




Vendor:  <b>NEWJCM</b>  Job No.: 5655	EPC Contractor :    Project No. : 1208	<b>HENGAM FERTILIZER PROJECT</b>  <b>CO2 Compressor Cause &amp; Effects Diagram</b>  Doc. No.: VD-1208-301A-DIG-457	Owner:    Rev. : 02	MC:  
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**VENDOR** : **Jinzhou NEWJCM Machinery Manufacturer Co. Ltd.**

**REQ. NO.** : **1208-00-RE-REQ-301B**

**ITEM NO.** : **11-C-101 / 11-CT-101**

**ITEM DESCRIPTION** : **CO2 Train**

**PURCHASER DOC. NO.** :

**VENDOR DOC. NO.** : **VD-1208-301B-DIG-457**

**TOTAL PAGES** : **16** (Excluding Attachments)




- No Comment To Vendor**
- Comment as marked** manufacturing may proceed To Vendor
- Major Comment as marked** manufacturing is on hold for the next rev To Vendor
- Rejected**, new document with the same rev. no. To Vendor
- Used as for information To Vendor**

Name :	Req. No.:	Seq. No.:
Signature :		
Date:		

PIDEC review & comments does not absolve the vendor of the responsibility for the correct design, manufacturing and operation of the equipment

DE	EXT	A				
Eng. Phase	Purpose of Distribution (POD)	Purpose of Issue (POI)	Purchaser's Action			
03	06.11.2020	Issue for Approval	WuYang	Wu Qing	Wang Zhijun	
02	28.05.2020	Issue for Approval	WuYang	Wu Qing	Wang Zhijun	
01	27.03.2020	Issue for Approval	WuYang	Wu Qing	Wang Zhijun	
00	15.04.2016	Issue for Approval	WuYang	Wu Qing	Wang Zhijun	
Rev.	Date	Description	Prepared by	Checked by	Approved by	Authorized by



Vendor:	EPC Contractor :	<b>HENGAM FERTILIZER PROJECT</b>		Owner:	MC:
<b>NEWJCM</b>		<b>CO2 Compressor Cause &amp; Effects Diagram</b>			
		Job No.: 5655	Project No. : 1208		




**NOTE:**

P&ID No.

- 401 = VD-1208-301B-PID-401 CO2 COMPRESSOR PID
- 402 = VD-1208-301B-PID-402 STEAM TURBINE PID
- 403 = VD-1208-301B-PID-403 CO2 LUBE OIL SYSTEM (TANK) PID
- 404 = VD-1208-301B-PID-404 LUBE OIL SYSTEM (BASE) PID
- 405 = VD-1208-301B-PID-405 MACHINE MONITORING DIAGRAM
- 406 = VD-1208-301B-PID-406 SEAL GAS PID
- 407 = VD-1208-301B-PID-407 TURBINE STEAM CONDENSER PID
- 408 = VD-1208-301B-PID-408 TURBINE GOVERNING SYSTEM PID





<b>Vendor:</b>	<b>EPCC Contractor :</b>	<b>HENGAM FERTILIZER PROJECT</b>	<b>Owner MC:</b>
<b>NEWJCM</b>		<b>C02 Cause &amp; Effects Diagram</b>	 
<b>Job No. 5655</b>	<b>Project No. : 1208</b>	<b>Doc. No. : VD-1208-301B-DIG-457</b>	<b>Rev. : 03</b>
		<b>Project No. :</b>	

