



# State Engineer's Office

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DAVE FREUDENTHAL  
GOVERNOR

PATRICK T. TYRRELL  
STATE ENGINEER

September 28, 2005

## MEMORANDUM

TO: Members of the State Water Forum

FROM: Patrick Tyrrell, Chairman

SUBJECT: Attached for your review and information is a copy of the September 6, 2005 Water Forum meeting minutes. Please take a few moments and pencil into your calendar the Water Forum dates for this year. The next meeting will be October 4<sup>th</sup> in the State Engineer's Conference Room at 10:00 a.m.

### WATER FORUM SCHEDULE 2005-2006 1<sup>ST</sup> TUESDAY OF EACH MONTH

| DATE                     | INVITED GUEST                   | DISCUSSION ITEM                 |
|--------------------------|---------------------------------|---------------------------------|
| October 4 <sup>th</sup>  |                                 |                                 |
| November 1 <sup>st</sup> | Todd Parfitt                    | Watershed Based Permitting      |
| December 6 <sup>th</sup> | Mike Jennings and Pepper Herman | WARWS Happenings                |
| January 3 <sup>rd</sup>  | Phil Ogle                       | Kirby Area Water Supply Project |
| February 7 <sup>th</sup> | Laurie Goodman and Jeff Fassett | Instream Flow                   |
| March 7 <sup>th</sup>    | Paul Caffrey                    | NHD and FEMA Map Mod projects   |
| April 4 <sup>th</sup>    | John Lawson                     | Water Forecast                  |
| May 2 <sup>nd</sup>      |                                 |                                 |

### SPECIAL REPORT

The next meeting of the Water Forum will be October 4th, 2005 at 10:00 a.m. in the State Engineer's Office conference room.

## WYOMING STATE WATER FORUM MEETING MINUTES

September 6, 2005

Pat Tyrrell called the two hundred and forty-ninth meeting of the State Water Forum to order at 10:00 a.m. The following were in attendance:

| <u>Name</u>        | <u>Agency</u>                    | <u>E-mail</u>             |
|--------------------|----------------------------------|---------------------------|
| Ben Brandes        | Governor's Planning Office       | bbrand@state.wy.us        |
| Paul Caffrey       | WYGISC                           | caffrey@uwyo.edu          |
| Jan Curtis         | WRDS/State Climatologist         | jcurtis@uwyo.edu          |
| Mike Jennings      | WY Assoc. of Rural Water Systems | mikejennings@wyoming.com  |
| Greg Kerr          | UW – Office of Water Programs    | rrek@uwyo.edu             |
| Harry LaBonde      | SEO                              | hlabon@seo.wyo.gov        |
| Barry Lawrence     | WWDC                             | blawre@state.wy.us        |
| Sue Lowry          | SEO                              | slowry@seo.wyo.gov        |
| Jeremy Lyon        | WDEQ-WQD                         | jlyon@state.wy.us         |
| Hugh McFadden      | AG                               | hmcfad@state.wy.us        |
| Kirk Miller        | USGS                             | kmiller@usgs.gov          |
| Doug Miyamoto      | NRCS-WACD                        | doug.miyamoto@wy.usda.gov |
| Kathy Mueller-Ogle | WDEQ-LQD                         | kmogle@state.wy.us        |
| Erika Olson        | AG                               | eolson@state.wy.us        |
| Jodee Pring        | SEO                              | jpring@seo.wyo.gov        |
| Glenn Tootle       | UW – CAE                         | tootleg@uwyo.edu          |
| Pat Tyrrell        | SEO                              | ptyrre@seo.wyo.gov        |
| Virginia Wakefield | WY Livestock Roundup             | vrwakefiel@aol.com        |
| MahonriWilliams    | BOR                              | mlwilliams@gp.usbr.gov    |

### AGENCY REPORTS

In order to assure accurate reporting in the minutes, forms are passed out to be completed by the representative of each agency at the meeting. These minutes consist of a compilation of the written reports received. Please complete a form either at the Forum meeting or return within a couple of days to Jodee Pring, State Engineer's Office. This will increase the efficiency and accuracy of completing the minutes for the Water Forum. Reports can also be sent via e-mail to: [jpring@seo.wyo.gov](mailto:jpring@seo.wyo.gov). For more information on the following reports, please contact the agency representative listed above.

