

ATT-2 Clarifications and Deviations

Amendments in red colour

No	C/D	Reference	Clarification / Deviation
1.	D	New Liquid seal	Liquid seal (Tag No. V-9101) is currently excluded by JZ scope of supply as the presence of 7 out of 8 steams with temperatures below 0°C make liquid seal system strongly not recommended, even with the provision of a liquid seal quick drain system. Even if the technically feasibility is there, the philosophy seems inconsistent with the whole system safety concept and, considering the system operation, the solution is absolutely not practical. JZHC strongly recommends to adopt a control system consisting of valves (an actuated valve with a single by-pass in correspondence of the existing elevated flare - by others). Control system philosophy to be discussed in detail. Refer to technical proposal for details
2.	D	EGF Smokeless through air assistance	Considering that the EGF is a continuous and low pressure system, air assistance is not recommended and therefore not quoted.
3.	C	EGF Max. Allowable Pressure Drop at Full Capacity	Max. Allowable Pressure Drop at Full Capacity at manifold inlet (JZHC B.L.) is currently considered 0.3 bar(g) as per Note 1 of data sheet. If the possibility of increasing this pressure drop is there, this will be a huge benefit in terms of EGF performances and costs reduction.
4.	C	EGF Fuel gas composition	Composition for both continuous and intermittent purge (post-purging) is 100% N ₂ .
5.	C	EGF Staging system layout	EGF is preliminary designed having from seven (7) to nine (9) stages. First stages shall be steam assisted to handle gas flowrate up to 35 ton/h, other stages shall be not assisted. This design is preliminary based on the assumption that no high content of hydrogen and butadiene in streams above 35 ton/h. Final design tbc during detailed engineering.
6.	C	EGF Pilots Number	1 st stage of EGF is equipped with No. two (2) pilots while at least No. one (1) pilot for each row for any additional stage is recommended.
7.	D	EGF Pilots	Pilots will be retractable type to allow easy removal and maintenance.
8.	C	EGF L&P	Being Customer request not clear, no Ladders & Platforms are currently included for accessibility at top of combustion chamber. This will be evaluated if required. Accessibility to retractable pilot is included. If additional L&P are required Customer to specify for which additional points accessibility is requested. Thermocouples for combustion chamber temperature check included.
9.	C / D	EGF P&ID – battery limits	Please refer to attached P&ID to clarify battery limits: <ul style="list-style-type: none"> as ignition system location is not clear any cable and pipes between ignition system and wind fence is by others Interconnecting piping, instrumentation, cables between ignition system and flare confirmed being included only if local panel will be installed closed to the flare (maximum distance from windfence 3 m). If local panel will be installed far from the flare (at more than 3 m from windfence) interconnecting will be by others. <ul style="list-style-type: none"> JZ LCP has no internal logic. Logic will be implemented in DCS (by others) TE are offered Double “K” type, No. 1 for each pilot – pilots are retractable type + acoustic system

10.	C	EGF Windfence	Windfence preliminary diameter is 25 m ± 20%. One side of the windfence will require approx. 10 additional m in order to locate flare staging system. JZHC is willing to adequate this aspect depending on plot plan, anyway Customer to check plant room availability. Windfence in H.D.G. CS by JZ.
11.	C	EGF Manifold Gas Inlet	As JZ B.L. will be as per JZ-55259- EGF Preliminary P&ID_rev0 (not including liquid seal) and gas header for the whole P1CR unit is indicated being 30", inlet manifold at JZHC is assumed being 24" (tbc).
12.	C	EGF Local codes and standards	JZHC is willing to support Customer providing all required documentation in order to comply with local regulation; obtaining approvals is not a Vendor responsibility. National and Local regulation will be applied where clearly explained and indicated in all applicable specifications. We clarify that our proposal is not including any certificate for government approval to local regulation and law.
13.	C	EGF Applicable specs	Applicable specifications for flare packages will be considered all and only those clearly provided with the RFQ. All specifications not provided are currently not considered and JZ standards are applied.
14.	C	070327C001-091-SP-0180-001_A – EGF package Data Sheet	<p>- SCOPE OF SUPPLY: please refer to P&ID for battery limits definition. Note that pipe connection size shall be as per point 12.</p> <p>-being a detailed piping class missing, materials while not explicitly indicated, and staging system connections will be as per JZ standard.</p> <p>- Expected combustion efficiency 99% for the flaring conditions specified in the Flare Datasheet (composition, flow rates)</p> <p>- LP steam has been assumed for steam consumption calculations (pressure 3 barg at flare burners, temperature 150°)</p> <p>-Note 3: see point 1; JZHC is not willing to modify an existing liquid seal (being not a JZHC design, no guarantees can be provided). If this will be required, JZHC is willing to supply a new liquid seal.</p> <p>-Note 4: see point 2</p> <p>3.4: - corrosion allowance for process parts CS only (3 mm)</p> <p>3.6: - as the combustion chamber is internally lined, panels will be painted with primer coating only CS casing lined with Ceramic Fiber will be internally painted with antacid coating (if applicable), corrosion allowance not applicable.</p>
15.		070327C-000-RFQ-0186-001_A Flare Package Material Requisition)	<p>BASE QUOTATION</p> <p>-1: PLC excluded as logic will be implemented in DCS (by others) JZ local control panel will have internal logic (relay logic only) as per Customer request.</p> <p>OPTIONS</p> <p>- 2: capital spares are not a Vendor decision; Customer to inform which items are required</p> <p>- 3: see point 2 two years spare parts recommended by JZ will be included in commercial proposal</p> <p>- 5/6: see points 1, 13</p> <p>- 7: Customer to clarify</p> <p>- 8: current delivery Ex-Works JZ selected workshops; transportation at site and erection currently not quoted (TDB)</p> <p>- 1.3: National and Local regulation as well as European Union Directives will be applied where clearly explained in all applicable</p>

