1. Procedure summary

Method for performing an in situ culture addition to indicate if excess polymer is being returned to the HRP during harvest.

1.1. Related Procedures

Not applicable for this procedure

1.2. Procedure impacts and concerns

Safety	Gloves should be worn at all times while performing this procedure.
Quality	Report to QA/QC hourly while each In Situ is in progress.
Delivery	Performed during every Harvest run. Use sample taken from subnate return at HRP. Sample interval will be designated by QA/QC supervisor.
Environmental	Local policies and procedures should be followed as determined by the site leadership.
Cost	<Cost impacts>
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 (see 29 CFR 1910.120 and 1200).

1.3. Responsibilities and owners

Document Owner	Manage content and distribution	Kari Mikkelson
Process Owner	Responsible for content and process validation	Rebecca White
Site Manager	Responsible for implementation and conformance	Rebecca White

2. Process

2.1. 2.1 Process description

Begin initial setup of in situ's, allow in situ's to sit for 1 hour. After an hour has elapsed visually check in situ's. Take photos and note if any flocculation has formed. Report results to QA/QC distribution list and field operators as needed.

2.2. 2.2 Process diagram:

Not applicable for this procedure

2.3.

2.3. Equipment and supplies

- 2.3.1 50mL conical tubes
- 2.3.2 50mL conical rack
- 2.3.3 IABR media or media specified by QA/QC supervisor for Control
- 2.3.4 Pond culture

2.3.5 Sample throughout harvest run taken from HRP by Operations. (HRP-W, and SN)

2.4 Process steps

2.4.1 Label 4, 50mL coniocal tubes as listed below. Include the date and time on each conical tube

2.4.1.1 HRP-W
2.4.1.2 SN
2.4.1.3 SN + Pond #
2.4.1.4 Control + Pond #

2.4.2 Add 40mL of HRP-W sample to HRP-W conical tube.

2.4.3 Add 40mL of subnate return sample to SN conical tube.

2.4.6 Add 20mL of the subnate return to conical tube labeled SN+Pond #.

2.4.6.1. Then add 20mL of the pond culture into SN conical.

**Note: Note pond number used for culture on conical tube.

**Note: Subnate return sample will be taken at HRP from SN line by Operations. Sample will be labeled "SN"

**Note: Pond culture will come from a production pond sampled by Operations.

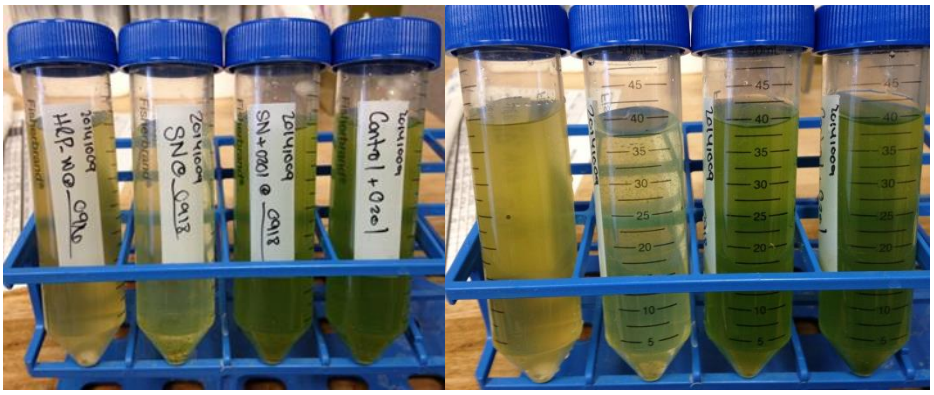
2.4.7 Add 20mL of control media to conical tube labeled Control. Then add 20mL of pond culture to Control conical tube.

**Note: Write pond number used for culture on conical tube.

2.4.8 Invert all tubes several times and return all tubes to the rack.

2.4.9 Record qualitative data for HRP-W and SN samples on the daily Alkalinity-TDS data sheet.
i) Sample color
ii) Chunks of flock present

2.4.10 Take pictures, email to QA/QC supervisor. See pictures below for examples.



2.4.11 After one hour visually inspect all tubes. Record any flocculation that has taken place. Pay close attention to Control conical tube and SN + Pond conical tubes. Need to be able to compare the two and provide conclusion on in situ test.

2.4.12 If no flocculation is present report in situ to QA/QC supervisor as "good, no floc present."

2.4.13 If floc is present report to QA/QC supervisor immediately and wait for directions from supervisor.

2.4.14 Repeat steps 2.4.1-2.4.13 each time HRP and SN samples are brought to lab throughout a harvest run. Only one Control conical tube needs to be setup when initial HRP and SN samples are brought to lab during harvest run.

2.4.15 At end of day discard all contents of conical tubes in proper location and throw away conical tubes in designated bin.

3. Required documents

3.1. Input documents

- In situ's SOP <Input document number>

3.2. Output documents

- TDS/Alk sheet <Output document number>

4. Document control

4.1. Revision history

R0 – Initial Release – Cheng Fang	12/2013
R1 – Miguel Montoya	12/2014

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> <Owner> <RPN>