

Major Component Data Sheets

Recycle Gas Compressor
 T-Req: MJ2-0003

KBR

ACCEPTANCE FOR ENGINEERING USE

THIS DOCUMENT IS:

| | |
|------------------------|------------------------|
| ACCEPTED | (Code 1) <u> X </u> |
| ACCEPTED WITH COMMENTS | (Code 2) <u> </u> |
| NOT ACCEPTED | (Code 3) <u> </u> |
| NOT REVIEWED | (Code 4) <u> </u> |

ACCEPTANCE DOES NOT RELIEVE SUPPLIER
 FROM FURNISHING MATERIAL IN CONFORMANCE
 WITH ORDER. REFER TO SDR-1 FOR FULL
 DEFINITION OF ACCEPTANCE CONDITIONS.

DISCIPLINE MJ BY TST
 DATE 13 DEC 12

CERTIFIED FOR CONSTRUCTION

Purchaser: Mississippi Power Company
 Purchaser's Order No.: MPC18137-0001
 User: Mississippi Power Company
 Shop Order No.: F128251 / F128252
 Serial No.: CO1008 / CO2008
 General Order No.: H11005

FOR APPROVAL

Avoid delay - to:
 establish maintain
 shipping promise. One approved
 print must be returned by:
 12/6/2012

By: I. Donahey
 Date: 11/15/2012

FOR RECORD

Any requested change of this
 equipment will result in:
 1. Contract price adjustment.
 2. Extended shipping promise as this
 contract is in manufacturing process.

By: _____
 Date: _____

VDSS CODE

Southern Company Doc No.

| Elliott Document No. | Rev. |
|----------------------|------|
| DOC000000058661 | 1 |

Sheet **1** of **23**

Southern Company Generation Kemper County
 MM85746 A Unit 1

ELLIOT COMPANY PO: MPC18137-0001
 DOC000000058661 Rev: 1
 IGCC - GASIFIER - MULTIPAGE - MAJOR COMPONENT DATA SHEETS - RECYC

APPROVED

| | | | | | | |
|------------|-----------------------|------------------|----|------|--------|------------|
| Owner: | Mississippi Power Co. | Revisions | | | P&ID# | 1040421 |
| Site: | Gulfport, MS | No. | By | Date | Date: | 08/17/11 |
| Service: | Lube Oil Console | 1. | | | Req.: | |
| Purchaser: | Mississippi Power Co. | 2. | | | By: | R. Herman |
| G.O.: | H11005 | 3. | | | Chk'd: | F. Gahagen |
| P.O.: | MPC18137-0001 | 4. | | | Appr: | J. Zerbe |
| S.O.: | F128251 / F128252 | 5. | | | | |

| Tag Number | Description | P&I Sheet No. | Page No. |
|-------------------------------------|---|---------------|----------|
| LUBE OIL CONSOLE | | | |
| CO1000-HT1 | Circulating Oil Heater Controller | 2 | 23 |
| -- | Couplings Pump / Motor - Lube Oil | 2 | 20 |
| -- | Transfer Valves Coolers A & B - Lube Oil | 2 | 19 |
| -- | Transfer Valves Filters A & B - Lube Oil | 2 | 19 |
| F128251: CO1008LO-ACC | Accumulator - Lube Oil | 2 | 13 |
| F128252: CO2008LO-ACC | Accumulator - Lube Oil | 2 | 13 |
| F128251: PCV-41716 | Back Pressure Regulator | 2 | 16 |
| F128252: PCV-51716 | Back Pressure Regulator | 2 | 16 |
| F128251: CO1008LO-HXA, CO1008LO-HXB | Coolers A & B - Lube Oil | 2 | 9, 10 |
| F128252: CO2008LO-HXA, CO2008LO-HXB | Coolers A & B - Lube Oil | 2 | 9, 10 |
| F128251: CO1008LO-FLA, CO1008LO-FLA | Filters A & B - Lube Oil | 2 | 11, 12 |
| F128252: CO2008LO-FLA, CO2008LO-FLA | Filters A & B - Lube Oil | 2 | 11, 12 |
| F128251: CO1008-HT1 | Heater - Lube Oil Reservoir | 2 | 17 |
| F128252: CO2008-HT1 | Heater - Lube Oil Reservoir | 2 | 17 |
| F128251: CO1008-LO1M, C1008-LO2M | Motor A & B for Pumps A & B - Lube Oil | 2 | 6 |
| F128252: CO1008-LO1M, C2008-LO2M | Motor A & B for Pumps A & B - Lube Oil | 2 | 6 |
| F128251: PCV-41728 | Pressure Regulator - Lube Oil Header Supply | 2 | 14 |
| F128252: PCV-51728 | Pressure Regulator - Lube Oil Header Supply | 2 | 14 |
| F128251: CO1008LO-PUA, C1008LO-PUB | Pumps A & B - Lube Oil | 2 | 4, 5 |
| F128252: CO2008LO-PUA, C2008LO-PUB | Pumps A & B - Lube Oil | 2 | 4, 5 |
| F128251: PSV-4 | Relief Valves - Lube Oil Header Supply | 2 | 8 |
| F128252: PSV-5 | Relief Valves - Lube Oil Header Supply | 2 | 8 |
| F128251: PSV-41714, PSV-41715 | Relief Valves - Lube Oil Pumps A & B | 2 | 7 |
| F128252: PSV-51714, PSV-51715 | Relief Valves - Lube Oil Pumps A & B | 2 | 7 |
| F128251: CO1008LO-TK1 | Reservoir - Lube Oil | 2 | 3 |
| F128252: CO2008LO-TK1 | Reservoir - Lube Oil | 2 | 3 |
| F128251: CO1008LO-TK2 | Rundown Tank - Lube Oil | 3 | 18 |
| F128252: CO2008LO-TK2 | Rundown Tank - Lube Oil | 3 | 18 |
| F128251: TCV-41717 | Temperature Control Valve - Lube Oil | 2 | 15 |
| F128252: TCV-51717 | Temperature Control Valve - Lube Oil | 2 | 15 |
| DRY GAS SEAL SYSTEM | | | |
| F128251: Later | Filters A & B - Intermediate & Separation Gas Supply | 4 | |
| F128252: Later | Filters A & B - Intermediate & Separation Gas Supply | 4 | |
| F128251: Later | Filters A & B - Primary Gas Supply | 4 | 21, 22 |
| F128252: Later | Filters A & B - Primary Gas Supply | 4 | 21, 22 |
| F128251: PCV-41753 | Pressure Regulator - Intermediate & Separation Gas Supply | 4 | |
| F128251: PCV-51753 | Pressure Regulator - Intermediate & Separation Gas Supply | 4 | |
| F128251: PDV-41751 | Pressure Control Valve - Primary Gas Supply | 4 | |
| F128252: PDV-51751 | Pressure Control Valve - Primary Gas Supply | 4 | |
| F128251: PY-41751 | Pressure Control Valve Controller- Primary Gas Supply | 4 | |
| F128252: PY-51751 | Pressure Control Valve Controller- Primary Gas Supply | 4 | |

| | | | | | | | |
|------------|-----------------------|------------------|----|------|----------|---------|------------|
| Owner: | Mississippi Power Co. | Revisions | | | P&ID# | 1040421 | |
| Site: | Gulfport, MS | No. | By | Date | Revision | Date: | 08/17/11 |
| Service: | Lube Oil Console | 1. | | | | Req.: | |
| Purchaser: | Mississippi Power Co. | 2. | | | | By: | R. Herman |
| G.O.: | H11005 | 3. | | | | Chk'd: | F. Gahagen |
| P.O.: | MPC18137-0001 | 4. | | | | Appr: | J. Zerbe |
| S.O.: | F128251 / F128252 | 5. | | | | | |

| | |
|------------------------------|--------------------------------------|
| Tag Number: | F128251: CO1008LO-TK1 |
| Tag Number: | F128252: CO2008LO-TK1 |
| Description: | Lube Oil Reservoir |
| Construction Material: | 304 Stainless Steel |
| Normal Flow: | 33 gpm |
| Free Surface Area: | 24 ft ² |
| Working Capacity: | 165 gallons @ 5minute retention |
| Retention Capacity: | 443 gallons (8 minutes) |
| Rundown Capacity: | 109 gallons |
| Normal Operating Range: | 45 gallons |
| Charge Capacity: | 743 gallons |
| Approximate Dimensions: | W x H x L: 4ft. x 5 ft. x 6 ft. |
| Insulation Support (Y/N): | No |
| Ladder/Handrails (Y/N): | Yes |
| Nonskid Decking (Y/N): | Yes |
| Vent (Y/N): | Yes |
| Heater Type: | Electric |
| Level Gauge : | Yes |
| Purifier Connections: | Yes; 1.5" Cl. 150# R.F. |
| Temperature Indicator (Y/N): | Yes, Transmitter, Temperature gauge. |
| Level Switch (Y/N): | No |
| Grounding Provision (Y/N): | Yes |

Notes:

- 1.) No Chinese Content
- 2.) Minimum Design Temperature: 212 °F

| | | | | | | | |
|------------|-----------------------|------------------|----|------|----------|---------|------------|
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| Service: | Lube Oil Console | 1. | | | | Req.: | |
| Purchaser: | Mississippi Power Co. | 2. | | | | By: | R. Herman |
| G.O.: | H11005 | 3. | | | | Chk'd: | F. Gahagen |
| P.O.: | MPC18137-0001 | 4. | | | | Appr: | J. Zerbe |
| S.O.: | F128251 / F128252 | 5. | | | | | |

A. Main & Standby Lube Oil Pumps

| | | | |
|--------------|---|----------------------------|---|
| Tag Numbers: | F128251: Pump A; CO1008LO-PUA, Pump B; CO1008LO-PUB | | |
| Tag Numbers: | F128252: Pump A; CO2008LO-PUA, Pump B; CO2008LO-PUB | | |
| Quantity: | 4 | Type: | <input checked="" type="checkbox"/> Main <input checked="" type="checkbox"/> Auxiliary <input type="checkbox"/> Emergency |
| Make: | IMO | Applicable Specifications: | <input checked="" type="checkbox"/> API 614 Ed.: 4th <input type="checkbox"/> Other: |
| Model: | AA3GNHSPFA162SC | | |
| Pump Type | Positive Displacement | | |

B. OPERATING

| | | | |
|--------------------------------|---------------|------------------------------------|-----------------------|
| Liquid: | ISO VG 32 Oil | Delivered Flow, Maximum | 55.2 gpm |
| Normal Pumping Temp. | 150 °F | Delivered Flow, Normal | 49.7 gpm |
| Maximum Pumping Temp. | 160 °F | Maximum Discharge Pressure | 250 psig |
| Minimum Pumping Temp. | 70 °F | Normal Discharge Pressure | 160 psig |
| S.G. @ Pumping | 0.88 | Rated Discharge Pressure | 250 psig |
| Maximum Viscosity (SSU) @ P.T. | 650 | Rated Differential Pressure | 160 psid |
| Minimum Viscosity (SSU) @ P.T. | 65 | Maximum Differential Pressure | 250 psid |
| Running Speed (RPM) | 3,550 | Minimum Differential Pressure | 145 psid |
| Start Up Temperature | 50 °F | Rated Inlet Pressure | 50 psig |
| Start Up Viscosity (SSU) | 650 | Suction Pressure | Flooded - 14.6 psia |
| Pump Power @ Start Up | 12 HP | Required Input Torque | 8.93 to 16.57 ft-lbs. |
| Pump Power @ Normal | 7 HP | Net Inlet Pressure Required - NIPR | 7.16 - 8.21 psia |

C. CONSTRUCTION

| | | | | | | | |
|------------|------|-----------|--------------------|-------|--------|-----------------|----------------|
| Suction: | 2" | 3000 psig | Note 3 - next page | Axial | Drain: | 1/8"-27 (3) | Bottom & sides |
| Discharge: | 1.5" | 3000 psig | Note 3 - next page | Top | Vent: | 1/8"-27 Plugged | Top of Seal |

Rotation: CW Casing: Horizontal Shaft
 (Viewed from CCW Vertical
 Shaft End)

Seals: Mechanical Balanced, metal bellows, carbon on silicon carbide, fluorocarbon o-rings.
 Other:

Coupling Make: Rexnord Coupling Model: Series 71, Size 175
 Seal Make: IMO Standard

Coupling Guard: Aluminum Steel

| | | | | | | | |
|------------|-----------------------|------------------|----|------|----------|---------|------------|
| Owner: | Mississippi Power Co. | Revisions | | | P&ID# | 1040421 | |
| Site: | Gulfport, MS | No. | By | Date | Revision | Date: | 08/17/11 |
| Service: | Lube Oil Console | 1. | | | | Req.: | |
| Purchaser: | Mississippi Power Co. | 2. | | | | By: | R. Herman |
| G.O.: | H11005 | 3. | | | | Chk'd: | F. Gahagen |
| P.O.: | MPC18137-0001 | 4. | | | | Appr: | J. Zerbe |
| S.O.: | F128251 / F128252 | 5. | | | | | |

Main & Standby Lube Oil Pumps

| | |
|--------------|---|
| Tag Numbers: | F128251: Pump A; CO1008LO-PUA, Pump B; CO1008LO-PUB |
| Tag Numbers: | F128252: Pump A; CO2008LO-PUA, Pump B; CO2008LO-PUB |

D. MATERIALS

| | |
|----------------------|------------------------------|
| Casing: | ASTM A 159 Gr. 3000 |
| Shaft (Power Rotor): | ASTM A 159 Gr. 3000 |
| Shaft (Idler Rotor): | Gray Iron Gr. G-2 |
| Shaft Bushings: | ASTM A 159 Gr. 3000 / Gr. G2 |

E. INSPECTIONS, TESTS

| | Witnessed | Non-Witnessed | Certification |
|---|--------------------------|-------------------------------------|-------------------------------------|
| <input checked="" type="checkbox"/> Hydrostatic - (IMO Standard Test) | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input checked="" type="checkbox"/> Performance - (IMO Standard Test) | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> Internal Inspection After Test | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Nozzle Weld (Magnetic Particle) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Nozzle Weld (Dye Penetrant) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Casting (Radiographic) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Casting (Ultrasonic) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Casting Repair Procedure Approval | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> Performance Curve Required | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> Other: | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

F. PUMP DRIVER - TURBINE - N/A

| | | | |
|-----------------|--|-------------------------------------|---|
| Quantity: | | Type: <input type="checkbox"/> Main | Rotation: <input type="checkbox"/> CCW |
| Shop Order No.: | | <input type="checkbox"/> Auxiliary | (Facing Governor) <input type="checkbox"/> CW |
| Manufacturer: | | <input type="checkbox"/> Emergency | |
| Model Number: | | | Exhaust: <input type="checkbox"/> RH |
| Tag Number(s): | | | (Facing Governor End) <input type="checkbox"/> LH |
| Horsepower: | | | |
| Speed (RPM): | | | |

Notes: 1.) No Chinese Content.
 2.) Socket Weld Adapters for Inlet and Discharge.
 3.) 4-bolt port per SAE J518 code 61.

APPROVED

| | | | | | | | |
|------------|-----------------------|------------------|----|------|----------|---------|------------|
| Owner: | Mississippi Power Co. | Revisions | | | P&ID# | 1040421 | |
| Site: | Gulfport, MS | No. | By | Date | Revision | Date: | 08/17/11 |
| Service: | Lube Oil Console | 1. | | | | Req.: | DL7767-1 |
| Purchaser: | Mississippi Power Co. | 2. | | | | By: | R. Herman |
| G.O.: | H11005 | 3. | | | | Chk'd: | F. Gahagen |
| P.O.: | MPC18137-0001 | 4. | | | | Appr: | J. Zerbe |
| S.O.: | F128251 / F128252 | 5. | | | | | |

Pump Driver - Motor

| | | |
|--------------------|--|---|
| Tag Numbers: | F128251: CO1008-LO1M, CO1008-LO2M | |
| Tag Numbers: | F128252: CO1008-LO1M, CO2008-LO2M | |
| Quantity: | 4 | Type: <input checked="" type="checkbox"/> Main <input checked="" type="checkbox"/> Auxiliary <input type="checkbox"/> Emergency |
| Manufacturer: | Siemens | Mounting: <input checked="" type="checkbox"/> Horizontal <input type="checkbox"/> Vertical |
| Model: | 1LE24212BA112AA3 | Conduit Box: <input type="checkbox"/> RH <input checked="" type="checkbox"/> LH (F1) |
| Series: | SD100 | Space: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Rated Power: | 15 HP | Heaters: <input type="checkbox"/> No |
| Speed (RPM): | 3550 | (Facing Shaft End): 120 V, 1 phase |
| Frame Size: | 254T | <input type="checkbox"/> NEC <input checked="" type="checkbox"/> IEC |
| Service Factor: | 1.15 | Class: 1 |
| Temperature Rise: | 80 °F above 40 °F | Group: C, D |
| Insulation Class: | F | Temp: T3 |
| Enclosure: | IP 55, TEFC | |
| Bearings: | Ball - sealed (Note 1) | |
| Nema Design: | B | |
| Full Load Current: | 17.5 Amps | |
| Locked Rotor Cur.: | 116 Amps | |
| Breakdown Torque: | 280% | |
| Motor Weight: | 287 lbs. | |

Electrical Char.:

| | |
|--------|-----|
| Volt.: | 460 |
| PH.: | 3 |
| Freq.: | 60 |

Locked Rotor Torque

| | |
|------------|------------|
| Nominal: | 220% |
| Full Load: | 22 lb.-ft. |

Efficiency

| | |
|---------------|-------|
| % @ Full Load | 91.0% |
| % @ 3/4 Load | 91.3% |
| % @ 1/2 Load | 90.7% |

Power Factor

| | |
|-----------|-------|
| Full Load | 88.2% |
| 3/4 Load | 87.4% |
| 1/2 Load | 80.6% |

Applicable Specs.:

- 1.) IEEE841
- 2.) KBR Document No.: C462-MJ-DAS-MJ2-0052

Notes:

- 1.) Bearing Size: 6309 Z C3, AFBMA No.; 45BC03JP3

| Owner: | | Mississippi Power Co. | | Revisions | | | | P&ID# | | 1040421 | |
|----------------------------------|---------------------|------------------------------------|---------------|-----------------------------|----|----------|-----------|-----------------------------|--|------------|--|
| Site: | | Gulfport, MS | | No. | By | Date | Revision | Date: | | 08/17/11 | |
| Service: | | Lube Oil Console | | 1. | | | | Req.: | | DL7832 | |
| Purchaser: | | Mississippi Power Co. | | 2. | | | | By: | | R. Herman | |
| G.O.: | | H11005 | | 3. | | | | Chk'd: | | F. Gahagen | |
| P.O.: | | MPC18137-0001 | | 4. | | | | Appr: | | J. Zerbe | |
| S.O.: | | F128251 / F128252 | | 5. | | | | | | | |
| General | 1a. | Tag Number - F128251 | | PSV-41715 | | | | PSV-41714 | | | |
| | 1b. | Tag Number - F128252 | | PSV-51715 | | | | PSV-51714 | | | |
| | 2. | Service | | Main Pump Discharge Relief | | | | Aux Pump Discharge Relief | | | |
| | 3. | Line No./Vessel No. | | - | | | | - | | | |
| | 4. | Full Nozzle/Semi Nozzle | | Full | | | | Full | | | |
| | 5. | Safety, Relief or Modulating | | Modulating | | | | Modulating | | | |
| | 6. | Conv., Bellows, Pilot Op | | Internal Pilot Operated | | | | Internal Pilot Operated | | | |
| Conn. | 7. | Bonnet Type | | Closed | | | | Closed | | | |
| | 8. | Size: Inlet | Outlet | 3" | | 3" | | 3" | | 3" | |
| | 9. | Flange Rating or Screwed | | CL 300# | | | | CL 300# | | | |
| Materials | 10. | Type of Facing | | Raised Face @ 63 - 125 Ra | | | | Raised Face @ 63 - 125 Ra | | | |
| | 11. | Body and Bonnet | | ASTM A 216 Grade WCB | | | | ASTM A 216 Grade WCB | | | |
| | 12. | Seat | | ASTM A 216 Grade WCB | | | | ASTM A 216 Grade WCB | | | |
| | 13. | Resilient Seat Seal | | No | | | | No | | | |
| | 14. | Guide & Rings | | N/A | | | | N/A | | | |
| | 15. | Spring | | ASME SA479 Stainless Steel | | | | ASME SA479 Stainless Steel | | | |
| | 16. | Piston | | 416 SST; ASTM A 582 Cond. A | | | | 416 SST; ASTM A 582 Cond. A | | | |
| Other | 17. | O-Ring | | Viton | | | | Viton | | | |
| | 18. | Cap: Screwed or Bolted | | Screwed | | | | Screwed | | | |
| | 19. | Lever: Plain or Packed | | No Lever | | | | No Lever | | | |
| | 20. | Test Gauge | | No Test Gauge | | | | No Test Gauge | | | |
| | 21. | Body Rated Max. / Min. Temperature | | -30 to 600 °F | | | | -30 to 600 °F | | | |
| | 22. | Maximum Allowable Working Pressure | | 2000 psig | | | | 2000 psig | | | |
| Basis | 23. | Spring Range | | 50 to 500 psig | | | | 50 to 500 psig | | | |
| | 24. | Code | | API 614 | | | | API 614 | | | |
| | 25. | Fire | | - | | | | - | | | |
| | 26. | | | | | | | | | | |
| Fluid Data | 27. | | | | | | | | | | |
| | 28. | Fluid and State | | ISO VG32 Oil - LIQUID | | | | ISO VG32 Oil - LIQUID | | | |
| | 29. | Required Capacity | | 55 gpm | | | | 55 gpm | | | |
| | 30. | Mol. Wt. | Oper. sp. gr. | - | | 0.88 | | - | | 0.88 | |
| | 31. | Oper. Press. | Set Press. | 160 psig | | 227 psig | | 160 psig | | 227 psig | |
| | 32. | Oper. Temp. | Relief Temp. | 150 °F | | 150 °F | | 150 °F | | 150 °F | |
| | 33. | Constant | | - | | | | - | | | |
| | 34. | Variable | | - | | | | - | | | |
| | 35. | Total | | Atmospheric | | | | Atmospheric | | | |
| | 36. | % Allowable Overpressure | | 10% | | | | 10% | | | |
| | 37. | | | | | | | | | | |
| | 38. | | | | | | | | | | |
| | 39. | | | | | | | | | | |
| 40. | | | | | | | | | | | |
| 41. | Operating Viscosity | | 65 SSU | | | | 65 SSU | | | | |
| 42. | Barometric Pressure | | 14.6 psia | | | | 14.6 psia | | | | |
| 43. | | | | | | | | | | | |
| 44. | | | | | | | | | | | |
| | 45. | Calc. Area Sq. In. | | By Vendor | | | | By Vendor | | | |
| | 46. | Orifice Selected Area | | 7.663 in² | | | | 7.663 in² | | | |
| | 47. | | | | | | | | | | |
| | 48. | Manufacturer | | Fulflo | | | | Fulflo | | | |
| | 49. | Model No. | | ACP10F300AS-SS-227 | | | | ACP10F300AS-SS-227 | | | |
| Notes: No Chinese Content | | | | | | | | | | | |

| Owner: | | Mississippi Power Co. | | Revisions | | | | P&ID# | | 1040421 | |
|------------|-----|------------------------------------|---------------|-----------|----|---------------------------------|----------|--------|------------|---------|--|
| Site: | | Gulfport, MS | | No. | By | Date | Revision | Date: | 08/17/11 | | |
| Service: | | Lube Oil Console | | 1. | | | | Req.: | DL7768 | | |
| Purchaser: | | Mississippi Power Co. | | 2. | | | | By: | R. Herman | | |
| G.O.: | | H11005 | | 3. | | | | Chk'd: | F. Gahagen | | |
| P.O.: | | MPC18137-0001 | | 4. | | | | Appr: | J. Zerbe | | |
| S.O.: | | F128251 / F128252 | | 5. | | | | | | | |
| General | 1a. | Tag Number - F128251 | | | | PSV-4 | | | | | |
| | 1b. | Tag Number - F128252 | | | | PSV-5 | | | | | |
| | 2. | Service | | | | Lube Oil Header Relief | | | | | |
| | 3. | Line No./Vessel No. | | | | -- | | | | | |
| | 4. | Full Nozzle/Semi Nozzle | | | | Semi | | | | | |
| | 5. | Safety, Relief or Modulating | | | | Modulating | | | | | |
| | 6. | Conv., Bellows, Pilot Op | | | | Conventional | | | | | |
| Conn. | 7. | Bonnet Type | | | | Closed | | | | | |
| | 8. | Size: Inlet | Outlet | 1" | | 1" | | | | | |
| | 9. | Flange Rating or Screwed | | | | Inlet: CL 300# / Outlet: CL300# | | | | | |
| Materials | 10. | Type of Facing | | | | Raised Face | | | | | |
| | 11. | Body and Bonnet | | | | ASTM A 216 Grade WCB | | | | | |
| | 12. | Seat and Disc | | | | ASTM A 216 Grade WCB | | | | | |
| | 13. | Resilient Seat Seal | | | | No | | | | | |
| | 14. | Guide and Rings | | | | -- | | | | | |
| | 15. | Spring | | | | Stainless Steel | | | | | |
| | 16. | Piston | | | | 303 SST; ASTM A 582 | | | | | |
| Other | 17. | O Ring | | | | Buna N | | | | | |
| | 18. | Cap: Screwed or Bolted | | | | Screwed | | | | | |
| | 19. | Lever: Plain or Packed | | | | NA | | | | | |
| | 20. | Test Gag | | | | NA | | | | | |
| | 21. | Rated Body Max. / Min. Temperature | | | | -30 to 600 °F | | | | | |
| | 22. | Maximum Allowable Working Pressure | | | | 2000 psig | | | | | |
| Basis | 23. | Spring Range | | | | 30 to 100 psig | | | | | |
| | 24. | Code | | | | API-614 | | | | | |
| | 25. | Fire | | | | - | | | | | |
| | 26. | | | | | | | | | | |
| Fluid Data | 27. | | | | | | | | | | |
| | 28. | Fluid and State | | | | ISO VG32 Oil - LIQUID | | | | | |
| | 29. | Required Capacity | | | | 17.7 gpm | | | | | |
| | 30. | Mol. Wt. | Oper. sp. gr. | - | | 0.88 | | | | | |
| | 31. | Oper. Press. | Set Press. | 38 psig | | 65 psig | | | | | |
| | 32. | Oper. Temp. | Rel. Temp. | 120 °F | | 120 °F | | | | | |
| | 33. | Constant | | | | - | | | | | |
| | 34. | Variable | | | | - | | | | | |
| | 35. | Total | | | | Atmospheric | | | | | |
| | 36. | % Allowable Overpressure | | | | 10% | | | | | |
| | 37. | Overpressure Factor | | | | -- | | | | | |
| | 38. | Compressibility Factor | | | | -- | | | | | |
| | 39. | Latent Heat of Vaporization | | | | -- | | | | | |
| | 40. | Ratio of Specific Heats | | | | -- | | | | | |
| | 41. | Operating Viscosity | | | | 65 SSU | | | | | |
| | 42. | Barometric Pressure | | | | 14.6 psia | | | | | |
| | 43. | | | | | | | | | | |
| | 44. | | | | | | | | | | |
| | 45. | Calc. Area Sq. In. | | | | By Vendor | | | | | |
| | 46. | Selected Area | | | | 0.783 in² | | | | | |
| | 47. | Orifice Designation | | | | -- | | | | | |
| | 48. | Manufacturer | | | | Fulflo | | | | | |
| | 49. | Model No. | | | | VSF5AR3SS65 | | | | | |

| | | | | | | | |
|------------|-----------------------|------------------|----|------|----------|--------|------------|
| Owner: | Mississippi Power Co. | Revisions | | | | P&ID# | 1040421 |
| Site: | Gulfport, MS | No. | By | Date | Revision | Date: | 08/17/11 |
| Service: | Lube Oil Cooler | 1. | | | | Req.: | DL7697-1 |
| Purchaser: | Mississippi Power Co. | 2. | | | | By: | R. Herman |
| G.O.: | H11005 | 3. | | | | Chk'd: | F. Gahagen |
| P.O.: | MPC18137-0001 | 4. | | | | Appr: | J. Zerbe |
| S.O.: | F128251 / F128252 | 5. | | | | | |

