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LANL General

January 25, 2001

Mr. Jacob Pecos, Coordinator
Cochiti Environmental Protection Office
P.O. Box 70
Cochiti, NM 87072

LANL GROUNDWATER

Dear Mr. Pecos:

The DOE Oversight Bureau of the New Mexico Environment Department collected samples of fish tissue from Cochiti Reservoir in 1999 and 2000 and has received additional preliminary data. The samples were analyzed for polychlorinated biphenyls (PCBs) congeners using high-resolution mass spectrometry (HRMS), EPA Method 1668. A summary of the results for PCBs is given below.

	Year Collected	Total PCB, Sum of Congeners by HRMS or LRMS, ng/g (ppb)	Total PCB Screening Value, ng/g (ppb)	Sum of 12 dioxin-like congeners by HRMS, ng/g, (ppb)	Dioxin TEQ, pg/g (ppt)	Dioxin/ Furan SV, pg/g (ppt)
COCH-01 (Carp)	1999	88.52	22	7.98	2.04	.288
COCH-02 (Catfish)	1999	34.22	22	5.75	1.82	.288
COCH-03 (N Pike)	2000	24.32	22	2.55	1.05	.288
COCH-04 (W Pike)	2000	6.41	22	0.50	0.21	.288
COCH-05 (Catfish)	2000	39.59	22	5.48	2.07	.288
COCH-06 (Carp)	2000	8.52	22	0.69	0.32	.288
COCH-07 (W Pike)	2000	6.24	22	0.55	0.25	.288
COCH-08 (W Bass)	2000	4.99	22	0.43	0.21	.288
COCH-09 (Catfish)	2000	16.48	22	2.88	1.01	.288
COCH-10 (Carp)	2000	10.89	22	0.94	0.49	.288

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Columns 4 and 7 of the table show screening values from the latest EPA guidance for developing fish consumption advisories. Based on these analyses, four of the ten samples had concentrations of total PCBs (sum of congeners) in excess of EPA screening values.

PCBs are mixtures of congeners, twelve of which exhibit dioxin-like toxicity. The World Health Organization has developed Toxic Equivalency Factors (TEFs) that are used to quantify dioxin-like toxicity due to PCBs. To evaluate the dioxin-like toxicity due to PCBs, the concentration of each congener is multiplied by the TEF and the 12 resulting values are summed resulting in a Toxicity Equivalent Quotient (TEQ). This is then compared to the EPA screening value for dioxin/furans. All ten of the samples were analyzed using HRMS to resolve the toxic PCB congeners. Based on these analyses, seven of the ten samples had concentrations of dioxin TEQs that exceed EPA's dioxin/furan screening value.

To our knowledge, this is the first time that fish samples in New Mexico have been analyzed using either low-resolution methods capable of separating the congeners, or high-resolution methods capable of resolving toxic congeners. This makes the significance of this data somewhat unclear, since we have no other samples to put these results in perspective. To find out how these results compare with other reservoirs, we have submitted additional fish tissue samples from Abiquiu Reservoir for high-resolution analysis. The data from these Abiquiu samples is pending.

The results from these additional investigations and all finalized data will be forwarded to you when we receive them. We will also forward all data to the Surface Water Quality Bureau and the Department of Health for evaluation to determine whether fish consumption advisories are warranted. If you have any questions on these data or interpretations, please contact Ralph Ford-Schmid at 827-1536.

Sincerely,

Tim Michael
Technical Support Program Manager

cc:

John Parker, Chief NMED DOE Oversight Bureau