Amman Strategic Reserve Terminal for Petroleum Products

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		OMJ DOCUMENT			ILF COMMENT SHEET				
		No.	OMJ-DAT-SRT-ME-003		No. SRT-OMJ-DC		OCS-0471-A		
		Rev.	1		Date	22.05.2015			
		Status	\boxtimes	A: Approved			(APP)		
				B: Approved			(AAN)		
				D: For Inform	nation		(INF)		
2	08/06/2015	Comments from client incorpo	prated	CLOB	MAPM	PBB	IGC		
1	20/04/2015	Comments from client incorpo	orated	CLOB	MAPM	PBB	IGC		
0	17/12/2014	Approved for Construction	CLOB	MAPM	PBB	IGC			
В	03/10/2014	Issued for Review		CLOB	MAPM	PBB	IGC		
Rev.	Date	Issue Purpose / Descript	ion	Prepared	Checked	Approved	Accepted		
Client MINISTRY OF ENERGY & MINERAL RESOURCES		THE HASHEMITE KINGDOM OF JORDAN MINISTRY OF ENERGY AND MINERAL RESOURCES							
Owner's Engineer		Document Title							
CONSULTING		SPHERES-LPG PRESSURE VESSELS SRT-V-25-01/02/03/04/ PRELIMINARY DATA SHEET				3/04/05-			
OHL Industrial CONTROL AND AND VANDAGE FOR A ASSETS PROJECT A ADMINIA, Juridan		Contractor's Doc. No.		Official Docume	ent Number		Rev. Code		
		P40341-EE-111-ME-HE-00G001	ОМ	J-DAT-SR	T-ME-000	3	2		

Employer:	EPCC Contractor:			Consultant:	
	OHLI - M	OHL Industrial MID CONTRACTING MID CONTRACTING MID CONTRACTING		CONSUI	
Ministry Of Energy & Mineral Resources	Project Title:	Amman Strategic Reserve Terminal for Petroleum Products (ASTPP)		ENGIN	EERS
	Document Title:	SPHERES-LPG PRESSURE VESS 01 / 02 / 03 / 04 / 05-PRELIMINARY			
	Document Number:	OMJ-DAT-SRT-ME-0003			
	Revision Code:	2		Page:	1 of 4
PLANT LOCATION	AMMAN - JORDAI	N	QUANTITY	5	
ITEM N°	SRT-V-25-01 / 02	SRT-V-25-01 / 02 / 03 / 04 / 05 UNIT		-	
SERVICE	LPG storage	P&ID №		OMJ-DIA-SRT-PR-0033 to 0037	
Codes, Regulations and Spe	ecifications				
DESIGN CODE		ASME VIII DIV 2 ED 2013			
GENERAL SPECIFICATION		OMJ-SPC-SRT-ME-001			
		T	_	_	
Fluid Process Data		Units		ata	REV
FLUID NAME		 -		PG	
FLUID PHASE SPECIFIC GRAVITY AT 15°C	`	<u> </u>		QUID	
		-		0,49-0,581	
DENSITY AT OPERATING TI CORROSIVE / EROSIVE DUI		kg/m3	.	490-581 CAUSTIC WATER WITH H2S CONTENT (Note 1)	
HAZARDOUS DUE TO	E IU	<u>-</u>	CAUSTIC WATER WITH	H2S CONTENT (NOTE I)	
HAZARDOUS DUE 10		-			
Operating Conditions					
OPERATING TEMPERATUR	E	°C	(38	
OPERATING PRESSURE		barg	8	3,2	0
Design Conditions					
DESIGN TEMPERATURE (M	AX / MIN)	°c	60	60 / -20	
DESIGN PRESSURE (INT / E		barg		/ FV	0
220.0	,	Zaig		,	<u> </u>
Vessel Characteristics					
EQUIPMENT LOCATION (Inc	door/Outdoor)		Outdoor. A	boveground	
TYPE OF OPERATION			Cont	inuous	
VESSEL APPLICATION			Storage / Pro	essure Vessel	
VESSEL ORIENTATION			Sp	here	
VESSEL SERVICE				PG	0
INTERNAL DIAMETER		m		9,3	
NET VOLUME		m3		3387	
GROSS VOLUMNE		m3		3764	
LLLL		% Vol	10 % (Heigh LLLL= 3,779 Meters)		
HH LL		% Vol	90 % (Heihg HH	90 % (Heihg HHLL= 15,52 meters)	
LLL		-		-	0
HLL		-		-	
POT DIAMETER		m	1	I/A	
HOLD UP TIME				-	
INLET NOZZLE OR DISTRIE	BUTOR TYPE			e, 6 and 7	0
MATERIAL	AND ALL COURTS		SA 516 Gr70 N (See Note 3)		
CORROSION ALLOWANCE / FORM	MING ALLOWANCE	mm	1,5 / 0.5		
INSULATION TYPE				ONE	
HEAT TRACED (ELECTRICAL / ST	EAM / HOT OIL)			ONE	
LINING (INTERNAL)		mm	See r	note 16	

GENERAL NOTES:

- a) Thicknesses : Sphere divided on 4 sectors (See sketch page 3). PARESA to check sectors and thicknesses
- b) Design Wind Velocity : 160 Km/h (50-yr. wind speed 3-sec. Gust); I=1.15; qs=1.2 kPa, according to UBC-97 Div III
- c) Seismic Design to be in accordance with Jordanian Seismic Code; zone 2A, seismic acceleration Z=0.15g;soil profile SC;l=1.5;R=2.2; Ca=0.18;Cv=0-.25
- d) Estimated empty weight: 525 Tn for thicknesses given on note 3. PARESA to check thicknesses taking into account internal pressure / full vacuum / wind loads and seismic loads
- e) Safety factor shall be according to the code for materials, design, manufacturing and inspection
- f) Inspection: 100% ultrasonic PA or TOFD method. 100 % WFMT . 100% Hardness test.
- g) Following accesories are required: Satirways, platform and handrails; earthings clips; pipe support clips for water spray system and for process pipe

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2			OHL MID	1		_						
			Industrial MID CONTRACTING	G	l Hi	13						
		OHL	OHLI - MID Joint Venture for ASTPP Project - Amman, Jordan			CONSULTING						
MINISTRY OF ENERGY	& MINERAL RESOURCES					NEERS						
		Project Title:	Amman Strategic Reserve Terminal for									
Document Title: Document Number:		Petroleum Products (ASTPP) SPHERES-LPG PRESSURE VESSELS SRT-V-25- 01 / 02 / 03 / 04 / 05-PRELIMINARY DATA SHEET OMJ-DAT-SRT-ME-0003		1								
				Page: 2 of 4								
						Revision			<u> </u>		-	
						PLANT LOCATION AMMAN - JORD		AMMAN - JORDAN	QUANTIT		5	
TEM N°		SRT-V-25-01 / 02 /	03 / 04 / 05 UNIT		-							
SERVICE		LPG storage	P&ID N°		OMJ-DIA-SRT-PR-0033 to 00							
Accessories	and Specific	Requirements S	cope		L	REV						
SAFETY / RELI		, 4	By Others (design by PARESA)	Not	te 14							
	E SENSOR (A	TG SYSTEM)	Instrument by Others. Thermowel by PARESA		te 11							
	MITTER (ATG		Instrument by Others. Still pipe by PARESA	Not	te 10							
		ATG SYSTEM)	By Others									
EVEL SWITCI	HES		By Others									
PRESSURE SV	VITCHES		By Others									
THERMOMETE	R		By Others									
VACUUM BREA			N/A									
MPINGEMENT	PLATE		N/A									
SPARGER			,		ite 4							
MIST MESH PAD			N/A									
	VANE PAD		N/A									
FI IMINATOR	=											
FI IMINATOR	MULTICYCLON		N/A									
ELIMINATOR TYPE:	COALESCING P		N/A									
ELIMINATOR TYPE:	COALESCING P	AD	N/A By PARESA	DNS								
ELIMINATOR TYPE: VORTEX BREA	COALESCING P	AD S	N/A By PARESA HELL NOZZLES AND CONNECTION	1	Rating / Face							
ELIMINATOR TYPE: VORTEX BREA	COALESCING P	AD	N/A By PARESA	DNS Size 10"	Rating / Face	Note 6						
ELIMINATOR TYPE: VORTEX BREA Service LPG inlet	COALESCING P	AD S Item	N/A By PARESA HELL NOZZLES AND CONNECTION Quantity	Size	300 # / RF	Note 6 Note 7						
ELIMINATOR TYPE: VORTEX BREA Service LPG inlet LPG inlet	COALESCING P	AD S Item N1	N/A By PARESA HELL NOZZLES AND CONNECTION Quantity 1	Size 10"								
