

16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

M L J H F E D C B A

NOTE

**TYPICAL IDENTIFICATION SYSTEM**

**EQUIPMENT UNIT CLASSIFICATION (A<sub>1</sub>: A<sub>2</sub>)**

B	MECHANICAL EQUIPMENT
BB	VESSELS, STORAGE TANKS
BE	SHAFTS (FOR ERECTION AND MAINTENANCE ONLY)
BF	FOUNDATIONS
BG	BOILER HEATING SURFACES
BN	JET PUMPS, EJECTORS, INJECTORS
BP	FLOW RESTRICTORS AND LIMITERS (INCL. RUPURE DISCS), ORIFICES (NOT METERING ORIFICES)
BQ	HANGERS, SUPPORTS, FRAMES, RACKS, PIPE PENETRATIONS
BR	PIPING, DUCTWORK, CHUTES
BS	SILENCERS
BT	CATALYTIC CONVERTER MODULES
BU	INSULATION, SHEETING
BY	MECHANICALLY OPERATED CONTROLLERS (CONTROL UNITS)
BZ	SPECIAL EQUIPMENT UNITS
C	DIRECT MEASURING CIRCUITS
CD	DENSITY
CE	ELECTRICAL VARIABLES
CF	FLOW RATE
CG	DISTANCE, LENGTH, POSITION
CK	TIME
CL	LEVEL
CM	MOISTURE, HUMIDITY
CP	PRESSURE
CQ	QUALITY VARIABLES (ANALYSIS, MATERIAL PROPERTIES)
CR	RADIATION VARIABLES
CS	VELOCITY, SPEED, FREQUENCY
CT	TEMPERATURE
CU	COMBINED VARIABLES
CV	VISCOOSITY
CW	WEIGHT, MASS
CX	NEUTRON FLUX (REACTOR POWER)
CY	VIBRATION, EXPANSION
D	CLOSED LOOP CONTROL CIRCUITS
DD	DENSITY
DE	ELECTRICAL VARIABLES
DF	FLOW RATE
DG	DISTANCE, LENGTH, POSITION
DK	TIME
DL	LEVEL
DM	MOISTURE, HUMIDITY
DP	PRESSURE
DQ	QUALITY VARIABLES (ANALYSIS, MATERIAL PROPERTIES)
DR	RADIATION VARIABLES
DS	VELOCITY, SPEED, FREQUENCY
DT	TEMPERATURE
DU	COMBINED VARIABLES
DV	VISCOOSITY
DW	WEIGHT, MASS
DX	NEUTRON FLUX (REACTOR POWER)
DY	VIBRATION, EXPANSION
E	ANALOG AND BINARY SIGNAL CONDITIONING
EA	OPEN-LOOP CONTROL
EB	SUBDIVISION
EC	POSSIBLE
ED	AS REQUIRED
EE	
EG	ALARM, ANNUNCIATION
EH	SUBDIVISION
EJ	POSSIBLE
EK	AS REQUIRED
EM	PROCESS COMPUTER
EN	SUBDIVISION
EP	POSSIBLE
EQ	AS REQUIRED
ER	REACTOR PROTECTION
EU	COMBINED ANALOG AND BINARY SIGNAL CONDITIONING
EW	PROTECTION
EX	SUBDIVISION
EY	POSSIBLE
EZ	AS REQUIRED
F	INDIRECT MEASURING CIRCUITS
FD	DENSITY
FE	ELECTRICAL VARIABLES
FF	FLOW, RATE
FG	DISTANCE, LENGTH, POSITION
FK	TIME
FL	LEVEL
FM	MOISTURE, HUMIDITY
FP	PRESSURE
FQ	QUALITY VARIABLES (ANALYSIS, MATERIAL, PROPERTIES)
FR	RADIATION VARIABLES
FS	VELOCITY, SPEED, FREQUENCY
FT	TEMPERATURE
FU	COMBINED VARIABLES
FV	VISCOOSITY
FW	WEIGHT, MASS
FX	NEUTRON FLUX (REACTOR POWER)
FY	VIBRATION, EXPANSION

**EQUIPMENT UNIT CLASSIFICATION (A<sub>1</sub>: A<sub>2</sub>)**

G	ELECTRICAL EQUIPMENT
GA	JUNCTION BOXES FOR ANALOG MEASURED DATA
GB	JUNCTION BOXES FOR BINARY SIGNALS
GC	JUNCTION BOXES FOR ANALOG SAFETY I&C (SIL) MEASURED DATA
GD	JUNCTION BOXES FOR POWER CABLES > 1 KV
GE	JUNCTION BOXES FOR POWER CABLES < 1 KV
GF	JUNCTION BOXES FOR OPERATIONAL I&C (BELT) MEASURED DATA
GG	JUNCTION BOXES FOR THERMOCOUPLES
GH	ELECTRICAL AND INSTRUMENTATION AND CONTROL INSTALLATION UNITS (E.G. CUBICLES, BOXES)
GK	INFORMATION DISPLAY AND OPERATOR CONTROL EQUIPMENT FOR PROCESS COMPUTERS AND AUTOMATION SYSTEMS (KEYBOARDS, MONITORS, PRINTERS)
GM	JUNCTION BOXES FOR LIGHT CURRENT SYSTEMS OF NATIONAL TELECOMMUNICATIONS SERVICES
GN	NETWORKING EQUIPMENT (BUS COUPLERS AND OPTIC TRANSCIVERS, ETC.)
GP	SUBDISTRIBUTION/JUNCTION BOXES FOR LIGHTING
GQ	SUBDISTRIBUTION/JUNCTION BOXES FOR POWER SOCKETS
GR	DC GENERATING EQUIPMENT (BATTERIES)
GS	SWITCHGEAR EQUIPMENT (IF NOT IDENTIFIED UNDER PROCESS EQUIPMENT)
GT	TRANSFORMER EQUIPMENT
GU	CONVERTOR EQUIPMENT
GV	STRUCTURE-RELATED EARTHING AND LIGHTNING PROTECTION EQUIPMENT, SURGE ARRESTORS
GW	CABINET POWER SUPPLY EQUIPMENT
GX	ACTUATING EQUIPMENT FOR ELECTRICAL VARIABLES
GY	JUNCTION BOXES FOR LIGHT CURRENT SYSTEMS (NOT OF NATIONAL TELECOMMUNICATIONS SERVICES)
GZ	HANGERS, SUPPORTS AND RACKS FOR ELECTRICAL AND JUNCTION BOXES FOR LIGHT CURRENT SYSTEMS INSTRUMENTATION AND CONTROL EQUIPMENT

**1.1 PLANT CODE**

PLANT SECTION	ENTRY
PLANT COMMON	02
STG & AUXILIARY SYSTEM	20
GT/HSG UNIT	21
RESERVE BOILER #1	22
RESERVE BOILER #2	23
RESERVE BOILER #3	24

**1.2 LEVEL '1': SYSTEM CODE**

SYSTEM IDENTIFICATION LETTERS

FUNCTION KEY IN SYSTEM CLASSIFICATION IS AS FOLLOWS

CODE	IDENTIFICATION
A	GRID AND DISTRIBUTION SYSTEMS
B	POWER TRANSMISSION AND AUXILIARY POWER SUPPLY
C	INSTRUMENTATION AND CONTROL EQUIPMENT (IDENTIFICATION ON A PRIORITY BASIS ACCORDING TO MAIN, INSTRUMENTATION AND CONTROL FUNCTION ALSO ACCEPTABLE IN COMPOSITE STRUCTURE HARDWARE PACKAGING SYSTEMS.)
D	INSTRUMENTATION AND CONTROL EQUIPMENT (FOR USE ONLY WHEN THE FUNCTION KEYS CM TO CT ARE INSUFFICIENT FOR THE IDENTIFICATION)
E	CONVENTIONAL FUEL SUPPLY AND RESIDUES DISPOSAL
F	WATER SUPPLY AND DISPOSAL
G	CONVENTIONAL HEAT GENERATION
H	STEAM, WATER, GAS CYCLES
I	MAIN MACHINE SETS
J	PROCESS ENERGY SUPPLIED FOR EXTERNAL USERS (e.g. DISTRICT HEATING)
K	COOLING WATER SYSTEMS
L	AUXILIARY SYSTEMS
M	ANCILLARY SYSTEMS
N	STRUCTURES
O	RENEWABLE ENERGY PLANTS
P	HEAVY MACHINERY (NOT MAIN MACHINES SETS)
Q	WORKSHOP AND OFFICE EQUIPMENT

NOTE : FOR THE DETAIL FUNCTION KEY, REFER TO KKS NUMBERING SYSTEM (REFER TO PLANT IDENTIFICATION SYSTEM DESCRIPTION DOC.NO.198L-00GEN00-G02-0002)

**LEVEL '2' EQUIPMENT UNIT CODE (A<sub>1</sub>: A<sub>2</sub> A<sub>3</sub> A<sub>4</sub>)**

EQUIPMENT UNIT CLASSIFICATION (A<sub>1</sub>: A<sub>2</sub>)

A	MECHANICAL EQUIPMENT
AA	VALVES, DAMPER, ETC. (INCL. ACTUATORS, ALSO MANUAL, RUPURE DISK, EQUIPMENT)
AB	ISOLATING ELEMENTS, AIR LOCKS
AC	HEAT EXCHANGERS
AE	TURNING, DRIVING, LIFTING AND SLEWING GEAR (INCL. MANIPULATORS)
AF	CONTINUOUS CONVEYOR, FEEDERS (ESCALATORS)
AG	GENERATOR UNITS
AH	HEATING, COOLING UNITS
AJ	SIZE REDUCTION EQUIPMENT
AK	COMPACTING, PACKAGING EQUIPMENT
AM	MIXERS, AGITATORS
AN	COMPRESSOR UNITS, FANS, BLOWERS
AP	PUMP UNITS
AS	ADJUSTING AND TENSIONING EQUIPMENT
AT	CLEANING, DRYING, FILTERING, SEPARATING EQUIPMENT
AU	CONVERTORS (NON ELECTRICAL), E.G. SERVOMOTOR
AV	COMBUSTION EQUIPMENT, E.G. GRATES
AW	STATIONARY TOOLING, TREATMENT EQUIPMENT
AX	TEST AND MONITORING EQUIPMENT
AZ	SPECIAL EQUIPMENT UNITS

**1.3.2 EQUIPMENT UNIT NUMBERING**

FOR THE A. NUMBERING OF VALVES (AA....), PIPING (BR....) AN MEASURING CIRCUITS (C....) THE FOLLOWING NUMBERING LOGIC WILL BE USED.

NUMBER RANGE	VALVES (AA...)	PIPES (BR...)	MEASURING CIRCUITS (C...)
001-050	MOTOR OPERATED VLAVES	MAIN PIPES	001-079 : ANALOG MEASUREMENT
051-080	CHECK VALVES		
081-100	CONTROL VALVES	NOT USED	
101-190	VALVES IN MAIN PIPES		
191-199	SAFETY VALVES	UPSTREAM AND DOWNSTREAM LINES OF SAFETY AND PRESSURE RELIEF VALVES	080-099 : BINARY MEASUREMENT
201-249	CHECK VALVES	NOT USED	
251-299	NOT USED		FOR TESTING EQUIPMENT
301-399	ISOLATING EQUIPMENT FOR MEASURING	PRESSURE LINES FOR MEASUREMENT	NOT USED
401-499	VALVES IN DRAINS AND FLUSHING PIPES	DRAINS, FLUSHING PIPES, PRESSURE SUPPRESSION PIPES	ACCEPTANCE TESTS
501-599	VALVES FOR VENTING	VENTING	LOCAL MEASURING CIRCUITS
601-699	VALVES IN SAMPLING AND PROPORTIONING	SAMPLING AND PROPORTIONING PIPES	ELEMENT (SENSORS)
701-799	VALVES FOR INTERNAL CONTROLS	INTERNAL CONTROL PIPES	BLOCKED
801-899	NOT USED	NOT USED	BLOCKED
901-999	NOT USED	NOT USED	GROUPED MEASURING CIRCUITS (e.g. MULTIPONT SELECTOR SWITCHED, MULTI CHANNEL RECORDERS)

**PIPING IDENTIFICATION**

EXAMPLE

DIRECTION OF FLOW

FLOW FOR BOTH DIRECTION

GRAPHIC SCALE

0 5 10 25 50 100 200m

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**REFERENCE DOCUMENTS/DRAWINGS**

DOC/DWG NO.	TITLE
JCP2-DA01-00ZEN-020001	DOCUMENT IDENTIFICATION
JCP2-DA01-00ZEN-020002	EQUIPMENT AND SYSTEM IDENTIFICATION

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B	30.May.2025	ISSUED FOR APPROVAL	Y.J.KIM	C.K.HONG
A	25.Apr.2025	ISSUED FOR APPROVAL	Y.J.KIM	C.K.HONG
REV. NO.	DATE	DESCRIPTION	DRAWN	CHKD.

