

**iDesignOffice**

**Software for Instrumentation  
& Control Systems Design and  
Documentation**

**Example Documents produced with  
Instrumentation Design Office  
applications**

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# IDO Product Overview

## Licensing

*Instrumentation Design Office* (IDO) is licensed per application (module) per workstation. Licenses can be purchased outright or rented on a monthly basis (conditions apply). IDO consists of three integrated application modules that share design and 'As built' data:

## Instrument Engineer

Manages all tasks typically handled by an instrument engineer during a project lifecycle including instrument index data entry and reports. *Instrument Engineer* enables instrument datasheet (specification sheet) creation and document management (revision control, batch printing etc).

This module also includes process data import/entry which can be linked to user defined datasheets and Microsoft Excel import/export functionality. This is normally the only IDO module required by an engineer during a project.

*IDO Engineer* created the datasheet examples that follow and can generate Non-CAD 'instant' PDF 'loop check' reports.

## Instrument Designer

Manages all tasks typically handled by an instrument designer during a project lifecycle including CAD drawing creation, drawing list management, updating of revisions and printing of CAD files for loop diagrams, termination diagrams, Hookups etc.

This module is used to generate CAD files from the IDO database by automating the drafting process and is normally only used by a designer during a project.

*IDO Designer* created the AutoCAD loop and termination diagrams that follow and can also generate Non-CAD 'instant' PDF reports ('loop check' and terminations) if an *IDO Wiring Manager* license is present on the users PC.

## Wiring Manager

Handles all tasks typically carried out by an instrument designer related to detail cable, wiring and termination design. This includes definition of equipment terminal arrangements (field devices, junction boxes, marshalling cabinet and panel devices such as relays, IS barriers & I/O modules), cable creation and termination, cross-patch wiring etc., Generation of Cable Schedules and cable, cable gland and cable gland adapter report/Bill of Materials, cable drum schedules, cable block diagrams etc.

This module enables you to create termination reports without requiring CAD drawings as seen in the Non-CAD termination reports that follow.

Instrument Datasheet										CONTROL VALVE									
1	Tag No.		80-PV-1305							P&ID No.			A1-10389						
2	Service		FUEL GAS TO REBOILER 80-H190							Line Number			150-HC-11685-AC1						
<b>PROCESS CONDITIONS</b>																			
Fluid Name		FUEL GAS							Design Conditions										
Fluid Nature		Fluid State		-			Vapour		Design Temp.		Min	Max	0 °C		110 °C				
<b>Operating Conditions</b>		<b>Min Flow</b>		<b>Norm Flow</b>		<b>Max Flow</b>		Design Press.		Min	Max	0 kPag		3100 kPa-g					
Liquid Flow Rate		-		-		-		Critical Temp.		-			Critical Press.		-				
Vapour Flow Rate		6481 Sm3/hr		-		17055 Sm3/hr		Vapour S.G @ 15 °C											
Inlet Pressure		2460 kPa-g		-		2440 kPa-g		Flashing/Cavitation/Choked											
Pressure Drop		85 kPa		-		45 kPa		delta P @ Shut Off											
Inlet Temperature		85 °C		-		85 °C		Hazardous Area Classification											
Liquid Vapour Pressure		-		-		-		Allowable Noise SPL											
Liquid Density		-		-		-		Ingress Protection Rating											
Liquid Viscosity		-		-		-		Test & Certification											
Vapour Molecular Weight		8.22		-		8.22		Sizing Considerations											
Vapour Compress. Factor, Z		1		-		1		Material Selection											
Vapour Ratio of Specific Heats		1.29		-		1.29		NACE Certification											
Cv Calculated		34.472		-		126.153		Serial Number											
Valve Opening		20 %		-		75 %													
Noise: Calculated SPL		60.2 dBA		-		64.6 dBA													
<b>VALVE BODY</b>																			
Line Size & Sch		Inlet	Outlet	DN 150 Sch 40			DN 150 Sch 40			Bonnet Type			Plain						
Insulation/Jacket		None							Body Material			CS to ASTM A216 Gr WCC							
Valve Type		Globe							Bonnet Material			Same as Body							
Selected:		Body Size		Rated Cv		DN 80		148		Packing Type & Material			ENVIRO PTFEC						
End Connections Type & Rating		ASME CI 300 RF							Body Bolting		Bolts	Nuts	ASTM A193 Gr B7		ASTM A194Gr2H(Black)				
Flange Finish		3.2 to 6.3 µmRa							Lub & Isol Valve / Lube			Not Required							
									Flow Direction			Flow Down							
<b>TRIM</b>																			
Type		Size		Metal 1			3-7/16 Inch			Plug/Ball/Disk Material			416SS HD						
Characteristic		Rated Travel		Linear			1-1/2 Inch			Seat Material			416SS Metal						
Style (Balanced / Unbalanced)		Balanced							Material: Cage/Guide			17-4PH							
FL		XT		0.819		0.649		Material: Shaft/Stem			316 SS								
No. of Seats		1							Leakage Class			ANSI Class IV							
<b>ACTUATOR</b>																			
Type		Spring Diaphragm							Actuator Orientation			Standard							
Actuator		Size	Area	45		-		Handwheel			Not Required								
Valve Action on Air Supply Failure		Valve Closes on Air Failure							Volume Tank			Not Required							
Bench Range		14-30 psig							Other			-							
<b>ACCESSORIES</b>																			
Positioner: Type		Smart Digital 4-20mA with HART							Air Set:		Model	Set Pr	Fisher FS67CFR-362		250 kPa-g				
Positioner:		Action	Charac'	Direct			-			Lock Up/Quick Exhaust			Not Required						
Positioner:		Gauges	Bypass	Supply, Output		Not Required		Solenoid Valve		Type	Voltage	Not Required		N/A					
Cable Entries		M20 for all Electronic Enclosures							Limit Switches: Type			Not Required							
I/P Transducer: Signal Input		Integral: 4-20mA from Control System							Limit Switches: Open		Close	N/A		N/A					
Air Supply		Range	Conn	230 to 275 kPa-g		1/4"NPT F		Split Range Operation			Not Required								
<b>MANUFACTURER &amp; MODEL</b>																			
Item		Tag		Manufacturer		Model		Ex Cert.		Ex Authority		Certificate No		CertExpiry		Local Approval			
Valve		52PV344A		Fisher		3" ET													
Actuator		-		Fisher		667													
Positioner		-		Fisher		DVC6010,AD		Ex'ia, IIC, T4		SAA		Aus Ex 3725X		09/08/2011		Not Required			
Solenoid Valve		None		-		-		-		-		-		-		-			
Limit Switch		-		-		-		-		-		-		-		-			
<b>NOTES</b>	1. VTA -Vendor to advise. Vendor to size valve & actuator for specified conditions. All pressure retaining components to be suitable for design conditions.																		
	2. Wetted metals to be a minimum of 316SS. Wetted non-metals to be suitable for specified design conditions. Vendor to advise all wetted materials.																		
	3. Non-wetted materials to be suitable for a petrochemical facility in a coastal environment. Vendor to advise nature of protective coating for all exposed metals.																		
	4. Tube & fittings to be 316 Stainless Steel. Compression fittings shall be Bilok.																		
	5. Vendor to provide a permanently fixed SS tag plate.																		
Site:		Tasmania		Control No:		N/A		Req:		REQ-6732-045		P.O.		N/A		OZ OIL COMPANY LTD			
		Rev	By	Date		Description				Chkd	Appd	Plant 80		Train 2					
		A	GRH	10/09/05		For Client Review & Squad Check				SDH	MAC	<b>INSTRUMENT DATA SHEET</b> <b>80-PV-1305</b>							
		B	GRH	30/09/05		Issued for Tender				SDH	MAC								
												Index	Size	Document No	Sht No	Rev			
												7	A4	780-3561	1	B			

