

**North Dakota State Water Commission
State Office Building
Lower Level Conference Room
Bismarck, North Dakota**

**October 31, 2011
1:00 P.M., CDT**

AGENDA

- A. Roll Call
- B. Consideration of *Agenda* - *Information pertaining to the agenda items is available on the State Water Commission's website at <http://www.swc.nd.gov> (select 'News and Information')*
- C. State Water Commission Financial Updates:
 - 1) Agency Program Budget Expenditures
 - 2) 2011-2013 Biennium Resources Trust Fund and Water Development Trust Fund Revenues
- D. Mouse River Enhanced Flood Protection Project:
 - 1) Project Update
 - 2) ***Funding for Preliminary Engineering*** **
 - 3) ***Bottineau County LIDAR Collect*** **
- E. Current and Proposed Water Metering Requirements for Oil Field Industrial Water Use:
 - 1) Metering Presentation - Robert Shaver, SWC Appropriation Division
 - 2) Letter from North Dakota Irrigation Association Relative to Metering Water Usage Under Water Permits Issued by State Engineer
 - 3) Independent Water Providers
- F. Fargo Moorhead Metro Diversion Project Update
- G. Consideration of Following Requests for State Cost Participation:
 - 1) Cost Share Policy Committee Report
 - 2) ***Berlin Township Improvement District No. 70*** **
 - 3) ***Cook Bridge River Bank Stabilization Project-Pembina County*** **
 - 4) ***Richland-Sargent Legal Drain #1 Extension/Improvements*** **
 - 5) ***Preston Floodway Construction - Traill County*** **
 - 6) ***Wild Rice River Bank Stabilization - Cass County*** **
 - 7) ***Fort Ransom Flood Control - Ransom County*** **
 - 8) ***Will and Carlson Consulting Services*** **

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- H. Valley City - Presentation Relating to Sheyenne Valley Downstream Community Permanent Flood Protection and Erosion Mitigation Financial Assistance

- I. Devils Lake:
 - 1) Hydrologic Update
 - 2) Devils Lake West Outlet Update
 - 3) East Devils Lake Outlet Update
 - 4) Emergency Gravity Water Transfer Channel Update
 - 5) Tolna Coulee Control Structure Update

- J. Western Area Water Supply (WAWS):
 - 1) Project Update
 - 2) ***Design Approval, Phases II and III*** **

- K. Northwest Area Water Supply (NAWS) Project:
 - 1) Project Update
 - 2) ***Contract 7-1A, Minot Water Treatment Plant Filter Rehabilitation and SCADA*** **

- L. Southwest Pipeline Project (SWPP):
 - 1) Project Update
 - 2) ***REM Funds - Flood-Related Damages*** **

- M. Missouri River Update

- N. Garrison Diversion Conservancy District

- O. Other Business:
 - 1) December 6-8, 2011 - 48th Annual Joint N.D. Water Convention and Irrigation Expo, Best Western Ramkota Hotel, Bismarck
 - 2) December 9, 2011, 9:00 A.M. - State Water Commission Meeting, Lamborn Room, Best Western Ramkota Hotel, Bismarck

- P. Adjournment

**** BOLD, ITALICIZED ITEMS REQUIRE SWC ACTION**

To provide telephone accessibility to the State Water Commission meeting for those people who are deaf, hard of hearing, deaf and/or blind, and speech disabled, please contact Relay North Dakota, and reference ... TTY-Relay ND ... 1-800-366-6888, or 711.

MINUTES

North Dakota State Water Commission Bismarck, North Dakota

October 31, 2011

The North Dakota State Water Commission held a meeting at the State Office Building, Bismarck, North Dakota, on October 31, 2011. Governor Jack Dalrymple, Chairman, called the meeting to order at 1:00 P.M., and requested Todd Sando, State Engineer, and Chief Engineer-Secretary to the State Water Commission, to call the roll. Governor Dalrymple announced a quorum was present.

STATE WATER COMMISSION MEMBERS PRESENT:

Governor Jack Dalrymple, Chairman
Doug Goehring, Commissioner, North Dakota Department of Agriculture, Bismarck
Arne Berg, Member from Devils Lake
Maurice Foley, Member from Minot
Larry Hanson, Member from Williston
Jack Olin, Member from Dickinson
Harley Swenson, Member from Bismarck
Robert Thompson, Member from Page
Douglas Vosper, Member from Neche

OTHERS PRESENT:

Todd Sando, State Engineer, and Chief Engineer-Secretary,
North Dakota State Water Commission, Bismarck
State Water Commission Staff
Approximately 50 people interested in agenda items

The attendance register is on file with the official minutes.

The meeting was recorded to assist in compilation of the minutes.

CONSIDERATION OF AGENDA

The agenda was modified to include the continued discussion of the Sheyenne River crossing in Eddy county. There being no additional items for the agenda, Governor Dalrymple announced the agenda approved as presented.

**STATE WATER COMMISSION
BUDGET EXPENDITURES,
2011-2013 BIENNIUM**

In the 2011-2013 biennium, the State Water Commission has two line items - administrative and support services, and water and atmospheric resources expenditures. The allocated program expenditures for the period ending September 30, 2011 reflecting 13 percent of the 2011-2013 biennium, were presented and discussed by David Laschkewitsch, State Water Commission accounting manager. The expenditures, in total, are within the authorized budget amounts. **SEE APPENDIX "A"**

The Contract Fund spreadsheet, attached hereto as **APPENDIX "B"**, provides information on the committed and uncommitted funds from the Resources Trust Fund, the Water Development Trust Fund, and the general fund project dollars. The total amount allocated for projects is \$302,901,704, leaving a balance of \$51,094,878 available to commit to projects.

**RESOURCES TRUST FUND
AND WATER DEVELOPMENT
TRUST FUND REVENUES,
2011-2013 BIENNIUM**

Oil extraction tax deposits into the Resources Trust Fund total \$32,587,971 and are currently \$8,821,059 or 37.1 percent above budgeted revenues.

No deposits have been made for the Water Development Trust Fund (tobacco settlement) in the 2011-2013 biennium. The first planned deposit is for \$10,300,000 in April of 2012.

**MOUSE RIVER ENHANCED FLOOD
PROTECTION PROJECT - APPROVAL
OF ADDITIONAL ALLOCATION FOR
PRELIMINARY ENGINEERING (\$1,750,000)
(SWC Project No. 1974)**

The City of Minot intends to develop a flood control project that would provide the city and communities/developments outside of the city limits with protection from the magnitude of flood events experienced in 2011. Because the propos-

ed project is located outside of the city of Minot limits, the Souris River Joint Water Resource Board agreed to sponsor the project.

Resolution No. 3004, adopted by the Minot City Council on August 1, 2011, requested that the State Water Commission sponsor improvements to the Mouse River flood control system that would control floods of the magnitude of the 2011 flood, and that the State Water Commission search for and retain an engineering firm to design the project improvements.

The goal of the project is to provide protection for the Mouse River basin from a flood of the magnitude experienced in 2011. The first objective is levee alignment for Minot and Burlington of sufficient quality and

accuracy to guide the owners of flood-damaged homes in their decision making. The second objective is a preliminary engineering report that will identify alternatives and features for the entire basin. On August 17, 2011, the State Water Commission passed a motion to proceed with the project and conduct an engineering selection process. On September 7, 2011, the Commission authorized the Secretary to the State Water Commission to execute the engineering agreement with Barr Engineering, Minneapolis, MN. It is anticipated that the conceptual plan will be available by November 3, 2011, and the preliminary alignment plan by November 23, 2011.

