

EXHIBIT 13

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Construction of coal-fired power plant east of Excelsior Springs delayed indefinitely

By KAREN DILLON
The Kansas City Star

Utility officials have delayed indefinitely construction of a coal-fired power plant 50 miles east of Excelsior Springs because of financial and environmental concerns.

The announcement Monday by Associated Electric Cooperative Inc., which provides electricity to almost all rural Missouri, caught many by surprise.

The decision, voted on by the utility's board on Friday, comes just days after AECI had received a permit from the Missouri Department of Natural Resources, a signal that construction could begin.

Nancy Southworth, a spokeswoman for AECI, told the Carroll County Commission on Monday that the cooperative had two main concerns: The cost to build the plant had increased from just under \$1 billion to \$1.7 billion, and regulations for costly carbon dioxide controls are being considered by Congress.

In addition, Southworth said during an interview that a loan from the Rural Utilities Service, a government agency that provides funding to co-ops to build coal plants, fell through. The agency has halted giving loans because of increased construction costs and the regulatory uncertainty.

"This will force us to find other sources of generation," she said. "We are looking at gas, energy efficiency, renewables, and we will look at nuclear. All of those are part of the mix."

Southworth said the co-op did not seek private funding.

Wall Street investment bankers recently announced that loans to build new coal plants were risky because of the concerns over future CO₂ emission controls. Also, Rep. Henry Waxman, a California Democrat, has begun an inquiry into government financing of new plants.

Nelson Heil, Carroll County presiding commissioner, said the county was taking a major financial hit by the "shocking" decision.

Heil said the plant would have meant 135 permanent jobs and a payroll of \$10 million to \$12 million annually. The number of construction jobs was expected to peak at more than 1,000.

"We have nothing in this county that even compares," Heil said. "I don't know at this point what we are going to do. It's a big economic hit for the residents."

But a number of county residents didn't want the plant. More than 300 people turned out for a public hearing in November to argue the merits of the plant.

Four years ago the country had plans to build at least 160 coal plants, and now 63 of those proposed plants will not be built, said Bruce Nilles, director of Sierra Club's National Coal Campaign.

"All indications are that this trend is accelerating as costs of coal skyrocket and the nation focuses its attention on global warming solutions," Nilles said.

The Sierra Club was on the verge of filing litigation against AECI to try to halt the construction, said Melissa Hope, Sierra Club's Missouri Chapter development director.

“Associated Electric is taking a giant step forward in our collective fight to stop global warming,” Hope said. “Associated Electric was the first in Missouri to embrace wind power and today they vault into the ever-growing ranks of electric providers moving beyond coal. Unfortunately in Kansas, Sunflower (Electric Power Corp.) is still headed in the wrong decision.”

Steve Miller, a spokesman for Sunflower, a co-op that wants to build two generators in western Kansas, expressed surprise over the decision.

“I am just bamboozled by that,” Miller said. “If the United States is evolving itself into a policy of no coal, we are going to be in trouble. I feel really sorry for the people of Missouri.”

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EXHIBIT 14



Print Page

FRIDAY MARCH 7, 2008 :: Last modified: Tuesday, December 11, 2007 9:35 AM MST

Utility snuffs coal projects

By DUSTIN BLEIZEFFER
Star-Tribune energy reporter

Two coal-based power projects planned for southwest Wyoming have been snuffed due to an uncertain political climate regarding greenhouse gases.

PacifiCorp, which operates as Rocky Mountain Power in Wyoming, said it has pulled all coal-based power generation from its plan to meet increasing load demand within the six Western states it serves.

The action scraps a planned 527-megawatt, "super-critical" pulverized coal unit at the Jim Bridger power plant in Sweetwater County. It also scraps a coal-gasification, carbon capture and sequestration demonstration project in partnership with the state of Wyoming at Jim Bridger, according to Rocky Mountain Power spokesman Dave Eskelsen.



Two expansion projects planned at the Jim Bridger power plant in Sweetwater County have been set aside, PacifiCorp officials say. Star-Tribune file photo.

"The situation the company finds itself in now is a significant amount of uncertainty about what climate change regulation might do to the cost of coal plants," Eskelsen said Monday. "Coal projects are no longer viable."

California, Oregon, Washington and other states across the nation are forcing utilities to consider the additional cost of curbing carbon dioxide emissions in proposed coal-based generation, due to increasing pressure to address climate change.

The world's top scientists say human-caused CO₂ is almost certainly a key factor in global warming.

In a Nov. 28 filing to the Utah Public Service Commission, PacifiCorp noted that just two weeks earlier the National Association of Regulatory Utility Commissioners adopted a resolution acknowledging that climate change legislation is likely to occur, and likely to target carbon dioxide emissions.

"Within the last few months, most of the planned coal plants in the United States have been cancelled, denied permits, or been involved in protracted litigation," PacifiCorp stated in its filing. "Accordingly, the company submits that IPP 3, Bridger 5, and the IGCC option at Jim Bridger, are no longer viable options for 2012 (request for proposal) for the 2012 and 2014 time frame,

respectively."

Coal-gasification provides opportunities to capture carbon dioxide from coal and store the greenhouse gas in deep saline aquifers. But the utility industry and the federal government haven't committed to funding demonstrations considered necessary to deploy the technology at commercial scale.

Eskelsen said PacifiCorp still doesn't have a plan to meet additional electrical generation demand coming in 2014, so it must ask for expedited regulatory review -- even for conventional forms of generation. That cuts coal-gasification out of the picture for projects up to 2014, he said. In fact, coal-gasification isn't even in PacifiCorp's 10-year planning process.

"(Coal-gasification is) probably not a realistic project in the near term, and certainly not in the 10-year cycle," Eskelsen said.

The outside pressures against coal-fired generation are in complete contrast with the treatment conventional coal projects have received from Freudenthal's administration and Wyoming regulators.

At least three new coal-fired power plant projects have been approved in Wyoming in recent years, with no carbon capture or sequestration requirements. All three plants are planned for construction in Campbell County over the next three years.

Among them is Basin Electric Power Cooperative's 385-megawatt Dry Fork Station.

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EXHIBIT 15

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WEDNESDAY MARCH 12, 2008 :: Last modified: Sunday, December 16, 2007 2:08 AM MST

Will Wyo's electrical export ambitions go up in smoke?

By DUSTIN BLEIZEFFER
Star-Tribune energy reporter

PacifiCorp's recent decision to pull coal from its bag of future electrical generation fuels does not herald the end of Wyoming's coal industry, according to energy officials.

But it does signal change.

"The challenge (for the coal industry) is successfully moving forward on ways to use coal without a carbon footprint. If it cannot, coal will decline over time," said John Nielsen, energy program manger at Western Resource Advocates.

PacifiCorp, which operates as Rocky Mountain Power in Wyoming, scrapped a planned 527-megawatt, "super-critical," pulverized-coal unit at the Jim Bridger power plant in Sweetwater County.

The utility also scrapped a coal-gasification, carbon capture and sequestration demonstration project in partnership with the state of Wyoming at Jim Bridger, according to Rocky Mountain Power spokesman Dave Eskelsen.

Eskelsen said that until the federal government defines how carbon emissions will be regulated, it cannot accurately calculate the cost of building and operating a new coal-based power plant.

Wyo's frustrated role

The world's top scientists say human-caused CO₂ is almost certainly a key factor in global warming. It's a major concern for Wyoming's stalwart coal industry, which contributed more than \$734 million to the state's economy in 2005.

PacifiCorp's action has virtually no effect on Wyoming's coal *export* industry. But it is a serious blow to the state's ambition to pull more valued-added processes into Wyoming.

Gov. Dave Freudenthal recently described PacifiCorp's filing that details why it pulled coal from its current planning "amazing."

"It spells an interesting set of problems for the country," Freudenthal said in a meeting with the Star-Tribune's editorial board.

On the national front, it appears most regulated utilities will remain cool on coal until two things happen. First, the federal government must set the guidelines for how carbon emissions will be controlled. Second, coal-gasification technologies must make the several-years-long transition from demonstration scale to commercial deployment.

That leaves Wyoming in the frustrating position of not being able to move beyond its coal export industry.

Freudenthal said Wyoming can help foster small-scale research and development of advanced coal technologies through private partnerships, but it cannot underwrite the size and scope of commercial demonstration that the financial markets require.

In that regard, Freudenthal said, the recent formation of the School of Energy Resources at the University of Wyoming is about 25 years late. He said that although the federal government has given lip-service to demonstrating coal gasification, it hasn't put forth nearly enough funding.

"We're stuck right now because everyone's running for president," Freudenthal said.

Wyoming generation

Factoring in to PacifiCorp's snuffed coal plans is the fact that it operates as a regulated utility in six different states. Although Wyoming hasn't applied much pressure to curb CO2 from planned coal plants, other states have.

California, Oregon, Washington, Colorado and others in the West have set "renewable portfolio standards," which mandate that a certain percentage of electrical generation come from renewable resources.

"That helps you a lot in planning, knowing how much of your fleet has to be devoted to renewables, when, and how it is going to be measured," said Steve Oxley, deputy chairman of the Wyoming Public Service Commission.

Freudenthal has said it should be the federal government's role to set such guidelines. Otherwise, utilities are left trying to meet a different set of rules in each state.

With mounting international competition for steel, rubber and other building materials, the utility industry is dealing with hyper-inflation. That makes it extremely important to choose the right engineering blueprint, because a new power plant will operate under new carbon regulations for the next 40 years.

"Once they get to a point of knowing what variables are, they can put together a rational and supportable long-range plan," Oxley said. "Until then, there's an element of speculation, and that makes it difficult to achieve a reasonable level of certainty."

Although Wyoming is still permitting coal-fired power plants, many other Western states are enacting climate change policies that cause regulated utilities to consider the added cost of doing business with coal.

Room for speculation

While PacifiCorp and other retail utilities are beholden to the pressures of climate change policies at the state level, third-party wholesale electric generators are not.

That's why Basin Electric Power Cooperative is moving forward with its planned 385-megawatt Dry Fork Station power plant north of Gillette. Similarly, Two-Elk Generation Partners is moving forward on its 320-megawatt power plant near Wright.

Neither one includes carbon capture or sequestration.

Steve Waddington, executive director of the Wyoming Infrastructure Authority, said plans to string new high-voltage transmission lines into Wyoming are still full speed ahead. That includes TransWest Express, which PacifiCorp says it is still helping to push forward.

Of PacifiCorp pulling coal out of its current planning, Waddington said, "I don't think it reduces at all

the opportunity for Wyoming to move power by wire to reach regional markets."

Both TransWest and Gateway South would originate in Wyoming and pump up to 3,000 megawatts each into Utah, Nevada, Arizona and possibly other rapid-load-demand areas in the West. That opens the door to a lot of new Wyoming-based coal, wind and geothermal electrical generation.

Although it appears coal has been temporarily benched for large regulated utilities while the feds work out carbon regulation -- and the financial market gets more comfortable with coal gasification -- independent wholesale generators can still add coal to anchor the new wires.

"The need for coal has not changed," Waddington said. "There's a huge opportunity for coal, natural gas and wind development in Wyoming, and I think thermal generation as well. But we really need to find a way to get the coal technology to emerge on a commercial basis."

As proof that Wyoming's power export ambitions are still alive, Waddington said both TransWest and Gateway South filed for rights-of-way easements just weeks ago.

Another major transmission project, the 345-kilovolt Wyoming-Colorado Intertie, will likely tie its first strands to wind development, with the anticipation that coal will become a major anchor afterward. And that opens the door to a total 900 megawatts of coal, wind and other sources in the Powder River Basin area.

"It's full speed ahead," Waddington said.

Still optimistic

Nielsen, energy program manager at Western Resource Advocates, said PacifiCorp's decision to pull coal from its current planning is a recognition that carbon emissions will no longer be free.

Nielsen said that's a realistic view of the political atmosphere today, whereas Basin Electric Power Cooperative's decision to go forward with Dry Fork Station is a gamble for its customers.

"As we see carbon policy put in place, the people who are going to be paying for that are Basin's customers," Nielsen said.

Laurie Milford, executive director of the Wyoming Outdoor Council, praised PacifiCorp for shelving coal and confirming that there will be costs associated with carbon-based fuels.

Although those extra costs will be passed along to consumers, Milford said the Wyoming Outdoor Council believes making the transition to cleaner coal technology sooner rather than later will ultimately save consumers money.

As for Wyoming coal producers, the outlook is still strong.

"We're still very optimistic about coal. It's our most abundant energy source in the U.S.," said Greg Schaefer, spokesman for Arch Coal, which owns and operates two major coal mines in Wyoming.

Schaefer said the coal industry does feel an urgency to both set the regulatory rules for carbon control and spur the deployment of carbon capture and sequestration technologies.

In the meantime, Wyoming's mines still have plenty of customers among some 1,100 existing coal-fired power plants across the nation.

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EXHIBIT 16

FINAL REPORT

Water, Drought and Wyoming's Climate

Workshop held on October 5, 2006
American Heritage Center, University of Wyoming
Laramie, Wyoming

Sponsored by
**Wyoming Water Development Commission, Western Water Assessment,
University of Wyoming's Ruckelshaus Institute of Environment and
Natural Resources, UW Department of Geography, UW Department of
Civil and Architectural Engineering, UW Office of Research and
Economic Development, UW Office of Water Programs, UW Ecology
Program, Wyoming Water Resources Data System, and Wyoming
Geographical Information Science Center**

November 30, 2006

*The views expressed in this report do not necessarily reflect the views
or positions of the sponsoring organizations.*

Executive Summary

UW faculty members and the Ruckelshaus Institute of Environment and Natural Resources at UW organized this workshop in consultation with Wyoming Water Development Commission (WWDC) staff and the Western Water Assessment (WWA) program at the National Oceanic and Atmospheric Administration (NOAA). This workshop built upon a meeting held at the WWDC offices in Cheyenne in December, 2005, hosted by the WWA. Participants at the December, 2005 meeting, including state agencies, municipalities, irrigation districts, and UW, agreed that a follow-up workshop was needed to bring together science and water resources experts to focus on the implications of climate variability and climate change in Wyoming, and on issues and resource management needs in Wyoming.

Mike Besson, Director of the WWDC, opened the workshop by identifying three challenges:

1. The change in timing of snowpack runoff;
2. Reducing water consumption; and
3. The impact of population growth on groundwater resources.

Dr. Stephen Gray, Wyoming State Climatologist and Director of the Water Resources Data System, presented the current understanding on climate change and variability, and the future of water management in Wyoming. He identified 5 key points of focus:

1. Multiple factors make water resources in Wyoming highly sensitive to climate change (natural or otherwise);
2. The majority of Wyoming's surface water comes from a single source – snowpack;
3. Wyoming is a headwaters state;
4. The Earth as a whole is getting warmer with an increase in mean average global temperatures; and
5. Climate changes significantly over decadal time scales.

Challenges Identified at the Workshop

- Sensitivity of Wyoming water resources to climate change (e.g., quicker and earlier runoff of snow pack leading to diminished late season flows).
- Vulnerability of Wyoming water resources to increased temperatures including increased evaporation in reservoirs and a shift from snow to rain.
- When temperature increases, and/or precipitation decreases, water demand increases.
- Water consumption and needs related to agriculture and energy production.
- The impact of population growth with respect to groundwater resources.
- The need for long-term, consistent, statewide monitoring networks for stream flow and groundwater.
- Drought in Wyoming and its impact on interstate water compacts.

Priorities and Opportunities

- Assessment of tools within the state (e.g., climate, snow pack, and stream flow monitoring).

- The need for a baseline assessment and projections of water consumption.
- Better understanding of the link between climate and water consumption through outreach and education.
- Linking interagency information (e.g., weather/climate monitoring and water resource needs).
- Improve public involvement via rain/stream gauge collection and educational opportunities that enhance public understanding of climate and drought.
- Collaborative project development for understanding groundwater/surface water/climate connections.

Seventy-seven participants attended the workshop including representatives from city, state, and federal government offices, Wyoming Stock Growers Association, Family Farm Alliance, non-governmental organizations, and University of Wyoming departments.

The workshop was sponsored by the Wyoming Water Development Commission, Western Water Assessment, UW Ruckelshaus Institute of Environment and Natural Resources, UW Department of Geography, UW Department of Civil and Architectural Engineering, UW Office of Research and Economic Development, UW Office of Water Programs, UW Ecology Program, Wyoming Water Resources Data System, Wyoming State Climate Office, and Wyoming Geographical Information Science Center.

Introduction

A workshop on **Water, Drought and Wyoming's Climate** was held on October 5, 2006 at the University of Wyoming (UW). UW faculty members and the Ruckelshaus Institute of Environment and Natural Resources at UW organized the workshop, in consultation with the Wyoming Water Development Commission (WWDC) and the Western Water Assessment (WWA). This workshop built upon a meeting held in Cheyenne in December, 2005, hosted by the WWA, a Regional Integrated Sciences and Assessment program that is part of the NOAA-Climate Program Office dedicated to creating research opportunities and product development to help stakeholders make decisions in the face of climate variability and change, using experts from NOAA and partner institutions like UW. Participants at the December meeting, including state agencies, municipalities, irrigation districts, and UW, agreed that a follow-up workshop was needed to bring together science and water resources experts to focus on the implications of climate variability and climate change in Wyoming, and on issues and resource management needs in Wyoming.

The target audience for the October workshop included county, city, state, and federal water resource managers, climate and water resource scientists, ranchers, land-use and fisheries managers, and non-governmental organizations within the state of Wyoming. The objectives were to:

- Communicate current understanding of climate variability and climate change as it relates to Wyoming's water;
- Discuss needs of water resource managers and other stakeholders in Wyoming in the context of an ever-changing climate and water resource needs; and
- Facilitate discussion between water managers, water users, and researchers to develop future collaborations among participants to find answers, suggest solutions and address anticipated needs within Wyoming.

Water, Drought and Wyoming's Climate Workshop Activities

Attendees

Seventy-seven participants attended the workshop, including representatives from the Wyoming State Engineers Office (SEO), WWDC, WWA, Water Resources Data System (WRDS), City of Cheyenne, Laramie Rivers Conservation District, Green River/Rock Springs/Sweetwater County Joint Powers Water Board, U.S. Geological Survey (USGS), Wyoming State Treasurers Office, Wyoming Game and Fish Department, NOAA, National Weather Service (NWS), The Wilderness Society, Wyoming Stock Growers Association, Wyoming Public Health Lab, Family Farm Alliance, Wyoming Department of Environmental Quality (DEQ), U.S. Senator Craig Thomas' Office, Governor Freudenthal's Office, Weyerhaeuser Company, Wyoming Board of Control, Public Policy

Research Institute, Ruckelshaus Institute Board, and UW departments of Geography, Geology and Geophysics, Civil and Architectural Engineering, Botany, Agricultural and Applied Economics, and Renewable Resources (see Appendix A for listing of participants).

Opening Remarks

Dr. Harold Bergman, Director of UW's Haub School and Ruckelshaus Institute of Environment and Natural Resources, welcomed everyone and noted that this workshop may be part of a multi-step process to connect UW research to needs of the state and region with respect to water management. Where do water users, managers and researchers need to work to prepare Wyoming for future water needs? He noted that the goal of this workshop is not to usurp the Governor's Drought Management Task Force. Rather, it is hoped that this meeting will lead to other workshops and conferences, additional research at UW, and possible management strategies. With many conferences about this particular topic in the West, one goal for this workshop is a list of priorities for Wyoming in regards to water, drought and climate in the state. The outcomes of this workshop also will be a focus of discussion for the Ruckelshaus Institute Board meeting on Friday, October 6, 2006.