**IS-10148 (COMPRESSOR TRIP)**




ITEM NO	ACTUATED BY	P&ID NO.	NOTES	CAUSE	EFFECT NO.																				ITEM NO	EFFECT	ACTUATES ON	P&ID NO.	NOTES
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20					
1	TE-10150A	405		TURBINE THRUST BEARING TEMP. (NON-ACTIVE SIDE A/B)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		1	TURBINE TRIP SOV-A OPEN	XY-10141A	408			
2	TE-10151A	405		HIGH HIGH (2002) @ TRIP	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		2	TURBINE TRIP SOV-B OPEN	XY-10141B	408			
3	TE-10152A	405		TURBINE THRUST BEARING TEMP. (ACTIVE SIDE A/B)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		3	E/H ACTUATOR FOR GV CLOSED	GY-10141	408	NOTE1		
4	TE-10153A	405		HIGH HIGH (2002) @ TRIP	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		4	E/H ACTUATOR FOR ECV CLOSED	EY-10141	408	NOTE1		
5	TE-10154A	405		TURBINE JOURNAL BEARING TEMP. (GOV. SIDE A/B)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		5	COMP. ANTI-SURGE CONTROL VALVE OPEN	FY-10138A	401	NOTE2		
6	TE-10155A	405		HIGH HIGH (2002) @ TRIP	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		6	AIR SUCTION VALVE CLOSE	FY-10131A	401	NOTE2		
7	TE-10156A	405		TURBINE JOURNAL BEARING TEMP. (EXH. SIDE A/B)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		7	HP SUCTION VENT VALVE OPEN	HY-10130A	401	NOTE2		
8	TE-10157A	405		HIGH HIGH (2002) @ TRIP	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		8	COMMON TRIP LAMP	XL-10130	408			
9	TE-10113A	405		LP COMP. THRUST BEARING TEMP. (DE SIDE A/B)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		9	COMPRESSORE TRIPPED SIGNAL TO ESD	XS-1013	408			
10	TE-10114A	405		HIGH HIGH (2002) @ TRIP	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		10	TRIP TO GOVERNOR 505E	XS-10130	408			
11	TE-10111A	405		LP COMP. THRUST BEARING TEMP. (NDE SIDE A/B)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		11						
12	TE-10112A	405		HIGH HIGH (2002) @ TRIP	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		12						
13	TE-10115A	405		LP COMP. JOURNAL BEARING TEMP. (NDE A/B)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		13						
14	TE-10116A	405		HIGH HIGH (2002) @ TRIP	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		14						
15	TE-10117A	405		LP COMP. JOURNAL BEARING TEMP. (DE A/B)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		15						
16	TE-10118A	405		HIGH HIGH (2002) @ TRIP	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		16						
17	TE-10123A	405		HP COMP. THRUST BEARING TEMP. (DE SIDE A/B)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		17						
18	TE-10124A	405		HIGH HIGH (2002) @ TRIP	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		18						
19	TE-10121A	405		HP COMP. THRUST BEARING TEMP. (NDE SIDE A/B)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		19						
20	TE-10122A	405		HIGH HIGH (2002) @ TRIP	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		20						

**NOTE**

1 Electronic Governor out puts are set to 4 mA for GY/EY-10141 to close Governor and extraction Valves in case of compressor trip

2 These valves will be stayed in trip position after resetting and normalization interlock, and operator will be allowed to open or close them before starting compressor

3 If causes already have been normalized, then by pressing reset button on LGB (HS-10131) or HS-10161(HMI), effects will **comeback** to normal position, except those have been mentioned in note 2

Vendor: <b>NEWJCM</b>	EPCC Contractor : 	HENGAM FERTILIZER PROJECT		Owner MC:  
Job No. 5655	Project No. : 1208	C02 Cause & Effects Diagram		Project No. :
		Doc. No. : VD-1208-301B-DIG-457	Rev. : 03	

**IS-10148 (COMPRESSOR TRIP)**

ITEM NO	ACTUATED BY	P&ID NO.	NOTES	CAUSE	EFFECT NO.																				ITEM NO	EFFECT	ACTUATES ON	P&ID NO.	NOTES		
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20							
1	TE-10125A	405		HP COMP. JOURNAL BEARING TEMP. (NDE A/B)	X	X	X	X	X	X	X	X	X	X													1	TURBINE TRIP SOV-A OPEN	XY-10141A	408	
2	TE-10126A	405		HIGH HIGH (2002) @ TRIP	X	X	X	X	X	X	X	X	X	X													2	TURBINE TRIP SOV-B OPEN	XY-10141B	408	
3	TE-10127A	405		HP COMP. JOURNAL BEARING TEMP. (DE A/B)	X	X	X	X	X	X	X	X	X	X													3	E/H ACTUATOR FOR GV CLOSED	GY-10141	408	NOTE1
4	TE-10128A	405		HIGH HIGH (2002) @ TRIP	X	X	X	X	X	X	X	X	X	X													4	E/H ACTUATOR FOR ECV CLOSED	EY-10141	408	NOTE1
5	TE-10142A	405		GEAR JOURNAL BEARING TEMP. (LSS COUPLING END A/B)	X	X	X	X	X	X	X	X	X	X													5	COMP. ANTI-SURGE CONTROL VALVE OPEN	FY-10138A	401	NOTE2
6	TE-10143A	405		HIGH HIGH (2002) @ TRIP	X	X	X	X	X	X	X	X	X	X													6	AIR SUCTION VALVE CLOSE	FY-10131A	401	NOTE2
7	TE-10144A	405		GEAR JOURNAL BEARING TEMP. (LSS FREE END A/B)	X	X	X	X	X	X	X	X	X	X													7	HP SUCTION VENT VALVE OPEN	HY-10130A	401	NOTE2
8	TE-10145A	405		HIGH (2002) @ TRIP	X	X	X	X	X	X	X	X	X	X													8	COMMON TRIP LAMP	XL-10130	408	
9	TE-10146A	405		GEAR JOURNAL BEARING TEMP. (HSS FREE END A/B)	X	X	X	X	X	X	X	X	X	X													9	COMPRESSORE TRIPPED SIGNAL TO ESD	XS-1013	408	
10	TE-10147A	405		HIGH (2002) @ TRIP	X	X	X	X	X	X	X	X	X	X													10	TRIP TO GOVERNOR 505E	XS-10130	408	
11	TE-10148A	405		GEAR JOURNAL BEARING TEMP. (HSS COUPLING END A/B)	X	X	X	X	X	X	X	X	X	X													11				
12	TE-10149A	405		HIGH (2002) @ TRIP	X	X	X	X	X	X	X	X	X	X													12				
13	TE-10140A	405		GEAR THRUST BEARING TEMP. (HSS FREE END A)HIGH HIGH (1001) @ TRIP	X	X	X	X	X	X	X	X	X	X													13				
14	TE-10141A	405		GEAR THRUST BEARING TEMP. (HSS COUPLING END A)HIGH HIGH (1001) @ TRIP	X	X	X	X	X	X	X	X	X	X													14				
15																											15				
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20																											20				

NOTE




1 Electronic Governor out puts are set to 4 mA for GY/EY-10141 to close Governor and extraction Valves in case of compressor trip

2 These valves will be stayed in trip position after resetting and normalization interlock, and operator will be allowed to open or close them before starting compressor

3 If causes already have been normalized, then by pressing reset button on LGB (HS-10131) or HS-10161(HMI), effects will comeback to normal position, except those have been mentioned in note 2








<b>Vendor:</b>	EPCC Contractor :	<b>HENGAM FERTILIZER PROJECT</b>										<b>Owner MC:</b>	
<b>NEWJCM</b>		<b>CO2 Cause &amp; Effects Diagram</b>										 	
Job No. 5655	Project No. : 1208	Doc. No. : VD-1208-301B-DIG-457					Rev. : 03					Project No. :	

**I-10101 (STANDBY OIL PUMP START)**

ITEM NO	ACTUATED BY	P&ID NO.	NOTES	CAUSE	EFFECT NO.																				ITEM NO	EFFECT	ACTUATES ON	P&ID NO.	NOTES	
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20						
1	PAL-10111	403		MAIN OIL PUMP OUTLET PRESS LOW	X																				1	STANDBY OIL PUMP AUTO START	11-PM-180B	403		
2																									2					
3																										3				
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NOTE