The total cost of the preliminary engineering work is estimated at \$2,500,000. On September 7, 2011, the Commission approved an allocation not to exceed \$750,000 from the funds appropriated to the State Water Commission in the 2011-2013 biennium (S.B. 2020) to Barr Engineering for the preliminary engineering work for the Mouse River Enhanced Flood Control project.

Due to the magnitude and unique nature of this project, a cost share percentage for the local sponsor has not been determined to date. Until the completion of the preliminary engineering report, the total project scope, alternatives, and likely costs of the various components are unknown.

Because of the uncertainty of the local cost share, Secretary Sando stated it would be appropriate for the State Water Commission to fund the preliminary engineering phase, and recommended that the Commission approve state cost participation not to exceed an additional allocation of \$1,750,000 from the funds appropriated to the State Water Commission in the 2011-2013 biennium (S.B. 2020) to Barr Engineering for the preliminary engineering work for the Mouse River Enhanced Flood Control project. The Commission's affirmative action on this request would increase the total state financial allocation to \$2,500,000.

It was moved by Commissioner Goehring and seconded by Commissioner Foley that the State Water Commission approve state cost participation not to exceed an additional allocation of \$1,750,000 from the funds appropriated to the State Water Commission in the 2011-2013 biennium (S.B. 2020) to Barr Engineering for the preliminary engineering work for the Mouse River Enhanced Flood Control project. This action is contingent upon the availability of funds.

This action increases the total state financial allocation to \$2,500,000 for the preliminary engineering for the Mouse River Enhanced Flood Control project.

Commissioners Berg, Foley, Goehring, Hanson, Olin, Thompson, Swenson, Vosper, and Governor Dalrymple voted aye. Governor Dalrymple announced the motion unanimously carried.

MOUSE RIVER ENHANCED FLOOD PROTECTION PROJECT - APPROVAL OF STATE COST PARTICIPATION FOR BOTTINEAU COUNTY LIDAR COLLECT (\$90,000) (SWC Project No. 1267)

Through the Silver Jackets program, the State Water Commission has been participating with the U.S. Army Corps of Engineers and the James River Joint Water Resource Board on the James River feasibility study. As part of the study, the Corps has been participating

with the U.S. Fish and Wildlife Service to collect LiDAR topographic data for the basin in North and South Dakota. That effort has progressed and the current plans include expanding beyond the James River counties into McHenry county.

The Commission staff and the program managers have discussed extending the collect project to include the Mouse River corridor through Bottineau county to the Manitoba border, at an estimated cost of \$90,000. This data, coupled with the aerial imagery collected during the flood, would provide a valuable tool in the search for flood protection measures in the lower Mouse River valley and for the Mouse River Enhanced Flood Protection project.

It was the recommendation of Secretary Sando that the State Water Commission approve state cost participation not to exceed an allocation of \$90,000 from the funds appropriated to the State Water Commission in the 2011-2013 biennium (S.B. 2020) to the James River Joint Water Resource Board to fund the extension of the LiDAR collect through the Mouse River corridor in Bottineau county.

It was moved by Commissioner Foley and seconded by Commissioner Olin that the State Water Commission approve state cost participation not to exceed an allocation of \$90,000 from the funds appropriated to the State Water Commission in the 2011-2013 biennium (S.B. 2020), to the James River Joint Water Resource Board to fund the extension of the LiDAR collect through the Mouse River corridor in Bottineau county. This action is contingent upon the availability of funds.

Commissioners Berg, Foley, Goehring, Hanson, Olin, Thompson, Swenson, Vosper, and Governor Dalrymple voted aye. Governor Dalrymple announced the motion unanimously carried.

CURRENT AND PROPOSED WATER METERING REQUIREMENTS FOR OIL FIELD INDUSTRIAL WATER USE (SWC Project No. 1400)

During the September 21, 2011 State Water Commission meeting, the issue of water usage under water permits issued by the Office of the State Engineer was discussed. Governor Dalrymple articulated

reasons that provided the basis of the veto of the remote meter requirements

contained in 2011 S.B. 2020. Governor Dalrymple directed the Secretary to the State Water Commission to report on the current and proposed water metering requirements for the oil field industrial water use at the Commission's October 31, 2011 meeting.

"A summary of water availability, allocation, use, and water use monitoring for oil field industrial needs in western North Dakota" was presented by Robert Shaver, State Water Commission's Water Appropriation Division Director, which is attached hereto as **APPENDIX "C"**.

The North Dakota Irrigation Association submitted a letter to the Office of the State Engineer, dated October 18, 2011, addressing the issue of metering water usage under water permits issued by the Office of the State Engineer. The Association's letter is attached hereto as **APPENDIX "D"**.

Robert Harms, representing the Independent Water Providers, addressed issues including the current status of water provided to the oil industry in North Dakota, water provided by the Independent Water Providers, water users pumping in excess of approved allocation, and the U.S. Army Corps of Engineers limiting access to the Missouri River/Lake Sakakawea.

**FARGO MOORHEAD METRO-POLITAN DIVERSION PROJECT
(SWC Project No. 1928)**

Pat Zavoral, Fargo City Administrator, provided a detailed status report on the Fargo Moorhead Metropolitan Diversion project. The U.S. Army Corps of

Engineers posted its Final Feasibility Report and Environmental Impact Statement (FEIS) on September 28, 2011 for the proposed Fargo-Moorhead Metropolitan Area Flood Risk Management project. The 30-day public comment period on the FEIS began on October 7 and will end on November 7, 2011. The Corps of Engineers final report is expected in December, 2011.

**STATE WATER COMMISSION COST SHARE POLICY, PROCEDURES, AND GENERAL REQUIREMENTS - STATE ENGINEER AUTHORITY TO APPROVE ALLOCATION AND EXPENDITURE OF FUNDS UP TO \$50,000
(SWC File AS/SWC/POL)
(SWC Project No. 1753)**

The State Water Commission's cost share policy committee and others met on October 31, 2011. Items of discussion included the cost share request submission deadlines, State Engineer cost share authority, storm water vs rural flood control, and ring dikes relating to date of eligibility, and multi-dwelling dikes.

On December 13, 1985, the State Water Commission authorized the State Engineer to approve and expend up to \$10,000 for

small contracts, emergencies, and cost overruns. On August 13, 1998, the Commission increased that authority up to \$20,000 to develop and manage the water resources of the state.

The following cost share policy committee recommendation was presented for the State Water Commission's consideration: in order to react to emergencies, cost overruns, and to complete small projects in a timely manner, the State Engineer be authorized to approve the allocation and expenditure of funds up to \$50,000 to develop and manage the water resources of the state.

The State Water Commission members voiced concurrence with the committee's recommendation, and offered the following motion:

It was moved by Commissioner Thompson and seconded by Commissioner Berg that in order to react to emergencies, cost overruns, and to complete small projects in a timely manner, the State Engineer shall be authorized to approve the allocation and expenditure of funds up to \$50,000 to develop and manage the water resources of the state. This action shall be effective October 31, 2011.

Commissioners Berg, Foley, Goehring, Hanson, Olin, Thompson, Swenson, Vosper, and Governor Dalrymple voted aye. Governor Dalrymple announced the motion unanimously carried.

***BERLIN TOWNSHIP IMPROVEMENT
DISTRICT NO. 70, (CASS COUNTY) -
CONDITIONAL APPROVAL OF STATE
COST PARTICIPATION (\$500,000)
(SWC Project No. 829)***

A request from the Rush River Water Resource District was presented for the State Water Commission's consideration for cost share participation for the Berlin Township Improvement District No. 70 project for the development of two new

legal assessment drains that will serve as extensions to the existing Cass County Drain No. 13.

