

**Aguirre, Rosaria**

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**From:** Leamon, Rachel  
**Sent:** Tuesday, December 08, 2015 2:05 PM  
**To:** Aguirre, Rosaria  
**Cc:** Tuchman, Nancy; Racz, Eniko  
**Subject:** FW: DE-SC0004990 Final Report  
**Attachments:** DOE award final report.doc

Hi Rosaria,

Here is the email that was submitted on November 11.

Best,  
Rachel

**From:** Tuchman, Nancy  
**Sent:** Wednesday, November 11, 2015 2:36 PM  
**To:** 'steven.neus@ch.doe.gov' <steven.neus@ch.doe.gov>  
**Subject:** DE-SC0004990 Final Report

Dear Mr. Neus,

Attached you will find the Final Report for DE-SC0004990: Chicago Clean Air, Clean Water Project: Environmental Monitoring for a Healthy, Sustainable Urban Future. I apologize that this was delayed in arriving to you and hope you will accept it at this time. Please let me know if you have any questions or concerns and I will be happy to address them.

Regards,  
Nancy Tuchman



Office of the Director  
Institute of Environmental Sustainability  
1032 W. Sheridan Road |Chicago, Illinois 60611  
p (773) 508-8934  
[luc.edu/sustainability](http://luc.edu/sustainability)

Final Report for Award No. DE-SC0004990

Period of performance: 09/30/2010 through 03/31/2014

AU #510965

The U.S. Department of Energy awarded Loyola University Chicago and its Director of the Institute of Environmental Sustainability, Dr. Nancy C. Tuchman \$486,000.00 for the proposal entitled "Chicago clean air, clean water project: Environmental monitoring for a healthy, sustainable urban future". The project supported the purchase of analytical instruments for the development of an environmental analytical laboratory. The analytical laboratory is designed to support the testing of field water and soil samples for nutrients, industrial pollutants, heavy metals, and agricultural toxins. With this funding, Loyola University Chicago has purchased the following instruments: an IC, an ICPMS, a GC with autosampler, a C:N analyzer, a TOC analyzer, a triple quadrupole LCMS/MS. These instruments can measure ions, heavy metals, large organic molecules (pharmaceuticals, herbicides, pesticides), greenhouse gases (methane, CO<sub>2</sub>) and levels of carbon and nitrogen in samples of air, water, soil and plants. In addition, a Total Organic Carbon Analyzer, Microtox Analyzer, Automated Methane Production Analyzer, C:N Analyzer, PDV Analyzer, and Bomb Calorimeter were purchased. Smaller complimentary instruments that assist in the preparation of soil and water samples for analyses were purchased, and they include centrifuges, muffle furnaces, balances, Dell Workstations, Tuttnauer Sterilizer, drying ovens, hammer mill, and a nitrogen gas generator.

Since the award was made in 2010, the Institute of Environmental Sustainability (IES) has been launched (fall 2013), and the IES acquired a new state-of-the-art research and education facility on Loyola University Chicago's Lakeshore campus. There are two large 2,450 sq ft shared research laboratories in the IES designed for up to 6 faculty and 12 students each. The second floor lab is the Ecology Laboratory where lab experiments and analyses are conducted on soil, plant and water samples. The Ecology laboratory houses several controlled environmental incubators, centrifuges, refrigerators and freezers, drying ovens, muffle furnaces, a suite of analytical balances, a collection of research grade microscopes, glassware and reagents for water chemical analyses, ventilation hoods, and a suite of field instruments, boats, and field sampling gear. The third floor lab is the Environmental Toxicology Lab where lab experiments on environmental toxins are conducted, and analytical tests are conducted on water, soil and plant. On the south end of the Environmental Toxicology Lab is the **analytical instrumentation collection purchased from the present DOE grant**, which is overseen by a full time Analytical Chemist (presently being hired) who maintains the instruments, conducts analyses on samples, and helps to train faculty, undergraduate and graduate student researchers.

There are now 15 full time IES, Biology Department, and Chemistry Department faculty and staff researchers who are using these instruments for the testing of soil, air and water samples. Already, over 30 undergraduate and graduate students have used these instruments to facilitate their research on Chicago area water, air and soil, and we expect this to double within the next 5 years.

Respectfully submitted by,



Nancy C. Tuchman, PhD  
Founding Director  
Institute of Environmental Sustainability