Instrument Datasheet			DIFFERENTIAL PRESSURE INSTRUMENT							
1	<b>Tag No.</b>		<b>15-PT-110</b>				<b>15-PT-210</b>			
2	Service		P-1585A LUBE				P-1585B LUBE			
3	P&ID No:		15-1902				15-1903			
4	Line or Equipment		P-1585A				P-1585B			
5	Measurement Type		Differential Pressure				Differential Pressure			
6	Area Classification		Zone 2 & 22 , Gr IIA, T3				Zone 2 & 22, Gr IIA, T3			
<b>PROCESS CONDITIONS</b>										
8	Fluid	State	Lube Oil	Liquid	Lube Oil	Liquid				
9	Diff. Pressure (bar)	Oper	Max	2.5	10.0	2.5	10.0			
10	Temperature (°C):	Oper	Max	50	100	50	100			
11	Oper. Spec Gravity	Oper. Viscosity								
<b>TRANSMITTER</b>										
14	Instrument Range	Min.	Max.	0 Bar	7 Bar	0 Bar	7 Bar			
15	Calibration Range	Min.	Max.	0 Bar	2.5 Bar	0 Bar	2.5 Bar			
16	Elevation	Supression		N/A	N/A	N/A	N/A			
17	Element Type		Diaphragm				Diaphragm			
18	Element Material		316L SS				316L SS			
19	Body Material	Body Rating		316 SS	210 bar	316 SS	210 bar			
20	Process Flanges Material		316 SS				316 SS			
21	Wetted O-Rings Material		Glass Filled PTFE				Glass Filled PTFE			
22	Fill Fluid		Silicone DC 200 Oil				Silicone DC 200 Oil			
23	Bolts	Housing		A286 SS	Low Cu Alum.	A286 SS	Low Cu Alum.			
24	Paint		Epoxy or similar(Note 4)				Epoxy or similar(Note 4)			
25	Connection	Process	Elec.	1/4" NPTF	1/2" NPTF	1/4" NPTF	1/2" NPTF			
26	Ingression Prot.	Accuracy		IP 66	0.1% of span	IP 66	0.1% of span			
<b>DIAPHRAGM SEAL</b>										
28	Process Connection		N/A				N/A			
29	Rating									
30	Diaphragm Material									
31	Housing Material	Upper	Lower							
32	Fill Fluid									
33	Capillary Material									
34	Capillary Type	Capillary Length								
35	Flushing Connection									
<b>OPTIONS</b>										
38	Integral LCD Meter		Required				Required			
39	Integral Meter Scale		0 - 2.5 Bar				0 - 2.5 Bar			
40	Hydrostatic Testing		Required				Required			
41	Cleaning		Not Required				Not Required			
42	Calibration		Required				Required			
43	Certification		Materials, Testing, Calibration				Materials, Testing, Calibration			
44	Power Supply/From	VDC	2 Wire 24V / DCS				2 Wire 24V / DCS			
45	Output Signal/SMART	mA	DE Output / Yes (Note 6)				DE Output / Yes (Note 6)			
46	Device Ex Rating		Ex ia (Note 1) (Note 3)				Ex ia (Note 1) (Note 3)			
47	Hazardous Area Certification		Compliant to AS2340				Compliant to AS2340			
48	Certification Agency		SAA (Note 1)				SAA (Note 1)			
49	Mounting		By Others (Note 5)				By Others (Note 5)			
50	Other		Note 2				Note 2			
<b>MANUFACTURER &amp; MODEL</b>										
53	Manufacturer		-00000-SM,CC,TC,CR,TG,F1,F3,-				-00000-SM,CC,TC,CR,TG,F1,F3,-			
54	Model									
55										