The project's intent is to improve agricultural lands along the project and to increase the hydraulic capacity of the field swales. During the summer rain events, the landowners do not have the ability to properly drain their agricultural lands which results in lower crop yields. The project will lay back the existing side slopes to provide a lower water profile in the channel, the gradient of the channel will be flattened to mitigate future channel bottom erosion, and new section line culverts will be installed that will be designed to a 10-year standard. The project area is located in southwest Argusville, North Dakota, and will include the improvement of approximately 9 miles of existing field swales.

The project engineer's cost estimate is \$2,300,000, of which \$1,417,968 is determined as eligible for state cost participation as a rural flood control project at 45 percent of the eligible costs (\$638,086). The State Water Commission's policy limits the 2011-2013 biennium costs to \$500,000 per individual project. Pursuant to the State Water Commission's cost share policy, conditional approval of a rural flood control project is allowed subject to satisfaction of the required drain permit, a positive assessment vote, and receipt of the final engineering plans. The request before the State Water Commission is for a 45 percent state cost participation in the amount of \$500,000.

It was the recommendation of Secretary Sando that the State Water Commission approve conditional state cost participation as a rural flood control project at 45 percent of the eligible costs, not to exceed an allocation of \$500,000 from the funds appropriated to the State Water Commission in the 2011-2013 biennium (S.B. 2020), to the Rush River Water Resource District to support the Berlin Township Improvement District No. 70 project.

It was moved by Commissioner Goehring and seconded by Commissioner Olin that the State Water Commission approve conditional state cost participation as a rural flood control project at 45 percent of the eligible costs, not to exceed an allocation of \$500,000 from the funds appropriated to the State Water Commission in the 2011-2013 biennium (S.B. 2020), to the Rush River Water Resource District to support the Berlin Township Improvement District No. 70 project. This action is contingent upon the availability of funds, a positive assessment vote, satisfaction of the required drain permit, and receipt of the final engineering plans.

Commissioners Berg, Foley, Goehring, Hanson, Olin, Thompson, Swenson, Vosper, and Governor Dalrymple voted aye. Governor Dalrymple announced the motion unanimously carried.

**COOK BRIDGE RIVERBANK
STABILIZATION PROJECT-
APPROVAL OF STATE COST
PARTICIPATION (\$36,649)
(SWC Project No. 1296)**

nearing the abutments and approach for the Cook bridge. Stabilization is required by shaping and placing rock riprap on the bottom and slope of the river.

A request from the Pembina County Water Resource District was presented for the State Water Commission's consideration for state cost participation for the Cook Bridge Riverbank Stabilization project. Washout of the riverbank is

The project engineer's cost estimate is \$63,926, of which \$61,081 is determined eligible for state cost participation as a bank

stabilization project at 60 percent of the eligible costs (\$36,649). The Pembina County Water Resource District and the North Dakota Department of Transportation have reviewed the project, and the sovereign lands permit is being processed. The request before the State Water Commission is for a 60 percent state cost participation in the amount of \$36,649.

It was the recommendation of Secretary Sando that the State Water Commission approve state cost participation as a bank stabilization project at 60 percent of the eligible costs, not to exceed an allocation of \$36,649 from the funds appropriated to the State Water Commission in the 2011-2013 biennium (S.B. 2020), to the Pembina County Water Resource District to support the Cook Bridge Riverbank Stabilization project.

It was moved by Commissioner Vosper and seconded by Commissioner Hanson that the State Water Commission approve state cost participation as a bank stabilization project at 60 percent of the eligible costs, not to exceed an allocation of \$36,649 from the funds appropriated to the State Water Commission in the 2011-2013 biennium (S.B. 2020), to the Pembina County Water Resource District to support the Cook Bridge Riverbank Stabilization project. This action is contingent upon the availability of funds, and satisfaction of the required permits.

Commissioners Berg, Foley, Goehring, Hanson, Olin, Thompson, Swenson, Vosper, and Governor Dalrymple voted aye. Governor Dalrymple announced the motion unanimously carried.

***RICHLAND SARGENT LEGAL DRAIN
NO. 1 EXTENSION AND CHANNEL
IMPROVEMENTS, PHASE I -
CONDITIONAL APPROVAL OF STATE
COST PARTICIPATION (\$245,250)
(SWC Project No. 1978)***

A request from the Richland Sargent Joint Water Resource District was presented for the State Water Commission's consideration for state cost participation for the Richland Sargent Legal Drain No. 1 Extension and Channel Improvements, Phase I.

The project consists of approximately 5 miles of construction of the drain extension channel which will improve the flow capacity of the channel. The existing channel has limited capacity causing frequent flooding.

The proposed project will begin near the Wild Rice River in Section 31, Township 131 North, Range 53 West and proceed south through Sections 5, 6, 7, and 8, Township 130 North, Range 53 West to State Highway 11, in Sargent county. Two township road crossings will be replaced with concrete box culvers and the roads will be raised to reduce the frequency of flooding.

The proposed project work includes widening the channel bottom and flattening the slopes to a 4:1 ratio. The channel improvement will follow the existing channel alignment, which currently meanders as a natural channel.

The Phase I design is projected to be completed by January, 2012, and bids will be opened in the spring of 2012, with construction to follow. Phase II design is to be completed in 2012 as well as the required permits. Construction on Phase II is projected during the 2013-2015 biennium.

The project engineer's cost estimate for Phase I is \$595,000, of which \$545,000 is determined eligible for state cost participation as a rural flood control project at 45 percent of the eligible costs (\$245,250). The proposed project was submitted for conditional approval pending an assessment vote, and satisfaction of the required permits. The State Water Commission's cost share policy provides for conditional approval of rural flood control projects subject to the satisfaction of conditions. The request before the State Water Commission is for a 45 percent state cost participation in the amount of \$245,250.

It was the recommendation of Secretary Sando that the State Water Commission approve conditional state cost participation as a rural flood control project at 45 percent of the eligible costs, not to exceed an allocation of \$245,250 from the funds appropriated to the State Water Commission in the 2011-2013 biennium (S.B. 2020), to the Richland Sargent Joint Water Resource District for the Richland Sargent Legal Drain No. 1 Extension and Channel Improvements, Phase I, project.

It was moved by Commissioner Berg and seconded by Commissioner Vosper that the State Water Commission approve conditional state cost participation as a rural flood control project at 45 percent of the eligible costs, not to exceed an allocation of \$245,250 from the funds appropriated to the State Water Commission in the 2011-2013 biennium (S.B. 2020), to the Richland Sargent Joint Water Resource District to support the Richland Sargent Legal Drain No. 1 Extension and Channel Improvements, Phase I, project. This action is contingent upon the availability of funds, a positive assessment vote, satisfaction of the required drain permit, and receipt of the final engineering plans.

Commissioners Berg, Foley, Goehring, Hanson, Olin, Thompson, Swenson, Vosper, and Governor Dalrymple voted aye. Governor Dalrymple announced the motion unanimously carried.

**PRESTON FLOODWAY
RECONSTRUCTION PROJECT -
CONDITIONAL APPROVAL OF STATE
COST PARTICIPATION (\$208,570)
(SWC Project No. 1224)**

A request from the Traill County Resource District was presented for the State Water Commission's consideration for state cost participation for the Preston Floodway Reconstruction project.

The Preston floodway was designed and constructed in 1967 by the USDA Soil Conservation Service under Public Law 566. The bottom width was 8 to 20 feet with 3:1 side slopes and a channel drop of 47.4 feet. The original channel has a capacity of 187 cubic feet per second (cfs). Reconstruction will change the side slopes from 3:1 to 5:1 along County Highway 3 and from 3:1 to 4:1 on the field side.

