REPLY TO PREBID QUERIES FOR OIL'S TENDER NO. CGI3675P24 HIRING SERVICE FOR CARRYING OUT RESIDUAL LIFE ASSESSMENT (RLA), FIT FOR PURPOSE /SERVICE (FFP/FFS) AND QUANTITATIVE RISK ANALYSIS OF OIL'S NAHARKHATIA- BARUANI (NBPL) & NUMALIGARH-SILIGURI (NSPL) PIPELINE

PRE-BIID MEETING HELD VIRTUALLY ON **26TH JUNE 2023 (MONDAY) FROM 1:30 PM TO 3 PM**

S. No.	Item Name/ No.	Page No.	Bidder Query	OIL's Response
			Query – Allied Engineers	
1	Bidder Evaluation Criteria	46 of 163	The asset under question is almost 1800 Kms – however, OIL India is looking for an experience of a mere 156 Km -> which is not even 10% of the total pipeline assets under purview of this scope. Please confirm if OIL India is looking for bidders with a much higher experience for performing similar works? Bidder suggests to maintain this at a minimum of 350 Kms. Please confirm?	As per the tender document
2	Bidder Evaluation Criteria	46 of 163	The scope requests the services of performing Quantitative Risk Assessment. However, the scope does not firm the specification of the Risk Assessment engine to be deployed for the purpose of achieving the actual representative deliverables of this job? Both API 1160 and ASME B31.8S state that there are four (4) approaches to performing Risk Assessment for pipelines: i. Using SME (Subject Matter Experts) ii. Using relative risk assessment iii. Using scenario-based model iv. Using a probabilistic risk assessment Pipeline & Hazardous Material Safety Administration (PHMSA) – Pipeline Regulators, USA has developed Pipeline Risk Modelling methods and tools for improved implementation of Risk Assessment systems as per https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2020-03/Pipeline-Risk-Modeling-Technical-Information-Document-02-01-2020-Final_0.pdf. This Govt. of USA document suggests that all upcoming Risk Assessment should go in the trajectory of a "Probabilistic Approach" (item-iv) in order to achieve the highest accuracy. Since the OIL India assets are 60+ years -> it is thus suggested to maintain that bidder risk engine must be Muhlbauer-4 or Equivalent Model only. Please confirm?	As per the tender document
3	Bidder Evaluation Criteria	46 of 163	It is requested for OIL India to mandate bidder to provide Risk Engine software details as part of the BEC which conforms to Muhlbauer-4 or Equivalent for performing Probabilistic Quantitative Risk Assessment of OIL India's aged pipeline assets. Please confirm?	As per the tender document

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4	Bidder Evaluation Criteria	46 of 163	It is requested for OIL India to request for proof of completion of 1000+ Kms of probabilistic based Quantitative Risk Assessment as part meeting the BEC using the Risk Engine as mentioned in above item-3. Please confirm?	As per the tender document
5	Scope of Work, Methodology of QRA	109 of 163	*It is requested for OIL India to add the following items under the item "Methodology of QRA" within the Scope of Work:* *i. Quantitative Risk Assessment (QRA) should be performed using Probabilistic Risk Engine for assessing risks to the pipeline for the following failure causes (threats):*	As per the tender document

Table within cell 5:

Failure Cause	Failure Mode		
	Small Leak	Large Leak	Rupture
Equipment Impact	25%	50%	25%
External and Internal Corrosion	85%	10%	5%
Stress Corrosion Cracking	0%	50%	50%
Manufacturing and Construction Defects	70%	20%	10%
Incorrect Operation and Maintenance	70%	20%	10%
Equipment Failure	85%	10%	5%
Geotechnical Hazards	20%	40%	40%
Seismic Hazards	0%	20%	80%
Other Causes	70%	20%	10%

In case of unavailability of data for certain threats, the risk engine should have a model with built-in data from actual pipelines. Proof of same needs to be provided as part of the bid. QRA risk engine having been a part of a global Joint Industry Program (JIP) will be considered an added benefit. In case of unavailable data pertaining to few of the pipeline failure causes, the QRA risk engine should utilize

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			data from the database from which failure modes can be ascertained. This will allow OIL to perform assessment for threats for which OIL does not have data for. Ex: Stress Corrosion Cracking, Manufacturing and Construction Defects (leading to fatigue crack damage mechanisms) etc. ii. *The QRA risk engine should allow perform advanced Monte Carlo simulations on a per defect basis for the ILI data supplied by OIL India. The model should be able to take into consideration the uncertainty associated in model inputs including uncertainties in ILI measurement of anomaly dimensions, pipeline/material properties and failure prediction model. This will be inclusive of the ability to calculate the probability of failure considering interacting sets of defects.* iii. *The probabilistic QRA results shall be provided for the below mentioned deliverables with the quantitative measurement units as provided below. This shall be calculated for each chainage and for each threat individually as well as "combined" from the applicable ten (10) pipeline threat categories as listed above. The results obtained can be simulated for Year-1 upto Year-5 allowing OIL India to view results of resultant risk value for an extended time-period.* Reliability ⇒ Failure Rate (INR/km-yr, /yr) Financial risk ⇒ Expected Cost (INR/km-yr, INR/yr) Environmental risk ⇒ Expected Release Volume (m^3/km-yr, m^3/yr) Safety risk (societal) ⇒ Expected Fatalities (N/km-yr, N/yr), F-N Curve Safety risk (individual) ⇒ Individual Risk (chance/yr) **Combined risk** ⇒ **Combined Impact (INR/km-yr, INR$/yr)**	
6	Scope of Work	109 of 163	Please confirm OIL India will provide digital editable data (excel/.csv format) for items as listed under 4.2 (Page-110 of 163), population density data, all river crossing data, SCADA operating parameters, etc.?	Digital editable data shall be provided wherever available

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			Query- Bureau Veritas India Limited	
1	BEC-BRC	Tech Criteria-A 1.1	Bidders must have Experience of having successfully completed at least one job of Carrying out Residual Life Assessment (RLA) or Fit For Purpose (or) Fit For Service (FFP/FFS) of any cross-country hydrocarbon pipeline for a minimum length of 156 km in a single contract in previous 7(seven) years to be reckoned from the original bid closing date	As per the tender document