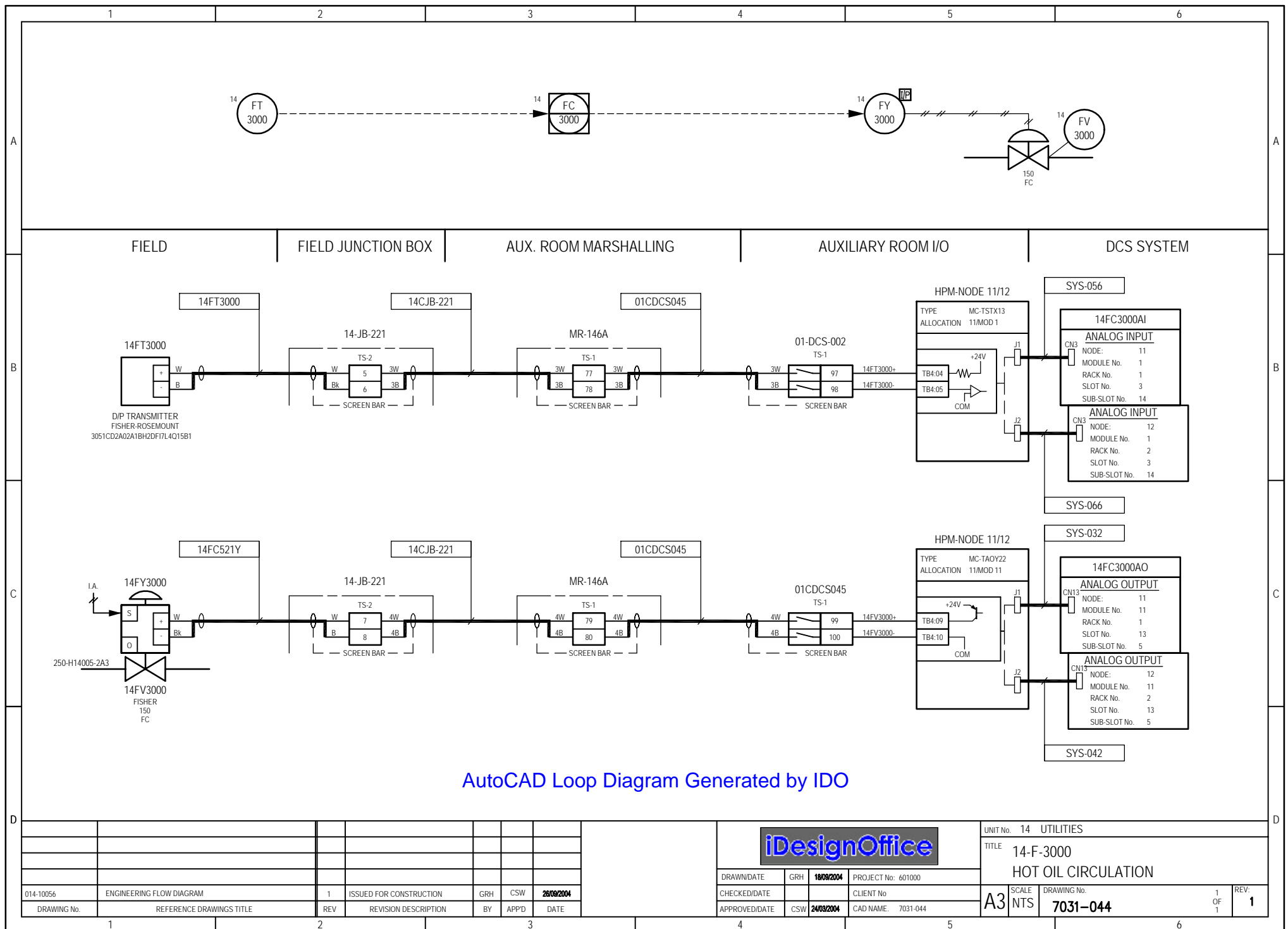
NOTES:

1. Device has SAA Ex ia IIC T4 (Tamb=93Deg.C) IP66, Cert. No.: AUS Ex 1371X (Date of Expiry: 6/5/2012).
2. Provide a stainless steel tagplate permanently fixed to sensor and electronics module
3. SAA-Standards Australia, IEC-International Electrochemical Commission, LONO-Letter Of No Objection, OCEIV- Office of the Chief Electrical Inspector(VIC).
4. All painting and coating shall be suitable for use in a coastal environment for a petrochemical facility.
5. Mounting by Anderson & Greenwood Instrument Manifold, supplied by others.
6. Smart Tx required. Digitally Enhanced (DE) Output Protocol to be configured.

MESOC:						Oz Oil Company, Pacific Coast			Project No:	6790
		<b>Rev</b>	<b>By</b>	<b>Date</b>	<b>Description</b>	<b>Chkd</b>	<b>Appd</b>	<b>Datasheet No</b>		
		A	GRH	1/09/2004	FOR TENDER	ME	ABC	<b>15-72-034</b>		
		0	GRH	22/09/2004	FOR PURCHASE	ME	ABC			
								<b>SHEET</b>	1	<b>Rev</b>
								Of	1	<b>0</b>

# Instrument Index

Tag No	Description	P&ID	Plant Connection	Manufacturer	ModelNo	Location
<b>Loop No: L-1023      Service: T-1020 SLUG CATCHER</b>						
LIC-1023A	PCS CONTROLLER	DWG-01-BP-1003	*	*	*	PCS
LIC-1023B	PCS CONTROLLER	DWG-01-BP-1003	*	*	*	PCS
LT-1023	DP FB LVL TRANS. HP&LP SEALS	DWG-01-BP-1003	T-1020	YOKOGAWA	EJA110A-FMS5B-99DB/KS25/X1/N4/N5/M01/T12+Z911	Field
LV-1023A	CONTROL VALVE	DWG-01-BP-1003	150-PL-1020-EA3N	FLOWSERVE-VALTEK	Mark One	Field
LV-1023B	CONTROL VALVE	DWG-01-BP-1002	100-PF-1014-EA3X	FLOWSERVE-VALTEK	Mark One	Field
LY-1023A	I/P CONVERTER	DWG-01-BP-1003	150-PL-1020-EA3N	*	*	On valve
LY-1023B	I/P CONVERTER	DWG-01-BP-1002	100-PF-1014-EA3X	*	*	On valve
<b>Loop No: L-1024      Service: T-1020 SLUG CATCHER</b>						
LAHH-1024	SIS ALARM	DWG-01-BP-1003	*	*	*	SIS
LALL-1024	SIS ALARM	DWG-01-BP-1003	*	*	*	SIS
LG-1024	MAG FOLLOWER LEVEL GAUGE	DWG-01-BP-1003	T-1020	VTA	VTA	Field
LZT-1024	MAG ANA LVL TRANS.	DWG-01-BP-1003	T-1020	K-TEK	KM26S/SS6/W9F1F1D9/WJ215/WJ715/115/CM1A/C/ILT/5200 mm	Field
<b>Loop No: L-1045      Service: C-1030 INLET SEPARATOR</b>						
LAHH-1045	SIS ALARM	DWG-01-BP-1004	*	*	*	SIS
LALL-1045	SIS ALARM	DWG-01-BP-1004	*	*	*	SIS
LG-1045	MAG FOLLOWER LEVEL GAUGE	DWG-01-BP-1004	C-1030	VTA	VTA	Field
LZT-1045	MAG ANA LVL TRANS.	DWG-01-BP-1004	C-1030	K-TEK	KM26S/SS6/W9FEFED9/WR26/WR76/CM1A/C/IL1/ET/1420 mm	Field
<b>Loop No: L-1046      Service: C-1030 INLET SEPARATOR</b>						
LIC-1046	PCS CONTROLLER	DWG-01-BP-1004	*	*	*	PCS
LT-1046	DP FB LVL TRANS. HP&LP SEALS	DWG-01-BP-1004	C-1030	YOKOGAWA	EJA110A-FMS5B-99DB/KS25/X1/N4/N5/M01/T12+Z911	Field
LV-1046	CONTROL VALVE	DWG-01-BP-1004	150-PL-1029-DA3N	FLOWSERVE-VALTEK	MaxFlo	Field
LY-1046	I/P CONVERTER	DWG-01-BP-1004	150-PL-1029-DA3N	*	*	On valve
<b>Loop No: L-1061      Service: C-1040 STABILISER FEED SURGE DRUM DRAIN</b>						
LG-1061	MAG FOLLOWER LEVEL GAUGE	DWG-01-BP-1005	C-1040	VTA	VTA	Field
LIC-1061	PCS CONTROLLER	DWG-01-BP-1005	*	*	*	PCS

