

**1. Procedure summary**

This procedure describes the process of mixing fresh media in a pond to prep for culture.

**1.1. Related Procedures**

Safe Traffic Flow

CB-03-006-001

Appendix A PPE Requirements

CB-01-002-008

Forklift operation (Tele-handler)

Wagner pump

**1.2. Procedure impacts and concerns**

Safety

Refer to specific Standard PPE required plus nitrile gloves, and N95-respirator (dust mask); refer to MSDS for specific chemical handling safety and PPE requirements.

Quality

Inaccurate concentrations of nutrients addition could lead to toxicities or deficiencies that will result in changes in culture health.

Delivery

NA

Environmental

Loss of containment or chemical spill.

Cost

NA

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. An authorized users 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

Magdalena Pacheco

Process Owner

Responsible for content and process validation

Rebecca White

Site Manager

Responsible for implementation and conformance

Rebecca White

**2. Process****2.1. Process description**

Mixing fresh media are necessary components of culture media. This procedure describes the process by which mixing fresh media and dispensing into the pond.

**2.2. Process diagram: Work Instruction****2.3. Process steps****2.3.1. Check Sheet**

2.3.1.1. Obtain check sheet for Filling pond from Well 4747 located in L:\Cultivation\Field Operations\Checklists\Topping Off.

2.3.1.2. Select proper check sheet for filling desired pond (Filling 200 Column via 4747 (Master), Filling 400 Column via 4747 (Master) or Filling 600 Column via 4747 (Master)).

2.3.1.3. Edit check sheet to reflect proper valve positions for desired pond filling.

2.3.1.4. Print check sheet and take with you out in the field on a clipboard.

### 2.3.2. Fill pond

2.3.2.1. Verify that all valves are in the correct positions according to printed check sheet. Initial verified valves on sheet and record time.

2.3.2.2. Make sure that when prepping valves you start from the bottom and work your way up to the valves closest to the well to avoid over pressurizing the line.

2.3.2.3. Well 4747 only pumps 900 GPM and water will take a little longer to reach designated pond. Travel to pond and verify flow of well water into pond. Once verified flow advise team lead of work status.

**\*\*NOTE: If water does not come out of pipe water is either going somewhere it shouldn't be or line was over pressurized and kicked off the well. You will then have to go back adjust valves and turn well back on. This will then slow down productivity.**

2.3.2.4. Monitor pond depth periodically. It is critical that you do not overfill the pond or chemical amount will change.

2.3.2.4.1. While pond is filling, stage chemicals and Wagner pump at designated pond using tele-handler or flatbed trailer. See figure 1 and 2. You will need 2 people for this task to make productivity safer and faster. Amount of chemicals is dependent on QAQC.



**Figure 1.**



**Figure 2.**

2.3.2.4.2. When pond is close to target depth of 8 inches turn off well to stop well water flow. If possible let well water line drain into the pond. Close all valves to complete check sheet. Turn paddlewheel on.

2.3.2.5. It is very important to turn on Wagner Pump first to help sodium sulfate not harden on the side of the liner. Start recirculating water and begin media addition next to outlet hose on Wagner pump. Try as best as you can to not put media addition on the side of the liner. Extend boom as far out as possible with proper safety to get chemicals directly in the water. See figure 3 below.



**Figure 3.**

2.3.2.6. Once all chemicals are put in the pond, let mix for about 1 hour or dependent on QAQC with Wagner Pump still recirculating. Sample pond refer to Culture Sampling SOP. Extra media addition, sampling or if needing to let media mix for a little longer is dependent on QAQC.

**NOTE: If you are unsure about what valves to open or close see IABR map.**

**NOTE: It is very important to have a dust mask, nitrile gloves, hard hat and a spotter/helper when staging super sacks.**

**NOTE: Target top off depth dependent on QAQC.**

**NOTE: When adding sodium bicarb and sodium sulfate it is always best if you rotate the bags for better media mixture.**

2.3.2.7. Once media is properly mixed and no other additions or sampling is needed, pond is then ready for culture!

### 3. Required documents

#### 3.1. Input documents

<Input document and storage instructions>

<Input document number>

Output documents

<Output document and storage instructions>

<Output document number>

Document control

Revision history

R0 – Initial Release – <Editor name>	<Date>
R1 – Magdalena Pacheco	15/04/01

Document approval

<Name>

<Approval date>

Document reviewers

<Name>

<Last reviewed date>

<Name>

<Last reviewed date>

Risk analysis

<Risk name>

<Mitigation plan>

<Owner>

<RPN>