#### STATE ENGINEER'S OFFICE (SEO)

Pat Tyrrell reported the following:

Mr. Tyrrell reported some of the 2005 Water conditions. Tongue River Reservoir filled and spilled for the first time since 2001, Buffalo Bill Reservoir and Fontenelle Reservoir both filled.

The SEO is working on the budget for the next biennium. Funding is being requested for a number of different projects and programs. One of the projects is an Aquifer Impact Analysis in the Powder River Basin. The SEO is working with Ron Surdum to create a tool to monitor water levels.

The SEO is also requesting money to fund a Colorado River Coordinator position. Among other duties, this position would be responsible for coordinating the installation of weather stations, stream gages and helping to conduct some mapping of irrigated lands.

We are engaged in Phase II of our IT initiative and have requested money in the budget for Phase III of this project.

Sue Lowry reported that the Interstate Council on Water Policy (ICWP) has worked in cooperation with other entities to develop a support letter for streamgage funding in fiscal year 2007. This letter is addressed to Secretary of the Interior Gale Norton and Associate Director of Natural Resource Programs, David Anderson. A copy of this letter can be found on the ICWP website at [icwp.org](http://icwp.org).

## DEPARTMENT OF ENVIRONMENTAL QUALITY – LAND QUALITY DIVISION

Kathy Mueller-Ogle reported the following:

A new mine near Elk Mountain, Carbon Basin Mine has filed an application with their office. The Land Quality Division has also seen an increase in uranium exploration.

## WATER RESOURCES DATA SYSTEMS

Jan Curtis reported the following:

Drought conditions have improved during the summer. June and August were cooler than normal and June and August were a bit wetter than normal for much of Wyoming. Next drought update will be on 15 September. August summary: (<http://www.wrds.uwyo.edu/wrds/wsc/df/droughtupdate.pdf>)

New Drought impact reporter (<http://droughtreporter.unl.edu/>) is an interactive tool developed by the NDMC to collect, quantify, and map reported drought impacts for the United States. The Drought Impact Reporter was created in response to the need for a national drought impact database. A risk management approach to drought management, which strongly emphasizes improved monitoring and preparedness, requires timely information on the severity and spatial extent of drought and its associated impacts. The information provided by the Drought Impact Reporter will help U.S. policy and decision makers identify what types of impacts are occurring and where.

Jan Curtis will be attending the following conferences/workshops in the coming weeks:

Multistate Research Coordinating Committee/Information Exchange Group, WERA102, "Climate Data and Analyses for Applications in Agriculture and Natural Resources". The meeting will be held October 5 - 7, 2005 in Pacific Grove, CA.

U.S. Drought Monitor Forum, Holiday Inn Capitol, Washington, D.C., October 20-21, 2005 ([http://www.usda.gov/agency/oce/waob/jawf/drought\\_monitor/agenda.pdf](http://www.usda.gov/agency/oce/waob/jawf/drought_monitor/agenda.pdf)).

New Hires: Jodi Preston (new Office Assistant) and Tom Dietrich (Tony's new assistant) who starts 12 September (former NWSFO, Cheyenne). The WRDS-WWDC Project Coordinator position is vacant. This job closes Sept. 12. See job announcement at: <http://uwadmweb.uwyo.edu/hremloyment2/Fulltime.htm#pc4704>

New University Faculty: Water Resources Professors: Glenn Tootle (Civil Engineering) & Fred Ogden (Cline Chair), who starts 2006.