**JAFURAH COGENERATION PROJECT - PHASE II EXPANSION**

Owner: **KEPCO POWER COMPANY**

Owner's Engineer: **WSP**

Contractor: **DOOSAN DOOSAN ENERBILITY**

Sub-Supplier: **HYUNDAI POWER SYSTEMS**

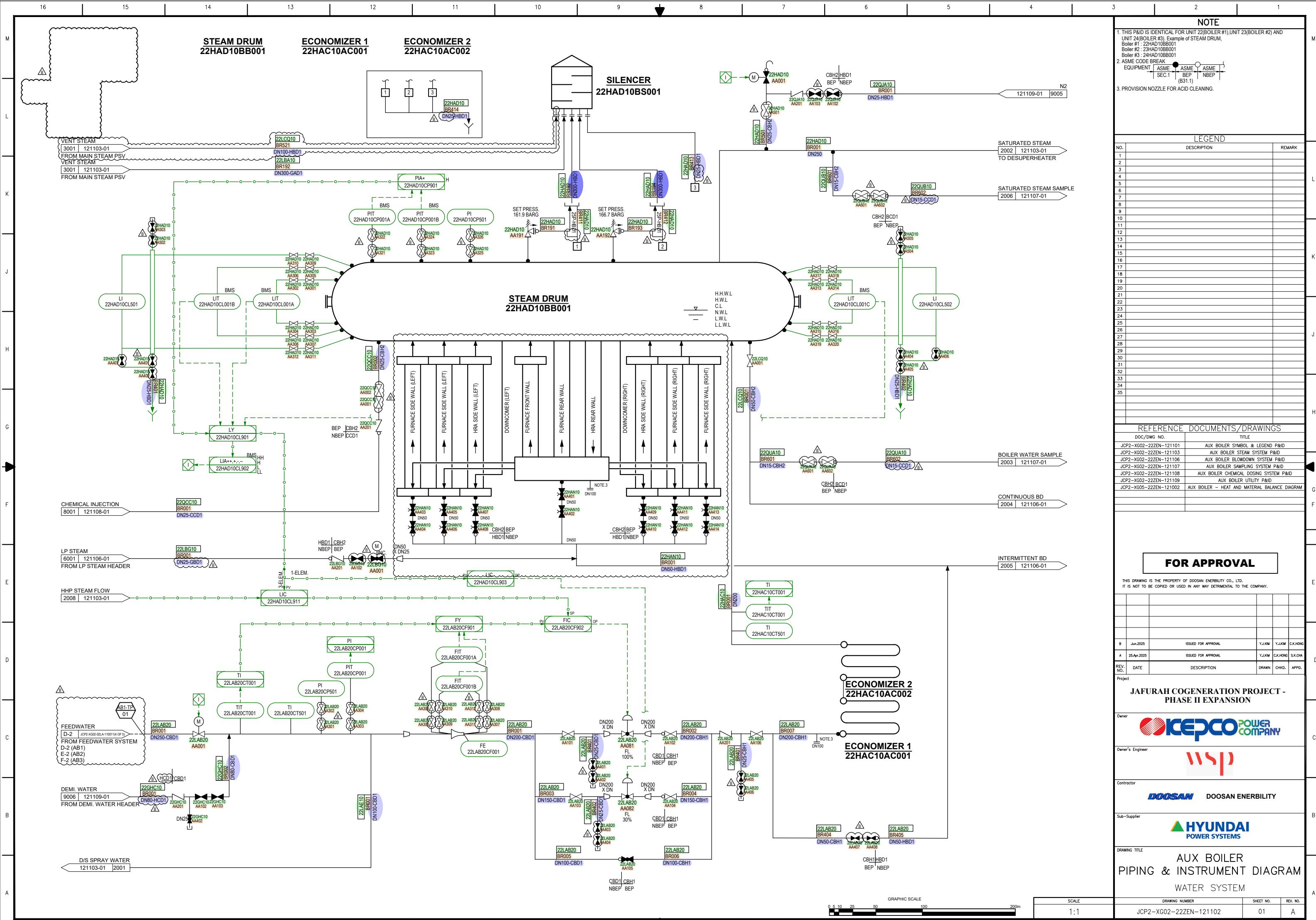
DRAWING TITLE: AUX BOILER PIPING & INSTRUMENT DIAGRAM SYMBOL AND LEGEND (4/4)

