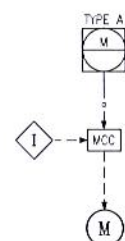
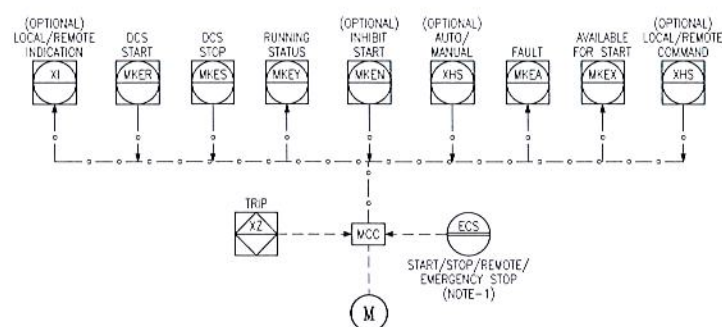


SHOWN ON P&ID

ENGINEERING DETAIL

ONE FAN MOTOR DCS CONTROLLED (TYPE-A)



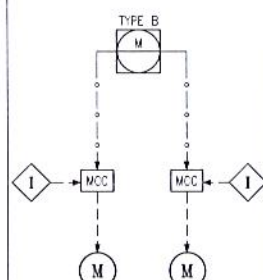
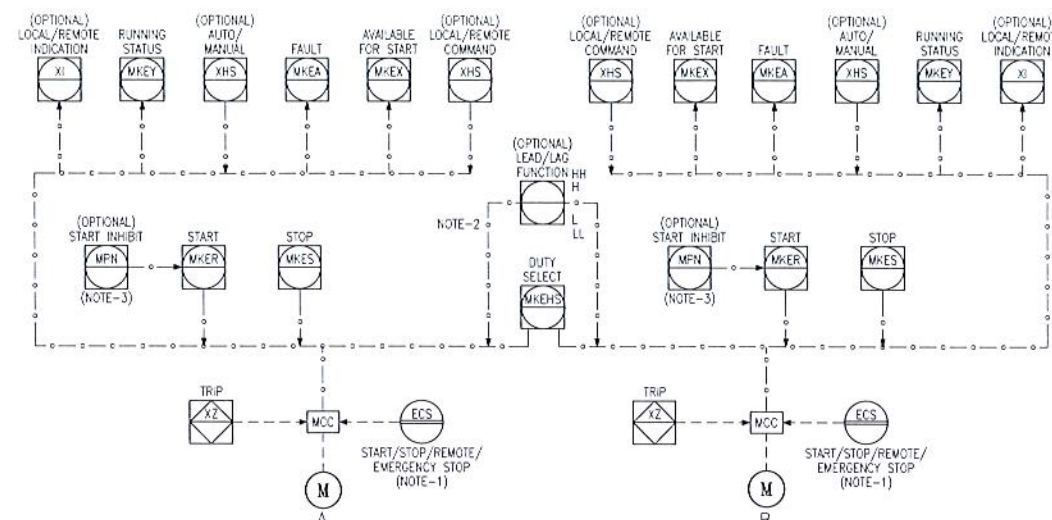
(NOTE-4)

Type A	SUFFIX FOR SIGNALS				
1 FAN MOTOR (AUTO/MANUAL) ICSS CONTROLLED					
LOCAL/REMOTE CMD FROM DCS	XHS	A	X	X	X
RUNNING STATUS	MKEY	A	X	X	X
FAULT	MKEA	A	X	X	X
AVAILABLE	MKEX	A	X	X	X
LOCAL REMOTE INDICATION ON DCS	XI	A	X	X	X
AUTO/MANUAL FROM DCS	XHS	B	X	X	X
DCS START	MKER	A	X	X	X
DCS STOP	MKES	A	X	X	X
LOCAL START/STOP/REMOTE [PART OF ELECTRICAL CONTROL STATION (ECS)] (OPTIONAL)			X	X	X
EMERGENCY STOP [PART OF ELECTRICAL CONTROL STATION (ECS)] (MUST)			X	X	X
ESD TRIP	XZ	A	X	X	X
FAN MOTOR POWER (OPTIONAL)	MKEJ	A	X	X	X
FAN MOTOR START INHIBIT (OPTIONAL)	MKEN	A	X	X	X

