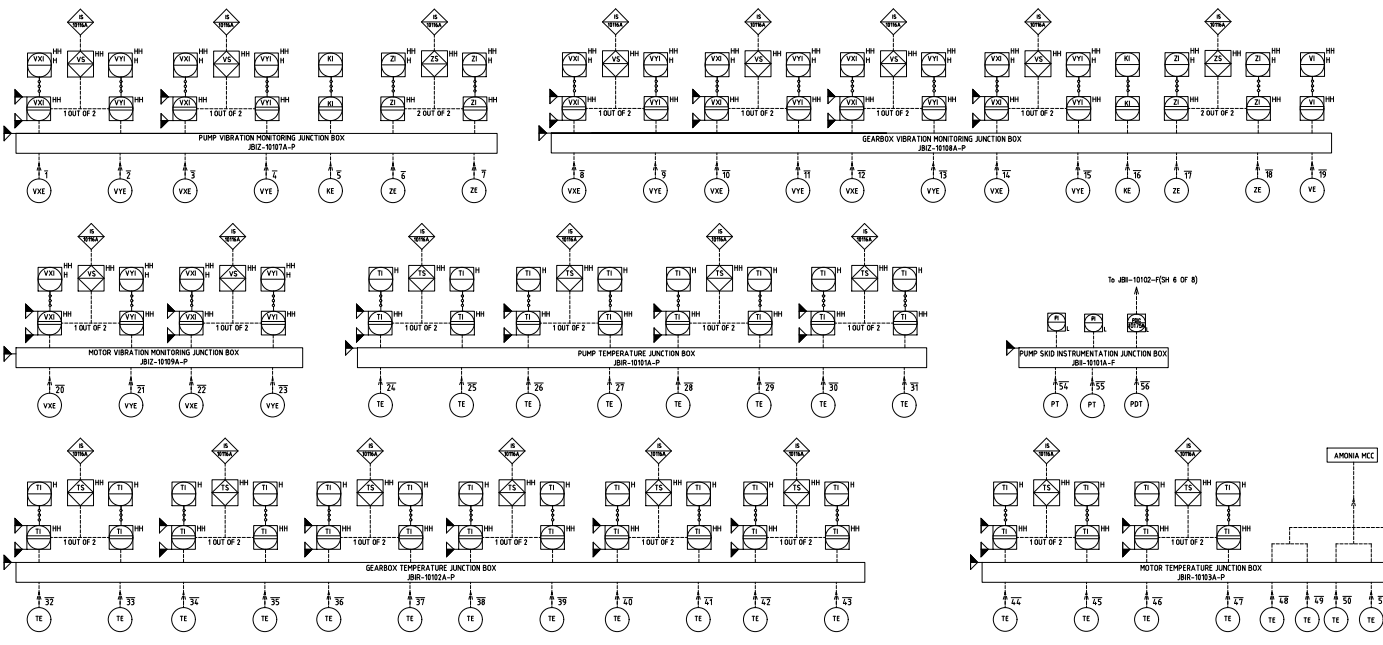
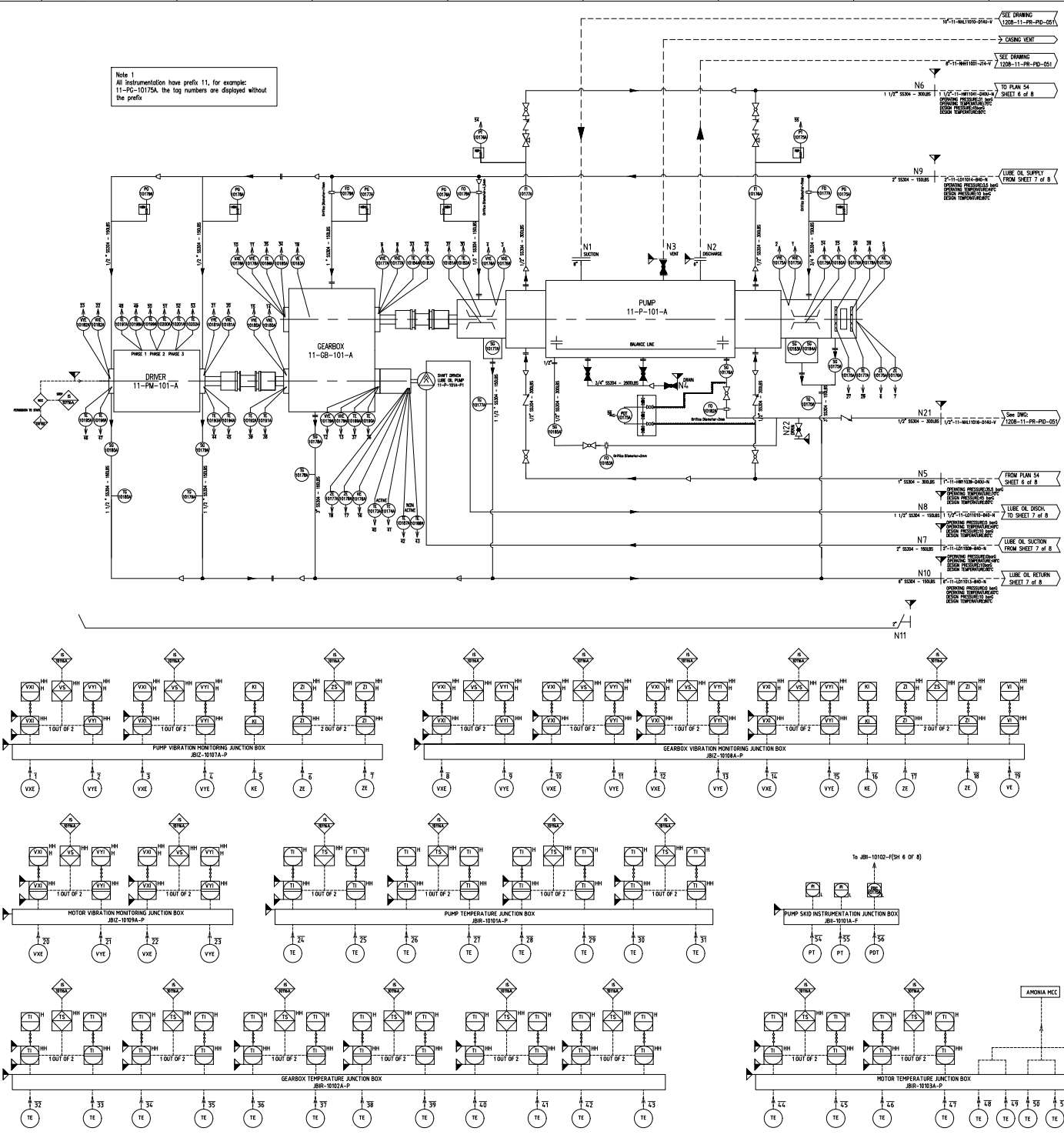