WRDS Library website has been reformatted: <http://library.wrds.uwyo.edu/>

Any library book on Water Resources or Climate that you'd like WRDS to hold, contact: Barbara A. Muller at [bmuller@uwyo.edu](mailto:bmuller@uwyo.edu).

## OFFICE OF WATER PROGRAMS – UNIVERSITY OF WYOMING

Greg Kerr reported the following:

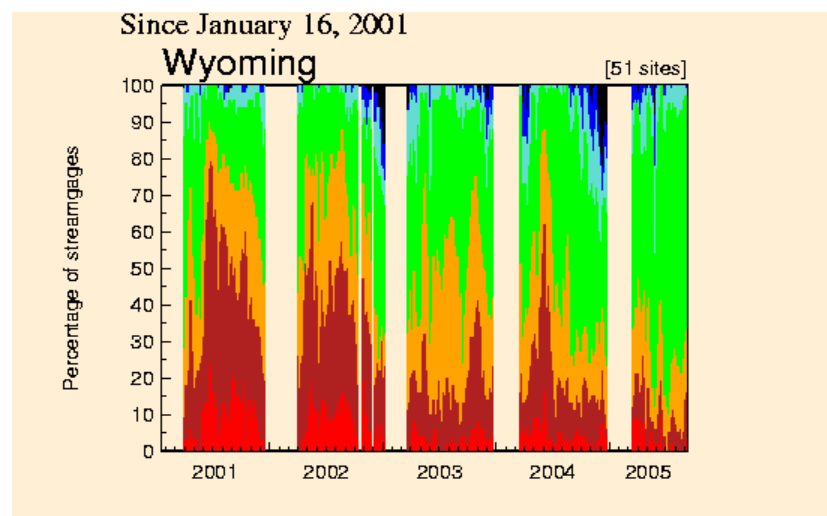
The Water Research Program Request for Proposals for the FY 2006 program are out. Please visit the website at <http://wwweng.uwyo.edu/civil/research/wwrp/rfp2006.pdf> for an explanation of the program and the research priorities.

## U.S. GEOLOGICAL SURVEY

Kirk Miller reported the following:

Current Streamflows <http://waterdata.usgs.gov/wy/nwis/rt>

Preliminary 7-day average streamflow data over the last 45 days at about 60 to 65 percent of reporting gaging stations in Wyoming with 30 or more years of record indicated near normal (25<sup>th</sup> to 74<sup>th</sup> percentile) conditions. As of September 6, about 30 percent are below normal (24<sup>th</sup> percentile or less). For comparison, nearly 90 percent of reporting gages were below normal during parts of water years 2001 and 2002.

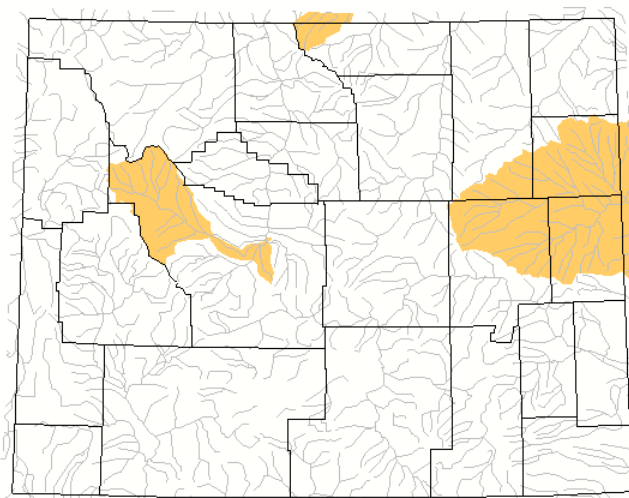


| Explanation - Percentile classes |      |       |       |         |      |          |
|----------------------------------|------|-------|-------|---------|------|----------|
| New low                          | < 10 | 10-24 | 25-74 | 75 - 89 | ≥ 90 | New high |

Hydrologic Drought <http://wy.water.usgs.gov/projects/drought/>

Streamflow conditions over the last 7 days in the Wind, Little Bighorn, and Cheyenne River basins were below normal.