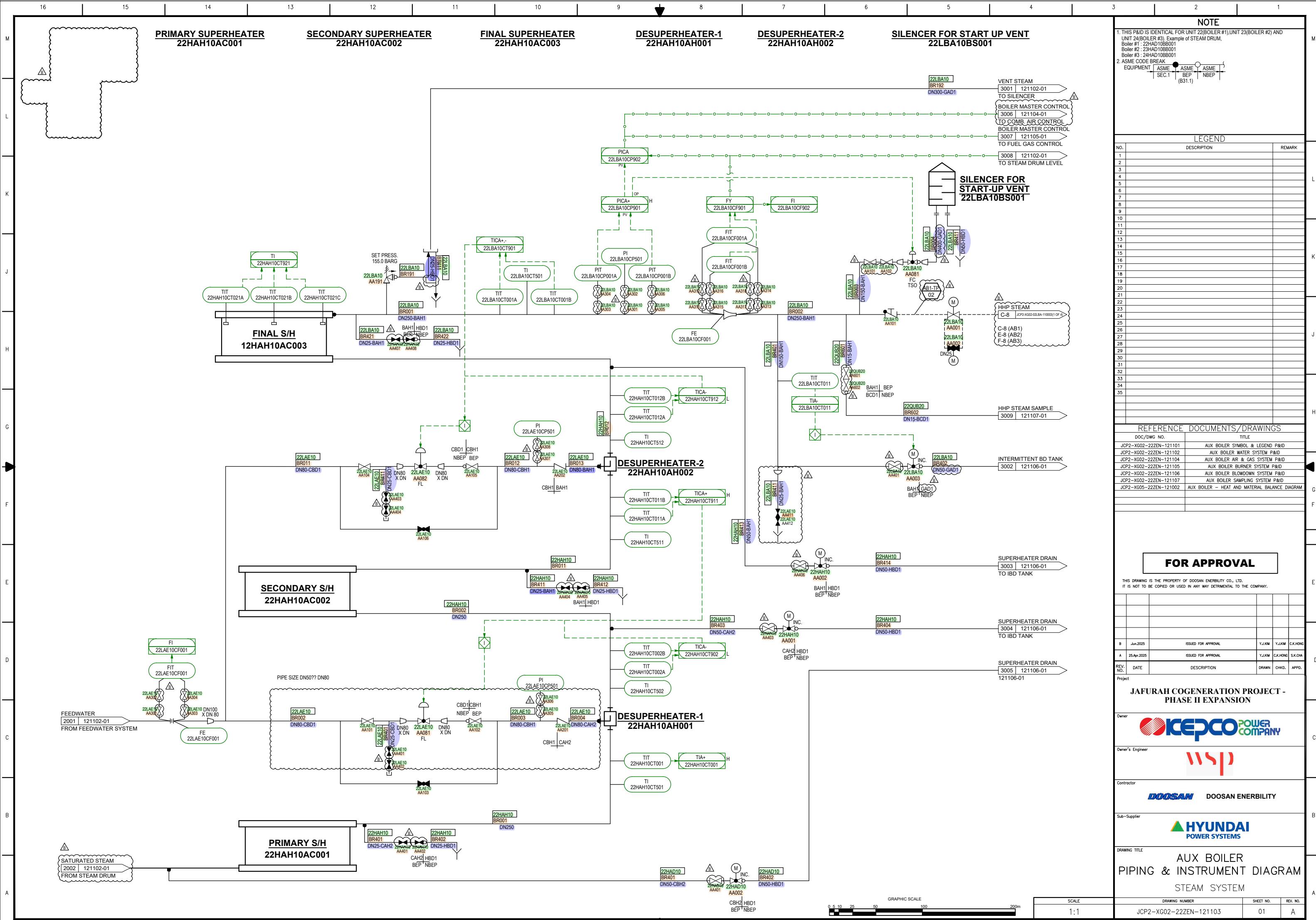
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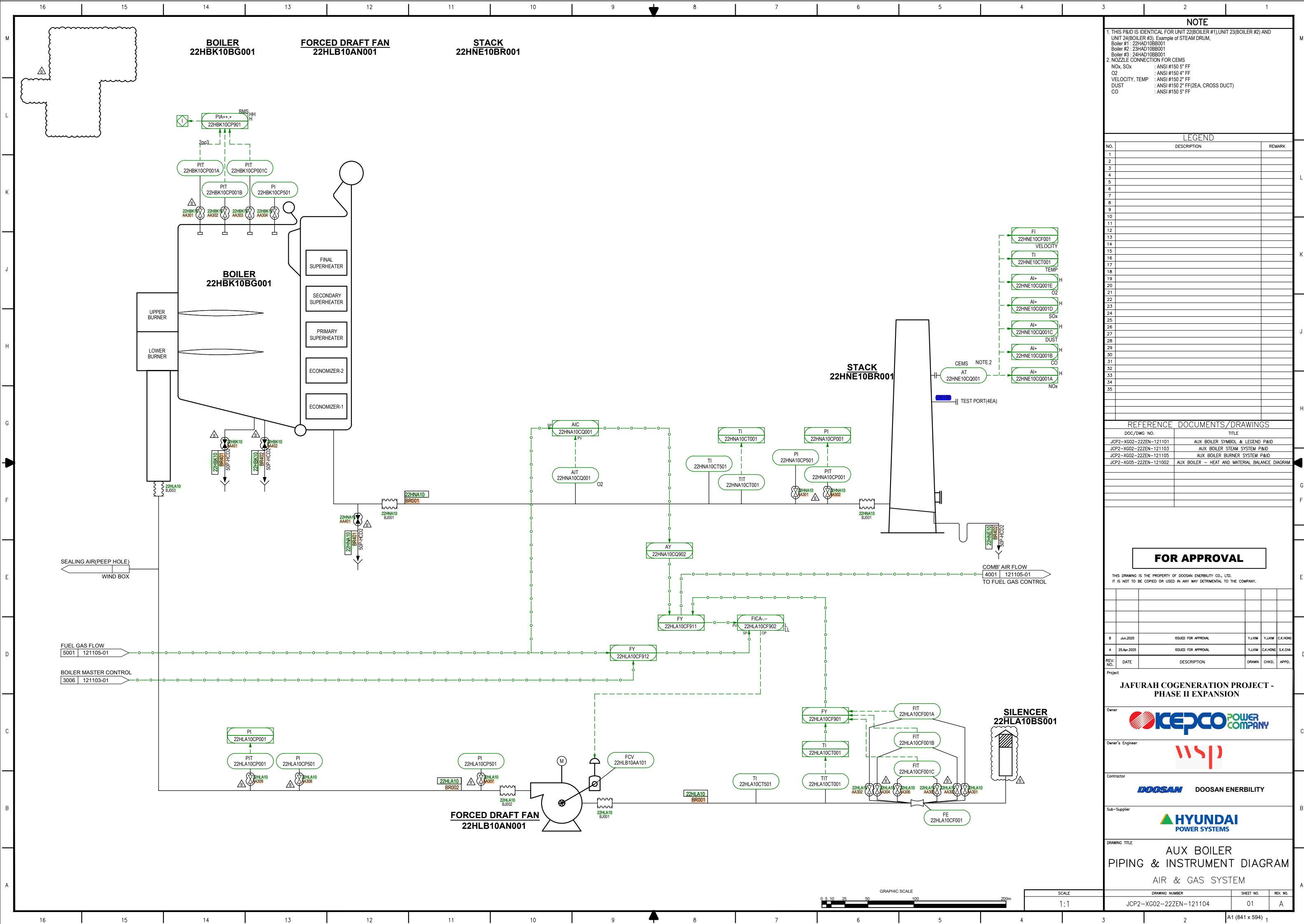
DRAWING NUMBER: JCP2-XG02-22ZEN-121101

HEET NO.: 4/4

REV. NO.: A







NOTE

1. THIS P&ID IS IDENTICAL FOR UNIT 22(BOILER #1), UNIT 23(BOILER #2) AND  
UNIT 24(BOILER #3). Example of STEAM DRUM,  
Boiler #1 : 22HAD10BB001  
Boiler #2 : 23HAD10BB001  
Boiler #3 : 24HAD10BB001

## LEGEND

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## REFERENCE DOCUMENTS/DRAWINGS

DOC/DWG NO.	TITLE
JCP2-XG02-22ZEN-121101	AUX BOILER TITLE
JCP2-XG02-22ZEN-121103	AUX BOILER STEAM SYSTEM P&ID
JCP2-XG02-22ZEN-121104	AUX BOILER AIR & GAS SYSTEM P&ID
JCP2-XG05-22ZEN-121002	AUX BOILER - HEAT AND MATERIAL BALANCE DIAGRAM

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A	25-Apr-2025	ISSUED FOR APPROVAL	Y.J.KIM	C.K.HONG
REV. NO.	DATE	DESCRIPTION	DRAWN	CHKD. APPD.

