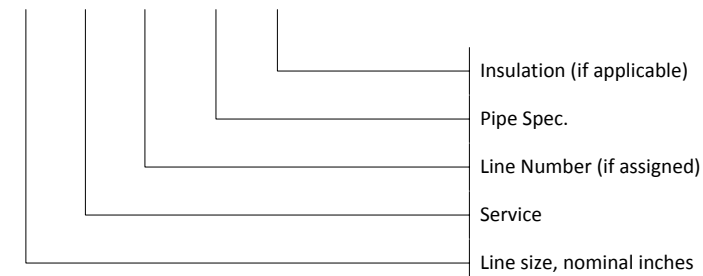


	Measured Variable	Readout of function	Output Function	Modifier
A	Air	Alarm		
B	Burner	Storage	Users Choice	Users Choice
C	Compressor			Closed
D	Dispenser			
E	Electrolyzer	Sensor (primary Element)		
F	Flow	Filter		
G	Chiller	Glass, viewing		
H	Hand			High
I	Current	Indicator		
J	Power			
K	Time		Control Station	
L	Level	Light		Low
M	Conductivity			Middle
N	Users Choice	Users Choice	Hydrogen	Users Choice
O	Water	Orifice, restriction	Air	Open
P	Pressure			
Q	Quantity			
R	Radiation	Record, Reduce		
S	Speed, Frequency		Switch	
T	Temperature		Transmit	
U	Multivariate	Multifunction	Multifunction	Multifunction
V	Vibration		Valve	
W	Weight	Well	Water	
X	Unclassified	Unclassified	Unclassified	Unclassified
Y	State		Relay	
Z	Position		Actuator	

Line symbols

X"-XXX-XXXX-XXX-XXX



Line Service Identification codes

CCA-CLEAN COMPRESSED AIR
 CHW-CHILLED WATER
 H-HYDROGEN
 N-NITROGEN

Insulation codes

F1- Soda-lime silicate glass (FOAMGLAS) 1" wall thickness
 F2- Buna N Foam 3/8" thick

Pipe Specification Details

3000PSI Min. pressure rating of 3,000 PSI 316/316L austenitic stainless steel tubing UNS S31600 (316), UNS S31603 (316L)
 6500PSI Min. pressure rating of 6,500 PSI 316/316L austenitic stainless steel tubing UNS S31600 (316), UNS S31603 (316L)
 15000PSI Min. pressure rating of 15,000 PSI 316/316L austenitic stainless steel tubing UNS S31600 (316), UNS S31603 (316L)
 POLY Polyamide (Nylon) pneumatic tubing, light and heat stabilized.
 0.032CU 0.032" wall copper alloy 122 seamless tubing
 SCH40 Schedule 40 iron pipe

VALVES

- BALL VALVE
- NEEDLE VALVE
- CHECK VALVE
- SOLENOID VALVE
- AIR ACTUATED VALVE, SPRING RETURN CLOSE
- PRESSURE REDUCING VALVE
- TWO WAY PRESSURE RELIEF
- THREE WAY PRESSURE RELIEF