The redesign of the Preston floodway added an extension of 9,261 feet (1.75 miles) on the upstream end of the original channel. The new portion of the channel will have an 8-foot bottom width and 3:1 side slopes. There are also 6 grade control structures throughout the length of the project. Existing culvert crossings will be replaced with larger culverts to increase the channel capacity by 60 percent, which is the maximum increase in capacity that can be safely passed through the existing grade control structures. The extension requires the purchase of 10.6 acres of permanent right-of-way and 14 acres of temporary right-of-way.

The outlet flow enters the Elm River in Section 5, Township 144 North, Range 51 West. The majority of the watershed is cropland except for several acres of roads and farmsteads. Identified wetlands are not to be drained by this project. The maximum peak flows will have no adverse effect on the Elm River during design runoff conditions.

The project engineer's cost estimate is \$551,088, of which \$463,488 is determined eligible for state cost participation as a rural flood control project at 45 percent of the eligible costs (\$208,570). The proposed project was submitted for conditional approval pending an assessment vote, and satisfaction of the drain permit which is being processed. The State Water Commission's cost share policy provides for conditional approval of rural flood control projects subject to the satisfaction of the conditions. The request before the State Water Commission is for a 45 percent state cost participation in the amount of \$208,570.

It was the recommendation of Secretary Sando that the State Water Commission approve conditional state cost participation as a rural flood control project at 45 percent of the eligible costs, not to exceed \$208,570 from the funds appropriated to the State Water Commission in the 2011-2013 biennium (S.B. 2020), for the Preston Floodway Reconstruction project.

It was moved by Commissioner Foley and seconded by Commissioner Thompson that the State Water Commission approve conditional state cost participation as a rural flood control project at 45 percent of the eligible costs, not to exceed \$208,570 from the funds appropriated to the State Water Commission in the 2011-2013 biennium (S.B. 2020), to the Traill County Water Resource District to support the Preston Floodway Reconstruction project. This action is contingent upon the availability of funds, a positive assessment vote, satisfaction of the required drain permit, and receipt of the final engineering plans.

Commissioners Berg, Foley, Goehring, Hanson, Olin, Thompson, Swenson, Vosper, and Governor Dalrymple voted aye. Governor Dalrymple announced the motion unanimously carried.

***WILD RICE RIVER SLIDE BANK
STABILIZATION PROJECT (CASS
COUNTY) - APPROVAL OF STATE
COST PARTICIPATION (\$149,568)
(SWC Project No. 1979)***

A request from the Southeast Cass Water Resource District was presented for the State Water Commission's consideration for state cost participation for the Wild Rice River Slide Bank Stabilization project. A bank slide along the

Wild Rice River has occurred adjacent to 21st Street South in Stanley township, Cass county. The embankment needs to be stabilized to prevent the road from sliding and restricting access to the existing homes. The water and sewer lines are located in the road and a continued slide would cause disruption of service and costly utility relocation.

The proposed project work will consist of installing helical anchors into the ground to stabilize sheet pile that will be driven to hold back the road embankment. The slide is approximately 100 feet in length.

The project engineer's cost estimate is \$300,000, of which \$249,280 is determined eligible for state cost participation as a bank stabilization project at 60 percent of the eligible costs (\$149,568). The request before the State Water Commission is for a 60 percent state cost participation in the amount of \$149,568.

It was the recommendation of Secretary Sando that the State Water Commission approve state cost participation as a bank stabilization project at 60 percent of the eligible costs, not to exceed an allocation of \$149,568 from the funds appropriated to the State Water Commission in the 2011-2013 biennium (S.B. 2020), for the Wild Rice River Slide Bank Stabilization project.

It was moved by Commissioner Goehring and seconded by Commissioner Olin that the State Water Commission approve state cost participation as a bank stabilization project at 60 percent of the eligible costs, not to exceed an allocation of \$149,568 from the funds appropriated to the State Water Commission in the 2011-2013 biennium (S.B. 2020), to the Southeast Cass Water Resource District to support the Wild Rice River Slide Bank Stabilization project. This action is contingent upon the availability of funds, and satisfaction of the required permits.

Commissioners Berg, Foley, Goehring, Hanson, Olin, Thompson, Swenson, Vosper, and Governor Dalrymple voted aye. Governor Dalrymple announced the motion unanimously carried.

***CITY OF FORT RANSOM ENGINEERING
FEASIBILITY STUDY - APPROVAL OF
STATE COST PARTICIPATION (\$40,000)
(SWC Project No. 275)***

A request from the City of Fort Ransom was presented for the State Water Commission's consideration for state cost participation in the city's engineering feasibility study. Unprecedented

flooding occurred the past three years and the city is considering options for permanent flood control mitigation measures, which could include a levee system to control the Sheyenne River and a diversion channel for the Sheyenne River.

The city is requesting funds for soil borings, testing, and an engineering feasibility study to address the permanent flood protection around the city utilizing the levee systems in conjunction with a diversion channel. The project engineer's cost estimate is \$80,000, of which all is determined eligible for state cost participation at 50 percent of the eligible costs (\$40,000). The request before the State Water Commission is for a 50 percent state cost participation in the amount of \$40,000.

It was the recommendation of Secretary Sando that the State Water Commission approve state cost participation as an engineering feasibility study at 50 percent of the eligible costs, not to exceed an allocation of \$40,000 from the funds appropriated to the State Water Commission in the 2011-2013 biennium (S.B. 2020), for the City of Fort Ransom engineering feasibility study.

It was moved by Commissioner Goehring and seconded by Commissioner Berg that the State Water Commission approve state cost participation as an engineering feasibility study at 50 percent of the eligible costs, not to exceed an allocation of \$40,000 from the

funds appropriated to the State Water Commission in the 2011-2013 biennium (S.B. 2020), to the City of Fort Ransom for their engineering feasibility study. This action is contingent upon the availability of funds.

Commissioners Berg, Foley, Goehring, Hanson, Olin, Thompson, Swenson, Vosper, and Governor Dalrymple voted aye. Governor Dalrymple announced the motion unanimously carried.

APPROVAL OF REQUEST FROM GARRISON CONSERVANCY DISTRICT FOR CONTINUATION OF CONTRACT WITH WILL AND CARLSON; AND COST SHARE OF \$70,000 FROM JULY 1, 2011 THROUGH JUNE 30, 2013 (SWC Project No. 237)

A request was presented from the Garrison Diversion Conservancy District to continue participation in support of the Will and Carlson consulting contract in the amount of \$70,000 for services relating to the appropriation under the Garrison Diversion Unit.

The State Water Commission initially entered into a cost share agreement for the services of Peter Carlson in 1991. Since that time, Mr. Carlson has provided services for the State of North Dakota in Washington, DC relating to the Dakota Water Resources Act, Missouri River issues, Devils Lake, the Northwest Area Water Supply (NAWS) Project, agricultural irrigation, and hydro power generation. Considerable efforts are still needed to obtain funding through the Dakota Water Resources Act, and federal projects affecting North Dakota.

It was the recommendation of Secretary Sando that the State Water Commission approve an allocation not to exceed \$70,000 from the funds appropriated to the State Water Commission in the 2011-2013 biennium (S.B. 2020), to continue the Will and Carlson consulting contract from July 1, 2011 through June 30, 2013. These funds are to be cost shared 50 percent with the Garrison Diversion Conservancy District.

It was moved by Commissioner Thompson and seconded by Commissioner Vosper that the State Water Commission approve an allocation not to exceed \$70,000 from the funds appropriated to the State Water Commission in the 2011-2013 biennium (S.B. 2020), to continue the Will and Carlson consulting contract from July 1, 2011 through June 30, 2013. These funds are to be cost shared 50 percent with the Garrison Diversion Conservancy District. This action is contingent upon the availability of funds.

