERSION

Consultant Signature Only
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Drawing title/Titre du dessin

P&ID STANDARD TAGS AND ABBREVIATIONS

Project No./No. du projet R.076550.001	Sheet/Feuille P01	Revision no./La Révision no. 3
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INSTRUMENT SYMBOLS

	CONTROL ROOM LOCATION ACCESSIBLE TO OPERATOR	CONTROL ROOM LOCATION INACCESSIBLE TO OPERATOR	LOCAL LOCATION ACCESSIBLE TO OPERATOR	LOCAL LOCATION INACCESSIBLE TO OPERATOR	FIELD LOCATED
DISCRETE INSTRUMENTS					
HMI FROM DISTRIBUTED CONTROL SYSTEM					
SCADA DISPLAY/COMPUTER FUNCTION					
PROGRAMMABLE LOGIC CONTROLLER					

GENERAL NOTES

1. FADED SYMBOLS AND LINES REPRESENT EXISTING EQUIPMENT.
2. HATCHED EQUIPMENT AND LINES TO BE REMOVED.
3. FOR DETAILS OF INSTRUMENTATION LINES 1" OR LESS REFER TO INSTALLATION OR LOOP DIAGRAMS.
4. INSTRUMENTATION FOLLOWS ISA STANDARDS & PRACTICES 5.1, 5S.2, 5S.3, 5S.4, 5S.5.

FLOW UNITS

AIR: m³/HR
 CHEMICALS: kg PER DAY/ GRAMS PER LITRE/ LITRES PER SECOND
 SEWERS: LITRES PER SECOND
 SOLIDS: DRY METRIC TONNES PER DAY/ OR kg/D
 WATER: LITRES PER SECOND

*NOTE: NUMBERS INDICATE MAXIMUM FLOW FOR PIPE AND EQUIPMENT SIZING. CONTROL VALVES MAY BE SIZED FOR LESS.

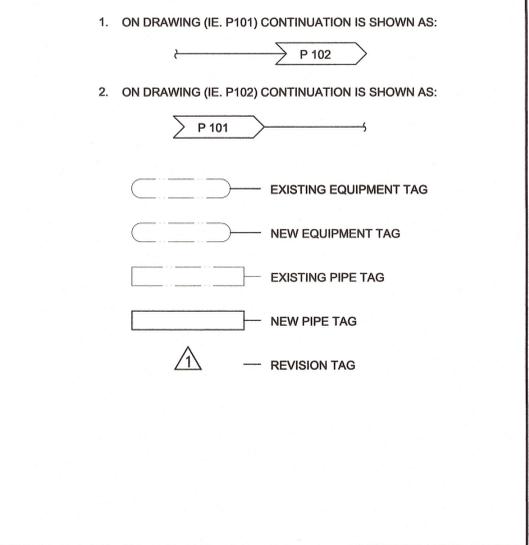
EQUIPMENT GENERAL

AP - ACID METER PUMP	OMI - OPERATOR MACHINE INTERFACE
B - BLOWER	P - PUMP
BFP - BELT FILTER PRESS	PG - PRESSURE GAUGE
BP - CAUSTIC METER PUMP	PLC - PROGRAMMABLE LOGIC CONTROLLER
CRN - O/H CRANE	PRV - PRESSURE REDUCING VALVE
CPS - COMPUTER	SCB - SCRUBBER
CON - CONVEYOR	SCC - SECONDARY CLARIFIER
CV - CHECK VALVE	SCRN - ROTATING SCREEN
CP - COMPRESSOR	SF - SUPPLY FAN
EF - EXHAUST FAN	SG - SLIDE GATE
FC - FLUSHING CONNECTION	SLG - SLUICE GATE
HE - HEAT EXCHANGER	SL - STOP LOG
M - MOTOR	SP - SLUDGE PUMP
MXR - MIXER	SV - SOLENOID VALVE
MCB - MASTER CONTROL BOARD	TK - TANK
MCC - MOTOR CONTROL CENTRE	VA - VALVE
ME - MECHANICAL EQUIPMENT	UP - UTILITY PUMP
MV - MOTORIZED VALVE	UV - ULTRAVIOLET UNIT
	VT - VENTURA-NOZZLE
	WG - WEIR

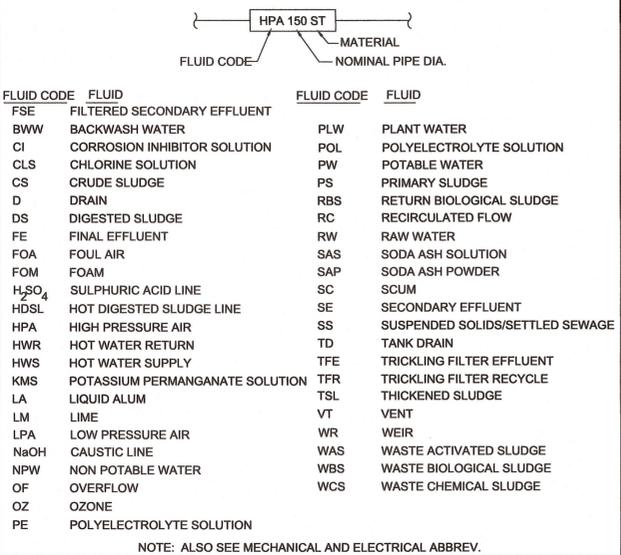
INSTRUMENT FUNCTIONAL IDENTIFICATION LETTERS

FIRST LETTERS (4)		SUCCEEDING LETTERS (3)		
MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A ANALYSIS		ALARM		
B BURNER, COMBUSTION		UNCLASSIFIED	CLOSE-STOP DECREASE	UNCLASSIFIED
C CONDUCTIVITY, pH (ACIDITY)		CLOSE	CONTROL OR CONTROLLER	
D DENSITY, SPECIFIC GRAVITY	DIFFERENTIAL		OPEN-START-INCREASE	
E VOLTAGE (EMF)		SENSOR (PRIMARY ELEMENT)		
F FLOW RATE	RATIO (FRACTION)			FAIL
G GAS, GAUGING (DIMENSIONAL)		GLASS, VIEWING DEVICE		
H HAND, MANUAL				H-HIGH-(ALARM) HH-HIGH-(SHUTDOWN)
I CURRENT (ELECTRICAL)		INDICATE		
J POWER	SCAN			
K TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L LEVEL		LIGHT		L-LOW-(ALARM) LL-LOW-(SHUTDOWN)
M MOTOR	MOMENTARY	MONITOR, ON OR OPERATE		MIDDLE, INTERMEDIATE
N MOISTURE, HUMIDITY		UNCLASSIFIED	START	USER'S CHOICE
O UNCLASSIFIED		OPEN ORIFICE, RESTRICTION POINT (TEST) CONNECTION	STOP	OVERLOAD
P PRESSURE, VACUUM		POINT (TEST) CONNECTION	PNEUMATIC	
Q QUANTITY	INTEGRATE, TOTALIZE	INTEGRATE, TOTALIZE		
R RADIATION, RADIOACTIVITY	RATIO	RECORD		
S SPEED, FREQUENCY, SOLENOID	SAFETY		SWITCH OR SAFETY	
T TEMPERATURE			TRANSMIT	
TQ TORQUE				
TV TELEVISION				
U MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVRE	
VS VISCOSITY				
W WEIGHT, FORCE		WELL		
X ON/OFF	X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y EVENT, STATE OR PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT	
Z POSITION, DIMENSION PRESENCE	Z AXIS		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

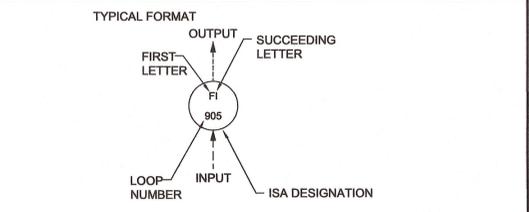
GENERAL SYMBOLS AND TAGS



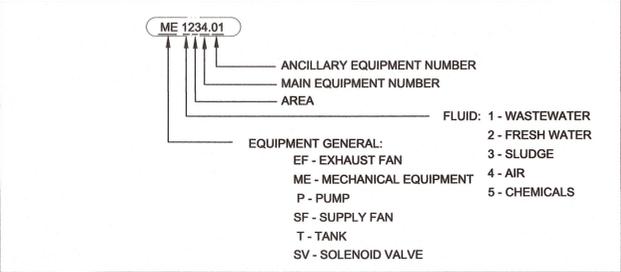
LINE NUMBERING SYSTEM



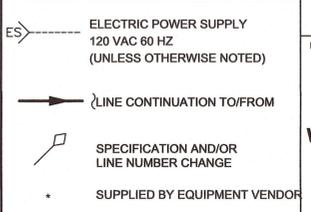
ATTRIBUTE LEGEND



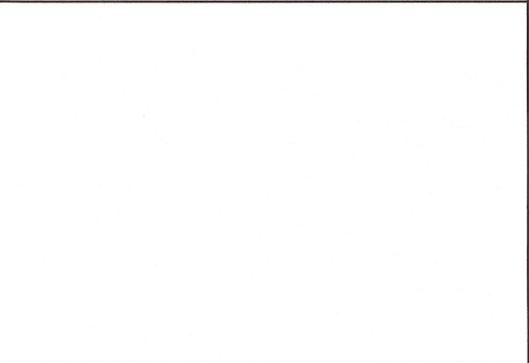
EQUIPMENT NUMBER



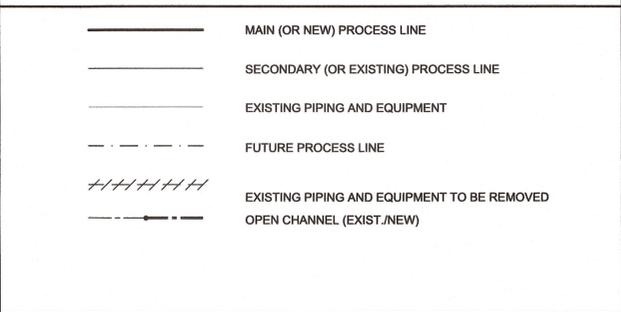
LINE DESIGNATIONS



INSTRUMENT SIGNAL LINE TYPES



PROCESS LINE TYPES



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