Monday, September 05, 2005



| Explanation - Percentile classes |                           |                             |              |   |
|----------------------------------|---------------------------|-----------------------------|--------------|---|
| New low                          | $\leq 5$                  | 6 - 9                       | 10 - 24      | Insufficient data for a hydrologic region |
| Extreme Hydrologic Drought       | Severe Hydrologic Drought | Moderate Hydrologic Drought | Below Normal |   |

Real-Time Water Quality <http://waterdata.usgs.gov/wy/nwis/current/?type=quality>

Real-time water temperature, specific conductance, and other water-quality data are available at 12 streamflow-gaging stations in and near Wyoming. Relations have been developed for estimating sodium adsorption ratio (SAR) in real-time at 8 of those stations in northeastern Wyoming (listed below). A report describing those relations currently is in review.

Tongue River basin  
06299980 Tongue R at Monarch, WY  
06305700 Goose Cr nr Acme, WY  
06306250 Prairie Dog Cr nr Acme, WY  
06306300 Tongue R at State Line nr Decker, MT

Powder River basin  
06313500 Powder R at Sussex, WY  
06316400 Crazy Woman Cr at Upper Station nr Arvada, WY  
06324000 Clear Cr nr Arvada, WY  
06324500 Powder R at Moorhead, MT

Hurricane Katrina

The primary focus of the USGS at this time is assisting employees and their families in the Gulf Coast region cope with the disaster. Science features related to Hurricane Katrina can be found at <http://www.usgs.gov/>

Employees at the USGS Hydrologic Instrumentation Facility (HIF) in Stennis Space Center, MS and their families have all reported in as of September 6. The HIF is located between Slidell, LA and Waveland, MS and served as a shelter during the hurricane. The building

sustained some damage. Water, power, and telephone (outgoing) were restored Thursday and Friday. Internet access is still down. For questions concerning HIF instrumentation, please contact Kirk Miller at (307) 775-9168 ([kmiller@usgs.gov](mailto:kmiller@usgs.gov)).

Other USGS facilities also were damaged. About 50 gages are believed to have been damaged or lost. The Mississippi Water Science Center is reported to have sustained some damage. Because of official directives to keep out of the disaster area, USGS personnel are not able to assess damages completely. Some USGS boats are being used for rescue efforts.

### Budget Information

The approved FY2006 budget for the USGS is 3.8 percent over FY2005 enacted funds. For the Water Resources Discipline, the FY2006 levels are 1.8 percent over FY2005 enacted. The Cooperative Water Program and National Streamflow Information Program (NSIP) FY2006 levels are 2.3 and 2.4 percent (respectively) over FY2005 enacted. The allocation for the USGS Wyoming Water Science Center is not known as of this writing.

### Recent Publications News <http://wy.water.usgs.gov/pubs/>

As of August 17, 2005, 849 of 1,063 (80 percent) USGS numbered-series reports listed in the USGS Wyoming bibliography are available online. The USGS Wyoming bibliography includes all reports containing information about water resources in Wyoming for which at least one author was a USGS employee. The bibliography is organized by geographic area, hydrologic data, flood information, and report series. Those interested can browse the bibliography online at: <http://wy.water.usgs.gov/pubs/statebiblio/>

### New Reports

Wheeler, J.D., and Eddy-Miller, C.A., 2005, Seepage investigation on selected reaches of Fish Creek, Teton County, Wyoming, 2004: U.S. Geological Survey Scientific Investigations Report 2005-5133, 15 p., available online at <http://pubs.water.usgs.gov/sir2005-5133/>, prepared in cooperation with Teton Conservation District.

