

### Air-Cooled Heat Exchanger Specification Sheet

|    |  |                        |                      |                 |                  |                       |                          |                    |                            |          |          |               |      |
|----|--|------------------------|----------------------|-----------------|------------------|-----------------------|--------------------------|--------------------|----------------------------|----------|----------|---------------|------|
| 1  | Client: Ovintiv                              |                        |                      |                 |                  |                       |                          |                    |                            |          |          |               |      |
| 2  | Location:                                    |                        |                      |                 |                  |                       |                          |                    |                            |          |          |               |      |
| 3  | Service of Unit: Cooling Water               |                        |                      |                 |                  |                       |                          |                    |                            |          |          |               |      |
| 4  | Item No.: 240633                             |                        |                      |                 |                  |                       |                          |                    |                            |          |          |               |      |
| 5  | Date: 9/18/2024                              |                        |                      |                 |                  |                       |                          |                    |                            |          |          |               |      |
| 6  | Size & Type                                  | 42                     | /                    | 17              | ft               | Type                  | Forced                   | Number of Bays     | 1                          |          |          |               |      |
| 7  | Surf/Unit-Finned Tube                        | 85,795 ft <sup>2</sup> |                      |                 | Bare area/bundle | 1,994                 | ft <sup>2</sup>          | Ratio (Total       | 21.51                      |          |          |               |      |
| 8  | Heat exchanged                               | 13890800 BTU/h         |                      |                 | MTD, Eff         | 39.08 °F              |                          |                    |                            |          |          |               |      |
| 9  | Transfer rate                                | 4.77                   | Bare, Service        |                 | 89.13            | Clean                 | 132.63                   |                    | BTU/(h-ft <sup>2</sup> -F) |          |          |               |      |
| 10 | <b>PERFORMANCE DATA - TUBE SIDE</b>          |                        |                      |                 |                  |                       |                          |                    |                            |          |          |               |      |
| 11 | Fluid Circulated                             | Water                  |                      |                 |                  | In/Out                |                          |                    |                            |          |          |               |      |
| 12 | Total Fluid Entering                         | lb/h                   | 347,306              |                 |                  | Density, Liq          | lb/ft <sup>3</sup>       | 60.677             | /                          | 61.532   |          |               |      |
| 13 |  | BPD                    | 25,000               |                 |                  | Density, Vap          | lb/ft <sup>3</sup>       | 0                  | /                          | 0        |          |               |      |
| 14 | Temperature                                  | °F                     | 180                  | /               | 140              | Specific Heat, Liq    | BTU/(lb-F)               | 1.0003             | /                          | 0.9997   |          |               |      |
| 15 | Liquid                                       | lb/h                   | 347306               | /               | 347306           | Specific Heat, Vap    | BTU/(lb-F)               | 0                  | /                          | 0        |          |               |      |
| 16 | Vapor  | lb/h                   | 0                    | /               | 0                | Therm. Cond, Liq      | BTU/(ft-h-F)             | 0.384              | /                          | 0.372    |          |               |      |
| 17 | Noncondensable                               | lb/h                   | 0                    | /               | 0                | Therm. Cond, Vap      | BTU/(ft-h-F)             | 0                  | /                          | 0        |          |               |      |
| 18 | Steam  | lb/h                   | /                    |                 |                  | Freeze Point          | °F                       | 0                  |                            |          |          |               |      |
| 19 | Water  | lb/h                   | /                    |                 |                  | Bubble / Dew point    | °F                       | 0                  | /                          | 0        |          |               |      |
| 20 | Molecular wt, Vap                            | /                      |                      |                 | Latent heat      | BTU/lb                | 0                        |                    |                            |          |          |               |      |
| 21 | Molecular wt, NC                             |                        |                      |                 |                  | Inlet pressure (abs)  | psi                      | 64.7               |                            |          |          |               |      |
| 22 | Viscosity, Liq                               | cp                     | 0.3443               | /               | 0.4743           | Pres Drop, Allow/Calc | psi                      | 20                 | /                          | 1.16     |          |               |      |
| 23 | Viscosity, Vap                               | cp                     | 0.0000               | /               | 0.0000           | Fouling resistance    | ft <sup>2</sup> -h-F/BTU | 0.001              |                            |          |          |               |      |
| 24 | <b>PERFORMANCE DATA - AIR SIDE</b>           |                        |                      |                 |                  |                       |                          |                    |                            |          |          |               |      |
| 25 | Air Quantity, Total                          | 1,450,000              | lb/h                 |                 |                  | Altitude              | 2,500                    | ft                 |                            |          |          |               |      |
| 26 | Air Quantity/Fan                             | 189,343                | ft <sup>3</sup> /min |                 |                  | Temperature In        | 100                      | °F                 |                            |          |          |               |      |
| 27 | Static Pressure                              | 0.62                   | inH2O                |                 |                  | Temperature Out       | 139                      | °F                 |                            |          |          |               |      |
| 28 | Face Velocity                                | 10.35                  | ft/s                 | Bundle velocity | 2,377            | lb/h/ft <sup>2</sup>  | Design Ambient           | 100                | °F                         |          |          |               |      |
| 29 | <b>DESIGN-MATERIALS-CONSTRUCTION</b>         |                        |                      |                 |                  |                       |                          |                    |                            |          |          |               |      |
| 30 | Design/Vac./Test Pres                        | 1,000                  | /                    | 0               | /                | 0                     | psi                      | Design temperature | 310                        | °F       |          |               |      |
| 31 | <b>TUBE BUNDLE</b>                           |                        | <b>Header</b>        |                 |                  |                       | <b>Tube</b>              |                    |                            |          |          |               |      |
| 32 | Size   | 42 ft                  |                      |                 | Type             | Box                   | Material                 | Carbon Steel       |                            |          |          |               |      |
| 33 | Number/bay                                   | 2                      |                      |                 | Material         | Carbon Steel          | Specifications           |                    |                            |          |          |               |      |
| 34 | Tube Rows                                    | 5                      |                      |                 | Passes           | 2                     | OD                       | 1                  | Min Thk.                   | 0.083    | in       |               |      |
| 35 | Arrangement                                  |                        |                      |                 |                  | Plug Mat.             | No./Bun                  | 198                | Lng                        | 40       | ft       |               |      |
| 36 | Bundles                                      | 2 par                  |                      |                 | Gasket Mat.      |                       |                          | Pitch              | 2.375                      | /        | 2.057    |               |      |
| 37 | Bays   | 1 par                  |                      |                 | Corr. Allow.     | 0                     | in                       | <b>Fin</b>         |                            |          |          |               |      |
| 38 | Bundle frame                                 |                        |                      |                 | Inlet Nozzle     | 1                     | 10                       | in                 | Type                       | L-finned |          |               |      |
| 39 | <b>MISCELLANEOUS</b>                         |                        |                      |                 |                  |                       | Outlet nozzle            | 1                  | 10                         | in       | Material | Aluminum 1060 |      |
| 40 | Struct. Mount.                               |                        |                      |                 |                  | Special Nozzles       | OD                       | 2.25               | Tks                        | 0.016    | in       |               |      |
| 41 | Surf.Preop                                   |                        |                      |                 |                  | Rating                | 600                      | ANSI               | No.                        | 10       | #/in     | DesTemp       | 0 °F |
| 42 | Louvers                                      |                        |                      |                 |                  | TI                    | PI                       | Code               | ASME Code Sec VIII Div 1   |          |          |               |      |
| 43 | Vibration Switches                           |                        |                      |                 |                  | Chem Cleaning         |                          |                    | Stamp                      | Yes      | Specs    |               |      |
| 44 | <b>MECHANICAL EQUIPMENT</b>                  |                        |                      |                 |                  |                       |                          |                    |                            |          |          |               |      |
| 45 | Fan, Mfr., Model                             |                        |                      |                 |                  | Driver, Type          | V-belt                   |                    | Speed Reducer, Type        |          |          |               |      |
| 46 | No./Bay                                      | 2                      | RPM                  |                 |                  | Mfr.                  |                          |                    | Mfr.&Model                 |          |          |               |      |
| 47 | Dia.   | 13                     | ft                   | Blade(s)        |                  |                       | No./Bay                  |                    |                            | No./Bay  |          |               |      |
| 48 | Pitch  |                        |                      |                 | Angle            |                       |                          | RPM                | Rating                     |          |          |               |      |
| 49 | Blade(s)                                     |                        |                      |                 | Hub              |                       |                          | Enclosure          | Ratio                      |          |          |               |      |
| 50 | hp/Fan                                       | 30                     | hp                   | MinAmb          |                  |                       | V/Phase/Hz               |                    |                            | Support  |          |               |      |
| 51 | Control Action on Air Failure-               |                        |                      |                 |                  | Louvers               |                          |                    |                            |          |          |               |      |
| 52 | Degree Control of Outlet Process Temperature |                        |                      |                 |                  |                       |                          |                    |                            |          |          |               |      |
| 53 | Recirculation                                |                        |                      |                 |                  | Steam Coil            |                          | No                 |                            |          |          |               |      |
| 54 | Plot Area                                    | 0                      | ft <sup>2</sup>      | Drawing No.     |                  |                       | Wt.Bundle                | 21,739             | Wt. Unit                   | 43,478   | lb       |               |      |
| 55 | Notes:                                       |                        |                      |                 |                  |                       |                          |                    |                            |          |          |               |      |
| 56 |  |                        |                      |                 |                  |                       |                          |                    |                            |          |          |               |      |
| 57 |  |                        |                      |                 |                  |                       |                          |                    |                            |          |          |               |      |
| 58 |  |                        |                      |                 |                  |                       |                          |                    |                            |          |          |               |      |