Mike Besson, Director of the WWDC, pointed out that whatever is happening in terms of climate (e.g., global warming), we need to be prepared. In particular, 85 percent of water used in Wyoming is for agricultural irrigation, however, over the last 20 years, Wyoming has spent \$70 million on drinking water for cities, towns and rural areas. One issue for agriculture is reservoirs. The biggest reservoir of all, snowpack, is now running off 30 to 45 days sooner than in the past. Agricultural producers are impacted the most by this, especially if they do not have upstream storage. He identified three challenges for workshop participants:

1. the change in timing of snowpack runoff;
2. reducing water consumption related to energy production; and
3. the impact of population growth with respect to groundwater resources.

First, there is a need to discuss how we address the change in timing of snowpack runoff and its impacts on upstream storage. The WWDC has increased their grant package through the legislature to be able to spread out water use, spread out return flows, and create more water to go downstream. Additional storage is needed to hold more water to be regulated for multiple uses as well as efficient sprinklers to maximize irrigation return flow. Aquifer storage and retrieval needs to be considered, as some are doing in Arizona, which can provide additional benefit for times when water is scarce. The second challenge was to identify ways to save water. With regards to energy consumption and use, coal fired power plants use a lot of water, where wind generation does not. We in Wyoming need to look at all of our energy resources, not just carbon fuels. UW needs to help with the transition between fossil fuels and fuels of the future. The third challenge was the additional demand on Wyoming's water that comes with population growth. The WWDC is attempting to quantify where good groundwater resources are. There is a need for good

groundwater modeling and determining areas of recharge. UW can help with that as well as measurement of consumptive use in order to assist managers with allocating resources.

What We Know and Wish We Knew About Wyoming's Changing Climate

Dr. Stephen Gray, Wyoming State Climatologist and Director of WRDS, presented the current state of understanding on climate change and climate variability and the future of water management in Wyoming. Wyoming is in the 7th to 8th year of a severe drought, much like in the 1950's, highlighting our vulnerability to our dependence on water. There are some items where there is a scientific consensus that we need to pay attention to and focus on for management of water that could make us less vulnerable regardless of the source of climate change. Below is a summary of Dr. Gray's presentation. The full presentation is available online:

<http://www.uwyo.edu/enr/WaterClimateConfFall2006/SteveGrayWyoClimateOverview.pdf>

1. Multiple factors make water resources in Wyoming highly sensitive to climate change (natural or otherwise).

Wyoming has a desert climate. While precipitation ranges from 6 inches/year in the low basins to 70-90 inches/year in some of the high mountains, 75 percent of the state receives less than 16 inches/year, making Wyoming the 5th driest state in the U.S. behind Nevada, Arizona, Utah, and New Mexico (compared to the national average of 37 inches/year).

2. The majority of WY surface water comes from a single source – snowpack.

The wettest areas of Wyoming are usually above 10,000 feet, and these snow-dominated areas comprise only 7 percent of the land area. Thus a very small percentage of Wyoming land area is responsible for the majority of surface run off.

3. Wyoming is a headwaters state.

Droughts in Wyoming's Upper Green River watershed, for example, affect the entire watershed. Impacts vary with the size of the watershed. Needless to say, we are subject to the needs of downstream, out of state users, setting the stage for difficult challenges in the future.

4. The Earth as a whole is getting warmer with an increase in mean average global temperatures.

At least some of this increase is caused by human activities. There is very little agreement about what to do about this. What are the contributions of different human activities? Sources include burning of fossil fuels, land cover change, and urbanization. There is much uncertainty related to regional-scale effects of global climate change.

There is no scientific consensus on what will happen with precipitation as a result of continued warming. Using historical data, projections vary from wetter to drier than present.

Regardless of whether we know what is going to happen with precipitation as a result of continued warming, we do know it will get warmer. We will have to consider what that warming will mean for water resources. A slight change in growing season temperatures, for example, could have tremendous impacts in Wyoming.

Trends in the timing of spring snowmelt in western North America from 1948-2000 show a shift in runoff of 20-30 days (later in a few locations but mainly earlier). In Wyoming, we see less change than in other areas over the 50-year period, but in recent decades, peak runoff has moved considerably, occurring earlier in the spring. This trend is expected to continue into the future.

A shift in the peak runoff means quicker and earlier snowmelt, leading to diminished late season flows. In addition, a warmer climate means increased evaporation in reservoirs. Even a temperature increase of just 2 degrees during the growing season would enhance evaporation enough to negate even a 15-20 percent increase in precipitation.

Also, a small temperature increase would imply a shift in the ratio of snow versus rain as precipitation. If more precipitation comes as rain, this has major consequences for the snowpack and our hydrologic cycle.

5. Climate changes significantly over decadal time scales.

Tree-ring studies of historical precipitation showing an 1100 year reconstruction of flow in the Upper Colorado River basin reveal conditions ranging from very dry to very wet (compared to the long-term mean). Historically, conditions were much dryer at times than what we see today and there wasn't the huge combustion of fossil fuels. Climate does vary naturally but whatever the cause, we need to be better prepared.

Clearly, Wyoming water resources are highly vulnerable to all types of climatic change. Even the most conservative scenarios for future climatic change could bring major impacts on Wyoming's water, and inherent natural variability can amplify (or dampen) the effects of future change. Three things to focus on for this workshop:

1. How do current management practices and policies make us more or less vulnerable to climatic change?
2. How will changing land use, land cover, and climate interact to impact regional hydrology?
3. A better understanding of current and potential future uses of water. Most of our water in Wyoming goes to agriculture. Is this expected to change much in the future?

Needs Within Wyoming (Panel)

A panel representing federal, state, city, and agricultural viewpoints discussed needs within Wyoming with respect to understanding water, drought and climate change.

Kirk Miller, USGS Chief of Hydrologic Studies identified several key needs within Wyoming in terms of monitoring and investigation of water resources to address how and why water is being used within the state.

- Long-term, consistent, statewide monitoring networks.
 - Streamflow.
 - Groundwater levels.
 - Water quality.
 - The purpose of monitoring.
 - Establish “baseline.”
 - Identify trends.
 - Improve statistics.
 - Create databases.
- Multiple-process, multiple-scale water resource investigations.
 - Local (ground water/surface water interactions) and diffuse (regional) recharge.
 - Refined statistics and estimators for streamflow.
 - Use of water resources for energy development.
 - The purpose of these investigations.
 - Prioritize efforts.
 - Determine cause and effect.
 - Plan (or not?) for development.
 - Guide future monitoring.

Kirk Miller’s presentation is available online:

<http://www.uwyo.edu/enr/WaterClimateConfFall2006/KirkMillerUSGS.pdf>

Clint Bassett, City of Cheyenne Board of Public Utilities, identified strengths and weaknesses in using long-term outlooks in demand-side management. Snotel sites provide information on snow accumulation. We spend about a month of the year receiving water and the remainder of the year using that water. How can we better anticipate the annual demand considering that Cheyenne is completely dependent on snowpack for their water? Some of Cheyenne’s water comes from reservoirs in the Laramie Range, but a majority comes from snowpack quite a ways west of Cheyenne in the Snowy Range and Sierra Madre Range and is piped to Cheyenne.

- Water collection is a short term event, while consumption lasts all year round.

- Water collection relies heavily on snow for water, going multiple years on below average to little runoff.
- We can control collection structures and where water goes, but only if water is available.
- We have to plan ahead to be proactive to drought instead of reactive.
- Cheyenne models anticipate consumption and try to project where reservoir amounts will be in the coming year. When temperature increases, and/or precipitation decreases, water demand increases.
- There is a need for demand-side tools to be able to better predict demand with respect to supply.

Clint Bassett's presentation is available online:

<http://www.uwyo.edu/enr/WaterClimateConfFall2006/ClintBassettCheyenne.pdf>

Pat O'Toole, Rancher and President of the Family Farm Alliance, provided some key issues regarding water resources and drought from a users perspective. The Family Farm Alliance represents irrigators in 17 western states and participates in the policy side of water resources. They look to bring solutions to the policy discussion and get new management on the ground.

- Last year was the first time U.S. food imports exceeded U.S. food exports, and this trend likely will continue.
- Colorado projects 450,000 acres of irrigated land going out of production in the next 10 to 20 years. This land-use change has implications for water supply.
- Storage is extremely important. The Family Farm Alliance is looking at areas where water storage could be increased and have created a database of potential locations. Water must be retained in the upper basins to continue food production.
- Growth will impact our water in the west. City planners throughout the west see agriculture as a future reservoir for development.
- Some of Cheyenne's water comes from the Little Snake River. Ranchers thought they could give water to Cheyenne and get a reservoir out of the deal. It was a contentious issue and they feel like they have lost water.
- As a headwaters state, Wyoming can make decisions that will impact other states. We have the opportunity to be a leader in the future vision and right now we are a reservoir of growth for municipalities in other states.

Harry LaBonde, SEO, explained that the SEO mission is to provide for proper regulation, administration, management, and protection of Wyoming's waters. He discussed drought impacts in Wyoming, interstate compacts, reservoirs, and needs of the SEO.

- Drought impacts in Wyoming.
 - High drainages are going dry sooner and more drainages are being regulated as a result.
 - Drainages are being regulated sooner.