Bartos, T.T., Eddy-Miller, C.A., Norris, J.R., Gamper, M.E., and Hallberg, L.L., 2005, Water-quality characteristics of Quaternary unconsolidated-deposit aquifers and lower Tertiary aquifers of the Bighorn Basin, Wyoming and Montana, 1999-2001: U.S. Geological Survey Scientific Investigations Report 2004-5252, 155 p., available online at <http://pubs.water.usgs.gov/sir2004-5252/>, prepared as part of the National Water-Quality Assessment Program.

### Recent Administrative News

The USGS Wyoming District has been renamed to the USGS Wyoming Water Science Center. The District Chief position has been renamed Director.

Telephone numbers in the Cheyenne Office have changed recently. The new numbers are listed in the following table and also available online at <http://wy.water.usgs.gov/drive/directory.htm>.

| Person          | Number   |
|-----------------|----------|
| Tim Bartos      | 775-9160 |
| Greg Boughton   | 775-9161 |
| Myron Brooks    | 775-9162 |
| Melanie Clark   | 775-9163 |
| Pam O'Daniel    | 775-9164 |
| Laura Hallberg  | 775-9165 |
| Jon Mason       | 775-9166 |
| Cheryl Miller   | 775-9167 |
| Kirk Miller     | 775-9168 |
| Jodi Norris     | 775-9169 |
| Dave Peterson   | 775-9170 |
| Kendra Remley   | 775-9171 |
| Sue Roberts     | 775-9172 |
| Wil Sadler      | 775-9173 |
| Mike Sweat      | 775-9174 |
| Judy Tegeler    | 775-9175 |
| Jim Wilson      | 775-9176 |
| Conference Room | 775-9177 |
| Library         | 775-9178 |
| Computer lab    | 775-9179 |
| Emily Sabado    | 775-9180 |
| Patty Sprangers | 775-9199 |

BUREAU OF RECLAMATION / WYOMING AREA OFFICE

John Lawson submitted the following:

1. Water Supply Conditions of the North Platte River Basin.

August 31, 2005 Reservoir Conditions

| <u>Reservoir</u> | <u>Elev. (Ft)</u> | <u>Content (AF)</u> | <u>% Full Conservation Storage</u> | <u>% Avg.</u> |
|------------------|-------------------|---------------------|------------------------------------|---------------|
| Seminole         | 6322.06           | 480,200             | 47                                 | 67            |
| Pathfinder       | 5791.86           | 236,500             | 23                                 | 43            |
| Alcova           | 5498.24           | 180,100             | 98                                 | 100           |
| Glendo           | 4587.82           | 133,400             | 26                                 | 95            |
| Guernsey         | 4405.80           | 17,200              | 38                                 | 58            |

### August 31, 2004 Reservoir Conditions

| <u>Reservoir</u> | <u>Elev. (Ft)</u> | <u>Content (AF)</u> | <u>30 Year Average (AF)</u> |
|------------------|-------------------|---------------------|-----------------------------|
| Seminoe          | 6301.75           | 290,400             | 713,900                     |
| Pathfinder       | 5784.98           | 192,100             | 555,800                     |
| Alcova           | 5498.82           | 181,500             | 180,000                     |
| Glendo           | 4578.34           | 92,300              | 141,100                     |
| Guernsey         | 4395.98           | 6,100               | 29,500                      |

### August 2005 Inflows

| <u>Reservoir</u>   | <u>Inflows</u> | <u>% Of Average</u> |
|--------------------|----------------|---------------------|
| Seminoe            | 28.8           | 78                  |
| Pathfinder         | -3.0           | N/A                 |
| Alcova to Glendo   | 5.8            | N/A                 |
| Glendo to Guernsey | 2.0            | 111                 |

Kendrick ownership was 558,100 acre-feet (AF) on August 31, 2005 and approximately 58% of average (962,400 AF), which compares to the 656,000 AF of Kendrick ownership on this date last year. The August 31, 2005, North Platte ownership was 434,500 AF, which was approximately 86% of average (504,600 AF), which compares to the 42,900 AF of North Platte ownership on this date last year. The Glendo ownership was 55,400 AF on August 31, 2005, which was approximately 41% of average (136,100 AF), which compares to the 64,300 AF of Glendo ownership on this date last year. The Kendrick ownership was the 3<sup>rd</sup> lowest August ownership in the last 30 years. The Glendo ownership was the lowest August ownership in the last 30 years.

