PIPE AND FITTING SYMBOLS

- WELDED JOINT
- SCREWED JOINT (OR GENERIC SINGLE LINE)
- GROOVED END JOINT
- FLANGED JOINT
- HUB END FLG JOINT
- WELDNECK FLANGE JOINT
- STUB END OR FLANGE ADAPTOR WITH FLANGE RING
- MECHANICAL JOINT
- BELL AND SPIGOT END (LEADED)
- HUB AND SPIGOT JOINT (RUBBER GASKET)
- GROOVED END ADAPTER FLANGE
- FLANGED COUPLING ADAPTER
- FLEXIBLE COUPLING
- FLEXIBLE COUPLING WITH THRUST TIES
- BELLOWS EXPANSION JOINT
- BELLOWS EXPANSION JOINT WITH THRUST TIES
- FLEXIBLE CONNECTOR
- UNION
- ELBOW, 45 DEGREE
- ELBOW, 90 DEGREE
- ELBOW, 90 DEGREE LONG RADIUS
- ELBOW, 90 DEGREE REDUCING
- ELBOW UP
- ELBOW DOWN
- DROP IN RUN
- TEE
- TEE, REDUCING
- TEE UP
- TEE DOWN
- LATERAL
- LATERAL UP
- LATERAL DOWN
- REDUCER, CONCENTRIC
- REDUCER, ECCENTRIC
- PIPE CAP
- PIPE PLUG
- BLIND FLANGE
- ANCHOR
- WALL ANCHOR
- PIPE ALIGNMENT GUIDE

VALVE SYMBOLS

- BALL VALVE
- VEE-BALL VALVE
- THREEWAY BALL VALVE ARROWS INDICATE FLOW PATTERN
- BUTTERFLY VALVE
- CHECK, SWING VALVE
- CHECK, BALL VALVE
- CHECK, WAFER VALVE
- DIAPHRAGM VALVE
- GATE VALVE
- GATE, KNIFE VALVE
- GATE, ANGLE VALVE
- GATE, FLANGED VALVE
- GATE, SLIDE
- GLOBE VALVE
- PADDLE WHEEL FLOW METER
- GLOBE, ANGLE VALVE
- GLOBE, FLANGED VALVE
- GLOBE, THREEWAY VALVE ARROWS INDICATE FLOW PATTERN
- NEEDLE VALVE
- PLUG VALVE
- PLUG, FLANGED VALVE
- PLUG, ECCENTRIC VALVE SEAT PORT
- PLUG, THREEWAY VALVE ARROWS INDICATE FLOW PATTERN
- FLOAT VALVE
- HOSE BIBB SCHEMATIC
- PINCH VALVE
- CIRCUIT SETTER BALANCING
- QUICK ACTION VALVE
- STOP CHECK
- TRIPLE DUTY VALVE
- ANGLE STOP CHECK
- PRESSURE RELIEF (PSV)
- RELIEF VALVE
- AIR VENT, AUTOMATIC
- AIR VENT, MANUAL
- PRESSURE REGULATING PRV, VALVE BODY FEED (REGULATED SIDE)
- PRESSURE REGULATING PRV, LINE FEED (REGULATED SIDE)
- DIAPHRAM OPERATED VALVE
- GAS PRESSURE REGULATING
- FLOW ORIFICE (PRESSURE REDUCING)
- RUPTURE DISC (PRESSURE RELIEF)
- REDUCED PRESSURE BACKFLOW PREVENTER
- CRYOGENIC VALVE
- OS&Y VALVE
- OS&Y VALVE, SUPERVISED

MISCELLANEOUS PIPING SYMBOLS

- CAM-LOC TYPE HOSE COUPLING
- TUBE COUPLING
- STRAINER, WYE
- STRAINER, BASKET
- PETE'S PLUG
- DIAPHRAGM SEAL
- SIGHT GLASS
- WAFER SIGHT GLASS
- GAUGE GLASS WITH COCK
- THERMOMETER
- GRAVITY FLOW DRAIN
- TAP FITTING
- SWITCH, FLOW
- SWITCH, PRESSURE
- FILTER REGULATOR LUBRICATOR
- FILTER
- PADDLE WHEEL FLOW METER
- VORTEX FLOW METER
- MAG FLOW METER
- ROTAMETER FLOW METER
- TURBINE FLOW METER (1)
- FLOW CONTROL VENTURI
- STEAM TRAP
- STEAM TRAP ASSEMBLY
- SAMPLE VALVE (SP-)
- STERILE SAMPLE PORT (SP-)
- RESIN TRAP
- FLEX PIPE
- PRESSURE/VACUUM RELIEF
- STATIC MIXER
- SSH-SAFETY SHOWER AND EYE WASH
- QUICK DISCONNECT COUPLING
- SURGE SUPRESSOR

ACTUATOR SYMBOLS

- PZ PNEUMATIC WITH POSITIONER
- PS PNEUMATIC WITH SOLENOID
- E ELECTRIC
- P PNEUMATIC
- SET @ 30 PSIG AIR SET WITH SET GAUGE PRESSURE
- M MOTORIZED
- S TWO-WAY SOLENOID VALVE
- S THREE-WAY SOLENOID VALVE
- M MOTORIZED DIAPHRAGM
- MOTORIZED BUTTERFLY
- T/S TRAVEL STOP

EQUIPMENT SYMBOLS

- CENTRIFUGAL PUMP
- SUBMERSIBLE PUMP
- METERING PUMP
- DIAPHRAGM PUMP
- POSITIVE DISPLACEMENT PUMP
- DRUM PUMP
- BLOWER
- PLUG FAN
- MULTISTAGE CENTRIFUGAL PUMP
- VACUUM PUMP
- LIQUID RING PUMP
- SUMP PUMP
- MOTOR

INTERFACE SYMBOLS

PROCESS

XXX / YYY — PIPING INTERFACE
A = INTERFACE I.D.
XXX = SOURCE SHEET NO.
YYY = DESTINATION SHEET NO.

SIGNAL

XXX A / YYY A — SIGNAL INTERFACE
A = INTERFACE I.D.
XXX = SOURCE SHEET NO.
YYY = DESTINATION SHEET NO.

B — LINE CONTINUATION
B = INTERFACE I.D.

INSTRUMENT IDENTIFICATION

SEE INSTRUMENT SOCIETY OF AMERICA TABLE (MODIFIED) FOR EXPLANATION OF TERMS

VENDOR SUPPLIED — DEVICE TYPE — DEVICE FUNCTION — ITEM

** OOA
AAA
BBBB-CCCC-DD

EQUIPMENT NUMBER PER LOOP
SYSTEM NUMBER (NOT ALWAYS SHOWN)

- FIELD MOUNTED DEVICE
- PANEL MOUNTED DEVICE
- DISCRETE LOGIC INTERLOCK
- CALCULATION/DECISIONS
- PROGRAMMABLE LOGIC CONTROLLER(PLC)/ COMPUTER

LINE LEGEND

- ANALOG SIGNAL (4 TO 20 mADC ETC.)
- DISCRETE SIGNAL (ON/OFF ETC.)
- DATA SIGNAL
- PULSED FREQUENCY
- PNEUMATIC SIGNAL
- FILLED SYSTEM SIGNAL
- HYDRAULIC SYSTEM SIGNAL
- SOFTWARE LINK SIGNAL
- ELECTRICAL POWER

GENERAL NOTES

A THIS IS A STANDARD LEGEND SHEET. THEREFORE, NOT ALL OF THE INFORMATION MAY BE USED ON THIS PROJECT.

B COMPONENTS AND PANELS SHOWN WITH A SINGLE ASTERISK (*) ARE PROVIDED AS PART OF A PACKAGE SYSTEM. VENDOR FURNISHED, CONTRACTOR TO INSTALL.

C COMPONENTS AND PANELS SHOWN WITH A DOUBLE ASTERISK (**) ARE PROVIDED AS PART OF A PACKAGE SYSTEM. VENDOR FURNISHED AND INSTALLED.

PIPING LINE TYPE DESIGNATION

- DOUBLE CONTAINMENT PIPING
- INSULATED PIPING
- FLEXIBLE PIPE,HOSE
- HEAT TRACED PIPE

PIPING DESIGNATION

EXAMPLE: 3/4-UPWS-RDT-000

- LINE NUMBER
- LINE CLASS DESIGNATION
- FLOW STREAM IDENTIFICATION
- NOMINAL PIPE DIAMETER IN INCHES

TRANSDUCERS

A	ANALOG
D	DIGITAL
E	VOLTAGE
F	FREQUENCY
I	CURRENT
P	PNEUMATIC
PF	PULSE FREQUENCY
PD	PULSE DURATION

EXAMPLE: I/P — CURRENT TO PNEUMATIC CONVERTER

(4) PARALLELING LINES, (PARENTHETICAL NUMBER) INDICATES THE NUMBER OF SIGNALS REPRESENTED

CONNECTING LINES

NON-CONNECTING LINES

PermaFix® environmental services
A Nuclear Services and Waste Management Company

REV NO	DESCRIPTION	DATE
1	ADDED TURBINE FLOW METER	SDN 4/23/14
0	ISSUE FOR TSCA/RCRA PERMIT APPLICATION	2/16/98

RR | MF | QA BY/DATE | ENGR BY/DATE: JM | CHK BY/DATE: PEB | REV BY/DATE

REVISIONS

EDWARD CONSULTING ENGINEERS, INC.
20565 SW T.V. HWY #355 ALOHA, OREGON 97006
(503) 642-1999, FAX 649-6139

DRAWING NO | DRAWING TITLE
REFERENCE DRAWINGS
NEXT HIGHER ASSEMBLY:

CADCODE ACADR13 | CADFILE 97211

DRAWN MKB | DATE
CHECKED
DFTG APVD
ENGR JM
APVD
OTHER
QA
APPROVED FOR IMPLEMENTATION
BY ____ FOR ____ DATE

MIXED WASTE FACILITY STABILIZATION BLDG.

PIPING AND INSTRUMENTATION DIAGRAM LEGEND

SCALE NONE | SHEET NO 1 | SHEETS 3
DWG NO 31001-P-010-01 | REV 1

PERMIT FIGURE NUMBER: NONE