Project  
JAFURAH COGENERATION PROJECT - PHASE II EXPANSION

Owner  
**ICEPCO POWER COMPANY**

Owner's Engineer  
**WSP**

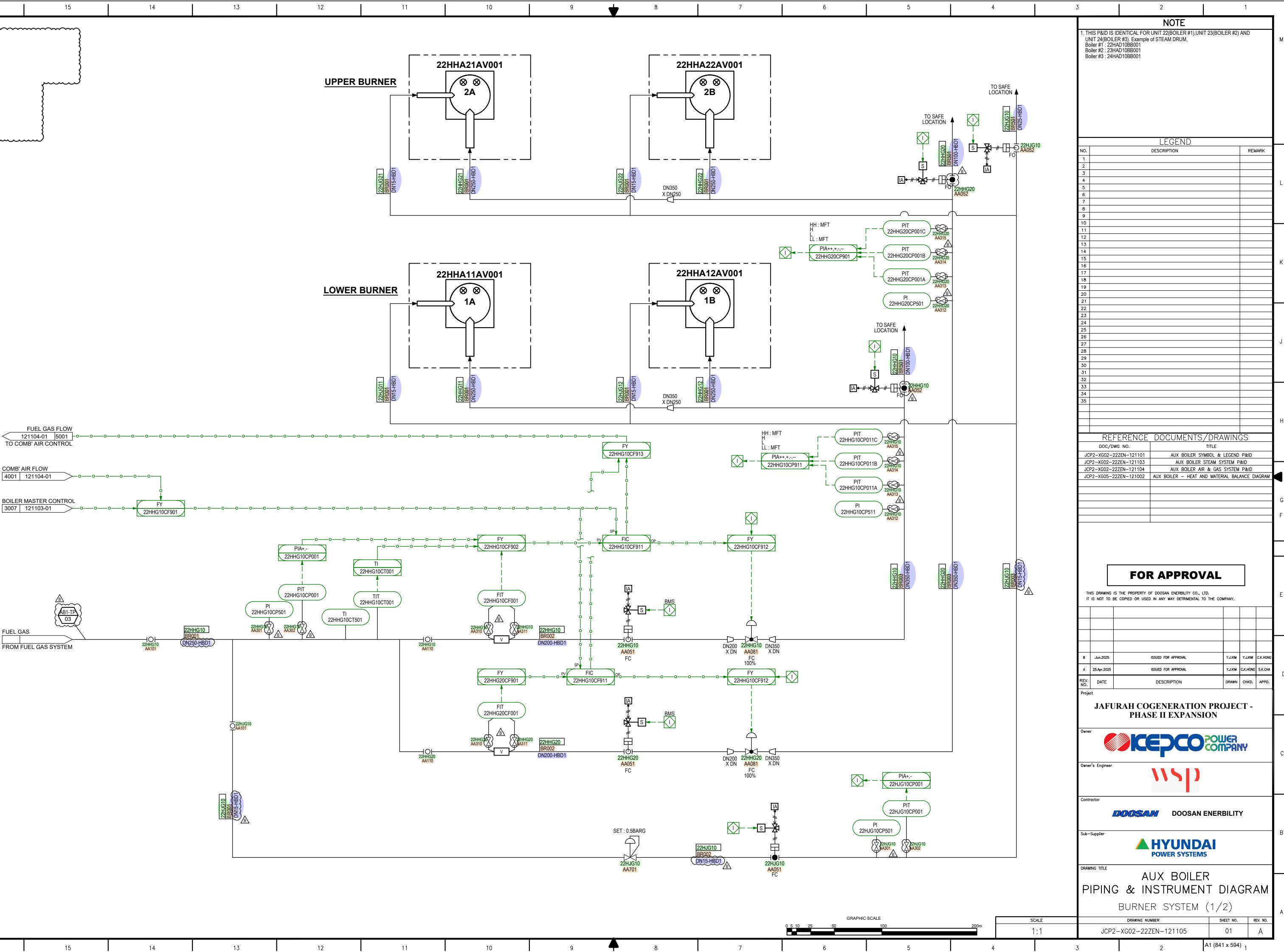
Contractor  
**DOOSAN** DOOSAN ENERBILITY

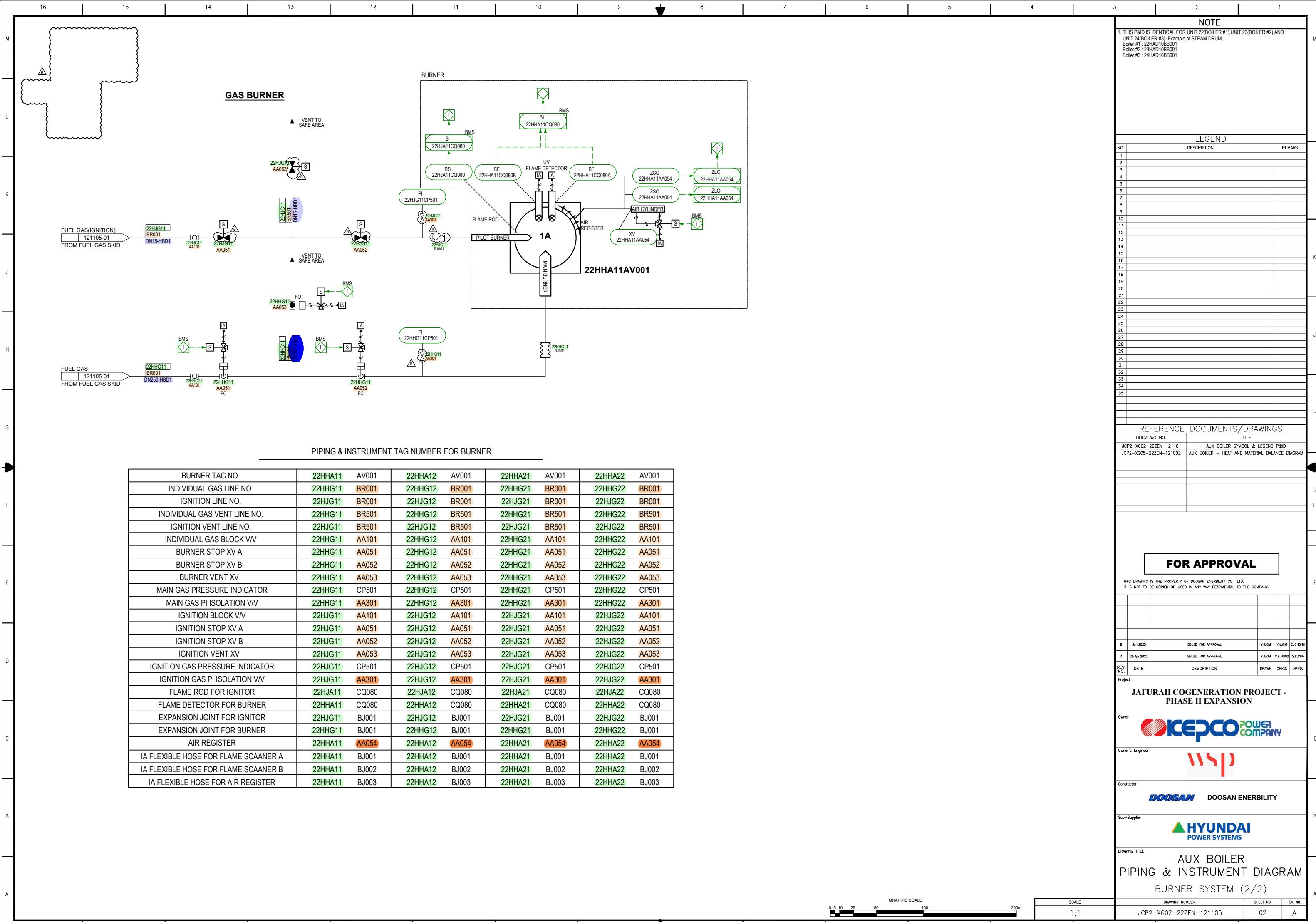
Sub-Supplier  
**HYUNDAI POWER SYSTEMS**