ELIMINATOR TYPE: VORTEX BREA Service LPG inlet LPG inlet LPG outlet	COALESCING P AKER	S Item N1 N2	N/A By PARESA HELL NOZZLES AND CONNECTION Quantity 1 1	10" 4"	300 # / RF 300 # / RF	Note 7 Note 8						
CHIMINATOR ITYPE: //ORTEX BREA Service _PG inlet _PG inlet _PG outlet Change over variations.	COALESCING PAKER	AD S Item N1 N2 N3	N/A By PARESA SHELL NOZZLES AND CONNECTION Quantity 1 1 1	Size 10" 4" 12"	300 # / RF 300 # / RF 300 # / RF 300 # / RF	Note 7 Note 8						
Service LPG inlet LPG outlet LPG over value transmitte Low Low level s	COALESCING PAKER alve er switch	S Item N1 N2 N3 N4	N/A By PARESA SHELL NOZZLES AND CONNECTION Quantity 1 1 1 1 1	Size 10" 4" 12" 8" (by PARESA) Nozzle 6" / Pipe 4" 3"	300 # / RF 300 # / RF 300 # / RF 300 # / RF	Note 7 Note 8 Note 5 and 9						
Service LPG inlet LPG outlet Change over valuevel transmitte Low Low level selected.	COALESCING PAKER alve er switch switch	N1 N2 N3 N4 N5	N/A By PARESA HELL NOZZLES AND CONNECTION Quantity 1 1 1 1 1 1	Size 10" 4" 12" 8" (by PARESA) Nozzle 6" / Pipe 4" 3" 3"	300 # / RF 300 # / RF	Note 7 Note 8 Note 5 and 9						
CORTEX BREA Service PG inlet PG outlet Change over valuevel transmitte Low Low level seligh high level Japour balancii	COALESCING PAKER alve er switch switch	N1 N2 N3 N4 N5 N6 A/B N7 A/B/C N8	N/A By PARESA CHELL NOZZLES AND CONNECTION Quantity 1 1 1 1 1 2 3 1	Size 10" 4" 12" 8" (by PARESA) Nozzle 6" / Pipe 4" 3" 4"	300 # / RF 300 # / RF	Note 7 Note 8 Note 5 and 9						
Service LPG inlet LPG outlet Change over valuevel transmitte Low Low level service Vapour balancie Nitrogen	COALESCING PAKER Alve er switch switch ng line	N1 N2 N3 N4 N5 N6 A/B N7 A/B/C N8 N9A/B	N/A By PARESA CHELL NOZZLES AND CONNECTION Quantity 1 1 1 1 1 2 3 1 2	Size 10" 4" 12" 8" (by PARESA) Nozzle 6" / Pipe 4" 3" 4" 2"	300 # / RF 300 # / RF	Note 7 Note 8 Note 5 and 9 Note 10						
CORTEX BREA Service LPG inlet LPG outlet Change over valuevel transmitte Low Low level s High high level Vapour balancie Nitrogen Multispot tempe	COALESCING PAKER Salve er switch switch ng line erature sensor	N1 N2 N3 N4 N5 N6 A/B N7 A/B/C N8 N9A/B N10	N/A By PARESA CHELL NOZZLES AND CONNECTION Quantity 1 1 1 1 1 2 3 1 2 1	Size 10" 4" 12" 8" (by PARESA) Nozzle 6" / Pipe 4" 3" 4" 2" Nozzle 3" / Pipe 2"	300 # / RF 300 # / RF	Note 7 Note 8 Note 5 and 9						
CORTEX BREA Service LPG inlet LPG outlet Change over valuevel transmitte Low Low level s High high level Vapour balancie Nitrogen Multispot tempe Pressure transm	COALESCING PAKER Salve er switch switch ng line erature sensor	N1 N2 N3 N4 N5 N6 A/B N7 A/B/C N8 N9A/B N10 N11A/B	N/A By PARESA CHELL NOZZLES AND CONNECTION Quantity 1 1 1 1 1 2 3 1 2 1 2	Size 10" 4" 12" 8" (by PARESA) Nozzle 6" / Pipe 4" 3" 4" 2" Nozzle 3" / Pipe 2"	300 # / RF 300 # / RF	Note 7 Note 8 Note 5 and 9 Note 10						