Oil Cooler A , B Tag Number(s):
Oil Cooler A , B Tag Number(s):

| |
|--|
| F128251: CO1008LO-HXA, CO1008LO-HXB |
| F128252: CO2008LO-HXA, CO2008LO-HXB |

Manufacturer
Size / Type
Heat Exchanged
Transfer Rate

| |
|---------------------------------------|
| Basco |
| 08084 / AEW |
| 175000 btu/hr |
| 64.69 btu/hr-ft²-°F |

Fluid Circulated
Total Fluid Entering
Specific Gravity - Liquid
Viscosity - Liquid (cP @ °F)
Specific Heat - Liquid (btu/lb-°F)
Temperature - In
Temperature - Out
Operating Pressure
Number of Passes
Pressure Drop
Fouling Factor (ft²hr °F/btu)
Surface Area
Design Pressure
Design Temperature
Fluid Velocity
Corrosion Allowance

| SHELL SIDE | TUBE SIDE |
|-------------------------|-------------------------|
| ISO VG 32 Oil | Water |
| 33.0 gpm | 115.0 gpm |
| 0.88 | 1 |
| 13.19 @ 132 | 0.72 @ 95 |
| 0.487 | 0.998 |
| 145.7 °F | 94 °F |
| 120 °F | 97.1 °F |
| 160 psig | 115 psig |
| 1 | 2 |
| 5.5 psid | 2.27 psid |
| 0.001 | 0.002 |
| 75.6ft ² | 75.6 ft ² |
| 255 psig | 200 psig |
| 200 °F Max / +20 °F Min | 300 °F Max / +20 °F Min |
| 3.32 ft/s | 5.13 ft/s |
| 1/8" | 1/8" |

CONSTRUCTION

| | | | | |
|--|--|---|--|--------------------------------|
| Shell; SA-53 B Carbon Steel | Tube Sheets: | <input type="checkbox"/> Naval Brass | Baffles: | <input type="checkbox"/> Brass |
| Tubes (O.D.): 0.625" | (Stationary and | <input type="checkbox"/> Muntz | <input checked="" type="checkbox"/> Steel | |
| BWG: 18 | Floating) | <input checked="" type="checkbox"/> Steel SA-240 316L | <input type="checkbox"/> Other: | |
| <input type="checkbox"/> Inhibited Admiralty | | <input type="checkbox"/> 90 - 10 CU-NI | <input type="checkbox"/> Other: | |
| <input checked="" type="checkbox"/> Steel: SA-249 316L | | | | |
| <input type="checkbox"/> Other: | | | | |
| Bonnet: | <input checked="" type="checkbox"/> Steel: SA-249 316L | Heads | <input checked="" type="checkbox"/> Steel: SA-240 316L | |
| <input type="checkbox"/> Other: | | (Tube Side) | <input type="checkbox"/> Other: | |
| Channel: | <input checked="" type="checkbox"/> Steel: SA-249 316L | Channel | <input checked="" type="checkbox"/> Steel: SA-249 316L | |
| <input type="checkbox"/> Other: | | Cover: | <input type="checkbox"/> Other: | |
| Gaskets - Shell Side | <input checked="" type="checkbox"/> Compressed Fiber | Gaskets | <input checked="" type="checkbox"/> Compressed Fiber | |
| <input type="checkbox"/> Other: | | Tube Side: | <input type="checkbox"/> Other: | |
| O-Rings | <input type="checkbox"/> BUNA-N | Bolts: | SA-193 B7 | |
| <input checked="" type="checkbox"/> Other: Viton | | Nuts: | SA-194 2H | |
| Nozzle Flanges | Shell Side: SA-105 | Tube Side: | SA-182 316L | |
| Body Flanges | Shell Side: SA-516 70 | Tube Side: | SA-240 316L | |
| Shell Size: 8.625" | Tube Length: 84" | Tube Quantity: 66 | | |

APPROVED

| | | | | | | | |
|------------|-----------------------|------------------|----|------|----------|--------|------------|
| Owner: | Mississippi Power Co. | Revisions | | | | P&ID# | 1040421 |
| Site: | Gulfport, MS | No. | By | Date | Revision | Date: | 08/17/11 |
| Service: | Lube Oil Cooler | 1. | | | | Req.: | |
| Purchaser: | Mississippi Power Co. | 2. | | | | By: | R. Herman |
| G.O.: | H11005 | 3. | | | | Chk'd: | F. Gahagen |
| P.O.: | MPC18137-0001 | 4. | | | | Appr.: | J. Zerbe |
| S.O.: | F128251 / F128252 | 5. | | | | | |

| | |
|---------------------------------|-------------------------------------|
| Oil Cooler A , B Tag Number(s): | F128251: CO1008LO-HXA, CO1008LO-HXB |
| Oil Cooler A , B Tag Number(s): | F128252: CO2008LO-HXA, CO2008LO-HXB |

Connections - Shell Side

Inlet/Outlet: Size (NPS): 1.5" R.F. NPT Flanged Other: Class 150#

Vents & Drains Size (NPS): 3/4" NPT Other:

Instruments: Size (NPS): 3/4" NPT Other: Instruments supplied by others.

Fill Line: Size (NPS): 3/4" NPT Other:

Connections - Tube Side

Inlet/Outlet: Size (NPS): 3" R.F. NPT Flanged Other: Class 300#

Vents & Drains Size (NPS): 3/4" NPT Flanged

Instruments: Size (NPS): NPT Other:

Applicable

API 614
 Edition: 4th
 ASME B & PV Code, Section VIII, Div. 1
 Non-Code
 Code Construction Only
 Canadian Registration
 Stamp and National Board

Users/Purchasers Pressure Vessel
 Additional
 TEMA "C"
 TEMA "R"
 Nameplate Language / Units English
 Special Painting Required:

Cradle: Yes
 No

Coolers: Horizontal
 Vertical

Manufacturer: API Basco Model: 08084

Cooler Type: AEW Cooler Size: 08084

Weight/Shell: Dry: 796 lbs., Flooded: 1075 lbs. (each unit) Bundle: 260 lbs. (each unit)

Note: 1.) Flexitallic gaskets included between transfer valve and shellside connections.
2.) No Chinese content.

| | | | | | | | |
|------------|-----------------------|------------------|----|------|----------|---------|------------|
| Owner: | Mississippi Power Co. | Revisions | | | P&ID# | 1040421 | |
| Site: | Gulfport, MS | No. | By | Date | Revision | Date: | 08/17/11 |
| Service: | Lube Oil Console | 1. | | | | Req.: | DL8005-1 |
| Purchaser: | Mississippi Power Co. | 2. | | | | By: | R. Herman |
| G.O.: | H11005 | 3. | | | | Chk'd: | F. Gahagen |
| P.O.: | MPC18137-0001 | 4. | | | | Appr: | J. Zerbe |
| S.O.: | F128251 / F128252 | 5. | | | | | |

Oil Filter A , B Tag Number(s):

F128251: CO1008LO-BLO, CO1008LO-BLO

Oil Filter A , B Tag Number(s):

F128252: CO2008LO-BLO, CO2008LO-BLO

A. Filter Housing(s)/Assembly(s):

- Duplex Assembly (2 Housings, Transfer Valve, Fill Line)
 Twin Assembly (2 Housings, Left Hand/Right Hand)
 Single Housing

2. Manufacturer:

Indufil

Model Number:

IDSL-2-320-2-2"

3. Applicable Specifications:

- | | |
|--|--|
| <input checked="" type="checkbox"/> API 614 | <input type="checkbox"/> Users/Purchasers Pressure Vessel Spec. # |
| <input checked="" type="checkbox"/> Edition: 4th | <input type="checkbox"/> Additional Specifications: 5578-e1-sp-md-001_r0 |
| <input checked="" type="checkbox"/> ASME B & PV Code, Sect. VIII, Div. 1 | <input checked="" type="checkbox"/> Nameplate Language/Units: English |
| <input type="checkbox"/> Non-Code | <input type="checkbox"/> Special Painting Required: |
| <input type="checkbox"/> Code Construction Only | |
| <input type="checkbox"/> Canadian Registration Number | |
| <input checked="" type="checkbox"/> Stamp and National Board Inspection | |

B. Design Parameters:

Oil Flow (S.G. 0.88)

33 GPM

Filtration Rating, Microns

10 Nominal

Operating Temperature

120 °F

Filter Volume (1housing)

1.14 US gallon

Operating Viscosity (SSU)

65

Corrosion Allowance

0

Start Up Temperature

50 °F

Start Up Viscosity (SSU)

650

Cartridge Collapse Diff.