Commissioners Berg, Foley, Goehring, Hanson, Olin, Thompson, Swenson, Vosper, and Governor Dalrymple voted aye. Governor Dalrymple announced the motion unanimously carried.

**CITY OF VALLEY CITY PERMANENT
FLOOD PROTECTION REPORT
(SWC Project No. 237-03VAL)**

Robert Werkhoven, Valley City Mayor, addressed the State Water Commission to explain concerns of the Sheyenne valley downstream communities regard-

ing the potential impacts of Devils Lake drainage and excess water issues. Mayor Werkhoven's presentation is attached hereto as **APPENDIX "E"**.

Matt Pedersen, Valley City Commission member, and chair of the Valley City permanent flood protection task force that was formed in 2011, explained the permanent flood control efforts. Mr. Pedersen's presentation is attached hereto as **"APPENDIX "F"**. The task force has partnered with the U.S. Army Corps of Engineers on a reconnaissance study to determine federal interest in a project for Valley City. The study results concluded that Valley City has a significant and growing need for flood protection given the risks of Devils Lake. At the request of the Corps' division headquarters, information is being incorporated to better reflect the 2009 and 2011 flood events and the increased Devils Lake outlet capacity in an effort to achieve a cost to benefit ratio in excess of 1.0.

The task force has been working with the State Water Commission to analyze the feasibility of permanent flood protection where Phase I and II buy-outs are scheduled to occur in 2012, as well as long-term solutions. Phase I includes the acquisition of right-of-way for the emergency levees program. This would include 32 structures along the river's edge, at an estimated cost of \$3,600,000. Other immediate needs requested from the city include: 1) the State Water Commission sponsor updating the hydrology and flood plain of the Sheyenne River incorporating the Devils Lake basin into the Sheyenne River watershed; 2) the State Water Commission sponsor the development of a Master Flood Protection Plan for Valley City and downstream inclusive of Fort Ransom and the City of Lisbon; and 3) that the State Water Commission fund the engineering for the feasibility phase.

Governor Dalrymple alluded to the 62nd Legislative Assembly special session that will convene on November 7, 2011 to consider a disaster recovery assistance package for the people in the state where flooding has created incredible hardships. Governor Dalrymple expressed appreciation to the Valley City representatives for the detailed information, and offered assurance that the state will continue to work with the Sheyenne valley downstream communities in their efforts toward permanent flood control.

**CITY OF LISBON FLOOD
PROTECTION 2011 REPORT
(SWC Project No. 1299)**

Ross Cole, Mayor, City of Lisbon, addressed the State Water Commission to provide an update on the flooding that occurred during the past three

years and the damages that the city of Lisbon has experienced. Temporary levees were constructed and removed in each of the three years. Due to the high costs of fighting the Sheyenne River, the city has depleted their funds. A 2011 flood improvement bond of \$1,475,000 was passed by the city to pay for the removal of levees and pay for buy-outs of homes along the river. A summary of the presentation is attached hereto as **APPENDIX "G"**.

The city has several areas where a permanent levee could be put in place. Properties were acquired with city funds during the first buy-out process, but an additional 22 homes would need to be purchased to gain access to the floodway to allow permanent levee construction. Erosion control is a major concern that will need to be corrected to prevent future damage to more properties. The river has been inundated by trees that have washed away which prevents the flow of ice and water from freely running through the Sheyenne River.

The project engineer's total cost estimate is \$18,200,000 (construction costs-\$12,470,000; land acquisitions (home buy-outs)-\$1,980,000; and professional services-\$3,750,000). A request from the City of Lisbon for state cost participation for home buy-outs was presented for the State Water Commission's consideration. Although the Commission did not act on the request at this meeting, Governor Dalrymple expressed appreciation for the detailed information, and offered assurance that the state will continue to work with the city in their efforts toward permanent flood control.

**DEVILS LAKE HYDROLOGIC,
AND PROJECTS UPDATES
(SWC Project No. 416-17)**

The Devils Lake hydrologic report, and project updates were provided, which are detailed in the staff memorandum, dated October 18, 2011, and attached hereto as **APPENDIX "H"**.

**NORTH DAKOTA DEVILS LAKE OUTLET -
SHEYENNE RIVER CROSSING B (EDDY
COUNTY) STATUS REPORT
(SWC Project No. 416-07)**

On October 26, 2010, the State Water Commission was informed of the inability of two river crossings located on the Sheyenne River downstream of the Devils Lake west outlet to handle

higher flows caused by the Devils Lake west outlet. The crossings are located in Eddy County in Section 19, Township 150 North, Range 64 West, and in Section 35, Township 150 North, Range 62 West. Since the required increased capacity at the crossings is to allow the Devils Lake west outlet to operate, the state has a significant responsibility.

The State Water Commission further considered the request to upgrade the crossings in Eddy County at its December 10, 2010 meeting. Because of the complexity and uniqueness of each project, Governor Dalrymple called for a motion to consider each project request separately: 1) Crossing A (upstream) is located in Section 19, Township 150 North, Range 64 West (the original construction cost was \$293,000). On December 10, 2011, the State Water Commission approved an allocation not to exceed \$500,000 to support the upgrade for capacity of up to 800 cubic feet per second (cfs) for Crossing A.

On December 10, 2010, a motion was offered by the State Water Commission that state funding not be allocated for the upgrade of Crossing B located in Section 35, Township 150 North, Range 62 West, Eddy county. Representatives from Eddy county provided technical information at that meeting involving Crossing B issues relating to legal, liability, ownership, and right-of-way. It was the general consensus of the State Water Commission members that resolve of these issues required additional information in order to make an informed decision. A motion was made to lay the question of the motion on the table.

On June 30, 2011, Commissioner Berg provided the Commission members with updated information following an onsite inspection. The Eddy County Commission stated it does not wish to pursue the project.

Odin and Joan Gleason, Hamar, ND, provided additional information relative to the crossing issues, discussed upgrade options, and expressed appreciation to the State Water Commission for its continued efforts in resolution of the issue. It was the general consensus that although the information was valuable and appreciated, there are issues that remain unresolved.

It was moved by Commissioner Berg, seconded by Commissioner Thompson, and unanimously carried, that the Secretary to the State Water Commission and the Commission staff proceed with the engineering to develop alternatives/cost estimates for the Eddy County Crossing B.

WESTERN AREA WATER SUPPLY (WAWS) PROJECT - APPROVAL OF DESIGN WORK FOR PHASES II AND III (SWC Project No. 1973)

2011 House Bill 1206 created the Western Area Water Supply project (WAWS), under chapter 61-40 of the North Dakota Century Code.

On June 21, 2011, the State Water Commission passed a motion to approve the Western Area Water Supply project, Phase I, an allocation not to exceed \$25,000,000, authorized in 2011 House Bill 1206, from the funds appropriated to the State Water Commission in the 2011-2013 biennium, for project construction, and that the Commission staff be delegated to review the specific plans and specifications.

The Western Area Water Supply project status report was provided, which is detailed in the staff memorandum, dated October 19, 2011, and attached hereto as **APPENDIX "I"**. In order for the Authority to access the remaining loans of \$85,000,000, the Bank of North Dakota's letter of conditions, dated September 16, 2011, requires the State Water Commission's approval of Phase II.

It was the recommendation of Secretary Sando that the State Water Commission approve the design work for the Western Area Water Supply project, Phases II and III, to allow completion of a project Phase II concept that is within the funding identified in House Bill 1206 which will be submitted to the State Water Commission.

It was moved by Commissioner Hanson and seconded by Commissioner Vosper that the State Water Commission approve the design work for the Western Area Water Supply project, Phases II and III, to allow completion of a project Phase II concept that is within the funding identified in House Bill 1206 which will be submitted to the State Water Commission.

