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Mr. David Cobrain  
New Mexico Environment Department (NMED)  
Hazardous Waste Bureau  
2905 Rodeo Park Dr. E/Bldg 1  
Santa Fe, NM 87505

RE: Evaluation of the 2012 Nest Box Monitoring Report for the Upper Pajarito Canyon Watershed, Los Alamos National Laboratory (LANL)

Dear Mr. Cobrain:

This letter addresses the evaluation of LANL's 2012 Nest Box Monitoring Report for the Upper Pajarito Canyon Watershed.

The overall conclusion of the report is that "further characterization of cavity-nesting birds and their food for metals and PCBs [polychlorinated biphenyls] in the Pajarito watershed reaches is not warranted based on the exposure evaluation calculated using nest box insects collected from 2009 to 2012 (Table 5). The total PCB concentration for insects from the reach with the highest concentrations in sediment, AW-1, was 0.00527 mg/kg, which is comparable with the two reference sites (reach PA-0 and upstream of reach TWN-1W) as well as other Pajarito reaches. This concentration of PCBs does not indicate potential risks to the avian ground invertevore population in the Pajarito watershed."

The primary toxicity endpoint evaluated in an ecological risk assessment is reproductive effects and the toxicity data applied from LANL's EcoRisk database correlate to reproductive endpoints. The data provided in Table 5 show elevated hazard quotients for several metals at several sampling locations within the watershed, even when the less conservative lowest-no-adverse-effect level (LOAEL) toxicity reference value (TRV) is applied. However, the report does not provide an evaluation of additive hazard from exposure to multiple contaminants [i.e., Hazard Quotients (HQs) are only provided for individual contaminants and a total Hazard Index (HI) is not provided]. The resulting HI for all contaminants presented in Table 6 would greatly exceed the target level of one (1). While the HQs and HIs are greater than the target level of 1, meaning that there is likely reproductive impact on the bluebird, the corresponding data in Table 6 do not appear to collaborate this conclusion. The data in Table 6 for Pajarito Canyon indicate that there is not a decline in reproduction of the bluebird, at least as compared to other watersheds at LANL. Both the hatching and fledgling success rates are above 90%. It is noted that there are uncertainties in conducting a straight HQ/HI evaluation and that a more refined analysis (incorporating site-specific data, area use factors, etc.) could result in less hazard to the population. Without a more refined quantitative risk calculation, the population risks cannot be



fully assessed, however, there appears to be sufficient field data to show a weight of evidence that the metals within the Pajarito watershed are not adversely impacting the reproduction of bluebirds based on the limited next box data.

PCB data were obtained, and based on the four data points, hazard was not determined to exceed the target level of 1. Metals concentrations were greatest at location AW-1; there did not appear to be any correlation between PCB concentrations and metals at location AW-1. While the data are limited, it is reasonable to surmise that the data do not indicate adverse ecological impact to avian ground invertebrates. Given the minimal data available for PCBs, one additional round of data would be preferred.

Sample location AW-1 showed the highest levels of metals, although there appears to be a decreasing trend in concentrations, as shown in Table 2. There do not appear to be any data collected immediately downstream from sample point AW-1 since 2007. Thus it is unclear whether there may be migration of metals within the reach that should be evaluated. It is recommended that at least one additional round of data are collected downstream of AW-1 to evaluate the migration of metals.

If you have any questions, please contact me at (801) 451-2864 or via email at [paigewalton@msn.com](mailto:paigewalton@msn.com).

Thank you,



Paige Walton  
AQS Senior Scientist and Program Manager

cc: Dan Comeau, NMED (electronic)  
Joel Workman, AQS (electronic)