CASE STUDY

REMEDIATED FILTER MEDIA USING NEXT,
A SINGLE-STEP MEDIA CLEANING PROCEDURE

FLORAN®

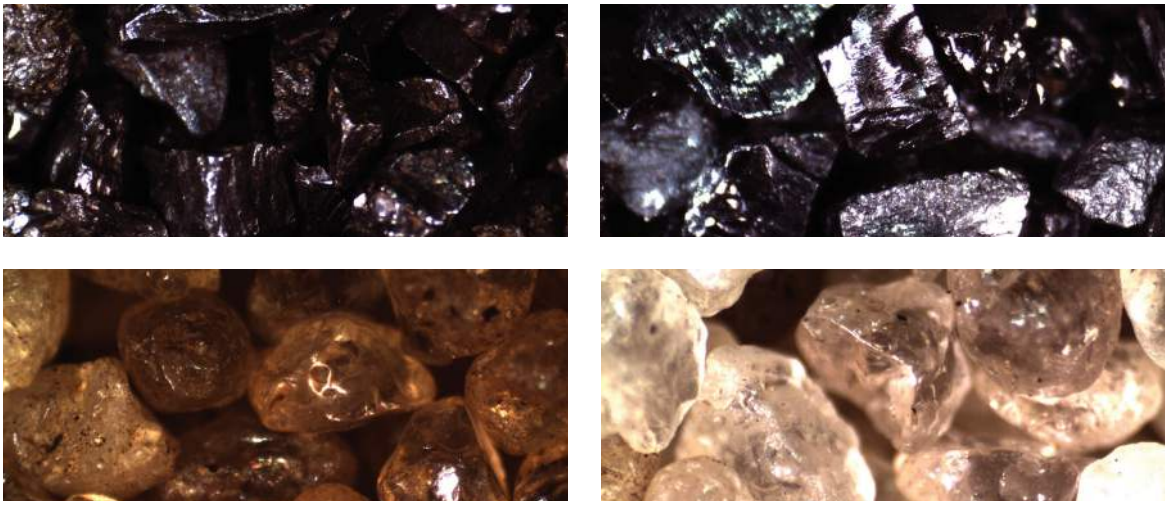
INTRODUCTION

The Puerto Rico Aqueduct and Sewer Authority (PRASA) operates six Robert's Pacer P700 A filters at its Caguas Norte Treatment Plant (outdoor, steel construction, gravity filters). These sand and anthracite filters are preceded by additions of ferric chloride (coagulant) and Polyamine (Flocculant), with Bentonite additions preceding the filter. The raw water entering the plant has a very high alkalinity. The filters were installed in 2004 with a current runtime of 24 hours. Over time, the media became stained, developing surface deposits and mudballs hindering performance and resulting in media loss.

PRASA in coordination with Integrated Global Solutions, Corp and ECR Engineering chose to chemically clean their filter media in place with neXt® saving 83% over media replacement costs. The neXt chemistry is an all-in-one DOT non-hazardous media cleaning solution manufactured by Blue Earth Products. It is easy to work with and simple to transport across borders. The filter cleaning process is easy accomplish and was performed by PRASA plant personnel after a training session and demonstration by Blue Earth Products personnel. The waste from the neXt treatment was neutralized with pHase® (also DOT non-hazardous). pHase is an "apply and walk away" buffered product that brings acidic waste to neutral pH where it remains, even if pHase is overdosed.

RESULTS

Lab analysis of the media showed that over 370 lbs (168 kg) of deposits would be removed during the cleaning and that the effective size and uniformity coefficient would remain within specification. The pre-cleaning lab analysis also provided dosing and neutralization requirements for the cleaning.



Before After

Figure 1 - Microscopic images of filter media before (left) and after (right) neXt® treatment

Deposits Removed:
> 370 lbs (168 kg)

Percent Remediated:
> 99%

Money Saved:
> 83% (over replacement)

Figure 2 - Images of Sand and Anthracite filter media before (left) and after (right) neXt® treatment

After a safety meeting, the filter was drained and "before" samples were taken. The filter was filled with water till 6 in (15.2 cm) above the media. neXt was applied and mixed with air scour for 3 min. The water level was dropped 3 in (7.6 cm) to infiltrate the underdrain. During the 24 hour soak, air-scour was activated for 3 min each hour for additional mixing. After 24 hours, the filter was backwashed three time, pHase being applied during the first two cycles. A post cleaning sample was taken, and a final backwash brought the filter back into operation. Post cleaning, the filter media bed was flat and even, free of cracks, mounds, or debris. The anthracite was black and shiny, light and fluffy, and free from compaction. A post cleaning laboratory analysis revealed that the media was returned to greater than 99% of its original condition.

CONCLUSION

PRASA saved an enormous amount time and money (> 83% over replacement costs) by choosing to chemically clean their filter media with neXt and pHase. The anthracite and sand layers are bright and clean and performing optimally. Additionally, the underdrain was also cleaned, clearing blocked orifices and evening out flow.