Amman Strategic Reserve Terminal for Petroleum Products

OMJ DOCUMENT		ILF COMMENT SHEET	
No.	OMJ-DAT-SRT-ST-0023	**No.**	SRT-OMJ-DCS-0014-A
Rev.	B	**Date**	14.11.2014
Status	☐	A: Approved	(APP)
	☒	B: Approved as noted	(AAN)
	☐	D: For Information	(INF)

Rev.	Date	Issue Purpose / Description	Prepared	Checked	Approved	Accepted
0	25/05/2015	Approved for construction	CLOB	MAPM	PBB	IGC
B	10/10/2014	Issued for Review	CLOB	MAPM	PBB	IGC

Client

Ministry Of Energy & Mineral Resources

THE HASHEMITE KINGDOM OF JORDAN
MINISTRY OF ENERGY AND MINERAL RESOURCES

Owner's Engineer

ILF CONSULTING ENGINEERS

Document Title

STORAGE TANKS-GASOLINE 90 TANKS SRT-T-25-021/022/023/024
PRELIMINARY DATA SHEET

Contractor	Contractor's Doc. No.	Official Document Number	Rev. Code
OHL Industrial / MID CONTRACTING OHLI - MID Joint Venture for ASTPP Project - Amman, Jordan	**P40341-EE-100-ME-HE-00G002**	**OMJ-DAT-SRT-ST-0023**	**0**

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Employer	EPCC Contractor:	Consultant:
Ministry Of Energy & Mineral Resources	OHL Industrial / MID CONTRACTING — OHLI - MID Joint Venture for ASTPP Project - Amman, Jordan	ILF CONSULTING ENGINEERS

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* For boxes marked with *, if blank, Mfr. Shall determine and submit as per Appendix L. For all lines, see Appendix L for line-by-line instructions.

GENERAL Special Documentation Package Requirements: OMJ-SPC-SRT-ST-0001 STORAGE TANKS-VERTICAL STORAGE TANKS-SPECIFICATION

Measurement Units to be used in API Std 650: SI [X] US Customary [ ]

1. Manufacturer* Quality international Co. Ltd. FZC-HFZ Contract No.* OMJ-REQ-SRT-ST-0030 / 4B002
   Address* Plot no. 6c-02,HFZ,Phase 2,Sharjah,UAE.
   Mfg. Serial No.* To be completed by Mfg. Year Built* 2016 Edition & Addendum to *API 650* * **12th Edition, 2013**
2. Purchaser OHL-MID JV (OMJ) Contract No. OMJ-REQ-SRT-ST-0030 / 4B002
   Address 675 Amman 11821 Jordan // Mousa Abdulsalam Haneyah St. Bldg.#(28)
   Tank Designation **GASOLINE 90 STORAGE TANKS, Tag No. SRT-T-25-021, 022, 023, 024**
3. Owner/Operator Ministry of Energy and Mineral Resources of Jordan Location **Amman Strategic Reserve Terminal for Petroleum Products**
4. Size Limitations* Tank Diameter* **ID 46.0 m** Shell Height* **23,0**
   Capacity: Maximum* **34,000 m³** Net Working* 30,000 Criteria* **API 2350**
5. Products Stored: **Gasoline 90**
   Liquid Max. S.G.: **0,87** at **15** ° C
   Blanketing Gas **N/A** Vapor Pressure **10,15** PSIA at Max. Operating Temp.
   % Aromatic Suppl. Spec. H_2S Service? Yes [ ] No [X] Suppl. Spec.
   Other Special Service Conditions? Yes [ ] No [X] Suppl. Spec.

DESIGN AND TESTING Purchaser to Review Design Prior to Ordering Material? Yes [X] No [ ]

6. Applicable API Standard 650 Appendices:* A [ ] B [ ] C [X] F [ ] G [ ] H [ ] I [ ] J [ ] L [ ] M [ ] O [ ] P [X] S [ ] U [ ] V [ ] W [ ]
7. Max. Design. Temp. **60** ° C Design Metal Temp.* **(MIN) -10** ° C Design Liquid Level* **20,685m**
   Design Pressure **ATM** External Pressure **N/A** Maximum Fill Rate **284 m³/h** Maximum Emptying Rate **284 m³/h**
   Floatation Considerations? Yes [ ] No [X] Flot. Suppl. Spec:* Applied Supplemental Load Spec.
8. Seismic Design? Yes [X] No [ ] Appendix E [X] Alternate Seismic Criteria **OMJ-SPC-SRT-ST-0002 STORAGE TANKS-VERTICAL STORAGE TANKS-DESIGN BASIS** Seismic Use Group **III**
   MBE Site Class C Vertical Seismic Design? Yes [X] No [ ] Vertical Ground Motion Accelerator A_V: **0,32 (g)**
   Basis of Lateral Acceleration (Select one): [ ] Mapped Seismic Parameters? S_s 0,375 S_1 0,175 S_0 ; [ ] Site-Specific Procedures: MCE
   Design Required? Yes [X] No [ ] ; [ ] Other (Non-ASCE) Methods
   [ ] Freeboard Required for SUG I Design Roof Tie Rods @ Outer Ring?* Yes [ ] No [ ]
9. Wind Velocity for non-U.S. sites, 50-yr. wind speed (3-sec. Gust)* **160 km/h**
   Top Wind Girder Style* **Detail "e" Fig 5.24** Dimensions* **Min 1,000 x 11 mm** Use Top Wind Girder as Walkway? Yes [X] No [ ]
   Intermediate Wind Girders?* Yes [ ] No [X] Intermediate Wind Girder Style* Dimensions*
   Check Buckling in Corroded Cond.? Yes [X] No [ ]
10. Shell Design: 1-Ft Mthd?* Yes [ ] No [X] ; Variable-Des-Pt Mthd?* Yes [X] No [ ] Alternate [ ] ; Elastic Anal. Mthd?* Yes [ ] No [X] Alternate [ ]
    Plate Stacking Criteria* Centerline-Stacked? Yes [ ] No [ ] Flush-Stacked? Yes [X] No [ ] Inside [X] Outside [ ]
    Plate Widths (Shell course heights) and Thicknesses * Numbers below Indicate Course Number. **HOLD (see Note 5)**

