



SCHEDULE					
MAX CTW FLOW		BLOW DOWN		MAKE UP WATER	
GPM	PIPE SIZE	GPM	PIPE SIZE	GPM	PIPE SIZE

CHEMICAL FEED OPEN SYSTEM SPECIFICATION

INSTALLATION INSTRUCTIONS

- 1) ALL ISOLATION VALVES SHALL BE BALL VALVES.
- 2) POWER WILL BE 110V DEDICATED CIRCUIT FOR CHEMICAL PANEL AND CITY WATER MAG METERS.
- 3) BEFORE ANY WORK STARTS, GENERAL CONTRACTOR SHALL COORDINATE A MEETING WITH ELECTRICAL CONTRACTOR, WATER TREATMENT VENDOR, CONTROL CONTRACTOR AND PLANT ENGINEERING.
- 4) PROVIDE 10 DIAMETERS OF STRAIGHT PIPE UPSTREAM OF CITY FLOW METER AND 5 DIAMETERS DOWNSTREAM. (NOT REQUIRED FOR CHEMICAL TREATMENT SYSTEM METER.)
- 5) ALL 120V POWER WIRING TO CHEMICAL PANEL AND FLOWMETERS BY DIVISION 16. ALL OTHER WIRING BY CONTROLS CONTRACTOR.

EQUIPMENT NOTES

- 1) 110V MOTOR OPERATED BALL VALVE WITH SPRING RETURN TO FAIL CLOSED. (SIZED PER SCHEDULE)
- 2) CHEMICAL FEED PUMP-PULSATRON SERIES E PLUS, LPB4-SA-PTC1-XXX, WITH 120V PLUG.
- 3) BROMINATOR - OXYCHEM MODEL 1040 BROMINE TABLET FEEDER
- 4) CONTROLLER-PULSATROL MODEL MC 9551
- 5) PULSAFEEDER CCR2 CORROSION COUPON RACK WITH 1 SOFT STEEL AND 1 COPPER COUPON.
- 6) CLEAR PLASTIC PULSAFEEDER MODULAR FLOW MEASURING ASSEMBLY FOR PULSATROL PLUS MCT 450 WITH CONDUCTIVITY PROBE, (OPTIONAL PH PROBE), ORP PROBE, FLOW SWITCH, SAMPLE PORT, AND FLOW INDICATOR.
- 7) PVC CLEAR PLASTIC STRAINER
- 8) PULSAFEEDER GPC, CONTACTING WATER METER, SIZED PER SCHEDULE.
- 9) FLOAT TYPE FLOW INDICATOR IN CLEAR GRADUATED HOUSING.
- 10) BRONZE BALL VALVE WITH SS PIPE NIPPLE CONNECTION TO MAIN HEADER.
- 11) CITY OF ANN ARBOR BLOWDOWN MAGMETER(FURNISHED BY U OF M). INSTALL NO HIGHER THAN 48" AFF AND WITH INVERTED PORTION TO MAINTAIN "PIPE FULL" AT ALL TIMES.
- 12) CITY OF ANN ARBOR MAKEUP METER(FURNISHED BY U OF M). INSTALL NO HIGHER THAN 48" AFF. COORDINATE WITH CITY OF ANN ARBOR TO DETERMINE IF THIS IS A MAGMETER OR A POSITIVE DISPLACEMENT METER.
- 13) LOCKABLE 120V SWITCH LOCATED NEAR CITY WATER MAG METER.
- 14) NALCO 3/4" STAINLESS STEEL CHEMICAL INJECTION QUILL WITH CORPORATION STOP

SEQUENCE OF OPERATION

- CONDUCTIVITY IS CONTROLLED BY ENERGIZING THE BLOW DOWN VALVE TO MAINTAIN 2000 MICRO MHO'S (UMHO'S)
- ORP (OXIDATION REDUCTION POTENTIAL) IS CONTROLLED BY ENERGIZING A PUMP THAT INJECTS BIOCIDES INTO THE FEED LOOP TO MAINTAIN A FREE RESIDUAL ORP RANGE BETWEEN 0.2-0.5 PPM.
- INHIBITOR WILL BE CONTROLLED BY READING THE COOLING TOWER MAKE UP WATER METER AND PROVIDE 110V POWER TO THE INHIBITOR PUMP TO RUN. WATER TREATMENT VENDOR WILL DETERMINE CORRECT CHEMICAL LEVELS FOR THE SYSTEM.
- THE CONTROLLER WILL SEND A GENERAL FAULT SIGNAL TO THE DDC WHEN ANY OF THE STANDARD AVAILABLE CONTROLLER MANUFACTURER'S FAULTS OCCUR.

DDC POINTS

- DI - CHEM FEED PANEL GENERAL FAULT ALARM
- A1-1 CONDUCTIVITY (4-20 M AMP)
- A1-2 ORP (4-20 M AMP)(OPTIONAL)

DESIGNER NOTES

1. DIRECT INJECTION IS THE PREFERRED METHOD FOR CHEMICAL DELIVERY, HOWEVER ONLY IF THE THE INJECTION QUILLS ARE LOCATED NO MORE THAN 10' ABOVE THE FLOOR AND IF THE DISTANCE BETWEEN THE FEED PUMPS AND THE INJECTION QUILLS IS NO MORE THAN 20'. IF MORE THAN 10' OF PUMP DISCHARGE TUBING IS REQUIRED, IT MUST BE ROUTED IN A 1" PVC PIPE OR CONDUIT IN ORDER TO REDUCE TUBING MOVEMENT DUE TO THE PULSATING PUMP ACTION.
2. IF CHEMICAL TREATMENT PANEL IS LOCATED MORE THAN 50' FROM CONNECTIONS TO MAIN HEADERS, THEN THE INLET CONNECTION SHALL BE BETWEEN THE CONDENSER PUMP AND THE CHILLER IN ORDER TO PROVIDE SUFFICIENT PRESSURE FOR THE FLOW REQUIRED. IN THE CASE OF MULTIPLE CHILLER SYSTEMS, THIS WILL REQUIRE A TAP AND A CHECK VALVE ON EACH CHILLER SUPPLY PIPING.

CONDENSER WATER TREATMENT EQUIPMENT DIAGRAM (BROMINE METHOD)

NO SCALE

D 15710 10 04 08.dgn

REFERENCED DETAILS/SCHEDULES:
ADDITIONAL INFORMATION:
MODULES: 6

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Condenser Water Treatment Equipment Diagram (Bromine Method)
DIVISION: 15
SECTION: 15710
FILE: D 15710 10 04 08.dgn
ISSUE DATE: 04/15/08