Note 1
All instrumentation have prefix 11, for example:
11-PS-1012A, the tag numbers are displayed without the prefix.



DOCUMENT TITLE: GENERAL ARRANGEMENT DRAWING PUMP PERFORMANCE CURVE PUMP DATA SHEET CROSS SECTION DRAWING		DOCUMENT NUMBER: VD-1208-307A-DWG-110 VD-1208-307A-PCU-112 VD-1208-307A-DSH-113 VD-1208-307A-DWG-114	
MCC	MOTOR CONTROL CENTER		
ESD	EMERGENCY SHUTDOWN		
FCS	FOUNDATION FIELDBUS CONTROL SYSTEM		
CMS	CONDITION MONITORING SYSTEM		
MMS	MACHINE CONDITION MONITORING SYSTEM		
PG	PRESSURE INDICATOR	FT	FLOW TRANSMITTER
PT	PRESSURE TRANSMITTER	FO	FLOW ORIFICE
PDT	DIFF. PRESSURE TRANSMITTER	SG	SIGHT GLASS
PCV	PRESSURE CONTROL VALVE	LG	LEVEL INDICATOR
PSV	SAFETY VALVE	LV	LEVEL TRANSMITTER
PDV	DIFF. PRESSURE VALVE	LT	LEVEL CONTROL VALVE
TG	TEMPERATURE INDICATOR	ZE	AXIAL DISPLACEMENT SENSOR
TT	TEMPERATURE TRANSMITTER	KE	KEY PHASOR
TE	RTD	VE	ACCELEROMETER
TCV	TEMPERATURE CONTROL VALVE	AOP	AUXILIARY OIL PUMP
VX/Y/VE	VIBRATION PROBE	MOP	MAIN OIL PUMP
FI	FLOW INDICATOR	SOV	SOLENOID VALVE

Ball valve N.O.	Scope indication (vendor scope inside the white flags)
Ball valve N.C.	Local instrument
3 way instrument valve	Level indicator
5 way instrument valve	Orifice
Strainer	Cap
Non-return valve	FCS
Adjustable Orifice	MMS
3 way valve	Emergency shut down interlock
Pressure control valve	FCS Interlock
Pressure safety valve	Serial link
Piping/tubing	Harwired connection
Impulse line	

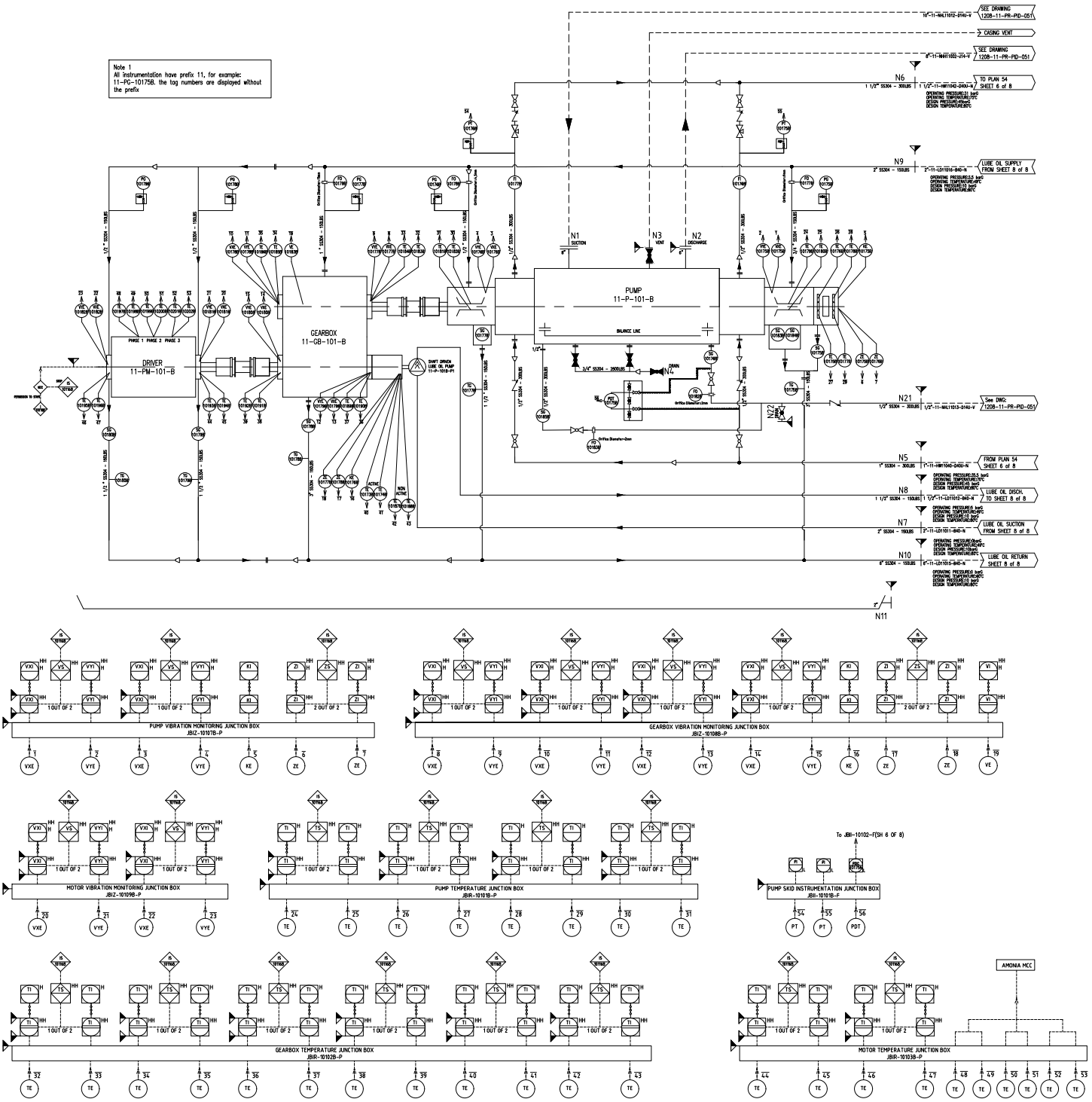
N22	Leak off line drain	1/2" - 300# ASME B16.5 RF
N21	Leak off line	1/2" - 300# ASME B16.5 RF
N11	Base frame drain	2" - female NPT
N10	Lube oil return	6" - 150# ASME B16.5 RF
N9	Lube oil supply	2" - 150# ASME B16.5 RF
N8	Lube oil discharge	1 1/2" - 150# ASME B16.5 RF
N7	Lube oil suction	2" - 150# ASME B16.5 RF
N6	Plan 54 return	1 1/2" - 300# ASME B16.5 RF
N5	Plan 54 supply	1" - 300# ASME B16.5 RF
N4	Case vent	3/4" - 2500# ASME B16.5 RTJ
N3	Case vent	3/4" - 2500# ASME B16.5 RTJ
N2	Discharge	6" - 2500# ASME B16.5 RTJ
N1	Suction	8" - 300# ASME B16.5 RF

Item	Description	Size
<p>NO COMMENTS: Documents/Drawings were checked by purchaser and further steps can be followed.</p> <p>COMMENTS AS MARKED: Documents/Drawings were checked by purchaser and marked comments must be considered by vendor. Vendor shall revise documents/drawings as per comments and the new revision of documents/drawings must be released prior to fabrication.</p> <p>REJECTED: Documents/Drawings were checked and it is not comply with purchase order requirements at all.</p> <p>ACCEPTABLE WITH COMMENTS: Documents/Drawings were checked by purchaser and comments must be considered by vendor. Fabrication can proceed accordingly. Revised document to be issued either for review or as final certified. However purchaser will check the revised document for proper incorporation of comments.</p> <p>NOT RETURNED: Document was received for information and not returned to the vendor.</p>		
Name:	Rep. No.:	Seq. No.:
Signature:		
Date:		
Purchaser review & comments does not absolve the vendor of the responsibility for the correct design, manufacturing and operation of the equipment.		
DE:		
Eng. Phase	Purpose of Distribution (POD)	Purpose of Issue (PCI) Purchaser's Action

09	15-08-2023	ISSUED FOR APPROVAL	G.C.	AASC	JNDV	JULVJ
08	15-08-2023	ISSUED FOR APPROVAL	G.C.	AASC	JNDV	JULVJ
07	12-08-2022	ISSUED FOR APPROVAL	G.C.	AASC	JNDV	JULVJ
06	28-03-2022	ISSUED FOR APPROVAL	G.C.	AASC	JNDV	JULVJ
05	04-12-2015	ISSUED FOR APPROVAL	H.V.	AASC	JNDV	JULVJ

OWNER:	M.C.:	SPCC CONTRACTOR:
PROJECT: HENGAM FERTILIZER PROJECT		
VENDOR: ROODHART		
TITLE: P&ID FOR 11-P-101-A HIGH PRESSURE AMMONIA PUMP UNIT		
SCALE: NON	OWNER PROJECT NO.: NA	VENDOR DWS NO.: 2285-101AB-2006
SHT.: 4 OF 8	PREC PROJECT NO.: 1208	REV. SHEET: 09 A1

Note 1
All instrumentation have prefix 11, for example 11-PS-10175B; the tag numbers are displayed without the prefix.



DOCUMENT TITLE:		DOCUMENT NUMBER:	
GENERAL ARRANGEMENT DRAWING		VD-1208-307A-DWG-110	
PUMP PERFORMANCE CURVE		VD-1208-307A-PCU-112	
PUMP DATA SHEET		VD-1208-307A-DSH-113	
CROSS SECTION DRAWING		VD-1208-307A-DWG-114	
MCC	MOTOR CONTROL CENTER		
ESD	EMERGENCY SHUTDOWN		
FCS	FOUNDATION FIELDBUS CONTROL SYSTEM		
CMS	CONDITION MONITORING SYSTEM		
MMS	MACHINE CONDITION MONITORING SYSTEM		
PG	PRESSURE INDICATOR	FT	FLOW TRANSMITTER
PT	PRESSURE TRANSMITTER	FO	FLOW ORIFICE
PDT	DIFF. PRESSURE TRANSMITTER	SG	SIGHT GLASS
PCV	PRESSURE CONTROL VALVE	LG	LEVEL INDICATOR
PSV	SAFETY VALVE	LV	LEVEL TRANSMITTER
PDV	DIFF. PRESSURE VALVE	LT	LEVEL CONTROL VALVE
TG	TEMPERATURE INDICATOR	ZE	AXIAL DISPLACEMENT SENSOR
TT	TEMPERATURE TRANSMITTER	KE	KEY PHASOR
TE	RTD	VE	ACCELEROMETER
TCV	TEMPERATURE CONTROL VALVE	AOP	AUXILIARY OIL PUMP
VX/Y/VE	VIBRATION PROBE	MOP	MAIN OIL PUMP
FI	FLOW INDICATOR	SOV	SOLENOID VALVE

Ball valve N.O.	Scope indication (vendor scope inside the white flags)
Ball valve N.C.	Local instrument
3 way instrument valve	Level indicator
5 way instrument valve	Orifice
Strainer	Cap
Non-return valve	FCS
Adjustable Orifice	MMS
3 way valve	Emergency shut down interlock
Pressure control valve	FCS Interlock
Pressure safety valve	Serial link
Piping/tubing	Impulse line
Impulse line	Hardwired connection

N22	Leak off line drain	1/2" - 300# ASME B16.5 RF
N21	Leak off line	1/2" - 300# ASME B16.5 RF
N11	Base frame drain	2" - female NPT
N10	Lube oil return	6" - 150# ASME B16.5 RF
N9	Lube oil supply	2" - 150# ASME B16.5 RF
N8	Lube oil discharge	1 1/2" - 150# ASME B16.5 RF
N7	Lube oil suction	2" - 150# ASME B16.5 RF
N6	Plant S4 return	1 1/2" - 300# ASME B16.5 RF
N5	Plant S4 supply	1" - 300# ASME B16.5 RF
N4	Case vent	1" - 2500# ASME B16.5 RTJ
N3	Case vent	3/4" - 2500# ASME B16.5 RTJ
N2	Discharge	6" - 2500# ASME B16.5 RTJ
N1	Suction	8" - 300# ASME B16.5 RF

Name:		Reg. No.:	Seq. No.:
Signature:			
Date:			

DE:			
Eng. Phase	Purpose of Distribution (POD)	Purpose of Issue (PCI)	Purchaser's Action

PROJECT: HENGAM FERTILIZER PROJECT

VENDOR: **ROODHART**

TITLE: P&ID FOR 11-P-101-B HIGH PRESSURE AMMONIA PUMP UNIT

SCALE: NON

OWNER: NA

VENDOR DWS. NO.: 2285-101AB-2006

REV. DATE DESCRIPTION

PREPARED BY: [Signature]

CHECKED BY: [Signature]

APPROVED BY: [Signature]

AUTHORIZED BY: [Signature]

OWNER: [Signature]

MC: [Signature]

SPCC CONTRACTOR: [Signature]

SHIT: 5 OF 8

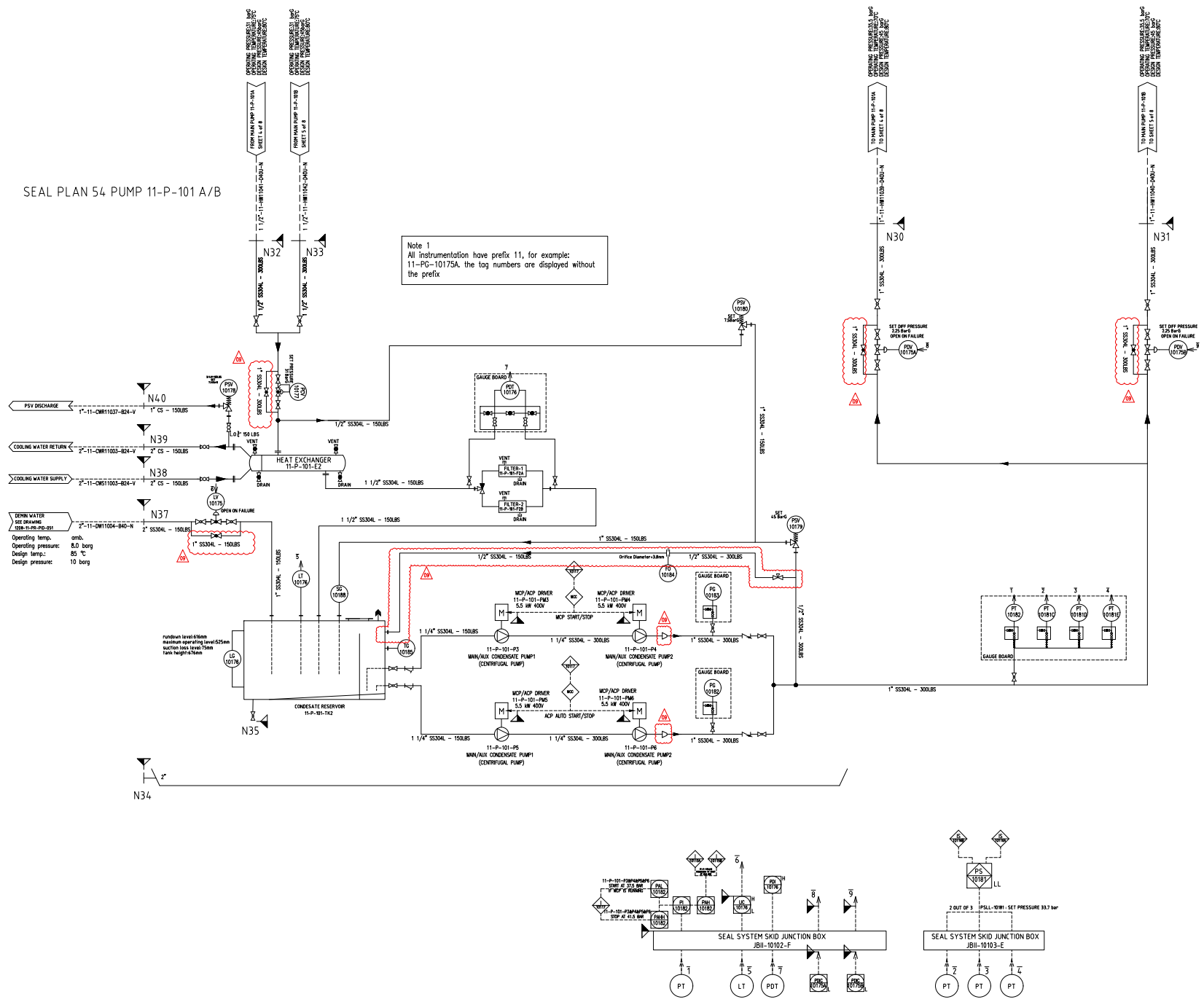
PREC PROJECT NO.: 1208

PIED DWS. NO.: VD-1208-307A-PID-111

REV. SHEET: 09

REV. SHEET: A1

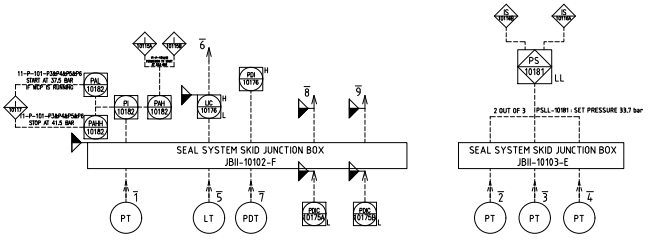
SEAL PLAN 54 PUMP 11-P-101 A/B



Note 1
All instrumentation have prefix 11, for example:
11-PG-10175A, the tag numbers are displayed without the prefix

COOLING WATER
SEE DRAWING
11-11-10104-840-N
Operating temp: amb.
Operating pressure: 8.0 barg
Design temp: 85 °C
Design pressure: 10 barg

N34



DOCUMENT TITLE:		DOCUMENT NUMBER:	
GENERAL ARRANGEMENT DRAWING		VD-1208-307A-DWG-110	
PUMP PERFORMANCE CURVE		VD-1208-307A-PCU-112	
PUMP DATA SHEET		VD-1208-307A-DSH-113	
CROSS SECTION DRAWING		VD-1208-307A-DWG-114	
MCC	MOTOR CONTROL CENTER		
ESD	EMERGENCY SHUTDOWN		
FCS	FOUNDATION FIELDBUS CONTROL SYSTEM		
CMS	CONDITION MONITORING SYSTEM		
MMS	MACHINE CONDITION MONITORING SYSTEM		
PG	PRESSURE INDICATOR	FT	FLOW TRANSMITTER
PT	PRESSURE TRANSMITTER	FO	FLOW ORIFICE
PDT	DIFF. PRESSURE TRANSMITTER	SG	SIGHT GLASS
PCV	PRESSURE CONTROL VALVE	LG	LEVEL INDICATOR
PSV	SAFETY VALVE	LT	LEVEL TRANSMITTER
PDV	DIFF. PRESSURE VALVE	LV	LEVEL CONTROL VALVE
TG	TEMPERATURE INDICATOR	ZE	AXIAL DISPLACEMENT SENSOR
TT	TEMPERATURE TRANSMITTER	KE	KEY PHASOR
TE	RTD	VE	ACCELEROMETER
TCV	TEMPERATURE CONTROL VALVE	AOP	AUXILIARY OIL PUMP