SHOWN ON P&ID

ENGINEERING DETAIL

TWO FAN MOTOR DCS CONTROLLED (TYPE-B)



(NOTE-4)

Type B	SUFFIX FOR SIGNALS								
2 FAN MOTORS (AUTO/MAN) ICSS CONTROLLED									
LOCAL/REMOTE CMD FROM DCS	XHS	A	B	X	X	X	X	X	X
RUNNING STATUS	MKEY	A	B	X	X	X	X	X	X
FAULT	MKEA	A	B	X	X	X	X	X	X
AVAILABLE	MKEX	A	B	X	X	X	X	X	X
LOCAL REMOTE INDICATION ON DCS	XI	A	B	X	X	X	X	X	X
AUTO/MANUAL FROM DCS	XHS	A	B	X	X	X	X	X	X
DCS START	MKER	A	B	X	X	X	X	X	X
DCS STOP	MKES	A	B	X	X	X	X	X	X
LOCAL START/STOP/REMOTE [PART OF ELECTRICAL CONTROL STATION (ECS)] (OPTIONAL)				X	X	X	X	X	X
EMERGENCY STOP [PART OF ELECTRICAL CONTROL STATION (ECS)] (MUST)				X	X	X	X	X	X
ESD TRIP	XZ	A	B	X	X	X	X	X	X
DUTY/STANDBY SELECT FROM DCS	XHS			X	X			X	X
FAN MOTOR POWER (OPTIONAL)	MKEJ	A	B					X	X
FAN MOTOR START INHIBIT (OPTIONAL)	MKEN	A	B					X	X

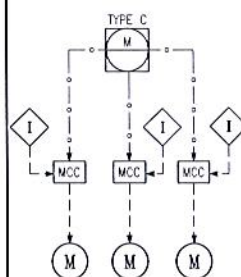
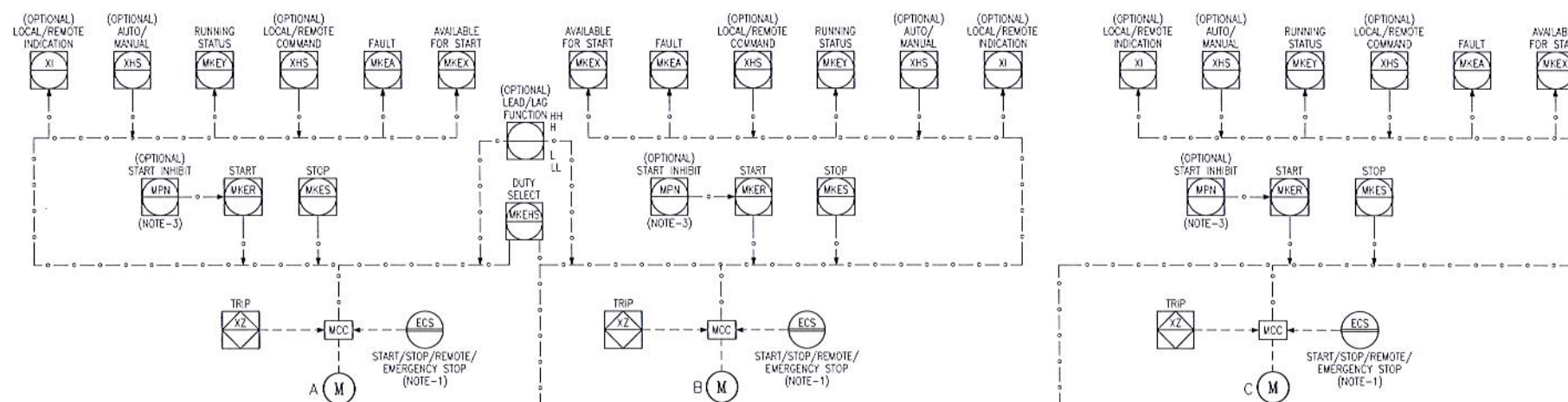
NOTES:

1. ECS SHALL HAVE ONLY EMERGENCY STOP AS DEFAULT. SELECTIVE MOTORS/HEATERS SHALL HAVE OPTIONS OF LOCAL START/STOP/REMOTE SELECTION BASED ON OPERATIONS.
2. LEAD/LAG & DUTY SELECT TO BE IMPLEMENTED IN DCS.
3. START INHIBIT SHALL BE IMPLEMENTED IN DCS/PLC.
4. THE SUB-TYPE PROVIDED FOR MOTOR CONTROL ARE INDICATIVE ONLY. THE SELECTION OF SIGNALS SHALL BE BASED ON PLANT OPERATIONS AS ELABORATED IN THE CONTROL NARRATIVE.
5. THE OPTIONAL SIGNALS SHALL BE SELECTED BASED ON CONTROL PHILOSOPHY, AS ELABORATED IN THE CONTROL NARRATIVE.

SHOWN ON P&ID

ENGINEERING DETAIL

THREE FAN MOTOR DCS CONTROLLED (TYPE-C)



(NOTE-4)

Type C	SUFFIX FOR SIGNALS								
3 FAN MOTORS (AUTO/MAN) ICSS CONTROLLED									
LOCAL/REMOTE CMD FROM DCS	XHS	A	B	C	X	X	X	X	X
RUNNING STATUS	MKEY	A	B	C	X	X	X	X	X
FAULT	MKEA	A	B	C	X	X	X	X	X
AVAILABLE	MKEX	A	B	C	X	X	X	X	X
LOCAL REMOTE INDICATION ON DCS	XI	A	B	C	X	X	X	X	X
AUTO/MANUAL FROM DCS	XHS	A	B	C	X	X	X	X	X
DCS START	MKER	A	B	C	X	X	X	X	X
DCS STOP	MKES	A	B	C	X	X	X	X	X
LOCAL START/STOP/REMOTE [PART OF ELECTRICAL CONTROL STATION (ECS)] (OPTIONAL)					X	X	X	X	X
EMERGENCY STOP [PART OF ELECTRICAL CONTROL STATION (ECS)] (MUST)					X	X	X	X	X
ESD TRIP	XZ	A	B	C	X	X	X	X	X
DUTY/STANDBY SELECT FROM DCS	XHS				X	X		X	X
FAN MOTOR POWER (OPTIONAL)	MKEJ	A	B	C				X	X
FAN MOTOR START INHIBIT (OPTIONAL)	MKEN	A	B	C				X	X

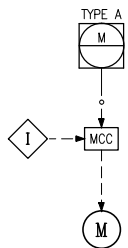
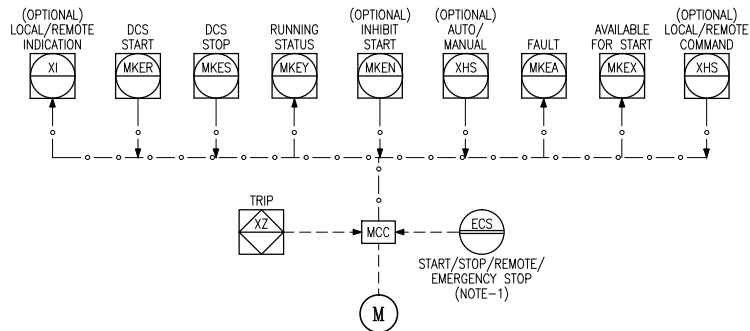
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
C01	25.05.16	ISSUED FOR CONSTRUCTION	DX	WJ	AB
D01	18.02.16	ISSUED FOR USE (DD)	DX	SI/WJ	AB
H01	28.12.15	ISSUED FOR HAZOP (DD)	DX	SI/WJ	AB
G01	26.10.15	ISSUED FOR REVIEW (DD)	DX	SI/WJ	TT
A02	13.07.15	RE-ISSUED FOR COMPANY REVIEW	DX	SI/RS	TT
A01	28.05.15	ISSUED FOR COMPANY REVIEW	DX	SI/RS	TT

