

International Paper – Riegelwood Mill

Green Liquor Clarifier Work Plan

September 2007

The following discusses immediate actions taken and follow-up actions planned in response to the No. 6 Green Liquor Clarifier leak of 9/22 and 23/2007. The primary concerns addressed include:

- Health and Safety
- Wastewater Treatment Impacts
- Tank Inspection and Repair
- Potential Soil and Groundwater Contamination Investigation

Of course, health, safety and environmental concerns dictated immediate responses. Tank inspection and repair as well as potential soil impact evaluation will ensue in the coming days and weeks.

Health and Safety

When the leak was first detected, the Mill Incident Commander was notified immediately. Response procedures for chemical spills were followed. International Paper and contractor personnel were cleared from the immediate area. To prevent any contact in the event that the leakage grew to a level that would not be contained in the process sewer system, the area was cordoned off and emergency response vehicles and team members manned access points to prevent any entry. There were no injuries from the leak or associated response.

Wastewater Treatment

Upon discovery, it was determined that the leak was contained in the concrete paved area surrounding the tank, with the spilled material routed to the wastewater treatment system (WTS). A significant portion of the green liquor in the tank was pumped out to other storage tanks.

Although the chemical constituents of the tank leakage are not unusual in the wastewater treatment plant influent, the volume of the leak certainly was. The following steps were taken to protect the treatment process so all permit conditions and regulatory requirements would be met.

Below are the steps taken followed by trends showing the impacts on the treatment system. It should be noted that the wastewater treatment system at the IP Riegelwood facility is a very large biological treatment system, with seven days of total retention time, typically treating nearly 40 million gallons of influent per day.

Upon discovery of the green liquor leak, the following immediate actions were taken to assess and minimize the impact of the spill on the wastewater treatment system:

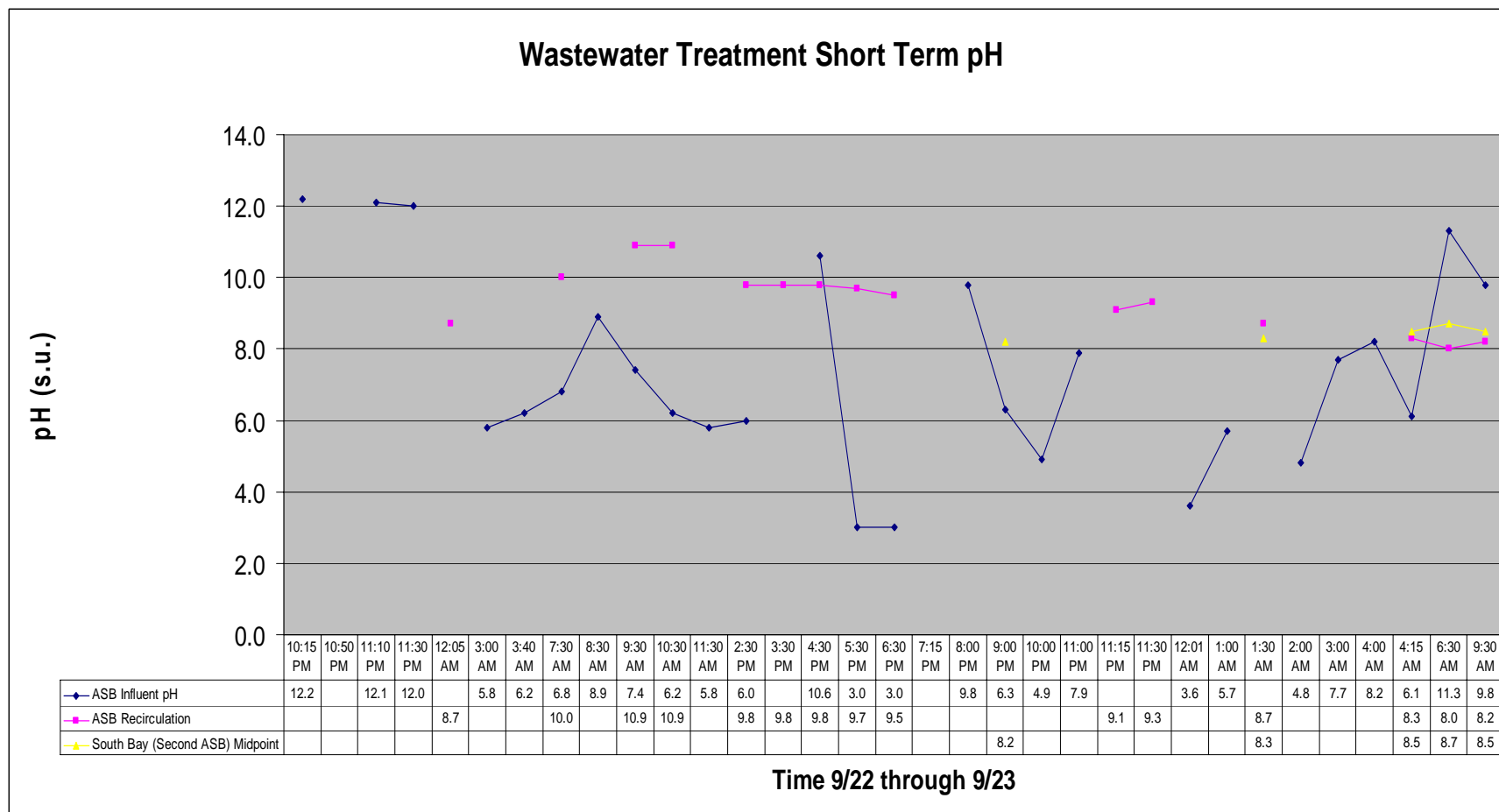
- The sewer flows were separated at the headworks of the treatment system to contain as much of the released material as possible by diversion to the No. 2 Clarifier.
- Neutralization chemical feed rates were increased to reduce the alkalinity and pH of the influent entering the treatment system.
- Additional aerators were started within the aerated stabilization basin (ASB) of the treatment system.
- Additional pH samples and analyses were conducted throughout the treatment system.
- Elemental oxygen and hydrogen peroxide were added to the treatment system influent.
- Stop logs were added to allow retention of additional wastewater.
- Incubator bacteria were fed to the treatment system, following system return to acceptable pH levels.

