1. Procedure summary

The purpose of this SOP is to describe procedures on how to calibrate and use the HACH 2100Q Turbidity Meter.

1.1. Related Procedures

Jar Test	CB-02-002-001
Polymer Make Down Station Operations	CB-02-002-002
QC of Polymer-Manual Batch	CB-02-002-003
DAF Harvest Monitoring	CB-02-004-004

1.2. Procedure impacts and concerns

Safety	PPE (Clear Eyewear, nitrile gloves, dust mask)
Quality	Inaccurate data could affect efficiency of harvest
Delivery	Data collection and reporting to HMI operator must be completed prior to or during the initiation of harvest processing
Environmental	Loss of containment must be reported to a supervisor or the site EH&S manager
Cost	Damage to the meter can cause it to malfunction therefore giving bad readings, which will affect proper polymer dose.
Compliance	Compliance with OSHA's Hazardous Waste Operations and Response, and Hazardous Communication Standard in addition to the Sapphire Energy, Inc. Chemical Hygiene Plan is required where applicable. See 29 CFR 1910.120 and 1200. An AUL list, MSDSs and label information will be available for easy reference in a binder in the administration building.

1.3. Responsibilities and owners

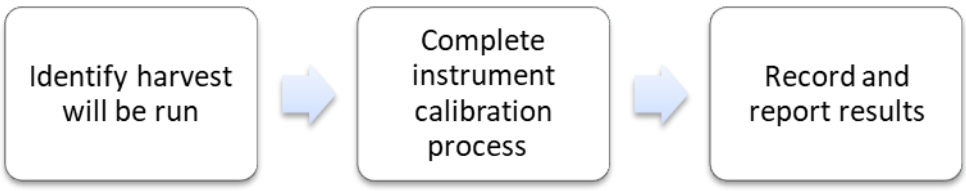
Document Owner	Manage content and distribution	Alejandro Pacheco
Process Owner	Responsible for content and process validation	Alejandro Pacheco
Site Manager	Responsible for implementation and conformance	Dhawal Dhonde

2. Process

2.1. Process description

The purpose of this SOP is to describe procedures on how to calibrate and the proper method and operation on how to use the turbidity meter.

2.2 Process diagram



2.3. Process Steps on how to Calibrate turbidity meter

2.3.1. Calibrating turbidity meter

2.3.1.1. Push blue "ON/OFF" button

2.3.1.2. Push calibration key to enter calibration mode (figure 1).

Note: Meter must be calibrated prior to every use.

Figure 1: Calibration key "ON/OFF" button

2.3.1.3. As instructed on the meter display, insert the 20 NTU standard vial (figure 2) and close the lid.

Note: NTU vials located on table in polymer building.

Figure 2: 20 NTU standard vial

Note: Always ensure the standards have not expired.

Note: All NTU vials have an expiration date on them. If expiration date is getting close advise team lead to place order. Give 1 month

2.3.1.4. Push read button on the meter, the display will read “stabilizing”, and the result of the test will show on the display (figure 3).

notice to give time for order to come in.

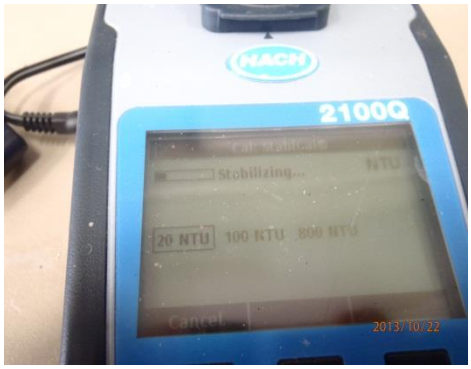


Figure 3: Meter stabilizing during calibration.

Note: Range must not be greater or less than 5%.

2.3.1.5. If the result matches the 20 NTU calibration standard the meter will request the next calibration standard.
2.3.1.6. Repeat steps 2.3.1.1-2.3.1.5 with the 100 and 800 NTU standards.
2.3.1.7. Note completion and result of calibration in the daily log.

3. Process description

This process will describe the proper method and operation on how to use the Turbidity Meter

Process Steps on how to use the Turbidity Meter.

3.1 Turn meter on by pressing the **ON/OFF** key. If meter does not turn on, make sure that the batteries, or the module, are properly installed or that the power supply is properly connected.

Note: If the calibration fails contact the harvest team lead or process engineer.

Figure 1.

3.2 Once on the meter should ask you to select the language. See Figure 2

Figure 2.

3.2.1 The display language is selected only when the meter is turned on for the first time.

3.2.2 The display language can be changed from the settings menu.

3.2.3 Select language from the list, confirm with **OK.** See Figure 3.

Figure 3.

3.2.4 Push **DONE** when the update is complete.

3.2.5 The next thing it will ask is for Date and Time. See Figure 4

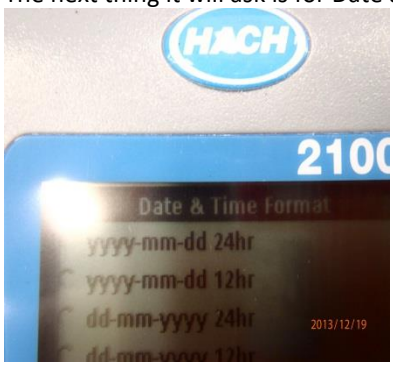


Figure 4.

3.2.6 Once you select your format from the options, your date and time will be set. This can also be changed from the settings menu. See figure 5

Figure 5

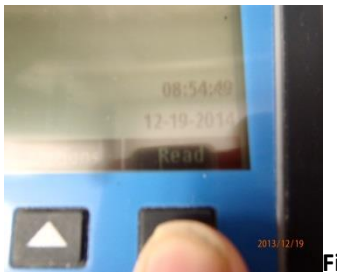
3.2.7 After date and time setup, the meter is ready to take a reading. Prior to any reading make sure meter is calibrated using Calibration SOP.

3.2.8 After meter has been calibrated, using sample cell fill cell to appropriate level with samples taken from the DFP sample port and Sub sample from the weir. See figure 6.

3.2.9 **Figure 6.**

3.2.10 Once filled now u can place sample cell in meter. See figure 7. Close lid and hit the read button. See Figure 8 After a brief second the will give you your results. See Figure 9. Repeat this step with all samples that need to be sampled

3.2.11 **Figure 7.**



3.2.12 **Figure 8.**

3.2.13 **Figure 9.**

3.2.14 The meter does not need to be cleaned for normal operation. Exterior surfaces of the meter may be cleaned as necessary.

Required documents

Input documents

Jar Test Record	L:\ Field Operatic
	Harvest Check Lis
	Test Record

4. Required documents

3. Document control

3.1 Revision history

R0 – Initial Release – Orlando Lozano	October 7, 2013
R1 – Updated procedure – Orlando Lozano	November 11, 2013
R2 – Updated procedure – Tony Matsumoto	December 13, 2013
R3-Updated procedure- Leo Willis **R4-Updated procedure- Alejandro Pacheco**	**12/10/2014** **12/29/2015**

Document approval

3.2 <Name>	<Approval date>

Document reviewers

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

Risk analysis

4. <Risk name>	<Mitigation plan>