			<p>specifications TBD 2.1-3.7: - the firebox section is lined with ceramic fibre refractory material in modules. Modules are bolted through the shell to minimize installation time. All the insulation is installed at site by others See attached - SS rain cap NA-included - HDG CS Wind fence TBD later by JZ - Staging system, post purge system, steam piping and staging distribution to burners, control valves and pressure transmitters, cabling, guides, conduit and supports as per P&ID B.L. - steam control system by others by JZ - Special Tools for Installation and Maintenance not necessary - roadworthy packing offered for items fabricated in EU; seaworthy packing for items fabricated outside EU - dispersion calculation in execution phase - please specify which kind of certificates are required Detailed ITP to be discussed during KOM - all meetings and site supervision will be regulated by attached TAA - In order to minimize the erection time, the combustion chamber shell is manufactured in pre-rolled bolted sectors assembled at site TBD - Hydrotest: as welds will be carried out on site, hydrotest on pipes will be by customer. Ignition system will be pneumatically tested 2.5.9: see point 8 3.9: flow transmitters by others 3.10: TBD EC declaration and CE marking included in JZ scope – cost will be included in commercial proposal 4: exact wording to be agreed during commercial discussion TBD 6: Submission date of documents will be discussed in KOM, following main documents will be submitted 4/6 weeks after PO: Flare data sheet / PID / utility consumption list / General Arrangement. 7: - JZHC can provide calculation of expected emission rates considering the following data: - Flare gas conditions as specified in Flare Datasheet (composition, flow rates) - Expected combustion efficiency 98%+ 99% for the flaring conditions specified in the Flare Datasheet (composition, flow rates) - Pollutants production rates as per AP42 for Nitrogen Oxides (0.07 lb/MMBTU) and for Carbon Monoxide (0.37 lb/MMBTU) Flare is designed to minimize emissions, and expected combustion efficiency for properly operated flares should be in the range of 98%+ (ref. to AP42). Note: AP42 is the primary compilation of emission factor information published by the US EPA (Environmental Protection Agency) containing a dedicated chapter about industrial flares (13.5). -Degree of prefabrication, Preliminary Shipping dimensions and weights, List of proposed sub-Vendors during detailed engineering</p> <p>APPENDIX – A - Inspection and test plan -To be discussed during more advanced phase of bidding Detailed ITP to be discussed during KOM</p>
16.	C	General	<p>Civil engineering design, foundations (including dead-man form guy wire and anchor bolts), and all civil engineering works are excluded. Mounting details and weights for equipment in our supply will be</p>

			<p>provided on drawings submitted in accordance with the project schedule.</p> <p>Preliminary weight estimation will be included in commercial proposal</p>
17.	C		<p>The supply and installation of permanent or temporary gas analyzers, flue gas sampling systems and equipment for emissions or performance testing are excluded.</p> <p>(temporary) flue gas sampling will be located at safety distance from the top.</p>
18.	C		<p>Pilot test is excluded as JZHC will provide report of pilot test carried out on same type of pilot.</p>
19.	C		<p>We exclude all piping, tubing and cabling work and material between flare stack base, panel, control room, and unit. We exclude all piping, conduit and cabling and material between flare stack base and panel, and between panel and control room / unit.</p> <p>Refer to point 9</p>
20.	C		<p>We have made no provision for heat tracing, insulation, cladding, internal painting or winterization of equipment.</p> <p>Not required</p>
21.	C		<p>JZHC have based their quotation on the received specifications, that must be considered as the sole applicable and contractual documents. Any specification-document not received has not been considered. As general rule, any specification mentioned throughout the received specifications, but not provided to JZHC, have not been considered as well.</p>
22.	C		<p>All items not specifically mentioned in our proposal are excluded from our scope of supply.</p>