In addition to the immediate actions taken and outlined above, the following additional actions were taken:

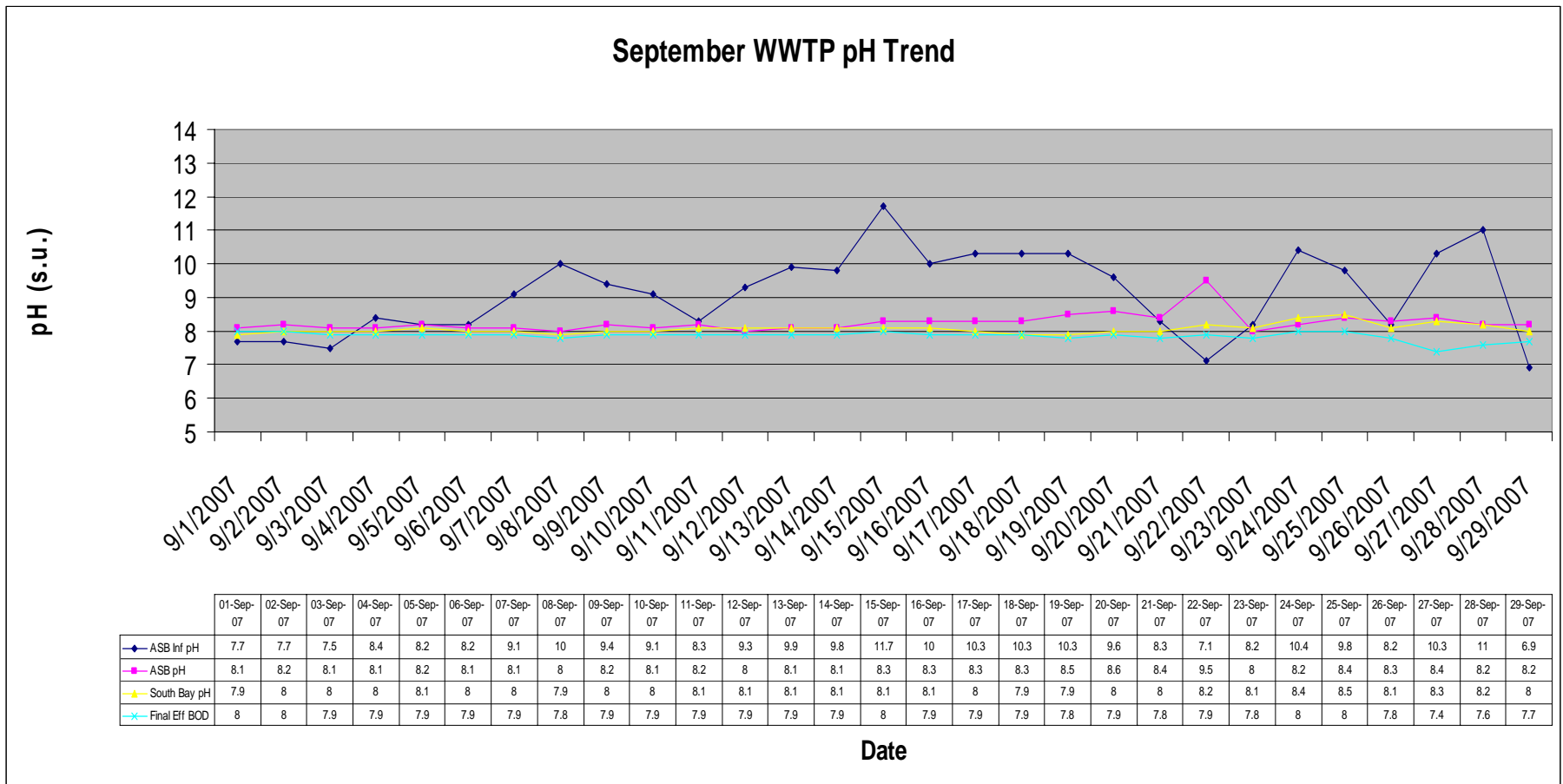
- Internal IP resources (Corporate EHS and Technology) and consultants (EBS) were consulted and brought on-site to assist.
- Alum and polymer were fed to promote flocculation and adjust pH at selected locations within the treatment system.
- Additional incubators were brought on-site and used to feed additional manufactured wastewater treatment bacteria (EBS Biostar).

The charts below are intended to show both the changes in wastewater treatment system loading and the system's response to those changes. The immediate load indicator was elevated pH, shown here both through the immediate period and daily through the month of September.

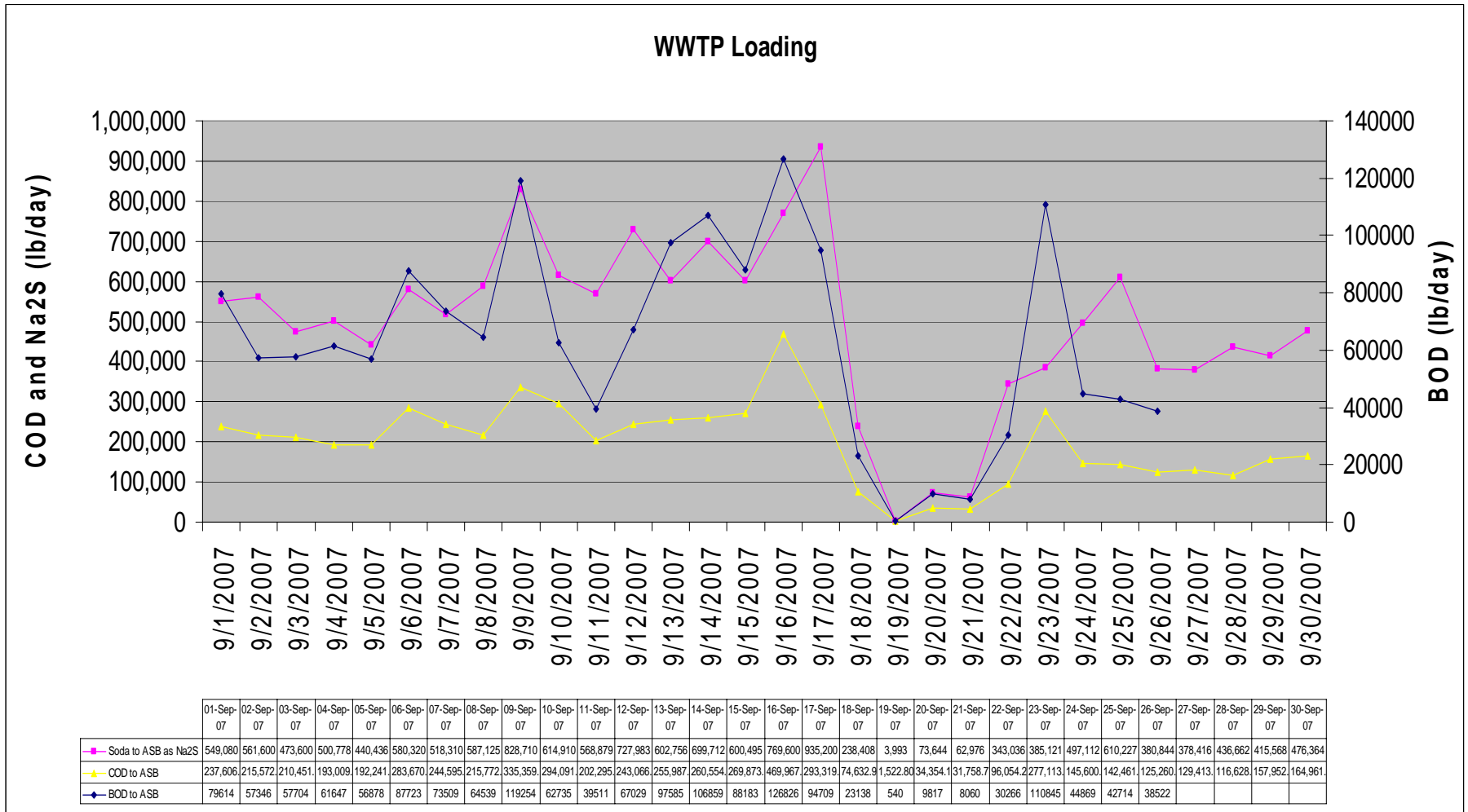
Notably, at the time of the leak, the mill had been down for annual maintenance for several days as is evident from the change in loading to the WTS. The remainder of the charts show the response to the event in terms of total suspended solids (TSS) and biochemical oxygen demand (BOD). These results, although somewhat elevated, did not move beyond their normal range. Since September 26, 2007, no additional extraordinary measures were needed to address the impact of the leak on the system. At this time, no NPDES effluent limits have been exceeded, the system has returned to normal and no exceedances are expected.



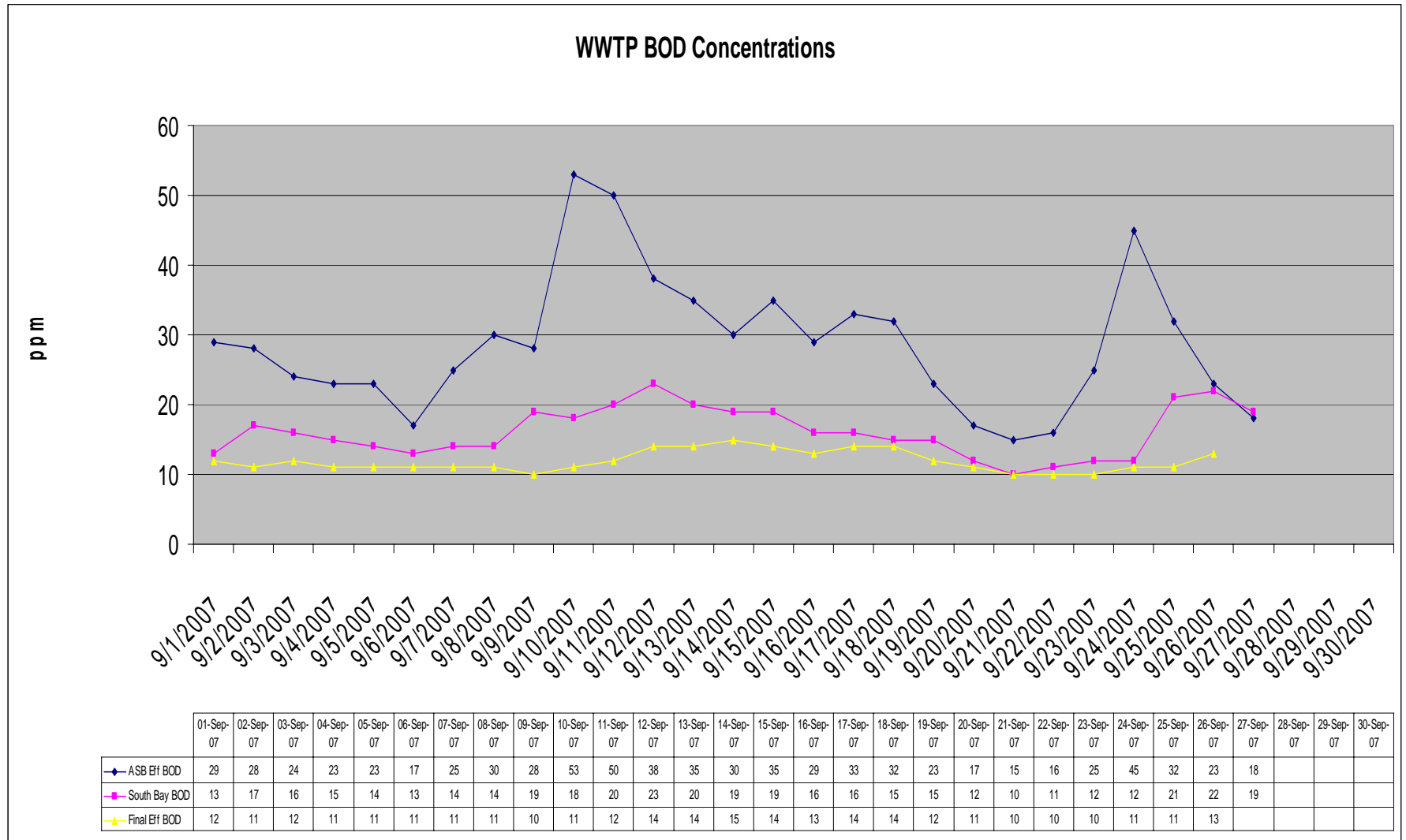
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