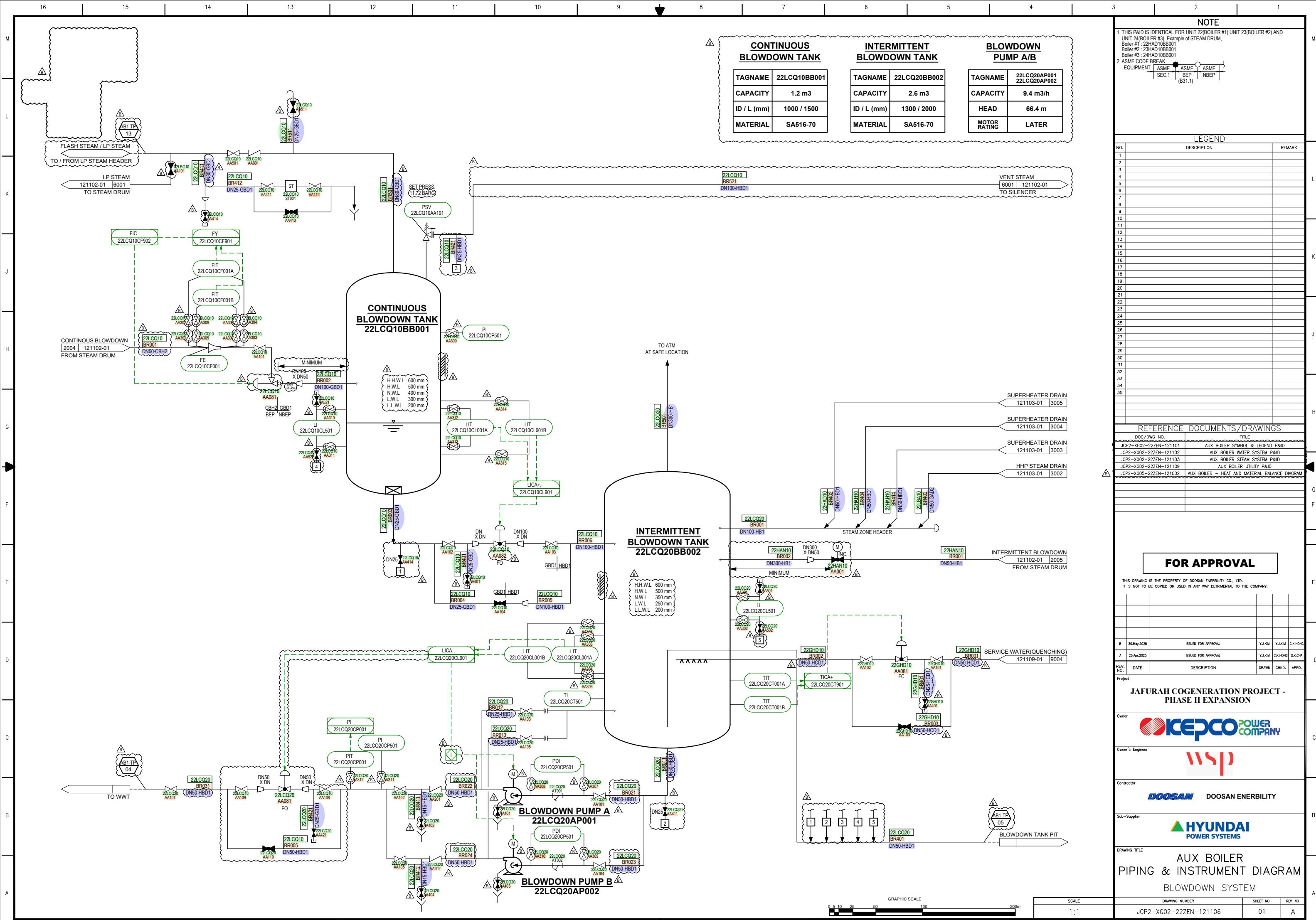
DRAWING TITLE  
AUX BOILER  
PIPING & INSTRUMENT DIAGRAM  
BURNER SYSTEM (1/2)

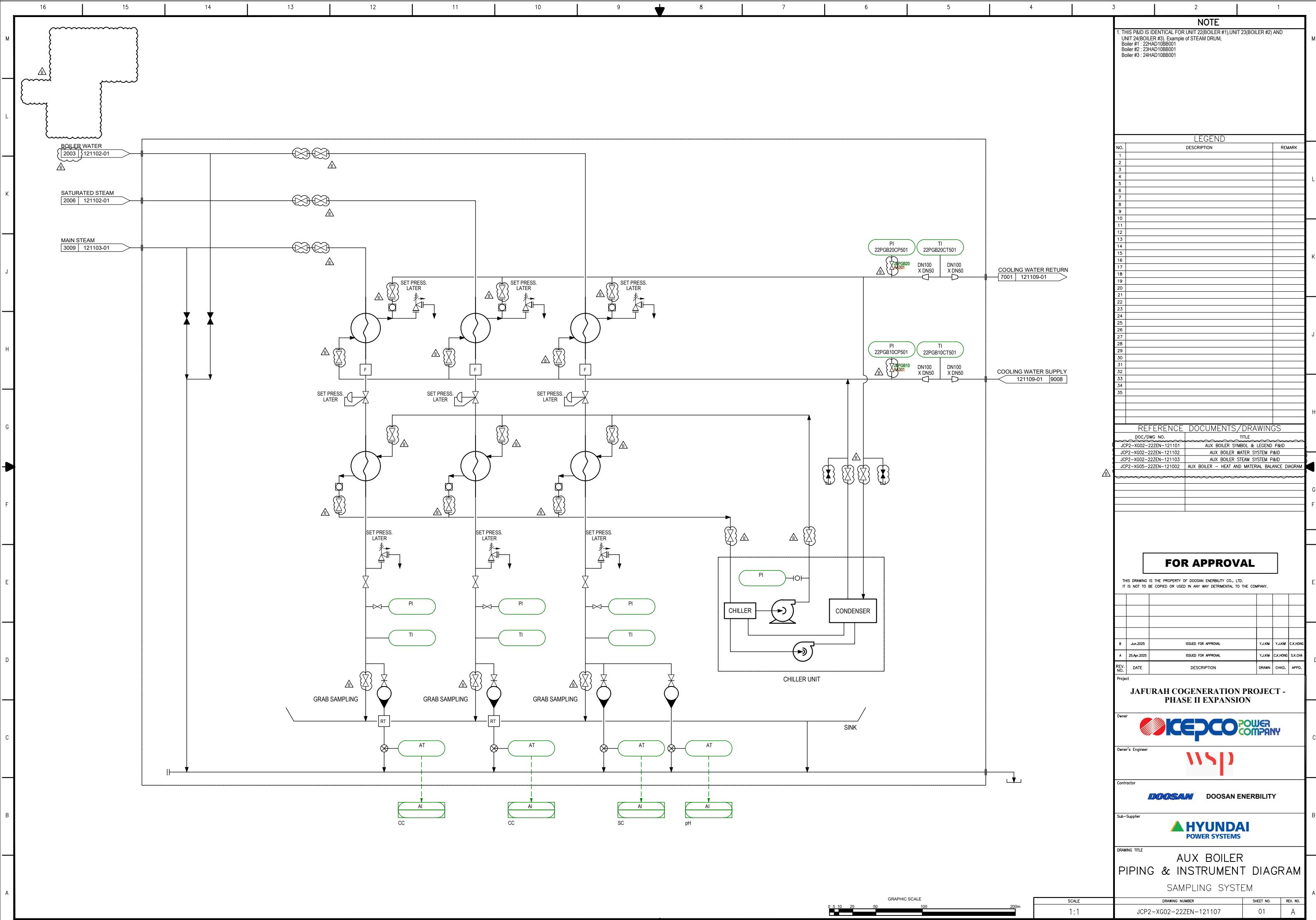
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JCP2-XG02-22ZEN-121105