Commissioners Berg, Foley, Goehring, Hanson, Olin, Thompson, Swenson, Vosper, and Governor Dalrymple voted aye. Governor Dalrymple announced the motion unanimously carried.

**NORTHWEST AREA WATER
SUPPLY (NAWS) PROJECT -
CONTRACT AND STATUS REPORT
(SWC Project No. 237-04)**

The Northwest Area Water Supply (NAWS) project status report was provided, which is detailed in the staff memorandum, dated October 19, 2011, and attached hereto as **APPENDIX "J"**.

**NORTHWEST AREA WATER SUPPLY
(NAWS) PROJECT - IMPROVEMENTS AT
MINOT WATER TREATMENT FACILITY
AND SCADA SYSTEM - AUTHORIZE
AWARD OF CONTRACT 7-1A
(SWC Project No. 237-04)**

Bids were opened for Northwest Area Water Supply (NAWS) project contract 7-1A for filter improvements at the Minot water treatment facility and the project's SCADA system on September 17, 2011. The contract involves retrofit of the 12 existing rapid gravity filters and

associated control systems, construction of a new water system for the treatment facility, construction of a new equalization basin, and improvements to the existing equalization basin and river pump station. The contract also includes a regional project SCADA system.

There were six bid packages received, but only four were opened as two used an incorrect bid bond form. The contract was divided into five bid schedules: 1) General Construction, 2) Mechanical Construction, 3) Electrical Construction, 4) Combined General, Mechanical, and Electrical Construction, and 5) Combined General and Mechanical Construction. The apparent low bids for Bid Schedule 5 was \$5,469,000 from PKG Contracting, Fargo, ND; and Bid Schedule 3 was \$2,423,743 from Main Electric, Minot, ND. The project engineer's estimate was \$8,987,637.10.

The contract documents specify that the State Water Commission has 90 days to award the contracts after the bid opening, and allows the Commission to select the most advantageous bids. The project engineer reviewed the bids and recommends the award of NAWS Contract 7-1A, General and Mechanical Construction, to PKG Contracting, Fargo, ND, and Contract 7-1A, Electrical Construction, to Main Electric, Minot, ND. The contracts will require approval by the Bureau of Reclamation, and the award of the contracts and notices to proceed are dependent on the satisfactory completion and submission of the contract documents by PKG Contracting and Main Electric, and the State Water Commission's legal counsel's review.

It was the recommendation of Secretary Sando that the State Water Commission authorize the Secretary to the State Water Commission to award Northwest Area Water Supply Project contract 7-1A, filter improvements at the Minot water treatment facility and the project's SCADA system, General and Mechanical Construction to PKG Contracting, Inc., Fargo, ND, in the amount of \$5,469,000, and Contract 7-1A, Electrical Construction, to Main Electric, Inc., Minot, ND, in the amount of \$2,423,743, contingent upon a legal review of the contract documents by the state, and written concurrence by the Bureau of Reclamation that the contract prerequisites have been satisfied.

It was moved by Commissioner Foley and seconded by Commissioner Berg that the State Water Commission authorize the secretary to the State Water Commission to award Northwest Area Water Supply Project contract 7-1A, filter improvements at the Minot water treatment facility and the project's SCADA system, General and Mechanical Construction, to PKG Contracting, Inc., Fargo, ND, in the amount of \$5,469,000, and Contract 7-1A, Electrical Construction, to Main Electric, Inc., Minot, ND, in the amount of \$2,423,743, contingent upon a legal review of the contract documents by the state, and written concurrence by the Bureau of Reclamation that the contract prerequisites have been satisfied.

Commissioners Berg, Foley, Hanson, Goehring, Olin, Swenson, Thompson, Vosper, and Governor Dalrymple voted aye. There were no nay votes. Governor Dalrymple announced the motion unanimously carried.

**SOUTHWEST PIPELINE PROJECT -
CONTRACT AND STATUS REPORT
(SWC Project No. 1736)**

The Southwest Pipeline Project contract and status reports were presented, which are detailed in the staff memorandum, dated October 17, 2011, and attached hereto as **APPENDIX "K"**.

**SOUTHWEST PIPELINE PROJECT -
FLOOD-RELATED DAMAGES -
APPROVAL OF REM FUNDS (\$35,363.32)
(SWC Project No. 1736)**

The Southwest Water Authority collects and maintains a reserve fund for replacement and extraordinary maintenance. This fund exists because over the life of the project there will occur

replacement and maintenance items that will exceed annual budgeted amounts. These items need to be prefunded. Expenditures from this fund are required to be authorized by the State Water Commission.

A request from the Southwest Water Authority was presented for the State Water Commission's determination that the damages created by the 2009 flood/tornado, 2010 power outage, and 2011 flood, which were not reimbursed by FEMA and/or state disaster recovery funds, are extraordinary maintenance and that reimbursement in the amount of \$35,363.32 be approved from the reserve fund for replacement and extraordinary maintenance. The Southwest Water Authority took similar action at its October 3, 2011 meeting.

It was the recommendation of Secretary Sando that the State Water Commission concur in the determination that the damages created by the 2009 flood/tornado, 2010 power outage, and 2011 flood, which were not reimbursed by FEMA and/or state disaster recovery funds, be considered as extraordinary maintenance and approve the reimbursement of \$35,363.32 from the reserve fund for replacement and extraordinary maintenance.

It was moved by Commissioner Goehring and seconded by Commissioner Swenson that the State Water Commission concur in the determination that the damages created by the 2009 flood/tornado, 2010 power outage, and 2011 flood, which were not reimbursed by FEMA and/or state disaster recovery funds, be considered as extraordinary maintenance and approve the reimbursement of \$35,363.32 from the reserve fund for replacement and extraordinary maintenance.

Commissioners Berg, Foley, Hanson, Goehring, Olin, Swenson, Thompson, Vosper, and Governor Dalrymple voted aye. There were no nay votes. Governor Dalrymple announced the motion unanimously carried.

**MISSOURI RIVER REPORT
(SWC Project No. 1392)**

The Missouri River report was provided, which is detailed in the staff memorandum, dated October 19, 2011, and attached hereto as **APPENDIX "L"**.

**GARRISON DIVERSION
CONSERVANCY DISTRICT
REPORT
(SWC Project No. 237)**

The Dakota Water Resources Act of 2000 authorized the Secretary of the Interior to conduct a comprehensive study of the water quantity and quality needs of the Red River valley in North

Dakota and possible options for meeting those needs. The Act identified two project-related studies: the *Report on Red River Valley Water Needs and Options*, and the *Red River Valley Water Supply Project Environmental Impact Statement (EIS)*. The Bureau of Reclamation completed the *Report on Red River Valley Water Needs and Options*. The State of North Dakota and the Bureau jointly prepared the EIS. Governor Hoeven designated the Garrison Diversion Conservancy District to represent the state in this endeavor.

The final EIS was available to the public on December 28, 2007. The Secretary of the Interior executed a memorandum on January 15, 2009 disclosing the following: the project selected to meet the needs of the Red River Valley is the preferred alternative, pipeline from the McClusky Canal to Lake Ashtabula; and, the identified treatment processes are adequate to meet the requirements of the Boundary Waters Treaty. The U.S. State Department requested that the Bureau of Reclamation delay executing the Record of Decision until discussions with Canada have been concluded.

Dave Koland, Garrison Diversion Conservancy District general manager, provided a status report relating to the specific efforts of the Red River Valley Water Supply project, and the District's ongoing activities.