150 psid

C. Filter Internals:

Cartridge Part Number:

ECR-S-00320-API-PF025-V

QTY of Cartridges/Housing

1

O-ring Part Number:

R4425, Viton-A

QTY of O-rings per Housing

1

Cover Back Up Ring Part No.:

115x108.9x1.5

Notes:

- No Chinese Content

| | | | | | | | |
|------------|-----------------------|------------------|----|------|----------|---------|------------|
| Owner: | Mississippi Power Co. | Revisions | | | P&ID# | 1040421 | |
| Site: | Gulfport, MS | No. | By | Date | Revision | Date: | 08/17/11 |
| Service: | Lube Oil Console | 1. | | | | Req.: | DL8005-1 |
| Purchaser: | Mississippi Power Co. | 2. | | | | By: | R. Herman |
| G.O.: | H11005 | 3. | | | | Chk'd: | F. Gahagen |
| P.O.: | MPC18137-0001 | 4. | | | | Appr: | J. Zerbe |
| S.O.: | F128251 / F128252 | 5. | | | | | |

Oil Filter A , B Tag Number(s):

F128251: CO1008LO-BLO, CO1008LO-BLO

Oil Filter A , B Tag Number(s):

F128252: CO2008LO-BLO, CO2008LO-BLO

D. Housing Construction

- Design Pressure: Design Temperature:
 Test Pressure: Min. Design Metal Temp.:
- Construction Material:

| | | | | |
|-----------------|--------------------------------|---|--|------------------------|
| Shell: | <input type="checkbox"/> Steel | <input checked="" type="checkbox"/> Stainless Steel | <input checked="" type="checkbox"/> Other: | SA 182 / SA 479 S31600 |
| Head: | <input type="checkbox"/> Steel | <input checked="" type="checkbox"/> Stainless Steel | <input checked="" type="checkbox"/> Other: | SA 182 / SA 479 S31600 |
| Internal Parts: | <input type="checkbox"/> Steel | <input checked="" type="checkbox"/> Stainless Steel | <input checked="" type="checkbox"/> Other: | SA 182 / SA 479 S31600 |
- O-Rings: Buna-N Viton Other:
- Vessel Closure Gaskets: 304 S.S./Non-Asbestos Spiral Wound Standard
- Bolting: SA 193 Grade B8M Cl 2 / SA 194 Grade 8M
- Connections:

| | | | | | |
|-------------------|-------------|---|---|--|-----------------------------------|
| Inlet/Outlet: | Size (NPS): | <input r.f."="" type="text" value="1-1/2"/> | <input type="checkbox"/> NPT | <input checked="" type="checkbox"/> Flanged (Class): | <input type="text" value="300#"/> |
| | | | | <input type="checkbox"/> Other: | <input type="text"/> |
| Vents/Minor: | Size (NPS): | <input "="" type="text" value="3/4"/> | <input checked="" type="checkbox"/> NPT | <input type="checkbox"/> Other: | <input type="text"/> |
| Dirty Side Drain: | Size (NPS): | <input "="" type="text" value="3/4"/> | <input checked="" type="checkbox"/> NPT | <input type="checkbox"/> Other: | <input type="text"/> |
| Clean Side Drain: | Size (NPS): | <input "="" type="text" value="3/4"/> | <input checked="" type="checkbox"/> NPT | <input type="checkbox"/> Other: | <input type="text"/> |
| Fill Line Conn.: | Size (NPS): | <input "="" type="text" value="3/4"/> | <input checked="" type="checkbox"/> NPT | <input type="checkbox"/> Other: | <input type="text"/> |
- Flange Finish (Other than Vessel Closure): 250 RMS Max. (Standard) 125 RMS Max. Other:

E. Duplex Assembly Construction:

Elliott to Assemble Duplex Assembly: Yes No

- Transfer Valve:

| | |
|----------------------------|---|
| Size/Connections: | <input cl150#"="" type="text" value="1-1/2"/> |
| Center to Center Distance: | <input ,="" 14.55"="" type="text" value="Horizontal: 9.06" vertical:=""/> |
- Pipe Flange Gaskets: Compressed Non-Asbestos Sheet 304 S.S./Non-Asbestos Spiral Wound Other: 316 S.S./Non-Asbestos Spiral Wound
- Bolting: SA 193 Grade B8M Cl 2 / SA 194 Grade 8M Other: Xylan 1014 coated for covers
- Fill Line Pipe: Steel Stainless Steel (Type): Other:
- Fill Line: Steel Stainless Steel (Type): Other:
- Flange Type: Slip-On (Seal Welded) Weldneck Other:
- Flange: 250 RMS Max. (Standard) 125 RMS Max. Other:
- Orifice: Removable Integral Size:
- Fill Valve: NPS 3/4" Steel, Flanged Gate OS & Y Other:

| | | | | | | | |
|------------|-----------------------|------------------|----|------|----------|---------|------------|
| Owner: | Mississippi Power Co. | Revisions | | | P&ID# | 1040421 | |
| Site: | Gulfport, MS | No. | By | Date | Revision | Date: | 08/17/11 |
| Service: | Lube Oil Console | 1. | | | | Req.: | DL7893-1 |
| Purchaser: | Mississippi Power Co. | 2. | | | | By: | R. Herman |
| G.O.: | H11005 | 3. | | | | Chk'd: | F. Gahagen |
| P.O.: | MPC18137-0001 | 4. | | | | Appr: | J. Zerbe |
| S.O.: | F128251 / F128252 | 5. | | | | | |

| | |
|---------------------------|--|
| Description: | Lube Oil Accumulator |
| Tag Number: | F128251: CO1008LO-ACC |
| Tag Number: | F128252: CO2008LO-ACC |
| Manufacturer: | Fluid Energy Controls |
| Model Number: | 10 gallon, 255 rated psig design. |
| Type: | Pressurized with Bladder |
| access: | - |
| Total Volume: | 10 gallon |
| Design Pressure: | 255 psig |
| Operating Pressure: | 120 psig |
| Precharge Pressure: | 55 psig |
| Operating Temperature: | 120 °F |
| Min. Design Metal Temp.: | -20 °F |
| Fluid in Vessel: | ISO VG 32 Oil |
| Precharge Gas: | Nitrogen |
| Shell Material: | 316 / 316L SS |
| Bladder Material: | Buna-N |
| Liquid Connection: | 2" CL300# RFWN |
| Purge Connection: | 1/2" NPT |
| Blowdown Connection: | N/A |
| Accessories: | N/A |
| Specification References: | |
| Code Requirements: | ASME Boiler & Pressure Vessel Code, Section VIII, Div. 1 |
| Other: | No Chinese Content |

Notes:

| Owner: | | Mississippi Power Co. | | Revisions | | | | P&ID# | | 1040421 | |
|--|----------------|---------------------------------|------------------|------------|-----------|-----------------------------|---|--------|------------|---------|--|
| Site: | | Gulfport, MS | | No. | By | Date | Revision | Date: | 08/17/11 | | |
| Service: | | Lube Oil Console | | 1. | | | | Req.: | DL8029-4 | | |
| Purchaser: | | Mississippi Power Co. | | 2. | | | | By: | R. Herman | | |
| G.O.: | | H11005 | | 3. | | | | Chk'd: | F. Gahagen | | |
| P.O.: | | MPC18137-0001 | | 4. | | | | Appr: | J. Zerbe | | |
| S.O.: | | F128251 / F128252 | | 5. | | | | | | | |
| General | 1.a | Tag Number: F128251 | | | | PCV-41728 | | | | | |
| | 1.b | Tag Number: F128252 | | | | PCV-51728 | | | | | |
| | 2. | Service | | | | Oil Supply Pressure Control | | | | | |
| | 3. | Line No./Vessel No. | | | | - | | | | | |
| | 4. | Line Size/Sched. No. | | | | 1-1/2" Sch. 80 | | | | | |
| Body | 5. | Function | | | | Pressure Control | | | | | |
| | 6. | Type of Body | | | | Globe | | | | | |
| | 7. | Body Size | Port Size | 1" | 1" | | | | | | |
| | 8. | Guiding | No. Of Ports | Post | 1 | | | | | | |
| | 9. | End Conn. & Rating | | | | 300# R.F. | | | | | |
| | 10. | Body Material | | | | WCC Steel | | | | | |
| | 11. | Packing Material | | | | Single PTFE | | | | | |
| | 12. | Balance | Flow | Unbalanced | Up | | | | | | |
| | 13. | Seat Type | | | | Metal - WCC Steel | | | | | |
| | 14. | Trim Form / number | | | | Linear / 101 | | | | | |
| | 15. | Trim Material | | | | S41600 SST | | | | | |
| | 16. | Bonnet Type | | | | Plain | | | | | |
| | 17. | Shutoff Class | | | | IV | | | | | |
| | 18. | Max. Allow Sound Level dBA | | | | 82 | | | | | |
| | Actuator/Pilot | 19. | Type of Actuator | | | | Direct Operated - Spring/Diaphragm - Note 2 | | | | |
| | | 20. | Action | | | | Push Down to Close | | | | |
| | | 21. | Travel | | | | 7/16" | | | | |
| | | 22. | Self Cont. | Ext. Conn. | Yes | 1/2"-14 NPT | | | | | |
| 23. | | Diaphragm Material | | | | CR | | | | | |
| 24. | | Diaphragm / Casing Rating | | | | 210 psig / 250 psig | | | | | |
| 25. | | Pressure Range | | | | 32 to 96 psig | | | | | |
| 26. | | Control Setting | | | | 38 psig | | | | | |
| 27. | | Valve Fails | | | | Fails Open | | | | | |
| Accessories | 28. | Filt. Reg. | Supply Gage | No | No | | | | | | |
| | 29. | Line Strainer | | | | No | | | | | |
| | 30. | Housing Vent | | | | Yes | | | | | |
| | 31. | Internal Relief | | | | No | | | | | |
| | 32. | Pneumatic Indicating Controller | | | | No | | | | | |
| | 33. | | | | | | | | | | |
| Service | 34. | Flow Units | | | | LIQUID | | | | | |
| | 35. | Fluid | | | | ISO VG 32 OIL | | | | | |
| | 36. | Quant. Max | Cv | 33 gpm | 3.41 | | | | | | |
| | 37. | Quant. Oper. | Cv | 33 gpm | 3.41 | | | | | | |
| | 38. | Valve Cv | Valve FL | 9 @ 3/16" | - | | | | | | |
| | 39. | Norm Inlet Press. | D P | 120 psig | 82 psig | | | | | | |
| | 40. | Max. Inlet Press. | | | | 120 psig | | | | | |
| | 41. | Max. Shut Off | D P | - | - | | | | | | |
| | 42. | Temp. Max. | Operating | 120 °F | 120 °F | | | | | | |
| | 43. | Oper. sp. gr. | Mol. Wt. | 0.88 | - | | | | | | |
| | 44. | Oper. Visc. | % Flash | - | - | | | | | | |
| | 45. | % Superheat | % Solids | - | - | | | | | | |
| | 46. | Vapor Press. | Crit. Press. | - | - | | | | | | |
| | 47. | Predicted Sound Level dba | | | | < 50 | | | | | |
| 48. | Manufacturer | | | | Fisher | | | | | | |
| | Model No. | | | | 1" 655 EZ | | | | | | |
| Notes: 1.) Fisher Model 655 / 3A Actuator, Yoke Material: Cast Iron, Stem Connection: 3/8", Effective Area: 9.1 in2 | | | | | | | | | | | |

| Owner: | | Mississippi Power Co. | | Revisions | | | | P&ID# | | 1040421 | |
|--|----------------------------|---------------------------------|---------------------|--|-------------|------|----------|--------|------------|---------|--|
| Site: | | Gulfport, MS | | No. | By | Date | Revision | Date: | 08/17/11 | | |
| Service: | | Lube Oil Console | | 1. | | | | Req.: | DL7980-1 | | |
| Purchaser: | | Mississippi Power Co. | | 2. | | | | By: | R. Herman | | |
| G.O.: | | H11005 | | 3. | | | | Chk'd: | F. Gahagen | | |
| P.O.: | | MPC18137-0001 | | 4. | | | | Appr: | J. Zerbe | | |
| S.O.: | | F128251 / F128252 | | 5. | | | | | | | |
| General | 1.a | Tag Number: F128251 | | TCV-41717 | | | | | | | |
| | 1.b | Tag Number: F128252 | | TCV-51717 | | | | | | | |
| | 2. | Service | | Lube Oil Temp. Control Valve | | | | | | | |
| | 3. | Body Type | | 3-Way Thermostatic | | | | | | | |
| | 4. | Finish | | 125/250 RMS | | | | | | | |
| | 5. | Function | | Oil Temp. Mixing Control | | | | | | | |
| | 6. | Line Size / Schedule No. | | 2" / 40 | | | | | | | |
| Conn. | 7. | Construction | | Enclosed Element | | | | | | | |
| | 8. | Size: Inlet | Outlet | 1-1/2" R.F. | 1-1/2" R.F. | | | | | | |
| | 9. | Flange Rating or Screwed | | 300# | | | | | | | |
| Materials | 10. | Spec. | | ANSI | | | | | | | |
| | 11. | Body | | Steel | | | | | | | |
| | 12. | O-Ring seal | | Buna-N | | | | | | | |
| | 13. | Resilient Seat Seal | | - | | | | | | | |
| | 14. | Trim | | Stainless Steel | | | | | | | |
| | 15. | Spring | | - | | | | | | | |
| | 16. | Guiding | Number Of Ports | | - | 3 | | | | | |
| Element | 17. | Body Rating | | 655 psi | | | | | | | |
| | 18. | Temperature Setting | | 120° F | | | | | | | |
| | 19. | Type | | Enclosed Diaphragm & Plug wax-actuated | | | | | | | |
| | 20. | Adjustment | | Factory Set | | | | | | | |
| | 21. | | | | | | | | | | |
| Service | 22. | | | | | | | | | | |
| | 23. | | | | | | | | | | |
| | 24. | Valve Max. Temperature Rating | | 370 °F | | | | | | | |
| | 26. | Flow Coefficient | | | | | | | | | |
| | 27. | Flow Direction | | Converging - Mixing | | | | | | | |
| | 28. | Process Fluid / State | | ISO VG32 Oil / Liquid | | | | | | | |
| | 29. | Required Capacity | | 33 gpm | | | | | | | |
| | 30. | Flow Rate Min. | Flow Rate Max. | 33 gpm | 33gpm | | | | | | |
| | 31. | Inlet Press. | Max. Press. | 120 psig | 120 psig | | | | | | |
| | 32. | Oper. Temp. | Max. Temp. | 120 °F | 120 °F | | | | | | |
| | 33. | % Allowable Overpressure | | - | | | | | | | |
| | 34. | Overpressure Factor | | - | | | | | | | |
| | 35. | Compressibility Factor | | - | | | | | | | |
| | 36. | Max. Pressure Drop across valve | | 14.5 psid | | | | | | | |
| 37. | Operating Specific Gravity | | 0.88 | | | | | | | | |
| 38. | Operating Viscosity | | 65 SSU | | | | | | | | |
| 39. | Barometric Pressure | | | | | | | | | | |
| 40. | | | | | | | | | | | |
| 41. | | | | | | | | | | | |
| 42. | Manufacturer | | AMOT Controls Corp. | | | | | | | | |
| 43. | Model No. | | 1-1/2" EFSH-120-09 | | | | | | | | |
| 44. | Item No. | | | | | | | | | | |
| Notes: 1.) Failure Position: Not Applicable | | | | | | | | | | | |