1. **2300 x 24 mm**	2. **2300 x 20.5 mm**	3. **2300 x 18.1 mm**	4. **2300 x 15.6 mm**	5. **2300 x 13.3 mm**
6. **2300 x 11.5 mm**	7. **2300 x 11.5 mm**	8. **2300 x 11 mm**	9. **2300 x 11 mm**	10. **2300 x 11 mm**
11.	12.	13.	14.	15.

Joint Efficiency* % Shell-to-Bottom Weld Type* Shell-to-Bottom Weld Insp. Mthd* Diesel oil and chalk

Approvals:	Revisions:	Title: Storage Tanks-Gasoline 90-Preliminary Data Sheet
		By: Ck'd: Date: Rev 0
		Drawing No.: OMJ-DAT-SRT-ST-0023 Sheet 2 of 10

Employer	EPCC Contractor:	Consultant:
Ministry Of Energy & Mineral Resources	OHL Industrial / MID CONTRACTING — OHLI - MID Joint Venture for ASTPP Project - Amman, Jordan	CONSULTING ENGINEERS

API

API Std 650 Storage Tank Data Sheet

* If box is blank, Manufacturer shall determine and submit as per Appendix L.

11. Open-Top and Fixed Roofs: (See Sheet 6 for Floating Roofs) Open Top?* Yes [X] No [ ]

Fixed Roof Type* _____ Roof Support Columns*: Pipe [X] Or Structural Shape [ ] _____

Cone Slope* _____ Dome or Umbrella Radius* _____ Weld Joints* _____ (Lap, Butt, Other)

Seal Weld Underside of: Lap Joints? Yes [ ] No [ ] ; Seal Weld Underside of Wind Girder Joints? Yes [X] No [ ]

Gas-tight? Yes [ ] No [ ] Joint Efficiency* _____ %

Thickness* _____ In. Snow Load* _____ App. Suppl. Load Spec.* _____ Column Lateral Load _____

Normal Venting Devices* YES Emergency Venting Devices* _____

For Non-Frangible Roofs: Seal Weld Roof Plates to Top Angle on the Inside? Yes [ ] No [ ] ; Weld Rafters to Roof Plates? Yes [X] No [ ]

Roof-to-Shell Detail* _____ Radial Projection of Horizontal Component of Top Angle* Inward [ ] Outward [ ]

12. Bottom: Thickness* INNER 6; OUT 8 Style* Cone up Slope* 1:100 Weld Joint Type* _____

Provide Drip Ring? Yes [ ] No [X] Alternate Spec. _____

Annular Ring? Yes [X] No [ ] Annular Ring: Minimum Radial Width* 1300 mm Thickness* 13 mm

13. Foundation: Furnished by* Contractor Type* Concrete Ringnall

Soil Allow: Bearing Pressure* _____ Per Spec.* 3805 Tn Anchors: Size* N/A Qty.* _____

Foundation Design Loads: Base Shear Force: Wind* 93 Tn Seismic* 782 Tn Overturning Moment: Wind* 1068 m Tn Seismic* 6059 m Tn

Ring Forces: Weight of Shell + Roof New* _____ Corroded* _____ Roof Live Load* _____ Internal Pressure* _____

Partial Vacuum* _____ Wind* _____ Seismic* _____ _____

Bottom Forces: Floor Wt. New* _____ Corroded* _____ Product Wt.* _____ Water Wt.* _____ Internal Pressure* _____

Partial Vacuum* _____ Other Foundation Loads* _____ Min. Projection of Fdn. Above Grade: _____

14. Responsibility for Heating Water, if Required: Purchaser [ ] Manufacturer [ ] _____

Hydro-Test Fill Height* 20,685 Settlement Measurements Required? Yes [X] No [ ] Extended Duration of Hydro-Test: _____

[ ] Predicted Settlement Profile is Attached

Responsibility for Setting Water Quality: Purchaser [X] Manufacturer [ ] Supplemental Test Water Quality Spec. _____

Test Water Source & Disposal Tie-In Locations Contractor Hydro-Test Appendix J Tank? Yes [ ] No [X]

Post-Pressure-Test Activities Required of the Manufacturer: Broom Clean [ ] Potable Water Rinse [ ] Dry Interior [X]

Other [X] INTERIOR COATING AS REQUIRED

15. Inspection by Third Party; Requirements acc. to specification in Shop; Third Party acc. To Specification in Field

Supplemental NDE Responsibility _____ Supplemental NDE Spec. OMJ-SPC-SRT-0001 Storage Tanks-Vertical StorageTanks-Specification (Purch., Mfg., Other)

Positive Material Identification? Yes [ ] No [X] PMI Requirements: _____

Max. Plate Thickness for Shearing _____

Must Welds not exceeding 6 mm ($^1/_4$ in.) Be Multi-Pass? Yes [X] No [ ] Must Welds greater than 6 mm ($^1/_4$ in.) Be Multi-Pass? Yes [X] No [ ]

Leak Test Mthd: Roof* _____ Shell* By Hydro Test Shell Noz./Manhole Reinf. Plt* By Air Pressure At 15 P.S.I.G

Bottom* By Partial Vacuum At 3-5 P.S.I.G Floating Roof Components* As Per API650 Cause No. C.4

Modify or Waive API Dimensional Tolerances (see 7.5)? No [ ] Yes [X] Specify: OMJ-SPC-SRT-0001 STORAGE TANKS-VERTICAL STORAGE TANKS SPEC

Specify Additional Tolerances, if any, and Circumferential and Vertical Measurement Locations:

- Allowable Plumbness: _____ Measure and Record at a Minimum of _____ Locations or Every _____ m (ft) around the Tank, at the Following Shell Heights: (select one box): [ ] $^1/_3$ H, $^2/_3$ H and H [ ] Top of Each Shell Course [ ] Other: _____
- Allowable Roundness:** _____ Measure Radius and Record at a Minimum of _____ Locations or Every _____ m (ft) around the Tank, at the Following Shell Heights (select one box):

[ ] Top of Tank, H [ ] $^1/_3$ H, $^2/_3$ H and H [ ] Top of Each Shell Course [ ] Other: _____

**See Data Sheet Instructions for the Maximum Allowable Additional Radial Tolerance.

Approvals:	Revisions:	Title: Storage Tanks-Gasoline 90-Preliminary Data Sheet
		By: Ck'd: Date: Rev 0
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16. Coatings:

Internal Coatings by: **Manufacturer** Per Spec.* OMJ-SPC-SRT-0001 Storage Tank-Vertical Storage Tank Specification (Not Req'd., Others, Tank Mfg.)

External Coating by: **Manufacturer** Per Spec.* OMJ-SPC-SRT-0001 Storage Tank-Vertical Storage Tank Specification (Not Req'd., Others, Tank Mfg.)

Under-Bottom Coating by: **Manufacturer** Per Spec.* OMJ-SPC-SRT-0001 Storage Tank-Vertical Storage Tank Specification (Not Req'd., Others, Tank Mfg.)

17. Cathodic Protection System? Yes [X] No [ ] Per Spec.* OMJ-SPC-SRT-EL-0202 General - Cathodic Protection for Tanks - Specification

18. Leak Detection System? Yes [X] No [ ] Per Spec.* OMJ-SPC-SRT-IN-0021 Instrumentation-Tank Bottom Leakage Detection System-Specification

19. Release Prevention Barrier? Yes [ ] No [ ] Per Spec.*

20. Tank Measurement System: Required? Yes [X] No [ ] Remote Capability Required? Yes [ ] No [ ]

By:* **Manufacturer** Per Spec.*

21. Weight of Tank: Full of Water* 37011 Tn Empty* 618 Tn Shipping* Brace/Lift Spec.*

22. References:* *API Std 650, Appendix L*

Other references: OMJ-SPC-SRT-EL-0002 STORAGE TANKS VERTICAL STORAGE TANKS-DESIGN BASIS

23. Remarks:*

1) ALL TANKS SHALL BE PROVIDED WITH DOUBLE DECK EXTERNAL FLOATING ROOF. DOUBLE DECK FLOATING ROOF PLATES AND RIM SHALL BE 6 mm THK MINIMUM. ROOF MATERIAL SHALL BE ASTM A 283 GR C GROUP 1.
2) ALL TANKS SHALL HAVE DOUBLE BOTTOM WITH ACTIVE LEAK DETECTION SYSTEM. DOUBLE BOTTOM SHALL BE MATERIAL ASTM A 283 Gr C AND FILLED WITH WIRE MESH AS PER OMJ-DWG-SRT-ST-0007 TO 0010
   INNER BOTTOM SHALL BE 6m THK. OUTER BOTTOM SHALL BE 8mm THK.
   OUTER BOTTOM SHALL HAVE AN ANNULAR RING MATERIAL ASTM A 573 Gr 70 GROUP V , 1300mm WIDTH x 11.5mm THK.
3) ALL TANKS SHALL HAVE AN AUTOMATIC BOTTOM WATER DRAIN SYSTEM WITH 4 NOZZLES.
4) ALL THICKNESS MENTIONED ON THIS DATA SHEET ARE TO BE TAKEN AS MINIMUM THICNESSES AFTER FORMING. **NO UNDERTOLERANCES** SHALL BE ALLOWED.
5) TANK HEIGHT AND SHELL COURSES WIDTH AND THICKNESSES HAVE TO BE CONFIRMED BY MANUFACTURER.

