



STATE OF NEVADA
Department of Conservation & Natural Resources
DIVISION OF ENVIRONMENTAL PROTECTION

Jim Gibbons, Governor
Allen Biaggi, Director
Leo M. Drozdoff, P.E., Administrator

November 4, 2009

Roy Ford
EPA Region 9
Grants Management Office, PMD-7
75 Hawthorne Street
San Francisco, CA 94105

RE: Local-Scale Air Toxics Ambient Monitoring Program XA-96962801-3 / Quarterly Report.

Dear Mr. Ford:

In accordance with Programmatic Condition 1 of the above grant, Nevada Division of Environmental Protection (NDEP) is submitting its quarterly report.

Attached is the Project Quarterly Progress Report which details specific accomplishments made in this quarter.

If you have any questions, please contact Vickie Rutledge at (775) 687-9494.

Sincerely,

Greg Remer
Chief,
Bureau of Air Quality Planning

ME/vr

Enclosure

C: w enc: Vickie Rutledge, NDEP

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**Quarterly Progress Report to Nevada Division of Environmental
Protection
For EPA funded Local-Scale Air Toxics Ambient Monitoring Program
Grant XA-96962801-0**

Quarterly report #13- October 31, 2009

To: Mike Elges and Vickie Rutledge, Nevada Division of Environmental Protection

From: Mae Gustin, University of Nevada

Reporting

The paper describing the development and testing of the surrogate surface for measuring dry deposition has been published. The citation is

Lyman, S., Gustin, M., Prestbo, E., Kilner, P., Edgerton, E., Hartsell, B. 2009
Testing and application of surrogate surfaces for understanding potential gaseous
oxidized mercury dry deposition, Environmental Science and Technology 43
6235-6241

The manuscript describing the passive sampler for reactive or gaseous oxidized Hg is in press-

“A Passive Concentration Sampler for Gaseous Oxidized Mercury” by Seth N. Lyman, Mae S. Gustin, Eric M. Prestbo, and Philip I. Kilner Atmospheric Environment available on line at <http://dx.doi.org/10.1016/j.atmosenv.2009.10.008>

A manuscript describing the data collected at NV 98 and factors correlated with observed trends in concentrations is in press-

“Determinants of Atmospheric Mercury Concentrations in Reno, Nevada, U.S.A.,” by Seth N. Lyman and Mae S. Gustin describes the data collected at NV 98, the main field site, during this project and compares it to data collected simultaneously in Reno at higher elevation is in press Science of the Total Environment. And is available on line at <http://dx.doi.org/10.1016/j.scitotenv.2009.09.045>.

In addition an abstract was accepted for the American Geophysical Union Meeting in December to present this work.

Collaborative efforts and outreach

Through EPRI funding the surrogate surfaces for dry deposition were deployed at two SEARCH Network sites operated by ARA- one north of Atlanta, GA and one near Pensacola, FL from September 2007 to September 2008. At these sites a wide variety of air quality parameters were measured along with meteorological conditions (including but not limited to those measured at MDN NV98 described below) along with air Hg speciation. From July through September 2008 our passive samplers were also deployed

at the SEARCH network sites. This data has been compiled and a brief overview is included in the method development paper for the surrogate surfaces and RGM passive sampler. Detailed analyses of these data are being done with EPRI funding supporting Dr. Peter Weiss. We have met with EPRI regarding these trends and we are in the process of compiling a manuscript describing this work. We had an abstract accepted for the American Geophysical Union Meeting in December to present this work.

Deployment of the surrogate surfaces and RGM and TGM passive samplers as part of a TMDL study for the state of Florida is continuing. Samplers are being deployed locations near Ft. Lauderdale, Tampa and Pensacola. Our samplers are being deployed along side those from EPA and the University of Michigan. This study is being primarily funded by EPRI. However since the TGM samplers are still in the development stage some of the work is being supported by the EPA Local Scale Air Toxics grant.

From August 4 to September 10, 2008, we participated in an international intercomparison of mercury dry deposition methods. We deployed the surrogate surfaces and passive samplers as part of the "Mercury Dry Deposition Measurement Intercomparison and Workshop," held in Ann Arbor, Michigan and funded by the Great Lakes Air Deposition Program. The results of this collaboration are being compiled by Dr. Frank Marsik. He has supplied a report to the GLAD group and an abstract was submitted to present the work at the AGU meeting to be held in San Francisco in December.

The deployment of our suite of samplers in Pumpnickel Valley, Nevada near Valmy Generating Station was completed. Results are being compiled.

Professional meetings

Several presentations will be given as part of the American Geophysical Union meeting to be held in December.

Reno MDN site

The National Mercury Deposition Network (MDN) site NV98 located at the eastern edge of Reno NV has been in operation since October 17th, 2006. At NV98 we are continuing to field test the TGM passive samplers.

The following updated table indicates the monitoring equipment and sampling being currently operated at NV98.

Monitor/Sensor	On line
Tekran2537A total Hg analyzer	Oct 21,2006
Tekran2537 A	
Tekran 1130/1135	Oct 21, 2006
Tekran 1120	Oct 21, 2006
Campbell Scientific Data logger	Oct 21, 2006
Temperature/Relative humidity sensor	Oct 21, 2006
Light meter, Campbell	Oct 21, 2006
Wind velocity and direction sensor	Oct 21, 2006

Two desktop computers for data logging	Oct 21, 2006
Gill Scientific Ultrasonic anemometer	March 15, 2006
Leaf wetness sensor	Nov 1, 2006
SO2 analyzer	Dec 29, 2006
O3 analyzer	Jan 5, 2007
Belfort Rain Gage/ Noah rain gage	
MDN Wet deposition collector	
Dry deposition surrogate surface (three methods of deployment)	
RGM passive sampler deployments	
Dry deposition surrogate (aerodynamic sampler deployment)	
Ogawa SO2 passive samplers	
Total Hg passive sampler	November 2007

Data continues to be generated at this site. All components of the system are checked on a regular schedule with checks of the site being done Monday, Wednesday and Friday.

We are continuing to deploy our TGM passive samplers at NV98. We are doing some field tests on the deployment system. We changed collection surfaces for the TGM sampler in the late spring. Since then we have been deploying an alternate surface regularly at the farm and now at the Florida sites. With this field data and the simultaneously collected air Hg concentration data (Tekran system) we will develop a foundation for understanding the behavior of this surface over time.

Laboratory tests

Laboratory tests and field tests of the TGM samplers are continuing. We are looking at the collection efficiency of the new samplers and potential loss over time. We are also evaluating their use during different environmental conditions.

Looking ahead

We are still working on better understanding the potential use of the TGM samplers. We hope to have all tests of this sampler completed by Dec 2010.