

## State Environment Department's (NMED) involvement concerning detecting perchlorate at the Laboratory



- In 1999, NMED (HWB) sent a letter to five DOE and DOD facilities, including the Laboratory, requesting a survey of perchlorate-related sites in New Mexico in order to identify the occurrence of perchlorate in the environment. Specifically, NMED requested that each facility provide a list of sites that might have the highest potential for perchlorate contamination.
- In 1995, the Laboratory sampled four wells in the non-drinking water shallow aquifer in Mortandad Canyon but found no detects of perchlorate at greater than 500 ug/L (the 1995 MDL was 500 ug/L). From 1996 through 1998 sampling of the Mortandad Canyon shallow aquifer did not occur. In 1999, NMED in conjunction with EPA, were the first to detect perchlorate in the shallow aquifer; levels ranged from less than 500 ug/L to 4,400 ug/L. In 2000, the Laboratory re-visited and sampled several wells in the canyon finding perchlorate at levels up to 400 ug/L (the 2000 MDL for Method 314 was 4 ug/L).
- In 2001, the NMED Oversight Bureau reviewed some LC/MS/MS results presented by LANL to the CAB. The new low-level (LC/MS/MS) method for detecting perchlorate was being pushed by DOE due to Method 314 shortfalls seen at their Pantex site in TX. These results from an early performance evaluation, e.g., spiking samples with known amounts of perchlorate, showed that the new method showed considerable promise and was worth pursuing.
- NMED's Department of Energy Oversight Bureau began using the innovative low-level method in 2001, and conducted four separate performance evaluations during 2002. Performance results were again promising and promoted further work.
- During the Spring of 2002, NMED met with Laboratory and DOE officials concerning the path forward for using LC/MS/MS for detecting low-levels of perchlorate at LANL and vicinity. As the year progressed, several status meetings were held to keep NMED, LANL and DOE officials informed about new developments with the method.
- From 2001 through 2003, NMED detected low levels of perchlorate using the LC/MS/MS method in many regional aquifer drinking water wells, Laboratory tap water and springs. Perchlorate was also detected at low levels in one spring located up-gradient of the Laboratory. During this time, a total of 99 samples were collected at a variety of locations, and were analyzed using both the EPA approved IC method (314) and the low-level method (LC/MS/MS).
- NMED analyzed snow-pack samples from locations near Pajarito Ski area and Santa Fe Ski Basin during 2002 and 2003 and found no detectable perchlorate (levels less than the method's reported MDL of 0.25 ug/L and 0.06 ug/L respectively).
- Validation of performance for the new LC/MS/MS method saw NMED working closely with the Laboratory and DOE from 2001 to the present. As part of the most recent (May '03) performance evaluation, NMED split sampled with the Laboratory at seven stations, and had a total of 27 samples analyzed through an outside contract laboratory. Results were statistically identical to the Laboratory's results showing the method is reliable.