EQUIPMENT

- FILTER
- PUMP
- DRYER
- HYDROGEN COMPRESSOR
- STORAGE TANK
- IR FLAME DETECTOR

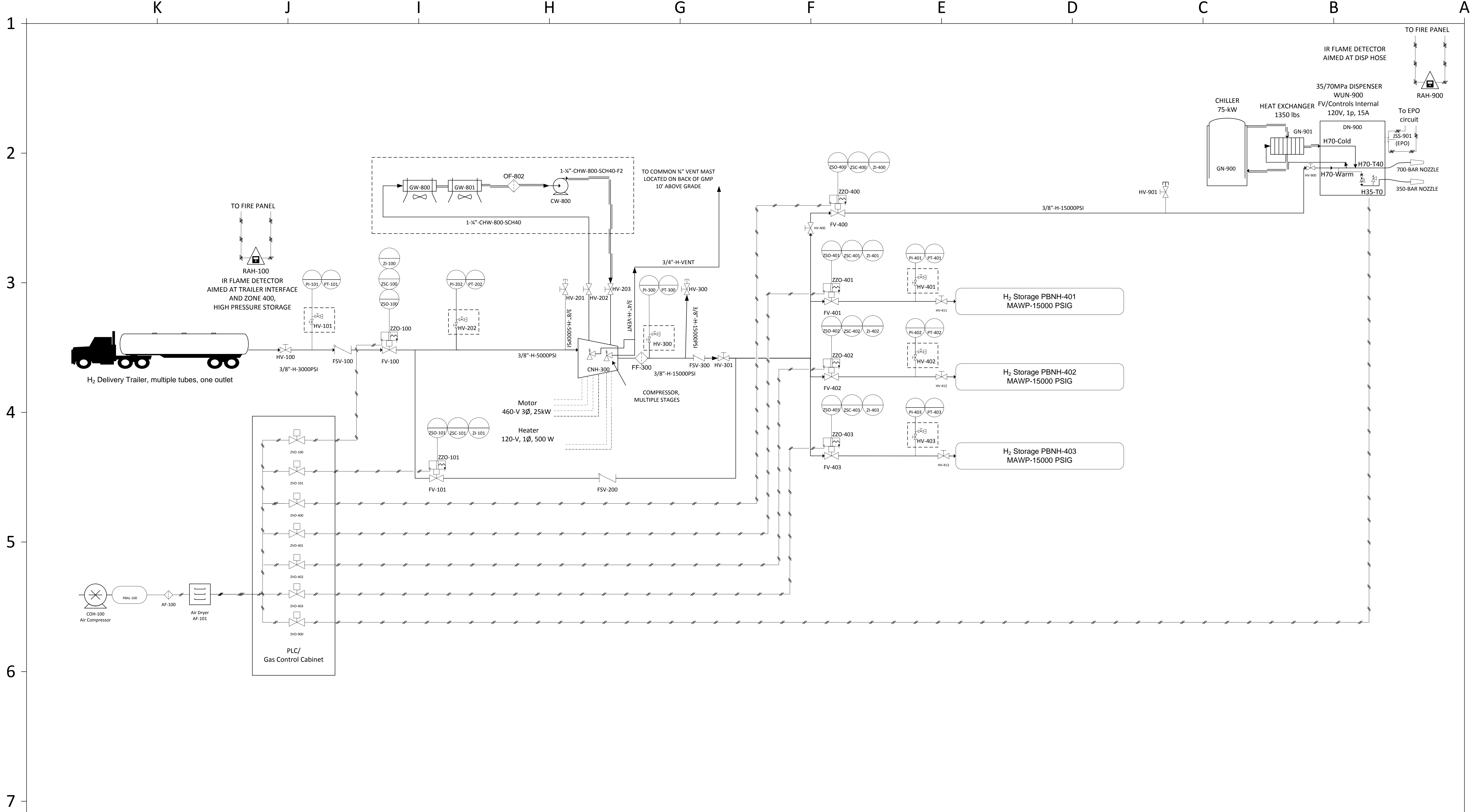
PROCESS AND SIGNAL LINES

- HYDROGEN PROCESS LINE
- DEIONIZED WATER PROCESS LINE
- PNEUMATIC SIGNAL LINE
- NITROGEN SIGNAL LINE
- ELECTRICAL SIGNAL LINE