MATERIAL NOTES

a) MAT ASTM A 573 Gr 70 GROUP V SHALL BE NORMALIZED, FULLY KILLED AND MADE TO FINE-GRAIN PRACTISE WITH CARBON CONTENT 0,23% MAX AND CE MAX 0.43% (see Storage Tanks Specification)
b) MAT ASTM A 573 Gr 70 GROUP IVA SHALL BE NORMALIZED, FULLY KILLED AND MADE TO FINE-GRAIN PRACTISE WITH CARBON CONTENT 0,2% MAX AND MAX Mn 1.6% (see API 650 para 4,2,7,4) IN ADDITION CE MAX SHALL BE 0.43% (see Storage Tanks Specification)
c) MAT ASTM A 36 GROUP II SHALL BE FULLY KILLED AND MADE TO FINE GRAIN PRACTISE WITH CARBON CONTENT 0,23% MAX AND Mn CONTENT OF 0,80% TO 1.2% BY HEAT ANALYSIS (see API 650 Table 4.4a Note 5) IN ADDITION CE MAX SHALL BE 0.43% (see Storage Tanks Specification)
d) MAT ASTM A 283 Gr C GROUP I SHALL BE FULLY KILLED AND MADE TO FINE-GRAIN PRACTISE WITH CARBON CONTENT 0,23% MAX AND CE MAX 0,43 (see Storage Tanks Specification)

* If box is blank, Manufacturer shall determine and submit as per Appendix L.

Table 1 MATERIALS OF CONSTRUCTION FOR TANKS SRT-T-25-021 AND SRT-T-25-022

Component	Material*/Thickness*	C.A.	Component	Material*	C.A.
Shell, Course _1__ to _2__	**A573 Gr. 70 Group V**	**1 mm**	Reinforcing Pads	Acc to Shell Material	
Shell, Course _3__ to _6__	**A573 Gr. 70 Group IVA**	**1 mm**	Manhole/Nozzle Necks	Acc to shell / A 106 Gr B	**1 mm**
Shell, Course _7__ to _10__	**A36 Group II killed**	**1 mm**	Manhole/Nozzle Flanges	Acc to shell / A 105	**1 mm**
Shell, Course ___ to ___			Flange Covers	A 105	
Shell, Course ___ to ___			Anchor Attachments		
Roof	**A283 Gr. C Group I**	**1 mm**	Submerged Piping	A 106 Gr B	1 mm
Bottom inner / outter	**A283 Gr. C Group I**	**0 mm / 2 mm**	Wetted Structurals		+
Annular Ring	**A573 Gr. 70 Group V**	**2 mm**	Non-wetted Structurals	A 36 OR SIMILAR	+

+ Check here if C.A. is to apply to each exposed surface ☐

Table 2 BOLTS and ANCHORS FOR TANKS SRT-T-25-021 AND SRT-T-25-022

Component	Head Type*	Bolt or Anchor Material*	Nut Material*	Thread Series*	C.A.
Flange Bolting		A 193 GR B7	A 194 GR 2H		++
Structural Bolting		A36			++
Anchor Bolts		A36			++

++ Total C.A., on the nominal diameter.

Table 3 NOZZLE and MANHOLE SCHEDULE* (for Fixed Roof, Shell, and Bottom) FOR TANKS SRT-T-25-021 AND SRT-T-25-022

