

End User: M/s IOCL Paradip Refinery

Tender Ref No. T71T35342 (NIT_55411)

Project: Supply of Gas Chromatograph System for IOCL SRU-III project

S.No.	Reference Document	Clause no, Page No	BHEL / IOCL Requirement /Specifications	Bidder Query	BHEL Clarification on 15.09.2021.
1	Technical-Spec	46/556	Table-1 Sample composition	1) Please confirm if the requirement is for "Ethylene" or "C2 equivalent (C2=)" measurement. C2= shall include ethylene and ethane. Since ethane is already measured, we understand only Ethylene is to be measured and not all C2 equivalent. (or Total C2) 2) Please confirm if the requirement is for "Propylene" or "C3 equivalent (C3=)" measurement. C3= shall include propylene, propane and all other C3s. Since propane is already measured, we understand only propylene is to be measured and not all C3 equivalent (or Total C3) 3) Please confirm if the requirement is for "Butylene" or "C4 equivalent (C4=)" measurement. C4= shall include Butene, butylenes and other C4s. Since butane is already measured, we understand only butylene is to be measured and not all C4 equivalent (or Total C4)	1) "(C2=)" means only "Ethylene" to be measured. 2) "(C3=)" means only "Propylene" to be measured. 3) "(C4=)" means only "Butylene" to be measured.
2	Technical-Spec	46/556	Table-1 Sample composition	Normal concentration of ethylene is 31.99 mol% and ranges provided is 0 to 30 mol% which is less than the normal concentration. Request to kindly revisit the ranges of measurement for ethylene	Inorder to cover the normal concentration of ethylene is 31.99 mol% (in fuel refinery case), range of Ethylene (C2=) shall be considered as 0 to 35 mol%
3	Technical-Spec	59/556 76/556	Scope B366-999-16-51-SOW-2680	Bidder Scope of supply shall be only for Tag: 090-AT-0320-Gas chromatograph. GC shall be mounted inside shelter (supplied by others/part of other MR) and Sampling system on outside wall of shelter. BHEL to confirm the space availability for the same. GA details will be provided along with offer.	Bidder understanding is correct regarding location of GC inside the shelter. Interface with the shelter vendor shall be finalised during order execution [wrt GC installation inside shelter & sampling system outside shelter] stage.
4	Technical-Spec	97/556	Datasheet clause 39	We understand the fast loop return is vent to flare as per the "analyser shelter interface schematic". Hence 1) Sample tubing for return will be unheated type 2) Please confirm if the sample return can be connected to common shelter flare header and further tubing from shelter header to Flare in customer scope. Please confirm acceptance for the above points	1) Not acceptable, follow NIT indicated data sheets. 2)Not acceptable, Sample return cannot be connected to shelter flare header.
5	Technical-Spec	103/556	AMADAS architecture	Please provide specifications for Gas chromatograph to be supplied. Also we understand Bidder scope is only supply of PC (safe area), mounting of the same will be in customer scope. Kindly confirm if printer is to be considered in our scope, Then Specification for Printer and PC to be shared to quote accordingly.	Bidder to follow NIT spec (AMADAS SYSTEM ARCH Dwg) where only Workstation was requested and Printer was not required.
6	Technical-Spec	185/556	Job specification for AMADAS 080557C-000-JSS-1560-002	AMADAS is not in Bidder scope of supply and hence this document will not be referred for this tender.	AMADAS is not in the scope of bidder.
7	Technical-Spec	228/556	Specification for HVAC systems 080557C-088-SP-3480-001	HVAC system is not in Bidder scope of supply and hence this document will not be referred for this tender.	HVAC is not in the scope of bidder.
8	Technical-Spec	258/556	Controlling/marshalling cabinet 080557C-000-JSS-1511-005	Controlling/marshalling cabinet is not in Bidder scope of supply and hence this document will not be referred for this tender.	Confirmed
9	Technical-Spec	320/556	Instrument cable specification 080557C-000-JSS-1574-001	We understand scope of supply of cables (signal/power) in field shall be in customer scope and cables within shelter shall be in shelter vendor scope. Kindly confirm	Incoming power cables, signal cables (for analog outputs) and RS485 cables shall be in BHEL scope. All other cables within bidder supplied items shall be in bidder scope. Cable glands & lugs to be provided by bidder for all incoming & out going cables of bidder. As per NIT, supplied items with 20% spare quantities shall be provided.
10	Technical-Spec	377/556	Gas detection system 080557C-000-JSS-1511-003	Gas detection system is not in Bidder scope of supply and hence this document will not be referred for this tender.	Gas detection system is not in the scope of bidder.

