CHRISTINE O. GREGOIRE
Director

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Water Body WA-10-0020
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STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
7171 Cleanwater Lane, Building 8, LH-14 • Olympia, Washington 98504-6814

September 19, 1991

TO: Greg Cloud

FROM: Marc Heffner MH

SUBJECT: Cascade Pole Company (Tacoma) - Aborted Stormwater Runoff Class II Inspection Attempts; Lessons Learned and Suggested Changes.

At your request, a Class II Inspection was designed to provide a thorough evaluation of runoff from the Cascade Pole Company facility in Tacoma during a storm event. Specific objectives included:

1. Analyze priority and non-priority pollutants in the stormwater treatment system influent and effluent, and in the untreated stormwater discharge.

2. Assess the stormwater treatment system efficiency.

3. Evaluate stormwater treatment system effluent and the untreated stormwater discharge to the Puyallup River for toxicity using acute and chronic bioassays.

4. Assess plant compliance with existing NPDES permit limits.

By late October 1990 the sampling plan was developed and equipment prepared and held on a stand-by basis awaiting a suitable storm event.

The first suitable storm began on Friday November 9,1990, immediately preceding a holiday weekend (Veterans Day). Bioassay transport to and set-up by the selected contract labs within acceptable holding times could not be assured due to the holiday. The event was not sampled because the ability to acquire valid bioassay data was doubtful. The storm was substantial, resulting in flooding around much of the Puget Sound Region. A decision was made to allow a period with limited precipitation to occur prior to sampling. The period would allow plant activities to partially return the site surface to pre-storm conditions. Additional holidays and unsuitable weather delayed the next opportunity for sampling until after the New Year had begun.

The next sampling opportunity occurred on January 7, 1991. The weather appeared suitable for collection and once on site composite samplers were installed to collect influent and effluent at the treatment system (Figure 1). An additional sampler was installed in a small catch basin to collect runoff to the Puyallup River, but was removed as the level in the basin being sampled fell with the falling tide. A grab composite sample of the runoff to the river was started. Upon return to the treatment system area, it was discovered the treatment plant feed line had ruptured and the filtration/absorption portion of the treatment system was off-line (Figure 1). While the system was off-line, the stormwater passed through the settling basin and was discharged. Treatment system plumbing was plastic pipe, and Cascade Pole personnel theorized that the recently ended cold snap had weakened the line leading to the rupture. The repair crew estimated two to three hours to make temporary repairs and bring the system back on-line. The time was approaching 1400 and it appeared unlikely the system efficiency goal of the inspection could be met by continuing, so the inspection was discontinued, to be rescheduled.

The equipment required clean-up and preparation for priority pollutant sampling prior to another attempt. Other projects and obligations delayed the next available inspection period until after February 19, 1991.

The final sampling attempt was made on March 4, 1991. Rain fell during the night and was predicted to continue. Rain intensity decreased as the trip commenced and slowed to a drizzle by the time the composite samplers were set up at the waste treatment system. As set up began, the stormwater treatment system was discharging for three minutes followed by twenty minutes while the partially emptied settling basin refilled. The drain to the Puyallup River was flowing at a low rate. Despite hopes for continued rain, by afternoon the sun was shining and treatment system discharges were more infrequent. Water available for sampling was pooled and judged not representative. The effort was abandoned.

Time available for another attempt was limited and Cascade Pole was starting to take positive steps towards improved discharge quality. The biggest steps included regrading a portion of their treated pole storage yard and setting up a pilot plant to study the effectiveness of an alternative treatment system. The decision was made to cancel the inspection for the 1990-91 rainy season.

Lessons learned from the survey were primarily related to scheduling and conducting storm event surveys. These include:

1. Lab arrangements - often early season storm event sampling periods (November and December) correlate with holiday periods. Attempts should be made to assure laboratory readiness regardless of when the storm event occurs.

2. Site access - the inspection was unannounced, somewhat limiting site access. The permit requires the permittee to provide reasonable access; in the case of no advance notice reasonable access was interpreted to mean during business hours (0800-1700, Monday - Friday). Attempting to have more flexible access, particularly during the weekends would be helpful.

3. Runoff duration - the March visit suggested runoff ceases fairly quickly after rainfall ends. The original intent of the survey was to collect 24-hour composite samples. This seems impractical given the intermittent nature of many storms and limited accuracy in predicting the nature of incoming storms. Composites over a four- to eight-hour period with several on-site observations to assure flows continue and representative samples are being collected appears most appropriate.

4. Impeded flow - the drain to the Puyallup was subject to impeded flow conditions when the tide reached certain levels. Setting a composite sampler to collect a representative sample from the drain proved difficult. The sampler intake was above the water level when the tide fell. The depth of the flowing water was inadequate to properly accommodate the sampler intake when the tide was out. Grab composite samples are suggested for tidally impeded flows unless changes in depth can be monitored for a complete tidal change prior to set up.

