



Individual Permit for Storm Water Project Update Public Meeting *Wednesday, December 9, 2015* Holiday Inn Express, Los Alamos, NM 5:30 – 7:30

5:30 – 5:45 •	 View Posters Storm Water Individual Permit Process Watersheds/ Sites Remote Telemetry Unit Overview 					
5:45 - 5:50	Welcome	David Rhodes				
5:50 - 6:00	2015 Compliance Summary	Terrill Lemke				
6:00 - 6:25	Precipitation Network and 2015 Monitoring Year	Amanda White				
6:25 - 6:45	Urban Storm Runoff and Atmospheric Deposition Updates	Courtney Perkins Armand Groffman Don Carlson				
6:45 – 7:10	Individual Permit 2015 Corrective Actions Update	Bill Foley				
7:10 – 7:25	Communities for Clean Water	Rachel Conn				
7:25 – 7:30	Closing Questions					
7:30 - 8:00	Review Posters					







Urban Storm Runoff and Atmospheric Deposition Updates



Urban Storm Water Runoff Collaborative Study



Goal: Evaluate metals and PCB concentrations in urban storm water runoff from areas in Los Alamos with no known history of industrial activity

Collaborative study 2014-2015 Los Alamos National Laboratory (LANL)

New Mexico Environment Department Department of Energy Oversight Bureau (NMED DOE OB)









Urban Storm Water Runoff Collaborative Study



Storm water runoff from Los Alamos County (LAC) town site urban residential areas monitored during the summers of 2014 and 2015.









Urban Study Locations











14-08-10-2010



2014-2015 Los Alamos County Urban Neighborhood Results



Toxicity Unit (TU) is defined as the

Analytical Result/Acute Aquatic Life Criteria (20.6.4.1 NMAC)







2009-2014 Los Alamos County Town Site

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Analytical Result/Acute Aquatic Life Criteria (20.6.4.1 NMAC)











Comparison of LAC Town Site and Neighborhoods





Category	Mean	Median	Min	Max	Std	Ν
					Dev	
Hardness (mg/L)	22.30	21.15	3.29	66.30	13.34	40
Zinc TU TS	1.55	0.93	0.05	7.18	1.64	40
Zinc TU Nbr	0.88	0.69	0.03	2.81	0.71	40
Copper TU TS	1.64	1.43	0.17	6.07	1.08	40
Copper TU Nbr	1.42	1.19	0.27	3.90	0.76	40









Polychlorinated biphenyls (PCBs): two benzene rings (12 carbon atoms) form a biphenyl with 1-10 chlorine atoms replacing Hydrogen atoms



Chemical Structure of PCBs

Congeners (209): based on the number and location of chlorine atoms attached to carbon atoms in the benzene rings
Homologs: groups of PCB congeners containing same number of chlorine atoms (1 – 10)









History of PCBs

Polychlorinated Biphenyls

- Production began in 1929, banned in 1977
- Capacitors and transformers contained most

Toxicity

- Cancer in animals
- Other effects in animals (immune, reproductive, nervous, endocrine systems)
- Bioaccumulate (build up in plants/animals)
- Probable human carcinogens









Common Sources of PCBs

- Transformers and capacitors
- Electrical equipment
- Oil in motors and hydraulic systems
- Fluorescent light ballasts
- Carbonless copy paper
- Thermal insulation material: fiberglass, felt, foam, and cork
- Cable insulation
- Adhesives, tapes, oil-based paint, caulking
- Plastics





Mean Values by Location for Total PCBs in Urban Study Samples 2014-15



Detail of Mean Values for Total PCBs in Urban Study Samples 2014-15



Typical Homolog Distributions for Some Common Aroclors



- 1242 transformers, hydraulic fluids plasticizers, adhesives
- 1248 hydraulic fluids plasticizers, adhesives

Monsanto brand-name mixtures of PCB congeners (1930-1977), distinct homolog distributions

- 1254 Capacitors, transformers, hydraulic fluids, plasticizers adhesives, wax and pesticide extenders, de-dusting agents, inks, cutting oils, sealants, caulking compounds
- 1260 Transformers, hydraulic fluids, synthetic resins, de-dusting agents

Adapted from Frame, et al. 1996.

Homolog Distributions for All Urban Study Locations 2014-15





Atmospheric Deposition Monitoring

NMED DOE OB

Goal: Evaluate PCB concentrations in wet (precipitation) and dry deposition around Los Alamos/Pajarito Plateau to quantify atmospheric PCB deposition

Collect and analyze precipitation (rain, snow, etc) and dry atmospheric deposition (dust, particulates) for PCBs







NMED DOE OB Atmospheric · Los Alamos National Laboratory Deposition Monitoring Locations







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Precipitation sampler at Bandelier National Monument in dry and wet conditions



Total PCBs in Wet Deposition from Bandelier 2011 - 2012



Total PCBs in Wet Deposition from VCNP 2014 - 2015



Annual Average of Total PCBs in Wet Deposition



Collecting and Analyzing Dry Deposition



Annual collection to accumulate sufficient sample for analysis

Total mass of dry atmospheric deposition collected = 0.2g

Collection period:
 05/29/14 - 07/09/15

Total PCB concentration: 11 ng/g

Long-term study to build dataset!







Homolog Distributions for VCNP Wet and Dry Atmospheric Deposition





All data are available online through Intellus New Mexico (intellusnmdata.com)



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