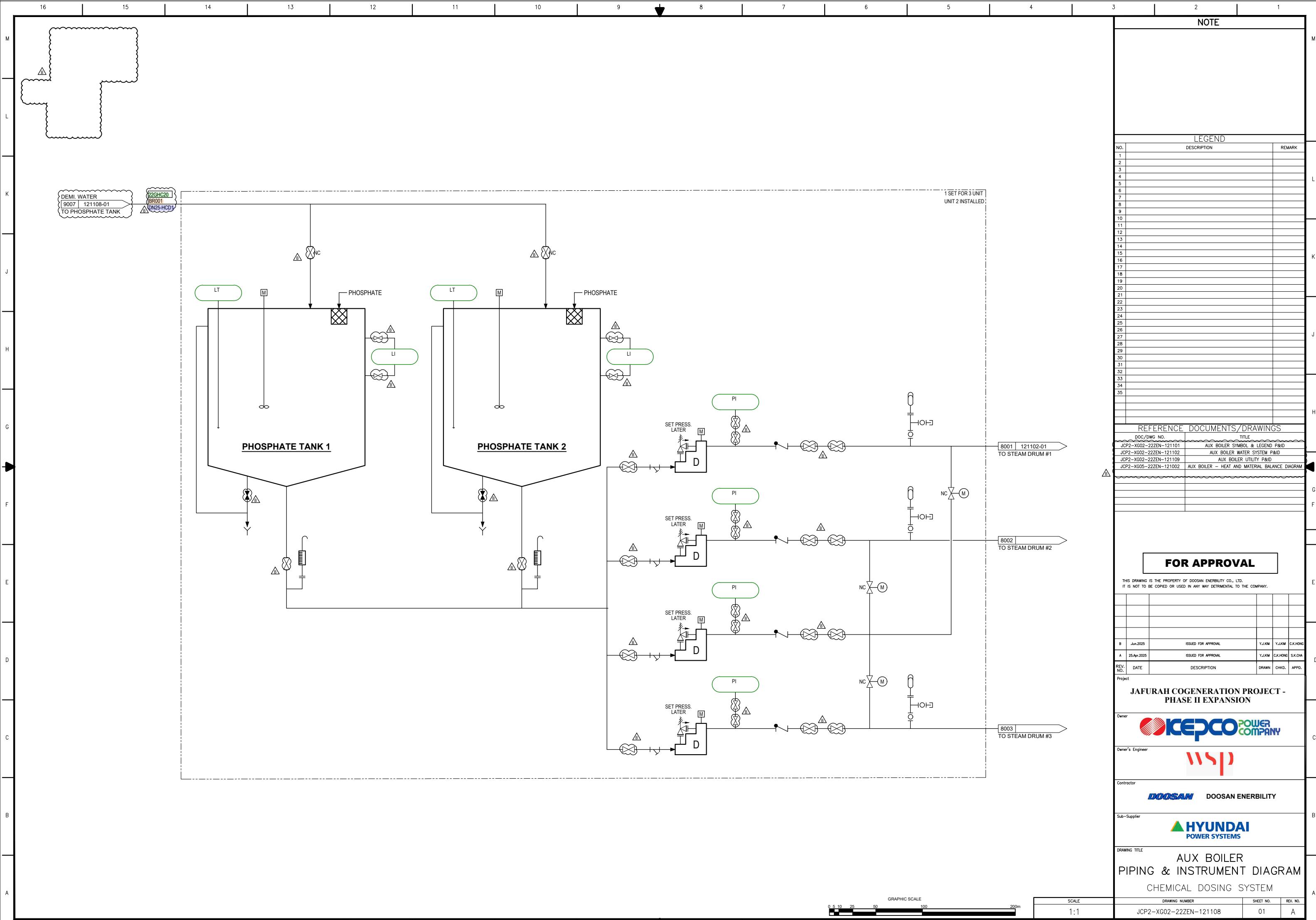
01 A











## NOTE

1. THIS P&ID IS IDENTICAL FOR UNIT 22(BOILER #1), UNIT 23(BOILER #2) AND  
UNIT 24(BOILER #3). Example of STEAM DRUM,  
Boiler #1 : 24HAD10BB001  
Boiler #2 : 24HAD10BB001  
Boiler #3 : 24HAD10BB001

## LEGEND

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## REFERENCE DOCUMENTS/DRAWINGS

DOC/DWG NO.	TITLE
JCP2-XG02-22ZEN-121101	AUX BOILER SYMBOL & LEGEND P&ID
JCP2-XG02-22ZEN-121102	AUX BOILER WATER SYSTEM P&ID
JCP2-XG02-22ZEN-121104	AUX BOILER AIR & GAS P&ID
JCP2-XG02-22ZEN-121106	AUX BOILER BLOWDOWN SYSTEM P&ID
JCP2-XG02-22ZEN-121107	AUX BOILER SAMPLING SYSTEM P&ID
JCP2-XG02-22ZEN-121108	AUX BOILER CHEMICAL DOSING SYSTEM P&ID
JCP2-XG05-22ZEN-121002	AUX BOILER - HEAT AND MATERIAL BALANCE DIAGRAM

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A	25-Apr-2025	ISSUED FOR APPROVAL	Y.J.KIM	C.K.HONG	S.K.CHIA
REV. NO.	DATE	DESCRIPTION	DRAWN	CHKD.	APPD.

