

Staff Report

STATUS OF MUNICIPAL POOL AIR QUALITY

November 14, 2017

BACKGROUND:

In early 2017, Council members and staff received concerns regarding the air quality at Municipal Pool. Since the Ames Community School District is responsible for Municipal Pool maintenance, staff met with Gerry Peters, School District Facilities Director, to discuss the issue and better understand the concerns. To evaluate how well equipment was working and what the chloramine levels were, a contract was initiated by the School District with RES for mechanical engineering, System Works for building operations, and Impact 7G for chloramine testing. RES reviewed the current system to determine if it was functioning properly. System works conducted testing to determine how the air was flowing within the pool area. Impact 7G conducted a test to determine the level of chloramines present throughout the day.

After the testing was complete, improvement opportunities were sought in four areas: 1) Personal Responsibility, 2) Ventilation, 3) Chemicals, and 4) Filtration. It was also decided to be methodical in the approach and make changes one at a time so it could be determined what impact the change had on air quality. Both RES and System Works made recommendations which are shown in the following two sections to improve the operation of facility equipment.

WHAT HAS BEEN DONE:

Listed below are the items that have been accomplished to date:

Personal Responsibility:

1. Since chloramines are formed when free chlorine combines with organic material (e.g., body oils, urine, etc.), decreasing the amount of organic material entering the pool would, in theory, help reduce chloramines. Therefore, pool users are reminded to shower before entering the pool.
2. Signage was placed in the locker rooms to educate users on appropriate behavior such as showering before swimming and using rest rooms rather than urinating in the pool.

Ventilation:

1. The DesertAir air handling unit was evaluated and needed repairs (e.g., fans, belts, bearings, refrigerant, condensers, compressors, coils, actuators, and controls) were performed.

2. The overhead exhaust system was connected to the DesertAir unit so they operate in conjunction with each other. Prior to this the two units were working independent of each other.
3. The overhead ductwork was rotated so air is now being pushed to the water surface to help break the chloramine bubble that forms.
4. Two fans were added to the pool deck to increase air flow across the water surface to move chloramines away from the swimmers.
5. The deck exhaust system was improved by sealing the tunnel below the pool deck so more air can be exhausted from the pool deck.

Chemicals:

1. A new control system was installed for the chlorine feeder.
2. Dave Peters, Lonza Chemical, and Certified Pool Operators from the City and School District met to discuss chemical levels. It was determined the chemical levels are consistently within the approved range and minor tweaking of chemical set points may help.
3. Minor adjustments were made to chemical set points.

Filtration:

1. Currently evaluating how to degrease the filters as this will improve the filters ability to remove organic material from the water.

NEXT STEPS:

The above items have improved the air quality to some degree at Municipal Pool, however, there are four more items being explored.

1. Install a UV Disinfection System on the water line. This will help reduce chloramines and some pools with UV have experienced chloramines in the 0.0 – 0.2 parts per million (ppm). Municipal Pool chloramine levels are usually in the 0.4 – 0.6 ppm. Cost to install is approximately \$50,000.
2. Perform a factory start-up on the system. This will include DesertAir evaluating all components of the system and identifying repairs needed so it will operate as it would if it just came from the factory. This evaluation will cost approximately \$2,000.
3. Contract with a company to perform monthly preventative maintenance service on the air handling unit.

4. Determine if another chloramine test should be completed to see if the improvements made have helped reduce the chloramine levels.

STAFF COMMENTS:

The School District hired consultants to assess the equipment and suggest possible solutions. Most of the recommendations have been implemented or are being considered for next steps. Some users have commented the air quality is better, yet others indicate the problem still exists. After Mr. Peters researched a recent concern by a parent of two ACAC swimmers, he discovered one of two fans on the air handling unit was removed for repairs. Thus the air handling unit was not working to capacity and most likely had a negative impact on the air quality. We have been told that the fan has since been repaired and reinstalled, and is working properly.

Considering the age and design of the facility, there is only so much that can be done short of replacing the entire air handling system. The improvements thus far have yielded some positive results, but School District officials have indicated that they will continue pursuing the next steps to improve the air quality even further.

ATTACHMENT A

