طرح نگهداشت و افزایش تولید ۲۷ مخزن

TBE FOR INSTRUMENT/PLANT AIR & NITROGEN PACKAGES

نگهداشت و افزایش تولید میدان نفتی بینک

D04	NOV.2024	IFI	V.Amjadi	M.Fakharian	M.Sadeghian	
D03	JUL.2024	IFI	V.Amjadi	M.Fakharian	M.Sadeghian	
D02	FEB.2024	IFI	H.Ghadyani	M.Fakharian	S.Faramarzpour	
D01	OCT.2023	IFI	H.Ghadyani	M.Fakharian	S.Faramarzpour	
D00	MAR.2023	IFI	H. Adineh	M.Fakharian	M.Mehrshad	
Rev.	**Date**	**Purpose of Issue / Status**	**Prepared by:**	**Checked by:**	**Approved by:**	**CLIENT Approval**

Class: 3 **CLIENT Doc. Number: F0Z-709228**

status:

IDC: Inter-Discipline Check

IFC: Issued For Comment

IFA: Issued For Approval

AFD: Approved For Design

AFC: Approved For Construction

AFP: Approved For Purchase

AFQ: Approved For Quotation

IFI: Issued For Information

AB-R: As-Built for CLIENT Review

AB-A: As-Built –Approved

NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک	شرکت توسعه نیروی ایران HIRGAN ENERGY
	TBE FOR INSTRUMENT/PLANT AIR & NITROGEN PACKAGES	

شماره پیمان:	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: ۲ از ۷
۰۵۳ - ۰۷۳ - ۹۱۸٤	BK	GCS	PEDCO	120	ME	TB	0006	D04	

REVISION RECORD SHEET

Page	D00	D01	D02	D03	D04	Page	D00	D01	D02	D03	D04
1	X	X	X	X	X	65					
2	X	X	X	X	X	66					
3	X	X	X		X	67					
4	X	X	X			68					
5	X	X	X			69					
6	X	X	X	X	X	70					
7	X	X	X			71					
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NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک TBE FOR INSTRUMENT/PLANT AIR & NITROGEN PACKAGES	

شماره پیمان:	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: ۲ از ۷
۰۵۳ – ۰۷۳ – ۹۱۸٤	BK	GCS	PEDCO	120	ME	TB	0006	D04	

REQ. NO: BK-GCS-PEDCO-120-ME-MR-0006	BIDDER NAME:	HAVAYAR	HAVASAN	PARS COMPRESSOR	ARAZ SANAT ASIA
QUOTATION NO.:		HY-01-1-3118	HAV-BK-HRGN-001	18910	ASA-LR-02-263
QUOTATION DATE:		11/4/2024	8/30/2023	9/1/2023	11/6/2024

No.	DESCRIPTION	UNITS	REQ'D BY PURCHASER	MEETS REQUISITION REQUIREMENTS							
				Bidder's Proposal	Status	Bidder's Proposal	Status	Bidder's Proposal	Status	Bidder's Proposal	Status
	Instrument & Plant Air Production Package										
1	**GENERAL**										
1.1	Guarantee & Warranty as per project requirement	-	12 month after successfull start up or 18 month after delivery at site	A	YES	A	YES	A	YES	A	YES
1.2	Delivery Time	Month	As per project requirement	9	YES	8	YES	12 months Bacuse of UCP (PLC S7 400 FH delivery time)	YES	As per project requirement	YES
1.3	Delivery Location	-	-	Ex - work Havayar Factory	YES	TABRIZ-HAVASAN	YES	DDP @ site	YES	As per project requirement	YES
2	**DOCUMENTS CHECK LIST**										
2.1	Quality System Certificates	-	Required	A	YES	A	YES	A	YES	A	YES
2.2	Catalogues	-	Required	A	YES	A	YES	A	YES	A	YES
2.3	Sub-Vendor List	-	Required	A	YES	A	YES	A	YES	A	YES
2.4	Scope of Supply & Work (Attachment of MR)	-	Required	A	YES	A	YES	A	YES	A	YES
2.5	Deviation List	-	Required	A	YES	A	YES	A	YES	A	YES
2.6	Reference and Installation List	-	Required	A	YES	A	YES	A	YES	A	YES
2.7	Recommended Spare Part List for erection & Commissioning	-	Required	A	YES	A	YES	A	YES	A	YES
2.8	Recommended Spare Part List for 2 Years of Operation	-	Required	A	YES	NS	NO	A	YES	A	YES
2.9	Special Tools List (If Required)	-	Required	NA	NO	NA	NO	NA	NO	A	YES
2.10	P&ID	-	Required	A	YES	A	YES	A	YES	A	YES
2.11	Process Flow diagram	-	Required	A	YES	NS	NO	A	YES	A	YES
2.12	Control Philosophy	-	Required	After PO	YES	N	NO	After P.O.	YES	A	YES
2.13	ESD Philosophy	-	Required	NA	NO	N	NO	After P.O.	YES	A	YES
2.14	Main Equipment list	-	Required	A	YES	After P.O.	YES	A	YES	A	YES
2.15	Calculation Note For PSV Sizing	-	Required	A (PSV Sizing on skid is as per manufacturer design and standard)	YES	NA	NO	After P.O.	YES	A	YES
2.16	Operating Manual	-	Required	After PO	YES	After P.O.	YES	After P.O.	YES	A	YES
2.17	Outline/General Lay-out Drawings	-	Required	A	YES	After P.O.	YES	After P.O.	YES	A	YES
2.18	Data Sheets for All Equipment Inside the Package	-	Required	A	YES	After P.O.	YES	After P.O.	YES	A	YES
2.19	Performance Curve	-	Required	A	YES	After P.O.	YES	After P.O.	YES	A	YES
2.20	Utility Consumption List	-	Required	A	YES	NS	NO	A	YES	A	YES
2.21	Load List	-	Required	A	YES	A	YES	A	YES	A	YES
2.22	Control System Architecture Drawing	-	Required	A	YES	After P.O.	YES	A	YES	A	YES
3	**SCOPE OF SUPPLY**										
3.1	Oil Free Screw Compressors	-	2 (1+1)	A	YES	A	YES	A	YES	A	YES
3.2	Coupling with Non-sparking Guard	-	Required	A	YES	N	NO	A	YES	A	YES
3.3	Pressurized Lubrication System	-	Required	A	YES	A	YES	A	YES	A	YES
3.4	Drivers (Electro motor) and Accessories, Space Heater	-	Required	A	YES	A	YES	A	YES	A	YES
3.5	Gearbox	-	Required	A	YES	A	YES	A	YES	NA	YES
3.6	Inlet Air Filter and Silencer	-	Required	A (Blow down discharge silencer has been considerd)	YES	A	YES	A	YES	A	YES
3.7	Accessories for Inlet Filter Cleaning	-	Required	NA	NO	NA	NO	PDT	YES	A	YES
3.8	Interstage air cooler and water separator and water trap	-	Required	A	YES	A	YES	A	YES	A	YES
3.9	After cooler, Outlet water separator(at down stream of after (with water trap cooler	-	Required	A	YES	N (WATER TRAP)	NO	A	YES	A	YES
3.10	Capacity Control system	-	Required	Blow down valve has been considered . Compressor is load/unload	YES	A	YES	A	YES	A	YES
3.11	Air Dryer Package	-	2 (1+1 columns)	A	YES	A	YES	A	YES	A	YES
3.12	Instrumentations (Minimum as per PID & duty spec)	-	Required	N (AS Per HAVAYAR P&ID)	NO	NA	NO	A	YES	A	YES