| Owner: | | Mississippi Power Co. | | Revisions | | P&ID# | | 1040421 | | |
|---|---------------------------|---------------------------------|------------------|-----------------------------|---|-------------|--|------------|--|--|
| Site: | | Gulfport, MS | | No. By Date Revision | | Date: | | 08/17/11 | | |
| Service: | | Lube Oil Console | | 1. | | Req.: | | DL8029-1 | | |
| Purchaser: | | Mississippi Power Co. | | 2. | | By: | | R. Herman | | |
| G.O.: | | H11005 | | 3. | | Chk'd: | | F. Gahagen | | |
| P.O.: | | MPC18137-0001 | | 4. | | Appr.: | | J. Zerbe | | |
| S.O.: | | F128251 / F128252 | | 5. | | | | | | |
| General | 1.a | Tag Number: F128251 | | PCV-41716 | | | | | | |
| | 1.b | Tag Number: F128252 | | PCV-51716 | | | | | | |
| | 2. | Service | | Back Pressure Regulator | | | | | | |
| | 3. | Line No./Vessel No. | | - | | | | | | |
| | 4. | Line Size/Sched. No. | | 2" Sch. 80 | | | | | | |
| Body | 5. | Function | | Pressure Control | | | | | | |
| | 6. | Type of Body | | Globe | | | | | | |
| | 7. | Body Size | Port Size | 1-1/2" | 1-7/8" | | | | | |
| | 8. | Guiding | No. Of Ports | Cage | 1 | | | | | |
| | 9. | End Conn. & Rating | | 300# R.F. | | | | | | |
| | 10. | Body Material | | WCC Steel | | | | | | |
| | 11. | Packing Material | | Single PTFE | | | | | | |
| | 12. | Balance | Flow | Balanced | Up | | | | | |
| | 13. | Seat Type | | Metal - WCC Steel | | | | | | |
| | 14. | Trim Form / number | | Cavitrol III, One Stage / 1 | | | | | | |
| | 15. | Trim Material | | S41600 SST | | | | | | |
| | 16. | Bonnet Type | | Plain | | | | | | |
| | 17. | Shutoff Class | | II | | | | | | |
| | 18. | Max. Allow Sound Level dBA | | 82 | | | | | | |
| | Actuator/Pilot | 19. | Type of Actuator | | Direct Operated - Spring/Diaphragm - Note 2 | | | | | |
| | | 20. | Action | | Push Down to Open | | | | | |
| | | 21. | Travel | | 7/16" | | | | | |
| | | 22. | Self Cont. | Ext. Conn. | Yes | 1/2"-14 NPT | | | | |
| 23. | | Diaphragm Material | | CR | | | | | | |
| 24. | | Diaphragm / Casing Rating | | 210 psig / 250 psig | | | | | | |
| 25. | | Pressure Range | | 65 to 146 psig | | | | | | |
| 26. | | Control Setting | | 120 psig | | | | | | |
| 27. | | Valve Fails | | Fails Closed | | | | | | |
| Accessories | 28. | Filt. Reg. | Supply Gage | No | No | | | | | |
| | 29. | Line Strainer | | No | | | | | | |
| | 30. | Housing Vent | | Yes | | | | | | |
| | 31. | Internal Relief | | No | | | | | | |
| | 32. | Pneumatic Indicating Controller | | No | | | | | | |
| | 33. | | | | | | | | | |
| Service | 34. | Flow Units | | LIQUID | | | | | | |
| | 35. | Fluid | | ISO VG 32 OIL | | | | | | |
| | 36. | Quant. Max | Cv | 67 gpm | 6.16 | | | | | |
| | 37. | Quant. Oper. | Cv | 17 gpm | 1.488 | | | | | |
| | 38. | Valve Cv | Valve FL | 22.5 | - | | | | | |
| | 39. | Norm Inlet Press. | D P | 160 psig | 160 psig | | | | | |
| | 40. | Max. Inlet Press. | | 227 psig | | | | | | |
| | 41. | Max. Shut Off | D P | - | - | | | | | |
| | 42. | Temp. Max. | Operating | 150 °F | 150 °F | | | | | |
| | 43. | Oper. sp. gr. | Mol. Wt. | 0.88 | - | | | | | |
| | 44. | Oper. Visc. | % Flash | - | - | | | | | |
| | 45. | % Superheat | % Solids | - | - | | | | | |
| | 46. | Vapor Press. | Crit. Press. | - | - | | | | | |
| 47. | Predicted Sound Level dba | | < 50 | | | | | | | |
| 48. | Manufacturer | | Fisher | | | | | | | |
| | Model No. | | 1-1/2" 655 EDR | | | | | | | |
| Notes: 1.) Fisher Model 655R / 3A Actuator, Yoke Material: Cast Iron, Stem Connection: 3/8", Effective Area: 9.1 in2 | | | | | | | | | | |

| | | | | | | | |
|------------|-----------------------|------------------|----|------|----------|---------|------------|
| Owner: | Mississippi Power Co. | Revisions | | | P&ID# | 1040421 | |
| Site: | Gulfport, MS | No. | By | Date | Revision | Date: | 08/17/11 |
| Service: | Lube Oil Console | 1. | | | | Req.: | DL7983 |
| Purchaser: | Mississippi Power Co. | 2. | | | | By: | R. Herman |
| G.O.: | H11005 | 3. | | | | Chk'd: | F. Gahagen |
| P.O.: | MPC18137-0001 | 4. | | | | Appr: | J. Zerbe |
| S.O.: | F128251 / F128252 | 5. | | | | | |

Description:
 Tag Number: **F128251**
 Tag Number: **F128252**
 Manufacturer:
 Model Number:
 Quantity:
 Total Power (KW):
 Max. Power Density
 (watts/sq. in.):
 Heating Time (Hours):
 Initial Temperature:
 Final Temperature
 Approx. Tank Volume:
 Voltage/Phase/Frequency:
 Area Classification:
 Construction Material:
 Connection Type:
 Insertion Length:
 Thermostat Requirements:
 Code Requirements:

| |
|---------------------------------------|
| Lube Oil Reservoir Heater |
| CO1008-HT1 |
| CO2008-HT1 |
| Watlow |
| FPNP656A00X-20 |
| 2 |
| 15 |
| 10 - (flange watt density is 8.3). |
| 12 |
| 50 °F |
| 90 °F |
| 743 GALLONS |
| 460 V, 3 Ph, 60 Hz |
| NEC Class 1, Group C & D, Division 2. |
| 316SS Flange, Incoloy Elements |
| 6" CL150# ANSI FLANGE |
| 56" with 12" cold length |
| Remote mounted thermostat required. |
| API 614 4th edition |

Notes:

- 1.) No Chinese content.
- 2.) Sealed Tube Design - heater installed in a dry well.

| | | | | | | | |
|------------|-----------------------|------------------|----|------|----------|---------|------------|
| Owner: | Mississippi Power Co. | Revisions | | | P&ID# | 1040421 | |
| Site: | Gulfport, MS | No. | By | Date | Revision | Date: | 08/17/11 |
| Service: | Lube Oil Console | 1. | | | | Req.: | |
| Purchaser: | Mississippi Power Co. | 2. | | | | By: | R. Herman |
| G.O.: | H11005 | 3. | | | | Chk'd: | F. Gahagen |
| P.O.: | MPC18137-0001 | 4. | | | | Appr: | J. Zerbe |
| S.O.: | F128251 / F128252 | 5. | | | | | |

Description:
Tag Number:
Tag Number:
Manufacturer:
Model:
Type:
Rundown Time:
Usable Volume:
Total Volume:
Design Pressure:
Operating Pressure:
Design Temperature:
Minimum Design Metal Temp.
Liquid Connection
Shell Material:
Bladder Material:
Code Requirements:
Accessories:
References:

| |
|---------------------------------|
| Lube Oil Rundown Tank |
| F128251: CO1008LO-TK2 |
| F128252: CO2008LO-TK2 |
| Harliss Specialties |
| Elliott Design |
| Atmospheric |
| minutes |
| 100 gallon |
| 100 gallon |
| Atmospheric |
| 14.6 psia |
| 200 °F |
| -20 °F |
| 2" CL 150# RF |
| 304 SS |
| N/A |
| N/A |
| Level Gauge & Level Transmitter |
| API 614, 4th Edition |

Other Specifications:

Notes:

No Chinese content.

APPROVED

| | | | | | | | |
|------------|-----------------------|------------------|----|------|----------|---------|------------|
| Owner: | Mississippi Power Co. | Revisions | | | P&ID# | 1040421 | |
| Site: | Gulfport, MS | No. | By | Date | Revision | Date: | 08/17/11 |
| Service: | Lube Oil Console | 1. | | | | Req.: | |
| Purchaser: | Mississippi Power Co. | 2. | | | | By: | R. Herman |
| G.O.: | H11005 | 3. | | | | Chk'd: | F. Gahagen |
| P.O.: | MPC18137-0001 | 4. | | | | Appr.: | J. Zerbe |
| S.O.: | F128251 / F128252 | 5. | | | | | |

| | Transfer Valve #1 |
|--------------------|--|
| Tag Number | N/A |
| Service | Oil Coolers Transfer Valve |
| Manufacturer | Indufil |
| Model Number | IR-1-1/2"-150#-R.F. |
| Type | Double 3-Way ball Valve Flex-Coupled |
| Connections | See Note 1 |
| Body Material | Carbon Steel (C22.8 DIN 17243) |
| Internals Material | ASTM-A182 GR F 316 |
| Jacking Device | No |
| P.R. # | DL7765-1 |
| Other | Design: API 614, ANSI B16.5 Seals: PEEK, Seats: 21003 |

| | Transfer Valve #2 |
|--------------------|--|
| Tag Number | N/A |
| Service | Lube Oil Filters Transfer Valve |
| Manufacturer | Indufil |
| Model Number | part of IDSL-2-320-2-1-1/2" |
| Type | Three Way Ball Valve |
| Connections | 1-1/2" ANSI 150 R.F. |
| Body Material | SA 182 / SA 479 S31600 |
| Internals Material | 316L SS |
| Jacking Device | No |
| P.R. # | DL8005-1 |
| Other | Design: API 614, ANSI B16.5 Seals: Viton, Seats: PTFE |

| | Transfer Valve #3 |
|----------------|--------------------------|
| Tag Number | |
| Service | |
| Manufacturer | |
| Model Number | |
| Type | |
| Connections | |
| Body Material | |
| Plug Material | |
| Jacking Device | |
| P.R. # | |
| Other | |

| | Transfer Valve #4 |
|----------------|--------------------------|
| Tag Number | |
| Service | |
| Manufacturer | |
| Model Number | |
| Type | |
| Connections | |
| Body Material | |
| Plug Material | |
| Jacking Device | |
| P.R. # | |
| Other | |

Notes:
1.) 3" ANSI 150# R.F to Coolers , 2" ANSI 150# to Inlet of Valve.

