

Title of Project: Impacts of Pipeline Crossings Associated with Gas Development on Aquatic Habitats and Communities

Project Summary: We propose to select twenty pipeline crossings in streams located in north central and northwestern Arkansas that exhibit pipeline stream crossings associated with natural gas development. Each stream crossing would be sampled for physical and chemical parameters above, at, and below the crossing. A section of stream in an unimpacted area would also be sampled in a similar manner. Nonparametric statistical analyses would be used to compare streams unaffected by pipeline crossings to those reaches that have been impacted..

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Project Partners: Tom Buchanan, Professor, University of Arkansas-Ft. Smith for specimen verification

Total project cost: \$297,900

Total SWG money requested: \$143,600

Amount and Source of Matching Funds: \$154,300

The development of resources for which mining is utilized to extract resources from subterranean deposits often carries the risk of causing perturbations to terrestrial and aquatic habitats. The extent of impact to streams from the associated pipeline establishment associated with the natural gas exploitation in northwestern Arkansas in the Ozark and Boston Mountain Ecoregions is currently unknown but cited by many resource managers as a cause for concern.

We propose to select twenty pipeline crossings of streams to sample during four seasons of the year. Each crossing would be sampled for imbeddedness of interstitial spaces in substrates, as well as other physical and chemical variables. Transects would be placed across such areas at the point of the crossing as well as upstream and downstream of the impacted area. Twenty additional stream reaches would be selected which were not impacted from pipeline crossings. These reaches would be sampled in a manner similar to those in impacted reaches. Nonparametric statistical analyses would be conducted to compare both physical, chemical and biological parameters both within impacted reaches (above to below, at the crossing to immediately above, at the crossing to immediately below, etc.) as well as to compare impacted reaches to unimpacted reaches.

Biological data would be collected by using mini-fyke nets to collect species of fishes present. Such sampling appears to collect most species present in small streams. We propose obtaining two mini-fyke net nights of sampling at each location within each reach (two above, two at the crossing, and two below) for a total of six net nights within each reach. Similar data would be collected at unimpacted reaches.

Sites to be selected for sampling would be a joint endeavor of Layher Biologics RTEC, Inc. staff, ADEQ staff, and AGFC staff as well as others who might have knowledge of such areas. This joint selection of study areas will insure that all interested parties are aware of how the project is designed and is being carried out.

We estimate that it would take two days to sample each reach. Forty reaches would require some 80 days to sample each season. This would require a total of nearly 320 days to complete, however increasing crew sizes with oversight could reduce the number of days required but not man-hours.

Budget:

Salariesfield/lab:					SWG	Matching
PI	320 days	8 hours/day	\$40/hr	\$102,400	\$51,000	\$51,400
Biologist I	320 days	8 hours/day	\$15/hr	\$38,400	\$30,000	\$ 8,400
Technician	320 days	8 hrs/day	\$10/hr	\$25,600	\$25,600	0
PI –report	120 hours		\$40/hr	\$4,800	\$0	\$4,800
Operating Expenses						
Mileage	40,000miles	.50/mile		\$20,000	\$20,000	0
Per diem	\$20/dayx3	320 days		\$19,200	\$10,000	\$9,200
Lodging	\$60/dayx3	300 days		\$54,000		\$54,000
Boat gas/oil				\$500	\$500	
Preservative/jars				\$1,500	\$1,500	
Field materials: gear/boat/sampling meters/etc/				\$4,000	\$5,000	\$4,000
Overhead				\$27,500		\$27,500
Totals				\$297,900	\$143,600	\$154,300

Matching 51.7% by Layher BioLogics RTEC, Inc.