1. Procedure summary

This procedure outlines the method to replace a basket strainer after the thickened algae (TA) pump.

1.1. Related Procedures

Polymer Station Operations	CB-02-002-002
Saturation Tank Operations	CB-02-005-003
DAF Operations	CB-02-004-004

1.2. Procedure impacts and concerns

Safety	Wear gloves and all proper PPE at all times. Operate one TA basket strainer at a time or system damage will occur. Failure to replace the strainers properly can result in damage to equipment and high pressure water leakage. Strainers are pressurized so pressure must be released prior to opening lids.	<Additional notes>
Quality	Improper strainer replacement could result in large debris sent to the Decanter.	<Additional notes>
Delivery	DAF product is sent from the DAF to the Decanter via the TA basket strainers and failure to properly monitor the TA strainers could result in significant down-time of the Decanter feed pump.	
Environmental	Debris collected and removed from the TA basket strainers should be disposed of in local trash receptacles. Any spills of material removed from the strainers needs to be cleaned up as soon as possible and notify EH+S.	<Additional notes>
Cost	Failure to replace the strainers properly can result in significant harvest down time.	<Additional notes>
Compliance	The procedure outlined below ensures proper operations of the TA basket strainers and should be followed accordingly.	

1.3. Responsibilities and owners

Document Owner	Manage content and distribution	Martin Chavez
Process Owner	Responsible for content and process validation	Dhawal Dhonde
Plant Manager	Responsible for implementation and conformance	Dhawal Dhonde

2. Process

2.1. Process description

The purpose of the SOP is to describe procedures for changing out and cleaning the T/A basket strainers**.**

2.2. Process diagram

2.3 Process Steps

2.3.1 TA basket strainer removal

2.3.1.1. During a harvest run the pre-strainer pressure gauge will monitor the pressure at the inlet to the basket strainers. When the inlet pressure goes over 90 psi the basket strainer needs to be changed. Document on TA Strainer Anomaly Sheet located on Columbus drive (L:), Field Operations, Harvest Check lists, Anomaly Tracking Sheet.

2.3.1.2. If TA basket strainer 03-F-3130A (circled in diagram) needs to be changed open valves TA-V203 and TA-V202 to allow flow to go through 03-F-3130B (figure 1).

2.3.1.4 Close valves TA-V204 and TA-V205 to stop flow to the clogged 03-F-3130A

Note: Flow will go through both filters for a period, **Never close both sets of filters off. Sever damage to operator or equipment may occur.**

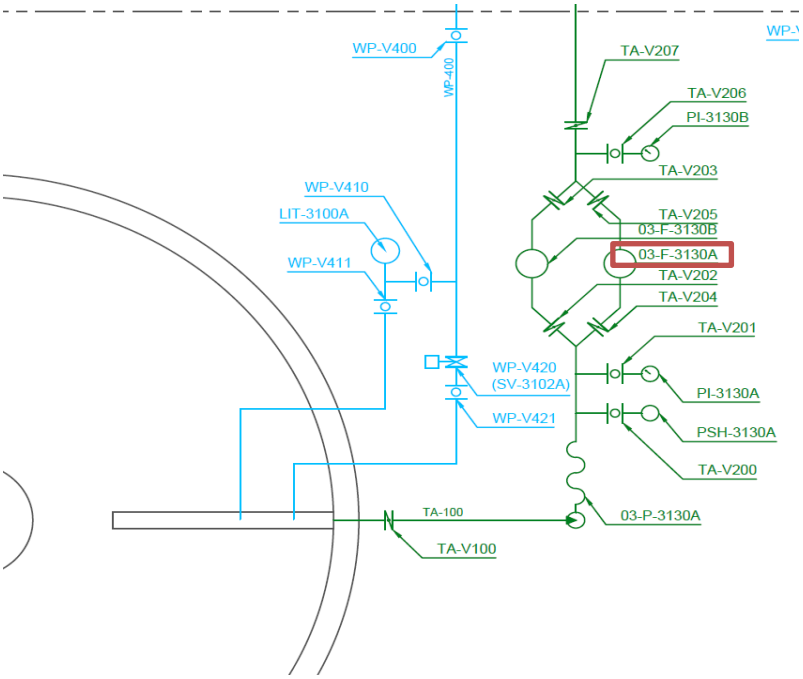

Figure 1. Basket Strainer diagram.

Note: Valves TA-V204 and TA-V205 work together to manage flow to 03-F-3130A

Note: Valves TA-V202 and TA-V203 work together to manage flow to 03-F-3130B

2.3.1.4 Once valves are closed on the strainer that is being switched out relieve pressure on valve located on the bottom of the strainers prior to removing lid (figure 2).

Figure 2. TA basket strainer area.

Note: Do not switch valves back into original configuration, the filters are meant to operate in an A-B fashion where only one is active at any one point. This allows for the filters to be switched and cleaned without any down time in the system.

