

1. Procedure summary

This procedure describes Nurse Trailer operation.

1.1. Related Procedures

Pond Access

CB-03-006-001

1.2. Procedure impacts and concerns

Safety

Required PPE: Safety Glasses, safety shoes, gloves; refer to MSDS for specific chemical handling safety and PPE

Quality

Mixing time (15-20 min) must be allowed to ensure appropriate concentration of media components are added to each pond.

Delivery

Environmental

Cost

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 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

Adriana Rascon

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

This process describes "Nurse Trailer" operation. The "Nurse Trailer" is used to replenish small volumes (1000 gal max.) of dissolved/dilute media components to inoculation and production ponds. Valves are labeled according to Figure 1. Specific MSDS for nutrients must be understood prior to handling.

2.2. Process diagram: Work Instruction



Nurse Trailer Valves and Components



Trailer Tongue detail

2.3. Process steps

2.3.1 Mounting the Nurse Trailer to Truck (Refer to Figure 2)

- 2.3.1.1 Reverse truck slowly until ball hitch on truck is directly beneath ball mount (7). Must have a spotter when mounting nurse trailer to truck.
- 2.3.1.2 Slowly turn leveling jack crank (8) counter-clockwise to lower trailer

onto ball hitch until leveling jack is completely clear of the ground.

2.3.1.3 Remove locking pin (9) from leveling jack and turn jack 90° counter-clockwise, then replace pin to keep support leg parallel with trailer tongue

2.3.1.4 Remove locking pin (10) and let it dangle freely.

2.3.1.5 With ball hitch in ball mount, push locking sleeve lever (11) forward, squeeze collar lock (12), and slowly release locking sleeve lever so that it closes around collar lock.

2.3.1.6 Replace locking pin (10) and fasten safety clasp.

2.3.1.7 Attach safety chains (13) to truck, making sure to cross chains between trailer and truck.

2.3.1.8 Attach electrical connector (14) to truck and test turn signals and brake lights to ensure proper connection

2.3.1.9 Remove Tire Chocks and drive safely! Upon parking, apply parking brake and replace Tire Chocks around trailer tires

2.3.2 Chemical Mixing (Refer to Figure 1)

2.3.2.1 Ensure that all valves on nurse trailer are closed

2.3.2.2 Ensure that pump fuel tank is full, check oil in engine

2.3.2.3 Add water to Tank 1 (max 1000 gal) via Tank 1 Access

2.3.2.4 Add media component in Tank 2 via Tank 2 Access (If dispensing large volumes (greater than 30 gallons) or quantities (greater than 50 lbs) use Tank 1 via Tank 1 Access)

2.3.2.5 Open valves labeled 4 and 6 to allow water flow between Tank 1 and Tank 2.

2.3.2.6 Start pump for circulation of media components between Tank 1 and Tank 2.

2.3.2.7 Allow Tank 2 to empty into Tank 1. (This allows for a dilution of the media components to an operating concentration).

2.3.2.8 When Tank 2 has emptied, close valve 6 to prevent Tank 2 from refilling

2.3.2.9 Open valve 3 to circulate the contents of Tank 1 for proper mixing, while bypassing Tank 2.

2.3.2.10 Wait 15-20 minutes for media components to fully mix in Tank 1.

2.3.2.11. Turn pump off

2.3.2.12. Close valves 3 and 4.

Note: Careful! Pinch hazard.

Note: Reversing with a trailer may seem counter-intuitive. Drive slowly and check mirrors regularly, especially when reversing.

2.3.3 Dispensing Dilute Media Components (Refer to Figure 1)

2.3.3.1 Place Outlet Hose in pond and open valves 1 and 3.

2.3.3.2 Allow Tank 1 gravity feed until tank is no longer releasing liquids through Outlet Hose

2.3.3.3 Turn pump on to empty remaining fluid and to clear hoses

2.3.3.4 Rinse interiors of Tanks 1 and 2 with fresh water via Tank Access 1 and 2 respectively.

2.3.3.5 Turn off pump

2.3.3.6 When Tank 1 has completely emptied, close valves 1 and 3

2.3.3.7 Return trailer to Chemical Lay Down Area and perform steps 2.3.2.1-2.3.2.9 in reverse to remove trailer

Note: When operating make sure you dispense on drivers side of vehicle due to hose set-up.

Note: Refer to Pond Access Procedure for information on travelling between ponds

3. Required documents

3.1. Input documents

3.2. Output documents

4. Document control

4.1. Revision history

R0 – Initial Release – Adriana Rascon	04/17/2012
R1 Adriana Rascon	03/03/2013
R3 – Leo Willis	09/09/2014

4.2. Document approval
Rebecca White4.3. Document reviewers
Adriana Rascon

03/03/2013

5. Risk analysis