Polisher System

Tank Farm Alarm Response Procedure

USQ Not Required – ETF is a <Hazard Category 3 Radiological Facility

CHANGE HISTORY (≤ LAST 5 REV-MODS)

<table>
<thead>
<tr>
<th>Rev-Mod</th>
<th>Release Date</th>
<th>Justification</th>
<th>Summary of Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-0</td>
<td>01/18/2016</td>
<td>Conversion to WRPS Format</td>
<td>New Procedure; Supersedes ETF-PRO-AR-51385 (ARP-60G-001)</td>
</tr>
</tbody>
</table>

Polisher System

Alarm

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RECORDS

No records are generated during the performance of this procedure.
POLISHER READY ATTEMPT FAIL (VD24515)

**Description:** POLISHER READY ATTEMPT FAIL

**Setpoint:** Logic permissive(s) not met

**Alarm Location:** Logic Generated Alarm

**Graphic:** Alarm Summary Screen or Recent Alarm Screen

**Indications:** N/A

**Automatic Actions:**
1. Polisher goes to SHUTDOWN.
2. MTT goes to Ready.

**Immediate Actions:**

1. **ENSURE** Compressed air system in OPERATION per ETF-01B-001.
2. **ON** graphic POL-X and POLISHER–X REGEN, **ENSURE** the following air-operated valves (AOVs) in AUTO/CLOSE for selected polishers:

### POLISHER A (Graphic POL-A)

<table>
<thead>
<tr>
<th>AOV-60G101</th>
<th>AOV-60G102</th>
<th>AOV-60G108</th>
<th>AOV-60G110</th>
<th>AOV-60G113</th>
</tr>
</thead>
<tbody>
<tr>
<td>AOV-60G114</td>
<td>AOV-60G115</td>
<td>AOV-60G118</td>
<td>AOV-60G119</td>
<td>AOV-60G120</td>
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<td>AOV-60G121</td>
<td>AOV-60G124</td>
<td>AOV-60G125</td>
<td>AOV-60G126</td>
<td>AOV-60G127</td>
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<tr>
<td>AOV-60G128</td>
<td>AOV-60G129</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

### POLISHER B (Graphic POL-B)

<table>
<thead>
<tr>
<th>AOV-60G201</th>
<th>AOV-60G202</th>
<th>AOV-60G208</th>
<th>AOV-60G210</th>
<th>AOV-60G213</th>
</tr>
</thead>
<tbody>
<tr>
<td>AOV-60G214</td>
<td>AOV-60G215</td>
<td>AOV-60G218</td>
<td>AOV-60G219</td>
<td>AOV-60G220</td>
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<tr>
<td>AOV-60G221</td>
<td>AOV-60G224</td>
<td>AOV-60G225</td>
<td>AOV-60G226</td>
<td>AOV-60G227</td>
</tr>
<tr>
<td>AOV-60G228</td>
<td>AOV-60G229</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

### POLISHER C (Graphic POL-C)

<table>
<thead>
<tr>
<th>AOV-60G301</th>
<th>AOV-60G302</th>
<th>AOV-60G308</th>
<th>AOV-60G310</th>
<th>AOV-60G313</th>
</tr>
</thead>
<tbody>
<tr>
<td>AOV-60G314</td>
<td>AOV-60G315</td>
<td>AOV-60G318</td>
<td>AOV-60G319</td>
<td>AOV-60G320</td>
</tr>
<tr>
<td>AOV-60G321</td>
<td>AOV-60G324</td>
<td>AOV-60G325</td>
<td>AOV-60G326</td>
<td>AOV-60G327</td>
</tr>
<tr>
<td>AOV-60G328</td>
<td>AOV-60G329</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Continued on Next Page)
POLISHER READY ATTEMPT FAIL (VD24515)

Description: POLISHER READY ATTEMPT FAIL
Setpoint: Logic permissive(s) not met
Alarm Location: Logic Generated Alarm
Graphic: Alarm Summary Screen or Recent Alarm Screen
Indications: N/A

(Continued)

Immediate Actions (Cont.)