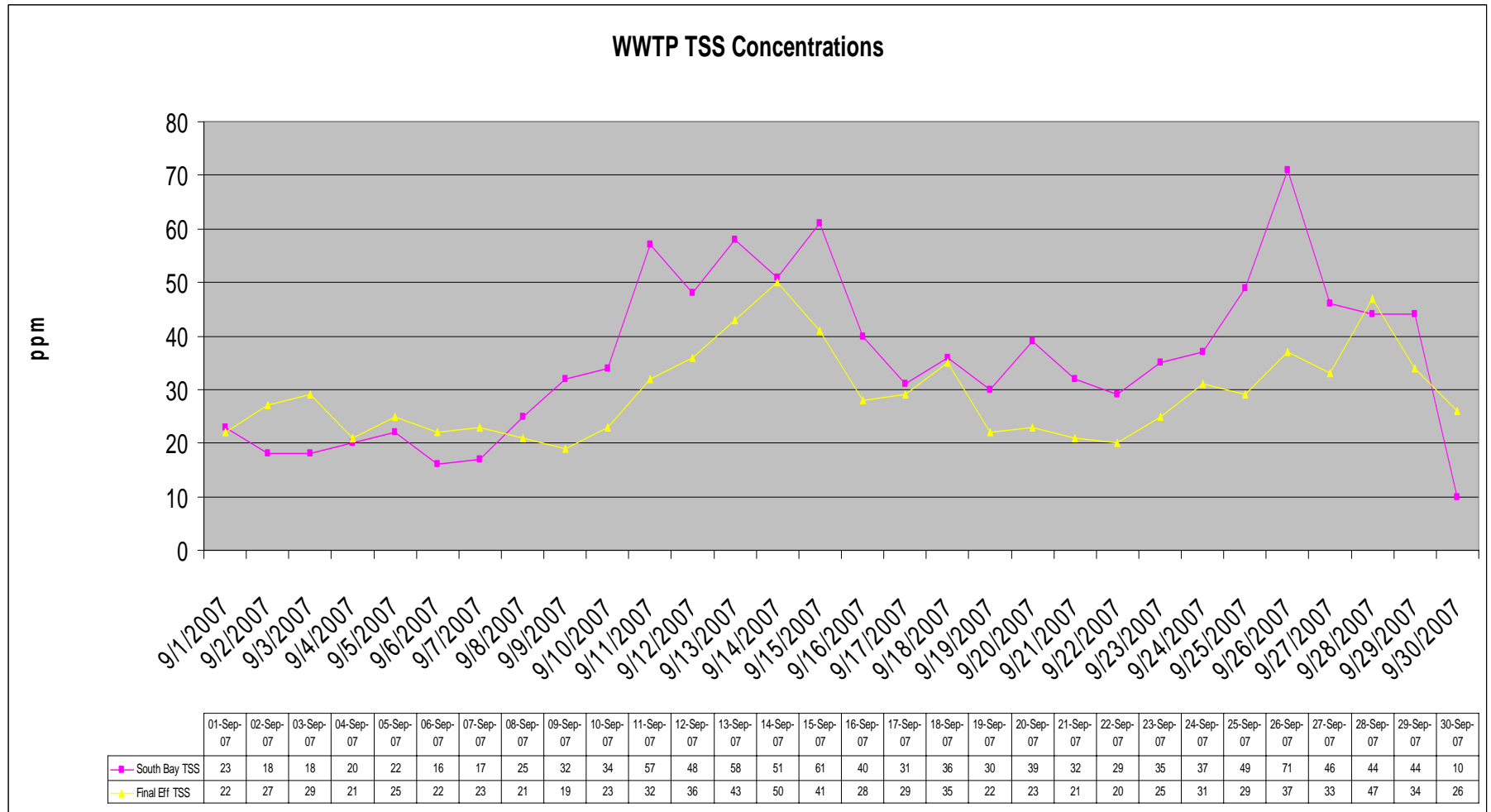
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Tank Inspection and Repair

