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27 May 2021

The Director: Environmental Law Enforcement
Department of Environmental Affairs and Development Planning

via email to achmad.bassier@westerncape.gov.za
and grant.dyers@westerncape.gov.za

Dear Sir

RE: Potsdam WwTW: Future use of long pond discharge during operational emergencies

After the 2008 upgrade, the long pond outlet was the official discharge point of Treated Effluent (TE) into the Diep River. The design of the outlet is to maintain the TE water level:

- (1) To ensure that there is a balance between outlet and enough TE capacity to supply internal and external TE end users 24/7 and
- (2) To prevent high levels in long pond from pushing back to the Ultra Violet (UV) disinfection system channel and flushing it back into the combined pond, causing an associated loss of treatment capacity and potentially extensive damage to multi-million-rand equipment.

The Potsdam WwTW official sampling point is directly after the UV disinfection channel according to the plant's Department of Water & Sanitation (DWS) licence (No. 19/G21F/EFG/2719) and this TE flows through Long Pond and then discharges into the Diep River via Long Pond.

During the drought period we installed sluice gates at the Long Pond discharge point to the Diep River to keep all TE within the system longer, in order to maintain the demand of TE to the internal and external end users 24/7.

Historically, as per previous the plant's and stormwater system designs, stormwater emanating from outside of the plant, gravitates through Potsdam WwTW from the adjacent Koeberg Road and surrounds through a series of reed beds before being discharged into the Theo Marias canal. Due to the variable quality of stormwater leaving the reed beds and various complaints received, we closed the reed bed's outlet/s and contained all stormwater within the WwTW system and periodically pump it back to the Head of Works.

Recent operational incidents relating mainly to the build-up of a large volume of stormwater within the reed bed system contaminated the Long Pond and this caused the compliant FE after UV disinfection to be contaminated by the Long Pond backflow before discharge into the Diep River. Therefore, a temporary line was installed at the UV disinfection channel outlet to prevent this contamination of the FE before discharge into the Diep River.

However, during pond cleaning operations, operational emergencies and rainy days, the Long Pond level increased to such an extent that the TE pushes back and poses operational risks such as:

- (1) contaminated TE;
- (2) Pond embankment collapse leading to a major environmental catastrophe;
- (3) pollution of maturation pond system upstream and
- (4) extensive damage to multi-million-rand equipment.

These factors would compromise the ability of the Potsdam Wastewater Treatment Plant to discharge compliant TE into the Diep River over the longer term. In order to ensure that expensive infrastructure is not damaged and in order to ensure an ongoing sustainable compliance of TE discharged into the Diep River, it is imperative the levels in long pond are actively managed.

However, it must also be noted that we have had two operational emergencies since our last meeting on 4 May 2021 (2nd City/OUTA/MCRA/DEA&DP Engagement) i.e. (1) 6 May 2021 & (2) 20 May 2021 – Both occasions during rain fall events. These incidents will be included in the next monthly report.

To prevent us discharging without your knowledge, we therefore wish to officially inform you that we may be required to open **the** sluice gates at Long Pond outlet to the Diep River from time to time during operational emergencies in future as explained above.

We will be managing and controlling the Long Pond discharge by the following measures:

- (1) Sluice gates will be locked and keys will be kept with Plant Management and will only be opened during operational emergencies;
- (2) Chlorination dosing will be done at that discharge point during discharge;
- (3) Samples will be taken and analysed by our Scientific Services Branch (SSB) for record keeping of water quality discharged into the Diep River;
- (4) Estimate the flow during discharge.;
- (5) Keep a photographic record of Long Pond and the discharge during discharge events.
- (6) Record all discharge events including photographs, water quality, flow and operational conditions
- (7) All operational emergencies will be reported in the monthly report submitted to the Department.

It must be noted that the water quality may be compromised during discharge at the Long Pond as the long pond does not have a stable floor and it is practically impossible to clean. This will however be for very short periods and possibly only during rainfall events.

We do have planned short, medium and long term solutions which include:

- (1) Investigate the creation of a stormwater canal within the plant (through the reed beds) to be able to discharge stormwater emanating from the adjacent Koeberg Road built up area directly into the Diep River. This would potentially do away with the need to pump the stormwater to the headworks of the plant which places additional capacity constraints on the downstream ponds (including Long Pond). Water quality samples during rainfall events before and after the reed beds would be taken and reported on – **Short Term Solution**

- (2) Replacing the temporary discharge pipe directly after UV disinfection with a much bigger and more practical size that would ensure long pond is not used – **Medium Term Plan**
- (3) As part of the future extensive plant upgrades of Potsdam WwTW, currently in the final tender preparation phase, the Long Pond will no longer be used and the stormwater system will be redirected and will be a part of the plant's water system – **Long Term Plan**

I trust this letter comprehensively explains our current operational constraints while the plant is being upgraded, and the proposed mitigating measures are acceptable to the Department.

Should you have any questions regarding the contents of this letter, please notify us accordingly.

Yours faithfully,

Michael Killick
Director: Bulk Services

City of Cape Town, Water & Sanitation Department