11	Technical-Spec	406/556	Fire detection system 080557C-000-JSS-1511-004	Fire detection system is not in Bidder scope of supply and hence this document will not be referred for this tender.	Fire detection system is not in the scope of bidder.
12	Technical-Spec	544/556	Approved vendor list	Please share approved vendor list for this project.	Refer Cl. No. B5 of the SIV (Document No. B366-999-16-51-SIV-2680) attached with MR where Vendor List has been provided. For vendor list for minor items like cables, JB's, glands etc will be provided after post order.
13	Technical-Spec	---	Scope of Supply	The scope of Supply provided in the MR covers complete package for CEMS analyzers, AMADAS and gas chromatograph. We understand that as per the BOQ we only need to supply Gas chromatograph along with PC for Maintenance. BHEL to confirm.	Bidder understanding is correct. CEMS and AMADAS is not in the scope of bidder.
14	Technical-Spec	96 of 556	As per the GC Datasheet, sample probe shall be on-line automatic removal type with probe depressurisation/pressure relieving mechanism (Hydraulic type) and non-fly off design.	However the probe drawings shown on page no 28 of 556 of technical-spec is welded construction. Based on our experience and since the pressure is low we shall consider welded construction probe as per drawing and not as per datasheet. Please reconfirm.	Bidders reference to page 28 for probe is not correct. Bidder shall refer to details of the probe provided in Gas Chromatograph data sheet B366-090-YA-DS-6008 attached with the MR.
15	Technical-Spec	---	BOQ requirement: GC with PC for maintenance to be supplied	PC shall be supplied for GC maintenance as per below specifications: PC Specification: 1. Single Screen, 24 Inch LCD/LED Color Monitor, with 1 nos. of keyboards (1 standard QWERTY), 1 no of USB Mouse 2. Operating System: - Windows 10, MS Office. 3. Intel Processor i3. 4. 4 GB DDR-3 RAM 5. 500 GB HDD/DVD RW Graphics Card. 6. Antivirus software. 7. SMPS unit Make: Dell /HP /IBM	The PC configuration of latest industrial grade to be considered as a minimum. Further, the detailed specification will be finalised during order execution stage.
16	Technical-Spec	---	GC shall be mounted inside analyzer shelter supplied by CEMS Vendor.	Noted for Mounting. However we understand that integration of GC with shelter supplied by CEMS vendor shall be in the scope of BHEL. Supply of all the tubings, accessories between SHS mounted outside the shelter and GC shall be supplied by BHEL. Required power cables, utility tubings, tie off with Utility provided for shelter shall be done by BHEL. We understand that Bidder shall only supply Gas chromatograph and Maintenance PC. BHEL to confirm.	1) Only space provision for mounting of GC shall be provided by BHEL. All other tubings, accessories shall be in bidder scope. 2) For cable scope, refer S.No:9 replies above
17	Technical-Spec	103 of 556	Typical Architecture P&ID for Connectivity	Noted for architecture. However we understand that connectivity between GC (Inside analyzer shelter) to control room/maintenance PC shall be done by BHEL. Supply of required signal cable shall be in the scope of BHEL.	Noted
18	Technical-Spec	---	Supply as Gas chromatograph per BOQ.	In accordance to the BOQ received along with the MR, we understand that Bidder shall only supply Gas chromatograph (With Sample handling) system and Maintenance PC & the same shall be mounted inside analyzer shelter provided by the CEMS vendor. Hence Specifications provided for Shelter, HVAC, AMADAS, Fire & Gas Detection System, Marshalling cabinet etc are not applicable to us since it will not be a part of our supply for this project. Therefore, we are not obliged to comply for these specifications. BHEL to confirm.	Bidder understanding is correct. The GC interfacing with Shelter utilities / sampling shall be finalised during detailed engineering stage.
19	Technical-Spec	117 of 556	Performance Letter	Performance Letter provided is for stack gas analyzer system and not GC System. BHEL to recheck the form format.	Bidder to provide performance Letter for GC independently with same format.

20	Technical-Spec	117 of 556	Responsibility Chart	Responsibility chart provided is for complete package not GC System. BHEL to recheck the form format.	Bidder to provide responsibility chart for GC independently with same format.
21	PY 56575 TECHNICAL SPECIFICATION FOR ANALYSER SYSTEM (GAS CHROMATOGRAPH)	33/556	Vendor shall supply accessories (like cable glands, plugs, etc.) required for termination of purchasers' as well as vendor power cables.	we understand that Field Cables upto analyser panel including required accessories shall be in Purchaser Scope.	Refer sl no: 24, 30 & 32 responses below.
22	PY 56575 TECHNICAL SPECIFICATION FOR ANALYSER SYSTEM (GAS CHROMATOGRAPH)	34/556	All hardware within package required for earthing & connectivity up to BHEL's earth points shall be in vendor scope.	Earthing bar shall be made available at Gas Chromatograph Rack. Further connection to BHEL provided Earch Point shall be in Purchaser Scope.	Bidder understanding is correct. Refer sl no: 30 response.
23	PY 56575 TECHNICAL SPECIFICATION FOR ANALYSER SYSTEM (GAS CHROMATOGRAPH)	34/556	Start Up & Commissioning Spares, Mandatory Spares,	Please confirm which spares philosophy to be followed for subject tender.	CI No. B25 of Doc. NO. B366-999-YA-SI-2680 shall be followed.
24	PY 56575 TECHNICAL SPECIFICATION FOR ANALYSER SYSTEM (GAS CHROMATOGRAPH)	96/556	Gas Chromatograph Location: Inside Analyser Shelter	1) We understand that Power, Signal, Instrument Air, Carrier Gas Utilities shall be provided up to Gas Chromatograph inside shelter. 2) Shelter Power, Signal Junction Box shall be used for Gas Chromatograph, Separate Junction Box shall not be required.	1) Power, signal, instrument Air shall be provided up to Gas Chromatograph inside shelter by purchaser. Carrier gas by bidder for GC requirement and other requirements specified in the sl no:32 is part of bidder scope of supply. 2) Other than cables, any interfacing requirements like
25	PY 56575 TECHNICAL SPECIFICATION FOR ANALYSER SYSTEM (GAS CHROMATOGRAPH)	96/556	Repeatability of Measurement Component: (+/-) 1 % of FS	Please note that components <= 5 Mol% shall have Repeatability of (+/-) 2% of FS	Bidder shall offer the best possible repeatability and the same will be considered while offer evaluation.
26	PY 56575 TECHNICAL SPECIFICATION FOR ANALYSER SYSTEM (GAS CHROMATOGRAPH)	96/556	Probe: Retractable Probe	We understand that Manual Type Retractable Probe with Gland to be provided.	Bidder understanding is correct.
27	PY 56575 TECHNICAL SPECIFICATION FOR ANALYSER SYSTEM (GAS CHROMATOGRAPH)	96/556	Cycle Time: -	Please Note that Cycle Tme for subject analysis shall be approx 6 - 7 Minutes.	Bidder shall try to meet the cycle time considering suitable fast loops.

28	PY 56575 TECHNICAL SPECIFICATION FOR ANALYSER SYSTEM (GAS CHROMATOGRAPH)	97/556	Tubing Between Sample Take off Point to Analyser Shelter and Return to Sample Return Point.	We understand that Supply of Tubing is in Bidder Scope. However required Supply, Laying & Termination of Cable Trays for Sample Inlet & Return tubing shall be in Purchaser Scope.	Refer sl no: 32 response.
29	PY 56575 TECHNICAL SPECIFICATION FOR ANALYSER SYSTEM (GAS CHROMATOGRAPH)		Field Cables for Power & Signal Between Gas Chromatograph and DCS.	We understand that required Supply, Laying & Termination of Field cables for Power & Signal along with Cabel Trays shall be in in Purchaser Scope.	Bidder understanding is correct.
30	PY 56575 TECHNICAL SPECIFICATION FOR ANALYSER SYSTEM (GAS CHROMATOGRAPH)	102/556	GC Maintenance Terminal PC	We understand that 1 No. PC for for GC along with GC Software to be provided by Bidder at Main Control Room. However Required Furniture, Connectivity Modules, Field Cable Between GC and Main Control Room shall be in Purchaser Scope.	Bidder understanding is correct. Note that the required interfacing gadgets as per MR to be provided in order to integrate with purchaser system as indicated in the Enquiry specification scope documents.
31	PY 56575 TECHNICAL SPECIFICATION FOR ANALYSER SYSTEM (GAS CHROMATOGRAPH)	98/556	Single Stream Measurement Stream Composition	We undersand that Single Stream Gas Chromatograph to be provided for subject application.	Follow MR. (Note that, only one measurement sample line applicable for presnet job).
32	PY 56575 TECHNICAL SPECIFICATION FOR ANALYSER SYSTEM (GAS CHROMATOGRAPH)	34/556	Bidder's Scope of SERVICES (supervision of Erection & Complete commissioning	We undestand all required Erection & Installation Activities including Civil Work, Electrical Work, Laying & Termination Work with required erection accessories shall be in Purchaser Scope. Supervision of Erection shall be done under Bidder's Engineer.	Bidder understanding is correct except the work with in the bidder supplied equipments are with Bidder scope of work only. Ex: Laying / dressing of cables, connecting of impulse lines with tray (between take off to GC) to Bidder equipment etc., The necessary tools and takles (on returnable basis), erection consumables / hardware items /Dressino materials.
33	PY 56575 TECHNICAL SPECIFICATION FOR ANALYSER SYSTEM (GAS CHROMATOGRAPH)		Approved Vendor List	Please confirm approved sub vendor List for Sample Handling System Componenets.	Refer Cl. No. B5 of the SIV (Document No. B366-999-16-51-SI- 2680) attached with MR where Vendor List has been provided. For vendor list for minor items like cables, JB's, glands etc will be provided afer post order.
34	PY 56575 TECHNICAL SPECIFICATION FOR ANALYSER SYSTEM (GAS CHROMATOGRAPH)	37/556	Final Inspection including document verification as per approved QAP shall be carried out by CUSTOMER /CONSULTANT/ CUSTOMER's Third Inspection Agency & BHEL/BHEL's Third Party Inspection Agency / EIL at vendor	We understand that Third Party Inspection at Bidder's Place shall be in Purchaser Scope	Refer Cl No. B24 (b) of B366-999-16-51-SI-2680 attached with MR.
35	PY 56575 TECHNICAL SPECIFICATION FOR ANALYSER SYSTEM (GAS CHROMATOGRAPH)	37/556	Inspection & Factory Acceptance Test at Vendor works – by BHEL/EIL + VENDOR + PMC + IOCL as per approved FAT procedure	Please note FAT of Gas Chromatograph shall be conducted at EMERSON Navi Mumbai Works.	Refer to Cl No. B24 (a) & (d) of B366-999-16-51-SI-2680 attached with MR.

36	PY 56575 TECHNICAL SPECIFICATION FOR ANALYSER SYSTEM (GAS CHROMATOGRAPH)	34/556	5 years Post Warranty Annual Maintenance Contract (PWAMC) for analysers (i.e. after defective liability period of the contract)	We understand that PWAMC includes Quarterly Single Day Visit for Maintenance of GC. Spares, Consumables, Carrier Gas & Calibration Gas shall be in Purchaser Scope.	Refer to CI No. B28 of B366-999-16-51-SI-2680 attached with MR.
37	PY 56575 TECHNICAL SPECIFICATION FOR ANALYSER SYSTEM (GAS CHROMATOGRAPH)	34/556	CONSUMABLES for ONE-YEAR Operation shall be considered by bidder part of the offer.	We understand that Carrier Gas Cylinder & Calibration Gas Cylinder shall be supplied considering 1 Year of Operation. Further Refilling of same shall be in Purchaser Scope.	Refer to CI No. 1 (a) and 2(a) of doc. No. B366-999-16-51-MD- 2680 attached with MR.
38	Payment terms	21/72	Final Ten percent (10%) of the basic price of materials supplied will be retained as security deposit which will be released on: ☐ completion of all supplies of the contract ☐ receipt of Material Receipt Certificate (MRC) from project site engineer of owner/purchaser ☐ and on submission of other documents listed at Cl. 6.7	we request M/s BHEL to have a capping in terms of number of days from the date of invoice for release of final 10% payment. For example 6 months from the date of invoice.	Not acceptable. Shall be as per NIT document only
39	GCC	27/72	LD - 0.5 TO MAX 10%	Request you to confirm as 0.5 % to max 5%	Not acceptable. Shall be as per NIT document only