3.13	Unit Control panel and local board dedicated to each Air Compressor and Dryer As per Project requirements (Air Package)	-	Required	2 Unit Control panel	YES	N	NO	A	YES	A	YES
3.14	Acoustic Enclosure (if any)	-	Required	A	YES	NA	YES	A	YES	NA	YES
3.15	Mating Flanges with Bolts, Nuts and Gasket (If Required)	-	Required	NA	YES	A	YES	A	YES	A (ON SKID)	YES
3.16	Grounding Bosses & Wiring	-	Required	A	YES	N (for air receiver)	NO	A	YES	A	YES
3.17	Ladders, Stairs, Platforms and Hand Railings,etc., Within the Package	-	Required	NA	YES	N(for air receiver)	NO	A	YES	A (ON SKID)	YES
3.18	All Interconnecting Piping, Valves and Fittings	-	Required	A (ON SKID)	YES	NS	NO	A	YES	A (ON SKID)	YES
3.19	All Electrical and Instrumentation Cabling	-	Required	A (ON SKID)	YES	NS	NO	A	YES	A (ON SKID)	YES
3.20	All Electrical and Instrumentation Junction Boxes	-	Required	A (ON SKID)	YES	NS	NO	A	YES	A (ON SKID)	YES
3.21	All Required Cable Trays, Tray Support and Cable Transits	-	Required	A (ON SKID)	YES	NS	NO	A	YES	A (ON SKID)	YES
3.22	Foundation Bolts and Nuts	-	Required	A	YES	A	YES	A	YES	A	YES
3.23	Name Plates for All Equipment	-	Required	A	YES	A	YES	A	YES	A	YES
3.24	Lifting Frames or Beams Including Slings and Shackles	-	Required	A (LIFTING LUG HAS BEEN CONSIDER)	YES	N (for air receiver lifting lug)	YES	NA	YES	A	YES
3.25	All Insulation and Heat Tracing	-	Required	NA	YES	NA	YES	NA	YES	A	YES
2.26	First Filling	-	Required	A	YES	A	YES	A	YES	A	YES
3.27	Personnel Safety Devices	-	Required	NA	YES	NA	YES	A	YES	A	YES
4	**SCOPE OF WORK**										
4.1	Engineering & Documentation	-	Required	A	YES	N	NO	A	YES	A	YES
4.2	Manufacturing & Assembling	-	Required	A	YES	N	NO	A	YES	A	YES
4.3	PIM (pre-inspection meeting)	-	Required	A	YES	N	NO	A	YES	A	YES
4.4	Procurement	-	Required	A	YES	N	NO	A	YES	A	YES
4.5	Inspection & Testing at shop	-	Required	A	YES	N	NO	A	YES	A	YES
4.6	Performance Guarantee	-	Required	A	YES	N	NO	A	YES	A	YES
4.7	Mechanical Guarantee	-	Required	A	YES	N	NO	A	YES	A	YES
4.8	Review of Purchaser's Drawings	-	Required	A	YES	N	NO	A	YES	A	YES
4.9	Painting	-	Required	A	YES	N	NO	A	YES	A	YES
4.10	Shipping and Transportation	-	Required	A	YES	N	NO	A	YES	A	YES
4.11	Packing & Preservation	-	Required	A	YES	N	NO	A	YES	A	YES
4.12	Certification	-	Required	A	YES	N	NO	A	YES	A	YES
4.13	Coordination with Sub vendors	-	Required	A	YES	N	NO	A	YES	A	YES
4.14	Export Customs Clearance	-	Required	NA	YES	N	NO	A	YES	A	YES
4.15	Obtain Any Export License or Other Official Authorization	-	Required	A	YES	N	NO	NA	YES	A	YES
4.16	Supervision for Installation	-	Required (As Option)	A	YES	A	NO	A	YES	A	YES
4.17	Supervision for Pre-commissioning, commissioning & Start up	-	Required (As Option)	A	YES	A	NO	A	YES	A	YES
4.18	Vendor Shop Training for Owner's Personnel	-	Required (As Option)	A	YES	A	NO	A	YES	A	YES
4.19	Insulation Work (If any)	-	Required	NA	YES	NA	YES	NA	YES	A	YES
5	**SITE CONDITION**										
5.1	Ambient temperature (Max./Min.)	°C	5~50	A	YES	A	YES	A	YES	A	YES
5.2	Relative Humidity (Max./Min.)	%	0~100%	A	YES	A	YES	A	YES	A	YES
5.3	Barometric Pressure	bara	0.914~0.991	A	YES	A	YES	A	YES	A	YES
6	**OIL FREE SCREW COMPRESSORS**										
6.1	Quantity		2 (1+1)	A	YES	A	YES	A	YES	A	YES
6.2	Manufacturer	-	VTS	HAVAYAR	YES	HAVASAN- AirEnd GHHRAND	YES	GHH Rand	YES	GHH	YES
6.3	Compressor Allowable Operating Temperature (Max. / Min.)	-	5/50	A	YES	A	YES	A	YES	A	YES
6.4	Delivered Flow	Nm^3/hr	VTS	170.8	A	438 @ Site	YES	235	YES	191	YES
6.7	Design Capacity (Dry Basis)	Nm^3/hr	191	A	YES	487 @ 20 °C , 0%, 1 atm	YES	235	YES	A	YES
6.5	Design Pressure	barg	12.5	A	YES	A	YES	A	YES	A	YES
6.6	Package Outlet Air Pressure	barg	9.5	A	YES	A	YES	A	YES	A	YES

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شماره پیمان:	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: 4 از 7
۰۵۳ – ۰۷۳ – ۹۱۸٤	BK	GCS	PEDCO	120	ME	TB	0006	D04	

REQ. NO: BK-GCS-PEDCO-120-ME-MR-0006	BIDDER NAME:	HAVAYAR	HAVASAN	PARS COMPRESSOR	ARAZ SANAT ASIA
QUOTATION NO.:		HY-01-1-3118	HAV-BK-HRGN-001	18910	ASA-LR-02-263
QUOTATION DATE:		11/4/2024	8/30/2023	9/1/2023	11/6/2024

No.	DESCRIPTION	UNITS	REQ'D BY PURCHASER	MEETS REQUISITION REQUIREMENTS							
				Bidder's Proposal	Status	Bidder's Proposal	Status	Bidder's Proposal	Status	Bidder's Proposal	Status
6.9	Dry Air Pressure at Normal Conditions at Producer's B/L	barg	9	A	YES	A	YES	A	YES	A	YES
6.10	Max. Outlet Air temperature @ after cooler outlet	°C	65	60	NO	A	YES	A	YES	A	YES
6.11	Max Dust Particle Size	-	≤ 0.1 μm	A	YES	A	YES	A	YES	A	YES
6.12	Noise Level	dB(A)	< 85	A	YES	A	YES	A	YES	A	YES
6.13	Capacity Control Method	-	Load/Unload	A	YES	A	YES	A	YES	A	YES
6.14	Cooling Type	-	Air Cooled	A	YES	A	YES	A	YES	A	YES
6.15	Intake Filter	-	Required	A	YES	A	YES	A	YES	A	YES
6.16	Air-end Manufacturer / Model	-	VTS	GHH Rand/CD8D	YES	AirEnd GHHRAND - CD 8D	YES	GHH Rand/CD8D	YES	GHH	YES
6.17	Power Transmission Method	-	Direct Coupled or Gear Type	Gear Type	YES	Gear Type	YES	Direct Coupled	YES	Direct Coupled	YES
6.18	Weight	kg	VTS	1817	YES	1900	YES	NS	NO	according catalogue of compressor & dryer	YES
6.19	Dimension (L x W x H)	mm	VTS	2240 x 1370 x 1985	YES	2000 x 1200 x 1650	YES	2450x1300x1950	YES	according catalogue of compressor & dryer	YES
6.20	Enclosure Fan Motor Power / Qty	kW	VTS	5.5	YES	4	YES	N	NO	5.5/A	YES
6.21	Room Mounted Control Panel per compressor	-	PLC Type C	A	YES	NS (refer to last Deviation list)	NO	A	YES	PLC Type C	YES
6.22	SIL Rated loops for safety functions		Required	N	YES	NS	NO	N (SIL studey by EPC contractor)	YES	A	YES
6.23	Control Panel Power (UPS/Non UPS)	KW	110VAC/230VAC	2KW/1.5KW (For each UCP as Per HAVAYAR Load list	YES	NS	NO	A	YES	A	YES
6.24	Instrumentation/Analyzer		As per Specification	Noted by considering deviation list/ Dew point transmitter on dryer common header	YES	refer to last Deviation list	NO	A (DEWPOINT)	YES	A	YES
6.25	Local Control Panel		Required per compressor	Noted only for stop, start and status without control function. Control is by UCP	YES	A	YES	A	YES	A	YES
6.26	Cabling to LCP		Required	A	YES	NS	NO	A	YES	A	YES
6.27	Serial Link connection	-	Modbus RTU	A	YES	NS	NO	A	YES	A	YES
7	**MAIN MOTOR**										
7.1	Manufacturer	-	VTS	JEMCO	YES	WEG	YES	JEMCO/OME	YES	ABB/SIEMENS/WEG	YES
7.2	Motor Power	-	KW	55	YES	55	YES	75	YES	55	YES
7.3	Power Supply	V / HZ / PH	400/50/3	A	YES	A	YES	A	YES	A	YES
7.4	IP Degree / Temperature Class	-	VTS	55/B	YES	IP 55 Insulation Class=F- Motor Temp. Rise Class: B	YES	54/T3	YES	55/T4	YES
7.5	Speed, Motor / Compressor	rpm	VTS	3000	YES	3000	YES	2950	YES	3000	YES
8	**AIR DRYER**										
8.1	Manufacturer	-	VTS	HAVAYAR	YES	Desiccant Dryer- HAVASN	YES	Pars compressor	YES	ASA CO.	YES
8.2	Type / Design Code	-	Heatless Desiccant/ASME SEC. VIII DIV.1 & 2	Heatless Desiccant/ ASME SEC. VIII DIV.1	YES	A	YES	A	YES	A	YES
8.3	Dryer Life Time	-	not less than 3 years	A	YES	A	YES	A	YES	A	YES
8.4	Quantity	-	2	A	YES	A	YES	A	YES	2	YES
8.5	Desiccant Material	-	Molecular seive /Activated Alumina	A	YES	Molecular seive	YES	A	YES	Carbon Molecular seive	YES
8.6	Cycle time	min	VTS	7~15	YES	5	YES	20	YES	5/3/2	YES
8.7	Dryer Capacity	Nm^3/hr	VTS	300	YES	1080 @ 35 °C , 100%, 7 bar	YES	NS	NO	175	YES
8.8	Inlet Flow Rate	Nm^3/hr	VTS	140.8	YES	1080	YES	235	YES	150	YES
8.9	Outlet Flow Rate	Nm^3/hr	119.7	A	YES	900 (With max. 20 % purge)	YES	188	YES	A	YES
8.10	Regeneration Flow Ratio	%	VTS	15	YES	20	YES	15-20	YES	15	YES
8.11	Dew Point	°C	-40 @ 8 barg	A	YES	A	YES	A	YES	A	YES
8.12	Oprating Pressure	barg	9	A	YES	A	YES	A	YES	A	YES
8.13	Design Pressure	barg	12.5	A	YES	A	YES	A	YES	A	YES
8.14	Hydrotest Pressure	barg	VTS (1.5*MAWP)	1.3 * Design pressure	YES	A	YES	A	YES	A	YES
8.15	Inlet Temperature	°C	60	A	YES	A	YES	A	YES	A	YES
8.16	Tower Design Code	-	ASME SEC. VIII DIV.1	A	YES	A	YES	A	YES	A	YES
8.17	Material for Shell / Head	-	VTS	SA106 Gr B/SA 234 WPB	YES	SA 516 Gr.70	YES	CS	YES	A516 Gr. 70	YES
8.18	Corrosion Allowance	mm	3.2	A	YES	A	YES	A	YES	3.2	YES
8.19	Safety Valve	-	Required	A	YES	A	YES	A	YES	A	YES
8.20	Pre Filter / Qty.	-	Required / 2	A	YES	A	YES	A	YES	A/2	YES
8.21	After Filter/ Qty.	-	Required / 2	A	YES	A	YES	A	YES	A/2	YES
8.22	Filter Manufacturer	-	VTS	OMEGA	NO	OMEGA AIR	NO	MIKROPOR	NO	Dominic hunter	NO
8.23	Dryer LCP	-	Yes , IP65	A Yes , IP65(LCP include only Stop Start and status without control function)	YES	A	YES	IP 55	NO	A	YES
8.24	Dryer instrumentation/IP/EEX	-	As per Specification	IP65, Safe (Non-Ex)	YES	NS	NO	A	YES	According PID/54/Safe location	YES
8.25	Cabling to LCP		Required as per specification	A	YES	NS	NO	A	YES	A	YES
8.26	Dryer Controller Type	-	Microprocessor	BY UCP		TI Designed by CMC	NO	A	YES	PLC	YES
FINAL CONCLUSION				**ACCEPTED**		**CONDITIONALLY ACCEPTED(if approved by the CLIENT)**		**ACCEPTED**		**ACCEPTED**	

NOTES:

ABBREVIATIONS: A: ACCEPTED By Vendor N: NOT ACCEPTED By Vendor NA:Not Applicable NS:Not Specified C:Clarification Required VTS: Vendor to Specify

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شماره پیمان:	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: 5 از ۷
۰۵۳ – ۰۷۳ – ۵۱۸۴	BK	GCS	PEDCO	120	ME	TB	0006	D04	

REQ. NO: BK-GCS-PEDCO-120-ME-MR-0006	BIDDER NAME:	HAVAYAR	HAVASAN	PARS COMPRESSOR	ARAZ SANAT ASIA
QUOTATION NO.:		HY-01-I-3118	HAV-BK-HRGN-001	18910	ASA-LR-02-263
QUOTATION DATE:		11/4/2024	8/30/2023	9/1/2023	11/3/2024

No.	DESCRIPTION	UNITS	REQ'D BY PURCHASER	MEETS REQUISITION REQUIREMENTS							
				Bidder's Proposal	Status	Bidder's Proposal	Status	Bidder's Proposal	Status	Bidder's Proposal	Status
	Nitrogen Production Package										
1	**GENERAL**										
1.1	Guarantee & Warranty as per project requirement	-	12 month after successfull start up or 18 month after delivery at site	A	YES	A	YES	A	YES	A	YES
1.2	Delivery Time	-	As per project requirement	9	YES	8	YES	14 M (because of UCP 57400 FH delivery time)	YES	As per project requirement	YES
1.3	Delivery Location	-	As per project requirement	Ex - work Havayar Factory	YES	TABRIZ-HAVASAN	YES	DDP At site	YES	As per project requirement	YES
2	**DOCUMENTS CHECK LIST**										
2.1	Quality System Certificates	-	Required	A	YES	A	YES	A	YES	A	YES
2.2	Catalogues	-	Required	A	YES	A	YES	A	YES	A	YES
2.3	Sub-Vendor List	-	Required	A	YES	A	YES	A	YES	A	YES
2.4	Scope of Supply & Work (Attachment of MR)	-	Required	A	YES	A	YES	A	YES	A	YES
2.5	Deviation List	-	Required	A	YES	A	YES	A	YES	A	YES
2.6	Reference and Installation List	-	Required	A	YES	A	YES	A	YES	A	YES
2.7	Recommended Spare Part List for erection & Commissioning	-	Required	A	YES	A	YES	A	YES	A	YES
2.8	Recommended Spare Part List for 2 Years of Operation	-	Required	A	YES	NS	NO	A	YES	A	YES
2.9	Special Tools List (If Required)	-	Required	NA	NO	NA	NO	NA	NO	A	YES
2.10	P&ID	-	Required	A	YES	A	YES	A	YES	A	YES
2.11	Process Flow diagram	-	Required	A	YES	NS	NO	A	YES	A	YES
2.12	Control Philosophy	-	Required	After PO	YES	N	NO	After P.O.	YES	A	YES
2.13	ESD Philosophy	-	Required	NA	YES	N	NO	After P.O.	YES	A	YES
2.14	Main Equipment list	-	Required	A	YES	After P.O.	YES	A	YES	A	YES
2.15	Calculation Note For PSV Sizing	-	Required	A PSV Sizing on skid is as per manufacturer design and standard	YES	NA	NO	After P.O.	YES	A	YES
2.16	Operating Manual	-	Required	After PO	YES	After P.O.	YES	After P.O.	YES	A	YES
2.17	Outline/General Lay-out Drawings	-	Required	A	YES	After P.O.	YES	A	YES	A	YES
2.18	Data Sheets for All Equipment Inside the Package	-	Required	A	YES	After P.O.	YES	A	YES	A	YES
2.19	Utility Consumption List	-	Required	A	YES	N	NO	A	YES	A	YES
2.20	Load List	-	Required	A	YES	A	YES	A	YES	A	YES
2.21	Control System Architecture Drawing	-	Required	A	YES	After P.O.	YES	A	YES	A	YES
3	**SCOPE OF SUPPLY**										
3.1	Pre filter / After Filter / Dust Filter	-	2/2/1	2/2/2	YES	N	NO	A	YES	2/2/1	YES
3.2	Carbon Mole Sieve Adsorption Vessels	-	Required	A	YES	A	YES	A	YES	A	YES
3.3	Gearbox	-	Required	A	YES	A	YES	A	YES	NA	YES
3.4	Chiller Package	-	Required	A	YES	A	YES	A	YES	NA	YES
3.5	On-skid piping, tubing & wiring	-	Required	A	YES	A	YES	A	YES	A	YES
3.6	Base plate	-	Required	A	YES	A	YES	A	YES	A	YES
3.7	Earthing system	-	Required	A (ON SKID)	YES	A	YES	A	YES	A	YES
3.8	Name plates for all equipment	-	Required	A	YES	A	YES	A	YES	A	YES
3.9	Any other required accessories	-	Required	A	YES	A	YES	A	YES	A	YES
3.10	Commissioning spare parts	-	Required	A	YES	A	YES	A	YES	A	YES
3.11	Two years spare parts	-	Required	A	YES	A	YES	A	YES	A	YES
3.12	Special tools (if any)	-	Required	NA	YES	NA	YES	NA	YES	A	YES
3.13	First Filling	-	Required	A	YES	A	YES	A	YES	A	YES
3.14	Unit Control Panel dedicated to each Nitrogen Package as per project requirements (N2 Package)	-	Required	One Unit Control Panel has been considered for N2 package. Chiller has local controller.	YES	A	YES	A	YES	A	YES
3.15	Personnel Safety Devices	-	Required	NA	YES	NA	YES	A	YES	A	YES
4	**SCOPE OF WORK**										
4.1	Engineering & Documentation	-	Required	A	YES	N	NO	A	YES	A	YES
4.2	Manufacturing & Assembling	-	Required	A	YES	N	NO	A	YES	A	YES
4.3	PIM (pre-inspection meeting)	-	Required	A	YES	N	NO	A	YES	A	YES
4.4	Procurement	-	Required	A	YES	N	NO	A	YES	A	YES
4.5	Inspection & Testing at shop	-	Required	A	YES	N	NO	A	YES	A	YES
4.6	PMI for Non-Carbon Steel material	-	Required	A	YES	N	NO	A	YES	A	YES
4.7	PWHT/ Stress Relieve (if required)	-	Required	NA	YES	N	NO	A	YES	A	YES
4.8	Chemical Cleaning, Pickling & Passivation for Stainless Steel Parts	-	Required	NA	YES	N	NO	A	YES	A	YES
4.9	Wiring and Tubing to Junction Boxes	-	Required	A (ON SKID)	YES	N	NO	A	YES	A	YES
4.10	Interconnecting piping inside unit assembly	-	Required	A	YES	N	NO	A	YES	A	YES
4.11	Review of Purchaser's Drawings	-	Required	A	YES	N	NO	A	YES	A	YES
4.12	Painting	-	Required	A	YES	N	NO	A	YES	A	YES
4.13	Participation in HAZOP and SIL Study		Required	A	YES	N	NO	A	YES	A	YES
4.14	Shipping and Transportation	-	Required	A	YES	N	NO	A	YES	A	YES
4.15	Packing & Preservation	-	Required	A	YES	N	NO	A	YES	A	YES
4.16	Certification	-	Required	A	YES	N	NO	A	YES	A	YES
4.17	Coordination with Subvendors	-	Required	A	YES	N	NO	A	YES	A	YES
4.18	Export Customs Clearance	-	Required	A	YES	N	NO	A	YES	A	YES
4.19	Obtain Any Export License or Other Official Authorization	-	Required	A	YES	N	NO	NA	NO	A	YES
4.20	Supervision for Installation	-	Required (As Option)	A	YES	A	YES	A	YES	As Option	YES
4.21	Supervision for Pre-commissioning, commissioning & Start up	-	Required (As Option)	A	YES	A	YES	A	YES	As Option	YES
4.22	Vendor Shop Training for Owner's Personnel	-	Required (As Option)	A	YES	A	YES	A	YES	As Option	YES
4.23	Insulation Work (If any)	-	Required	NA	YES	NA	YES	A	YES	A	YES
5	**SITE CONDITION**										
5.1	Ambient temperature (Max./Min.)	°C	5~50	A	YES	A	YES	A	YES	A	YES
5.2	Relative Humidity (Max./Min.)	%	0~100%	A	YES	A	YES	A	YES	A	YES
5.3	Barometric Pressure	bara	0.914~0.991	0.991	YES	A	YES	A	YES	A	YES
6	**OIL FREE SCREW COMPRESSOR**										
6.1	Quantity		1	A	YES	A	YES	A	YES	A	YES
6.2	Manufacturer	-	VTS	HAVAYAR	YES	HAVASAN- AirEnd GHHRAND	YES	GHH RAND	YES	GHH	YES
6.3	Compressor Allowable Operating Temperature (Max. / Min.)	°C	5/50	A	YES	A	YES	A	YES	A	YES
6.4	Delivered Flow	Nm^3/hr	VTS	194	YES	438 @ Site	YES	FAD=320 m3/hr	YES	124	YES
6.5	Design Pressure	barg	12.5	A	YES	A	YES	A	YES	A	YES
6.6	Package Outlet Air Pressure	barg	9	9.5	YES	A	YES	A	YES	A	YES
6.7	Max. Outlet Air temperature @ after cooler outlet	°C	65	60	NO	A	YES	A	YES	A	YES
6.8	Max Dust Particle Size	-	≤ 0.1 μm	A	YES	A	YES	A	YES	A	YES
6.9	Noise Level	dB(A)	85	A	YES	A	YES	A	YES	A	YES
6.10	Capacity Control Method	-	Load/Unload	A	YES	A	YES	A	YES	A	YES

NISOC	تکمیل داشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک	
	TBE FOR INSTRUMENT/PLANT AIR & NITROGEN PACKAGES	

شماره پیمان:	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: 6 از 7
۰۵۳ – ۰۷۳ – ۹۱۸۴	BK	GCS	PEDCO	120	ME	TB	0006	D04	

REQ. NO: BK-GCS-PEDCO-120-ME-MR-0006	BIDDER NAME:	HAVAYAR	HAVASAN	PARS COMPRESSOR	ARAZ SANAT ASIA
QUOTATION NO.:		HY-01-I-3118	HAV-BK-HRGN-001	18910	ASA-LR-02-263
QUOTATION DATE:		11/4/2024	8/30/2023	9/1/2023	11/3/2024

No.	DESCRIPTION	UNITS	REQ'D BY PURCHASER	MEETS REQUISITION REQUIREMENTS							
				Bidder's Proposal	Status	Bidder's Proposal	Status	Bidder's Proposal	Status	Bidder's Proposal	Status
6.11	Cooling Type	-	Air Cooled	A	YES	A	YES	A	YES	A	YES
6.12	Intake Filter	-	Required	A	YES	A	YES	A	YES	A	YES
6.13	Air-end Manufacturer / Model	-	VTS	GHH Rand/CD8D	YES	AirEnd GHHRAND - CD 8D	YES	GHH Rand/CD8D	YES	GHH	YES
6.14	Power Transmission Method	-	Direct Coupled or Gear Type	Gear Type	YES	Gear Type	YES	Direct Coupled	YES	Direct Coupled	YES
6.15	Weight	kg	VTS	1817	YES	1900	YES	NS	NO	according catalogue data for compressor and dryer	YES
6.16	Dimension (L x W x H)	mm	VTS	2240 x 1370 x 1985	YES	1999 x 1200 x 1650	YES	2450x1300x1950	YES	according catalogue data for compressor and dryer	YES
6.17	Enclosure Fan Motor Power / Qty	kW	VTS	5.5/1	YES	4	YES	75	YES	3KW/1	YES
6.18	Controller of Compressor Skid	-	PLC	A By N2 package UCP	YES	A BY N2 PACKAGE UCP	YES	TYPE C, QTY=1	YES	PLC	YES
6.19	Control Panel Power	KW	VTS	64.5kW (as per havayar load list)	YES	NS	NO	NS	YES	110VAC/230VAC	YES
6.20	Out Put Serial Link	-	VTS	Via hardwired	NO	NS	NO	NS	NO	MODBUS	YES
7	**MAIN MOTOR**										
7.1	Manufacturer	-	VTS	JEMCO	YES	WEG	YES	JEMCO/OME	YES	ABB/SIEMENS/WEG	YES
7.2	Motor Power	kW	VTS	55	YES	55	YES	75	YES	45	YES
7.3	Power Supply	V / HZ / PH	400/50/3	A	YES	A	YES	A	YES	400/50/3	YES
7.4	IP Degree / Temperature Class	-	VTS	55/B	YES	IP 55 Insulation Class=F- Motor Temp. Rise Class: B	YES	55/T3	YES	55/T4	YES
7.5	Speed, Motor / Compressor	rpm	VTS	3000	YES	3000	YES	2950	YES	30000	YES
8	**PROCESS DESIGN**										
8.1	Dry Air Demand for Nitrogen Production (at inlet to N2 Generators)	Nm3/hr	VTS	165	YES	206.5	YES	188	YES	181	YES
8.2	N2 Outlet Operating Pressure	barg	8.5	8	NO	6.5	YES	A	YES	8.5	YES
8.3	N2 Package Pressure Drop	barg	max. 1 bar	A	YES	A	YES	A	YES	A	YES
8.4	Design Pressure	barg	12.5	A	YES	A	YES	A	YES	A	YES
8.5	Dew Point	°C	-70 @ 1.013 bara	A	YES	A	YES	A	YES	A	YES
8.6	Max Oil Content- Inlet	-	≤ 1 ppm wt	NA	YES	NA	YES	A	YES	A	YES
8.7	Max Oil Content- Outlet	-	Oil Free	A	YES	A	YES	A	YES	A	YES
8.8	Max Allowable Dust	Micron	Less than 3	A	YES	A	YES	A	YES	A	YES
8.9	Nitrogen Purity	% vol	99.9	A	YES	A	YES	99	NO	A	YES
8.10	Oxygen Content	% vol	0.1 (max)	A	YES	A	YES	A	YES	0.5(MAX)	NO
9	**AIR DRYER**										
9.1	Manufacturer	-	VTS	HAVAYAR	YES	Omega Air	NO	PARS COMPRESSOR	YES	ASA CO	YES
9.2	Type / Design Code	-	Heatless Desiccant/ASME SEC. VIII DIV.1 & 2	Heatless Desiccant/ASME SEC. VIII DIV.1	YES	Heatless Regeneration Adsorb Dryer/ASME SEC. VIII DIV.1-API code vesselss	YES	A	YES	A	YES
9.3	Dryer Life Time	-	not less than 3 years	3~5	YES	NS	NO	A	YES	A	YES
9.4	Quantity	-	1	A	YES	A	YES	A	YES	A	YES
9.5	Desiccant Material	-	Molecular seive /Activated Alumina	A	YES	A	YES	A	YES	Molecular seive	YES
9.6	Cycle time	min	VTS	7~15	YES	NS	NO	20	YES	5/3/2002	YES
9.7	Dryer Design Capacity	Nm^3/hr	34	A	YES	1204 m3/hr	YES	420	YES	34	YES
9.8	Inlet Flow Rate	Nm^3/hr	VTS	194	YES	438	YES	225	YES	110	YES
9.9	Outlet Flow Rate	Nm^3/hr	124	165	YES	1204 m3/hr	YES	188	YES	124	YES
9.10	Inlet Temperature	°C	60	30	NO	55	NO	A	YES	60	YES
9.11	Hydrotest Pressure	barg	VTS (1.5*MAWP)	1.3 * Design pressure	YES	A	YES	A	YES	A	YES
9.12	Regeneration Flow Ratio	%	VTS	15	YES	NS	NO	15.2	YES	15	YES
9.13	Dew Point	°C	-40 @ 8 barg	A	YES	NS	NO	A	YES	A	YES
9.14	Oprating Pressure	barg	9	A	YES	NS	NO	A	YES	A	YES
9.15	Design Pressure	barg	12.5	A	YES	A	YES	A	YES	A	YES
9.16	Tower Design Code	-	ASME SEC. VIII DIV.1	A	YES	A	YES	A	YES	A	YES
9.17	Material for Shell / Head	-	VTS	SA106 Gr B/SA 234 WPB	YES	SA106 Gr 70/A106	YES	CS	YES	A516 Gr. 70	YES
9.18	Corrosion Allowance	mm	3.2	A	YES	A	YES	A	YES	A	YES
9.19	Safety Valve	-	Required	A	YES	A	YES	A	YES	A	YES
9.20	Pre Filter / Qty.	-	Required / 2	A	YES	NS	NO	A	YES	A/2	YES
9.21	After Filter/ Qty.	-	Required / 2	A	YES	NS	NO	A	YES	A/2	YES
9.22	Filter Manufacturer	-	VTS	HAVAYAR	YES	NS	NO	MIKROPOR	NO	Dominic hunter	YES
9.23	Dryer LCP	-	Yes , IP65	Yes , IP65 (LCP include only stop, start and status without control function)	YES	A	YES	A	YES	Yes , IP54	YES
9.24	Dryer instrumentation/IP/EEX	-	As per Specification	IP65, Safe (Non-Ex)	YES	NS	NO	A	YES	According PID/54/safe location	YES
9.25	Cabling to LCP		Required as per specification	A (ON SKID UP TO JB/LCP IS BY HAVAYAR)	YES	N	NO	A (Within BL)	YES	A	YES
9.26	Dryer Controller Type	-	Microprocessor	By N2 package UCP	YES	A	YES	A	YES	PLC	YES
10	**NITROGEN GENERATOR**										
10.1	Type of Nitrogen Generator	-	PSA	A	YES	A	YES	A	YES	A	YES
10.2	Quantity	-	1	A	YES	A	YES	A	YES	A	YES
10.3	Manufacturer	-	VTS	HAVAYAR	YES	OMEGA AIR	NO	PARS COMPRESSOR	YES	ASA CO	YES
10.4	Design Code	-	ASME Sec. VIII, Div. 1 & 2	A	YES	N	NO	A	YES	A	YES
10.5	Adsorption Material	-	VTS	Carbon Molecularseive	YES	Carbon molecular sieve (CMS)	YES	CMS	YES	Carbon Molecular seive	YES
10.6	Adsorption Life Time	-	Not less than 3 Years	A	YES	A	YES	A	YES	1 YEARS	NO
10.7	Adsorber Vessel Material	-	VTS	SA106 Gr B/SA 234 WPB	YES	Carbos steel	YES	NS	YES	A516 Gr. 70	YES
10.8	Maximum Allowable Inlet Temperature	°C	VTS	30	YES	55	YES	35	YES	55	YES
10.9	Volume of One Adsorber	m3	VTS	After P.O.	YES	305 lit	YES	After P.O.	YES	After P.O	YES
10.10	Design Flow / Regeneration Flow	Nm3/hr	34 / VTS	34	YES	35.15	YES	After P.O.	YES	34/60	YES
10.11	Regeneration Sequence Duration	Sec	VTS	After P.O.	YES	A (Pressure Swing Adsorption (PSA))	YES	After P.O.	YES	5/3/2	YES
10.12	Room Mounted Control Panel	-	PLC Type C	PLC S7-1200	NO	NS	N	PLC-Type C	YES	PLC TYPE C	YES
10.13	SIL Rated loops for safety functions		Required	NA	NO	NS	N	To be Gudied by SIL meeting	YES	A	YES
10.14	Control Panel Power (UPS/Non UPS)	KW	110VAC/230VAC	2kW/1.5kW (Included in N2 package UCP)	YES	NS	N	A	YES	A	YES
10.15	Instrumentation/Analyzer		As per Specification	A (deviation check)	YES	A (oxygen analyzer)	??	A (O2/N2 Analyzer)	YES	A	YES
10.16	Local Control Panel		Required per compressor	LCP include only stop, start and status without control function. Control is by N2 package UCP	YES	A	YES	A	YES	A	YES
10.17	Cabling to LCP		Required	A ON SKID UP TO JB/LCP IS HAVAYAR	YES	N	YES	A Within BL	YES	A	YES
10.18	Serial Link connection	-	Modbus RTU	A (N2 package UCP)	YES	NS	NO	A	YES	A	YES
10.19	Exhaust Silencer SPL @ 1 m distance	dB (A)	< 85	A	YES	A	YES	A	YES	A	YES
10.20	Corrosion Allowance	mm	3.2	A	YES	Manufacture STD	NO	A	YES	A	YES
10.21	Oxygen analyzer and moisture analyzer	-	Required	A	YES	A	YES	A (O2 analyzer at n2 outlet and dew point tansmitter at Air dryer outlet)	YES	A	YES
10.22	Relief valves	-	Required	A	YES	A	YES	A	YES	A	YES
10.23	PSA Unit Skid Weight	kg	VTS	820	YES	1215	YES	NS	NO	ACCORDING TO CATALOGUR OF NITROGEN GENERATOR	YES
10.24	Dimension (L X W X H)	mm	VTS	110x860x2154	YES	1749 x 860 x 2361	YES	NS	NO	ACCORDING TO CATALOGUR OF NITROGEN GENERATOR	YES
11	**Chillers / Heat Exchangers or Refrigerant Dryer**										
11.1	Manufacturer / Model	-	VTS	As per Havayar sub vendor list/after P.O.	YES	OMEGA AIR-RDP 1300	YES	After P.O.	YES	NA	YES
11.2	Cooling Medium	-	VTS	AIR	YES	Air cooled	YES	Refrigerant R410a/Water	YES		YES
11.3	Inlet Temperature (Operating)	°C	VTS	60	YES	55	YES	NS	NO		YES
11.4	Outlet Temperature (Operating)	°C	VTS	30	YES	45	YES	NS	NO		YES
11.5	Design Temperature	°C	VTS	85	YES	85	YES	NS	NO		YES

NISOC	تکمیل تاسیسات و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک	
	TBE FOR INSTRUMENT/PLANT AIR & NITROGEN PACKAGES	

