

PREVENTATIVE MAINTENANCE PROGRAM CHECKLIST **CIRCULATING AND BOOSTER PUMPS**

SITE AND BLDG #: Pa051-227MECHANIC
SIGNATURE: DATE: 9-19-19LOCATION/RM #: 10ft WO# 10792 ASSET # 4982START TIME: 8:45FINISH TIME: 8:50

| CHECK POINT | CHECKPOINT DESCRIPTION | TASK COMPLETE | | NOTES/ ACTIONS (IF TASK COMPLETE IS CHECKED NO, PROVIDE EXPLANATION) |
|---|---|-------------------------------------|----|---|
| | | YES | NO | |
| 1 | In addition to the procedure(s) outlined in this standard, the equipment manufacturer's recommended maintenance procedure(s) and/or instruction(s) shall be strictly adhered to. | <input checked="" type="checkbox"/> | | |
| 2 | Follow lock out/tag out procedures at all times. De-energize or discharge all hydraulic, electrical, mechanical, or thermal energy prior to beginning work. | <input checked="" type="checkbox"/> | | |
| 3 | It is generally not a good idea to tamper with pumps using mechanical seals if they are otherwise performing properly. Since mechanical seals can cost as much as the pump, it is usually not cost effective to risk damaging the seal by performing an annual internal inspection of the pump. | <input checked="" type="checkbox"/> | | |
| TO BE PERFORMED AT EACH INSPECTION SERVICE | | | | |
| 1 | Lubricate pump and motor bearings as per manufacturer's specifications. Bearings require lubrication atleast annually. | <input checked="" type="checkbox"/> | | |
| 2 | Inspect couplings and check for any pump seal leaks. | <input checked="" type="checkbox"/> | | |
| 3 | Check motor mounts and vibration pads | <input checked="" type="checkbox"/> | | |
| 4 | Tighten all pump flanges. | <input checked="" type="checkbox"/> | | |
| 5 | Visually check pump alignment and coupling | <input checked="" type="checkbox"/> | | |
| 6 | Inspect electrical connections | <input checked="" type="checkbox"/> | | |

Note: The technician shall perform any repairs identified during PM up to \$250 (direct labor and direct material cost) per PM occurrence. For any deficiencies found exceeding \$250 open a corrective maintenance (CM) ticket and include the Asset #, WO #, photos, and a detailed discription of the deficiency.

To be performed by: General Maintenance Worker

Additional Notes:

PREVENTATIVE MAINTENANCE PROGRAM CHECKLIST **CIRCULATING AND BOOSTER PUMPS**

SITE AND BLDG #: Pa051-227MECHANIC SIGNATURE: DATE: 9-19-19LOCATION/RM #: boiler WO# 10792 ASSET # 5003START TIME: 8:45FINISH TIME: 8:50

| CHECK POINT | CHECKPOINT DESCRIPTION | TASK COMPLETE | | NOTES/ ACTIONS (IF TASK COMPLETE IS CHECKED NO. PROVIDE EXPLANATION) |
|---|---|-------------------------------------|----|---|
| | | YES | NO | |
| 1 | In addition to the procedure(s) outlined in this standard, the equipment manufacturer's recommended maintenance procedure(s) and/or instruction(s) shall be strictly adhered to. | <input checked="" type="checkbox"/> | | |
| 2 | Follow lock out/tag out procedures at all times. De-energize or discharge all hydraulic, electrical, mechanical, or thermal energy prior to beginning work. | <input checked="" type="checkbox"/> | | |
| 3 | It is generally not a good idea to tamper with pumps using mechanical seals if they are otherwise performing properly. Since mechanical seals can cost as much as the pump, it is usually not cost effective to risk damaging the seal by performing an annual internal inspection of the pump. | <input checked="" type="checkbox"/> | | |
| TO BE PERFORMED AT EACH INSPECTION SERVICE | | | | |
| 1 | Lubricate pump and motor bearings as per manufacturer's specifications. Bearings require lubrication atleast annually. | <input checked="" type="checkbox"/> | | |
| 2 | Inspect couplings and check for any pump seal leaks. | <input checked="" type="checkbox"/> | | |
| 3 | Check motor mounts and vibration pads | <input checked="" type="checkbox"/> | | |
| 4 | Tighten all pump flanges. | <input checked="" type="checkbox"/> | | |
| 5 | Visually check pump alignment and coupling | <input checked="" type="checkbox"/> | | |
| 6 | Inspect electrical connections | <input checked="" type="checkbox"/> | | |

Note: The technician shall perform any repairs identified during PM up to \$250 (direct labor and direct material cost) per PM occurrence. For any deficiencies found exceeding \$250 open a corrective maintenance (CM) ticket and include the Asset #, WO #, photos, and a detailed discription of the deficiency.