5. Sample type - grab composite samples may often be more practical and appropriate than mechanically collected composites for situations such as Cascade Pole. As noted in comment 3, supervision of mechanical samplers is suggested to assure flows are adequate and representative. Although samples were not collected, the sampling equipment had to be decontaminated and cleaned for priority pollutant sample collection two times. The clean-up process took approximately one day each time dirty equipment was prepared for sampling. When clean-up time was not immediately available, periods occurred when we were unprepared to conduct the inspection. The value of mechanically collected samples to collect variable, sometimes intermittent, flows when multiple attempts to collect samples are difficult; should be assessed against the more flexible and less preparation intensive grab composite samples. A minimum of four aliquots over a minimum of four hours could serve as a grab composite goal. The goal is most applicable to discharges that are untreated or treated using a short detention time system.

MH:kd

cc: Craig Smith

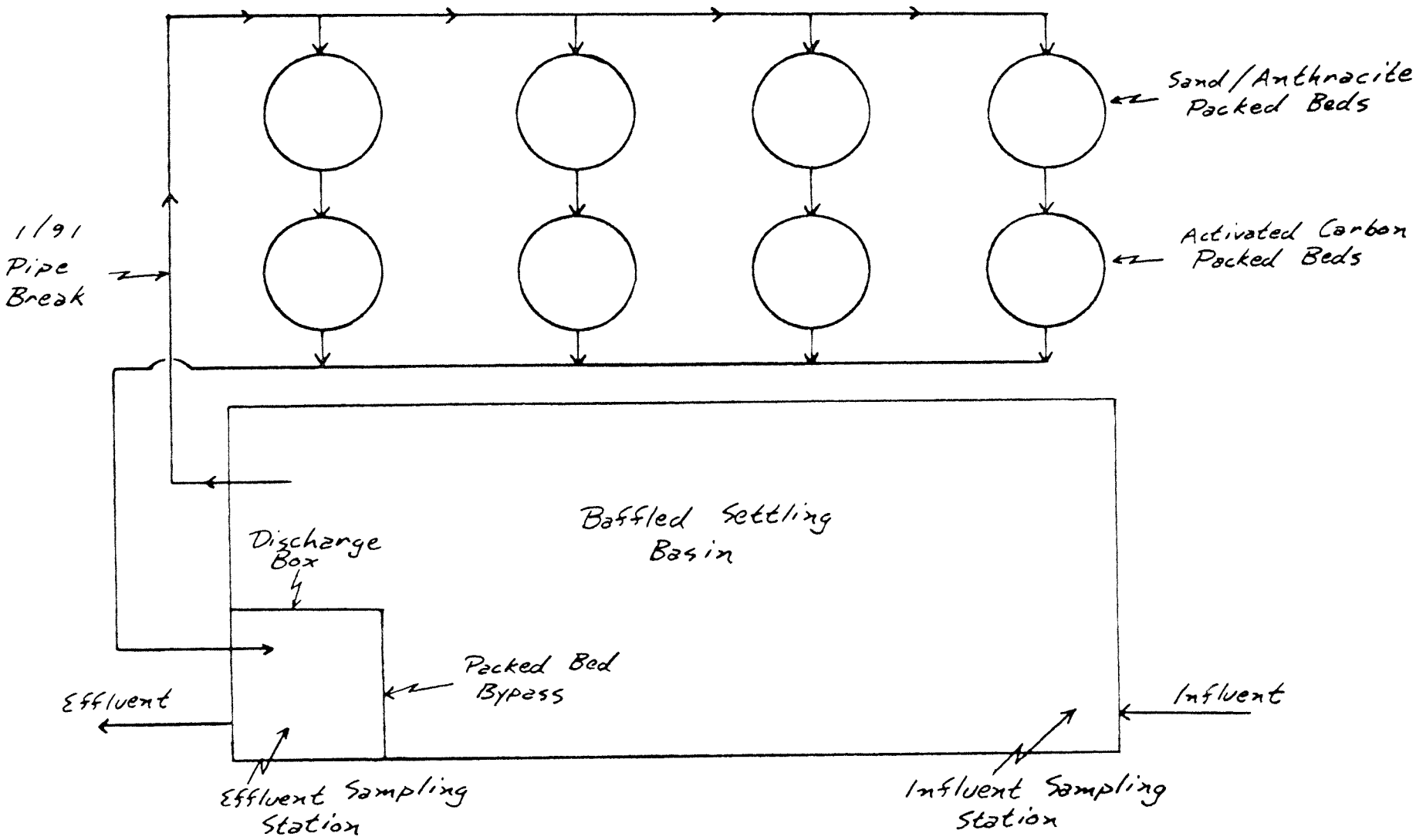

FIGURE 1 - Flow Schematic - Cascade Pole (Tacoma), January 1991.