Service LPG inlet LPG outlet Change over valuevel transmitte Low Low level solding level Vapour balancie Nitrogen Multispot tempe Pressure transm Water draw off	COALESCING PAKER Salve er switch switch ng line erature sensor	N1 N2 N3 N4 N5 N6 A/B N7 A/B/C N8 N9A/B N10 N11A/B N12	N/A By PARESA CHELL NOZZLES AND CONNECTION Quantity 1 1 1 1 1 2 3 1 2 1 2 1 1 2 1 1 2 1 1 1 2 1 1 1 1	Size 10" 4" 12" 8" (by PARESA) Nozzle 6" / Pipe 4" 3" 3" 4" 2" Nozzle 3" / Pipe 2" 2" 4"	300 # / RF 300 # / RF	Note 7 Note 8 Note 5 and 9 Note 10						
Service LPG inlet LPG outlet Change over va Level transmitte Low Low level s High high level Vapour balancie Witrogen Multispot tempe Pressure transr Water draw off Safety relief dev	COALESCING PAKER Salve er switch switch ng line erature sensor nitter	N1 N2 N3 N4 N5 N6 A/B N7 A/B/C N8 N9A/B N10 N11A/B N12 N13	N/A By PARESA CHELL NOZZLES AND CONNECTION Quantity 1 1 1 1 1 2 3 1 2 1 2 1 1 2 1 1 1 1 1	Size 10" 4" 12" 8" (by PARESA) Nozzle 6" / Pipe 4" 3" 3" 4" 2" Nozzle 3" / Pipe 2" 2" 4" 4" (by PARESA)	300 # / RF 300 # / RF	Note 7 Note 8 Note 5 and 9 Note 10						
Service LPG inlet LPG outlet Change over va Level transmitte Low Low level s High high level Vapour balancie Nitrogen Multispot tempe Pressure transr Vater draw off Safety relief dev Pressure switch	COALESCING PAKER Salve er switch switch ng line erature sensor nitter	N1 N2 N3 N14 N5 N6 A/B N7 A/B/C N8 N9A/B N10 N11A/B N12 N13 N 14 A/B	N/A By PARESA CHELL NOZZLES AND CONNECTION Quantity 1 1 1 1 1 2 3 1 2 1 1 2 1 1 2 1 2 1 1 2 1 2	Size 10" 4" 12" 8" (by PARESA) Nozzle 6" / Pipe 4" 3" 3" 4" 2" Nozzle 3" / Pipe 2" 2" 4" 4" (by PARESA)	300 # / RF 300 # / RF	Note 7 Note 8 Note 5 and 9 Note 10						
Service LPG inlet LPG outlet Change over va Level transmitte Low Low level s High high level Vapour balancie Nitrogen Multispot tempe Pressure transr Vater draw off Safety relief dev Pressure switch Thermometer	COALESCING PAKER Salve er switch switch ing line erature sensor nitter	N1 N2 N3 N4 N5 N6 A/B N10 N11A/B N12 N13 N 14 A/B N15	N/A By PARESA CHELL NOZZLES AND CONNECTION Quantity 1 1 1 1 1 2 3 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 1 2 1 1 1 2 1 1 1 1 2 1 1 1 1 1 1 1 1 1 1 2 1	Size 10" 4" 12" 8" (by PARESA) Nozzle 6" / Pipe 4" 3" 3" 4" 2" Nozzle 3" / Pipe 2" 4" 4" (by PARESA)	300 # / RF 300 # / RF	Note 7 Note 8 Note 5 and 9 Note 10						
Service LPG inlet LPG outlet Change over va Level transmitte Low Low level s High high level Vapour balancie Nitrogen Multispot tempe Pressure transm Vater draw off Safety relief dev Pressure switch	COALESCING PAKER Salve er switch switch ing line erature sensor nitter	N1 N2 N3 N14 N5 N6 A/B N7 A/B/C N8 N9A/B N10 N11A/B N12 N13 N 14 A/B	N/A By PARESA CHELL NOZZLES AND CONNECTION Quantity 1 1 1 1 1 2 3 1 2 1 1 2 1 1 2 1 2 1 1 2 1 2	Size 10" 4" 12" 8" (by PARESA) Nozzle 6" / Pipe 4" 3" 3" 4" 2" Nozzle 3" / Pipe 2" 2" 4" 4" (by PARESA)	300 # / RF 300 # / RF	Note 7 Note 8 Note 5 and 9 Note 10						