Both the No. 6 Green Liquor Clarifier that experienced the leak and the adjacent No. 7 Green Liquor Clarifier were scheduled for internal inspection in the fourth quarter of 2007. An external inspection, including ultrasonic wall thickness measurements, was conducted in 2006. The general procedures for emptying, inspecting, repairing as necessary and returning the units to service are as follows:

Tank Emptying and Access - To allow internal access, solids remaining in the tank will be pumped, to the extent possible, to the dregs filter for washing and liquid removal as they normally would be. If necessary to speed access to the tank, dregs may be pumped to one of the two weak wash tanks that normally receive the filtrate from the green liquor dregs filter and returned to the clarifier when it is back in service.

To access the tank, an entry way will be cut in the side of the tank. The solids that cannot be pumped from the tank will be removed with small equipment and by hand. These solids will be staged on adjacent concrete or in containers to drain free liquid to the process wastewater collection system where the liquids will be neutralized prior to reaching the biological treatment system.

Tank inspection - Inspections to include the following will be conducted on both tanks:

1. Ultrasonic thickness (UT) on floor plate on standardized grid pattern
2. UT thickness on floor plate around tank perimeter every 1' beginning at shell to floor interface and proceeding inward @ 6" interval to 24"
3. Shear wave inspection on joints to get efficiency to 1 (equivalent to allowable minimum plate steel thickness) by code standard
4. VT on entire tank from the inside

Tank Repair - Repairs will be planned based on inspection findings. Each tank will be hydrostatically tested before being released for return to service.

Potential Soil and Groundwater Contamination Investigation

Examination of tank drawings revealed that the No. 6 Green Liquor Clarifier that leaked is constructed with a concrete ring wall foundation with an engineered four foot thick compacted base of oil saturated soil. This construction design may have allowed the leak to migrate along the outer edge of the tank base and inside the ring wall and possibly penetrated soil beneath the engineered base. We intend to investigate this potential release to soil when the tank is emptied and the actual leak location identified. If the location of the leak indicates a possible flow to the interior of the ring wall, we will sample the soil beneath the tank bottom. Soil sampling options are still being evaluated. We will work with our consultant on the best soil sampling protocol as well as how to use existing downgradient monitoring wells to detect any groundwater impacts. If contamination above regulatory limits is identified, we will coordinate with appropriate state and federal officials on mitigating the contamination and possible impact on the environment.