<b>Vendor:</b>	EPC Contractor :	<b>HENGAM FERTILIZER PROJECT</b>										<b>Owner MC:</b>	
<b>NEWJCM</b>		<b>CO2 Cause &amp; Effects Diagram</b>										 	
Job No. 5655	Project No. : 1208	Doc. No. : VD-1208-301B-DIG-457					Rev. : 03					Project No. :	

**I-10103 (ELECTRIC HEATER ON )**

ITEM NO	ACTUATED BY	P&ID NO.	NOTES	CAUSE	EFFECT NO.																				ITEM NO	EFFECT	ACTUATES ON	P&ID NO.	NOTES
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20					
1	TAL-10101	403		OIL RESERVOIR TEMP. LOW	X																			1	ELECTRIC HEATER ON	11-H-101	403		
2																								2					
3																									3				
4																									4				
5																									5				
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NOTE






Vendor:	EPCC Contractor :	HENGAM FERTILIZER PROJECT	Owner MC:
<b>NEWJCM</b>		C02 Cause & Effects Diagram	 
Job No. 5655	Project No. : 1208	Doc. No. : VD-1208-301B-DIG-457	Rev. : 03
		Project No. :	

**I-10120 (TURNING DEVICE MOTOR START PERMISSIVE)**

ITEM NO	ACTUATED BY	P&ID NO.	NOTES	CAUSE	EFFECT NO.																				ITEM NO	EFFECT	ACTUATES ON	P&ID NO.	NOTES
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20					
1	XZS-10142	408		TURNING GEAR ENGAGED	X																				1	TURNING DEVICE MOTOR START PERMISSIVE	11-M-401	408	NOTE1
2	PT-10114	404		LUBE OIL HEADER PRESS. NOT LOW	X																				2				
3	XZSL-10121	408		TTV TRIP DETECTION(TTV CLOSE)	X																				3				
4																									4				
5																									5				
6																									6				
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**NOTE**  
1. All 3 cause are activated at the same time for activation turning motor start permissive

Vendor:	EPC Contractor :	HENGAM FERTILIZER PROJECT	Owner MC:
<b>NEWJCM</b>		CO2 Cause & Effects Diagram	 
Job No. 5655	Project No. : 1208	Doc. No. : VD-1208-301B-DIG-457	Rev. : 03
		Project No. :	

**I-10147 (AUXILIARY CONDENSATE PUMP START/STOP)**

ITEM NO	ACTUATED BY	P&ID NO.	NOTES	CAUSE	EFFECT NO.																				ITEM NO	EFFECT	ACTUATES ON	P&ID NO.	NOTES	
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20						
1	LAHH-10105A	407		MAIN CONDENSER WATER LEVEL HIGH HIGH	X																				1	AUXILIARY CONDENSATE PUMP START	11-PM-104A&B	407		
2	LALL-10105A	407		MAIN CONDENSER WATER LEVEL LOW LOW		X																			2	AUXILIARY CONDENSATE PUMP STOP	11-PM-104A&B	407		
3																									3					
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NOTE

Vendor:	EPCC Contractor :	HENGAM FERTILIZER PROJECT	Owner MC:
<b>NEWJCM</b>		C02 Cause & Effects Diagram	 
Job No. 5655	Project No. : 1208	Doc. No. : VD-1208-301B-DIG-457	Rev. : 03
		Project No. :	