Employer:	EPCC Contractor:			Consultant:
Ministry Of Energy & Mineral Resources	OHL Industrial MID CONTRACTING OHLI - MID Joint Venture for ASTPP Project - Amman, Jordan			
	Project Title:	Amman Strategic Reserve Terminal for Petroleum Products (ASTPP)		CONSULTING ENGINEERS
Document Title: SPHERES-LPG PRESSURE VESSELS SRT-V-25-0 / 02 / 03 / 04 / 05-PRELIMINARY DATA SHEET				
	Document Number:	OMJ-DAT-SRT-ME-0003		Page: 3 of 4
	Revision Code:	2		Fage. 3 01 4
PLANT LOCATION	AMMAN - JORDAN QUANTIT		QUANTITY	5
ITEM N°	SRT-V-25-01 / 02 /	-V-25-01 / 02 / 03 / 04 / 05 UNIT		-
SERVICE	LPG storage P&ID №		OMJ-DIA-SRT-PR-0033 to 0037	

NOTES

Note 1. Water phase conditions: Caustic soda <3% vol; PH >9; Cyanides 0.01 ppm; H2S content in water <10 ppm

Note 2. All nozzles to be built-up using ASME 300# RFWN flanges and forged self-reinforced according to Code Table 4.2.13 details 2 to 5.

Nozzle and flange materials to be SA 350 LF2 Class 1. See OMJ-SPC-SRT-ME-001 LPG Press Vessels Spec, para 4.2.

Flanges for over 24" Nominal size shall be as per ASME B16.47 Series A.

Design inlet flow-rate 270 m3/h; Design outlet flow-rate 320 m3/h

Note 3. Shell thicknesses for material SA 516 GR 70N are : 43 / 45 / 46 /46 ; Joint efficiency=1.0 ; PWHT:YES

Materials, Fabrication and Testing shall comply with the requirements shown on OMJ-SPC-SRT-ME-001 LPG Pressure Vessels.

Material Certificates shall be in accordance to EN 10204 type 3.2 for material, test and inspection reports

Material for legs: column top side SA 516 Gr 70 N, column bottom side API 5L Gr 52, base plate S275 JR

Material for anchor bolts: S275 JR

Note 4. Sparger distributor shall be provided in conection with LPG liquid inlet nozzle.

Note 5.Two Pressure relief device (1 run+1 spare) + one three ways valve shall be provide by Others

Note 6. LPG filling (inlet fitted with mixing nozzle and strainer plate)

Note 7. LPG filling from circulation (with LPG mixing nozzle Y-type)

Note 8. Lowering fitted wit removable internal spigot piece

Note 9. For 3-way / changeover valve for safety relief device

Note 10: For a radar level gauge system. Nozzle 6" with an internal SS external flanged still pipe of 4" till bottom, and attached on bottom Still pipe to be supplied by PARESA, according to OMJ construction recomendations

Note 11: Temperature sensor; thermowell required attached on sphere bottom

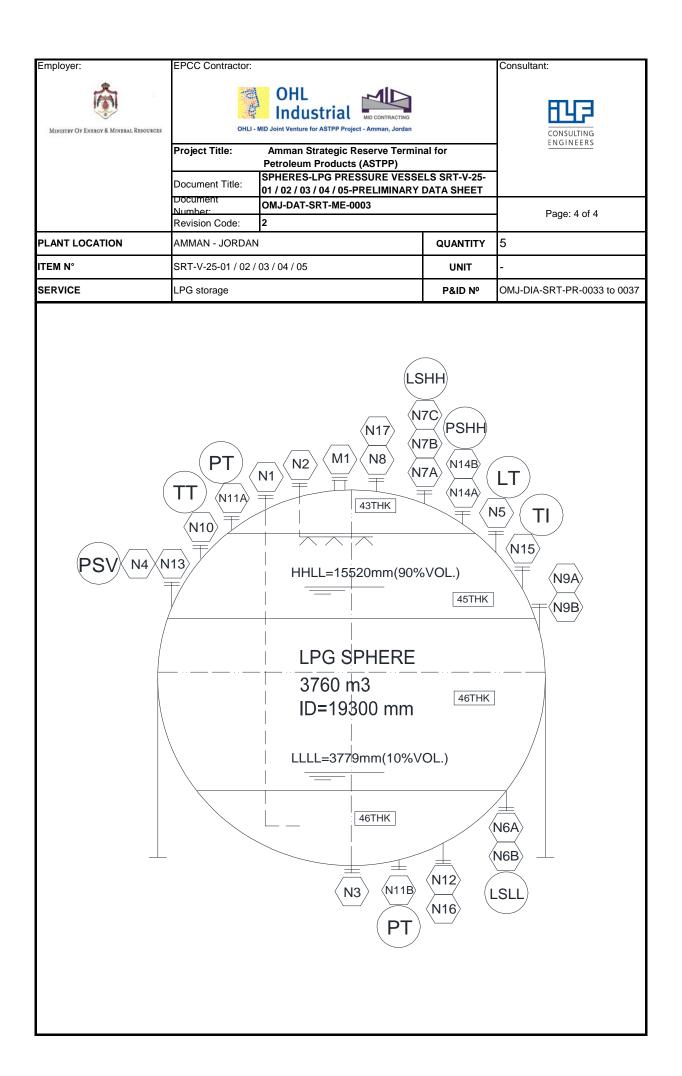
Thermowell to be supplied by PARESA, according to OMJ construction recomendations