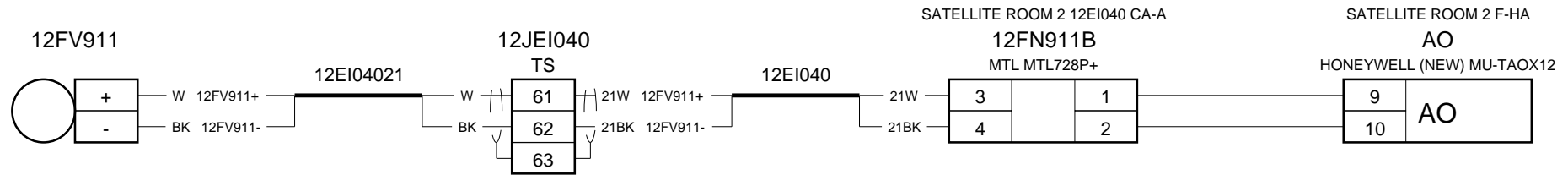
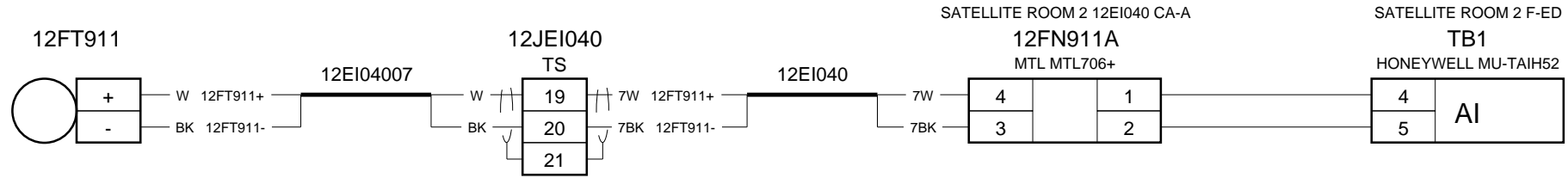