2.3.1.6. Using the TA strainer tool (figure 3) open the strainer housing by turning the handle counter-clockwise.
2.3.1.7. Pull the clogged strainer out of the housing and place it in a 5 gallon bucket to avoid spills.

Note: **If TA basket strainer 03-F-3130B needs to be changed, open valves AH-V204 and AH-V205 to allow flow to go through 03-F-3130A, close valves AH-V202 and AH-V203, and follow process steps outlined for said strainer and valves.**


Figure 3. TA basket strainer tool to open lid.

Note: Anything unusual sand, rocks, locust, weeds etc. Take photos and advice HMI operator.

2.3.2 Cleaning strainer
2.3.2.1. Take the strainer out and wash in wash tank that is set up by strainers. See figure 5.

2.3.2.2. Using a 3 or 4” putty knife, scrape the debris in the strainer out.
2.3.2.3. Use the utility water hose near the SAT tank to assist in cleaning the strainer.

Note: Advice HMI operator if strainers are being changed frequently.

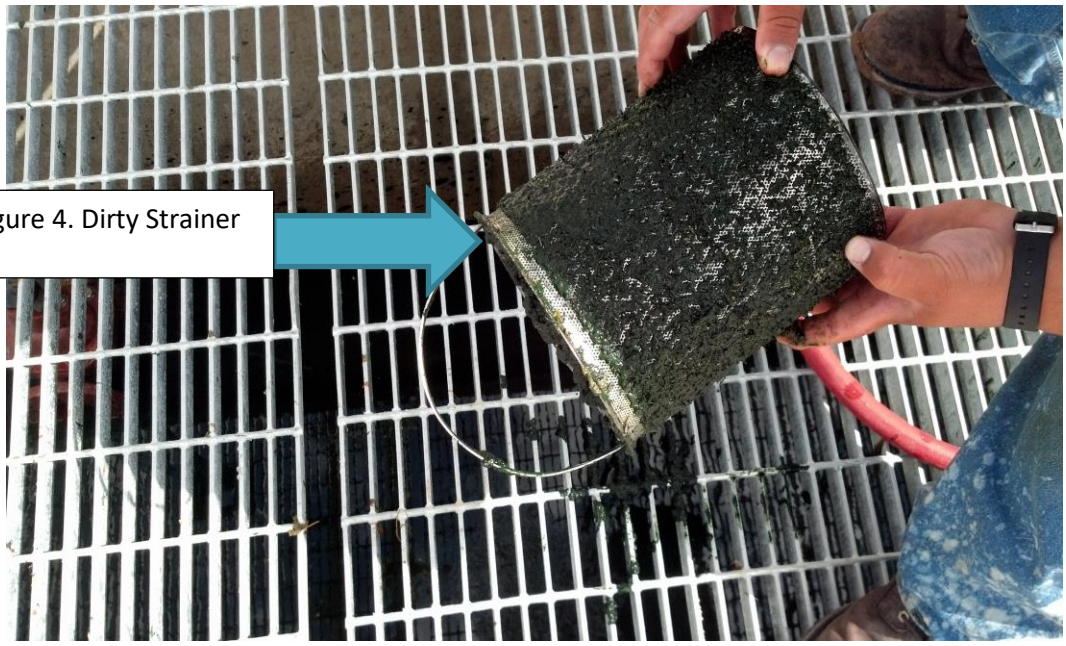

Figure 4. Dirty Strainer

Figure 5. Washout tank, water hose, and scrapers

Figure 6. Clean Strainer ready to be used

2.3.3 TA basket strainer re-install

2.3.3.1. Return cleaned strainer to opened housing. (Figure 7)

Figure 7

2.3.3.2 Adjust strainer to ensure the welded seams are not in line with the flow.

2.3.3.3. Confirm rubber gasket is properly placed on outside rim of the under portion of the strainer housing lid.(Figure 8)

Figure 8

2.3.3.4. Place lid over strainer and tighten using the TA strainer tool by turning clockwise.(Figure 9

Figure 9

2.3.3.5. Record time and pressure after the filter was cleaned in the TA strainer Anomaly Sheet.

2.3.3.6. After harvest has been completed and all strainers have been cleaned. Using the tele handler forklift move wash out tote to sump and clean out.

2.3.3.7 Place back on spill containment ready for next harvest.

3. Required documents

3.1. Input documents

Harvest Record Hourly Data Sheet	L:\Harvest\Harvest Records

3.2. Output documents

Completed Harvest Record Sheet	L:\Harvest\Harvest Records

4. Document control

4.1. Revision history

R0 – Initial Release – Timothy Langer	March 23, 2012
R1 – Updated procedure – Marcos Delgado	September 5, 2012
R2- Martin Chavez	December 12, 2013
R3 - Tony Matsumoto	December 10, 2013
R4 – Leo Willis	December 22,2014
R5- Martin Chavez	December 08,2015

4.2. Document approval

<Name>	<Approval date>

4.3. Document reviewers

<Name>	<Last reviewed date>
<Name>	<Last reviewed date>

5. Risk analysis

<Risk name>	<Mitigation plan>