**I-10110 (COMPRESSOR START PERMISSIVE)**

ITEM NO	ACTUATED BY	P&ID NO.	NOTES	CAUSE	EFFECT NO.																				ITEM NO	EFFECT	ACTUATES ON	P&ID NO.	NOTES	
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20						
1	TT-10105	403		OIL COOLER DISCHARGE TEMP. NOT LOW	X																					1	COMPRESSOR START PERMISSIVE	XS-10140		NOTE1
2	LT-10102	404		LUBE OIL RUNDOWN TANK LEVEL NOT LOW	X																					2				
3	PT-10114	404		LUBE OIL HEADER PRESS. NOT LOW	X																					3				
4	FZSH-10138	401		COMP. ANTI-SURGE CONTROL VALVE OPEN	X																					4				
5	HZSH-10130	401		HP SUCTION VENT VALVE OPEN	X																					5				
6	XZSL-10121	408		TTV TRIP DETECTION(TTV CLOSE)	X																					6				
7	PT-10124	402		TURBINE EXHAUST STEAM PRESS. NOT HIGH	X																					7				
8	XZS-10141A	408		MANUAL BLOCK VALVE FOR TURBINE TRIP SOV-A OPEN	X																					8				
9	XZS-10141B	408		MANUAL BLOCK VALVE FOR TURBINE TRIP SOV-B OPEN	X																					9				
10	IS-10148	FROM PLC		NO TRIP FROM COMPRESSOR/TURBINE	X																					10				
11																														
12																														
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19																														
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NOTE  
 1 All causes are activated in same time for the start permissive of compressor

Vendor: <b>NEWJCM</b> Job No.: 5655	EPC Contractor :  Project No. : 1208	<b>HENGAM FERTILIZER PROJECT</b>  <b>CO2 Compressor Cause &amp; Effects Diagram</b>  Doc. No.: VD-1208-301A-DIG-457		Owner:  گھنٹہ گیس پراجیکٹ	MC:  گھنٹہ گیس پراجیکٹ
		Rev. : 02			

**VENDOR** : Jinzhou NEWJCM Machinery Manufacturer Co. Ltd.

**REQ. NO.** : 1208-00-RE-REQ-301B

**ITEM NO.** : **11-C-101 / 11-CT-101**

**ITEM DESCRIPTION** : **CO2 Train**

**PURCHASER DOC. NO.** :




**VENDOR DOC. NO.** : VD-1208-301B-DIG-457

**TOTAL PAGES** : **16** (Excluding Attachments)

<input type="checkbox"/>	No Comment To Vendor
<input checked="" type="checkbox"/>	Comment as marked manufacturing may proceed To Vendor
<input type="checkbox"/>	Major Comment as marked manufacturing is on hold for the next rev To Vendor
<input type="checkbox"/>	Rejected, new document with the same rev. no. To Vendor
<input type="checkbox"/>	Used as for information To Vendor
Name :	<b>REVIEWED</b>
Signature :	
Date:	<b>By sarvalishah.majid at 11:02 am, Jul 21, 2020</b>
Seq. No.:	
PIDE review & comments does not absolve the vendor of the responsibility for the correct design, manufacturing and operation of the equipment	

DE	EXT	A				
Eng. Phase	Purpose of Distribution (POD)	Purpose of Issue (POI)		Purchaser's Action		
02	28.05.2020	Issue for Approval	WuYang	Wu Qing	Wang Zhijun	
01	27.03.2020	Issue for Approval	WuYang	Wu Qing	Wang Zhijun	
00	15.04.2016	Issue for Approval	WuYang	Wu Qing	Wang Zhijun	
Rev.	Date	Description	Prepared by	Checked by	Approved by	Authorized by



Vendor:	EPC Contractor :	<b>HENGAM FERTILIZER PROJECT</b>		Owner:	MC:
<b>NEWJCM</b>		<b>CO2 Compressor Cause &amp; Effects Diagram</b>			
		Job No.: 5655	Project No. : 1208		

**NOTE:**




P&ID No.

