



ENVIROTEK LABORATORIES, INC.

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 EPA ID # NJ01298 NJ DEP ID # 03048 NY ELAP ID # 12044

GROSS BETA REDUCTION TEST REPORT

Report # 16-101-Gross Beta Reduction Test (Gravity Black Berkey Filter).
 Customer Name: New Millennium Concepts, Ltd.
 Report Date: 04/09/2016.

EXECUTIVE SUMMARY

Fifty gallons of tap water was spiked with Gross Beta Standard Solution to have a final concentration of 100 ± 25 pCi/L, the spiked tap water was filtered through the filter element and tested; the Beta Alpha Standard Solution in the tap water was reduced by at least 95.3%.

INTRODUCTION

Fifty gallons of tap water was spiked with Gross Beta Standard Solution to have a final concentration of 100 ± 25 pCi/L of Gross Beta, the spiked tap water was filtered through the filter element, the spiked solution and the filtered solution were tested following the EPA method 900.0; the Gross Beta Standard Solution in the tap water was reduced by more than 95.3%.

REAGENTS AND LAB EQUIPMENT

Gravity Black Berkey Filter.
 Gross Beta Standard Solution CsCl 10 μ Ci/L Eckert & Ziegler Isotope Products Catalog # 7137.
 Gamma Products Alpha/Beta counter G5000W Counting System.
 Type A glassware necessary to perform the EPA 900.0 method for drinking water analysis.

PROCEDURE

Fifty gallons of tap water was spiked with Gross Beta Standard Solution in a Tank and mixed well; this solution was tested and adjusted to have a final concentration of 100 ± 25 pCi/L of Gross Beta, the results are summarized in Table 1 below. The solution was filtered through the Black Berkey Filter and tested following the EPA method 900.0. The results are summarized in 2 below.

RESULTS

Table 1
Spiked Tap Water Properties

Parameter	Influent Water Properties	Target
pH	7.55	7.00 to 8.00
TDS	400 mg/L	200 to 500 mg/L
Temperature	21.5 °C	20 \pm 2.5°C
Turbidity	0.65 NTU	< 1 Nephelometric Turbidity Units
Gross Beta	100.1 pCi/L	100 \pm 25 pCi/L
EPA Maximum Contaminant Level (MCL)	15 pCi/L	<5 pCi/L

Table 2
Gross Beta Filtered Water Results

Parameter Tested	Gravity Block Filter Effluent Water Result	% Reduction
10 gallons	2.3 pCi/L	97.7 %
20 gallons	2.8 pCi/L	97.2 %
30 gallons	2.8 pCi/L	97.2 %
40 gallons	3.9 pCi/L	96.1 %
50 gallons	4.7 pCi/L	95.3 %



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CONCLUSION

The Gravity Black Berkey Filter reduced the Gross Beta concentration in the tap water by at least 95.3 %. The EPA limit for Gross Beta is 15 pCi/L; the Gravity Black Berkey Filter meets the EPA requirements for drinking water.

Potential Gross Beta contaminants in water:

Gross Beta emitters:

Actinium-227
Californium-251 and -252
Cesium-137
Cobalt-60
Iodine-129 and -131
Lead-210
Nickel-63
Promethium-145
Strontium-90
Technetium-99

CERTIFICATION OF RESULTS:

I certify in writing that all analyses, and reporting performed herein, comply with all requirements set forth in N.J.A.C. 7:9E and N.J.A.C. 7:18, and hereby certify that this laboratory is in compliance with all laboratory certification and quality control procedures and requirements as set forth in N.J.A.C. 7:18; the NYCRR Subpart 55-2 and the National Environmental Laboratory Accreditation Conference (NELAC) Institute Standards.

Disclaimer: The test results are only related to the filter sample tested.

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