[3] ENSURE two polisher columns have been selected.
[4] ENSURE V401 (AOV60G401) is in AUTO (Graphic 60G-A, 60G-B, 60G-C).
[5] ENSURE polisher system bypass valve V60G004 is CLOSED (Graphic 2nd RO).
[6] CHECK AOV control air and loading air pressure settings are as follows:
   • Control Air: 85 to 95 psig
   • Loading Air: 75 to 85 psig with a 10% ΔP between loading air and control air

Possible Causes:

1. Compressed air not available
2. Misaligned valves
3. Position indication malfunction
4. Improper pressure settings on AOV control air or loading air
5. Polisher system bypassed
6. Improper pressure setting on AOV control air (85 to 95 psig) or loading air (75 to 85 psig)

References:

Drawings: None
Documents: ETF-01B-001, Compressed Air System Operation
POLISHER OPERATION ATTEMPT FAIL (VD24516)

Description: POLISHER OPERATION ATTEMPT FAIL

Setpoint: Logic permissive(s) not met
Alarm Location: Logic Generated Alarm
Graphic: Alarm Summary Screen or Recent Alarm Screen
Indications: N/A

Automatic Actions:
1. Polisher reverts to SHUTDOWN.
2. MTT goes to Ready.

Immediate Actions:
[1] ENSURE Polisher is in SHUTDOWN.
[2] ON graphic POL-X and POL-X REGEN, ENSURE the following AOVs in AUTO/CLOSE for selected polishers:

<table>
<thead>
<tr>
<th>POLISHER A (Graphic POL-A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AOV-60G101</td>
</tr>
<tr>
<td>AOV-60G114</td>
</tr>
<tr>
<td>AOV-60G121</td>
</tr>
<tr>
<td>AOV-60G128</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>POLISHER B (Graphic POL-B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AOV-60G201</td>
</tr>
<tr>
<td>AOV-60G214</td>
</tr>
<tr>
<td>AOV-60G221</td>
</tr>
<tr>
<td>AOV-60G228</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>POLISHER C (Graphic POL-C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AOV-60G301</td>
</tr>
<tr>
<td>AOV-60G314</td>
</tr>
<tr>
<td>AOV-60G321</td>
</tr>
<tr>
<td>AOV-60G328</td>
</tr>
</tbody>
</table>

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Polisher System

POLISHER OPERATION ATTEMPT FAIL
(VD24516)

Description: POLISHER OPERATION ATTEMPT FAIL
Setpoint: Logic permissive(s) not met
Alarm Location: Logic Generated Alarm
Graphic: Alarm Summary Screen or Recent Alarm Screen
Indications: N/A

Immediate Actions (Cont.):

[3] ENSURE V401 (AOV60G401) is switched to Surge Tank.
[4] ENSURE AOV control air or loading air pressure settings are as follows:
   - Control Air: 85 to 95 psig
   - Loading Air: 75 to 85 psig with a 10% ΔP between loading air and control air

Possible Causes:

1. Valve position switches not functioning properly
2. Improper pressure settings on AOV control air (85 to 95 psig) or loading air (75 to 85 psig)
3. AOVs for selected columns did not open within monitor control system (MCS) allotted time of selecting OPERATION

References:

Drawings: None
Documents: None
POLISHER X REGEN ATTEMPT FAIL (VD24518, VD24519, VD24520)

Description: POLISHER x REGEN ATTEMPT FAIL (x = Polisher Letter)
Setpoint: Logic permissive(s) not met
Alarm Location: Logic Generated Alarm
Graphic: Alarm Summary Screen or Recent Alarm Screen
Indications: N/A

Automatic Actions:
1. Regeneration process is aborted.