		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 MOTOR CONTROL CENTRES					
PROJECT NO.	100478CP	SCALE:	NONE	DWG SIZE:	A1
DRAWING NUMBER:		SHT. NO.:		REV.	
100478CP-N-PG-PP01-PR-PID-0001-015				15/17	C01

SHOWN ON P&ID

ENGINEERING DETAIL

ONE FAN MOTOR DCS CONTROLLED (TYPE-A)



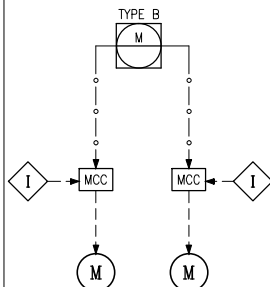
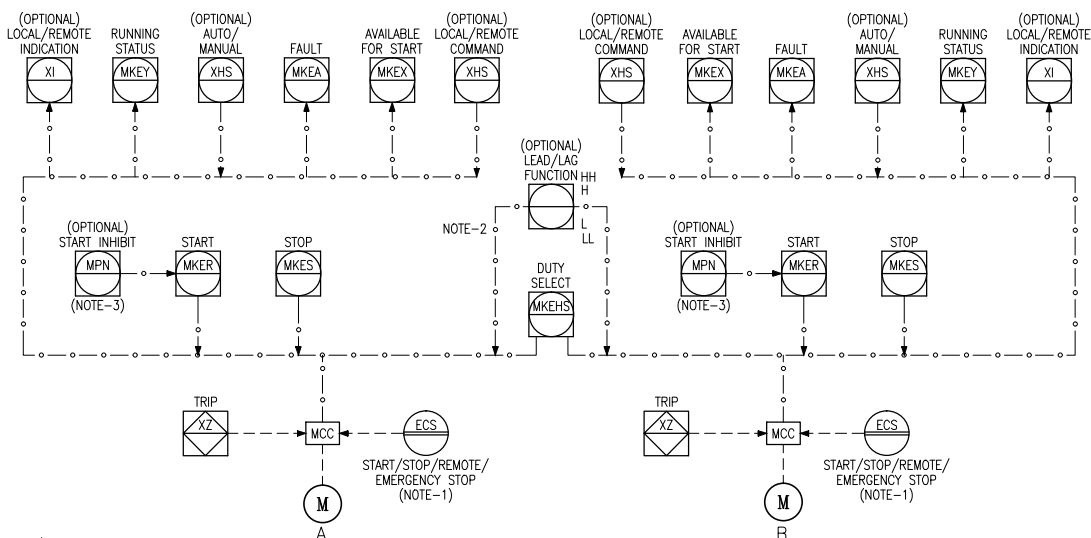
(NOTE-4)

Type A		SUFFIX FOR SIGNALS						
1 FAN MOTOR (AUTO/MANUAL) ICSS CONTROLLED	ENS CODE	MOTOR A	Type A.1	Type A.2	Type A.3	Type A.4		
LOCAL/REMOTE CMND FROM DCS	XHS	A	X			X		
RUNNING STATUS	MKEY		X	X	X	X		
FAULT	MKEA		X	X	X	X		
AVAILABLE	MKEX		X	X	X	X		
LOCAL REMOTE INDICATION ON DCS	XI		X			X		
AUTO/MANUAL FROM DCS	XHS	B	X	X		X		
DCS START	MKER		X	X	X	X		
DCS STOP	MKES		X	X	X	X		
LOCAL START/STOP/REMOTE [PART OF ELECTRICAL CONTROL STATION (ECS)] (OPTIONAL)			X	X	X	X		
EMERGENCY STOP [PART OF ELECTRICAL CONTROL STATION (ECS)] (MUST)			X	X	X	X		
ESD TRIP	XZ		X	X	X	X		
FAN MOTOR POWER (OPTIONAL)	MKEJ					X		
FAN MOTOR START INHIBIT (OPTIONAL)	MKEN		X	X	X	X		

SHOWN ON P&ID

ENGINEERING DETAIL

TWO FAN MOTOR DCS CONTROLLED (TYPE-B)



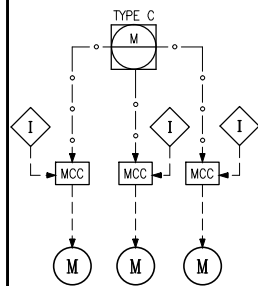
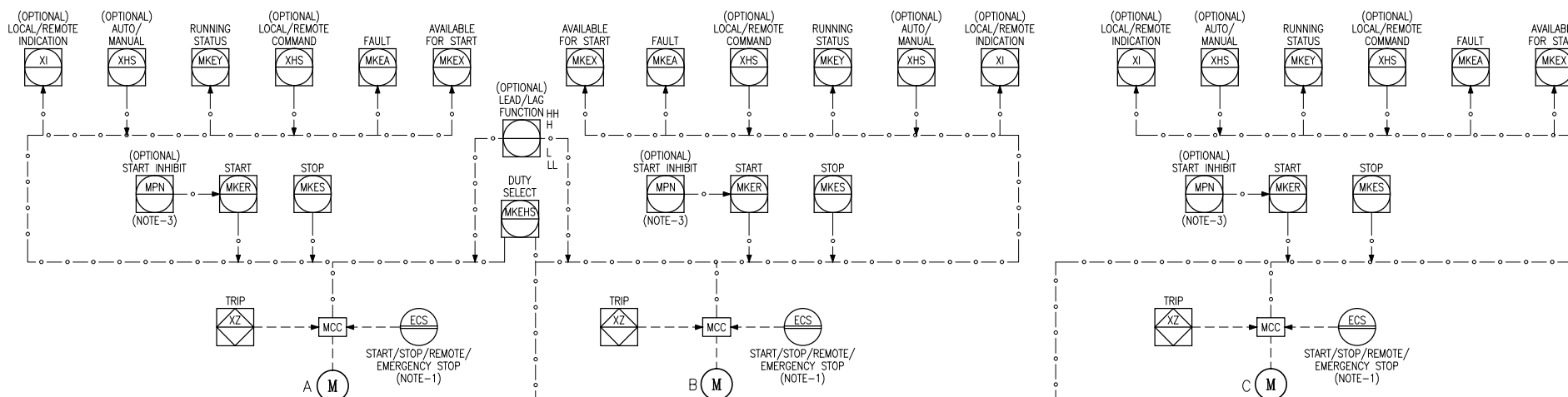
(NOTE-4)

Type B		SUFFIX FOR SIGNALS							
2 FAN MOTORS (AUTO/MAN) ICSS CONTROLLED	ENS CODE	MOTOR A	MOTOR B	Type B.1	Type B.2	Type B.3	Type B.4	Type B.5	
LOCAL/REMOTE CMND FROM DCS	XHS	A	B	X				X	
RUNNING STATUS	MKEY	A	B	X	X	X	X	X	
FAULT	MKEA	A	B	X	X	X	X	X	
AVAILABLE	MKEX	A	B	X	X	X	X	X	
LOCAL REMOTE INDICATION ON DCS	XI	A	B	X		X		X	
AUTO/MANUAL FROM DCS	XHS	A	B	X	X		X	X	
DCS START	MKER	A	B	X	X	X	X	X	
DCS STOP	MKES	A	B	X	X	X	X	X	
LOCAL START/STOP/REMOTE [PART OF ELECTRICAL CONTROL STATION (ECS)] (OPTIONAL)				X		X		X	
EMERGENCY STOP [PART OF ELECTRICAL CONTROL STATION (ECS)] (MUST)				X	X	X	X	X	
ESD TRIP	XZ	A	B	X	X	X	X	X	
DUTY/STANDBY SELECT FROM DCS	XHS			X				X	
FAN MOTOR POWER (OPTIONAL)	MKEJ	A	B					X	
FAN MOTOR START INHIBIT (OPTIONAL)	MKEN	A	B					X	

SHOWN ON P&ID

ENGINEERING DETAIL

THREE FAN MOTOR DCS CONTROLLED (TYPE-C)



(NOTE-4)

Type C		SUFFIX FOR SIGNALS							
3 FAN MOTORS (AUTO/MAN) ICSS CONTROLLED	ENS CODE	MOTOR A	MOTOR B	MOTOR C	Type C.1	Type C.2	Type C.3	Type C.4	Type C.5
LOCAL/REMOTE CMND FROM DCS	XHS	A	B	C	X				X
RUNNING STATUS	MKEY	A	B	C	X	X	X	X	X
FAULT	MKEA	A	B	C	X	X	X	X	X
AVAILABLE	MKEX	A	B	C	X	X	X	X	X
LOCAL REMOTE INDICATION ON DCS	XI	A	B	C	X		X		X
AUTO/MANUAL FROM DCS	XHS	A	B	C	X	X		X	X
DCS START	MKER	A	B	C	X	X	X	X	X
DCS STOP	MKES	A	B	C	X	X	X	X	X
LOCAL START/STOP/REMOTE [PART OF ELECTRICAL CONTROL STATION (ECS)] (OPTIONAL)					X		X		X
EMERGENCY STOP [PART OF ELECTRICAL CONTROL STATION (ECS)] (MUST)					X	X	X	X	X
ESD TRIP	XZ	A	B	C	X	X	X	X	X
DUTY/STANDBY SELECT FROM DCS	XHS				X	X		X	X
FAN MOTOR POWER (OPTIONAL)	MKEJ	A	B	C				X	X
FAN MOTOR START INHIBIT (OPTIONAL)	MKEN	A	B	C				X	X

NOTES:

1. ECS SHALL HAVE ONLY EMERGENCY STOP AS DEFAULT. SELECTIVE MOTORS/HEATERS SHALL HAVE OPTIONS OF LOCAL START/STOP/REMOTE SELECTION BASED ON OPERATIONS.
2. LEAD/LAG & DUTY SELECT TO BE IMPLEMENTED IN DCS.
3. START INHIBIT SHALL BE IMPLEMENTED IN DCS/PLC.
4. THE SUB-TYPE PROVIDED FOR MOTOR CONTROL ARE INDICATIVE ONLY. THE SELECTION OF SIGNALS SHALL BE BASED ON PLANT OPERATIONS AS ELABORATED IN THE CONTROL NARRATIVE.
5. THE OPTIONAL SIGNALS SHALL BE SELECTED BASED ON CONTROL PHILOSOPHY, AS ELABORATED IN THE CONTROL NARRATIVE.

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	SI/VU	AB
H01	28.12.15	ISSUED FOR HAZOP (DD)	DX	SI/VU	AB
G01	26.10.15	ISSUED FOR REVIEW (DD)	DX	SI/VU	TT
A02	13.07.15	RE-ISSUED FOR COMPANY REVIEW	DX	SI/RS	TT
A01	28.05.15	ISSUED FOR COMPANY REVIEW	DX	SI/RS	TT



EARLY POWER PLANT
RUMAILA OIL FIELD
CONTRACT NO. 100478



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



DRAWING TITLE:
PIPING AND INSTRUMENTATION DIAGRAM
LEGEND SHEET
MOTOR CONTROL CENTRES

PROJECT NO. 100478CP SCALE: NONE DWG SIZE: A1

DRAWING NUMBER: SHT. NO.: REV.

100478CP-N-PG-PP01-PR-PID-0001-015 15/17 C01