INSTRUCTIONS

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SAMPLING PROCEDURE FOR MICROBIAL TESTING

LifeCheck®

SCOPE

This document outlines basic steps and procedures for obtaining and shipping samples for microbial testing. These samples can be source waters for completion operations, emulsion pads within a separator, coupons, pig returns and many other types.

SAFETY

When collecting samples from any system or process, refer to your company's standard operating procedures to ensure it is done in a safe manner that is compliant with the site you are working on. This includes reporting to site supervisors, wearing appropriate PPE and site training. Some hazards to be aware of when sampling are:

- Pressurized vessels and lines
- H_2S
- Chemical hazards
- Noise from surrounding equipment
- Height hazards (fall arrest)
- River current

EQUIPMENT

- Sample containers: minimum capacity of 100 ml (liquids) or 5 g (solids)
- Labels (OSP can provide Sample Labels)
- Sharpie
- Electrical tape
- Cooler
- Ice packZiploc bags (for ATP filters)

LIQUID SAMPLE

- Follow safe work procedures when sampling liquids.
- Mix/roll fluid tanks if possible (to homogenize fluid).
- Run 3-5 L of fluid through sample valve (to flush valve).
- Rinse the sample container with sample fluid and empty container.
- Fill sample container to limit oxygen headspace (minimum 100 ml).
- Cap sample container tightly and seal with electrical tape.
- Take fluid samples from other points in tanks or vessels, fluids sources, etc.
- Follow the Sample Shipping Instructions found in this document.

COUPONS

- Follow safe work procedures when pulling coupons. Handle as little as possible.
- Once coupon has been removed, place it in a suitable container. (Do not remove any solids or debris attached to coupon)
- Cap sample container tightly and seal with electrical tape.
- Follow the Sample Shipping Instructions found in this document.

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SOLIDS

- Follow safe work procedures when sampling solids.
- Obtain a representative sample by sub-sampling from various points in the solids source (i.e. cone and quarter method, etc.)
- Place a minimum of 5 g of sample in a suitable container. (The size of a quarter.)
- Cap sample container tightly and seal with electrical tape.
- Follow the Sample Shipping Instructions found in this document.

SURFACES

- Follow safe work procedures when sampling surfaces.
- If running ATP analysis, follow the LifeCheck ATP Sessile Swab instructions.
    - For further LifeCheck DNA analysis, follow the ATP Filters section found in this document.
- Cut the surface to a suitable size for shipping.
- Place the surface sample in sturdy containment. Handle as little as possible.
- Follow the Sample Shipping Instructions found in this document.

ATP FILTERS

If LifeCheck ATP testing has been conducted and additional LifeCheck DNA testing is desired, the ATP filter can be sent in for DNA Analysis.

- Save the ATP filter.
- Tag the filter with the respective sample number to identify the sample it belongs to.
- Send the filter to OSP in accordance with the Sample Shipping Instructions found in this document (i.e. place in a Ziploc bag, then in a cooler with 1 or 2 ice packs, and ship overnight ASAP to OSP).

PACKAGING AND LABELLING

Once a sample is collected, capped and sealed it should be labelled with the following:

- Client
- Lease/Location
- Contact Name
- Sample Point
- Contact Ph #
- Sample Type
- Notes (pH, salinity, temp, system conditions, etc)

Once labelled, samples should be placed in a cooler with 1 or 2 ice packs to prevent changes to the fluid chemistry and microbial environment of the sample. Place containers with liquid samples inside Ziploc bags to limit risk of leaks during transport.

NOTE: Do not place samples in a freezer as this can drastically affect the microbial population.

SHIPPING SAMPLES

Samples should be sent overnight to OSP as soon as possible in order for testing to begin. This will allow for the most accurate microbial monitoring results. Use the following information for sending in samples for analysis:

Calgary
Attention: Nicole Taylor
#6, 820 28 Street N.E.
Calgary, AB T2A 6R3
+1 403-291-1658

Houston
Attention: Marc Demeter
16223 Park Row, Suite 190
Houston, TX 77084
+1 281-497-2692