VX/VE	VIBRATION PROBE	MOP	MAIN OIL PUMP
FI	FLOW INDICATOR	SOV	SOLENOID VALVE

Ball valve N.O.	Scope indication (vendor scope inside the white flags)
Ball valve N.C.	Local instrument
Globe valve N.O.	Level indicator
3 way instrument valve	Orifice
5 way instrument valve	Cap
Strainer	FCS
Non-return valve	MMS
Adjustable Orifice	Emergency shut down interlock
3 way valve	FCS Interlock
Pressure control valve	Serial link
Pressure safety valve	Harwired connection
Piping/tubing	
Impulse line	

N40	PSV Discharge	1" - 150# ASME B16.5 RF
N39	Cooling water return	2" - 150# ASME B16.5 RF
N38	Cooling water supply	2" - 150# ASME B16.5 RF
N37	Demin water supply	2" - 150# ASME B16.5 RF
N36	Nitrogen supply	1/2" - 150# ASME B16.5 RF
N35	Condensate tank drain	1" - NPT female
N34	Base Frame drain	2" - NPT female
N33	From pump P-101B	1 1/2" - 300# ASME B16.5 RF
N32	From pump P-101A	1 1/2" - 300# ASME B16.5 RF
N31	to pump P-101B	1" - 300# ASME B16.5 RF
N30	to pump P-101A	1" - 300# ASME B16.5 RF
Item	Description	Size

NO COMMENTS: Documents/Drawings were checked by purchaser and further steps can be followed.
COMMENTS AS MARKED: Documents/Drawings were checked by purchaser and marked comments must be considered by vendor. Vendor shall revise documents/drawings as per comments and the new revision of documents/drawings must be released prior to fabrication.
REQUESTED: Documents/Drawings were checked and it is not comply with purchase order requirements at all.
ACCEPTABLE WITH COMMENTS: Documents/Drawings were checked by purchaser and comments must be considered by vendor. Fabrication can proceed accordingly. Revised document to be issued either for review or as final certified. However purchaser will check the revised document for proper incorporation of comments.
NOT RETURNED: Document was received for information and not returned to the vendor.

