

CSI · SAN ANTONIO
ULTRAVIOLET SANITIZER TEST
RESULT SUMMARY

TEST LOCATION: A TEXAS RIVER-SIDE POOL FILTER SYSTEM

DATE/TIME OF TEST: AUGUST 2, 2004 at 10:30AM

TEST OBJECTIVE:

The primary objective of the test performed was to verify the destruction of waterborne bacteria, when contaminated water is passed through the Delta ES-40 UV Sanitizer. Untreated river water was utilized to introduce naturally present bacterial levels into the test system.

SAMPLE PROCEDURES:

Water was drawn from the river, into the filter system, and through the UV light chamber. Before sampling, it was verified that no detectable levels of chlorine were present in the water. These tests were performed at the sampling taps – before the filter for PREUV and after the UV unit for POSTUV. Two samples were taken from each tap, about 10 minutes apart – to show consistency in the findings. The pH was 7.5.

With the sample tap (lab-cock valve) open and water continuously flowing, a lab-provided, sealed, test bottle was opened and filled with the river water, as it flowed through the system – just as it would with any normal, pool system. Each bottle was capped immediately, placed on ice within minutes of sampling, and delivered to the certified laboratory for processing.

TESTS PERFORMED:

The laboratory performed two tests on each of the four samples. (PREUV-1, POSTUV-1, PREUV-2 & POSTUV-2) The first test was a total coliform culture, and the second was an e-coli quantitray.

TEST RESULTS:

The results show a consistent reduction in bacteria count, at or about the 99% rate, as claimed by the manufacturer.

SYSTEM DATA:

Pump: 1HP Hayward Super Pump; Filter: Hayward 22"PRO SERIES; Flow Rate: 55GPM
UV Model: Delta ES-40, maximum flow for this model is 125 GPM; 2" Connections

OBSERVATIONS:

Though the water tested was being pumped from the natural river, it is fair to conclude that any waterborne bacteria will be destroyed as it passes through the Delta UV Sanitizer. Therefore, during normal pool operation, you can expect the UV light to effectively remove any organisms that pass through the recirculation system – with or without chlorine present. An annual bulb change and cleaning of the quartz sleeve is recommended to assure maximum effectiveness.



GUADALUPE-BLANCO RIVER AUTHORITY

Laboratory Results

AUG 05 2004

Please refer to the sample number if you have any questions. The following results and other information are provided for compliance with 40 CFR 131, 141 and 143 as Amended.

Customer ID: [redacted]
Sample Description: PREUV2
Sample Number: 132836
Sample Time Receipt: 11:12
Sample Date Receipt: 08/02/04
Sample Time Collected: 10:30
Sample Date Collected: 08/02/04
Delivery Method: Personnel, Hand Delivery
Preservative Method: Received on Ice
TCEQ Site ID:

Sample Number: 132836 Page: 1 of 1

Table with 10 columns: Parameter, Test Date/Time, Date/Time Read, Result, Reference, MAL, PQL, % RPD, % REC, Analyst. Rows include E. COLI QUANTITRAY (435 MPN) and TOTAL COLIFORM (>2420 MPN).

Please refer to the sample number if you have any questions. The following results and other information are provided for compliance with 40 CFR 131, 141 and 143 as Amended.

Customer ID: [redacted]
Sample Description: POSTUV2
Sample Number: 132838
Sample Time Receipt: 11:12
Sample Date Receipt: 08/02/04
Sample Time Collected: 10:30
Sample Date Collected: 08/02/04
Delivery Method: Personnel, Hand Delivery
Preservative Method: Received on Ice
TCEQ Site ID:

Sample Number: 132838 Page: 1 of 1

Table with 10 columns: Parameter, Test Date/Time, Date/Time Read, Result, Reference, MAL, PQL, % RPD, % REC, Analyst. Rows include E. COLI QUANTITRAY (<1.0 MPN) and TOTAL COLIFORM (<1.0 MPN).

Handwritten signature of Josephine Lopez and the title Laboratory Director.



GUADALUPE-BLANCO RIVER AUTHORITY

Laboratory Results

AUG 05 2004

Please refer to the sample number if you have any questions. The following results and other information are provided for compliance with 40 CFR 131, 141 and 143 as Amended.

Customer ID: [redacted]
Sample Description: PREUV1
Sample Number: 132835
Sample Time Receipt: 11:12
Sample Date Receipt: 08/02/04
Sample Time Collected: 10:30
Sample Date Collected: 08/02/04
Delivery Method: Personnel, Hand Delivery
Preservative Method: Received on Ice
TCEQ Site ID:

Sample Number: 132835 Page: 1 of 1

Parameter
Test Date/Time Date/Time Read Result Reference MAL PQL % RPD % REC Analyst

E. COLI QUANTITRAY
08/02/04 15:48 195 MPN SM9223B 1.0 MPN GBRA Test Code: 754
JC

Comment:

TOTAL COLIFORM
08/02/04 15:48 >2420 MPN SM9223 (Colilert) GBRA Test Code: 443
JC

Comment:

Please refer to the sample number if you have any questions. The following results and other information are provided for compliance with 40 CFR 131, 141 and 143 as Amended.

Customer ID: [redacted]
Sample Description: POSTUV1
Sample Number: 132837
Sample Time Receipt: 11:12
Sample Date Receipt: 08/02/04
Sample Time Collected: 10:30
Sample Date Collected: 08/02/04
Delivery Method: Personnel, Hand Delivery
Preservative Method: Received on Ice
TCEQ Site ID:

Sample Number: 132837 Page: 1 of 1

Parameter
Test Date/Time Date/Time Read Result Reference MAL PQL % RPD % REC Analyst

E. COLI QUANTITRAY
08/02/04 15:48 <1.0 MPN SM9223B 1.0 MPN GBRA Test Code: 754
JC

Comment:

TOTAL COLIFORM
08/02/04 15:48 1.0 MPN SM9223 (Colilert) GBRA Test Code: 443
JC

Comment:

Josephine Alvarez
Laboratory Director