APPROVED

| | | | | | | | |
|------------|-----------------------|------------------|----|------|----------|---------|------------|
| Owner: | Mississippi Power Co. | Revisions | | | P&ID# | 1040421 | |
| Site: | Gulfport, MS | No. | By | Date | Revision | Date: | 08/17/11 |
| Service: | Lube Oil Console | 1. | | | | Req.: | DL7844-1 |
| Purchaser: | Mississippi Power Co. | 2. | | | | By: | R. Herman |
| G.O.: | H11005 | 3. | | | | Chk'd: | F. Gahagen |
| P.O.: | MPC18137-0001 | 4. | | | | Appr: | J. Zerbe |
| S.O.: | F128251 / F128252 | 5. | | | | | |

| | |
|---------------------------|--|
| Description: | Electric Driver Motor to Oil Pump Couplings |
| Tag Number: | NA |
| Manufacturer: | Rexnord |
| Model Number: | Thomas Series 71, Size 175 |
| Quantity: | 2 |
| Operating Power: | 7 HP |
| Max. Operating Power : | 12 HP |
| Operating RPM: | 3550 |
| Maximum RPM: | 3600 |
| Distance Between Shaft: | 5 inch (127 mm) |
| Dynamic Balance Required: | No |
| Driver Type: | Electric motor - Siemens model; 1LE24212BA112AA3, Frame: 254T, 15 HP |
| Driver Shaft Diameter: | 1.6250 inch +/- 0.0005", 3/8" square key, 2.91" long - clearance fit. |
| Driven Shaft Diameter: | '0.750" inch +/- 0.0005", 3/16" square key, 1.50" long - interference fit. |
| Interference Fit (Y/N): | Yes |
| Material: | Carbon Steel Hubs with SS Disks |
| Coupling Rating: HP/100 | 2.3 |
| Service Factor: | 1.5 |
| Other Specifications: | |

Codes:

1. Coupling to be Manufactured to meet AGMA Class 9 Balancing.

Specifications:

Notes:

- 1.) Driven: IMO - 3 screw positive displacement pump, Model: AA3GNHSPFA162SP.

| | | | | | | | |
|------------|-----------------------|------------------|----|------|----------|---------|------------|
| Owner: | Mississippi Power Co. | Revisions | | | P&ID# | 1040421 | |
| Site: | Gulfport, MS | No. | By | Date | Revision | Date: | 08/17/11 |
| Service: | Dry Gas Seal System | 1. | | | | Req.: | DL8545-1 |
| Purchaser: | Mississippi Power Co. | 2. | | | | By: | R. Herman |
| G.O.: | H11005 | 3. | | | | Chk'd: | F. Gahagen |
| P.O.: | MPC18137-0001 | 4. | | | | Appr: | J. Zerbe |
| S.O.: | F128251 / F128252 | 5. | | | | | |

| | | | |
|---------------------|--|----------------|-----------------------|
| Description: | Primary Seal Supply Gas Filters | Tag No. | F128251: Later |
| Description: | Primary Seal Supply Gas Filters | Tag No. | F128252: Later |

A. Filter Housing(s)/Assembly(s):

- Duplex Assembly (2 Housings, Transfer Valve, Equalizing Line)
 Twin Assembly (2 Housings, Left Hand/Right Hand)
 Single Housing

2. Manufacturer:
 Model Number:

3. Applicable Specifications:

- | | |
|---|---|
| <input checked="" type="checkbox"/> API 614 | <input type="checkbox"/> Users/Purchasers Pressure Vessel Spec. # |
| <input checked="" type="checkbox"/> Edition: 4th | <input type="checkbox"/> Additional Specifications: |
| <input checked="" type="checkbox"/> ASME Sect. VIII, Div. 1 | <input checked="" type="checkbox"/> Nameplate Language: English |
| <input type="checkbox"/> Non-Code | <input type="checkbox"/> Special Painting Required: |
| <input type="checkbox"/> Code Construction Only | |
| <input type="checkbox"/> Canadian Registration Number | |
| <input checked="" type="checkbox"/> U-Stamp | |

B. Design Parameters:

| | | | |
|--------------------------|-------------------------------|------------------------------------|------------------------------------|
| Fluid | Process, N ₂ - Gas | Filtration Rating, Microns | 3 absolute / 0.3 nominal |
| Operating Temperature | 156 - 166 °F | Pressure Drop (max.)- Clean filter | 0.48 bard |
| Molecular Weight | approx. 20 | Corrosion Allowance | 0 |
| Operating Pressure | 688 - 754 psia | Required Efficiency | β _x >=1000 (ISO 16889) |
| Flow | | Type | Coalescing |
| Cartridge Collapse Diff. | > 8 bard | Filter Media | Stainless Steel |
| | | Filter Volume | 0.6 liter |

C. Filter Internals:

| | | | |
|------------------------|-----------------------|----------------------------|----|
| Cartridge Part Number: | ECR-S-085-H-SS-UPG-ED | QTY of Cartridges/Housing | 1 |
| Cover Gasket Part No.: | -- | QTY of Gaskets per Housing | 1 |
| Cartridge Guide P.N.: | -- | QTY of Guides per Housing | -- |
| Top Seat Plate P.N.: | -- | QTY of Seat Plates/Housing | -- |

Notes: 1.) Conforms to NACE MR-01-75

| | | | | | | | |
|------------|-----------------------|------------------|----|------|----------|--------|------------|
| Owner: | Mississippi Power Co. | Revisions | | | | P&ID# | 1040421 |
| Site: | Gulfport, MS | No. | By | Date | Revision | Date: | 08/17/11 |
| Service: | Dry Gas Seal System | 1. | | | | Req.: | DL8545-1 |
| Purchaser: | Mississippi Power Co. | 2. | | | | By: | R. Herman |
| G.O.: | H11005 | 3. | | | | Chk'd: | F. Gahagen |
| P.O.: | MPC18137-0001 | 4. | | | | Appr: | J. Zerbe |
| S.O.: | F128251 / F128252 | 5. | | | | | |

| | | | |
|---------------------|--|----------------|-----------------------|
| Description: | Primary Seal Supply Gas Filters | Tag No. | F128251: Later |
| Description: | Primary Seal Supply Gas Filters | Tag No. | F128252: Later |

D. Housing Construction

- Design Pressure: Design Temperature:
 Test Pressure:
- Construction Material:
 Shell: Steel SA 182 S31603 Other:
 Head: Steel SA 479 S31603 Other:
 Valve Internal Parts: Steel SA182 / SA 479 S31603 Other:
- O-Rings: Buna-N Viton A Other:
- Vessel Closure Gaskets: 304 S.S./Non-Asbestos Spiral Wound Vendor Standard
- Bolts / Nuts: SA193 Grade B8M Cl. 2 / SA194 Grade 8M Vendor Standard
- Connections:
 Inlet/Outlet: Size (NPS): NPTF Other: Cl. 600# R.F.
 Vents/Minor: Size (NPS): NPTF Other:
 Dirty Side Drain: Size (NPS): NPTF Other:
 Clean Side Drain: Size (NPS): NPTF Other:
 PDI: Size (NPS): NPTF Other:
- Flange Finish(Other than Vessel Closure): 250 RMS Max. (Standard) 125 RMS Max. Other:

E. Duplex Assembly Construction:

Elliott to Assemble Duplex Assembly: Yes No

- Transfer Valve: Size/Connections:
 Center to Center Distance: Vendor Standard
- Pipe Flange Gaskets: Compressed Non-Asbestos Sheet
 304 S.S./Non-Asbestos Spiral Wound
 Other:
- Bolts / Nuts: A 193 grB8M / A-194-gr8M
 Other:
- Fill Line Pipe: Steel ASTM-A-182 gr.316L SS Other:
- Fill Line: Steel ASTM-A-182 gr.316L SS Other:
- Flange Type: Slip-On (Seal Welded) Weldneck Other:
- Flange: 250 RMS Max. (Standard) 125 RMS Max.
 Other: Vendor Standard
- Orifice: Removable Integral Size:
- Fill Valve: NPS 3/4" Steel, Flanged Gate OS & Y Other:

Notes:

| | | | | | | | |
|------------|-----------------------|------------------|----|------|----------|---------|------------|
| Owner: | Mississippi Power Co. | Revisions | | | P&ID# | 1040421 | |
| Site: | Gulfport, MS | No. | By | Date | Revision | Date: | 08/17/11 |
| Service: | Lube Oil Console | 1. | | | | Req.: | DL8399-1 |
| Purchaser: | Mississippi Power Co. | 2. | | | | By: | R. Herman |
| G.O.: | H11005 | 3. | | | | Chk'd: | F. Gahagen |
| P.O.: | MPC18137-0001 | 4. | | | | Appr: | J. Zerbe |
| S.O.: | F128251 / F128252 | 5. | | | | | |

| | |
|-----------------------------|--|
| Description: | Portable Oil Heater |
| Tag Number: | - |
| Manufacturer: | Chromalox |
| Model Number: | CMXO-550-24H-480-0000 |
| Quantity: | 1 unit shared among F128002, F128002, F128251 & F128252. |
| Total Power (KW): | 24 |
| Pump Size: | 3 HP |
| Heating Time (Hours): | 12 |
| Initial Temperature: | 50 °F |
| Final Temperature: | 70 °F |
| Voltage/Phase/Frequency: | 480 V, 3 Ph, 60 Hz |
| Area Classification: | NEC Class 1, Group C & D, Division 2. |
| Inlet / Outlet Connections: | 1-1/2" CL150# ANSI Flanged |
| | *To be used with reservoir purifier connections. |
| Code Requirements: | |

Notes:

1.) Pre-piped with pump, heater and expansion tank.