- In some cases Territorial (pre-1890) water rights have been regulated off and there is not enough water to satisfy very senior rights.
- Interstate compacts.
 - Wyoming is party to seven interstate compacts and three interstate court decrees.
 - Montana called for interstate regulations in 2004 and 2006 on the Tongue and Powder Rivers.
 - North Platte River – Allocation years declared in 2002-2006 and 2007 is anticipated to be the same, depends on snowfall.
 - Colorado River – a compact call from the lower states (never been done before) was narrowly avoided due to heavy precipitation in the lower basin in 2005.
- Reservoirs.
 - Reservoirs have functioned as designed and have mitigated the recent drought impacts.
 - Lake Powell percent of capacity has dropped over the last seven years from 94 percent (October 1999) to 49 percent (October 2006).
 - Lake Powell is important to upper basin states because we have obligations to provide a certain amount of water to Lake Powell.
 - Wyoming is studying uses of water in the Green River Basin in anticipation of being forced to curtail consumption to be able to meet compact obligations to lower basin states.
- Needs of the SEO.
 - Additional flow measurement of diversions.
 - Additional stream flow measurements.
 - Real-time data.
 - Radio.
 - Satellite.
 - Data serving via the web or auto attendant telephone systems.

Harry LaBonde's presentation is available online:

<http://www.uwyo.edu/enr/WaterClimateConfFall2006/HarryLaBondeSEO.pdf>

Morning Break-out Groups

Workshop participants were divided into six facilitated break-out groups. The objective of the morning break-out session was to begin a conversation about climate and water related issues and concerns. Participants discussed:

- Concerns about water supply and how it is affected by climate.
- What types of data or forecasts would help them more effectively manage their water supply (e.g., snowpack monitoring, streamflow forecasts, understanding how snowpack is translated into streamflow)?
- What are some perceived drought risks and current responses?
- What could be done to reduce the impact of drought at home, work, or within the region?

Several major themes emerged from the morning break-out groups:

- 1) Tracking consumptive use.
 - Need to tie together land use and water planning in the face of uncertainties and inevitable conflicts.
 - How much water is actually consumed in Wyoming?
 - How to measure consumptive use from agriculture?
- 2) Climate modeling and monitoring.
 - Improvement of climate forecast models.
 - Need more data collection on climate in Wyoming.
 - Improvement of radar coverage beyond the two collection points of Cheyenne and Riverton.
- 3) The need to link surface water and groundwater monitoring.
 - Drilling more groundwater wells during a drought and then continuing to rely on these new wells extends the impact of groundwater drawdown beyond the current dry period.
 - Data collection needs to be integrated among all state agencies.
- 4) Headwaters issues.
 - Issues for Wyoming as an upper basin state in the face of drought that extends beyond the region.
 - Basic assumption has been that upper basin would be fine, but reality shows that there is much less water in the basin than anticipated.
 - Upper basin states bear the risk associated with the Colorado River Compact.
 - Wyoming needs to proceed by planning for developing what water we have.
 - Should or will western law and management concepts change?
- 5) Education and conservation.
 - Need to educate people about issues and consequences of information presented in today's workshop (similar to Ruckelshaus Institute [Open Spaces Initiative publications](#)).
 - Public education needed from K-12 through the general populace and needs to address why we should use less water.
 - Conservation has to be part of the equation, from impacts on fisheries and wildlife to increased demand.
 - Conservation may be easier in municipal setting than in agricultural setting.
 - Municipal incentive programs (such as Cheyenne using wastewater in city parks).
 - Need forums where people doing work on water/climate/drought issues can share with each other.

- Use of metering – if using a lot of water and are forced to pay, water use will likely fall.
- Possibly increase permit fees to get added revenue.
- Replace ditches with closed pipes.

Available Climate Products

Dr. Andrea Ray, Research Scientist with the Physical Science Division of NOAA gave a brief presentation on available climate products and resources for understanding climate and how these resources can be utilized.

- The Intermountain West Climate Summary is a product designed to provide the latest climate information in a simple compact document aimed at water managers.
 - Provides climate information in the form of graphics, current conditions, forecasts, verifications, and articles.
 - http://wwa.colorado.edu/products/forecasts_and_outlooks/intermountain_west_climate_summary/.
- NOAA National Integrated Drought Information System is an education and outreach program aimed at engaging preparedness in communities.
- U.S. Drought Monitor – a synthesis of multiple indices, outlooks and news accounts, which represents a consensus of federal and academic scientists. Products include maps of U.S. regions with drought intensity and impact types. <http://drought.unl.edu/dm/monitor.html>.

Andrea Ray's presentation is available online:

<http://www.uwyo.edu/enr/WaterClimateConfFall2006/AndreaRayWWAOct06.pdf>

Afternoon Break-out Groups

Participants returned to their initial six facilitated break-out groups. The objective of the afternoon break-out session was to narrow the focus to specific priorities, needs and opportunities. Participants identified short-term and long-term priorities as well as identifying individuals or agencies that may be able to contribute.

Short-term priorities

- Assessment of current tools within the state (e.g. monitoring) – what's working and what's not (Governor's Drought Management Task Force).
- Baseline assessment of water consumption – a function of population and climate.
 - Better understanding of the link between climate and consumption.
 - Outreach/education.
 - Develop consistent framework for measurement.
 - Implement framework.
- Linking interagency information.
- Involving the public.

- Rain gauge data collection, possibly expand to stream gauge.
- Need to enable market transfers.
- Involving the public.
 - Provide information resources for watershed planning groups (Ruckelshaus Institute).

Long-term priorities

- Better understanding of groundwater/surface-water climate connections. (collaborative projects – SEO, DEQ, USGS, UW).
 - Use of groundwater in times of need.
 - Monitoring – what groundwater do we have.
- Education to improve public understanding of climate and drought (Governor’s Drought Task Force, Ruckelshaus Institute, UW Math and Science Teaching Center, Conservation Districts, NWS/NOAA, possible funding through National Science Foundation or US Department of Agriculture).
 - Emphasize the effects of drought.
 - Use economic examples to inform about drought impacts.
- Projecting consumptive use (WRDS, Ruckelshaus Institute).
- Improved interagency communication (Governor’s Drought Management Task Force, Ruckelshaus Institute, Conservation Districts).

Possible Next Steps

Many participants pointed out the need to assess consumptive water use in light of the challenges faced in Wyoming with variable precipitation, snowfall, and timing of snow melt as a consequence of climate variability and climate change. In addition, as a headwaters state, Wyoming is bound by certain agreements to provide water to downstream states while also planning for the future needs within the state. These concerns potentially could be addressed with follow-up meetings that focus on some of the topics identified above. The Ruckelshaus Institute, in conjunction with federal, state, and local agencies, may be able to play a role in providing an information clearinghouse for climate, water, and drought related topics. Additional comments and suggestions from the participants are welcome.

This report, the workshop agenda, and presentations from the October 5, 2006 **Water, Drought, and Wyoming’s Climate Workshop** are available online: <http://www.uwyo.edu/enr/WyomingWater.asp>

APPENDIX A

Attendees List – Water, Drought and Wyoming’s Climate Workshop – October 5, 2006

Christina Alvord
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Boulder, CO

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Wyoming Water Development Commission
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University of Wyoming

Clint Bassett
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Cheyenne, WY

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University of Wyoming

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Natural Resources
University of Wyoming

Tony Bergantino
Water Resources Data System
University of Wyoming

Harold Bergman
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Cheyenne, WY

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Ben Bracken
Joint Powers Water Board
Green River, WY

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University of Wyoming

Don Brosz
Cooperative Extension Service
University of Wyoming

Kyle Cheesbrough
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Christie Clark
Wyoming State Treasurer’s Office
Cheyenne, WY

Bryan Clerkin
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Cheyenne, WY

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Geologist/Rancher
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Rich Emanuel
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Steve Gray
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Water Resources Data System
University of Wyoming

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National Oceanic & Atmospheric
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Wyoming Water Development Commission
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Wildlife Federation
Bozeman, MT

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Natural Resources
University of Wyoming

Dan Luecke
Environmental Scientist and Water Resources
Expert
Ruckelshaus Institute Board Member
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Casper, WY

Whitney MacMillan
Chairman Emeritus, Cargill, Inc.
Ruckelshaus Institute Board Member
Minneapolis, MN

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Wanda Manley
Wyoming Public Health Lab
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Rancher/Family Farm Alliance
Savery, WY

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Department of Environmental Quality
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Mary Paxson
U.S. Senator Craig Thomas' Office
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Wyoming Water Development Commission
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Paige Smith
Governor's Office
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Mike Sweat
US Geological Survey - Wyoming Water
Science Center
Cheyenne, WY

Chace Tavelli
Wyoming Water Development Commission
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Randy Tullis
Wyoming Board of Control
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Wilson, WY

Sarah Van de Wetering
Public Policy Research Institute
Ruckelshaus Institute Board Member
Missoula, MT

Tom Watson
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University of Wyoming

David Williams
Dept. of Renewable Resources
University of Wyoming

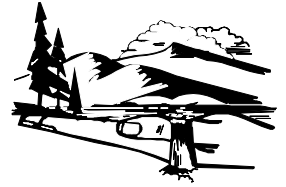
John Zebre
Joint Powers Water Board
Green River, WY

EXHIBIT 17



Department of Environmental Quality

To protect, conserve and enhance the quality of Wyoming's environment for the benefit of current and future generations.



John Corra, Director

Dave Freudenthal, Governor

Proposed Reclassification of Robinson Creek in the Belle Fourche River Basin near Moorcroft, Wyoming

Proposed Action

The Department of Environmental Quality, Water Quality Division is proposing to reclassify the lower 2½ miles of the main stem of Robinson Creek and an unnamed headwater tributary as provided in the Chapter 1 surface water standards. Robinson Creek is an ephemeral tributary to the Belle Fourche River north of Moorcroft, Wyoming. It lies between the Rush Creek and Duck Creek drainages and discharges into the Belle Fourche River in Section 18, T50N, R76W, approximately 3 miles north of Moorcroft.

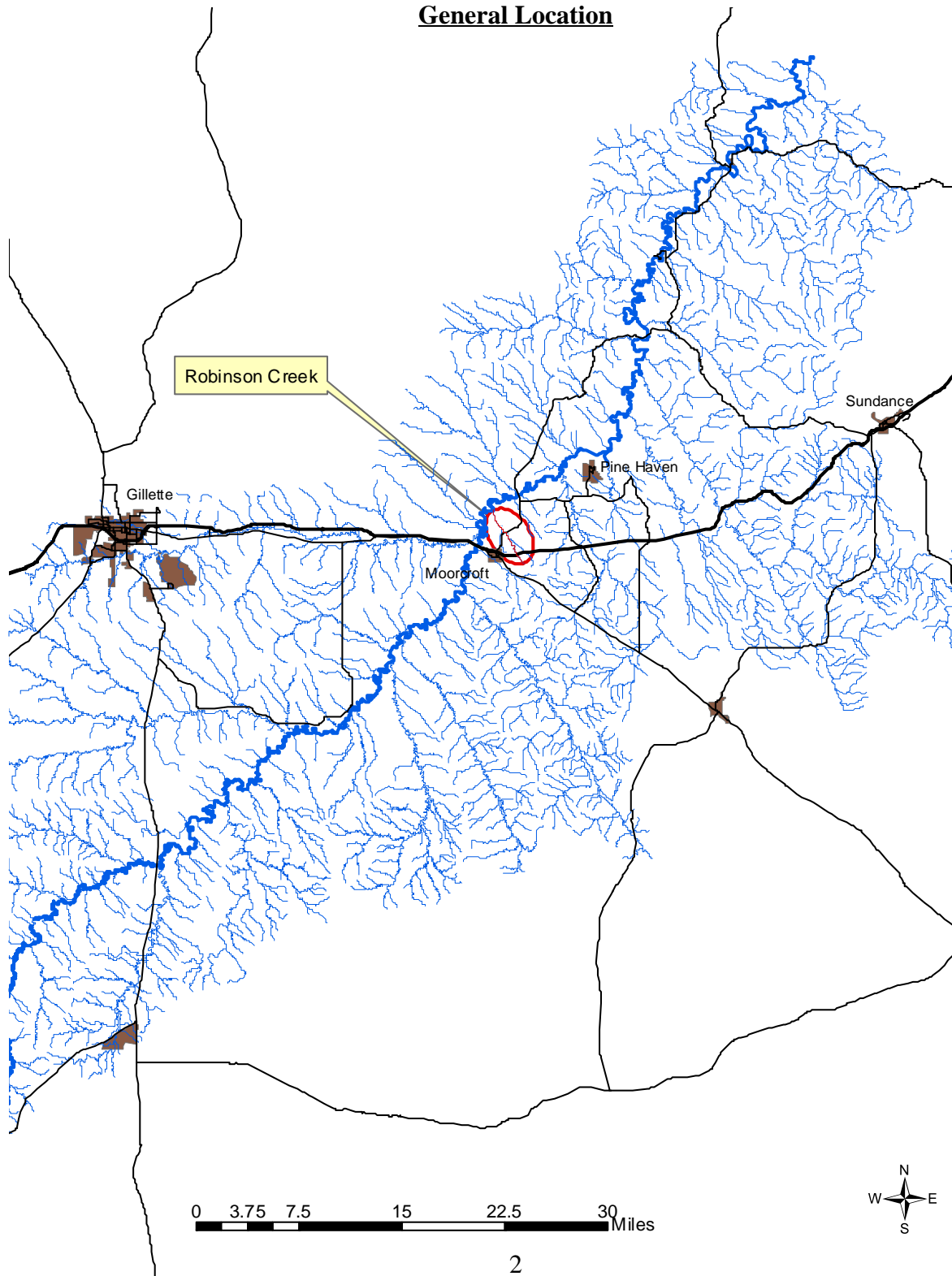
This proposed reclassification does not affect all of the stream miles within the Robinson Creek watershed and is limited to an unnamed tributary beginning in Section 4, T49N, R67W down to the confluence with Robinson Creek; and the remainder of Robinson Creek down to the confluence with the Belle Fourche River in Section 18, T50N, R67W. . Approximately 5 miles of stream channel are affected by this reclassification. The attached watershed map shows the affected stream segments.

The basis for this reclassification is contained in the attached document entitled: "Use Attainability Analysis for Robinson Ranch Oil and Gas Production Battery, June 2003", prepared by Thunder Basin Environmental Consulting, Inc. on behalf of Ranch Oil Company. This Use Attainability Analysis document describes the analysis that was conducted on the stream system and the rationale for the proposed classification changes. The purpose of the document is to fulfill the requirements of Chapter 1, Sections 33 and 34 of the Wyoming Surface Water Rules and Regulations regarding reclassification of surface waters. The UAA document contains sufficient information to support the reclassification of the subject waters, however, the Department of Environmental Quality does not necessarily agree with all of the views expressed by the authors.

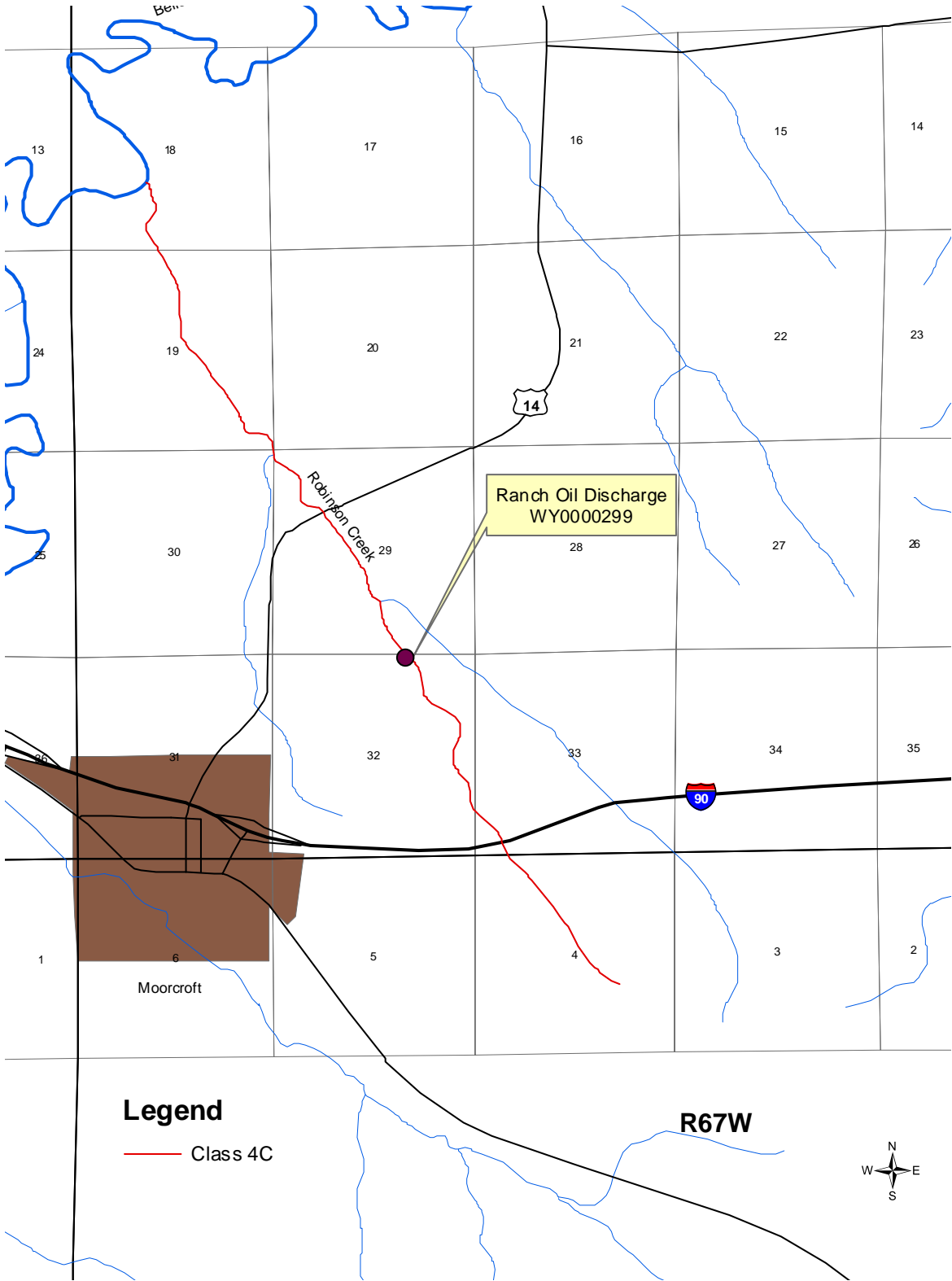
The affected stream reach is currently designated as Class 3B and is protected for aquatic life uses. This reclassification action will remove the aquatic life designation by reclassifying the stream channel and reservoirs above the confluence with the Belle Fourche River as Class 4C. The affected stream reach will continue to be protected for primary contact recreation, wildlife, industry, agriculture and scenic value uses. In the past, this stream reach was not classified for aquatic life, however, revisions to the state surface water standards adopted in July 2001



assigned aquatic life protections by default to all waters except those where a UAA demonstrates that the aquatic life classification is not necessary. The result of this reclassification action will be to maintain the same level of water quality protection that was applied to the waters prior to the 2001 standards revision.



Robinson Creek Watershed



Use Attainability Analysis Summary

The affected stream is a naturally ephemeral drainage exhibiting an extremely limited hydrologic regime. Essentially all of the surface water in the system is attributable to a previously permitted discharge of oil field produced water, NPDES permit number WY0000299. Under normal circumstances, all of the flow discharged into the drainage is contained in stock reservoirs and does not reach the mainstem of the Belle Fourche River.

The Use attainability analysis developed by Ranch Oil Company satisfactorily demonstrates that all of the aquatic resource that currently exists on this section of stream channel is directly attributable to their permitted discharge. In addition to the limited aquatic resource that has developed since the onset of the discharge, the water also provides an important source of stock water for local ranching operations and a limited amount of habitat for resident wildlife communities. Without the continued discharge of the produced water, these benefits would be lost.

Pursuant to 40 CFR 435.50 through 435.52, the discharge was originally permitted to provide livestock and wildlife benefits and such uses will continue to be maintained and protected under the proposed 4C classification. The limited aquatic life use is incidental to the original purposes of the NPDES permit and the natural hydrologic regime is not sufficient to support or sustain aquatic life. This reclassification will allow the continued discharge of the produced water with the same effluent limits as have been historically required thereby ensuring the preservation of the environmental benefits that have developed because of the discharge. The quality of the discharged water is required to meet all of the technology-based effluent limitations established under Sections 301 and 306 of the Clean Water Act and additional State limitations necessary to support recreation, wildlife, industry, agriculture and scenic value uses. Because of the loss of uses that would occur if the discharge of produced water was discontinued, it can be concluded that removing the source of pollution would cause more environmental damage than leaving it in place.

The Use attainability analysis shows that all current aquatic life and non-aquatic life water uses on the affected reaches of Robinson Creek would be lost if the discharge is discontinued. A requirement to meet aquatic life uses on this specific stream segment could result in the inability of the discharge water to meet water quality standards. This in turn might require reinjection of the produced water from the Robinson Ranch Oil & Gas Production Battery. These restrictions and actions would ultimately result in the cessation of water flow, and thus prevent support of the designated uses mentioned above. Based on that evaluation and according to the procedures outlined in the Wyoming DEQ/WQD implementation policy for Use Attainability Analysis it has been determined that the use removal factor provided in Chapter 1, Section 33(b)(iii) has been satisfactorily demonstrated.

Therefore, according to the provisions of Sections 4 and 33 of Chapter 1 of the Wyoming Water Quality Rules and Regulations, the lower half of Robinson Creek and the identified unnamed tributary are most appropriately classified 4C and designated for primary contact recreation, wildlife, industry, agriculture and scenic value uses.

IMPLEMENTATION

This document represents a preliminary determination by the administrator of the Water Quality Division to change the classification of Robinson Creek and an unnamed tributary beginning in Section 4, T49N, R67W down to the confluence with the Belle Fourche River from Class 3B to Class 4C. After consideration of public comments, the Administrator shall publish a final determination which will be submitted to EPA for approval under the federal Clean Water Act. The revised classification shall become effective upon EPA approval or 90 days after submittal, whichever comes first.

PUBLIC PARTICIPATION

Persons wishing to comment on these findings or planned implementation may submit written comments to Bill DiRienzo, Water Quality Division, Department of Environmental Quality, Herschler Bldg. 4W, Cheyenne, WY 82002; Fax # 307-777-5973; on or before September 6, 2003. Emailed comments will not be accepted.

Copies of the Use Attainability Analysis are available from the Department of Environmental Quality, 122 West 25th Street, Herschler Building-4W, Cheyenne, or can be downloaded from the agency's website (<http://deq/wqd/wqevent.htm>). Persons may request a mailed copy of the document by contacting Connie Osborne at 307-777-5593, fax at 307-777-5973 (email address:cosbor@missc.state.wy.us)..

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RANCH OIL COMPANY
6160 Syracuse Way, Suite 110
Greenwood Village, CO 80111-4700

Robinson Ranch Crude Oil Production Battery

Use Attainability Analysis

for

**Robinson Ranch
Oil & Gas Production Battery**

Submitted to

**Wyoming Department of Environmental Quality
Water Quality Division
Cheyenne, WY**

**Thunder Basin Environmental Consulting, Inc.
Buffalo, Wyoming**

June 1, 2003

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THUNDER BASIN

Environmental Consulting, Inc._____

RANCH OIL COMPANY
Robinson Ranch Production Battery
Water Quality Use Attainability Analysis

Water Body: Robinson Creek -The entire stream length from headwaters in Section 3 and Section 4, Township 49 North (2 miles ESE of Moorcroft, WY) downstream approximately 4.4 miles toward the confluence with the Belle Fourche River including the segment which contains the Robinson Ranch Production Battery, NPDES Permit No. WY0000299. The stream ends approximately 0.5 miles (2,600 ft.) SE of the Belle Fourche River.

Location: Headwaters - Section 3 and 4, Township 49N, Range 67West
Mouth - SE/4, SW/4, Section 18, Township 50N, Range 67West
Southwest Crook County, Wyoming

Tributary to: Belle Fourche River

River Basin: Belle Fourche River-Rush Creek sub-watershed, HUC 101202010501.

1 - PURPOSE:

Ranch Oil Company (Ranch Oil) is seeking to expedite reclassification of Robinson Creek to assure continued compliance for water discharge from a permitted crude oil processing facility with Wyoming Department of Environmental Quality, Water Quality Division (DEQ/WQD) Rules and Regulations prior to the January 31, 2004 NPDES Permit No. WY0000299 renewal deadline.

Reclassification of Robinson Creek is necessary following the July 2001 revision of Chapter 1, Wyoming Water Quality Rules and Regulations. The subject July 2001 reclassification provided for statewide elevation of all Class 4 waters to Class 3B. Class 3B waters feature water quality criteria capable of supporting an "other aquatic life" designated use, while Class 4 waters do not. Many former Class 4 waters, such as Robinson Creek, are therefore mis-classified as Class 3B waters and require re-classification to their former status to ensure accurate use designations and compliant Industrial operations. This UAA is submitted pursuant to the formal process for reclassification of Robinson Creek from Class 3B back to Class 4.

RANCH OIL COMPANY
Robinson Ranch Production Battery
Water Quality Use Attainability Analysis

Ranch Oil discharges produced water from the subject crude petroleum processing tank battery located at SW/4 SE/4 Section 29, Township 50N, Range 67W via an unnamed ditch (Photo 5) approximately 100 feet to Robinson Creek. The dual purposes of this Use Attainability Analysis (UAA) are to petition the DEQ/WQD for the reclassification of Robinson Creek in the following manner: A. from Class 3B to Class 4B upstream from the Ranch Oil Robinson Creek battery and B. from Class 3B to 4C downstream of the battery toward the confluence with the Belle Fourche River. This stream reclassification will return water quality standards for Robinson Creek to a designation with which Ranch Oil Company discharge has historically been compliant as discussed below:

A.

The portion of Robinson Creek upstream (in a Southeasterly direction) from the Ranch Oil Battery will be referred to as ‘Segment A’. Prior to the statewide classification revisions adopted in July 2001, Robinson Creek was classified as a Class 4 water. This classification does not include aquatic life as a designated use. Subsequent to the July 2001 revisions, all previously designated Class 4 waters in Wyoming were raised to the new Class 3B category which includes an aquatic life designation as default protection, regardless if aquatic life exists or can actually be supported. The upper reaches of Robinson Creek are characterized by grass-covered flat and sloping meadows with distinct to indistinct ephemeral channel formation. This UAA recommends this segment of Robinson Creek be reclassified from Class 3B to Class 4B and designated for primary contact recreation, wildlife, industry, agriculture and scenic value uses in accordance with the Wyoming Surface Water Quality Standards Section 4(d)(iii) definition:

“Class 4B waters are intermittent and ephemeral stream channels that have been determined to lack the hydrologic potential to normally support and sustain aquatic life pursuant to the provisions “ of Section 33(b) of these regulations. In general, 4B streams are characterized by only infrequent wetland occurrences or impoundments within or adjacent to the stream channel over its entire length. Such characteristics will be a primary indicator used in identifying Class 4B waters.”

The Class 4B classification accurately describes conditions on Robinson Creek upstream (SE) from the Ranch Oil Robinson Crude Oil processing battery.

B.

The portion of Robinson Creek downstream (NNW) from the Ranch Oil Battery 6,000 bwpd discharge will be referred to as ‘Segment B’. This UAA recommends this segment of Robinson Creek be reclassified from Class 3B to Class 4C. Segment B of Robinson Creek features sections characterized by channelized flows with frequent wetland and/or impoundments leading to eventual cessation of flow approximately 0.50 miles (2,600 ft.) SE of the Belle Fourche River. The new Class 4C designation is defined in Section 4(d)(iii) of the Wyoming Surface Water Standards as:

RANCH OIL COMPANY
Robinson Ranch Production Battery
Water Quality Use Attainability Analysis

“...all waters that have been determined to lack the potential to support and sustain aquatic life pursuant to the provisions of Section 33 (b)(i), (ii), (iii), (iv), (v), and (vi) of these regulations. Class 4C includes, but is not limited to effluent-dominated streams where it has been determined under Section 33(b)(iii) that removing a source of pollution to achieve full attainment of aquatic life uses would cause more environmental damage than leaving the source in place.”

The Class 4C classification accurately describes conditions on the Robinson Creek downstream from the Ranch Oil Robinson Crude Oil processing battery.

2 - BASIS FOR RECLASSIFICATION/REMOVAL OF AQUATIC LIFE USE PROTECTIONS

The requirements for reclassifying a surface water, adding or removing designated uses, or establishing site-specific criteria are provided in Chapter 1, Section 33 of the Wyoming Water Quality Rules and Regulations and in the related document entitled “Implementation Policies for Antidegradation, Mixing Zones, Turbidity, and Use Attainability Analyses”. Actions which involve a lowering of water quality protections must be based on one or more the factors contained in Section 33(b) of the regulations.

The proposed reclassification petition for Robinson Creek is based upon the following relevant portions of Section 33 of Chapter 1 and Section II. A. of the DEQ implementation policy for UAAs which state, respectively:

Section 33 of Chapter 1:

- (a) *Any person at any time may petition the department of the Environmental Quality Council (Council) to change the classification, add or remove a designated use or establish site specific criteria on any surface water.*
- (b) *The Water Quality Administrator may lower a classification, remove a designated use which is not and existing use or an attainable use, or make a recommendation to the Environmental Quality Council to establish sub-categories of a use, or establish site-specific criteria if it can be demonstrated through a Use Attainability Analysis (UAA) that the original classification and/or designated use or water quality criteria are not feasible because...”*
 - (ii) *Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating state water conservation requirements to enable uses to be met...”*

**RANCH OIL COMPANY
Robinson Ranch Production Battery
Water Quality Use Attainability Analysis**

- (a) *The procedures used to implement this section are described in the “Use Attainability Analysis Implementation Policy.”*

and DEQ Implementation Policies, Section II. A. :

“(UAAs) are required prior to designating any water as Class 4 since these waters are not protected for all the uses specified in Section 101(a)(2) of the federal Clean Water Act.”

Additionally, the proposed reclassification action for Robinson Creek is based upon the following specific, relevant portion of Section 33 of Chapter 1, with states:

- “(iii) Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place...”*

3. GENERAL SITE DESCRIPTION

Robinson Creek is a naturally ephemeral drainage approximately 4.4 miles in length located in Southwest Crook county (Figure 1). The drainage covers approximately 6.2 square miles (4.4 miles long by 1.4 miles wide on average) or about 3,500 acres (Appendix B-4). Elevations range from about 4,139 feet at its disappearance approximately 0.50 miles (2,600 ft.) SE of the Belle Fourche River to approximately 4,400 feet at its headwaters 4.4 miles SE of the town of Moorcroft, WY. This upper watershed is located due E of U.S. Interstate Highway 90, about 1.5 mile E of Moorcroft. The Ranch Oil Company crude oil collection, storage/processing facility and associated NPDES Discharge Point is located 2.7 miles upstream on Robinson Creek from the Belle Fourche River at a point approximately 1.25 miles NNE from Moorcroft. The Ranch Oil Robinson Creek production battery discharge point is approximately 8,600 feet downstream (NNW) from Robinson Creek headwaters and 14,600 ft upstream from the virtual confluence with Belle Fourche River. As of May 2003, Ranch Oil estimates their produced water discharge volume to be approximately 7,000 barrels per day. The predominant upland vegetation is sagebush and native bunch-grasses.

The definition of ephemeral drainages should be mentioned with regards to Wyoming's particular climatic conditions. “Ephemeral” refers to stream channels in which stream flow occurs in direct response to seasonal snow melt and individual precipitation events (e.g. thunderstorms). In the high plains, semi-arid ecosystem of Wyoming, this flow regime may be so infrequent as to not produce any stream flow within one or several calendar years. Based on the field surveys conducted, the general vicinity of Robinson Creek was observed to exhibit these characteristics. Appendix A contains photographs which clearly illustrate the ephemeral nature of Robinson Creek.

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RANCH OIL COMPANY
Robinson Ranch Production Battery
Water Quality Use Attainability Analysis

According to the U.S. Interior Department Moorcroft, WY National Wetlands Inventory (NWI) Map (circa 1992), the Robinson Creek watershed is comprised of approximately 3,315 acres of upland area containing approximately 46 acres of wetlands comprising 60 separate wetland sections. These designated wetlands comprise less than 1.38% of the entire watershed. This fraction is near the low end of the generally acknowledged average of 1 to 5% land cover for riparian and wetland areas in western North America (Hansen et al 1995). However, the accuracy of this calculated estimate is questionable due to 1) significant reductions in oil & gas recovery operations discharging to Robinson Creek since the 1992 map revision (Appendix 3) and 2) persistent drought conditions potentially stemming from climate change (Bolin, Hansen).

Robinson Creek areas identified as wetland areas consist of 6 different types as defined in Lewis Cowardin's "Classification of Wetlands and Deepwater Habitats of the United States" published by the US Fish and Wildlife Department. Each NWI wetland on Robinson Creek and associated attribute code, location and length and code definition is shown in Table 1 and Table 2. A cursory examination of Table 1 shows 59 of the 60 designated wetland areas to be classified in the Palustrine System of the U.S. Department of the Interior Wetland and Deepwater Habitats of the United States classification system. This system was devised in 1977 by Lewis M. Cowardin of the U.S. Fish and Wildlife Service and is briefly outline below.

Wetlands and Deepwater Habitats*

System (Palustrine, Riverine, Marine, Estuarine, Lacustrine)

Subsystem (Subtidal, Intertidal, Lower Perennial, Upper Perennial, Intermittent, Limnetic, Littoral)

Class (Rock Bottom, Unconsolidated Bottom, Aquatic Bed, Unconsol. Shore, Moss-Lichen Wetland, Emergent Wetland, Scrub-Scrub Wetland, Forested Wetland)

Sub-Class (bedrock, rubble, sand, mud, organic, moss, lichen, etc.)

* - From: Classification of Wetlands and Deepwater Habitats of the United States, Lewis M. Cowardin, et. al.

As listed in Table 1, each wetland area shown on the Wetlands Inventory Map of the Moorcroft, Wyoming USGS quadrangle features a detailed accounting of existing conditions at the time of classification. Additional description of each classification component is given in the Cowardin manual, including a description of the Palustrine System:

Palustrine System includes all non-tidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal where salinity due to ocean derived salts is below 0.5%. It also includes wetlands lacking such vegetation, but with all of the following four characteristics: (1) areas less than 8 ha (20 acres); (2) active wave-formed or bedrock shoreline features lacking; (3) water depth in the deepest part of basin less than 2 m at low water; and (4) salinity due to ocean-derived salts less than 0.5%.

The reader is referred to the NWI map legend(s) and the User's Guide to NWI Maps (Smith 1991) for further definitions of the wetland acronyms/terms used in this document.

RANCH OIL COMPANY - Robinson Creek Use Attainability Analysis

Updated: #####

TABLE 1.

NWI Attribute Data for Habitat Features in and Along the Robinson Creek Mainstem

0 from Moccroft, WY National Wetlands Inventory Map (revised 1992)

** see Appendix B-3 for listed Wetland map locations

<i>Dist. from</i>					<i>Dist. from</i>				
<i>Attribute</i>		<i>Mouth</i>		<i>Area</i>	<i>Attribute</i>		<i>Mouth</i>		<i>Area</i>
<i>no.</i>	<i>code</i>	<i>meters</i>	<i>miles</i>	<i>(acres)</i>	<i>no.</i>	<i>code</i>	<i>meters</i>	<i>miles</i>	<i>(acres)</i>
1	PEMA 1006		0.63	0.25	32	PABFh 3751		2.33	0.65
2	PEMA 1479		0.92	0.25	33	PEMC 4118		2.56	0.10
3	PABFh 2083		1.29	0.80	34	PABFh 3952		2.46	0.25
4	PEMA 2248		1.40	0.27	35	PEMC 4000		2.49	0.15
5	PABFh 1988		1.24	1.75	36	PEMA 3858		2.40	0.50
6	PEMC 2177		1.35	0.10	37	PUBF 4307		2.68	0.60
7	PEMC 2225		1.38	0.10	38	PABFh 4426		2.75	3.50
8	PEMA 2106		1.31	0.20	39	PEMF 4686		2.91	0.10
9	PABFh 2343		1.46	12.00	40	PABFh 4769		2.96	0.10
10	PUSAh 2592		1.61	0.20	41	PEMF 5041		3.13	0.65
11	PEMC 2556		1.59	0.10	42	PABFh 4899		3.04	4.60
12	PEMC 2793		1.74	0.25	43	PEMA 5680		3.53	0.10
13	PEMC 2781		1.73	0.10	44	PEMCh 5704		3.54	0.60
14	PEMA 2958		1.84	0.30	45	PEMA 5704		3.54	0.10
15	PEMC 3029		1.88	0.10	46	PEMA 5716		3.55	0.10
16	PEMC 2840		1.76	0.10	47	PEMC 5467		3.40	0.30
17	PEMC 3219		2.00	0.33	48	PABFh 4307		2.68	0.50
18	PEMA 3018		1.88	1.00	49	PABFh 5313		3.30	0.40
21	PEMA 3077		1.91	1.15	50	PEMA 5846		3.63	0.10
22	PEMA 3077		1.91	2.00	51	PABFh 6461		4.01	0.65
23	PABFh 3313		2.06	0.70	52	PEMA 6011		3.74	0.05
24	PEMC 3266		2.03	0.85	53	PEMA 5988		3.72	0.10
25	PABFh 2887		1.79	0.25	54	PEMCh 6272		3.90	0.75
26	PABFh 2887		1.79	1.85	55	PEMAh 6153		3.82	0.15
27	PEMFh 3029		1.88	0.65	56	OW 6106		3.79	0.10
28	PABFh 3373		2.10	0.10	57	PABFx 6295		3.91	0.15
29	PEMC 3195		1.99	1.88	58	PABFx 6532		4.06	0.25
30	PEMF 3550		2.21	0.10	59	PUBFx 6579		4.09	0.10
31	PABFh 3242		2.01	2.10	60	PUBFx 6461		4.01	0.30
29.8					16.0				

Estimated Total NWI Wetland Acreage = 45.8

* - Distances measured from point nearest to mouth;

Formulas: 1 mile = 68 mm; 1sq mile = 640 acres

TABLE 2.

ATTRIBUTE DESCRIPTION

1	PEMA Palustrine, ephemeral, temporarily flooded
2	PABFh Palustrine, aquatic bed, semi-perm. flooded, diked
3	PEMA Palustrine, ephemeral, temporarily flooded
4	PEMC Palustrine, ephemeral, seasonally flooded
5	PUSAh Palustrine, unconsol-shore, temp flooded, diked
6	PABFx Palustr, aquatic bed, semi-permflooded, excavated
7	OW Open water, unknown depth

CONVERSION DATA

<i>mi/km</i>	<i>km/mi</i>	<i>m/mi</i>
0.621	1.61	1609

miles, kilometres, meters

4. EVALUATION

For the purposes of this UAA, as described in Section 1 of this document, Robinson Creek was divided into two segments - A and B. Segment A is designated as the creek main-stem from the Ranch Oil crude oil processing facility permitted discharge and continuing upstream in a South-easterly direction approximately 1.63 miles to the creek headwaters of origin (Photo 1). Segment B is identified as the main-stem of Robinson Creek from the permitted discharge continuing downstream approximately 2.2 miles to a point where the creek flow ceases (Photo 11), at approximately 0.5 miles SE of the Belle Fourche River.

Segment A:

As described above, the channel of Robinson Creek above the Ranch Oil Processing facility discharge (Segment A) is characterized by an irregular, ephemeral flow, typical of many high plains areas. As mentioned above, flow events may not occur in a given year. Shown in photos 1, 2, 3 and 4 (Appendix A), the channel margins are poorly defined, if at all, and the absence of riparian vegetation indicates extended periods of time when there is little or no flow. The absence of riverine wetland types and the spatially infrequent occurrence of palustrine wetlands throughout this portion of Robinson Creek (Figure 1) indicate that the current Class 3B designation is incorrect. As section 4(c)(ii) of Chapter 1 of the Wyoming Water Quality Standards states, Class 3b Waters are:

*“...intermittent and ephemeral streams with sufficient hydrology to normally support and sustain communities of aquatic life including invertebrates, amphibians, or other flora and fauna which inhabit waters of the state at some stage in their life cycles. In general, 3B waters are characterized by **frequent** linear wetland occurrences or impoundments **within or adjacent to the stream channel over its entire length. Such characteristics will be a primary indicator used in identifying Class 3B waters.**” (emphasis added)*

This definition, and obvious, field-verifiable conditions of the Robinson Creek main-stem lead to the determination that Segment A is definitely not a Class 3B stream, but rather a Class 4B which is defined in Section 4(d)(ii) as:

*“...intermittent and ephemeral stream channels that have been determined to lack the hydrological potential to normally support and sustain aquatic life pursuant to the provisions of Section 33(b) of these regulations. In general, 4B streams are characterized by only **infrequent** (emphasis added) wetland occurrences or impoundments within or adjacent to the stream channel over its entire length. Such characteristics will be a primary indicator used in identifying Class 4B waters.”*

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Segment B.

Below the point of discharge (Figure 1) the stream channel is also moderately incised but is generally narrower and deeper, with well-defined banks and channel margins (Photos 5 - 10). Substrate in this lower reach is dominated by silt, sand and small gravel to cobble-sized particles, with some filamentous algae. There also exists several substantial impoundments showing steeply incised shore-lines and banks. These contrasting conditions indicate that the lower reach (Segment B) of Robinson Creek is subject to perennial flows, which are entirely a result of the Ranch Oil Company permitted discharge. As a consequence, the proper classification for Segment B is 4C, which is defined in Section 4(d)(iii) as:

*“...all waters that have been determined to lack the potential; to normally support and sustain aquatic life pursuant to the provisions of Section 33 (b)(I), (iii), (v), and (vi) of these regulations. **Class 4C includes, but is not limited to effluent-dominated streams where it has been determined under Section 33(b)(iii) that removing a source of pollution to achieve full attainment of aquatic life uses would cause more environmental damage than leaving the source in place.**” (emphasis added)*

As in Segment A, field verification of several of the NWI-identified wetlands in Segment B produced mixed results. Stream segment B immediately downstream of the discharge point features well-established wetland formations (Photos 6 -10) which are equal to, or less than, wetland features indicated on the NWI map (Appendix B-3). The existence of these wetland features persists, despite a dramatic decrease in the number of oil & gas production operations and resultant sharp reduction in produced water discharge (Appendix C) as a direct result of the Ranch Oil discharge.

5. CONCLUSIONS

Robinson Creek in its natural state is an ephemeral watershed flowing water only in direct response to a single precipitation or snowfall event. As far as can be determined, all of the existing aquatic habitats on Robinson Creek are the result of the Ranch Oil Company Oil & Gas production/storage facility produced water discharge.

Downstream from the Ranch Oil facility, stream conditions change dramatically because of historically permitted discharge of produced water. The flows become perennial and the channel exhibits a wetland fringe and a number of wetland impoundments along the entire 2.2 miles until it's disappearance 0.5 miles to the SE of the Belle Fourche River. The perennial flows along this section provide a water supply for wildlife & livestock (Photos 7, 8 and 10), create habitat and forage for a variety of aquatic and terrestrial species, provides water recreation for area residents and contributes approximately 0.9 acre-feet of water per day (Appendix B-4) additional flow to the Belle Fourche River.

EXHIBIT 18

Western Governors' Association
Policy Resolution 06-3

June 13, 2006
Sedona, Arizona

Regional and National Policies Regarding Global Climate Change

A. BACKGROUND

1. Atmospheric concentrations of greenhouse gases are rising and are projected to continue to increase. Although no state or region can unilaterally address climate change or emissions, numerous states and the western region have begun working together on new policies to reduce greenhouse gas emissions and to influence national and international policy.
2. In recent years, the West has experienced very significant droughts across much of the region, reduced snow pack, altered precipitation patterns, severe forest and rangeland fires, warmer temperatures and forest diseases. Climate change and variability have contributed to these impacts. Although specific impacts are not fully predictable, climate change could have severe economic and environmental impacts on the West in coming decades, including effects on agriculture and tourism, infrastructure (including dams, roads, water and sewer), loss of coastal areas, changed fisheries and wildlife, water shortages, storm impacts, and soil erosion.
3. Countries around the world are working to reduce greenhouse gas emissions. In a 2005 statement, the United States National Academies of Science concluded, "the scientific understanding of climate change is now sufficiently clear to justify taking prompt action." Eleven National Academies of Science from the major nations of the world, including the United States, the United Kingdom, Japan, China, Russia, and others, have agreed that science supports the fact that climate change is occurring, is influenced by human activity, and presents risks that should be addressed through changed practices and preparation for changed conditions.
4. Appropriate action is needed to reduce greenhouse gas emissions. Many of these actions could create significant economic benefit for the West, if the United States moves toward new energy sources and technologies that prefer domestic energy and carbon sequestration. The opportunities to deploy clean and renewable energy and energy efficiency are abundant in the West and may economically and environmentally benefit states by increasing energy efficiency, improving air quality, saving costs, providing jobs, increasing revenues, and reducing water pollution.
5. Some western states are engaged in climate change agreements that cross state borders, as well as policy within states. The experience from these projects could be useful to other Western Governors and throughout the Nation as we implement measures to address climate change.
6. The United States Congress has started to give serious consideration to national climate change policies. The Senate Energy Committee has dedicated committee hearings to the

issue and has developed research and policy options regarding the business case for a market-based emissions reduction program. The Senate and House have both begun work on general language calling for action.

B. GOVERNORS' POLICY STATEMENT

1. Western Governors urge the President, Congress, the U.S. Department of State, and other federal agencies to include the interests and expertise of the states as part of any national debate on global climate change, including the reduction of greenhouse gases, to ensure fully coordinated policies.
2. Western Governors support a full and vigorous discussion, including all stakeholders, and consideration of all alternatives regarding the reduction and mitigation of greenhouse gases, adaptation policies and other global climate change measures.
3. Western Governors support coordinated international research on climate change. The Governors believe research should appropriately emphasize decision support, in order to engender informed discussion of climate change issues by decision makers, stakeholders, the media, and the general public. The Western Governors urge Congress and the Administration through the Climate Change Science Program to fund research for improving predictive capabilities for climate change and related impacts. Additionally, because of the complex climatology in the West, it is important that climate change modeling be conducted on a much finer resolution, e.g. watersheds and sub-watersheds.
4. The Governors recognize that climate prediction is complex and that the potential economic, social and environmental impacts of long-term climate change are difficult to project. The Governors recommend that policies related to long-term climate change should incorporate results from ongoing scientific research.
5. Federal agencies should invest in research programs to study climate change impacts and address scientific questions relevant to the West. Western Governors support the implementation of greenhouse gas mitigation tools such as carbon sequestration that have broad public support and potential economic benefit and can help address the unique conditions of the West.
6. Western Governors support the development of local, state, regional, and national programs to reduce anthropogenic greenhouse gas emissions in a manner that: (1) is consistent with the findings of scientific research; (2) will not significantly harm the United States economy; and (3) will encourage comparable action by other nations that are major trading partners and key contributors to global emissions.
7. Western Governors support national, regional, and state-level policies on global climate change that are consistent with efforts to develop cost-effective alternative energy sources and more efficient use of energy in mobile and stationary sources.
8. Western Governors recognize the need to be able to proactively respond to short-term climate change and variability, e.g. drought, forest fires, significant precipitation events, and extreme heat events.

9. Western Governors recognize the need for collaboration among Western states to develop climate change policies that consider the unique conditions of the West and provide consistent approaches to recognize and give credit for actions to reduce greenhouse gas emissions. Western Governors support state and local efforts to address climate change and believe that such greenhouse gas reductions achieved under these programs should be recognized, including if and when a future national regime is adopted. Development of a voluntary registry for greenhouse gas emissions would assist sources that are interested in documenting and tracking their reductions of greenhouse gas emissions.
10. States maintain various water-related plans including state water plans, watershed plans, state drought plans, reservoir management plans, and flood plans. The federal government should provide support and cooperation so that these plans can be consistently and accurately expanded or enhanced to include climate change scenarios, especially within the context of watershed planning.
11. Western Governors support market-based policy to reduce greenhouse gas emissions in the most cost-effective manner.

C. GOVERNORS' MANAGEMENT DIRECTIVE

1. The Western Governors' Association shall post this resolution to its web site to be referred to and transmitted as necessary.
2. The Governors direct WGA staff to work with the appropriate federal, regional and state agencies in implementing this resolution.

Originally adopted in 1997 as Policy Resolution 97 - 002, and readopted as 00-014 and 03-07.