- 401 = VD-1208-301B-PID-401 CO2 COMPRESSOR PID
- 402 = VD-1208-301B-PID-402 STEAM TURBINE PID
- 403 = VD-1208-301B-PID-403 CO2 LUBE OIL SYSTEM (TANK) PID
- 404 = VD-1208-301B-PID-404 LUBE OIL SYSTEM (BASE) PID
- 405 = VD-1208-301B-PID-405 MACHINE MONITORING DIAGRAM
- 406 = VD-1208-301B-PID-406 SEAL GAS PID
- 407 = VD-1208-301B-PID-407 TURBINE STEAM CONDENSER PID
- 408 = VD-1208-301B-PID-408 TURBINE GOVERNING SYSTEM PID







<b>Vendor:</b>	EPCC Contractor :	<b>HENGAM FERTILIZER PROJECT</b>	<b>Owner MC:</b>
<b>NEWJCM</b>		<b>C02 Cause &amp; Effects Diagram</b>	 
Job No. 5655	Project No. : 1208	Doc. No. : VD-1208-301B-DIG-457	Rev. : 02
		Project No. :	

**IS-10148 (COMPRESSOR TRIP)**

ITEM NO	ACTUATED BY	P&ID NO.	NOTES	CAUSE	EFFECT NO.																				ITEM NO	EFFECT	ACTUATES ON	P&ID NO.	NOTES		
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20							
1	TE-10125A	405		HP COMP. JOURNAL BEARING TEMP. (NDE A/B)	X	X	X	X	X	X	X	X	X	X													1	TURBINE TRIP SOV-A OPEN	XY-10141A	408	
2	TE-10126A	405		HIGH HIGH (2002) @ TRIP	X	X	X	X	X	X	X	X	X	X													2	TURBINE TRIP SOV-B OPEN	XY-10141B	408	
3	TE-10127A	405		HP COMP. JOURNAL BEARING TEMP. (DE A/B)	X	X	X	X	X	X	X	X	X	X													3	E/H ACTUATOR FOR GV CLOSED	GY-10141	408	NOTE1
4	TE-10128A	405		HIGH HIGH (2002) @ TRIP	X	X	X	X	X	X	X	X	X	X													4	E/H ACTUATOR FOR ECV CLOSED	EY-10141	408	NOTE1
5	TE-10142A	405		GEAR JOURNAL BEARING TEMP. (LSS COUPLING END A/B)	X	X	X	X	X	X	X	X	X	X													5	COMP. ANTI-SURGE CONTROL VALVE OPEN	FY-10138A	401	NOTE2
6	TE-10143A	405		HIGH HIGH (2002) @ TRIP	X	X	X	X	X	X	X	X	X	X													6	AIR SUCTION VALVE CLOSE	FY-10131A	401	NOTE2
7	TE-10144A	405		GEAR JOURNAL BEARING TEMP. (LSS FREE END A/B)	X	X	X	X	X	X	X	X	X	X																	
8	TE-10145A	405		HIGH (2002) @ TRIP	X	X	X	X	X	X	X	X	X	X													8	COMMON TRIP LAMP	XL-10130	408	
9	TE-10146A	405		GEAR JOURNAL BEARING TEMP. (HSS FREE END A/B)	X	X	X	X	X	X	X	X	X	X													9	COMPRESSORE TRIPPED SIGNAL TO ESD	XS-1013	408	
10	TE-10147A	405		HIGH (2002) @ TRIP	X	X	X	X	X	X	X	X	X	X													10	TRIP TO GOVERNOR 505E	XS-10130	408	
11	TE-10148A	405		GEAR JOURNAL BEARING TEMP. (HSS COUPLING END A/B)	X	X	X	X	X	X	X	X	X	X													11				
12	TE-10149A	405		HIGH (2002) @ TRIP	X	X	X	X	X	X	X	X	X	X													12				
13	TE-10140A	405		GEAR THRUST BEARING TEMP. (HSS FREE END A)HIGH HIGH (1002) @ TRIP																							13				
14	TE-10141A	405		GEAR THRUST BEARING TEMP. (HSS COUPLING END A)HIGH HIGH (1002) @ TRIP																											
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**NOTE**




1 Electronic Governor out puts are set to 4 mA for GY/EY-10141 to close Governor and extraction check valve in case of compressor trip

2 These valves will be stayed in close position after resetting and normalization interlock, and operator will be allowed to open them after starting compressor

