Appendix A - Kentucky Wild Rivers Program

Kentucky is preserving the unique scenic, fish and wildlife, botanical, geological, cultural and recreational values of its most pristine rivers through a program established by the Wild Rivers Act of 1972. The Division of Water, within the Natural Resources and Environmental Protection Cabinet, is responsible for administering the Wild Rivers Program.

Portions of nine rivers of exceptional quality and aesthetic character have been designated as Kentucky Wild Rivers. Each Wild River is actually a linear corridor encompassing all visible land on each side of the river up to a distance of 2,000 feet. The nine Wild River corridors comprise a total of 114 river miles and 26,382 acres.

Cumberland River

Scott Hankla

Table 28. Designated Kentucky Wild Rivers

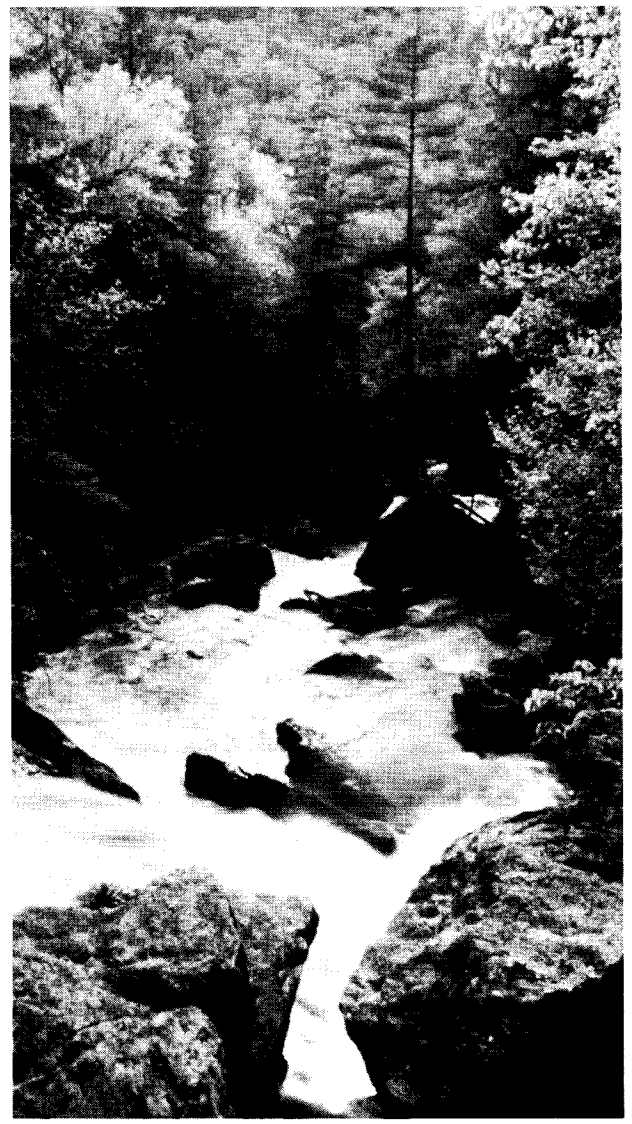
Stream and Date Designated	County	Length (Miles)	Endpoints (River Miles)	Corridor Acreage	Drainage Basin
Bad Branch 1986	Letcher	4.0	Entire basin	1,325	Cumberland River
Big South Fork 1972	McCreary	10.2	45.0 - 55.2	2,450	Cumberland River
Cumberland River 1972	McCreary/ Whitley	16.1	558.5 - 574.6	3,300	Cumberland River
Green River 1972	Edmonson/ Hart	36.0	181.7 - 207.7	6,500	Green River
Little South Fork 1974	McCreary/ Wayne	10.4	4.1 - 14.5	1,400	Cumberland River
Martin's Fork 1974	Harlan	3.9	27.4 - 31.3	680	Cumberland River
Red River 1972	Menifee/Wolfe	9.1	59.5 - 68.6	1,025	Kentucky River
Rock Creek 1974	McCreary	18.0	3.9 - 21.9	6,150	Cumberland River
Rockcastle River 1972	Laurel/Pulaski/ Rockcastle	15.9	8.5 - 24.4	3,550	Cumberland River

Appendix B - Outstanding Resource Waters

In addition to its Wild Rivers, the Commonwealth of Kentucky has designated 57 other waterbodies as Outstanding Water Resources (ORW) with habitats that range in size from 1st order watersheds to segments of large rivers such as the Ohio River. These waterbodies support federally threatened and endangered species or contain habitats that support diverse and unique aquatic flora and fauna. These waterbodies may receive industrial and/or municipal discharges that are permitted by the Kentucky Pollutant Discharge Elimination System (KDPES), but the permittee has to demonstrate to the satisfaction of the Department for Environmental Protection that the lowering of water quality or a habitat modification will not have a harmful effect on the protected species. Special conditions are provided in the KPDES permit to monitor the biological community and physicochemical properties of the waterbody to ascertain if more stringent or additional criteria are necessary for protection of the species or habitat. The Division of Water upgrades the special conditions of the KPDES permit when information is available to justify additional criteria.

Some of the outstanding resource waters are experiencing water quality problems through human-caused disturbances, such as coal mining operations, wastewater treatment facility discharges, and agricultural and silvicultural practices.

Bad Branch



James Archambeault

Currently, the Division of Water is requiring biological and physicochemical monitoring for seven coal-related operations and one municipal wastewater treatment plant. All facilities that discharge to an outstanding resource water are evaluated on a case-by-case basis.

Table 29. Threatened Or Endangered Aquatic Species In Designated Outstanding Resource Waters

Scientific Name	Common Name
Cyprogenia stegaria	Fanshell
Epioblasma obliquata obliquata	Mussel white cat's paw
Lampsilis abrupta	Pink mucket pearly mussel
Obovaria retusa	Ring pink mussel
Palaemonias ganteri	Kentucky cave shrimp
Pegias fabula	Little wing pearly mussel
Phoxinus cumberlandensis	Cumberland blackside dace
Plethobasus cooperianus	Orange-footed pimple back pearly mussel
Pleurobema plenum	Rough pigtoe mussel
Potamilus capax	Fat pocketbook mussel
Villosa trabalis	Cumberland bean pearly mussel

Table 30. Outstanding Resource Water Documentation For Segments Supporting Threatened And Endangered Species

Stream/Segement	Length (River Miles)	Species	Collection
Adams Branch	Basin	Phoxinus cumberlandensis	1991[14]
Archers Creek	Basin	Phoxinus cumberlandensis	1985[5]
Barren River	15.0 to 0.0	Pleurobema plenum	1987[7]
		Cyprogenia stegaria	1989[7]
Beaver Creek	Basin	Phoxinus cumberlandensis	1985[5], 1988[9]
Big Lick Branch	Basin	Phoxinus cumberlandensis	1985[5]
Breeden's Creek	Basin	Phoxmus cumberlandandensis	1990[4]
Brownies Creek	Basin to River Mile 8.7	Phoxinus cumberlandensis	1985[5]
Buck Creek	Basin	Phoxinus cumberlandensis	1985[5]
Buck Creek	53.3 to 10.5	Villosa trabalis	1981[1], 1985[8]
Bucks Branch	Basin	Phoxinus cumberlandensis	1985[5]
Buffalo Creek	Basin to KY-TENN stateline	Phoxinus cumberlandensis	1985[5]
Bunches Creek	Basin	Phoxinus cumberlandensis	1985[5]
Caney Creek	Basin	Phoxinus cumberlandensis	1985[5]
Collier's Creek	Basin	Phoximu cumberlandensis	1990[14]
Ohio River	Towhead Island East Channel 922.0 to 923.5	Potamilus capax	1988[4c]
Davis Branch	Basin	Phoxinus cumberlandensis	1985[5]
Dogslaughter Creek	Basin	Phoxinus cumberlandensis	1985[5]
Eagle Creek	Basin	Phoxinus cumberlandensis	1985[5]
Green River	168.0 to 148.0	Pleurobena plenum, Epioblasma obliquata obliquata	1989[7]

Stream/Segement	Length (River Miles)	Species	Collection
Green River	230.0 to 207.8	Cyprogenia stegaria	1989[7]
Horselick Creek	12.3 to mouth	Villosa trabalis	1984[2]
Kennedy Creek	1.0 to mouth	Villosa trabalis	1981[1]
Laurel Creek	Basin (Whitley County)	Phoxinus cumberlandensis	1988[9]
Laurel Fork	Basin (Jackson County)	Villosa trabalis	1991[7]
Little Clear Creek	Basin to confluence with Fuson Branch	Phoxinus cumberlandensis	1985[5]
Licking River	65.0 to 18.9	Cyprogenia stegaria	1989[7]
Little Yellow Creek	Fern Lake Dam to Yellow Creek	Phoxinus cumberlandensis	1981[13]
Long Branch Middle Fork	Basin	Phoxinus cumberlandensis	1985[5], 1988[9]
Rockcastle River	61.1 to 53.3	Villosa trabalis	1979, 1983[6], 1985[8]
Mill Creek	Basin (Bell County)	Phoxinus cumberlandensis	1985[5]
Mill Creek	Basin (McCreary County)	Phoxinus cumberlandensis	1988[9]
Ohio River	940.7 to 934.3	Plethobasus cooperianus	1982[10]
		Lampsilis abrupta	1984[13]
Ohio River	966.3 to 969.5	Plethobasus cooperianus	1982[10]
Poor Fork Cumberland River	Basin above River Mile 742.7	Phoxinus cumberlandensis	1985[5]

Stream/Segement	Length (River Miles)	Species	Collection
Rock Creek	Basin	Phoxinus cumberlandensis	1988[9]
Rockcastle River	53.3 to 24.4	Villosa trabalis	1985[4b]
Ross Branch	Basin	Phoxinus cumberlandensis	1985[5]
Roundstone Creek	14.0 to 4.7	Villosa trabalis	1985[5]
Sanders Creek	Basin	Phoxinus cumberlandensis	1988[9]
Shut-in Branch	Basin	Phoxinus cumberlandensis	1988[9]
Sims Fork	Basin	Phoxinus cumberlandensis	1985[5]
Straight Creek	Basin from River Mile 11.3 to Source	Phoxinus cumberlandensis	1985[5]
Tennessee River	22.4 - 12.5	Lampsilis abrupta	1985[4a]
		Plethobasus cooperianus	1987[4b]
		Obovaria retusa	1987[4b]
Trammel Fork	Basin	Phoxinus cumberlandensis	1985[5]
Underground River	Mammoth Cave		
System in	Park boundary	Palaemonias ganteri	1983[3]
Green River	Turnhole Spring Basin	Palaemonias ganteri	1983[3]
basin	Echo River Basin	Palaemoneas ganteri	1983[3]
	Pike Spring Basin	Palaemonias ganteri	1983[3]
	Mile 205.7 Spring Basin	Palaemonias ganteri	1983[3]
	McCoy Spring Basin	Palaemonias ganteri	1983[3]
	Suds Spring Basin	Palaemonias ganteri	1983[3]
Whippoorwill Creek	Basin	Pegias fubula	1988[7]
Youngs Creek	Basin	Phoxinus cumberlandensis	1985[5]

Footnotes

[1] Clarke, A.H. 1981. Determination of the Precise Geographical Areas Occupied by Four Endangered Species of Freshwater Mollusks. Final Report, Contract No. 14-16-003-81-019, U.S. Fish and Wildlife Service, Twin Cities, Minnesota.

[2] DiStefano, R.J. 1984. Freshwater Mussels (Bivalvia:Unionidae) of Horselick Creek, Rockcastle River, Kentucky. The Nautilus 98(3):110-113.

[3] Leitheuser, A.T. and J.R. Holsinger. 1983. Ecological Analysis of the Kentucky Cave Shrimp, Palaemonias ganteri Hay, Mammoth Cave National Park (Phase IV) Final Report, Contract No. Cx-5000-1-1037. National Park Service, Atlanta, Georgia.

[4a] Sickel, J.B. 1987. Survey of Mollusks in the Vicinity of the Pennwalt Terminal, Tennessee River 15.8 - 16.3. Murray State Univ., Murray, Kentucky.

[4b] Sickel, J.B. 1985. Biological Assessment of the Freshwater Mussels in the Kentucky Dam Tailwaters of the Tennessee River. Final Report, KY Division of Water.

[4c] Sickel, J.B. 1987. Preliminary Survey for Endangered Freshwater Mussels at Cumberland Island Towhead, Confluence of Cumberland and Ohio Rivers. Report submitted to Donan Engineering, Inc., Madisonville, KY.

[5] O'Bara, Christopher. 1985. A status survey of the blackside dace, Phoxinus cumberlandensis. Final Report, U.S. Fish and Wildlife Service, Asheville, North Carolina.

[6] Thompson, Yvonne. 1983. Master's Thesis. Eastern Kentucky University, Richmond, Kentucky.

[7] Richard Hannan, Kentucky Nature Preserve Commission, letter to Division of Water.

[8] Guenter Schuster, PhD., Professor of Biological Sciences, Eastern Kentucky University, letter to Division of Water.

[9] Kentucky Department of Fish and Wildlife Resources, Annual Performance Report (in draft) Southeastern Fisheries District.

[10] Williams, J.C. and Schuster, G.A. 1982. Freshwater Mussel Investigations of the Ohio River, Mile 317.0 to Mile 981.0. Final Report. U.S. Army Corps of Engineers, Louisville, Kentucky.

[11] Miller, A.C. and Payne, B.S. 1984. An Investigation of Freshwater Mussels in the Ohio River near Olmsted, Illinois, 26-29. September 1983. U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS.

[12] Tennessee Valley Authority, 1984. Environmental Assessment on Atmospheric Fluidized Bed Combustion 160 MW ADD-ON Boiler, Shawnee Steam Plant.

[13] Birge, W.J. and J.A. Black 1981. In situ Acute/Chronic Toxicological Monitoring of Industrial Effluents for NPDES Biomonitoring Program Using Fish and Amphibian Embryo Larval Stages as Test Organisms. Univ. of Kentucky, School of Biological Sciences and Graduate Center for Toxicology. Report submitted to U.S. EPA, Washington, D.C.

[14] Consulting Firm Documentation of Federally Threatened and Endangered Species on File.

Appendix C - Drought-Vulnerable Water Supply Systems

Table 31. Drought-Vulnerable Water Supply Systems

County	Priority Rating[1]	System	Population (%)[2]
Bath	2	Owingsville Water Works	25
Bourbon	1	Paris Municipal Water Works	61
		N. Middletown Municipal WW	6
Breathitt	2	Jackson Municipal WW	17
Carter	2	Olive Hill Water Works	24
Cumberland	1	Burkesville Municipal WW	40
Fayette	1	KY-American Water Co.	99
Grayson	2	Caneyville Municipal WW	7
Hardin	1	Elizabethtown Municipal	23
		Hardin County WD #1	27
Harlan	2	Cumberland Water Works	9
		Green Hills Water District	1
		Harlan Municipal WW	18
		Lynch Water Plant	4
Jackson	2	McKee Municipal WW	11
Letcher	2	Jenkins Water Works	13
		Whitesburg Municipal WW	5
Magoffin	1	Salyersville Municipal WW	48
Montgomery	1	Mt. Sterling W & S	83
Morgan	2	West Liberty Water Co.	29

County	Priority Rating	System	Population (%)
Mulenberg	2	Greenville Municipal WW	22
Ohio	2	Fordsville Water System	7
Owen	2	Owenton Water Works	31
Owsley	1	Booneville W & S Dept.	59
Perry	1	Hazard Water Department	36
Scott	2	Stamping Ground WW	3
Todd	1	Todd County Water District	59
		Guthrie Water Works	21

Footnotes

[1] Priority rating for water supply planning grants as per 401 KAR 4:220, Water Supply Plan Requirements.

[2] Percent population of the county served by the system.

Appendix D - Hydroelectric Sites

Federal regulation of hydroelectric power began in 1920 when Congress passed the Federal Water Power Act and established the Federal Power Commission (FPC) to license and regulate non-Federal hydroelectric projects. In 1977 Congress created the Federal Energy Regulatory Commission (FERC) which assumed most of the FPC's responsibilities for regulating non-Federal hydroelectric power projects. FERC issues preliminary permits and project licenses and also grants exemptions from licensing for some projects.

Preliminary Permits

A preliminary permit allows a prospective developer to investigate a potential site to determine the economic, engineering and environmental feasibility of developing a hydropower project. The non-transferrable permit allows a study period of up to three years and preserves the developer's priority to file for a license or an exemption within the three-year period. A preliminary permit is not required to develop a project. Although a developer can file directly for a license or an exemption from licensing, the preliminary permit ensures the applicant's standing as first in line.

Licensing

The licensing procedure takes into account the environmental and cultural effects of the proposed project and whether the benefits of the plant outweigh the costs. Developers interested in constructing a new power plant or adding capacity to an existing structure must file an application to FERC for review. FERC reviews project applications and can issue a minor license, a major license, or an exemption from licensing. Minor licenses are required for hydropower development of plants with power capabilities of less than 1500 kilowatts. Plants with power capabilities of more than 1500 kilowatts must apply for a major license. Major and minor licenses are effective for an initial period of up to 50 years. Projects must be relicensed to extend operation beyond the initial period.