**48TH ANNUAL JOINT NORTH
DAKOTA WATER CONVENTION
AND IRRIGATION EXPO; AND
NEXT STATE WATER
COMMISSION MEETING**

The 48th Annual Joint North Dakota Water Convention and Irrigation Expo is scheduled for December 6-9, 2011 at the Best Western Ramkota Hotel in Bismarck, N.D.

The next meeting of the State Water Commission is scheduled for December 9, 2011 at the Best Western Ramkota Hotel, Bismarck, N.D.

There being no additional business to come before the State Water Commission, Governor Dalrymple adjourned the meeting at 4:40 P.M.



Jack Dalrymple, Governor
Chairman, State Water Commission

Todd Sando, P.E.
North Dakota State Engineer,
and Chief Engineer-Secretary
to the State Water Commission

STATE WATER COMMISSION
 ALLOCATED PROGRAM EXPENDITURES
 FOR THE PERIOD ENDED SEPTEMBER 30, 2011
 BIENNIUM COMPLETE: 13%

APPENDIX "A"
 October 31, 2011

PROGRAM	SALARIES/ BENEFITS	OPERATING EXPENSES	GRANTS & CONTRACTS	19-Oct-11 PROGRAM TOTALS
ADMINISTRATION				
Allocated	1,926,299	1,303,575		3,229,874
Expended	236,745	94,893		331,638
Percent	12%	7%		10%
			Funding Source:	
			General Fund:	331,638
			Federal Fund:	0
			Special Fund:	0
PLANNING AND EDUCATION				
Allocated	1,285,138	212,198	99,000	1,596,336
Expended	150,687	26,726	10,525	187,938
Percent	12%	13%	11%	12%
			Funding Source:	
			General Fund:	139,961
			Federal Fund:	35,063
			Special Fund:	12,914
WATER APPROPRIATION				
Allocated	3,949,169	446,511	1,130,000	5,525,680
Expended	481,163	65,731	10,138	557,032
Percent	12%	15%	1%	10%
			Funding Source:	
			General Fund:	546,894
			Federal Fund:	0
			Special Fund:	10,138
WATER DEVELOPMENT				
Allocated	5,634,922	9,772,937	265,000	15,672,859
Expended	632,304	762,175	16,884	1,411,364
Percent	11%	8%	6%	9%
			Funding Source:	
			General Fund:	563,570
			Federal Fund:	158,659
			Special Fund:	689,135
STATEWIDE WATER PROJECTS				
Allocated			325,881,750	325,881,750
Expended			26,357,961	26,357,961
Percent			8%	8%
			Funding Source:	
			General Fund:	0
			Federal Fund:	68,759
			Special Fund:	26,289,202
ATMOSPHERIC RESOURCE				
Allocated	901,205	712,307	4,694,692	6,308,204
Expended	138,430	26,713	335,729	500,872
Percent	15%	4%	7%	8%
			Funding Source:	
			General Fund:	364,948
			Federal Fund:	0
			Special Fund:	135,923
SOUTHWEST PIPELINE				
Allocated	437,264	6,201,500	38,744,857	45,383,621
Expended	63,529	294,404	6,018,123	6,376,055
Percent	15%	5%	16%	14%
			Funding Source:	
			General Fund:	0
			Federal Fund:	5,563,233
			Special Fund:	812,822
NORTHWEST AREA WATER SUPPLY				
Allocated	604,626	5,235,500	49,976,971	55,817,097
Expended	53,608	203,307	2,603,163	2,860,078
Percent	9%	4%	5%	5%
			Funding Source:	
			General Fund:	0
			Federal Fund:	2,013,786
			Special Fund:	846,292
PROGRAM TOTALS				
Allocated	14,738,623	23,884,528	420,792,270	459,415,421
Expended	1,756,464	1,473,950	35,352,523	38,582,938
Percent	12%	6%	8%	8%
FUNDING SOURCE: ALLOCATION EXPENDITURES REVENUE				
GENERAL FUND	14,995,199	1,947,011	GENERAL FUND:	755
FEDERAL FUND	53,984,383	7,839,500	FEDERAL FUND:	7,284,685
SPECIAL FUND	390,435,838	28,796,426	SPECIAL FUND:	39,396,560
TOTAL	459,415,420	38,582,938	TOTAL:	46,682,000

October 31, 2011

**STATE WATER COMMISSION
PROJECTS/GRANTS/CONTRACT FUND
2011-2013 BIENNIUM**

Sep-11

	BUDGET	SWC/SE APPROVED	OBLIGATIONS EXPENDITURES	REMAINING UNOBLIGATED	REMAINING UNPAID
CITY FLOOD CONTROL					
FARGO/RIDGEWOOD	50,941	50,941	0	0	50,941
FARGO	66,473,088	66,473,088	0	0	66,473,088
GRAFTON	7,175,000	7,175,000	0	0	7,175,000
MINOT	2,000,000	750,000	0	1,250,000	750,000
WAHPETON	1,013,000	1,013,000	0	0	1,013,000
FLOOD CONTROL					
RENWICK DAM	1,246,571	1,246,571	0	0	1,246,571
WATER SUPPLY					
REGIONAL & LOCAL WATER SYSTEMS	22,952,898	22,952,897	2,820,997	0	20,131,900
VALLEY CITY WATER TREATMENT PLANT	15,386,800	15,386,800	3,250,063	0	12,136,737
FARGO REVERSE OSMOSIS PILOT STUDY	15,000,000	600,000	0	14,400,000	600,000
RED RIVER WATER SUPPLY	62,224	62,224	0	0	62,224
WESTERN AREA WATER SUPPLY	25,000,000	25,000,000	3,898,744	0	21,101,256
SOUTHWEST PIPELINE PROJECT	22,369,199	22,369,199	812,822	0	21,556,377
NORTHWEST AREA WATER SUPPLY	19,432,008	13,932,008	943,161	5,500,000	12,988,847
IRRIGATION DEVELOPMENT	3,608,353	608,353	0	3,000,000	608,353
GENERAL WATER MANAGEMENT					
OBLIGATED	21,370,350	21,370,350	294,610	0	21,075,739
UNOBLIGATED	15,638,860			15,638,860	0
DEVILS LAKE					
BASIN DEVELOPMENT	92,340	92,340	3,508	0	88,832
DIKE	12,254,788	12,254,788	0	0	12,254,788
OUTLET	2,420,212	2,420,212	2	0	2,420,210
OUTLET OPERATIONS	6,215,627	6,215,627	659,200	0	5,556,427
DL TOLNA COULEE DIVIDE	4,366,720	4,366,720	3,542,634	0	824,086
DL EAST END OUTLET	71,848,290	60,542,273	5,787,555	11,306,017	54,754,717
DL GRAVITY OUTFLOW CHANNEL	17,000,000	17,000,000	0	0	17,000,000
DL JOHNSON FARMS STORAGE	125,000	125,000	0	0	125,000
WEATHER MODIFICATIONS	894,314	894,314	0	0	894,314
TOTALS	353,996,582	302,901,704	22,013,297	51,094,878	280,888,407

