

REV 1

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**AIR COOLED EXCHANGER  
SPECIFICATION SHEET**

Date Tue\*10:53 am\*22-FEB-11

Proposal/Job No. 2011B-061-01

Reference 34402

Item No. AC-205

Customer AMERESCO WOODLAND MEADOWS

Plant Location WAYNE, MI

Service AMBIENT COOLER

Model 1 F18-119-1 Type FORCED

No. of Bays 1

Surface per Unit-Finned Tube 31,710 Ft<sup>2</sup> Bare Tubes 2,140 Ft<sup>2</sup>

Heat Exchanged 2,260,000 BTU/Hr MTD (Eff.) 65.6 (Counter Flow) °F

Transfer Rate-Finned Tube 1.09 Bare Tube, Service 16.10 BTU/Hr. Ft<sup>2</sup> °F**PERFORMANCE DATA-TUBE SIDE**

|                            |               |                |                                                                     |             |       |
|----------------------------|---------------|----------------|---------------------------------------------------------------------|-------------|-------|
| Fluid Name                 | LANDFILL GAS  | Lethal Service | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | IN          | OUT   |
| Total Fluid Entering Lb/Hr | 46,000        | Density        | Lb/Ft <sup>3</sup>                                                  | .0694       | .0876 |
|                            | IN            | OUT            | Specific Heat (Liq/Vap) BTU/Lb°F                                    | /.317       | /.317 |
| Temperature °F             | 285.0         | 130.0          | Cond. avg (Liq/Vap) BTU/HrFt°F                                      |             | .0200 |
| Liquid Lb/Hr               |               |                | Pour/Freeze Point °F                                                |             |       |
| Vapor Lb/Hr (MW)           | 46,000 (28.5) | 46,000 (28.5)  | Bubble Point °F                                                     |             |       |
| Nocond Lb/Hr (MW)          |               |                | Latent Heat BTU/Lb                                                  |             |       |
| Steam Lb/Hr                |               |                | Pressure Psia                                                       | 19.50       |       |
| Water Lb/Hr                |               |                | Pressure Drop Allow/Calc Psi                                        | 0.30 / 0.33 |       |
| Viscosity (Liq/Vap) Cp     | /.013         | /.013          | Fouling resist, Inside ft <sup>2</sup> hr °F/BTU                    | 0.00100     |       |

**PERFORMANCE DATA-AIR SIDE**

|                       |        |                   |         |                    |       |
|-----------------------|--------|-------------------|---------|--------------------|-------|
| Air Quantity SCFM     | 87,490 | Lb/Hr             | 393,700 | Altitude Ft        | 750   |
| Air Quantity/Fan ACFM | 95,480 | Temperature In °F | 105.0   | Temperature Out °F | 128.8 |

**DESIGN - MATERIAL - CONSTRUCTION**

|                                  |                          |           |                           |                     |       |                       |                |                                  |
|----------------------------------|--------------------------|-----------|---------------------------|---------------------|-------|-----------------------|----------------|----------------------------------|
| Design Pressure                  | 50                       | Psig      | Test Pressure             | 65                  | Psig  | Design Temperature    | 300 / MDMT -20 | °F                               |
| <b>TUBE BUNDLE</b>               |                          |           | <b>HEADER, Type</b>       | PLUG BOX            |       | <b>TUBE Material</b>  | SA-249 T304    |                                  |
| Size                             | 11.8 x 18.0              |           | Material                  | SA-240 304          |       |                       |                |                                  |
| No. 1                            | No. Tube Rows            | 6         | No. Passes                | 1                   | Slope | 0.1250                | In/Ft          | OD 1.250 In Avg. Thick 0.0490 In |
| Bays 1                           | In Parallel              | In Series | Plug                      | 3042220             |       | No./Bundle            | 363            | Length 18.0 Ft                   |
| Bundles 1                        | In Parallel              | In Series | Gasket                    | 316L2213            |       | Pitch                 | 2.3125         | InΔ                              |
| Pass Arrangement (Top to Bottom) |                          |           | Corrosion Allowance       | 0.0000              | In    | FIN Type              | L-TENSION      |                                  |
| Rows / Pass                      | 6/ 1                     |           | Size In Nozzle (2) 14.00  | SCH XS SA-312TP304n |       | Material              | ALUM           |                                  |
| Turbulators                      | NO                       |           | Size Out Nozzle (1) 18.00 | SCH XS SA-312TP304n |       | OD                    | 2.250          | In Stock Thick 0.015 In          |
| Steam Coil                       | NO                       |           | Rating & Facing           | 150 -RF SA-182F304  |       | No./In                | 10             | Support Chan. / Staple           |
| Hailscreens                      | YES                      |           | Vent (2) 3/4-3000         | Drain (2) 3/4-3000  |       | Code-ASME VIII, Div 1 | YES            | Stamp ASME                       |
| Louvers                          | ALUM (1) DURASTROKE 1500 |           | TI                        | PI                  |       | Radiograph            | N              | Heat Treat N                     |
| Frame Finish                     | HTC 1 Coat Galvanize     |           | Header Finish             |                     |       | Tube Hole Grooving    | YES            |                                  |

**MECHANICAL EQUIPMENT**

|                            |               |                    |                |                           |                       |
|----------------------------|---------------|--------------------|----------------|---------------------------|-----------------------|
| <b>FAN Mfg &amp; Model</b> | MOORE 49 5000 | <b>DRIVER Type</b> | ELECTRIC MOTOR | <b>SPEED REDUCER Type</b> | V-BELT                |
| No./Bay                    | 1             | RPM                | 245            | S.F.                      | 1.15                  |
| Dia.                       | 10.0          | Ft.                | No. Blades     | 6                         | Insul/TR CLASS F / B  |
| Pitch                      | ADJUSTABLE    | Angle°             | 11.            | No./Bay                   | 1                     |
| Matl, Blade                | ALUMINUM      | Hub                | EXT ALUM       | Frame                     | 254T HP 15.0          |
| HP/Fan, Des.               | 10.9          | DBA                | 65 @ 30'       | RPM (1)                   | 1750                  |
|                            |               |                    |                | Duty                      | CHEM                  |
|                            |               |                    |                | Enclosure                 | TEFC (H.E.) V & D V&D |
|                            |               |                    |                | V/P/C                     | 460/3/60              |
|                            |               |                    |                | Space Heater              | NO                    |
|                            |               |                    |                | Vibration Switch          | MURPHY VS-2EX         |

**STRUCTURE****WALKWAYS**

|                |                      |               |          |
|----------------|----------------------|---------------|----------|
| Mounting       | GRADE                | Inlet Header  | in. None |
| Windload - PSF | 30.0                 | Seismic       | 2        |
| Finish         | HTC 1 Coat Galvanize | Outlet/Return | in. None |
|                |                      | Drive Access  | in. None |

**NOTES**

|                                                                     |                |
|---------------------------------------------------------------------|----------------|
| Coil Volume (ft <sup>3</sup> ):                                     | 76.            |
| Assembled Drive, Structure & Bundles (Within Shipping Restrictions) |                |
|                                                                     |                |
|                                                                     |                |
|                                                                     |                |
|                                                                     |                |
|                                                                     |                |
|                                                                     |                |
|                                                                     |                |
| Plot Area                                                           | 11.9 x 18.0 ft |
| Weight Bundle                                                       | 13,310         |
| Lbs                                                                 | Total Shipping |
|                                                                     | 21,560         |
|                                                                     | Lbs            |