

SPRUANCE TEFLON® PROCESS AND WASTE WATER TREATMENT SYSTEM CHARACTERIZATION FOR C8

The procedure, which follows, has been prepared to address the sample collection need for C8 analysis of waste water samples including:

1. Teflon® Process Spinning Machine 2 wash water.
2. Teflon® Process Exhaust Scrubber water effluent directed to East Trench.
3. Teflon® Process East Trench down gradient of entry of sample point #1 and #2 above, and up-gradient of HVAC discharge at extreme southern end of East Trench.
4. Waste Water Treatment System Outfall 106 (process sewer combined influent).
5. WWTS Outfall 101 (treatment system discharge).
6. Outfall 001 (down gradient of combination of Outfall 101 and Outfall 110 (representing all other internal Spruance effluent to James River).

Except for point #6, these same locations were sampled for C8 during November, 1991.

SAMPLING PROCEDURES

Samples collected during this investigation will be analyzed for C-8 and will include Spruance Teflon® Process and Spruance Site Waste Water Treatment System samples.

PRELIMINARY ACTIVITIES

The following preliminary activities will be completed to ensure proper preparation for each sample collection need:

- ☐ Coordination between sampling and laboratory personnel will be established so that sample integrity is retained at all times during the sampling event.
- ☐ The Exygen Laboratory will be notified of the upcoming sampling event by CRG so it can schedule the analytical work, the replicate requirements, and the number of extra bottles needed, if any, for quality control testing.

General Instructions For Water Sampling

Water sample bottles will not be pre-rinsed with site water prior to sample collection. Gloves will be worn during sampling activities and replaced between samples. All samples will be held chilled (not frozen to 6°C) with wet ice from collection to shipping.

In order to minimize the possibility of introducing C-8 contamination into samples, the following protocol will be followed:

- ☐ Avoid glass.
- ☐ Avoid PTFE (Teflon).
- ☐ Avoid aluminum foil.
- ☐ Do not use Post-it-Notes.
- ☐ Avoid blue ice.
- ☐ Avoid pre-wrapped foods or snacks.
- ☐ Wear clothing that has been washed at least six times.
- ☐ Use only containers supplied by contract laboratory.

The Exygen Laboratory will provide necessary sample containers with the shipping containers (i.e., shuttles). Containers and any preservative added to the containers will be in accordance with EPA document SW-846 protocol. All samples requiring refrigeration will be shipped at approximately 4°C (not frozen to 6°C).

Field equipment will consist of some or all of the following:

- ☐ Polyethylene Nalgene® collection bottles (laboratory provided)
- ☐ Field sampling record (CRG or Exygen supply)
- ☐ Sufficient ice to maintain the samples at approximately 4°C (not frozen to 6°C) (Site to supply)
- ☐ Methanol and deionized/distilled water (Site to supply)
- ☐ ISCO compositors or other sampling devices (preferably dedicated or pre-cleaned)

Preparing for sampling includes acquiring all of the necessary monitoring equipment listed above and site-specific information to perform the required monitoring.

Teflon® Process Sampling

The following procedure will be followed during Teflon® process sampling, including the #2 Spinning Machine wash water overflow, scrubber water discharge and East Trench.

1. Wipe the exterior of the one liter Nalgene® bottle using a Chem-wipe moistened with methanol.
2. As possible, submerge the sample bottle below the water surface and unscrew the bottle cap. Otherwise, collect a piped discharge directly into the sample bottle.

3. Fill the water bottle by turning the bottle parallel to the water surface and slowing rotating so that the mouth of the bottle is up right. This procedure will ensure that water from the surface microlayer is not pulled into the sample bottle.
4. Recap the sample bottle under water.
5. Wipe the bottle using a Chem-wipe moistened with methanol and affix a sample label.
6. Place the sample in a cooler of ice.
7. Complete the chain-of custody form.
8. Repeat this procedure on 2-hour intervals 4 times during "day" working hours.
9. Combine the 4-1liter samples for a given sample location into container supplied by Exygen Lab and store on ice.

Waste Water Treatment System Sampling

Collect a 4-liter aliquot from each ISCO 24-hour composite sampler at Outfall 106, 101, and 001 on the same day. Sample container to be provided by Exygen Lab.

Disposable Equipment

All disposable equipment and other materials that are not decontaminated for reuse will be disposed of in an acceptable manner.

Sample Shipping

Environmental Affairs to arrange for shipment of samples.

Address: _____

- ❑ All proper field forms (i.e., field log sheets, custody seals, and chain-of-custody forms) will be prepared for use to enable proper documentation of the sampling event. These documents are to be supplied Spruance Environmental Affairs, by CRG, and/or Exygen Laboratory.
- ❑ A preliminary inspection and calibration of all field equipment will be performed to ensure accurate measurements of field parameters (i.e., pH, specific conductance, dissolved oxygen, turbidity, and temperature).
- ❑ The Spruance Environmental Affairs Technician will be trained in the sampling protocols contained herein and carry out the necessary sample collection, identification, shipping, etc.

The following steps will be performed before beginning each sampling activity to ensure sampling is implemented correctly and safely:

- ❑ The sample location will be identified.
- ❑ All equipment to be used during the sampling event will be inspected, pre-cleaned, and decontaminated.
- ❑ All forms to be used in the field (e.g., field logbook, chain-of-custody sheets) will be assembled.
- ❑ Sampling personnel will review sampling protocols. Spruance Site and local area health and safety protocols will be reviewed to help ensure that no injuries occur during the sampling event.

General Decontamination Procedures

All equipment in direct contact with the material to be sampled will be decontaminated prior to sampling to prevent cross-contamination of samples collected. In addition, care will be taken so as not to allow anything to come into contact with a sample or sample area, which may affect its composition.

Sampling equipment will include 1 liter Nalgene® containers and ISCO compositors (Outfall 106, 101 and 001). All of these items will come in direct contact with the sample and have potential to impact analytical results. Therefore, care will be taken to ensure the cleanliness of all sampling equipment. Following cleaning instructions, apply to both Nalgene® bottles, as well as all wetted components of ISCO samplers:

- ❑ Rinse the equipment with deionized water.
- ❑ Rinse the equipment with methanol.
- ❑ Place in zip-sealed bag until use, one liter Nalgene® bottles.

In addition to the decontamination procedures outlined above, the person collecting the sample will wear clean latex gloves and will limit his/her contact with the samples.

Sample bottles and containers will be prepared by the Exygen Laboratory and will be sealed to ensure cleanliness. Sample bottles will not be cleaned in the field.