Immediate Actions:

[1] ENSURE proper manual valve lineup per ETF-60G-002; refer to Graphic POLISHER-X REGEN for valve position status.
[3] CHECK AOV control air or loading air pressure settings are as follows:
   • Control Air: 85 to 95 psig
   • Loading Air: 75 to 85 psig with a 10% ΔP between loading air and control air

Possible Causes:
1. Valve position switches not functioning properly
2. Improper pressure settings on AOV control air (85 to 95 psig) or loading air (75 to 85 psig)
3. AOVs for regenerating column not responding within MCS allotted time
4. Chemical system not in OPERATION
5. Compressed air not available
6. Vessel Off-Gas (VOG) system not in OPERATION
7. Verification Tank not in OPERATION

References:
Drawings: None
Documents: ETF-60G-002, Polisher Regeneration
Polisher System

POLISHER AAH-60G-### (VD24532, VD24533, VD24534)

Description: POLISHER x OUTLET COND HI AAH-60G-###
(x = Polisher Letter, # = Tag Number: see Alarm Matrix)

Setpoint: 1 μS/cm

Alarm Location: See Alarm Matrix

Graphic: Alarm Summary Screen or Recent Alarm Screen

Indications: N/A

<table>
<thead>
<tr>
<th>Polisher x</th>
<th>Source</th>
<th>Tag Number ###</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>AIT-60G-104</td>
<td>AAH-60G-104</td>
</tr>
<tr>
<td>B</td>
<td>AIT-60G-204</td>
<td>AAH-60G-204</td>
</tr>
<tr>
<td>C</td>
<td>AIT-60G-304</td>
<td>AAH-60G-304</td>
</tr>
</tbody>
</table>

Automatic Actions:
1. If affected column is in SECONDARY (polishing), then V401 (AOV60G401) switches from Effluent pH Adjustment Tank to Surge Tank.

Immediate Actions:

[1] IF alarm occurs on Primary unit, MONITOR conductivity, no further action is required if alarm condition clears.

[2] IF high conductivity is sustained, SWITCH polisher columns per ETF-60-002 unless directed otherwise by process memo.

[3] IF alarm occurs on Secondary unit, MONITOR conductivity:

[3.1] IF the alarm resets, CHECK V401 (AOV60G401) switches to Effluent pH Adjustment Tank.

[3.2] IF alarm is maintained, PERFORM Quality rinse per ETF-60G-001, if directed by the SOM.

[3.3] SWITCH polisher columns per ETF-60-002.

(Continued on Next Page)
POLISHER AAH-60G-### (VD24532, VD24533, VD24534)

**Description:** POLISHER x OUTLET COND HI AAH-60G-###
(x = Polisher Letter, # = Tag Number: see Alarm Matrix)

**Setpoint:** 1 µS/cm

**Alarm Location:** See Alarm Matrix

**Graphic:** Alarm Summary Screen or Recent Alarm Screen

**Indications:** N/A

(Continued)

**Possible Causes:**

1. Channeling of resin bed due to low or uneven distribution of process water
2. Fouling of resin beads causing resin beads to reduce ion exchange capacity
3. Resin is getting exhausted, sodium (Na) and silica starts to break through

**References:**

**Drawings:** None

**Documents:** ETF-60-002, Integrated MTT Operation
ETF-60G-001, Polisher System Infrequent Operation
POLISHER INLET PRESSURE HIGH (PAH-60G100)

**Description:** POLISHER INLET PRESSURE HIGH (PAH-60G100)

**Setpoint:** 100 psig

**Alarm Location:** PT-60G100

**Graphic:** Alarm Summary Screen or Recent Alarm Screen

**Indications:** N/A

**Automatic Actions:**
1. DEGAS/RO System goes to SHUTDOWN.
2. MTT goes to READY.
3. Polisher system goes to READY.

**Immediate Actions**

[1] **ENSURE** if DEGAS/RO is in SHUTDOWN.

[2] **CHECK** if PCV250 (PIC60F250) was functioning properly per ETF-60F-003.

**Possible Causes:**
1. Polisher inlet valve AOV-60G-X01 fails to open
2. Improper setting of PCV60F250
3. Restrictions in polisher columns
4. 2nd RO membrane failure

**References:**

- **Drawings:** None
- **Documents:** ETF-60F-003, Degas/Reverse Osmosis System Operation