شماره پیمان:	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه
۰۵۳ – ۰۷۳ – ۹۱۸۴	BK	GCS	PEDCO	120	ME	TB	0006	D04

شماره صفحه: 7 از ۷

REQ. NO: BK-GCS-PEDCO-120-ME-MR-0006	BIDDER NAME:	HAVAYAR	HAVASAN	PARS COMPRESSOR	ARAZ SANAT ASIA
QUOTATION NO.:		HY-01-I-3118	HAV-BK-HRGN-001	18910	ASA-LR-02-263
QUOTATION DATE:		11/4/2024	8/30/2023	9/1/2023	11/3/2024

No.	DESCRIPTION	UNITS	REQ'D BY PURCHASER	MEETS REQUISITION REQUIREMENTS							
				Bidder's Proposal	Status	Bidder's Proposal	Status	Bidder's Proposal	Status	Bidder's Proposal	Status
11.6	Operating Pressure	barg	VTS	9.5	YES	10	YES	NS	NO		YES
11.7	Heat Exchanger Duty	KW	VTS	5	YES	10.6 low heat reject	YES	4	YES		YES
12	**PRE FILTER**										
12.1	Manufacturer / Model	-	VTS	HAVAYAR/OMEGA / HFR 0186	YES	NS	NO	MIKROPOR	NO	Dominic hunter	NO
12.2	Volume	Lit	VTS	After P.O.	YES	NS	NO	After P.O.	YES	1/2 inch AO TYPE	YES
12.3	Casing Material	-	VTS	SA106 Gr B/SA 234 WPB	YES	NS	NO	CS	YES	C.S.	YES
12.4	Filter Cartridge Material	-	VTS	borosilicate micro fibres	YES	NS	NO	SS/PEEK	YES	fiberglass	YES
12.5	Maximum Working Pressure	barg	VTS	9.5	YES	NS	NO	NS	NO	16	YES
12.6	Maximum Working Temperature	°C	VTS	30	YES	NS	NO	NS	NO	66	YES
12.7	Filtration Mesh	Micron	VTS	1	YES	NS	NO	0.1	YES	0.1	YES
12.8	Residual Oil Content After Filtration	mg/m3	VTS	OIL FREE	YES	NS	NO	NS	NO	0.1	YES
13	**AFTER FILTER**										
13.1	Type / Manufacturer / Model	-	Dust filter	HAVAYAR/OMEGA / HFR 0186	YES	OMEGA AIR- AF 0476-R	NO	Dust	YES	Dominic hunter	NO
13.2	Volume	Lit	VTS	After P.O.	YES	2.8 Lit. 510 Nm3/hr	YES	NS	NO	1/2 inch AA TYPE	YES
13.3	Casing Material	-	VTS	SA106 Gr B/SA 234 WPB	YES	AL	YES	CS	YES	C.S.	YES
13.4	Filter Cartridge Material	-	VTS	borosilicate micro fibres	YES	32075 R borosilicate micro fibres	YES	SS	YES	fiberglass	YES
13.5	Maximum Working Pressure	barg	VTS	9.5	YES	16	YES	NS	NO	16	YES
13.6	Maximum Working Temperature	°C	VTS	30	YES	65	YES	NS	NO	66	YES
13.7	Filtration Mesh	µm	VTS	0.1	YES	1	YES	5	YES	0.01	YES
13.8	Residual Oil Content After Filtration	mg/m3	VTS	OIL FREE	YES	OIL FREE	YES	Oil Free	YES	0.1	YES
14	**AIR RECEIVER VESSEL**										
14.1	Design Code	-	ASME SEC. VIII DIV. 1 & 2	ASME SEC. VIII DIV. 1	YES	ASME SEC. VIII DIV. 1	YES	A	YES	A	YES
14.2	Quantity	-	VTS	1	YES	1	YES	1	YES	1	YES
14.3	Capacity	m^3	VTS	1	YES	10	YES	NS	NO	3	YES
14.4	Position (Vertical/Horizontal)	-	VTS	Vertical	YES	Vertical	YES	V	YES	VERTICAL	YES
14.5	Dimensions (L x TL/TL)	mm	VTS	850x1600	YES	ID= 1700 , TL/TL=3850	YES	After P.O.	YES	1500*1500	YES
14.6	Design Pressure	bar g	VTS	12.5	YES	12.5	YES	NS	NO	16	YES
14.7	Hydrotest Pressure	bar g	VTS (1.5*MAWP)	1.3*Design pressure	YES	16.25	YES	A	YES	24	YES
14.8	Material	-	VTS	SA 516 GR 70	YES	SA 516 Gr.70	YES	CS	YES	A516 GR.70	YES
14.9	Corrosion Allowance	mm	VTS	3.2	YES	3.2	YES	1.6	YES	3.2	YES
15	**N2 BUFFER VESSEL**										
15.1	Design Code	-	ASME SEC. VIII DIV. 1 & 2	ASME SEC. VIII DIV. 1	YES	ASME SEC. VIII, DIV.1	YES	A	YES	A	YES
15.2	Quantity	-	VTS	1	YES	1	YES	1	YES	1	YES
15.3	Capacity	m^3	VTS	1	YES	10	YES	After P.O.	YES	1	YES
15.4	Position (Vertical/Horizontal)	-	VTS	Vertical	YES	Vertical	YES	V	YES	VERTICAL	YES
15.5	Dimensions (L x TL/TL)	mm	VTS	850x1600	YES	ID= 1700 , TL/TL=3850	YES	NS	NO	900*1500	YES
15.6	Design Pressure	bar g	VTS	12.5	YES	12.5	YES	NS	NO	16	YES
15.7	Material	-	VTS	1.3*Design pressure	NO	SA 516 Gr.70	YES	CS	YES	A516 GR.70	YES
15.8	Corrosion Allowance	mm	VTS	3.2	YES	3.2	YES	1.6	YES	3.2	YES
	FINAL CONCLUSION			ACCEPTED		CONDITIONALLY ACCEPTED(if approved by the CLIENT)		ACCEPTED		ACCEPTED	

NOTES:

ABBREVIATIONS: A: ACCEPTED By Vendor N: NOT ACCEPTED By Vendor NA:Not Applicable NS:Not Specified C:Clarification Required VTS: Vendor to Specify