To be performed by: General Maintenance Worker

Additional Notes:

PREVENTATIVE MAINTENANCE PROGRAM CHECKLIST **CIRCULATING AND BOOSTER PUMPS**

SITE AND BLDG #: PO51-227MECHANIC
SIGNATURE: DATE: 9-19-19LOCATION/RM #: Boiler WO# 10792 ASSET # 5005START TIME: 8:55FINISH TIME: 9

| CHECK POINT | CHECKPOINT DESCRIPTION | TASK COMPLETE | | NOTES/ ACTIONS (IF TASK COMPLETE IS CHECKED NO, PROVIDE EXPLANATION) |
|--|---|---------------|----|---|
| | | YES | NO | |
| SPECIAL INSTRUCTIONS | | | | |
| 1 | In addition to the procedure(s) outlined in this standard, the equipment manufacturer's recommended maintenance procedure(s) and/or instruction(s) shall be strictly adhered to. | ✓ | | |
| 2 | Follow lock out/tag out procedures at all times. De-energize or discharge all hydraulic, electrical, mechanical, or thermal energy prior to beginning work. | ✓ | | |
| 3 | It is generally not a good idea to tamper with pumps using mechanical seals if they are otherwise performing properly. Since mechanical seals can cost as much as the pump, it is usually not cost effective to risk damaging the seal by performing an annual internal inspection of the pump. | ✓ | | |
| TO BE PERFORMED AT EACH INSPECTION SERVICE | | | | |
| 1 | Lubricate pump and motor bearings as per manufacturer's specifications. Bearings require lubrication atleast annually. | ✓ | | |
| 2 | Inspect couplings and check for any pump seal leaks. | ✓ | | |
| 3 | Check motor mounts and vibration pads | ✓ | | |
| 4 | Tighten all pump flanges. | ✓ | | |
| 5 | Visually check pump alignment and coupling | ✓ | | |
| 6 | Inspect electrical connections | ✓ | | |

Note: The technician shall perform any repairs identified during PM up to \$250 (direct labor and direct material cost) per PM occurrence. For any deficiencies found exceeding \$250 open a corrective maintenance (CM) ticket and include the Asset #, WO #, photos, and a detailed description of the deficiency.

To be performed by: General Maintenance Worker

Additional Notes:

PREVENTATIVE MAINTENANCE PROGRAM CHECKLIST **VARIABLE FREQUENCY DRIVE**

ACTIVITY AND BLDG #: Pa 051-227MECHANIC
SIGNATURE: DATE: 9-19-19LOCATION: boiler room 10792 Asset # 5012START TIME: 9FINISH TIME: 9:05

| CHECK POINT | CHECKPOINT DESCRIPTION | TASK COMPLETE | | NOTES/ACTIONS (IF TASK COMPLETE IS CHECKED NO, PROVIDE EXPLANATION) |
|---|---|-------------------------------------|----|--|
| | | YES | NO | |
| SPECIAL INSTRUCTIONS | | | | |
| 1 | In addition to the procedure(s) outlined in this standard, the equipment manufacturer's recommended maintenance procedure(s) and/or instruction(s) shall be strictly adhered. | <input checked="" type="checkbox"/> | | |
| 2 | Review manufacturer's instructions. | <input checked="" type="checkbox"/> | | |
| 3 | Follow lock out/tag out procedures at all times. De-energize or discharge all hydraulic, electrical, mechanical, or thermal energy prior to beginning work. | <input checked="" type="checkbox"/> | | |
| TO BE PERFORMED AT EACH INSPECTION SERVICE | | | | |
| 1 | Perform a complete visual inspection and cleaning. Broken or damaged parts are replaced as necessary. Inspected for ambient temperature, dust, dirt, moisture, evidence of overheating, corrosion, integrity, etc. Capacitors are checked for leakage. Conductors and parts are checked for proper insulation. Drives are cleaned using vacuum or compressed air as required. Filters are cleaned or replaced. Power connections are re-torqued to manufacturer's specifications. | <input checked="" type="checkbox"/> | | |
| 2 | Proper cooling is critical to the operation of a VFD. Fans are energized and tested for air flow. Heat sinks and air passages are inspected to detect blockage or broken/cracked components. Fans are replaced as necessary. Air conditioners are checked for proper cooling. | <input checked="" type="checkbox"/> | | |
| 3 | With power applied to the drive, the dc bus is checked for correct voltages and currents. Incoming AC voltages are checked for proper amplitude and balance. The dc bus is checked for voltage and excessive ripple voltage. Output voltages are checked for amplitude and balance. All values are compared with previous results to assess the rate of deterioration. Look for evidence of unusual vibration or noise. | <input checked="" type="checkbox"/> | | |

Note: The Contractor shall perform any repairs identified during PM up to \$250 (direct labor and direct material cost) per PM occurrence.
 Checklist compiled in accordance with:

