Supplier Capability Survey / Technical Questionnaire

|  |  |
| --- | --- |
| Company Name: |  |

Type of Business:

Address:

|  |
| --- |
|  |
|  |
|  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Telephone: |  |  | Fax: |  |
| Contact: |  |  | Position: |  |

1. Country and Date of Incorporation

|  |
| --- |
|  |
|  |
|  |

1. Registered Address – if different from above:

|  |
| --- |
|  |
|  |
|  |

1. Total Number of Direct Employees:

|  |
| --- |
|  |

1. Company turnover per year for past two years:

|  |  |
| --- | --- |
| $CDN |  |
| $CDN |  |

1. What is the maximum dollar value of a job you believe your company is capable of handling?

|  |  |
| --- | --- |
| $CDN |  |

1. Has your Company previously supplied goods/services to Hebron or Hibernia?

Yes No

If yes, please specify:

|  |
| --- |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |

1. General Chemical Program Management

Please describe the company’s chemical program management process:

1. How best in class chemistries are ensured that are value added,
2. How chemical costs per barrel will be controlled,
3. What resources, experience, and knowledge are and can be made available to manage the process chemistry that will minimize the cost per barrel and maximize production and uptime,

|  |
| --- |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |

1. Competency Assurance

Does the company maintain a Competency Assurance program?

Yes No

If yes, please specify:

1. With respect to the direct and indirect support, how is competency managed and maintained.
2. What levels of education and experience are required for key positions?
3. Are positions assigned a criticality level with respect to safety, quality assurance, or other key business parameters?
   * 1. If so, what is the management process?

|  |
| --- |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |

1. Crude Demulsification (Dewatering) and Produced Water Treatment

Hebron is comprised of several oil bearing reservoirs, but primarily will consist of heavy crude (19°API) that forms tight emulsions. The crude is viscous with emulsion viscosities that are a function of water cut and are more viscous than the whole crude. It is similar to Grane crude, but more viscous with a greater inversion point. There are also some indications of an increased crude conductivity versus typical lighter crudes. The sales specification for BS&W is 0.5%.

Separating oil, water, and gas are conducted using a primary, Medium Pressure (MP) Separator, a Low Pressure (LP) Separator, and an Oily Water Separator. There is preheat at the inlet of the MP Separator and the LP Separator. Production facilities also employ several relatively novel electrostatic coalescing technologies.

Within the MP Separator are Teflon coated electrostatic plates, Vessel Internal Electrostatic Coalescer (VIEC), supplied by Wartsilla. The LP Separator has a simple coalescing vane pack. At the outlet of the LP Separator is a Compact Electrostatic Coalescer (CEC) supplied by Aker. At the outlet of the CEC is the Oily Water Separator. This is a 3D Electrostatic Coalescer also supplied by Aker.

All produced water is collected at the MP Separator and from there treated with MI Swaco Hydrocyclones and Compact Flotation units prior to overboard disposal.

* 1. Chemical Selection Process

Please describe the process and technologies that will be utilized to select the most appropriate demulsifier and water clarifier and how that process will ensure consistency with the technologies employed at Hebron.

|  |
| --- |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |

* 1. Chemical Management

Please describe how the process chemistry will be managed to ensure that the best in class chemicals are in use and is value added in maintaining the required BS&W specification and produced water quality.

|  |
| --- |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |

* 1. Troubleshooting

Describe the processes, technologies, and resources to be employed and that would be made available in the event that the required BS&W or produced water specifications are exceeded.

|  |
| --- |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |

1. Crude Dewatering and Produced Water Treatment

Hibernia is comprised of various oil reservoirs with a wide range of depth, conditions and connectivity. Hibernia wells have a wide range of operating conditions with varying GOR, H2S level, watercut, asphaltenes content, etc. On average, Hibernia’s crude API is 33°. At the surface, oil is routed through the HP separator or the MP separator depending on the individual well’s pressure. The HP separator is a 2-phase separator and the MP and LP separators are 3-phase separators. The production train also include coalescers equipped with electrical grids to further dewater the crude. The crude specification prior to storage are 0.5% BS&W and TVP of less than 76 kPa.

The produced water from the MP and LP separators is routed to dedicated sets of hydrocylcones and degassing vessels prior to overboard discharge. The regulatory maximum daily average of oil-in-water content is 44ppm and there is also a 30-day rolling average maximum of 30ppm.

1. Chemical Selection Process

Please describe the process and technologies that will be utilized to select the most appropriate production and water treatment chemicals and how that process will ensure consistency with the technologies employed at Hibernia.

|  |
| --- |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |

1. Chemical Management

Please describe how the process chemistry will be managed to ensure that the best in class chemicals are in use and is value added in maintaining the required crude specifications and produced water quality.

|  |
| --- |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |

1. Troubleshooting

Describe the processes, technologies, and resources to be employed and that would be made available in the event that the required crude or produced water specifications are exceeded.

|  |
| --- |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |

1. SRB Control

Is your company able and capable to supply Acrolein?

Yes No

If yes, please elaborate on the processes and practices for management of process and personnel exposure hazards, including transportation:

|  |
| --- |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |

If no, please elaborate and describe potential alternatives:

|  |
| --- |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |

1. Is your company able to provide chemical treatment of Calcium Naphthenate’s? If yes please elaborate on your company’s prior experience with Calcium Naphthenate’s, such as identification and treatment.

|  |
| --- |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |

1. Logistics

Will the contracting company have to add or expand on infrastructure to manage the inventory and delivery expectations:

Yes No

Expand on how does the potential contracting company propose to retain the required chemicals volumes, batch dilution (as needed) of chemicals, and management of totes to allow for a 14 day turnover of offshore chemicals inventories?

|  |
| --- |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |

1. Technology

Is your company currently implementing or looking to implement new digital technologies that would benefit Hebron/Hibernia chemical programs? Can you provide examples of digital technologies that your company is using today to benefits your customers?

|  |
| --- |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |