

**Wyoming Department of Environmental Quality (WDEQ), Water Quality Division, WYPDES
Permitting Program**

**Watershed-Based Permitting for the Powder River Basin, Wyoming
State Innovation Grant Program – PI978078-01**

Quarterly Report
April 1 – June 30, 2008

Project Synopsis:

During this period, no additional meetings were held with any of the stakeholders in any of the drainages in which watershed-based permitting has already been initiated (Lower Tongue River, Crazy Woman Creek, and Dead Horse Creek), or for which watershed-based permits have been advertised in public notice but not issued (Clear Creek and Fence Creek). One reason is that the three watershed-based permits/plans that were originally issued (Pumpkin Creek, Willow Creek, and Fourmile Creek) were under appeal, and the Wyoming Environmental Quality Council's (EQC) decision was not rendered until June 24, 2008. At this time, the WDEQ is still assessing the impact that the EQC's decisions will have on watershed permitting. However, the WDEQ has begun to wrap up two outstanding watershed permits, Clear Creek and Fence Creek, which have already been through the public notice process, and plans to have a final draft of the outstanding Crazy Woman Creek and Dead Horse Creek watershed permits ready for committee review and a final committee meetings scheduled to occur on August 21 and 22, 2008. The WDEQ will be revising the Clear Creek and Fence Creek watershed-based permits based on the EQC decisions, and providing an additional public notice so that affected persons have the opportunity to comment on the revisions. WDEQ is also in the beginning phases of additional watershed-based permitting, the next three drainages slated for watershed-based permitting are Bitter Creek, Spotted Horse Creek, and Wild Horse Creek. WDEQ has begun the process to select a facilitator, and is in the beginning data collection and analysis phase for these drainages. WDEQ expects to hold the first stakeholder meeting for these drainages in early-to-mid fall of 2008. Major changes resulting from the EQC's decisions are as follows:

1. Category II reservoirs discharges (on-channel, 50-year containment reservoirs) are no longer allowed. All discharges into on-channel reservoirs are to be permitted as Category I reservoirs, with the same effluent limits and requirements. As a result of this decision, Category II will be removed from all watershed permits. However, due to the existence of a number of Category II reservoirs throughout the Greater Powder River drainage, the WDEQ will allow existing Category II (Option 1B on-channel reservoirs in individual permits), to be renewed and incorporated into watershed permitting with the same effluent limits that were established originally. The WDEQ will allow no new Category II reservoirs to be permitted anywhere in the Greater Powder River drainage.
2. All watershed permits must be modified to reflect the current Chapter 1, Section 20 agricultural use policies. As a result of this decision, naturally irrigated bottomlands must be protected in all watershed permits.

Further progress has been made on items discussed in the First Quarter, 2008 watershed grant report:

1. Feature Analyst software has been purchased.

2. The additional computer necessary to run the Feature Analyst and ArcHydro software has been ordered.
3. Further work on Powder River assimilative capacity allocation continues, with all the major and most of the minor CBM companies having made preliminary submittals.

Narrative Discussion:

Currently, the WDEQ is brainstorming on restructuring the watershed-based permitting process to reduce redundancy and streamline the process. The WDEQ has determined that a streamlined process, which includes only two committee meetings – one prior to public notice in which the WDEQ describes the intent of watershed-based permitting and introduces a draft permit based on known information in the drainage of interest, and a second meeting after completion of public notice of the watershed permit/plan, in which WDEQ will discuss comments received during the public notice and how they will be addressed. The committee and general public will have an opportunity to provide information related to uses in the drainage, details regarding any irrigated acreage in the drainage such as location, crops being grown, seasonality, type of irrigation, and management practices during the first committee meeting; the WDEQ may alter the watershed permit draft based on this information prior to public notice.

During previous watershed meetings, the WDEQ spent a great deal of time and effort providing and discussing educational materials related to many different aspects of CBM development to committee members and the general public. As these materials and discussions apply to CBM development in general, and not to any specific drainage, the WDEQ has considered providing a CBM educational forum to the entire Greater Powder River Drainage. At this time, the WDEQ is considering whether or not an educational forum discussing aspects of CBM development is warranted, should we receive a substantial number of information requests, we will evaluate them then.

Work continues on the ArcHydro modeling front. However, it may still be necessary, based on the complexity of the modeling effort, which still remains to be seen, to hire either a contractor to develop the model, or a consultant to aid WDEQ personnel in model development.

Due to delays (because of the now-complete legal appeals filed by both CBM operators and environmental groups on the first round of watershed permits), the grant period has been extended to June, 2010. No additional monies were requested.

Project Tasks and Milestones

The following is a list of project goals, descriptions, milestones, and timelines.

Task/Goal	Description	Start Date	End Date	Status/Comments
Baseline Water Quality Assessment	Assess available water quality data and channel morphology	11/9/2004	Ongoing throughout project	Each watershed incorporated into watershed permitting requires separate analysis as to availability and type of water quality data available/needed.
Identify water quality parameters	Identify water quality parameters first to exhibit a detectable response to effluent discharges, allowing for efficient assessment of model inputs and needed effluent limits (discharge limitations)	11/9/2004	Ongoing throughout project	Each watershed incorporated into watershed permitting requires separate analysis as to parameters of concern and allowable loads/concentrations.
Compile/interpret data gathered as a result of completion of above two tasks.		11/9/2004	Ongoing throughout project	Each watershed incorporated into watershed permitting requires separate water quality data analysis.
Develop ArcHydro data format protocols	Clarify inputs needed for ArcHydro model and data transfer protocols from other data sources (WYPDES database, USGS, NOAA)	10/1/2007	09/30/08	DEMs have been acquired, and are currently being evaluated for use in ArcHydro modeling efforts. Final evaluation will depend upon purchase and setup of a computer capable of handling ArcHydro modeling demands. The computer has been ordered, WDEQ is awaiting receipt.
Develop transferrable ArcHydro model to quantify CBM impacts within the Powder River Basin.	Develop a modeling tool that will allow assessment of Powder River Basin end goals (flow, concentration, and load)	2/1/2008	12/31/2008	WDEQ also seeks to purchase an additional higher-end computer to process memory-and-CPU intensive ArcHydro modeling efforts. The computer has been ordered, WDEQ is awaiting receipt.
Quantify existing and reasonably foreseeable potential future industrial development in PRB of Wyoming	Acquire future CBM development forecasts, use forecasts to model development impacts	3/22/2007 (data obtained from BLM)	6/14/2007 (05/30/08)	CBM development forecasts obtained from BLM, Kathy Shreve developed spreadsheet model that combines water chemistry reported in the course of WYPDES permit self-reporting, GIS to assign estimated water quality data to CBM wells on a spatial basis, reported ambient water quality concentration and flow at USGS stations within the Powder River Basin, and basic mass balance equations to model flow and concentration in time series to obtain modeled CBM impacts within the Powder River Basin. 2007 data has been incorporated into the model.

Task/Goal	Description	Start Date	End Date	Status/Comments
Identify potential assimilative capacity within the Powder River Basin		11/9/2004	10/9/2007	Assimilative capacity (available loading) for dissolved sodium and total dissolved solids calculations complete.
Conceptual outline for assimilative capacity allocation		11/9/2004	7/14/2006	Concept document for Powder River assimilative capacity process posted on WDEQ website.
Permitting approach/mechanism for Powder River point source discharges	Could include general permits, synchronized permitting, assimilative capacity.	11/9/2004	7/14/2006	Includes general watershed permitting/permit plans under which individual permits will be issued and assimilative capacity.
Implement Powder River assimilative capacity approach		10/1/2007	06/30/10	The WDEQ has contracted with the Wyoming Geological Survey to calculate total coal resources within the Powder River basin (cubic tons), and each CBM operator's portion (percent) of the coal resource utilizing GIS and leasehold shapefile submittals from CBM operators. The WDEQ has developed a geodatabase to track assimilative capacity credits, and plans to post the geodatabase using a GIS server to allow all operators access. <i>Assimilative capacity approach fully implemented, ongoing maintenance regarding lease tracking (lease sales and trades) ongoing throughout project.</i>
Watershed General permit implementation	Implement watershed-based general CBM permitting within the Powder River Basin	1/11/2005	Ongoing	To date, the WDEQ has issued watershed-based permits/plans for three watersheds (Pumpkin, Willow, and Fourmile Creeks). These permits will be revised according to the final EQC decision once WDEQ receives the final written order. Watershed permits are pending for the following drainages: Clear Creek, Fence Creek, (draft permit to be revised and re-advertised in public notice) Lower Tongue River, Crazy Woman Creek, and Dead Horse Creek (pre-PN committee meetings slated for August, 2008). The WDEQ has determined that the next watersheds slated for watershed permitting will be Bitter Creek, Spotted Horse Creek, and Wild Horse Creek. The WDEQ anticipates the first committee meeting will take place in September, 2008.

Financial Report

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