REVISIONS				FILE INFORMATION				ENGINEERING REVIEW			DESCRIPTION		
REV	DESCRIPTION	DATE	APPROVED	DRAWN BY	PLATFORM	DATE	SCALE	DESIGNER	APPROVAL	DATE	ENERGY SYSTEMS INTEGRATION LABORATORY P&ID		
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								CHECKED BY			NREL PROJECT NUMBER	SHEET	A/E PROJ NO.
								NREL APPR BY			1 OF 6		
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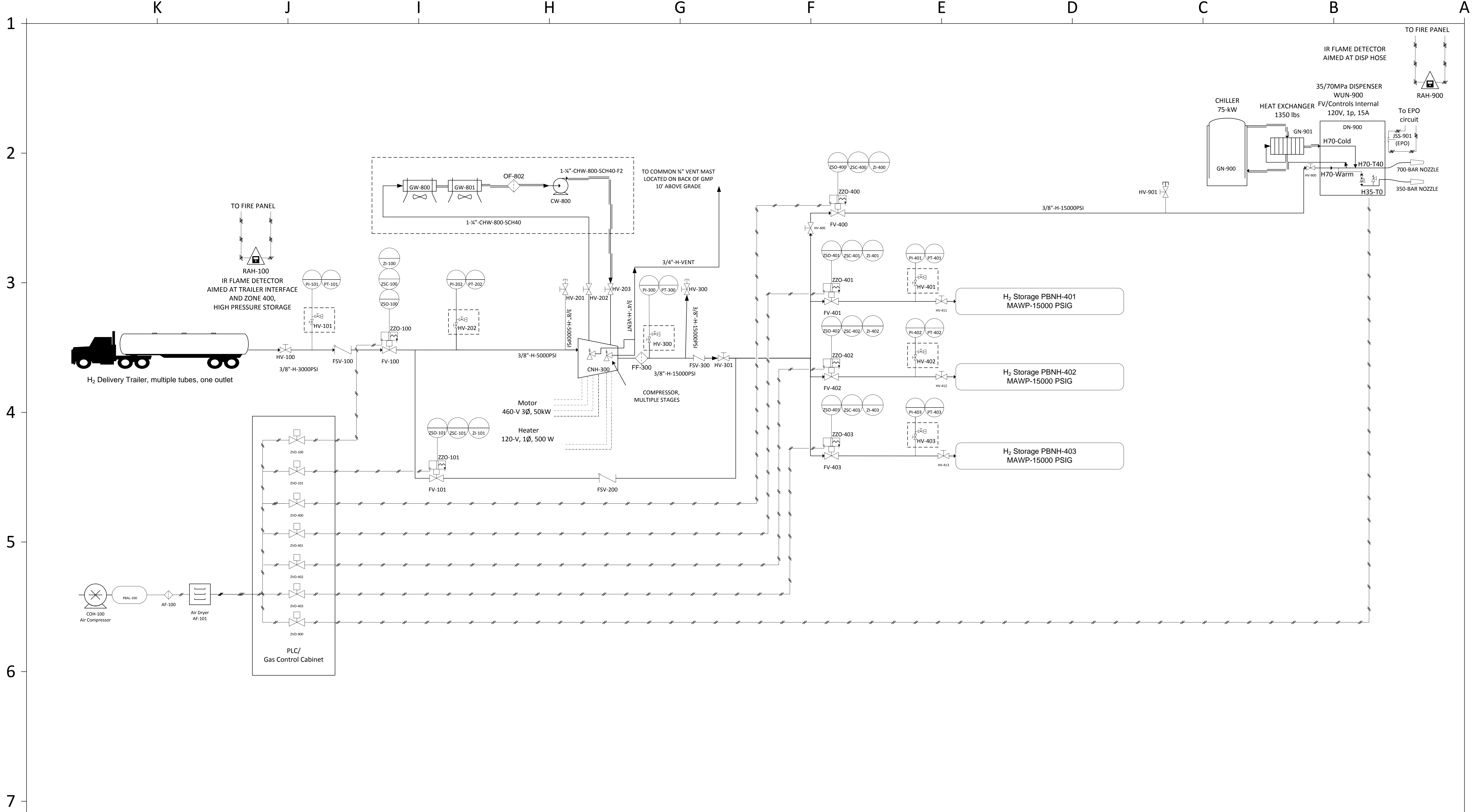
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ENGINEERING REVIEW		
DESIGNER	APPROVAL	DATE

