Environmental Quality Management

Lancaster Aquatic Center Annual Pool Draining

Standard Operating procedures

There are two methods available for draining the swimming pool at the Lancaster Aquatic Center. The primary method involves a discharge into the sanitary sewer system (under certain conditions). The secondary/alternate method is to discharge into the storm sewer system. This fact sheet summarizes the standard operating procedures required for University staff to properly discharge the pool water into the sanitary sewer system and alternatively the storm sewer system.

Swimming pool water at the Lancaster Aquatic Center is treated with sodium hypochlorite (bleach 12% or "chlorine") and either sodium bisulfate or CO_2 gas (for pH). A clarifier polymer is also used on occasion and especially before and after large swim meets with high bather loads. This polymer is approved for drinking water and is not harmful. No other chemicals are added. Ultraviolet light filters are also used to disinfect the water. Over time, build-up of chemicals raises the specific conductance (i.e., the total dissolved solids concentration) of the water and treating the water becomes more difficult. As a result, Kentucky Administrative Regulations require replacement of the water annually. In addition, continued de-chlorination of the pool water, for the purposes of discharge into the storm sewer system, increases the level of ammonia in the water. Kentucky Administrative Regulation 401 KAR 10:031 establishes quantitative or qualitative surface water standards and the pool discharge has the potential to exceed these standards. To alleviate any concerns about receiving stream water quality, the University's preferred method of draining is to the sanitary sewer.

Standard Operating Procedures

1) The Physical Plant Division (PPD) will notify Environmental Quality Management (EQM) and the Lexington-Fayette Urban County Government (LFUCG) at least seven days prior to the beginning of the release of water into the sanitary sewer. EQM may confirm notification with LFUCG if deemed necessary. (1)
2) De-chlorination of the pool is not required for discharges to the sanitary sewer.(2)
3) The pool will be drained using the circulation pumps at a rate of approximately 300-350 gpm if discharging to sanitary sewer (3) until the level reaches a level below the intakes. At that point, sump pumps with the capacity of discharging approximately 50 gpm will be used. According to LFUCG, the University's 15" sanitary sewer system downstream of the pool has the capacity to allow a discharge of 400 gpm (2/3 full) during dry weather. To prevent possible downstream flooding, discharge should not occur during periods of rainfall. The University typically limits discharge to 350 GPM or less.
4) PPD staff will monitor the sanitary sewer system for signs of overflow during the discharge period and for one day following the event.(4)
5) PPD will conduct a back-flush of the filtration system prior to draining. PPD will also conduct wash-down cleaning of the pool at some point during the drain down process. During these activities, pool discharge must be directed to the sanitary sewer system for the duration of these activities.(5)
6) PPD will notify EQM and LFUCG when discharge is complete. (6)

Contacts and Responsibilities

The University's Water Quality Compliance Manager is on staff within EQM. You may contact the Water Quality Compliance Manager at kevin.lewis@uky.edu or 859-257-0093.

PPD's Water Quality Manager is responsible for the annual pool draining and cleaning. The phone number to that office is (859) 257-5697.

Monitoring by PPD can be reached at 859-257-4382.

LFUCG's Division of Water Quality's Compliance and Monitoring Manager can be reached at (859) 425-2412.

The Kentucky Division of Water Regional Office's Environmental Inspector can be reached at (502) 564-3358.

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Footnotes concerning alternate plan for storm sewer system:

(1) EQM will notify the Kentucky Division of Water (KDOW) regional office if discharge is directed to the storm sewer. KDOW requires written notification of a release to the storm sewer system and will issue a "one-time discharge" authorization upon evaluation. Submittal requirements can be obtained from KDOW.

(2) If pool water is being released to the storm sewer system, University Physical Plant Department (PPD) personnel will de-chlorinate the pool water by halting all chemical treatment and will measure free chlorine levels until they reach a value of less than 0.019 mg/L before beginning discharge. It is noted that the Kentucky Water Quality Standard (WQS) for in-stream concentrations for total residual chlorine shall not exceed an acute criteria value of 19 μg/L or a chronic criteria value of 11 μg/L.

(3) 150 gpm if discharging to the storm sewer.

(4) EQM will conduct daily field screening of downstream outfalls of the storm sewer system during the same period.

(5) Backwash water and waters containing detergents cannot be discharged to the storm sewer.

(6) EQM will notify KDOW if needed.