Appendix I

WV WATER RESEARCH INSTITUTE
Proposed topics and strategies for 2006 research

WV WATER RESEARCH INSTITUTE
PROPOSED TOPICS AND STRATEGIES FOR 2006 RESEARCH

PRIORITY A ACTIVITIES

Element 4 Historical and current conditions that indicate drought/low flow and flood conditions

Task 4.1 Identify areas of concern regarding historical or current conditions that indicate low flow conditions or where a flood or drought has occurred or is likely to occur that threatens the beneficial use of the surface water and groundwater.

Proposed research activities:

a. Identify important specific threats to beneficial uses by physiographic region that are not likely to have been indicated by existing flood and low flow/drought data at the county or watershed level

a. Research important qualitative data not captured by 2005 research efforts or the state water users' survey by surveying key groups with local knowledge such as: government agency representatives (USCOE, USGS, Conservation Agency, DNR, etc.), water utilities, MS4 representatives, watershed association directors, and organizations representing passive use interests (e.g. angling, recreation, ecology groups). The purpose of this survey would be to collect important information about how flood, drought, and low flows impact beneficial uses and how flow patterns are exacerbated by human factors.

b. Develop a specific review of design and justification for Mid-Atlantic state policy trends that provide for a regional approach to water resource planning and management.

b. Estimate water balances for watersheds of concern

a. Determine areas of the state where water use demand exceeds or will likely (near term) exceed average and low flow water supply.
    1. Base demand analysis on water user survey results, agriculture and mining use as proposed below.
    2. Base water availability (supply) on USGS stream flow data and available ground water (aquifer) production data.
    3. Consult with public service districts in identified growth areas (Element 7) to obtain and evaluate available water supply plans.

Suggested research task based on 2005 research

Proposed research activity: Review of Mid-Atlantic States Water Resource Management Programs

a. Summarize selected state water resource law, policies and programs.
b. Review surrounding states' flood, drought/low flow and water withdraw policies

c. Identify what land use, water monitoring, and water use data were/are needed to develop and implement a contemporary state water plan.
d. Develop data gap analysis with implications for related information gaps (e.g. no stream gage data = no ability to establish flood or drought trends or warnings)
e. Develop list of land use, water, and violation/enforcement monitoring and data needs for generating trend reports in state (*e.g. Pa Act 54-type violation tracking; may also be useful for sedimentation issues, and run-off retention regulation-related violation trends).
f. Summarize state voluntary and mandatory conservation programs.

PRIORITY B ACTIVITIES

Element 2 Support: Quantify consumptive and non-consumptive use

Task 2.4 Research the amount of water necessary for each mining technique: Irrigation, washing, and dust suppression.

Proposed research activities:

a. Determine the average volume of consumptive/non-consumptive water use for the following mining processes: dust suppression, potable water for bathhouse facilities, coal washing, coal drying and mine pumpage.
b. DEP electronic map data for active mining permits will be reviewed to determine average annual discharge volumes. Mines exceeding the 750,000g/m threshold will be identified from the water user survey and GIS mapped.

Element 3 Support: Survey information

Task 3.1 Refine agricultural data by estimating the percentage of ground water and surface water used in a geological/physiological province.

Proposed research activity: Estimate agricultural sector water use based on available WV Farm Bureau and Department of Agriculture data and information using crop and livestock production levels by county and existing water use coefficients.

Element 9 Best practices to reduce water withdrawals

Task 9.1 Review new technologies that will reduce water use for industrial, commercial, and residential sectors.
(complete)

Proposed research activity: Compile existing information about voluntary and mandatory water conservation policy trends in surrounding states; Compile existing information about various available water conservation technologies.

Element D Evaluate impacts on WV major rivers by out-of-state water users

Proposed research activities:

a. Utilize available surrounding state resource agency and USCOE data to summarize major water use on WV shared boarder rivers: Ohio River, Potomac River, Big Sandy River, Tug Fork River and New River.
b. Evaluate out-of-state use in relation to WV use and available supply.

West Virginia University's 2006 Budget

Project: WRI-90 WV Water Resource Protection Act
2006 Proposed Budget
Proposal for WV Legislative consideration

Duration: February 1, 2006--December 31, 2006

Principal Investigator: Richard Herd

Source	Hours	Rate/ Hour	Request OSM	Total Project Value
SALARIES:			**65,698**	**65,698**
Paul Ziemkiewicz, Director WRI	25	$52.64	1,316	
Richard Herd, PI	515	$28.99	14,930	
Alyse Schrecongost	1075	$22.56	24,252	
Annie Morris	507	$20.00	10,140	
Graduate Assistant	500	$12.30	6,150	
Administrative Staff	500	$17.82	8,910	
BENEFITS:			**16,665**	**16,665**
Full-time Faculty & Staff @ 27.5%			16,376	
Graduates @ 4.7%			289	
TUITION:				
SUPPLIES:			**1,000**	**1,000**
Supplies			1,000	
TRAVEL:			**4,819**	**4,819**
Travel to Charleston and stakeholder meetings			4,819	
OTHER DIRECT COSTS:			**10,000**	**10,000**

Mining Specialist, Bruce Leavitt			10,000	
TOTAL DIRECT COSTS:			**98,182**	**98,182**
INDIRECT COSTS: F&A @ 10.0%			**9,818**	**9,818**
TOTAL:			**108,000**	**108,000**