



## THE IMPORTANCE OF FIELD PILOT FILTER TESTING



Pilot filter testing is required to verify the treatability of raw water, to predict the performance of a full-scale water treatment plant, and to optimize its efficiency. Raw water quality can vary significantly, and since such variability will affect contaminant removal efficiency, field pilot testing of the proposed removal system(s) is strongly recommended. Comprehensive raw water quality analyses\* should be performed, and the data evaluated, prior to pilot testing, to determine all the constituents which may affect the specific treatment process. \*(Refer to Pureflow General Mineral Analysis bulletins.)

Pilot testing protocol should be reviewed by the consulting and client engineers. All parties should agree to the protocol before the testing begins (this should include details such as which party will pay for the laboratory testing). Duplicate samples of raw and treated water should be sent to two (2) qualified independent laboratories for comparison and verification of field and laboratory test results.

The piloting process should include all necessary pretreatment (such as pH adjustment, oxidation etc.). The pilot system testing must verify treatment throughout the process run cycle, and removal must be verified by a laboratory certified for such analyses. Pilot testing must provide accurate data on pretreatment chemical requirements and costs. Additional costs would include operation, labor, media replacement and / or disposal, membrane replacement, regenerant brine and / or treatment of sludge or wastewater disposal.

The pilot test report should include field test data, charts and graphs of critical data and a summary of the field and laboratory test results. Pureflow can, if requested, provide a separate water treatment system design including budgetary costs. Recommended treatment plant design should include the following: initial capital expense; and those operating expenses noted above.

### CONCLUSION

Full scale filter systems occasionally fail to produce the required filtered water quality for one, or more, of the following reasons: a) the failure to determine comprehensive and accurate raw water quality data, b) the failure to recognize potential problems with certain raw water conditions, c) an inadequate pilot study protocol, d) a significant variation in raw water quality from the water originally tested, e) selection of media that may provide short term treatment but fails to adequately treat the water throughout the expected life cycle of the system, f) poor pretreatment / process design and component selection; including filter internals, valves, instrumentation, and controls. The remediation, or complete replacement, of full-scale filter systems that fail to consistently and adequately remove all the contaminants from the raw water is very costly. These problems can be avoided by following prudent pilot filter protocol and treatment process design / selection.

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