Mark	Service	Size, NPS, or Dia. (in.)	Neck Sch or Wall Thick.	Reinf. Plate Dimensions	Full Pen. On Open. (Y/N)	Flange Type	Flange Class or Thick.	Gasket Bearing Surf. Dimen. and Finish	Gasket Thick. and Dimen.	Gasket Mat'l and Descript.	Proj. to FF or CL or from Datum Lines
M01	Shell manway	24"	API 650			API 650					
M02	Shell manway	24"	API 650			API 650					
M03	Clean-out Door	36"x48"	API 650			API 650					
M04	Deck Manway	48"	API 650			API 650					
M05	Compartment manway	20"	API 650			API 650					
N01	Product inlet	10"	SCH 40			SO	150 # RF				
N02	Produc outlet	12"	SCH 40			SO	150 # RF				
N03	Produc draw-off	6"	SCH 40			SO	150 # RF				
N04 A-D	Water draw-off A/B/C/D	4 X 4"	SCH 40			SO	150 # RF				
N05A	Roof drain with sump	8"	SCH 40			SO	150 # RF				
N05B	Roof drain on shell	8"	SCH 80			SO	150 # RF				
N06A/B/C	LSHH A/B/C	3 X 2"	SCH 80			WN	150 # RF				
N07	LSLL	2"	SCH 80			WN	150 # RF				
N08 A/D/G/J	Leak detection-suction A/D/G/J	4 X 1"	SCH 80			WN	150 # RF				
N08 B/E/H/K	Leak detection-measure B/E/H/K	4 X 1"	SCH 80			WN	150 # RF				
N08 C/F/I/L	Leak detection-test C/F/I/L	4 X 1"	SCH 80			WN	150 # RF				
N09 A-E	Sealing vent	5 X 6"	MFR			SO	150 # RF				
N10 A/B	Automatic Bleader Vent	2 X 10"	MFR			SO	150 # RF				
N11	pipe)	8"	SCH 80			WN	150 # RF				
N12	Gauge hatch (wtih still pipe)	8"	MFR			SO	150 # RF				
N13 A-F	Foam maker	6 X 2 1/2"	(hole)								
N14 A/B/C	Tank Mixers	3 X 24"	MFR			API 650	150 # RF				
N15	Relief from TRV	2"	SCH 40			SO	150 # RF				
N16	Relief from TRV	2"	SCH 40			SO	150 # RF				
N17 A/B/C	Emergency drain	3 X 4"	SCH 40			SO	150 # RF				
N18	Product inlet	4"	SCH 40			SO	150 # RF				
N19	Relief from TRV	2"	SCH 40			SO	150 # RF				
N20	Product outlet	6"	SCH 40			SO	150 # RF				
N21	Relief from TRV	2"	SCH 40			SO	150 # RF				
N22 A	Roof drain with sump	8"	SCH 40			SO	150 # RF				
N22 B	Roof drain on shell	8"	SCH 40			SO	150 # RF				
N23	Temperature multispot sensor with thermowell	3"	SCH 80			WN	150 # RF				
N24	Pressure transmitter	2"	SCH 80			WN	150 # RF				
N25 A-D	Out of service suplementary drain	4 x 4"	SCH 40			SO	150 # RF				
N26	Mechanical level indicator										

* If box is blank, Manufacturer shall determine and submit as per Appendix L.

Table 1 MATERIALS OF CONSTRUCTION FOR TANKS SRT-T-25-023 AND SRT-T-25-024

Component	Material*/Thickness*	C.A.	Component	Material*	C.A.
Shell, Course _1__ to _2__	**A573 Gr. 70 Group V**	**1 mm**	Reinforcing Pads	Acc to Shell Material	
Shell, Course _3__ to _6__	**A573 Gr. 70 Group IVA**	**1 mm**	Manhole/Nozzle Necks	Acc to shell / A 106 Gr B	**1 mm**
Shell, Course _7__ to _10__	**A36 Group II killed**	**1 mm**	Manhole/Nozzle Flanges	Acc to shell / A 105	**1 mm**
Shell, Course ___ to ___			Flange Covers	A 105	
Shell, Course ___ to ___			Anchor Attachments		
Roof	**A283 Gr. C Group I**	**1 mm**	Submerged Piping	A 106 Gr B	1 mm
Bottom inner / outter	**A283 Gr. C Group I**	**0 mm / 2 mm**	Wetted Structurals		+
Annular Ring	**A573 Gr. 70 Group V**	**2 mm**	Non-wetted Structurals	A 36 OR SIMILAR	+

+ Check here if C.A. is to apply to each exposed surface ☐

Table 2 BOLTS and ANCHORS FOR TANKS SRT-T-25-023 AND SRT-T-25-024

Component	Head Type*	Bolt or Anchor Material*	Nut Material*	Thread Series*	C.A.
Flange Bolting		A 193 GR B7	A 194 GR 2H		++
Structural Bolting		A36			++
Anchor Bolts		A36			++

++ Total C.A., on the nominal diameter.

Table 3 NOZZLE and MANHOLE SCHEDULE* (for Fixed Roof, Shell, and Bottom) FOR TANKS SRT-T-25-023 AND SRT-T-25-024

