

## ANDalyze Measures Lead (Pb) in Water in Flint, Michigan

Customer: Merlin Ecosolutions LLC , & Flint, Michigan local community

### Application: Measuring Lead (Pb) in Water

As the US national media has reported, the Flint, Michigan municipal water supply was contaminated with lead (Pb) in April of 2014 due to errors made by the water operations and administration of the city. Because of this, Merlin Ecosolutions LLC, an independent environmental consulting firm, collected samples in Flint to determine the lead levels in the drinking water supply to assist the local community.



*ANDalyze meter and sensors being used on-site by Merlin Ecosolutions consultant.*

### Task: Measuring and Remediating Lead Levels in Drinking Water

The Merlin Ecosolutions team used science to first determine if the ANDalyze water quality measuring technology could in fact identify and measure lead levels and make the contaminated Flint Municipal tap water safe to drink. Merlin's first water sampling and measurement with the ANDalyze instrument was at St Mary's Catholic Church in Flint, Michigan. The second sampling a measurement effort was at St Luke's shelter for homeless children and women, in Flint Michigan.

### ANDalyze Solution - Quantitative accuracy at below EPA thresholds

The ANDalyze heavy metals water-measurement instrument was made available to the Merlin Ecosolutions team to test drinking water for lead concentrations. It can measure lead (Pb) levels in drinking water, with accuracy to low parts per billion, and delivering results within 2 minutes. This was especially helpful on site, since lab results are sometimes not always reported back for weeks. So the technicians got an accurate measure "on the spot" with weekly monitoring, and still ship samples off to the certified EPA to correlate the field measured values with the lab measured values. Currently Merlin Ecosolutions still perform both kinds of measurements, and has found the ANDalyze device to be accurate, when used properly, will always produce (nearly) identical results with the EPA lab measured results. The added advantage is that the ANDalyze product helps to quickly find lead "hot spots". Ten measurements can be done in under an hour, resulting in readings that, if showing a positive result, can then be shipped to a laboratory for US EPA certified measurement. **Finding these hot spots quickly is critical to remediating the problems in the drinking water supply. Without the ease-of-use, accuracy and low cost per measurement of the ANDalyze product we could often be looking for a needle in a haystack.**





## You can't manage what you can't measure

Samples of drinking water from Flint were measured on-site using the ANDalyze instrument and lead (Pb) sensors. Each measurement took under two minutes and gave readings down to two (2) parts per billion, which is well below the US EPA limit for lead (Pb). These measurements were then verified against ICP-MS laboratory measurement and showed that the ANDalyze product measured well within acceptable accuracy ranges as compared to the laboratory measurements. The laboratory results took over two weeks to be returned.

## Impact from the Project

- i. **ANDalyze product showed results in minutes enabling Merlin Ecosolutions consultants to recommend remediation actions which were taken immediately to prevent harm.**
- ii. ANDalyze product show data on-site in real-time reducing the complexity of managing water samples and transporting them to labs, and waiting weeks for results.
- iii. The cost to do on-site measurement with the ANDalyze product is half the price of lab measurement and requires no additional costs such as sample containers, postage, labels and personnel to manage samples shipments and resulting reports. All data was downloadable to a spreadsheet for analysis.



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