FERC began an exemption process to encourage projects to add capacity at existing hydropower facilities. An existing structure must already impound the stream to permit approval under this system. An exemption minimizes administrative work involved in an application and requires fewer restrictions on production. An exempted project must be reviewed after twenty years for reissue.

Table 32. Projects In Kentucky Without FERC Licensing Status

RIVER NAME	HYDROPOWER FACILITY	OWNER	COUNTY
Barren River	Barren River - 12,000 KW	City of Glasgow	Barren
Barren River	Barren Lock and dam - 4,000KW	Eastern States Energy and Resources	Warren
Beech Fork, Rolling Fork	Campground - 15,000 KW	NHPS/Corps of Engineers	Nelson
Blaine Creek, Big Sandy River	Yatesville - 2,150 KW	Corps of Engineers	Lawrence
Brownies Creek, Cumberland River	Hagan 1 - 1,240,000 KW		Bell
Carr Fork, North Fork of Kentucky River	Carr Fork - 92 KW	Corps of Engineers	Knott
Cumberland River	Wolf Creek - 132 FW	JDJ Energy Company	Clinton
Dix River	Dix - 28,257 KW	Kentucky Utilities Company	Boyle
Doe Run, Ohio River	Doe Run - 35 FW	Doe Run Creek Hydropower Rehab.	Meade
Green River	Rochester - 179,700 KW	Corps of Engineers	Ohio
Green River	Green lock and dam 2 - 11,400 KW	Kentucky Hydropower Association	McLean
Green River	Green lock and dam 4 - 5,000 KW	Woodbury Association	Butler
Green River	Green lock and dam 6 - 5,000 KW	Brownsville Association	Edmonson
Green River	Green lock and dam - 3 - 11,000 KW	Independence Electric Company	Muhlenburg
Green River, Ohio River	Green lock and dam 1 - 5,000 KW	Spottsville Association	Henderson
Green River, Ohio River	Green lock and dam 5 - 4,900 KW	Eastern States Energy and Resources	Butler
Jellico Creek, Cumberland River	Jellico Creek - 90,000 KW	Corps of Engineers	Whitley
Johns Creek, Levisa Fork	Prestonburg - 2,000 KW	Prestonburg Association	Floyd
Kentucky River	Kentucky lock and dam - 2,500 KW	Energenics Systems, Inc.	Mercer
Kentucky River	Kentucky lock and dam 2 - 8,200 KW	Independence Electric Company	Owen
Kentucky River	Kentucky lock and dam 4 - 5,000 KW	Kentucky Lock and Dam 4 Hydropower Association	Franklin
Kentucky River	Kentucky lock and dam 5 - 6,000 KW	Kentucky Lock and Dam 5 Hydropower Association	Woodford
Kentucky River	Kentucky lock and dam 8 - 7,000 KW	Kentucky Lock and Dam 8 Hydropower Association	Jessamine
Kentucky River	Kentucky lock and dam 9 - 5,100 KW	Kentucky Lock and Dam 9 Hydropower Association	Madison
Kentucky River	Kentucky lock and dam 11 - 8,000 KW	Kentucky Lock and Dam 11 Hydropower Association	Madison
Kentucky River	Kentucky lock and dam 12 - 5,500 KW	Kentucky Lock and Dam 12 Hydropower Association	Estill
Kentucky River	Kentucky lock and dam 13 - 4,000 KW	Kentucky Lock and Dam 13 Hydropower Association	Lee
Kentucky River	Kentucky lock and dam 14 - 4,000 KW	Kentucky Lock and Dam 14 Hydropower Association	Lee
Kentucky River	Kentucky lock and dam 10 - 5,000 KW	Kentucky Lock and Dam 10 Hydropower Association	Clark
Kentucky River	Kentucky lock and dam 3 - 6,000 KW	Kentucky Lock and Dam 3 Hydropower Association	Owen
Leviso Fork, Big Sandy River	Fishtrap - 1,080 KW	Hydroengineering Association	Pike
Licking River	Boston Station - 22,500 KW	Corps of Engineers	Pendleton
Licking River	Royalton - 212,000 KW	Corps of Engineers	Magoffin
Licking River	Falmouth - 40,000 KW	Mitchell Energy Company, Inc.	Pendleton
Little Sandy River	Argillite - 7,550 KW	NHPS/Corps of Engineers	Greenup
Little Sandy River	Grayson - 1,000 FW	Carter County Association	Carter
Martins Fork of Cumberland River	Hagan 2 - 573,000 KW		
Middle Fork of the Kentucky River	Buckhorn - 2,800 KW	Buckhorn Association	Perry
North Fork of Kentucky River	Blackey - 416,000 KW	Corps of Engineers	Breathitt
North Fork of Kentucky River	Kingdom Come - 216,000 KW	Corps of Engineers	Breathitt
North Fork of Kentucky River	Roxana - 300,000 KW		Letcher
North Fork of Kentucky River	Whitesburg - 1,000,000 KW	Corps of Engineers	Letcher
Ohio River	Chilo - 350,000 KW		Campbell
Ohio River	Smithland lock and dam - 120,000 KW	City of Vanceburg	Jefferson

RIVER NAME	HYDROPOWER FACILITY	OWNER	COUNTY
Ohio River	Smithland - 120,000 KW	Big Rivers Electric Corporation	Livingston
Ohio River	Ohio lock and dam 53 - 25,000 KW	Cairo/Wickliffe Association	Ballard
Ohio River	Newburgh lock and dam - 48,000 KW	Newburgh Hydropower Partners	Henderson
Ohio River	Cannelton lock and dam - 73,500 KW	Synergics, Inc.	Hancock
Paint Creek, Levisa Fork	Paintsville Dam - 1,000 KW	City of Salyersville	Johnson
Red River	Red River - 535,000 KW		Estill
Rockcastle River	Parker Branch - 22,000 KW	Parkers Branch Lake Industrial Authority	Rockcastle
Rough River, Green River	Rough River - 8,100 KW	City of Glasgow	Grayson
Rough River, Green River	Falls of Rough - 110 KW	Dobbs Seed and Grain Company, Inc.	Ohio
Salt River	Rolling Fork - 4,900 KW	Corps of Engineers	Hardin
Salt River	Taylorsville - 4,000 FW	Independence Electric Company	Spencer
South Fork of Kentucky River	Boonesville - 500,000 KW		Owsley
South Fork of Kentucky River	Station Camp Creek - 384,000 KW		Owsley
Tygarts Creek, Ohio River	Kehoe - 3,030 KW	NHPS/Corps of Engineers	Greenup
Wood Creek, Rockcastle River	Wood Creek - 117 KW	Commonwealth of Kentucky	Laurel
Green River	Green River Dam - 11,000 KW	William Lewis and Associates Inc. (preliminary permit outstanding)	Taylor
Kentucky River	Kentucky lock and dam - 2,040 KW	Kentucky Utilities Co. (major license outstanding)	Mercer
Licking River	Cave Run - 10,000 KW	Independence Electric Co. (preliminary permit outstanding)	Bath
Nolin River	Nolin - 10,000 KW	William Lewis and Associates Inc.Preliminary permit outstanding	Edmonson
Ohio River	Elmer Smith - 850 KW	City of Owensboro (exempted from licensing)	Davies
Ohio River	Cannelton lock and dam - 80,010 KW	WV Hydropower Inc. (major license applied for)	Hancock
Ohio River	Meldahl lock and dam - 80,000 KW	City of Augusta (major license applied for)	Bracken
Ohio River	Meldahl lock and dam - 79,400 KW	Meldahl Hydropower Inc. (major license applied for)	Bracken
Ohio River	Meldahl lock and dam - 71,700 KW	City of Vanceburg (major license applied for)	Bracken
Ohio River	Ohio Falls - McAlpine lock and dam - 80,000 KW	Louisville Gas and Electric Co. (major license outstanding)	Jefferson
Ohio River	Ohio Falls - McAlpine lock and dam - 19,200 KW	Louisville Gas and Electric Co. (major license outstanding)	Jefferson
Ohio River	Ohio Falls - McAlpine lock and dam - 19,200 KW	Louisville Gas and Electric Co. (major license outstanding)	Jefferson
Ohio River	Smithland lock and dam - 80,000 KW	City of Marion (major license outstanding)	Livingston
Ohio River	Uniontown lock and dam - 65,000 KW	Uniontown Hydropower Association (preliminary permit outstanding)	Union
South Elkhorn Creek	Weisenberger Mill - 56 KW - under construction	Weisenberger Mills (exempted from licensing)	Scott