AutoCAD Loop Diagram Generated by IDO

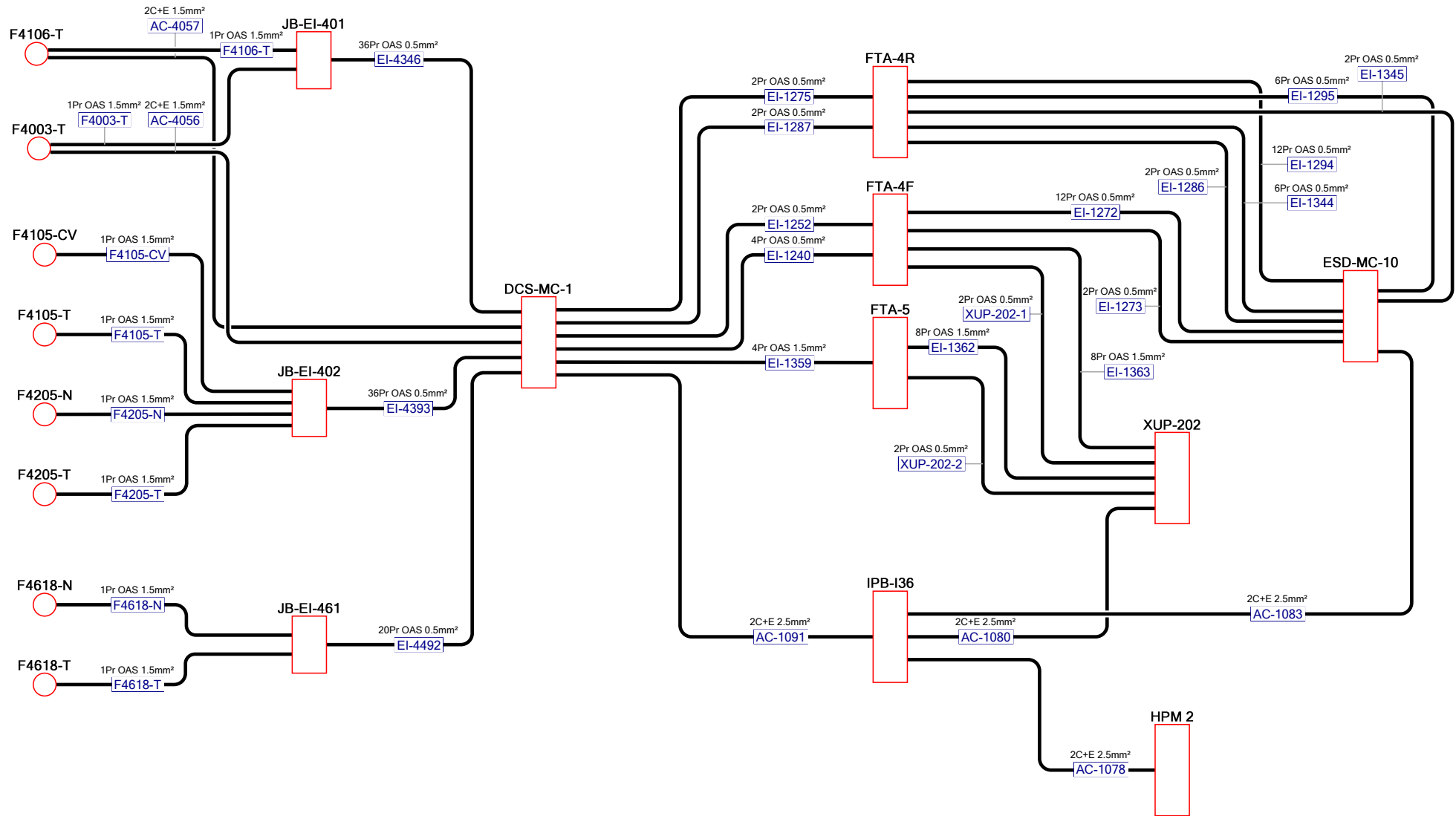


					UNIT No. 14 UTILITIES	
					TITLE 14-F-3000	
					HOT OIL CIRCULATION	
014-10056	ENGINEERING FLOW DIAGRAM	1	ISSUED FOR CONSTRUCTION	GRH	CSW	28/09/2004
DRAWING No.	REFERENCE DRAWINGS TITLE	REV	REVISION DESCRIPTION	BY	APPD	DATE
					SCALE DRAWING No. 1 OF 1	
					A3 NTS 7031-044	
					REV: 1	