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 15013 Denver West Parkway
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DESCRIPTION		
ENERGY SYSTEMS INTEGRATION LABORATORY P&ID		
REFERENCE STATION 100KG/DAY		
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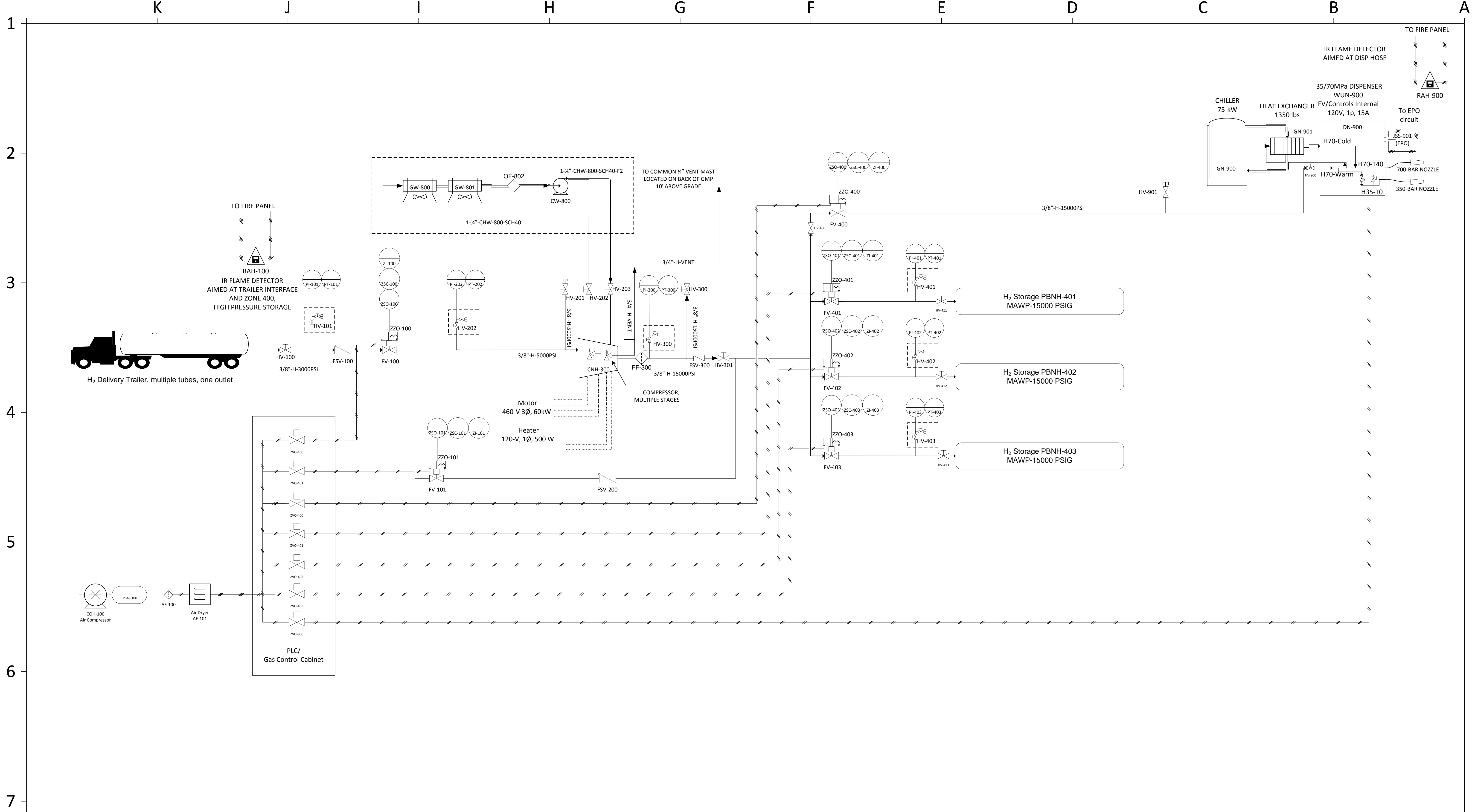
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DESCRIPTION		
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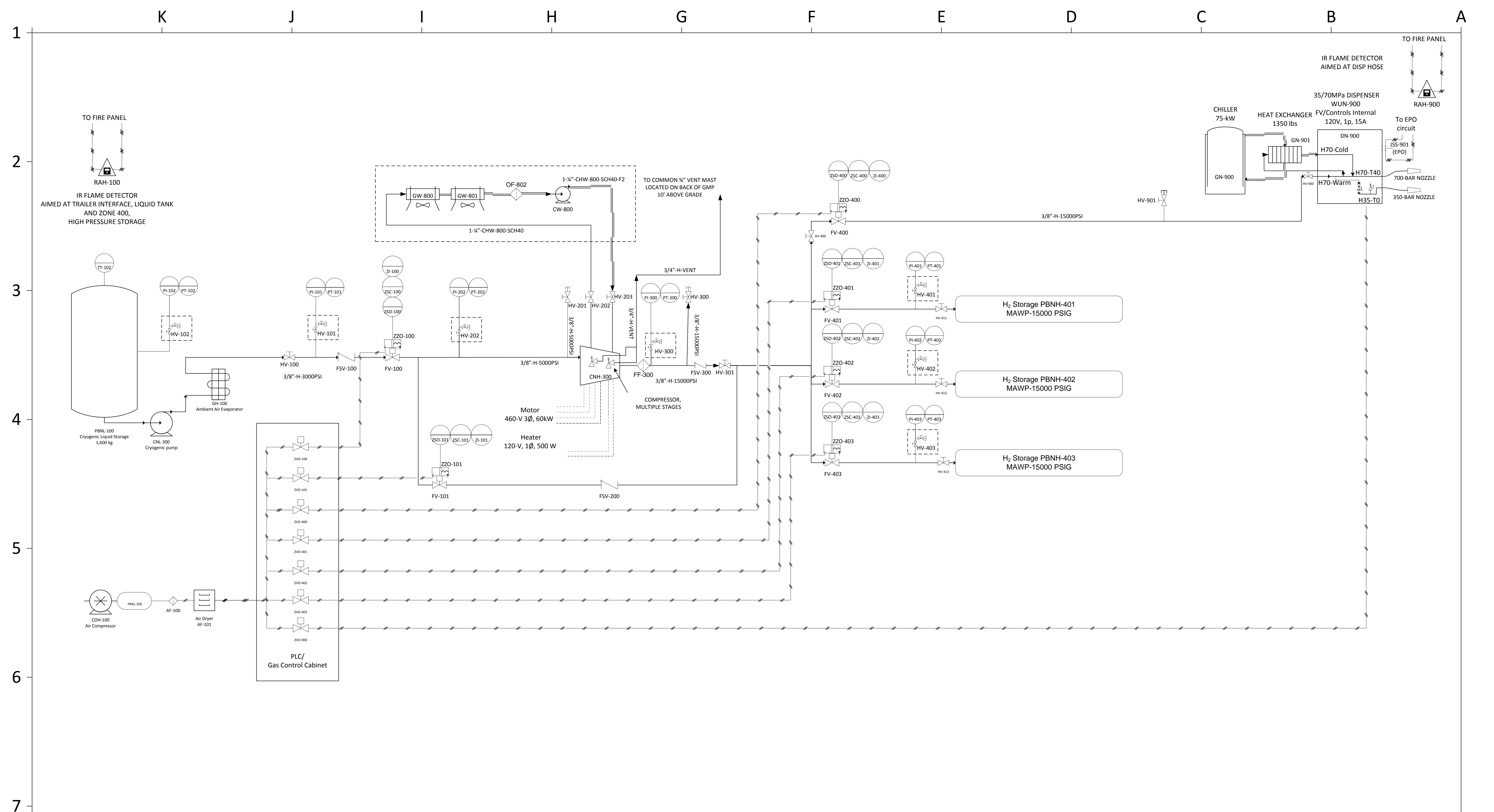
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DESCRIPTION		
ENERGY SYSTEMS INTEGRATION LABORATORY P&ID		
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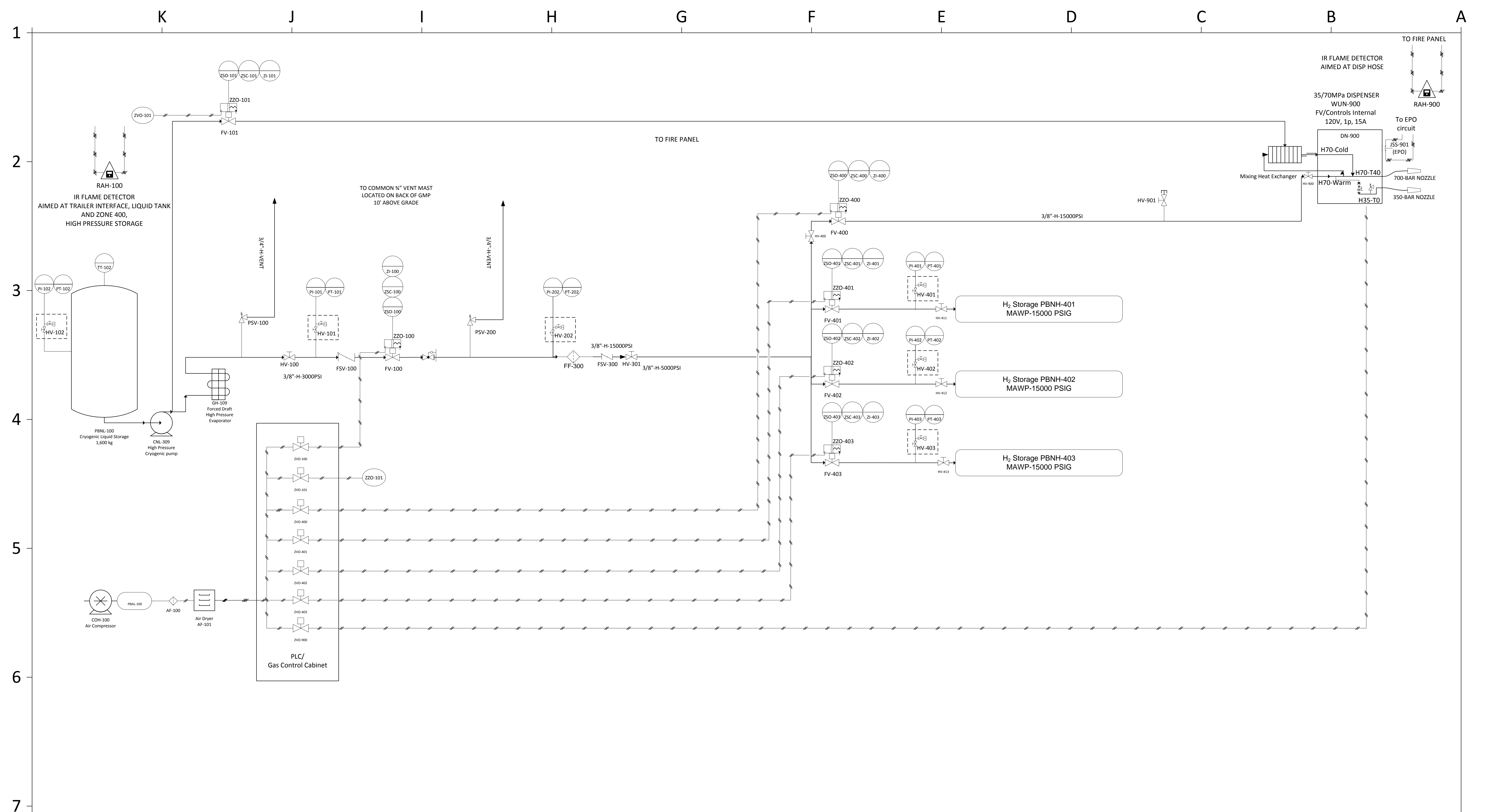
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	6 OF 6	