Flows in the Miracle Mile below Kortes Dam are approximately 1000 cubic feet per second (cfs). Releases from Gray Reef Reservoir are approximately 800 cfs and will be reduced to 500 cfs.

## 2. Water Supply Conditions of the Big Horn Basin

### August 31, 2005 Reservoir Conditions

| <u>Reservoir</u> | <u>Elev. (Ft)</u> | <u>Content (AF)</u> | <u>% Full</u><br><u>Conservation Storage</u> | <u>% Avg.</u> |
|------------------|-------------------|---------------------|--|---------------|
| Bull Lake        | 5794.29           | 120,000             | 79   | 115           |
| Boysen           | 4721.11           | 668,200             | 90   | 115           |
| Buffalo Bill     | 5376.89           | 518,100             | 80   | 105           |
| Pilot Butte      | 5439.69           | 17,700              | 53   | 90            |



## August 31, 2004 Reservoir Conditions

| <u>Reservoir</u> | <u>Elev. (Ft)</u> | <u>Content (AF)</u> | <u>30 Year Average (AF)</u> |
|------------------|-------------------|---------------------|-----------------------------|
| Bull Lake        | 5790.04           | 108,000             | 104,000                     |
| Boysen           | 4711.45           | 513,100             | 580,800                     |
| Buffalo Bill     | 5369.39           | 463,700             | 492,800*                    |
| Pilot Butte      | 5446.79           | 22,800              | 19,600                      |

\* The average used for Buffalo Bill Reservoir reflects data from 1993 through 2004. In 1992, the capacity of the reservoir was increased to approximately 646,565 AF as a result of raising the dam.

## August 2005 Inflows

| <u>Reservoir</u> | <u>Inflows (KAF)</u> | <u>% Average</u> |
|------------------|----------------------|------------------|
| Bull Lake        | 18.2                 | 83               |
| Boysen           | 39.4                 | 61               |
| Buffalo Bill     | 29.0                 | 61               |

The total release from Buffalo Bill Reservoir to the river is approximately 1130 cfs as measured at the Cody river gage. The release from Boysen Dam is approximately 1275 cfs.

## 2. Allocations for North Platte Storage Water 2005

An allocation was declared as the forecasted supply for North Platte Project Water Users was less than 1.1 million acre-feet when the first release of Guernsey ownership for delivery occurred on June 29, 2005. Weekly updates of the allocated supply are mailed to all 13 irrigation districts each Friday.

Irrigation deliveries from Guernsey Reservoir are anticipated to conclude the week of September 5, 2005, as the irrigation districts take measures to conserve their remaining water supply.

## WYOMING ASSOCIATION OF RURAL WATER SYSTEMS (WARWS)

Mike Jennings reported the following:

The 4<sup>th</sup> Annual WARWS Fall Training Expo will be held September 27-28, 2005 in Cheyenne at the Hitching Post Inn. Please visit [www.warws.com](http://www.warws.com) for expo information.

The website also has information about WARWS and the programs they offer.

## NATURAL RESOURCE CONSERVATION SERVICE (NRCS) – WYOMING ASSOCIATION OF CONSERVATION DISTRICTS (WACD)

Doug Miyamoto reported the following:

The 37 conservation districts in the state have been involved in assisting with some water quality monitoring. The conservation districts have also been working with Animal Feeding Operations/Combined Animal Feeding Operations (AFO/CAFO) and helping operators move their corrals to areas that have less impact on water bodies to help reduce contamination of streams. There has also been a lot of work done by the districts involving septic systems and helping landowners design or re-design faulty systems. This effort has been undertaken as another way to help reduce fecal coli form contamination in streams.