Loop No: 12F911    Service: CDHYDRO O'HEAD TO FCC



Non-CAD Loop Check Report Generated by IDO

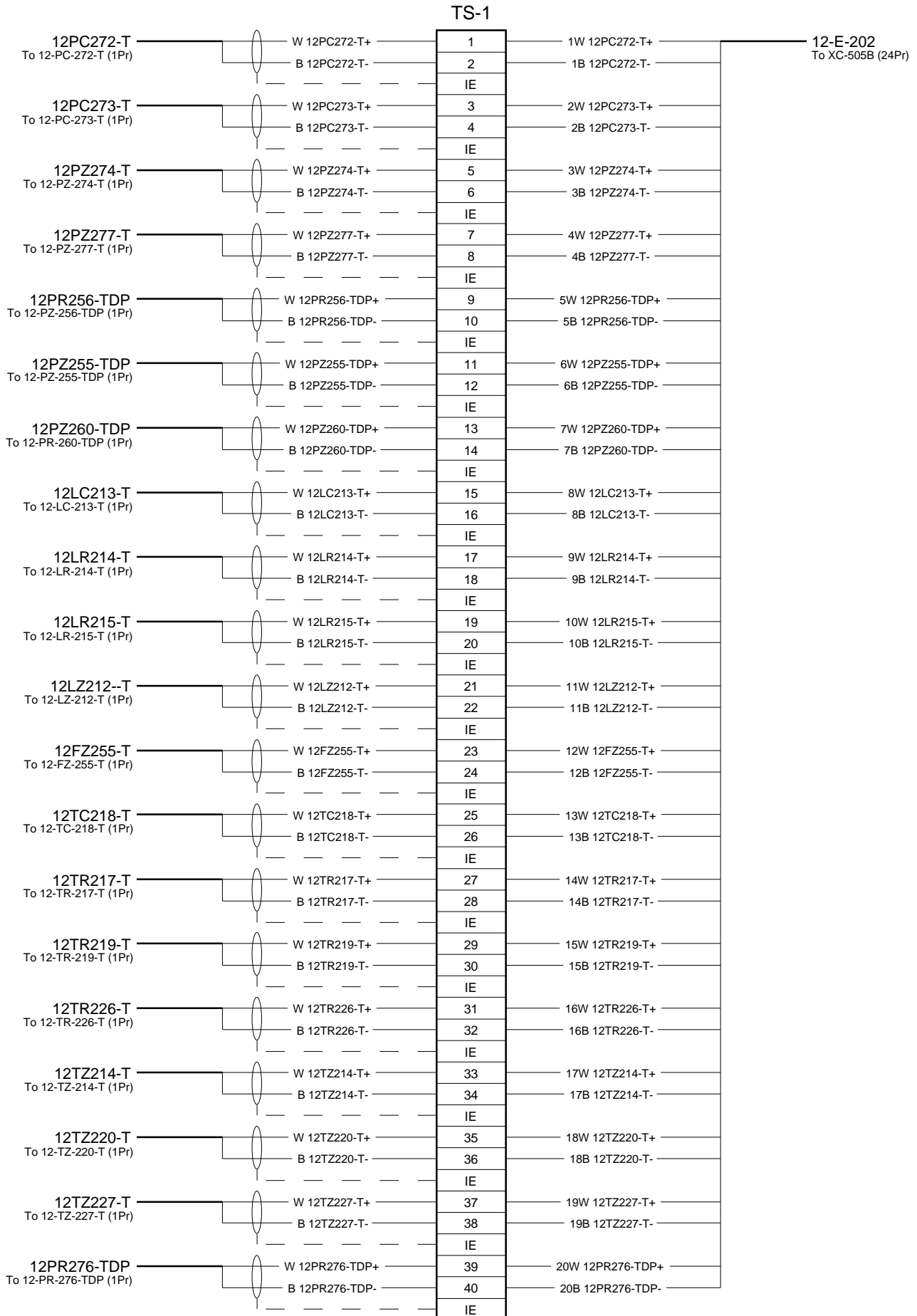


Non-CAD Cable Block Diagram created with IDO

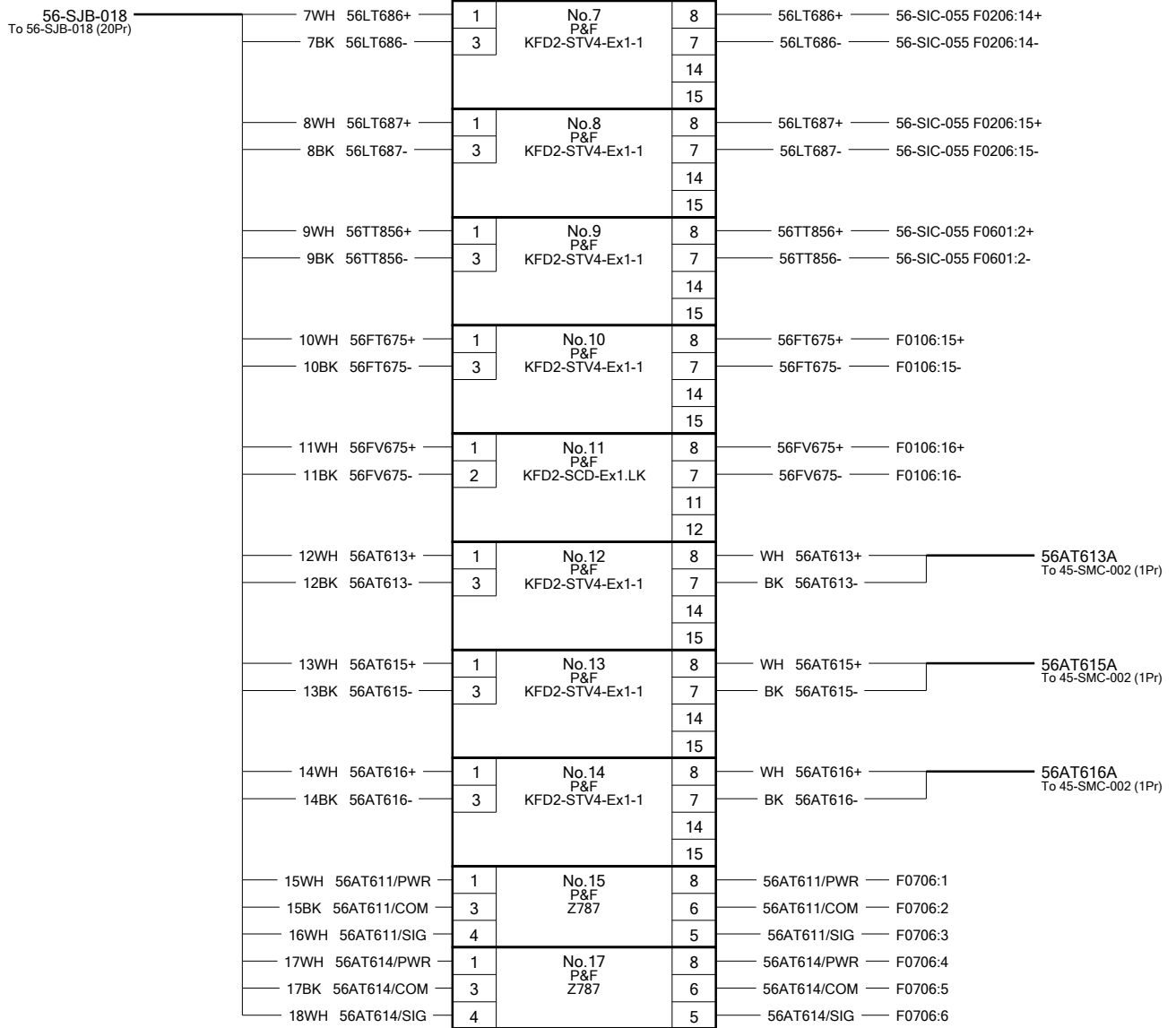
# Cable Schedule

Cable No	From	To	Length	Cores	Size	OAS	GS	Description	Status
09-SJB-024	09-SJB-024	09-SIC-67	110	20Pr	0.5mm <sup>2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PE/OASCN/LAS/SWA/PVC-Blue	New
56-IRB-02/1	56-IRB-02	56-SIC-156	150	20Pr	0.5mm <sup>2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PE/OASCN/LAS/SWA/PVC-Blue	New
56-IRB-02/2	56-IRB-02	56-SIC-156	150	20Pr	0.5mm <sup>2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PE/OASCN/LAS/SWA/PVC-Blue	New
56-IRB-02/3	56-IRB-02	56-SIC-157	150	20Pr	0.5mm <sup>2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PE/OASCN/LAS/SWA/PVC-Blue	New
56-IRB-03	56-IRB-03	56-SIC-157	150	20Pr	0.5mm <sup>2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PE/OASCN/LAS/SWA/PVC-Blue	New
56-LCP-600AX/1	56-LCP-600AX	56-SIC-157	150	20Pr	0.5mm <sup>2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PE/OASCN/LAS/SWA/PVC-Blue	New
56-LCP-600AX/2	56-LCP-600AX	56-SIC-157	150	20Pr	0.5mm <sup>2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PE/OASCN/LAS/SWA/PVC-Blue	New
56-LCP-600BX/1	56-LCP-600BX	56-SIC-157	150	20Pr	0.5mm <sup>2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PE/OASCN/LAS/SWA/PVC-Blue	New
56-LCP-600BX/2	56-LCP-600BX	56-SIC-157	150	20Pr	0.5mm <sup>2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PE/OASCN/LAS/SWA/PVC-Blue	New
56-LCP-600CX/1	56-LCP-600CX	56-SIC-157	150	20Pr	0.5mm <sup>2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PE/OASCN/LAS/SWA/PVC-Blue	New
56-LCP-600CX/2	56-LCP-600CX	56-SIC-157	150	20Pr	0.5mm <sup>2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PE/OASCN/LAS/SWA/PVC-Blue	New
56-SJB-002	56-SJB-002	56-SIC-055	130	20Pr	0.5mm <sup>2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PE/OASCN/LAS/SWA/PVC-Blue	Existing
56-SJB-003	56-SJB-003	56-SIC-055	100	20Pr	0.5mm <sup>2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PE/OASCN/LAS/SWA/PVC-Blue	Existing
56-SJB-004	56-SJB-004	56-SIC-055	100	20Pr	0.5mm <sup>2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PE/OASCN/LAS/SWA/PVC-Blue	Existing
56-SJB-005	56-SJB-005	56-SIC-055	120	20Pr	0.5mm <sup>2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PE/OASCN/LAS/SWA/PVC-Blue	Existing
56-SJB-006	56-SJB-006	56-SIC-055	120	20Pr	0.5mm <sup>2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PE/OASCN/LAS/SWA/PVC-Blue	Existing
56-SJB-007	56-SJB-007	56-SIC-055	130	20Pr	0.5mm <sup>2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PE/OASCN/LAS/SWA/PVC-Blue	Existing
56-SJB-018	56-SJB-018	56-SIC-056	80	20Pr	0.5mm <sup>2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PE/OASCN/LAS/SWA/PVC-Blue	Existing
56-SJB-021	56-SJB-021	56-SIC-056	130	20Pr	0.5mm <sup>2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PE/OASCN/LAS/SWA/PVC-Blue	Existing
56-SJB-023	56-SJB-023	56-SIC-156	150	20Pr	0.5mm <sup>2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PE/OASCN/LAS/SWA/PVC-Blue	New
56-SJB-024	56-SJB-024	56-SIC-156	180	20Pr	0.5mm <sup>2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PE/OASCN/LAS/SWA/PVC-Blue	New
56-SJB-025	56-SJB-025	56-SIC-156	150	20Pr	0.5mm <sup>2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PE/OASCN/LAS/SWA/PVC-Blue	New
56-SJB-026	56-SJB-026	56-SIC-156	170	20Pr	0.5mm <sup>2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PE/OASCN/LAS/SWA/PVC-Blue	New
56-SJB-031	56-SJB-031	56-AIC-01	110	20Tr	0.5mm <sup>2</sup>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	PE/IOASCN/LAS/SWA/PVC-Blue	New
56-SJB-032	56-SJB-032	56-SIC-157	100	20Pr	0.5mm <sup>2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PE/OASCN/LAS/SWA/PVC-Blue	New
56-SJB-033	56-SJB-033	56-SIC-156	130	20Pr	0.5mm <sup>2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PE/OASCN/LAS/SWA/PVC-Blue	New

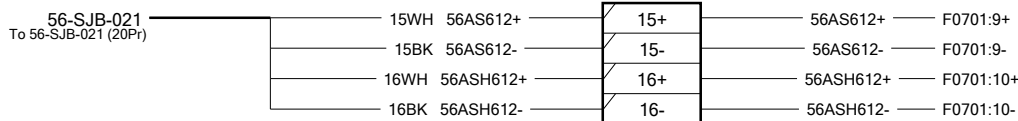
**Junction Box: JB-12-E-202**



F0403



F0404



Non-CAD Termination Report Generated by IDO

REV	DATE	DESCRIPTION	BY	CHKD	APPD	ENGR
A	9/06/2005	Issued For Construction	GRH	MAC	WS	

56-SIC-056 TERMINATION REPORT		
25405	45-70123	A
PROJECT No:	DOCUMENT No	REV

Temperature Junction Box (1501-2): JB-15-EI-202

TS-1