Note 12: Access at top of sphere with davit arm

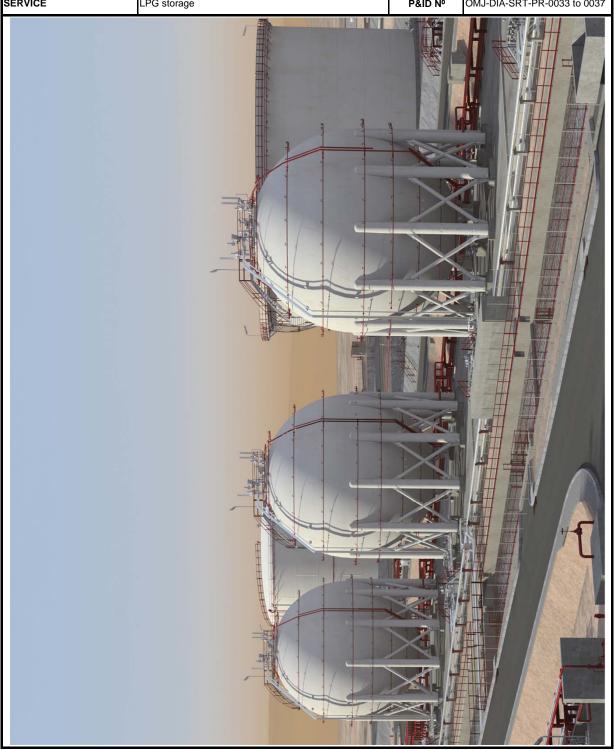
Note 14: Discharge of PSV on atmosphere at safe place.

Note 15: Water draw-off shall be in accordance with API 2510A Fig 2

Note 16: See spec. OMJ-SPC-SRT-ME-001 para. 8



Employer:	EPCC Contractor:			Consultant:
Ministry Of Energy & Mineral Resources	OHL Industrial MID CONTRACTING OHLI - MID Joint Venture for ASTPP Project - Amman, Jordan		CONSULTING ENGINEERS	
	Project Title: Amman Strategic Reserve Terminal for Petroleum Products (ASTPP)		ENGINEERS	
	Document Title:	SPHERES-LPG PRESSURE VESSE 01 / 02 / 03 / 04 / 05-PRELIMINARY		
	Document Number:	OMJ-DAT-SRT-ME-0003		Page: 4 of 4
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PLANT LOCATION	AMMAN - JORDAN		QUANTITY	5
ITEM N°	SRT-V-25-01 / 02 / 03 / 04 / 05		UNIT	-
SERVICE	LPG storage		P&ID Nº	OMJ-DIA-SRT-PR-0033 to 0037



Employer:	EPCC Contractor:			Consultant:
MINISTRY OF ENERGY & MINERAL RESOURCES	OHL Industrial MID CONTRACTING OHLI - MID Joint Venture for ASTPP Project - Amman, Jordan		CONSULTING ENGINEERS	
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	Document Title:	SPHERES-LPG PRESSURE VESSELS SRT-V-25- 01 / 02 / 03 / 04 / 05-PRELIMINARY DATA SHEET		
	Document Number	OMJ-DAT-SRT-ME-0003		Page: 4 of 4
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PLANT LOCATION	AMMAN - JORDAN Q		QUANTITY	5
ITEM N°	SRT-V-25-01 / 02 /	-25-01 / 02 / 03 / 04 / 05 UNIT		-
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