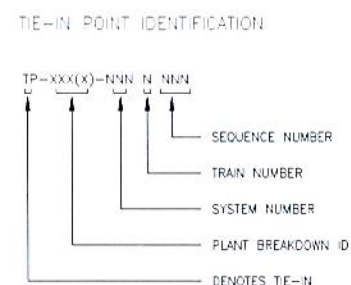
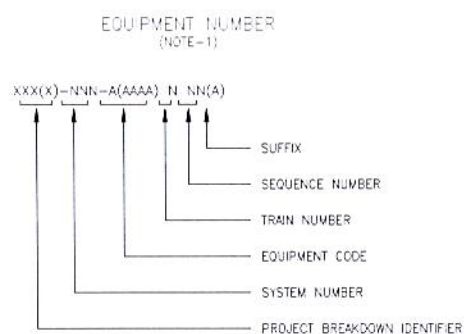
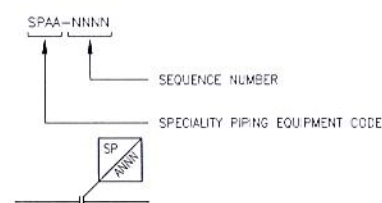


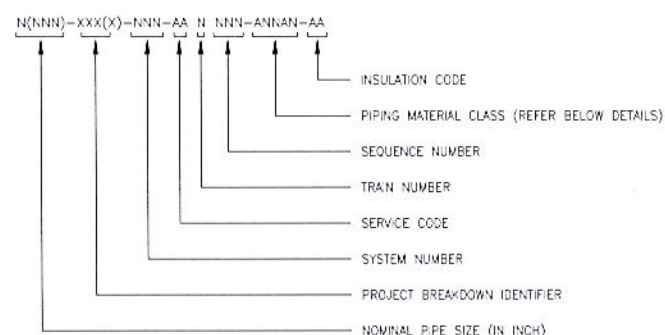
## NUMBERING SYSTEM



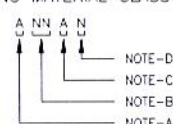
## SPECIALITY PIPING ITEMS (NOTE-1)



## LINE NUMBER (NOTE-1)



## PIPING MATERIAL CLASS DETAILS



NOTE-A. FIRST FIELD - MATERIAL  
THE NOMINAL PIPE MATERIAL FIELD SHALL CONSIST OF ONE ALPHABETIC CHARACTER AS SPECIFIED IN BELOW TABLE-1:

CODE	MATERIAL
A	KILLED CARBON STEEL
B	LOW TEMPERATURE CARBON STEEL (IMPACT TESTED)
C	STAINLESS STEEL (316/316L DUAL CERTIFIED)
D	DUPLEX STAINLESS STEEL
E	SUPER DUPLEX STAINLESS STEEL
F	CU-NI (90/10 COPPER/NICKEL)
G	GALVANIZED LOW TEMPERATURE CARBON STEEL
H	REINFORCED THERMOSETTING RESIN
I	AISI 316
J	AISI 316L
K	COPPER
L	CARBON STEEL LINED (PLASTIC)
M	1 ¼ CR ½ MO ALLOY STEEL
N	INCONEL
O	UNDEFINED
P	PLASTIC (POLYETHYLENE - PE)
R	SUBSEA CRA
S	CARBON STEEL (INTERNALLY COATED / STAINLESS STEEL)
T	TITANIUM
U	UNDERGROUND LOW TEMPERATURE CARBON STEEL - EXTERNALLY COATED & WRAPPED
W	CPVC
X	LOW TEMPERATURE CARBON STEEL + C-PVC LINED
Y	HASTELLOY B2
Z	LOW TEMPERATURE CARBON STEEL + PTFE LINED

NOTE-B. SECOND FIELD - FLANGE RATING  
THE PRESSURE RATING FIELD SHALL CONSIST OF TWO NUMERIC CHARACTERS AS SPECIFIED IN BELOW TABLE-2:

CODE	NOMINAL PRESSURE RATING OR CLASS
01	150
03	300
06	600
09	900
15	1500
25	2500

NOTE-C. THIRD FIELD - CORROSION ALLOWANCE  
THE THIRD FIELD DEFINES THE CORROSION/EROSION ALLOWANCE AND CONSISTS OF ONE ALPHABETIC CHARACTER AS SPECIFIED IN BELOW TABLE-3:

CODE	ALLOWANCE
A	1.5MM OR 0.0MM FOR NON-FERROUS/EXOTIC MAT. NON-NACE
B	3.0MM NON-NACE
C	1.5MM OR 0.0MM FOR NON-FERROUS/EXOTIC MAT. NACE
D	1.5MM NACE
E	3.0MM NACE
F	6.0MM NACE
G	4.5MM NON-NACE
H	1.5MM NON-NACE
J	0.0MM NON-NACE
K	8.0MM NACE
L	8.0MM NON-NACE
M	6.0MM NON-NACE
N	0.0MM NACE
T	TUBING
P	PIPELINE

NOTE-D. FOURTH FIELD - SEQUENCE NUMBER  
THE FOURTH FIELD DEFINES A PIPING CLASS TO BE USED FOR EPP PROJECT AND CONSISTS OF ONE NUMERIC CHARACTER 9 OR 8 (SO ON IN DESCENDING ORDER).

## PROCESS SYSTEM CODE (PP)

381	FUEL GAS IMPORT
382	FUEL GAS TREATMENT
383	FUEL GAS COMPRESSION
384	FUEL GAS DISTRIBUTION
375	CONDENSATE OFF LOADING
500	HP FLARE (WET)
501	LP FLARE
502	VENTS
510	OPEN DRAIN (NON-HAZARDOUS)
511	OPEN DRAINS (HAZARDOUS)
512	CLOSED DRAINS (HAZARDOUS)
514	EVAPORATION POND
520	CORROSION INHIBITOR
529	BIOCIDE
541	LUBE OIL
550	POTABLE WATER
552	WASH WATER
553	UTILITY
554	RAW WATER
555	DEMINEALISED WATER
556	UNTREATED WATER
557	TREATED WATER
558	HEATING MEDIUM
559	COOLING MEDIUM
560	DIESEL
563	PLANT AIR
564	INSTRUMENT AIR
566	PROPANE
567	NITROGEN
569	SEWAGE
610	FIRE PROTECTION ACTIVE
700	MAIN POWER GENERATION

## SPECIALITY PIPING ITEM CODE (SP)

EN	BIRD SCREEN	KY	INTERLOCKING DEVICE
FL	FLANGED JOINT	PJ	PIPE JOINT
FN	FLAME ARRESTOR	RS	REMOVABLE SPOOL
FS	SPECIAL FLANGE	SB	SPECTACLE BLIND
FW	FILTER	SC	SAMPLE CONNECTION POINT
GK	GASKET	SG	SIGHT GLASS
HN	HOSE CONNECTOR	SM	STATIC MIXER
HO	HOSE	TB	BARRED TEE
HR	HOSE REEL	TR	TRAPS
IF	INSULATING FLANGE	V	VALVE
IG	INSULATING GASKET AND BOLTS		
IJ	INSULATING JOINT		
IM	STRAINER		
IP	INJECTION GULL POINT		

## INSULATION CODE (AA)

AC	ANTI-CONDENSATION
AI	ACOUSTIC INSULATION
AT	ACOUSTIC INSULATION WITH TRACING
CC	COLD CONSERVATION
FP	PASSIVE FIRE PROTECTION
HC	HEAT CONSERVATION
HT	HEAT CONSERVATION WITH TRACING
NI	NOT INSULATION
PP	PERSONAL PROTECTION
WI	WINTERISATION, INSULATION ONLY
WT	WINTERISATION WITH TRACING

## EQUIPMENT CODE

C	COMPRESSOR
CG	COMPRESSOR GEAR BOX
CGT	COMPRESSOR, GAS TURBINE DRIVER
CM	COMPRESSOR, MOTOR
F	FILTER
H	HEAT EXCHANGER/AIR COOLER/HEATER
P	PUMP
PG	PUMP GEAR BOX
PM	PUMP ELECTRIC MOTOR
SP	SPECIAL PIPING
T	TANK
V	VESSEL / HYDROCYCLONE
Z	PACKAGE EQUIPMENT
ZE	PACKAGE ENCLOSURE

## NOMINAL PIPE SIZE (NN)

NOMINAL PIPE SIZE (INCH)
0.50
0.75
1
1.50
2
3
4
6
8
10
12
14
16
18
20
24
30
36
42
48
56
64
72
80

## SERVICE CODE

AK	COMBUSTION AIR
AM	INSTRUMENT AIR
AN	PLANT AIR
CB	BIOCIDE
CD	DEMULSIFIER
CH	SODIUM HYPOCHLORITE
CJ	ANTI FOAM
CL	SCALE INHIBITOR
CM	REVERSE EMULSION BREAKER
CO	OXYGEN SCAVENGER
DF	SLUDGE
DH	(HAZARDOUS) OPEN DRAINS
DJ	GREY WATER DRAINS
DK	CLOSED DRAINS
DM	CHEMICAL DRAINS
DO	NON HAZARDOUS OPEN DRAINS
FA	DIESEL OIL FILLING AND TRANSFER
FF	FIRE FIGHTING FOAM
FJ	FIRE EXTINGUISHING
FW	FIRE WATER
GF	FUEL GAS (INCLUDING BLANKET & PURGE)
GN	NITROGEN (GAS)
GX	EXHAUST GAS
KG	COOLING MEDIUM (GLYCOL/WATER)
KJ	CORROSION INHIBITOR (GAS)
KK	CORROSION INHIBITOR (WATER)
OB	BASE OIL
OD	DIESEL OIL SYSTEM
OH	HYDRAULIC OIL
OL	LUBE OIL
OS	SEAL OIL
PF	PRODUCTION FLUIDS
PK	PROCESS CONDENSATE
PJ	PROCESS HYDROCARBON GAS (INCLUDING EXPORT/SALES GAS)
PL	PROCESS LIQUIDS
PX	TREATED WATER
RP	PROPANE
TL	FLOCCULANT
TX	VESSEL TRIM
VF	LLP FLARE
VG	INCINERATION/THERMAL OXIDATION VENT / CRUTION GAS/PILOT GAS
VH	HP FLARE WET
VK	HP/LT FLARE (COLD/DRY)
VL	LP FLARE
VM	MAINTENANCE DRAINS
VO	ATMOSPHERE VENT/RELIEF
WB	SEAWATER
WD	DEMINEALISED WATER
WF	FRESH WATER (DISTRIBUTION)
WO	OILY WATER
WP	POTABLE WATER
WU	UTILITY WATER
WW	WASH WATER
WX	RAW WATER

## NOTES:

1. FOR FURTHER DETAILS REFER TO ENGINEERING NUMBERING SPECIFICATION 0000PP-C-00-0000-DM-SPC-0001.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
C01	25.05.16	ISSUED FOR CONSTRUCTION	DX	VU	AB
D01	18.02.16	ISSUED FOR USE (DD)	DX	S/VU	AB
H01	09.11.15	ISSUED FOR HAZOP (DD)	DX	S/VU	TT
G01	26.10.15	ISSUED FOR REVIEW (DD)	DX	S/VU	TT
B02	15.07.15	APPROVED FOR COMPLETION OF FEED	DX	S/RS	TT
B01	28.05.15	ISSUED FOR DESIGN	DX	S/RS	TT
A01	10.02.15	ISSUED FOR COMPANY REVIEW	DX	HW/RS	VM



EARLY POWER PLANT  
RUMAILA OIL FIELD  
CONTRACT NO. 100478



中国石化工程建设公司  
CHINA PETROLEUM ENGINEERING & CONSTRUCTION CORP.

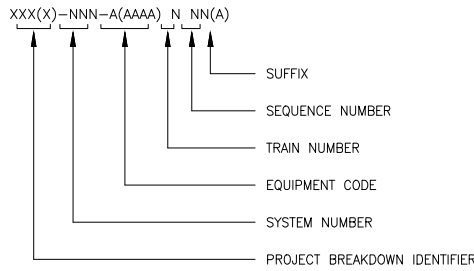
CH2MHILL

DRAWING TITLE  
**PIPING AND INSTRUMENTATION DIAGRAM**  
**LEGEND SHEET**  
**ITEM NUMBERING**

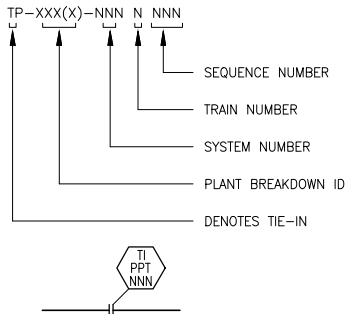
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		05/17	C01		

NUMBERING SYSTEM

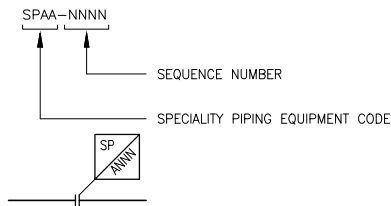
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(NOTE-1)



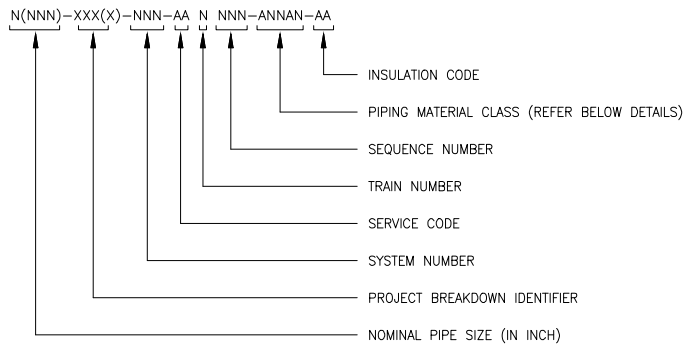
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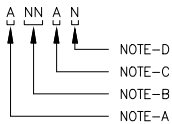
SPECIALITY PIPING ITEMS  
(NOTE-1)



LINE NUMBER  
(NOTE-1)



PIPING MATERIAL CLASS DETAILS



NOTE-A. FIRST FIELD - MATERIAL  
THE NOMINAL PIPE MATERIAL FIELD SHALL CONSIST OF ONE ALPHABETIC CHARACTER AS SPECIFIED IN BELOW TABLE-1:

CODE	MATERIAL
A	KILLED CARBON STEEL
B	LOW TEMPERATURE CARBON STEEL (IMPACT TESTED)
C	STAINLESS STEEL (316/316L DUAL CERTIFIED)
D	DUPLEX STAINLESS STEEL
E	SUPER DUPLEX STAINLESS STEEL
F	CU-NI (90/10 COPPER/NICKEL)
G	GALVANIZED LOW TEMPERATURE CARBON STEEL
H	REINFORCED THERMOSETTING RESIN
I	AISI 316
J	AISI 316L
K	COPPER
L	CARBON STEEL LINED (PLASTIC)
M	1 ¼ CR ½ MO ALLOY STEEL
N	INCONEL
O	UNDEFINED
P	PLASTIC (POLYETHYLENE - PE)
R	SUBSEA CRA
S	CARBON STEEL (INTERNALLY COATED / STAINLESS STEEL)
T	TITANIUM
U	UNDERGROUND LOW TEMPERATURE CARBON STEEL - EXTERNALLY COATED & WRAPPED
W	CPVC
X	LOW TEMPERATURE CARBON STEEL + C-PVC LINED
Y	HASTELLOY B2
Z	LOW TEMPERATURE CARBON STEEL + PTFE LINED

NOTE-B. SECOND FIELD - FLANGE RATING  
THE PRESSURE RATING FIELD SHALL CONSIST OF TWO NUMERIC CHARACTERS AS SPECIFIED IN BELOW TABLE-2:

CODE	NOMINAL PRESSURE RATING OR CLASS
	ASME B16.5 OR B16.47 FLANGE CLASS
01	150
03	300
06	600
09	900
15	1500
25	2500

NOTE-C. THIRD FIELD - CORROSION ALLOWANCE  
THE THIRD FIELD DEFINES THE CORROSION/EROSION ALLOWANCE AND CONSISTS OF ONE ALPHABETIC CHARACTER AS SPECIFIED IN BELOW TABLE-3:

CODE	ALLOWANCE
A	1.5MM OR 0.0MM FOR NON-FERROUS/EXOTIC MAT. NON-NACE
B	3.0MM NON-NACE
C	1.5MM OR 0.0MM FOR NON-FERROUS/EXOTIC MAT. NACE
D	1.5MM NACE
E	3.0MM NACE
F	6.0MM NACE
G	4.5MM NON-NACE
H	1.5MM NON-NACE
J	0.0MM NON-NACE
K	8.0MM NACE
L	8.0MM NON-NACE
M	6.0MM NON-NACE
N	0.0MM NACE
T	TUBING
P	PIPELINE

NOTE-D. FOURTH FIELD - SEQUENCE NUMBER  
THE FOURTH FIELD DEFINES A PIPING CLASS TO BE USED FOR EPP PROJECT AND CONSISTS OF ONE NUMERIC CHARACTER 9 OR 8 (SO ON IN DESCENDING ORDER).

PROCESS SYSTEM CODE (PP)

361	FUEL GAS IMPORT
362	FUEL GAS TREATMENT
363	FUEL GAS COMPRESSION
364	FUEL GAS DISTRIBUTION
375	CONDENSATE OFF LOADING
500	HP FLARE (WET)
501	LP FLARE
502	VENTS
510	OPEN DRAIN (NON-HAZARDOUS)
511	OPEN DRAINS (HAZARDOUS)
512	CLOSED DRAINS (HAZARDOUS)
514	EVAPORATION POND
520	CORROSION INHIBITOR
529	BIOCIDES
541	LUBE OIL
550	POTABLE WATER
552	WASH WATER
553	UTILITY
554	RAW WATER
555	DEMINERALISED WATER
556	UNTREATED WATER
557	TREATED WATER
558	HEATING MEDIUM
559	COOLING MEDIUM
560	DIESEL
563	PLANT AIR
564	INSTRUMENT AIR
566	PROPANE
567	NITROGEN
569	SEWAGE
610	FIRE PROTECTION ACTIVE
700	MAIN POWER GENERATION

SPECIALITY PIPING ITEM CODE (SP)

BN	BIRD SCREEN	KY	INTERLOCKING DEVICE
FL	FLANGED JOINT	PJ	PIPE JOINT
FN	FLAME ARRESTOR	RS	REMOVABLE SPOOL
FS	SPECIAL FLANGE	SB	SPECTACLE BLIND
FW	FILTER	SC	SAMPLE CONNECTION POINT
GK	GASKET	SG	SIGHT GLASS
HN	HOSE CONNECTOR	SM	STATIC MIXER
HO	HOSE	TB	BARRED TEE
HR	HOSE REEL	TR	TRAPS
IF	INSULATING FLANGE	V	VALVE
IG	INSULATING GASKET AND BOLTS		
IJ	INSULATING JOINT		
IM	STRAINER		
IP	INJECTION QUILL POINT		

INSULATION CODE (AA)

AC	ANTI-CONDENSATION
AI	ACOUSTIC INSULATION
AT	ACOUSTIC INSULATION WITH TRACING
CC	COLD CONSERVATION
FP	PASSIVE FIRE PROTECTION
HC	HEAT CONSERVATION
HT	HEAT CONSERVATION WITH TRACING
NI	NOT INSULATION
PP	PERSONAL PROTECTION
WI	WINTERISATION, INSULATION ONLY
WT	WINTERISATION WITH TRACING

EQUIPMENT CODE

C	COMPRESSOR
CG	COMPRESSOR GEAR BOX
CGT	COMPRESSOR, GAS TURBINE DRIVER
CM	COMPRESSOR, MOTOR
F	FILTER
H	HEAT EXCHANGER/AIR COOLER/HEATER
P	PUMP
PG	PUMP GEAR BOX
PM	PUMP ELECTRIC MOTOR
SP	SPECIAL PIPING
T	TANK
V	VESSEL / HYDROCYCLONE
Z	PACKAGE EQUIPMENT
ZE	PACKAGE ENCLOSURE

NOMINAL PIPE SIZE (NN)

NOMINAL PIPE SIZE (INCH)
0.50
0.75
1
1.50
2
3
4
6
8
10
12
14
16
18
20
24
30
36
42
48
56
64
72
80


SERVICE CODE

AK	COMBUSTION AIR
AM	INSTRUMENT AIR
AN	PLANT AIR
CB	BIOCIDES
CD	DEMULSIFIER
CH	SODIUM HYPOCHLORITE
CJ	ANTI FOAM
CL	SCALE INHIBITOR
CM	REVERSE EMULSION BREAKER
CO	OXYGEN SCAVENGER
DF	SLUDGE
DH	(HAZARDOUS) OPEN DRAINS
DJ	GREY WATER DRAINS
DK	CLOSED DRAINS
DM	CHEMICAL DRAINS
DO	NON HAZARDOUS OPEN DRAINS
FA	DIESEL OIL FILLING AND TRANSFER
FF	FIRE FIGHTING FOAM
FJ	FIRE EXTINGUISHING
FW	FIRE WATER
GF	FUEL GAS (INCLUDING BLANKET & PURGE)
GN	NITROGEN (GAS)
GX	EXHAUST GAS
KG	COOLING MEDIUM (GLYCOL/WATER)
KJ	CORROSION INHIBITOR (GAS)
KK	CORROSION INHIBITOR (WATER)
OB	BASE OIL
OD	DIESEL OIL SYSTEM
OH	HYDRAULIC OIL
OL	LUBE OIL
OS	SEAL OIL
PF	PRODUCTION FLUIDS
PK	PROCESS CONDENSATE
PJ	PROCESS HYDROCARBON GAS (INCLUDING EXPORT/SALES GAS)
PL	PROCESS LIQUIDS
PX	TREATED WATER
RP	PROPANE
TL	FLOCCULANT
TX	VESSEL TRIM
VF	LLP FLARE
VG	INCINERATION/THERMAL OXIDATION VENT/IGNITION GAS/PILOT GAS
VH	HP FLARE WET
VK	HP/LT FLARE (COLD/DRY)
VL	LP FLARE
VM	MAINTENANCE DRAINS
VO	ATMOSPHERE VENT/RELIEF
WB	SEAWATER
WD	DEMINERALISED WATER
WF	FRESH WATER (DISTRIBUTION)
WO	OILY WATER
WP	POTABLE WATER
WU	UTILITY WATER
WW	WASH WATER
WX	RAW WATER


NOTES:

1. FOR FURTHER DETAILS REFER TO ENGINEERING NUMBERING SPECIFICATION 0000RP-C-GO-G000-DM-SPC-0001.


C01	25.05.16	ISSUED FOR CONSTRUCTION	DX	VU	AB	SQ
D01	18.02.16	ISSUED FOR USE (DD)	DX	SI/VU	AB	SQ
H01	09.11.15	ISSUED FOR HAZOP (DD)	DX	SI/VU	TT	SQ
G01	26.10.15	ISSUED FOR REVIEW (DD)	DX	SI/VU	TT	SQ
B02	15.07.15	APPROVED FOR COMPLETION OF FEED	DX	SI/RS	TT	SQ
B01	28.05.15	ISSUED FOR DESIGN	DX	SI/RS	TT	SQ
A01	10.02.15	ISSUED FOR COMPANY REVIEW	DX	HM/RS	VM	JF
REV	DATE	DESCRIPTION	PREP'D	CHK'D		APP'D



EARLY POWER PLANT  
RUMAILA OIL FIELD  
CONTRACT NO. 100478



中国石油工程建设公司  
CHINA PETROLEUM ENGINEERING & CONSTRUCTION CORP.



CH2MHILL

DRAWING TITLE:

PIPING AND INSTRUMENTATION DIAGRAM  
LEGEND SHEET  
ITEM NUMBERING

PROJECT NO.	100478CP	SCALE:	NONE	DWG SIZE:	A1
DRAWING NUMBER:				SHT. NO.:	REV.
100478CP-N-PG-PP01-PR-PID-0001-005				05/17	C01