

**Allen, Pam, NMENV**



**From:** Maestas, Ricardo, NMENV  
**Sent:** Wednesday, June 25, 2014 3:06 PM  
**To:** Allen, Pam, NMENV  
**Subject:** FW: CEMRC press release regarding latest results from WIPP underground radiation event  
**Attachments:** CEMRC Press Release March 5 2014.docx

Email and att. for March

**From:** Kliphuis, Trais, NMENV  
**Sent:** Wednesday, March 05, 2014 2:08 PM  
**To:** Smith, Coleman, NMENV; Maestas, Ricardo, NMENV; Holmes, Steve, NMENV  
**Subject:** FW: CEMRC press release regarding latest results from WIPP underground radiation event

**From:** Russell Hardy [<mailto:rhardy@nmsu.edu>]  
**Sent:** Wednesday, March 05, 2014 1:37 PM  
**To:** 'tim.keithley@mail.house.gov'; 'Cathryn Brown ([cnbrownesq@plateautel.net](mailto:cnbrownesq@plateautel.net))'; Leavell, Carroll H.; Gray, William J.; Flynn, Ryan, NMENV; LucasKamat, Susan, NMENV; Kernan, Gay G.  
**Cc:** Russell Hardy  
**Subject:** CEMRC press release regarding latest results from WIPP underground radiation event

Good afternoon, CEMRC has just completed analyses of air filter samples of the air within the repository both before and after HEPA filtration in the time period following the underground radiation detection event.

Attached is a press release of those results.

Feel free to call or email if you have any questions or need any additional information.

Thanks,

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### CEMRC radiological results from air sampling in the WIPP site following the February 14<sup>th</sup>, 2014 radiation detection event

The Carlsbad Environmental Monitoring and Research Center (CEMRC), an entity of New Mexico State University, has completed radiological separation and analyses of air filter samples taken from within the Waste Isolation Pilot Plant (WIPP) exhaust shaft for the time period immediately following the underground radiation detection event that occurred at approximately 11:30pm on Friday, February 14, 2014. The levels of activity listed here are presented in Becquerels (Bq), also known as disintegrations per second, and are reported as Bq per cubic meter (Bq/m<sup>3</sup>).

#### WIPP Exhaust Shaft Pre and Post-HEPA Filtration Results:

CEMRC scientists have performed radiological analyses of exhaust air filter samples received in the time period immediately following the underground radiation detection event that occurred on the evening of February 14, 2014. These filters consist of 47mm diameter, one micron pore size, paper filters that sample the air exiting the WIPP repository exhaust shaft at **Station A** (before air goes through HEPA filtration) and at **Station B** (after air goes through HEPA filtration). As stated by DOE officials, in the event of a radioactive detection in the underground, the ventilation system lowers the fan speed and automatically shifts to a "filtration" mode; whereby all of the exhaust shaft effluent passes through a large bank of High Efficiency Particulate Absorption (HEPA) filters designed to remove 99.97% of all radioactive particles from the air before exiting into the environment.

A filter removed from Station A (pre-HEPA) in the morning following the event (2/15/14) showed high levels of radioactivity consisting of 1,365 Bq/m<sup>3</sup> of Americium (<sup>241</sup>Am) and 672 Bq/m<sup>3</sup> of Plutonium (<sup>239+240</sup>Pu). Twenty-four hours following the event (11:30pm Saturday 2/15/14), another filter sample showed much lower levels of radioactivity, measuring 130 Bq/m<sup>3</sup> of <sup>241</sup>Am and 17 Bq/m<sup>3</sup> of <sup>239+240</sup>Pu. By approximately 9:00am on Friday, February 21<sup>st</sup>, nearly one full week after the event, the measured levels of radioactivity had dropped to 0.65 Bq/m<sup>3</sup> of <sup>241</sup>Am and 0.06 Bq/m<sup>3</sup> of <sup>239+240</sup>Pu at Station A per day. It is important to note that while very high levels of radioactivity were measured immediately following the 2/14/14 radiation detection event, these values are reflective of what was measured prior to going through the HEPA filtration system and not at all reflective of the levels of radioactivity ultimately released into the environment.

For an indication of the amount and type of radionuclides that were ultimately released into the environment, CEMRC scientists focused their analyses on Station B filters, as these filters sample the air exiting the WIPP underground exhaust system after passing through the HEPA filtration

system. A filter that was installed Friday morning, the day of the underground detection event, was removed from Station B (post-HEPA) in the afternoon of Tuesday (2/18/14). Analysis of this filter showed a moderate amount of radioactivity measuring 1.81 Bq/m<sup>3</sup> of <sup>241</sup>Am and 0.224 Bq/m<sup>3</sup> of <sup>239+240</sup>Pu. Given that this particular filter remained in place from the time before the underground radiation detection event occurred until late Tuesday afternoon (2/18/14) following the event, this filter is representative of the total amount of <sup>241</sup>Am and <sup>239+240</sup>Pu that may have been released into the environment over this four day period (2/14-2/18). CEMRC scientists have continued to analyze station B filters in 8-hour increments since 2/18/14 and have witnessed the level of activity decrease exponentially over time to less than 0.12 Bq/m<sup>3</sup> of <sup>241</sup>Am and less than 0.012 Bq/m<sup>3</sup> of <sup>239+240</sup>Pu being emitted per day from the WIPP underground ventilation system (as of the morning of 2/21/14).

While it is evident that a moderate amount of radioactive isotopes were released into the air from the WIPP exhaust shaft following the underground radiation detection event, it is important to note that these amounts are still below the EPA actionable level of 37 Bq/m<sup>3</sup>. Additionally, it deserves noting that the engineered safety systems in place within the WIPP facility (i.e. HEPA filtration system) reduced the amount of <sup>241</sup>Am exiting the exhaust ventilation system by 754 times and the amount of <sup>239+240</sup>Pu by nearly 3,000 times. Lastly, it is also evident that in the days following the event, the levels of radioactivity both within the repository (pre-HEPA) and what was ultimately released (post-HEPA), have decreased considerably and appear to have stabilized at significantly reduced levels.

Station A and station B filters continue to be collected in 8-hour intervals by CEMRC staff and will continue to be analyzed, either individually or in daily composite batches, until such time that pre and post HEPA activity levels return to near pre-event detection values. In addition, ambient air samples continue to be collected weekly to ensure that the air around the WIPP facility remains at safe levels. Lastly, CEMRC scientists are preparing to collect soil and surface water samples in the vicinity of the WIPP facility to monitor the path that any airborne particles may have taken and to ensure that the environment in and around the WIPP facility remains safe as a result of this underground radiation event.

The CEMRC is funded by the U.S. Department of Energy, Carlsbad Field Office (DOE/CBFO) to conduct an independent environmental monitoring program of the WIPP site for the citizens of Carlsbad and southeast New Mexico. For more information about CEMRC and its independent environmental monitoring program or to see data specific to the radiological event, visit the CEMRC website at [www.cemrc.org](http://www.cemrc.org) or contact Dr. Russell Hardy, Director at (575) 234-5555.