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| **1.0 CONTACT INFORMATION** | | | Date: |  |
| 1.1 | End user – Company Name & Address |  | | |
| 1.1.1 | Contact at Installation – Name |  | Title |  |
| 1.1.2 | Telephone Number |  | Email |  |
| 1.2 | Buyer Name |  | Email |  |
| 1.3 | Form completed by |  | Email |  |

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| **2.0 CYCLONE INFORMATION** | | | | | | | | | |
| 2.1 | Cyclone manufacturer & model |  | | | | | | | |
| 2.2 | Overflow pipe material |  | | | Pipe OD (in.) & sch. | | |  | |
| 2.3 | Overflow pipe liner material (if present) |  | | | Liner thickness | | |  | |
| 2.4 | Number of clusters |  | | | | | | | |
| 2.4.1 | What is the naming convention of each cluster? |  | | | | | | | |
| 2.4.2 | Attach pictures of hydrocyclone cluster(s) and overflow pipes. |  | | | | | | | |
| 2.4.3 | If all clusters are not identical, specify above information for each configuration. |  | | | | | | | |
| 2.5 | Number of cyclones per cluster |  | | | | | | | |
| 2.5.1 | What is the naming convention of each cyclone? |  | | | | | | | |
| 2.5.2 | What is the utilization rate of the cyclones per cluster (number of cyclones operating per cluster on average, max and min)? |  | | | | | | | |
| 2.6 | Vortex finder diameter in inches (optional) |  | | | | | | | |
| 2.7 | Apex diameter in inches (optional) |  | | | | | | | |
| 2.8 | Attach a copy of the manufacturer’s cyclone curve |  | | | | | | | |
| 2.8.1 | What is the typical cyclone operating pressure? | Minimum |  | Average | |  | Maximum | |  |
| 2.8.2 | Describe the pressure control stability of the cyclones (e.g. steady state, highly variable). |  | | | | | | | |
| 2.9 | Where does the slurry transfer to once it passes through each battery of hydrocyclones? (e.g., Flotation, regrind, another cyclone battery, sump tank, etc.) If possible, include flow diagram. |  | | | | | | | |
| 2.10 | Add additional information/clarification |  | | | | | | | |

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| **3.0 SLURRY INFORMATION** | | | | |
| 3.1 | Mineral type |  | | |
| 3.2 | Cyclone feed - F80 and Top Size |  | Density by weight |  |
| 3.3 | Overflow - P80 or % Passing Target Size (Indicate Size) |  | Density or %Solids  (Typical, Max, Min) |  |
| 3.4 | Particle size operating range | Min.  Max.  (required for system calibration) | | |  |
| 3.5 | Particle size(s) of interest for PST system (up to 5, 75 micron min,) |  | | |
| 3.6 | Dry solids density |  | | |
| **4.0 PROCESS INFORMATION** | | | | |
| 4.1 | General process description (flotation, vat leaching, DMS, etc.) – attach flow sheet |  | | |
| 4.2 | Classification circuit configuration |  | | |
| 4.3 | Daily plant throughput (tpd) |  | | |
| 4.4 | What is the typical recovery rate? |  | | |
| 4.5 | What is the mineral recovery sensitivity to particle size? |  | | |

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| **5.0 INSTRUMENTATION AND CONTROL INFORMATION** | | | | |
| 5.1 | If an intelligent control system (expert, neural network, model predictive control etc) is being used, which system is it? |  | | |
| 5.2 | How is particle size being controlled now? (No control, density-based control, pressure control etc) |  | | |
| 5.3 | Are you measuring density on hydrocyclone feed? |  | | |
| 5.3.1 | If “yes” to question above, how is it being measured,  what is its accuracy and how often is it calibrated? |  | | |
| 5.3.2 | If “no” to question above, will you be adding a density measurement, and if so, when? |  | | |
| 5.3.3 | Are you measuring flow with a SONARtrac flow and entrained air measurement system on the hydrocyclone feed line? |  | | |
| 5.4 | If yes, is the entrained air percent measurement used to correct the volumetric flow and density measurements when air is present? |  | | |
| 5..5 | Are the feed sumps for the cyclones common or independent (e.g. 1 sump per cyclone cluster)? |  | | |
| 5.6 | Is there automatic control of the cyclone feed dilution water? |  | | |
| **6.0 INSTALLATION** | | | | |
| 6.1 | Is there a staging area where equipment can be temporarily stored? |  | | |
| 6.2 | If outside of USA, will plant assist in importation of equipment? |  | | |
| 6.3 | What are the work visa requirements? Who will handle the visa paperwork? |  | | |
| 6.4 | Number of days required for safety and/or medical induction and other requirements. |  | | |
| 6.5 | What are the limitations on number of hours CiDRA personnel can work per day on site and on number of days? |  | | |
| 6.6 | What is the distance from the cluster area to the control room? |  | | |
| 6.7 | Is there an ethernet or fiber optic line in place near the cyclone clusters that leads to control room that the PST can use? |  | | |
| 6.7.1 | What is the distance from where the CYCLONEtrac Junction Box(es) will be installed and the cluster? |  | | |
| 6.8 | Can CiDRA supply the control room CYCLONEtrac computer or will plant do so? |  | | |
| 6.8.1 | Specific plant computer requirements (PC or server) |  | | |
| 6.82 | What is the required operating system and version for site computers?  (e.g. Windows 10, 10.0.17134) |  | | |
| 6.8.3 | Is there a place for the control room computer with display that can be viewed by operators? |  | | |
| 6.9 | DCS – make, model & revision |  | | |
| 6.9.1 | OPC standard used and vendor |  | | |
| 6.10 | Will internet access to an on-site CiDRA CYCLONEtrac computer be available? NOTE: this is a mandatory requirement by CiDRA. | ☐ Yes ☐ No ☐ Unknown | Vendor: |  |
| 6.11 | Please supply pictures of installation point, P&ID, diagrams of layout, etc. if possible. |  |  |  |

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| **7.0 COMMISSIONING** | | |
| 7.1 | Is there access to the cyclone overflows for sampling? |  |
| 7.2 | Does the plant have a sampler designed specifically for sampling cyclone overflow streams? |  |
| 7.3 | Will the plant provide resources and equipment for sampling the cyclone overflows? |  |
| 7.4 | Will the plant provide resources and equipment to prepare the cyclone overflow samples? Maximum number of samples per week. |  |
| 7.5 | Will the plant provide the resources and equipment to sieve the prepared cyclone overflow samples? Maximum number of samples per week. |  |
| 7.6 | If yes for 7.3 or 7.4, are those plant facilities and are they on site? |  |
| 7.7 | If no for 7.3 or 7.4, where are those facilities, who runs them, and will the plant be paying the facility for the work? |  |
| 7.8 | Will operations change operating conditions to force movement of the overflow particle size over the full range expected? |  |
| 7.9 | Are samples taken on cyclone overflow streams now? |  |
| 7.10 | Are samples taken on the consolidated cyclone overflow now? |  |
| 7.11 | If yes, how frequently and what is reported? If yes to 7.9 or 7.10, how frequently and what is reported? |  |

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| **8.0 CAPITAL AND BUDGETING** | | |
| 8.1 | Are there capital funds available for a purchase this year? |  |
| 8.2 | What is the Budget cycle? (e.g. Jan.-Dec.) |  |
| 8.3 | What month are the budgets submitted for approval? |  |
| 8.4 | What month is the Budget approved? |  |
| 8.5 | What financial metric is used to evaluate competing capital expenditures? |  |

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| **9.0 SYSTEM CONFIGURATION & QUOTE INFORMATION** | | | | |
| 9.1 | Area location classification | Non-hazardous Class 1 Div 2  Class 1 Zone 2 (ATEX) | | |
| 9.2 | Power supply voltage & frequency | 110VAC/60Hz  240VAC/50Hz | | |
| 9.3 | Is this a budgetary quote? | Yes  No  Unknown | | |
| 9.4 | Date proposal or quote is needed |  | Date installation is needed |  |
| 9.5 | Other: |  | | |

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| **10.0 OTHER CONTACTS** | | | | |
| 10.1 | Project Lead |  | Email |  |
| 10.2 | Process Control / DCS |  | Email |  |
| 10.3 | Process Engineer / Metallurgist |  | Email |  |
| 10.4 | IT Support |  | Email |  |
| 10.5 | Contractor Management |  | Email |  |
| 10.6 | Logistics (Shipping/Receiving etc.) |  | Email |  |