Project  
JAFURAH COGENERATION PROJECT -  
PHASE II EXPANSION

Owner  
**ICEPCO POWER COMPANY**

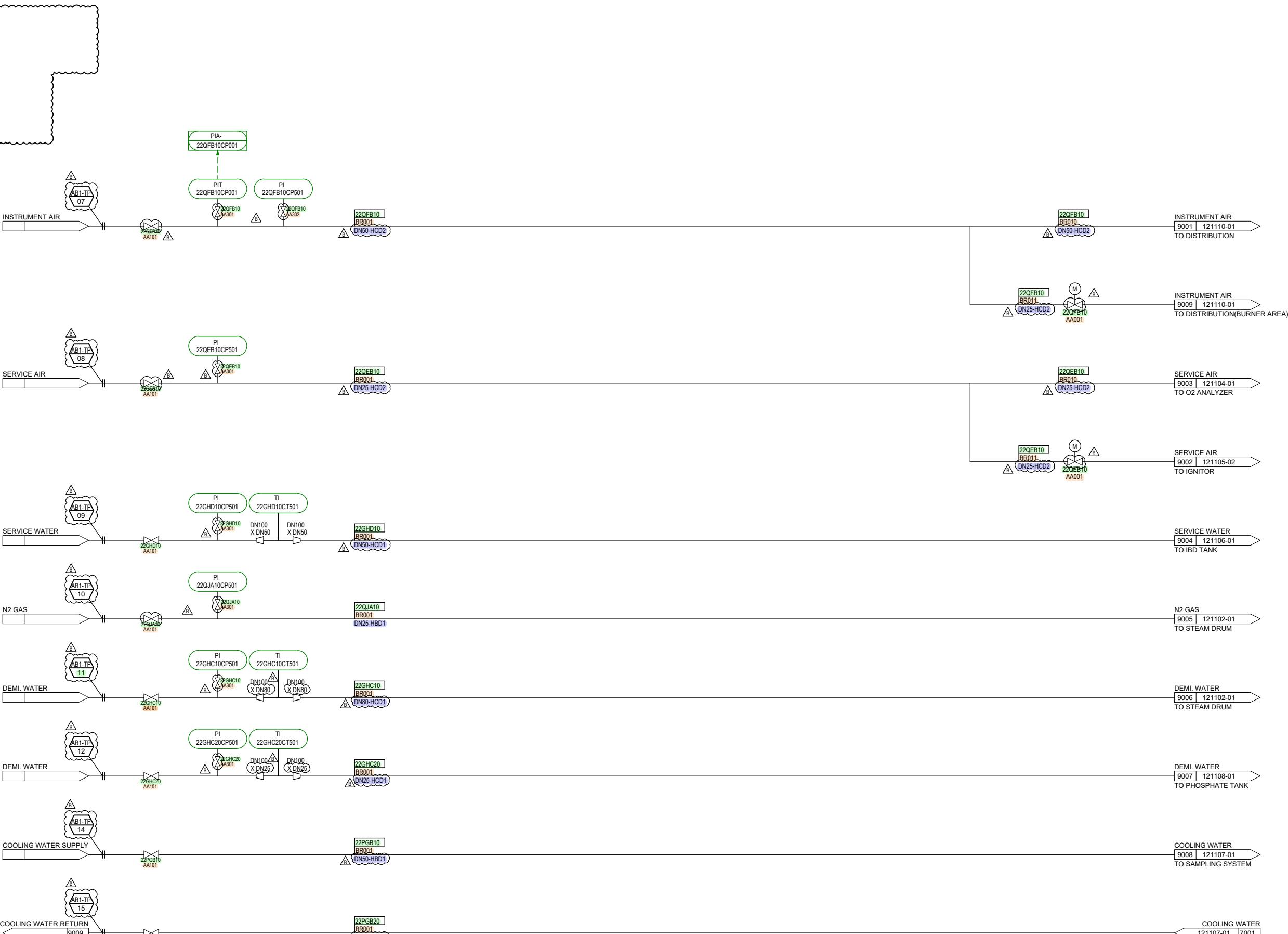
**WSP**

Contractor  
**DOOSAN** DOOSAN ENERBILITY

Sub-Supplier  
**HYUNDAI**  
POWER SYSTEMS

DRAWING TITLE  
AUX BOILER  
PIPING & INSTRUMENT DIAGRAM  
UTILITY

DRAWING NUMBER JCP2-XG02-22ZEN-121109  
SHEET NO. 01  
REV. NO. A



GRAPHIC SCALE  
0 5 10 25 50 100 200m  
SCALE 1:1

1. THIS P&ID IS IDENTICAL FOR UNIT 22(BOILER #1), UNIT 23(BOILER #2) AND  
UNIT 24(BOILER #3). Example of STEAM DRUM,  
Boiler #1 : 24HAD10BB001  
Boiler #2 : 24HAD10BB001  
Boiler #3 : 24HAD10BB001

## LEGEND

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## REFERENCE DOCUMENTS/DRAWINGS

DOC/DWG NO.	TITLE
JCP2-XG02-22ZEN-121101	AUX BOILER SYMBOL & LEGEND P&ID
JCP2-XG02-22ZEN-121102	AUX BOILER WATER SYSTEM P&ID
JCP2-XG02-22ZEN-121103	AUX BOILER STEAM SYSTEM P&ID
JCP2-XG02-22ZEN-121104	AUX BOILER AIR & GAS SYSTEM P&ID
JCP2-XG02-22ZEN-121105	AUX BOILER BURNER SYSTEM P&ID
JCP2-XG02-22ZEN-121106	AUX BOILER BLOWDOWN SYSTEM P&ID
JCP2-XG05-22ZEN-121002	AUX BOILER - HEAT AND MATERIAL BALANCE DIAGRAM

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A	25-Apr-2025	ISSUED FOR APPROVAL	Y.J.KW	C.K.HONG	S.K.CHA
REV. NO.	DATE	DESCRIPTION	DRAWN	CHKD.	APPD.

Project

## JAFURAH COGENERATION PROJECT - PHASE II EXPANSION

Owner 

Owner's Engineer 

Contractor  DOOSAN ENERBILITY

Sub-Supplier 

DRAWING TITLE  
AUX BOILER  
PIPING & INSTRUMENT DIAGRAM  
INSTRUMENT AIR

SCALE 1:1 DRAWING NUMBER JCP2-XG02-22ZEN-121110 SHEET NO. 01 REV. NO. A