DE	Eng. Phase	Purpose of Distribution (POD)	Purpose of Issue (PCI)	Purchaser's Action
09	19-02-2023	ISSUED FOR APPROVAL	G.C.	AASC JNDV JUDV
08	15-08-2020	ISSUED FOR APPROVAL	G.C.	AASC JNDV JUDV
07	12-09-2020	ISSUED FOR APPROVAL	G.C.	AASC JNDV JUDV
06	28-08-2020	ISSUED FOR APPROVAL	G.C.	AASC JNDV JUDV
05	04-10-2016	ISSUED FOR APPROVAL	H.V.	AASC JNDV JUDV

OWNER:

MC:

SPCC CONTRACTOR:

PROJECT: HENGAM FERTILIZER PROJECT

VENDOR:

TITLE: P&ID FOR 11-P-101-A/B
HIGH PRESSURE AMMONIA PUMP UNIT

SCALE: NON

OWNER PROJECT NO.: NA

VENDOR DWS NO.: 2285-101AB-2006

PREC DWS NO.: VD-1208-307A-PID-111

REV: 09

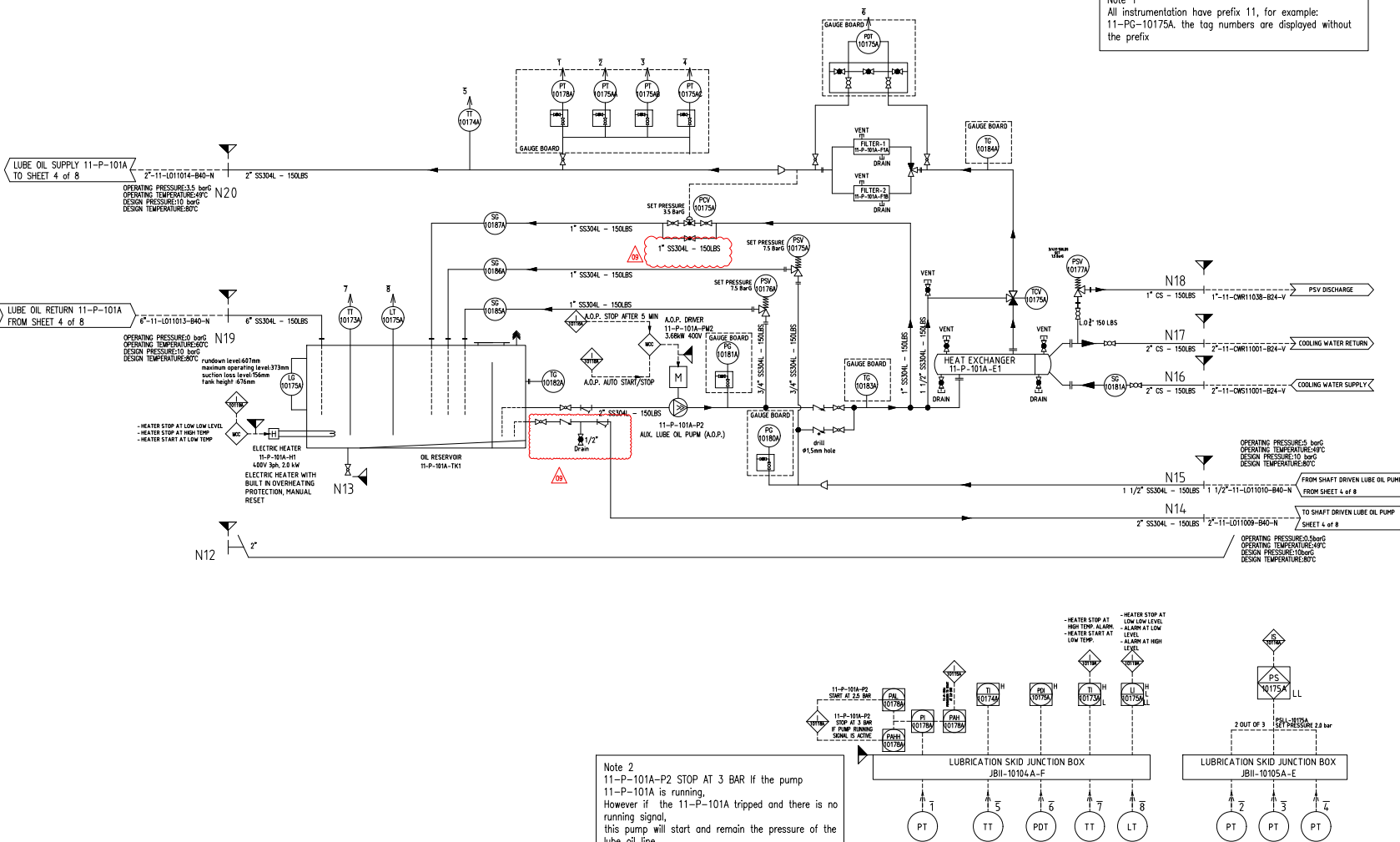
SHEET: 6 OF 8

PREC PROJECT NO.: 1208

REV: 09

SHEET: A1

LUBE OIL UNIT PUMP 11-P-101A



Note 1
All instrumentation have prefix 11, for example:
11-PG-10175A, the tag numbers are displayed without
the prefix

Note 2
11-P-101A-P2 STOP AT 3 BAR If the pump
11-P-101A is running,
However if the 11-P-101A tripped and there is no
running signal,
this pump will start and remain the pressure of the
lube oil line
for 5min until shaft stopped to rotate.

DOCUMENT TITLE:	DOCUMENT NUMBER:
GENERAL ARRANGEMENT DRAWING	VD-1208-307A-DWG-100
PUMP PERFORMANCE CURVE	VD-1208-307A-PCU-112
PUMP DATA SHEET	VD-1208-307A-DSH-113
CROSS SECTION DRAWING	VD-1208-307A-DWG-114

MCC	MOTOR CONTROL CENTER	
ESD	EMERGENCY SHUTDOWN	
FCS	FOUNDATION FIELDBUS CONTROL SYSTEM	
CMS	CONDITION MONITORING SYSTEM	
MMS	MACHINE CONDITION MONITORING SYSTEM	

PG	PRESSURE INDICATOR	FT	FLOW TRANSMITTER
PT	PRESSURE TRANSMITTER	FO	FLOW ORIFICE
PDT	DIFF. PRESSURE TRANSMITTER	SG	SIGHT GLASS
PCV	PRESSURE CONTROL VALVE	LG	LEVEL INDICATOR
PSV	SAFETY VALVE	LV	LEVEL TRANSMITTER
PDV	DIFF. PRESSURE VALVE	LT	LEVEL CONTROL VALVE
TG	TEMPERATURE INDICATOR	ZE	AXIAL DISPLACEMENT SENSOR
TT	TEMPERATURE TRANSMITTER	KE	KEY PHASOR
TE	RTD	VE	ACCELEROMETER
TCV	TEMPERATURE CONTROL VALVE	AOP	AUXILIARY OIL PUMP
VXE/VYE	VIBRATION PROBE	MOP	MAIN OIL PUMP
FI	FLOW INDICATOR	SOV	SOLENOID VALVE

	Ball valve N.O.		Scope indication (vendor scope inside the white flags)
	Ball valve N.C.		Local instrument
	Globe valve N.O.		Level indicator
	3 way instrument valve		Orifice
	5 way instrument valve		Strainer
	Non-return valve		Cap
	Adjustable Orifice		FCS
	3 way valve		MMS
	Pressure control valve		Emergency shut down interlock
	Pressure safety valve		FCS interlock
	Impulse line		Serial link
	Harwed connection		Harwed connection

Item	Description	Size
N20	Lube Oil supply	2" - 150# ASME B16.5 RF
N19	Lube Oil return	6" - 150# ASME B16.5 RF
N18	PSV Discharge	1" - 150# ASME B16.5 RF
N17	Cooling Water Return	2" - 150# ASME B16.5 RF
N16	Cooling Water Supply	2" - 150# ASME B16.5 RF
N15	to shaft driven lube oil pump	1 1/2" - 150# ASME B16.5 RF
N14	to shaft driven lube oil pump	2" - 150# ASME B16.5 RF
N13	Lube oil tank drain	1" - NPT Female
N12	Base frame drain	2" - NPT female

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 REQUESTED: Documents/Drawings were checked and it is not comply with purchase order requirements at all.
 ACCEPTABLE WITH COMMENTS: Documents/Drawings were checked by purchaser and comments must be considered by vendor. Fabrication can proceed accordingly. Revised document to be issued either for review or as final certified. However purchaser will check the revised document for proper incorporation of comments.
 NOT RETURNED: Document was received for information and not returned to the vendor.

DE	Purpose of Distribution (POD)	Purpose of Issue (POI)	Purchaser's Action
Eng. Phase			

REV.	ISSUE DATE	DESCRIPTION	PREPARED BY	CHECKED BY	APPROVED BY	AUTHORITY
09	15-02-2023	ISSUED FOR APPROVAL				
08	15-08-2022	ISSUED FOR APPROVAL				
07	12-06-2022	ISSUED FOR APPROVAL				
06	28-03-2022	ISSUED FOR APPROVAL				
05	04-12-2015	ISSUED FOR APPROVAL				

OWNER	MCC	SPOC CONTRACTOR

PROJECT:	HENGAM FERTILIZER PROJECT		
VENDOR:			
TITLE:	P&ID FOR 11-P-101-A HIGH PRESSURE AMMONIA PUMP UNIT		
SCALE: NON	OWNER PROJECT NO.: NA	VENDOR DWS. NO.: 2285-101AB-2006	REV: 092E
SHT.: 7 OF 8	PREC PROJECT NO.: 1200	PREC DWS. NO.: VD-1208-307A-PID-111	09 A1

