

## 1. Procedure summary

This procedure outlines the method to transfer slurry from the algae slurry storage tank to a shipping trailer for transport to Las Cruces.

### 1.1. Related Procedures

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

### 1.2. Procedure impacts and concerns

Safety	Secure hose connections and valve positions prior to operations and transfer. Algae product spills in the process area should be recorded and cleaned up as soon as possible.	<Additional notes>
Quality	A process interruption due to transfer downtime will have a negative impact on culture health.	<Additional notes>
Delivery	Proper documentation needs to be completed for transport.	
Environmental	Proper MSDS sheet needs to go along with the algae product shipment.	<Additional notes>
Cost	Improper transfer or spills could result in product losses.	<Additional notes>
Compliance	Proper documentation needs to be completed for transport. Bill of lading, certificate of transfer, and declaration of contents must be transferred to the driver to allow for regulatory compliant transport.	

### 1.3. Responsibilities and owners

Document Owner	Manage content and distribution	Timothy Langer
Process Owner	Responsible for content and process validation	Marcos Delgado
Plant Manager	Responsible for implementation and conformance	Rebecca White

## 2. Process: The method is to transfer slurry from the algae slurry storage tank to shipping trailer.

### 2.1.

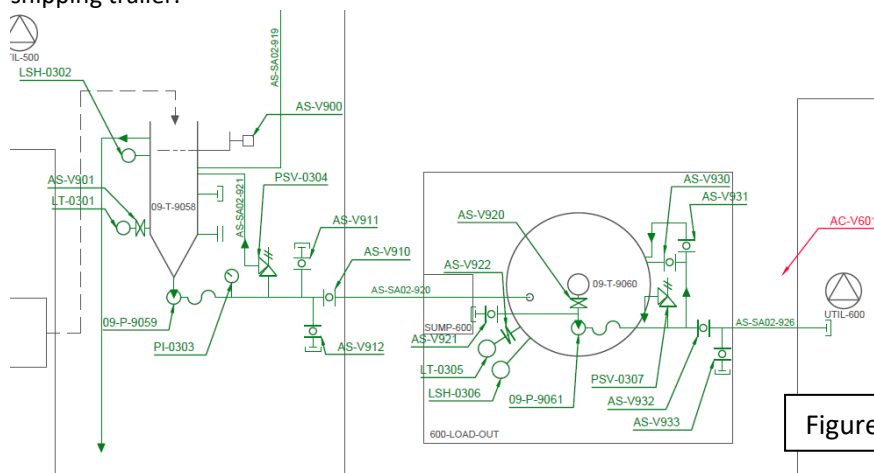


Figure 1

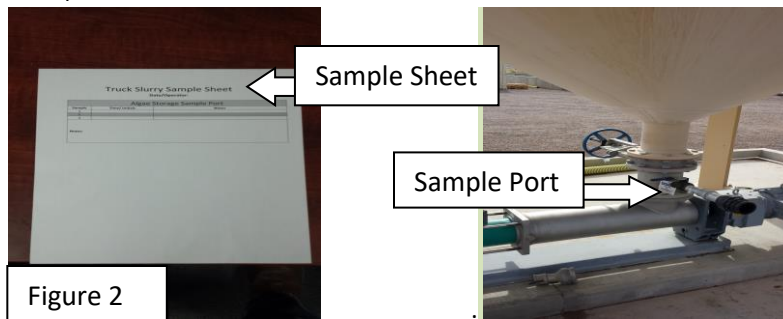
Figure 1 shows the transfer of slurry from the algae slurry storage tank to a shipping trailer for transport.

## 2.2. Transfer of Slurry

### 2.3.1 Algae transfer of slurry to transport

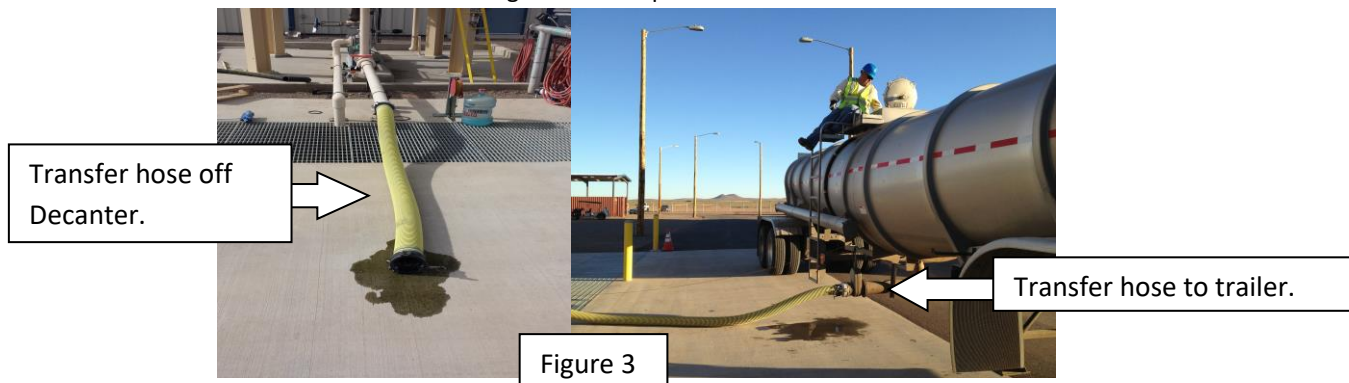
This method will outline how to send algae slurry from storage tanks to a transport trailer.

2.3.1.1 Log the Date, Time, operators involved and the volume intended to be sent to Trailer in the Harvest Record .You will take a total of three samples when loading transport one in the beginning one in middle and final one at end . This process starts as soon as you start feeding transport.



2.3.1.2

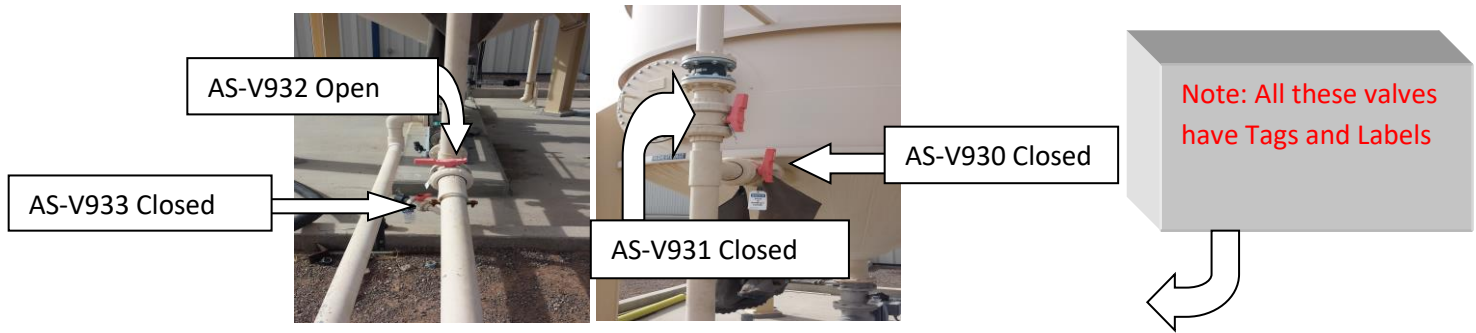
2.3.1.3 Confirm there is a 4" camlock fitting on the end of the transfer hosing on the algae storage tank. Connect grounding wire to tanker truck. Secure the transfer hosing to the transport trailer



Open algae storage transfer valve (AS-V932). Confirm algae storage by-pass valve (AS-V933) is closed. Open algae storage recirculation valves (AS-V930 and AS-V931).

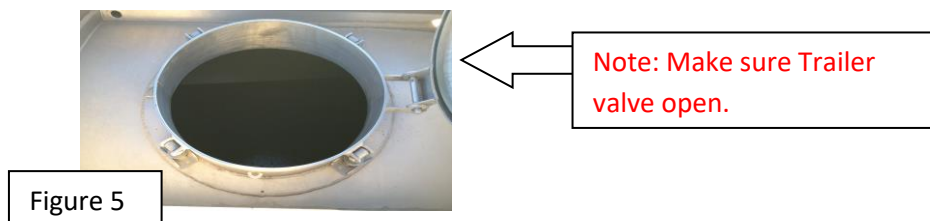
Figure 4



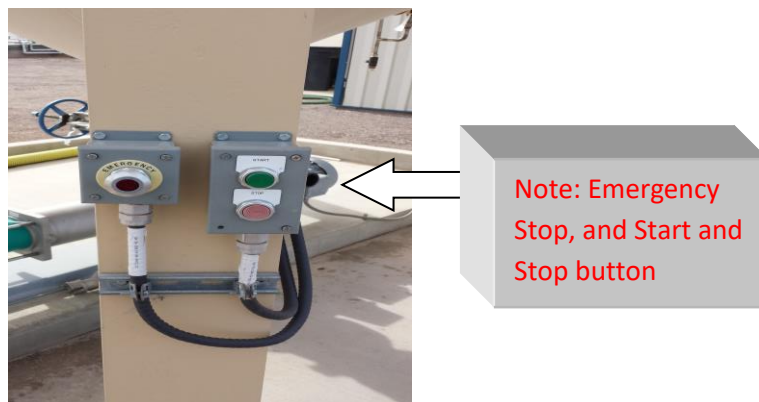


Open inlet ball valve on the trailer.

2.3.1.5 Check that the top valve of the trailer is open to prevent pressurization of the tank.



In the plant HMI the desired amount to be transferred from the algae storage tank can be identified. Confirm control switch in the MCC building is in Auto for the algae transfer pump (09-P-9061). Open algae transfer valve (AS-V920) and verify sample port is closed (AS-V921). Verify E-stop is pulled out at the algae storage tank. Press Start button.



When the algae slurry pump is finished transferring material stop the pump by pressing the Stop button. Close algae storage transfer valve (AS-V932) and close the inlet ball valve on the trailer. The transfer hose should be closed and the hosing can be removed. Excess material in the line should be drained to the process drain lift station.

**2.3.3 Documentation**

1. The driver must be handed the following materials for slurry transport.
  - a. Bill of lading
  - b. MSDS of slurry material
  - c. Transfer of custody

**3. Required documents****3.1. Input documents**

Harvest Record  
Truck Manifest  
MSDS for slurry material  
Sample Sheet

**3.2. Output documents**

Harvest Record

<Output document number>

**4. Document control****4.1. Revision history**

R0 – Initial Release – Timothy Langer	March 23, 2012
R1 – Updated Algae Transfer of Slurry – Marcos Delgado	August 15, 2012
R3-Updated Transfer Slurry for Transport- Leo Willis	December 18 2014

**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>

6.