3 If causes already have been normalized, then by pressing reset button on LGB (HS-10131) or HS-10161(HMI), effects will comback to normal position, except those have been mentioned in note 2





Vendor:	EPC Contractor :	HENGAM FERTILIZER PROJECT										Owner MC:	
<b>NEWJCM</b>		CO2 Cause & Effects Diagram										 	
Job No. 5655	Project No. : 1208	Doc. No. : VD-1208-301B-DIG-457					Rev. : 02					Project No. :	




**I-10101 (STANDBY OIL PUMP START)**

ITEM NO	ACTUATED BY	P&ID NO.	NOTES	CAUSE	EFFECT NO.																				ITEM NO	EFFECT	ACTUATES ON	P&ID NO.	NOTES
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20					
1	PT-10111	403		MAIN OIL PUMP OUTLET PRESS LOW	X																			1	STANDBY OIL PUMP AUTO START	11-PM-180B	403		
2																								2					
3																									3				
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PAL-10111

Revised




NOTE

Vendor:	EPCC Contractor :	HENGAM FERTILIZER PROJECT	Owner MC:
<b>NEWJCM</b>		CO2 Cause & Effects Diagram	 
Job No. 5655	Project No. : 1208	Rev. : 02	Project No. :

0102 (ELECTRIC HEATER OFF)

ITEM NO	ACTUATED BY	P&ID NO.	NOTES	CAUSE	EFFECT NO.																				ITEM NO	EFFECT	ACTUATES ON	P&ID NO.	NOTES	
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20						
1	LT-10101	403		OIL RESERVOIR LEVEL LOW	X																				1	ELECTRIC HEATER OFF	11-H-101	403		
2	TT-10101	403		OIL RESERVOIR TEMP. HIGH	X																				2					
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NOTE

<b>Vendor:</b>	EPCC Contractor :	<b>HENGAM FERTILIZER PROJECT</b>										<b>Owner MC:</b>	
<b>NEWJCM</b>		<b>CO2 Cause &amp; Effects Diagram</b>										 	
Job No. 5655	Project No. : 1208	Doc. No. : VD-1208-301B-DIG-457					Rev. : 02					Project No. :	




**I-10103 (ELECTRIC HEATER ON )**

ITEM NO	ACTUATED BY	P&ID NO.	NOTES	CAUSE	EFFECT NO.																				ITEM NO	EFFECT	ACTUATES ON	P&ID NO.	NOTES
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20					
1	TT-10101	403		OIL RESERVOIR TEMP. LOW	X																		1	ELECTRIC HEATER ON	11-H-101	403			
2																							2						
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TAL-10101 Revised






NOTE

Vendor:	EPCC Contractor :	HENGAM FERTILIZER PROJECT		Owner MC:
<b>NEWJCM</b>		CO2 Cause & Effects Diagram		 
Job No. 5655	Project No. : 1208	Doc. No. : VD-1208-301B-DIG-457	Rev. : 02	Project No. :

I-10104 (EMERGENCY OIL PUMP START)

ITEM NO	ACTUATED BY	P&ID NO.	NOTES	CAUSE	EFFECT NO.																				ITEM NO	EFFECT	ACTUATES ON	P&ID NO.	NOTES
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20					
1	PT-10115A/B/C	404	NOTE1	LUBE OIL HEADER PRESSURE LOW LOW	X																		1	STANDBY OIL PUMP AUTO START	11-PM-180C	403			
2																							2						
3																							3						
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NOTE  
1 2003 Voting

Vendor:	EPCC Contractor :	<b>HENGAM FERTILIZER PROJECT</b>	Owner MC:
<b>NEWJCM</b>		<b>C02 Cause &amp; Effects Diagram</b>	 
Job No. 5655	Project No. : 1208	Doc. No. : VD-1208-301B-DIG-457	Rev. : 02
		Project No. :	

**I-10120 (TURNING DEVICE MOTOR START PERMISSIVE)**




ITEM NO	ACTUATED BY	P&ID NO.	NOTES	CAUSE	EFFECT NO.																				ITEM NO	EFFECT	ACTUATES ON	P&ID NO.	NOTES
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20					
1	XZS-10142	408		TURNING GEAR ENGAGED	X																				1	TURNING DEVICE MOTOR START PERMISSIVE	11-M-401	408	NOTE1
2	PT-10114	404		LUBE OIL HEADER PRESS. NOT LOW	X																				2				
3	XZSL-10121	408		TTV TRIP DETECTION	X																				3				
4																									4				
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Please specify the position of TTV : class (XZSL)  
Revised

Will be checked against new revision of PID-408  
Looking forward to receive new revision of PID-408  
"TO BE SHOWN IN RELATED P&ID"

PID is I-10111 will be revised. Refer to revised PID

**NOTE**  
1. All 3 cause are activated at the same time for activation turning motor start permissive

Vendor:	EPCC Contractor :	HENGAM FERTILIZER PROJECT	Owner MC:
<b>NEWJCM</b>		CO2 Cause & Effects Diagram	 
Job No. 5655	Project No. : 1208	Doc. No. : VD-1208-301B-DIG-457	Rev. : 02
		Project No. :	




**I-10147 (AUXILIARY CONDENSATE PUMP START/STOP)**

ITEM NO	ACTUATED BY	P&ID NO.	NOTES	CAUSE	EFFECT NO.																				ITEM NO	EFFECT	ACTUATES ON	P&ID NO.	NOTES
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20					
1	LT-10105A	407		MAIN CONDENSER WATER LEVEL HIGH HIGH	X																			1	AUXILIARY CONDENSATE PUMP START	11-PM-104A&B	407		
2	LT-10105A	407		MAIN CONDENSER WATER LEVEL LOW LOW		X																		2	AUXILIARY CONDENSATE PUMP STOP	11-PM-104A&B	407		
3																								3					
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Shall be corrected to:  
1- LAHH-10105A  
2- LALL-10105A

Revised

NOTE

Vendor:	EPCC Contractor :	HENGAM FERTILIZER PROJECT	Owner MC:
<b>NEWJCM</b>		CO2 Cause & Effects Diagram	 
Job No. 5655	Project No. : 1208	Doc. No. : VD-1208-301B-DIG-457	Rev. : 02
		Project No. :	

**I -10110 (COMPRESSOR START PERMISSIVE)**

ITEM NO	ACTUATED BY	P&ID NO.	NOTES	CAUSE	EFFECT NO.																				ITEM NO	EFFECT	ACTUATES ON	P&ID NO.	NOTES
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20					
1	TT-10105	403		OIL COOLER DISCHARGE TEMP. NOT LOW	X																			1	COMPRESSOR START PERMISSIVE	XS-10140		NOTE1	
2	LT-10102	404		LUBE OIL RUNDOWN TANK LEVEL NOT LOW	X																			2					
3	PT-10114	404		LUBE OIL HEADER PRESS. NOT LOW	X																			3					
4	FZSH-10138	401		COMP. ANTI-SURGE CONTROL VALVE OPEN	X																			4					
5	HZSH-10130	401		HP SUCTION VENT VALVE OPEN																				5					
6	XZSL-10121	408		TTV TRIP DETECTION																				6					
7	PT-10124	402		TURBINE EXHAUST STEAM PRESS. NOT HIGH	X																			7					
8	XZS-10141A	408		MANUAL BLOCK VALVE FOR TURBINE TRIP SOV-A OPEN	X																			8					
9	XZS-10141B	408		MANUAL BLOCK VALVE FOR TURBINE TRIP SOV-B OPEN	X																			9					
10	IS-10148	FROM PLC		NO TRIP FROM COMPRESSOR/TURBINE	X																			10					
11																													
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Please write the position of TTV for more clarity

Revised

NOTE  
1 All causes are activated in same time for the start permissive of compressor