#### WYOMING WATER DEVELOPMENT COMMISSION (WWDC)

Barry Lawrence reported the following:

The High Savery Dam dedication was held on August 30<sup>th</sup> and was well attended. Governor Dave Freudenthal and other dignitaries attended.

The deadline date for new projects is September 15, 2005

The joint meeting of the Water Development Commission and the Select Water Committee will be held in Casper. The workshop will be November 16<sup>th</sup>, with the meetings to be held on the 17<sup>th</sup> and 18<sup>th</sup>.

#### WYOMING GEOGRAPHIC INFORMATION SCIENCE CENTER (WyGISc)

Paul Caffrey reported the following:

Map Modernization Program -

In June 2005, Wyoming Geographic Science Center (WyGISc) received funding from the Wyoming Office of Homeland Security (WOHS) to participate in the Map Mod Program. The role of WyGISc as Wyoming's Map Modernization Management Support (3MS) is to assist FEMA, the WOHS and local governments gather and provide information about flood hazards to communities across the state through outreach and scoping efforts statewide.

National Hydrography Dataset (NHD) -

Since January 2001, the Wyoming Geographic Information Science Center (WyGISc) in collaboration with the Bureau of Land Management (BLM), United States Geological Survey (USGS), and the United States Forest Service (USFS), have been working to create high resolution 1:24,000 scale National Hydrography Dataset (NHD) for the state of Wyoming. Currently, of Wyoming's 83 sub-basins, 100% have been completed, are in progress, or are scheduled to be completed. All sub-basins affecting Wyoming are expected to be completed by end of 2006.

National Hydrography Dataset (NHD) Enhancements -

WyGISc has a new cooperative agreement with the USGS for the enhancement of the high resolution (1:24,000 scale) National Hydrography Dataset (NHD) for all completed sub basins intersecting Wyoming. Specific enhancements include the indexing of stream gages and dams for all completed sub basins and for "critical diversion structures" for certain sub basins yet to be determined. We are inviting input from the SEO to determine what constitutes

critical diversion structures and where to best concentrate our efforts given a limited level of funding.

#### APD NEPA Analysis Toolkit -

UW, WyGIS and the Department of Renewable Resources has an agreement with the BLM for the research and development of enhanced modeling tools to assist in streamlining the coal bed methane (CBM) gas Application for Permit to Drill (APD) process. Utilization of models in support of decision making provides resource managers with a defensible mechanism for resource management. Assessment and planning for land and water resource management involving the impact of regionally extensive CBM energy development are becoming increasingly more complex at local, regional, and temporal scales. Spatially distributed models that can compute and model for runoff, erosion, and water quality, at these different scales can assist resource managers in addressing these spatial complexities and validate sound management decisions.

The Automated Geospatial Watershed Assessment (AGWA) tools now a component of the EPA BASINS tools, currently contains two watershed runoff and erosion models: Runoff and Erosion Model (KINEROS), Soil and Water Assessment Tool (SWAT) and has an explicit routing structure that may be modified for effective cumulative impact assessment work. For in-stream water quality assessment a third stand alone model the Kinematic and Enhanced Stream Water Quality Model (QUAL2E) will be integrated and used. While the BASINS tools have been considered for its advantages in terms of watershed assessment using historical data, it is not currently applicable to smaller 5<sup>th</sup> level watersheds and 6<sup>th</sup> level sub watersheds (10,000 - 250,000 acres). The AGWA modeling tools are comparatively easier to learn and operate and are more suited to compute assessments for larger scale 5<sup>th</sup> and 6<sup>th</sup> level size watersheds.