Mark	Service	Size, NPS, or Dia. (in.)	Neck Sch or Wall Thick.	Reinf. Plate Dimensions	Full Pen. On Open. (Y/N)	Flange Type	Flange Class or Thick.	Gasket Bearing Surf. Dimen. and Finish	Gasket Thick. and Dimen.	Gasket Mat'l and Descript.	Proj. to FF or CL or from Datum Lines
M01	**Shell manway**	**24"**	API 650			API 650					
M02	**Shell manway**	**24"**	API 650			API 650					
M03	**Clean-out Door**	**36"x48"**	API 650			API 650					
M04	**Deck Manway**	**48"**	API 650			API 650					
M05	**Compartment manway**	**20"**	API 650			API 650					
N01	**Product inlet**	**10"**	SCH 40			SO	150 # RF				
N02	**Produc outlet**	**12"**	SCH 40			SO	150 # RF				
N03	**Produc draw-off**	**6"**	SCH 40			SO	150 # RF				
N04 A-D	**Water draw-off A/B/C/D**	**4 X 4"**	SCH 40			SO	150 # RF				
N05A	**Roof drain with sump**	**8"**	SCH 40			SO	150 # RF				
N05B	**Roof drain on shell**	**8"**	SCH 80			SO	150 # RF				
N06A/B/C	**LSHH A/B/C**	**3 X 2"**	SCH 80			WN	150 # RF				
N07	**LSLL**	**2"**	SCH 80			WN	150 # RF				
N08 A/D/G/J	**Leak detection-suction A/D/G/J**	**4 X 1"**	SCH 80			WN	150 # RF				
N08 B/E/H/K	**Leak detection-measure B/E/H/K**	**4 X 1"**	SCH 80			WN	150 # RF				
N08 C/F/I/L	**Leak detection-test C/F/I/L**	**4 X 1"**	SCH 80			WN	150 # RF				
N09 A-E	**Sealing vent**	**5 X 6"**	MFR			SO	150 # RF				
N10 A/B	**Automatic Bleader Vent**	**2 X 10"**	MFR			SO	150 # RF				
N11	pipe)	**8"**	SCH 80			WN	150 # RF				
N12	**Gauge hatch** (wtih still pipe)	**8"**	MFR			SO	150 # RF				
N13 A-F	**Foam maker**	**6 X 2 1/2"**	(hole)								
N14 A/B/C	**Tank Mixers**	**3 X 24"**	MFR			API 650	150 # RF				
N15	**Relief from TRV**	**2"**	SCH 40			SO	150 # RF				
N16	**Relief from TRV**	**2"**	SCH 40			SO	150 # RF				
N17 A/B/C	**Emergency drain**	**3 X 4"**	SCH 40			SO	150 # RF				
N18 A	**Roof drain with sump**	**8"**	SCH 40			SO	150 # RF				
N18 B	**Roof drain on shell**	**8"**	SCH 40			SO	150 # RF				
N19	**Temperature multispot sensor with termowell**	**3"**	SCH 80			WN	150 # RF				
N20	**Pressure transmitter**	**2"**	SCH 80			WN	150 # RF				
N21 A-D	**Out of service suplementary drain**	**4 x 4"**	SCH 40			SO	150 # RF				
N22	**Mechanical level indicator**										

* If box is blank, Manufacturer shall determine and submit as per Appendix L.

OTHER TANK APPURTENANCES

24. Platform, Stairway, and Railing: Galvanizing Req'd?* Yes [X] No [ ] Stairway Style* **Helical** (Straight or Helical) Walk Surf. Type* _____

Stair and Walkway Clear Width* **Min. 1000 mm** National Safety Standards* _____

Architectural/Structural Specification* _____

Gauger's Platform Req'd? Yes [X] No [ ] Qty. Req'd* **ONE** Per Spec.* _____

25. Jacket Required?* Yes [ ] No [X] Other Heaters/Coolers Required?* Yes [ ] No [X]

Supplemental Jacket, Heater, or Cooler Specifications* _____

26. Mixer/Agitator: Quantity **3** Size* 24" Per Spec.* _____

27. Insulation: Required? Yes [ ] No [X] Thickness* _____ Material* _____

Per Specs* _____ Responsibility for Insulation and Installation _____ (Purchaser, Manufacturer, Others)

28. Structural Attachments: Lift Lugs?* Yes [ ] No [ ] Desc.* _____

Shell Anchorage?* Yes [ ] No [X] Type* _____ Scaffold Cable Support? Yes [ ] No [ ]

29. Various Other Items: Welded Flush-Type: Shell Connection [ ] Cleanout Fitting [X] Waive Application of Appendix P? Yes [ ] No [X]

Miscellany #1 _____ Miscellany #2 _____

Miscellany #3 _____ Miscellany #4 _____

Miscellany #5 _____ Miscellany #6 _____

Table 4 OTHER TANK APPURTENANCES*

Mark	Quantity	Service or Description	Size	Orientation	Height from Datum	Material	Remarks

* If box is blank, Manufacturer shall determine and submit as per Appendix L.

FLOATING ROOF DATA

30. **Floating Roof Selection**

Design Basis: Appendix C [X] Or Appendix H [ ]

Type of Roof: (External or Internal): Single Deck Pontoon* [ ] Double Deck* [X]

(Internal Only): Tubular Pontoon* [ ] Metallic Sandwich Panel* [ ]

Other [ ] _____ Supplemental Spec.: _____

31. **Seals**

Primary Seal: Shoe [X] Envelope [ ] Wiper/Compression Plate [ ] Other [ ] _____ Supplemental Spec.: **SHOE MAT SS 316**

Shoe Mechanism: Mfg. Std. [ ] Other [X] Scissor type

Electrically Isolate Mechanism from Shoes? Yes [ ] No [ ] Wax Scrapers Required? Yes [ ] No [X]

Minimum Shoe Thickness* **1,2 mm** Carbon Steel Shoes to be Galvanized? Yes [ ] No [ ]

Secondary Seal: Shoe [ ] Envelope [ ] Wiper [X] None [ ] Other [ ] _____ Supplemental Spec.: _____

32. **Data for All Floating Roofs:**

Overflow Openings in Shell Acceptable? Yes [ ] No [X] Shell Extension? Yes [ ] No [ ]

Roof-Drain Check Valves Required? Yes [X] No [ ] Roof-Drain Isolation Valves Required? Yes [X] No [ ]

Freeze Protection for Roof Drains Required? No [X] Yes [ ] Supplemental Requirements: _____

Roof-Drain Piping to External Nozzles: Mfg. Std. [ ] Armored Flexible Pipe [ ] Swivels in Rigid Pipe [X] Other [ ] _____

Foam Dam? Yes [X] No [ ] Supplemental Spec.: _____

Minimum Deck Thickness* **6 mm**

Bulkhead Top Edges to be Liquid-Tight? Yes [ ] No [ ] Seal-Weld Underside of Roof? Yes [ ] No [X]

Electrical Bonding: Shunts: Yes [X] No [ ] Cables: Yes [ ] No [ ] Supplemental Spec.: _____

Qty. of Non-Guide-Pole Gauge Wells Required _____ Qty. of Sample Hatches Required **SEE NOZZLES LIST**

Guide Pole for Gauging? Yes [X] No [ ] Slots in Guide Pole? Yes [X] No [ ] Datum Plates? Yes [ ] No [ ] Striking Plates? Yes [ ] No [ ]

Guide Pole Emissions-Limiting Devices: Sliding Cover [ ] Pole Wiper [ ] Pole Sleeve [X] Float [ ] Float Wiper [ ] Pole Cap [ ]

Qty. of Roof Manholes* SEE NOZZLES LIST Minimum High-Roof Clearance Above Bottom: **Mfg**

Removable Leg Storage Racks? Yes [ ] No [ ] ; Leg Sleeves [X] or Fixed Low Legs [ ]

33. **Additional Data for External Floating Roofs:**

Weather Shield? Yes [ ] No [ ] Supplemental Spec.: _____

Rolling Ladder Required? Yes [X] No [ ] Field Adjustable Legs? Yes [X] No [ ]

Design Rainfall Intensity **50mm/h** in./hr. (mm/hr) Based on a _____ Minute Duration Associated with the _____ Storm

Design Accumulated 24-Hour Rainfall _____ in. Based on the _____ Storm

Distortion and Stability Determinations Required? Yes [ ] No [ ] Supplemental Specification _____

Landed Live Load* _____

34. **Additional Data for Internal Floating Roofs: N/A**

Two-Position Legs? Yes ☐ No ☐ Cable-Supported Roof? Yes ☐ No ☐ Fixed-Roof Inspection Hatches Required? Yes ☐ No ☐

Internal Roof Drain Required? Yes ☐ No ☐ Omit Distribution Pads Supporting Uniform Live Loads? Yes ☐ No ☐

Corrosion Gauge Required? Yes ☐ No ☐ Fixed Ladder Required? Yes ☐ No ☐ ; Type of Roof Vent:* _____

Modified Minimum Point Load? Yes ☐ No ☐ Supplemental Specification _____

Mfr. To Leak Test* _____ % of Compartments ☐ in Assembly Yard ☐ in Erected Position ☐ Unknown; see separate contract terms

Roof Erector's Flotation Test: w/ Tank Hydro ☐ at Completion of Roof ☐ at a Later Date ☐ _____ Not Required ☐

Flotation Test Media: Water ☐ Product ☐ (see H.6.6.1) Water Quality: Potable ☐ Other ☐ See Supplemental Spec. _____

Flotation Test: Duration _____ Fill Height: _____

Flotation Test Items Provided by Purchaser (see H.6.7): None ☐ List Attached ☐

Responsible Party for Inspecting Roof During Initial Fill: Purchaser ☐ Other ☐ _____

Table 5 FLOATING ROOF MATERIALS

Component	Material*/Thickness*	C.A./Coating*	Component	Material*/Thickness*	C.A./Coating*
Deck Plate	**A 283 Gr C / 6 MIN**		Datum Plate		
Inner Rim Plate			Tubular Pontoon	**N/A**	
Outer Rim Plate	**A 283 Gr C / 6 MIN**		Pontoon Bulkhead		
Foam Dam	**A 283 Gr C**		Submerged Pipe		
Sandwich Panel Face Plate			Guide Pole / Anti-rotation device	**Carbon Steel**	
Sandwich Panel Core			Secondary Seal		
Gauge Well			Secondary Seal Fabric		
Drain Sumps	**A 283 Gr C**		Wiper Tip		
Opening Sleeves			Wax Scraper	**N/A**	
Floating Suction Lines	**N/A**		Weather Seal		
Primary Fabric Seal			Envelope Fabric		
Foam Log Core			Shoe Mechanisms		
Landing Legs	**Carbon Steel**		Primary Seal Shoe	**SS 316**	
Landing Leg Bottom Pads	**A 283 Gr C**		Removable Covers		
Manhole Necks	**A 283 Gr C**		Rolling Ladder	**Carbon Steel**	
Vents	**A 283 Gr C**		Inlet Diffusers		

Employer	EPCC Contractor:	Consultant:
Ministry Of Energy & Mineral Resources	OHL Industrial / MID CONTRACTING OHLI - MID Joint Venture for ASTPP Project - Amman, Jordan	CONSULTING ENGINEERS

API	**API Std 650 Storage Tank** **Data Sheet**	PAGE 10 OF 10

* If box is blank, Manufacturer shall determine and submit as per Appendix L.

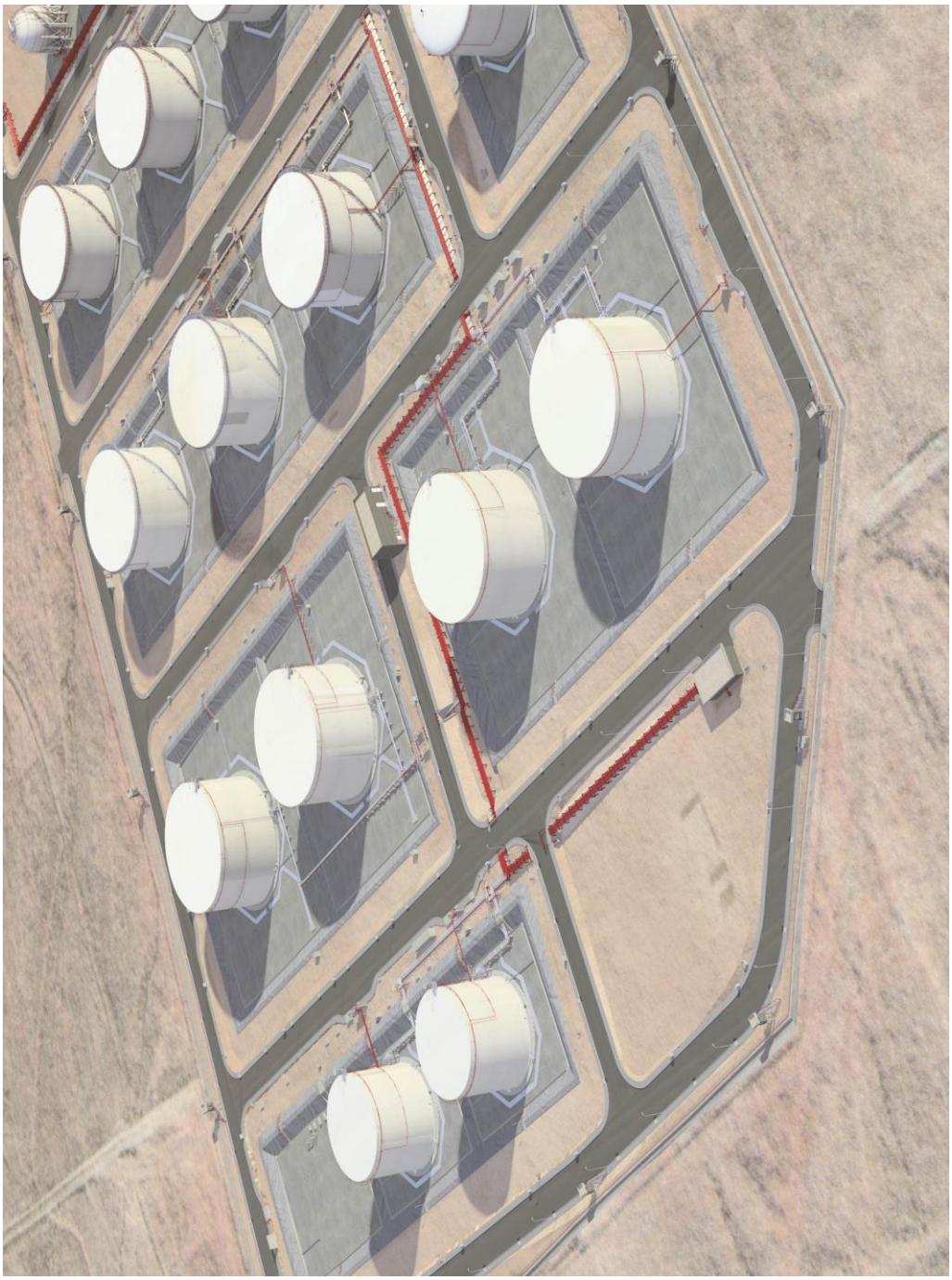
Tank Plan and Sketches:

OMJ-DWG-SRT-ST-0007 Storage Tank -Gasoline 90 Tank SRT-T-25-021-Preliminary General Arrangement
OMJ-DWG-SRT-ST-0008 Storage Tank -Gasoline 90 Tank SRT-T-25-022-Preliminary General Arrangement
OMJ-DWG-SRT-ST-0009 Storage Tank -Gasoline 90 Tank SRT-T-25-023-Preliminary General Arrangement
OMJ-DWG-SRT-ST-0010 Storage Tank -Gasoline 90 Tank SRT-T-25-024-Preliminary General Arrangement

Notes:

Approvals:	Revisions:	Title: Storage Tanks-Gasoline 90-Preliminary Data Sheet
		By: Ck'd: Date: Rev 0
		Drawing No.: OMJ-DAT-SRT-ST-0023 Sheet 10 of 10

* If box is blank, Manufacturer shall determine and submit as per Appendix L.



* If box is blank, Manufacturer shall determine and submit as per Appendix L.

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