PREVENTATIVE MAINTENANCE PROGRAM CHECKLIST **VARIABLE FREQUENCY DRIVE**

ACTIVITY AND BLDG #: Pa051-227MECHANIC SIGNATURE: DATE: 9-19-19LOCATION: Boiler wo# 10792 Asset# 5012START TIME: 9:05FINISH TIME: 9:10

| CHECK POINT | CHECKPOINT DESCRIPTION | TASK COMPLETE | | NOTES/ ACTIONS <small>(If task complete is checked no. provide explanation)</small> |
|-------------|---|---------------|----|--|
| | | YES | NO | |
| 1 | In addition to the procedure(s) outlined in this standard, the equipment manufacturer's recommended maintenance procedure(s) and/or instruction(s) shall be strictly adhered. | | | |
| 2 | Review manufacturer's instructions. | | | |
| 3 | Follow lock out/tag out procedures at all times. De-energize or discharge all hydraulic, electrical, mechanical, or thermal energy prior to beginning work. | | | |
| 1 | Perform a complete visual inspection and cleaning. Broken or damaged parts are replaced as necessary. Inspected for ambient temperature, dust, dirt, moisture, evidence of overheating, corrosion, integrity, etc. Capacitors are checked for leakage. Conductors and parts are checked for proper insulation. Drives are cleaned using vacuum or compressed air as required. Filters are cleaned or replaced. Power connections are re-torqued to manufacturer's specifications. | | | |
| 2 | Proper cooling is critical to the operation of a VFD. Fans are energized and tested for air flow. Heat sinks and air passages are inspected to detect blockage or broken/cracked components. Fans are replaced as necessary. Air conditioners are checked for proper cooling. | | | |
| 3 | With power applied to the drive, the dc bus is checked for correct voltages and currents. Incoming AC voltages are checked for proper amplitude and balance. The dc bus is checked for voltage and excessive ripple voltage. Output voltages are checked for amplitude and balance. All values are compared with previous results to assess the rate of deterioration. Look for evidence of unusual vibration or noise. | | | |

Note: The Contractor shall perform any repairs identified during PM up to \$250 (direct labor and direct material cost) per PM occurrence.
Checklist compiled in accordance with:

PREVENTATIVE MAINTENANCE PROGRAM CHECKLIST **VARIABLE FREQUENCY DRIVE**

ACTIVITY AND BLDG #: Pa051-227

MECHANIC
SIGNATURE: 

DATE: 9-19-19

LOCATION: boiler room 16792 Asset # 5012

START TIME: 9:10

FINISH TIME: 9:15

| CHECK POINT | CHECKPOINT DESCRIPTION | TASK COMPLETE | | NOTES/ACTIONS (IF TASK COMPLETE IS CHECKED NO, PROVIDE EXPLANATION) |
|--|---|-------------------------------------|----|--|
| | | YES | NO | |
| 1 | In addition to the procedure(s) outlined in this standard, the equipment manufacturer's recommended maintenance procedure(s) and/or instruction(s) shall be strictly adhered. | <input checked="" type="checkbox"/> | | |
| 2 | Review manufacturer's instructions. | <input checked="" type="checkbox"/> | | |
| 3 | Follow lock out/tag out procedures at all times. De-energize or discharge all hydraulic, electrical, mechanical, or thermal energy prior to beginning work. | <input checked="" type="checkbox"/> | | |
| TO BE PERFORMED AT EACH INSPECTION INTERVAL | | | | |
| 1 | Perform a complete visual inspection and cleaning. Broken or damaged parts are replaced as necessary. Inspected for ambient temperature, dust, dirt, moisture, evidence of overheating, corrosion, integrity, etc. Capacitors are checked for leakage. Conductors and parts are checked for proper insulation. Drives are cleaned using vacuum or compressed air as required. Filters are cleaned or replaced. Power connections are re-torqued to manufacturer's specifications. | <input checked="" type="checkbox"/> | | |
| 2 | Proper cooling is critical to the operation of a VFD. Fans are energized and tested for air flow. Heat sinks and air passages are inspected to detect blockage or broken/cracked components. Fans are replaced as necessary. Air conditioners are checked for proper cooling. | <input checked="" type="checkbox"/> | | |
| 3 | With power applied to the drive, the dc bus is checked for correct voltages and currents. Incoming AC voltages are checked for proper amplitude and balance. The dc bus is checked for voltage and excessive ripple voltage. Output voltages are checked for amplitude and balance. All values are compared with previous results to assess the rate of deterioration. Look for evidence of unusual vibration or noise. | <input checked="" type="checkbox"/> | | |

Note: The Contractor shall perform any repairs identified during PM up to \$250 (direct labor and direct material cost) per PM occurrence.
 Checklist compiled in accordance with: