

Laboratory Certification

Envirogen's laboratory is approved and certified to perform all in-house environmental and regulatory sample analysis required by our POTW discharge permit, including all analysis required by our Centralized Waste Treatment discharge permit.

Although Envirogen does not operate a certified environmental laboratory, analysis and testing performed by Envirogen is done in accordance with established procedures and guidelines such as "Standard Methods for the Examination of Water and Wastewater," EPA regulations and procedures, and AWWA methods, for example. Our customers can be assured that we provide high-quality analysis, testing methods and practices, and be confident in the results reported.

Process Development and Pilot Testing

The Envirogen laboratory and pilot plant have the capability to perform a large variety of process development, base evaluations, and small- and large-scale pilot operations. Pilot operations can be performed in-house or at the customer's site.

Our media evaluation and suitability studies range from small "go/no go" determinations to large-scale, long-term pilot operations, including several process (load, regeneration, rinse) cycles to determine efficiency, waste stream evaluation, and economic suitability. Media and large-scale pilots are designed and operated to allow scale-up evaluations to commercial system sizes.

Envirogen's filtration pilot capabilities range from pilot and commercial size membrane filter evaluations, to large-scale media and depth filtration pilot trials. Our range of filtration pilot equipment allows us to test, evaluate and scale any polymeric, ceramic, metal or metal oxide membrane filter element at a variety of process conditions, flows and temperatures. In most cases, we can simulate or match exact process conditions to allow real-time data collection and process evaluations.

Envirogen's process pilot design team can design, develop, build and deliver almost any type and size of pilot system in a short period of time, whether at the customer's site or in our Memphis facility.

Laboratory and pilot evaluation design considerations are based on the needs and desires of the customer. We consider the site conditions, limitations and process conditions as well as the desired results and the economic factors when designing a system either for on-site or in-house evaluations.



Laboratory Column Testing



Ion Chromatograph



Large-Scale Media Pilot Columns



Arsenic Analysis (GFAA)



Cross-Flow Filtration Pilot Unit

Analysis Methods and Detection Limits

(all detection limits are ppm unless otherwise stated)

AA Flame (ppm)			
Ag	0.02	Au	0.1
Ba	0.03	Ca	0.01
Cd	0.02	Co	0.05
Cr	0.04	Cu	0.02
Fe	0.06	Ga	1.0
Ge	2.0	K	0.03
Mg	0.003	Mn	0.02
Mo	0.02	Na	0.002
Ni	0.1	P	400
Pb	0.1	Pd	0.1
Pt	1.0	Sb	0.4
Se	5.0	Ti	1.0
Sn	1.0	V	1.0
Zn	0.01		

AA Graphite Furnace*	
As	0.5 ppb
Ba	0.01 ppb

** All elements that are tested by flame can be tested on the Furnace at approx. 0.1X the flame detection limit*

Ion Chromatograph with AS 22 Column	
Fl	0.01 ppm
Br	0.01 ppm
Cl	0.02 ppm
NO ₃	0.004 ppm
PO ₄	0.003 ppm
SO ₄	0.02 ppm

This list represents the current configuration. Many other constituents are available for analysis such as most oxy-anions, cations and organic acids.

Wet Chemistry Spectrophotometer	
Cl	1 ppm
Cu	10 ppb
Hardness	1 ppm
Fe	1 ppm
PO ₄	0.5 ppm
Chlorine	1 ppm
APHA color	1 unit
SO ₄	0.5 ppm
Mo	1 ppm
Si	0.25 ppm

Only the most common items are listed here. Several hundred potential constituents are possible.

Resin Testing

Resin Isotherms (such as As uptake to 0.5 ppb) for any of the above listed constituents, Percent Moisture down to 0.001, Loading Capacity to 1 ppm or less depending on element, Standard Resin Capacity for any type of resin to 1 meq/l, Wet Volume Capacity to 1 meq/l, Total Anion Equivalents to 1 meq/l, fouled resin cleaning evaluations and many other services and evaluations for ion exchange and other types of media.

Turnaround Time

Turnaround times vary based on the volume and nature of samples. Many analyses can be completed on the same day the sample is collected or receipt at Envirogen's facility. Some tests and evaluations can be staged for overnight operation and the results available the next day. The bulk analysis capability of our main analytical instruments including the graphite furnace, the flame atomic absorption spectrophotometer, and the ion chromatograph range into several hundred per day depending on the nature of the analysis required.