**STATE WATER COMMISSION
PROJECTS/GRANTS/CONTRACT FUND
2011-2013 Biennium**

PROGRAM OBLIGATION

Approve SWC				Initial	Total	Total	Sep-11
By	No	Dept		Approved	Approved	Payments	Balance
				Date			
City Flood Control:							
SWC	1927	5000	Fargo/Ridgewood Flood Control Project	6/22/2005	50,941	0	50,941
SWC	1928	5000	Fargo Flood Control Project	6/23/2009	66,473,088	0	66,473,088
SWC	1771	5000	Grafton Flood Control Project	3/11/2010	7,175,000	0	7,175,000
SWC	1974	5000	Minot Mouse River Enhanced Flood Control Project	9/21/2011	750,000	0	750,000
SWC	518	5000	Wahpeton Flood Control	7/1/2011	1,013,000	0	1,013,000
Subtotal City Flood Control					75,462,029	0	75,462,029
Flood Control:							
SWC	849	5000	Renwick Dam Rehabilitation	5/17/2010	1,246,571	0	1,246,571
Water Supply Advances:							
SWC	2373-09	5000	South Central RWD (Phase II)	6/23/2008	1,295,056	39,034	1,256,022
	2373-31	5000	North Central Rural Water Consortium (Anamoose/Bei	6/23/2008	3,295,000	134,061	3,160,939
	2373-24	5000	Trails Regional Rural Water (Phase III)	8/18/2009	2,355,670	49,339	2,306,332
Water Supply Grants:							
	2373-17	5000	City of Parshall	6/23/2008	490,452	0	490,452
	2373-18	5000	Ray & Tioga Water Supply Association	12/17/2008	1,868,153	1,047,759	820,394
	2373-25	5000	McKenzie Phase II	6/23/2009	868,327	0	868,327
	2373-28	5000	McKenzie Phase IV	3/11/2010	2,352,244	1,395,695	956,549
	2373-29	5000	City of Wilrose - Crosby Water Supply	7/28/2010	97,218	0	97,218
	2373-32	5000	North Central Rural Water Consortium (Berthold-Carpi	6/21/2011	3,150,000	0	3,150,000
	2373-33	5000	Stutsman Rural Water System	6/21/2011	6,800,000	0	6,800,000
Subtotal Water Supply					22,572,121	2,665,888	19,906,232
HB No. 1305 Permanent Oil Trust Fund							
	2373-21	5000	Burke, Divide, Williams Water District	6/23/2009	189,415	57,892	131,523
	2373-22	5000	Ray & Tioga Water Supply Association	6/23/2009	191,362	97,218	94,144
Subtotal Permanent Oil Trust Fund					380,777	155,109	225,668
	2373-26	5000	Valley City Water Treatment Plant	8/18/2009	15,386,800	3,250,063	12,136,737
	2373FAR	5000	Fargo's Reverse Osmosis Pilot Study	6/21/2011	600,000	0	600,000
	1912	5000	Red River Valley Water Supply Project	3/17/2008	62,224	0	62,224
	1973	5000	Western Area Water Supply	7/1/2011	25,000,000	3,898,744	21,101,256
	1736-05	8000	Southwest Pipeline Project	7/1/2011	22,369,199	812,822	21,556,377
	2374	9000	Northwest Area Water Supply	7/1/2011	13,932,008	943,161	12,988,847
Subtotal Water Supply					77,350,231	8,904,790	68,445,441
Irrigation Development:							
SWC	1389	5000	BND AgPace Program	10/23/2001	98,907	0	98,907
SWC	AOC/IRA	5000	ND Irrigation Association	8/16/2011	100,000	0	100,000
SWC	1968	5000	2009-11 McClusky Canal Mile Marker 7.5 Irrigation Pr	6/1/2010	409,446	0	409,446
Subtotal Irrigation Development					608,353	0	608,353
General Water Management							
Hydrologic Investigations:					900,000		
SWC	1400/12	3000	Houston Engineering Water Permit Application Review	10/10/2010	8,500	6,372	2,128
	862	3000	Aretta Herman	6/1/2011	872	872	0
	967	3000	Holly Messmer - McDaniel	6/1/2011	0	0	0
	1690	3000	Holly Messmer - McDaniel	6/1/2011	936	936	0
	1703	3000	Neil Flaten	6/1/2011	1,044	1,044	0
	1707	3000	Neil Flaten	4/26/2011	682	682	0
	1761	3000	Gloria Roth	6/1/2011	233	233	0
	1761	3000	Fran Dobits	6/1/2011	0	0	0
	1395	3000	US Geological Survey, US Dept. Of Interior Upgrade o	4/14/2011	2,670	0	2,670
	1395	3000	US Geological Survey, US Dept. Of Interior Investigati	8/15/2011	431,807	0	431,807
Hydrologic Investigations Obligations Subtotal					446,744	10,138	436,605
Remaining Hydrologic Investigations Authority					453,257		
Hydrologic Investigations Authority Less Payments							

**STATE WATER COMMISSION
PROJECTS/GRANTS/CONTRACT FUND
2011-2013 Biennium**

PROGRAM OBLIGATION

Approve SWC			Initial	Total	Total	Sep-11	
By	No	Dept	Approved Date	Approved	Payments	Balance	
General Projects Obligated				20,347,423	161,545	20,185,878	
General Projects Completed				122,927	122,927	0	
Subtotal General Water Management				21,370,350	294,610	21,075,739	
<hr/>							
Devils Lake Basin Development:							
SWC	416-01	5000	Devils Lake Basin Joint Water Resource Manager	6/15/2011	60,000	0	60,000
SWC	416-02	5000	City of Devils Lake Levee System Extension & Raise	7/1/2011	12,254,788	0	12,254,788
SWC	416-05	2000	Devils Lake Outlet Awareness Manager	6/16/2011	32,340	3,508	28,832
SWC	416-07	5000	Devils Lake Outlet	7/1/2011	2,420,212	2	2,420,210
SWC	416-10	4700	Devils Lake Outlet Operations	7/1/2011	6,215,627	659,200	5,556,427
SWC	416-13	5000	DL Tolna Coulee Divide	7/1/2011	4,366,720	3,542,634	824,086
SWC	416-15	5000	DL East End Outlet	7/1/2011	60,542,273	5,787,555	54,754,717
SWC	416-17	5000	DL Emergency Gravity Outflow Channel	9/21/2011	17,000,000	0	17,000,000
SWC	416-18	5000	DL Johnson Farms Water Storage Site	6/10/2011	125,000	0	125,000
Devils Lake Subtotal					103,016,960	9,992,899	93,024,060
<hr/>							
SWC		7600	Weather Modification	7/1/2011	894,314	0	894,314
TOTAL					302,901,704	22,013,297	280,888,407

**STATE WATER COMMISSION
PROJECTS/GRANTS/CONTRACT FUND
2011-2013 Biennium
Resources Trust Fund**

GENERAL PROJECT OBLIGATIONS

Approved SWC By No	Dept	Approved Biennium		Initial Approved Date	Total Approved	Total Payments	Sep-11 Balance
SE 266	5000	2011-13	Tolna Dam 2011 EAP, Nelson County WRD	8/23/2011	9,600	0	9,600
SE 269	5000	2009-11	Fordville Dam Emergency Action Plan/GF CO.	3/3/2010	9,600	0	9,600
SWC 281	5000	2009-11	Three Affiliated Tribes/Fort Berthold Irrigation Study	10/26/2010	37,500	0	37,500
SWC 322	5000	2009-11	Long-Term Red River Flood Control Solutions Study (AOC/RRC)	6/23/2009	7,720	0	7,720
SWC 322	5000	2009-11	ND Water: A Century of Challenge	2/22/2010	34,300	0	34,300
SWC XXXX	5000	2009-11	Red River Joint WRD Watershed Feasibility Study - Phase 2	9/21/2011	60,000	0	60,000
SWC 327	5000	2009-11	White Earth Dam EAP	8/18/2009	25,000	0	25,000
SWC 347	5000	2009-11	City of Velva's Flood Control Levee System Certification	3/28/2011	102,000	0	102,000
SE 391	5000	2011-13	Silver Lake Dam Emergency Repairs, Sargent Co. WRD	10/12/2011	2,800	0	2,800
SE 501	5000	2009-11	Pheasant Lake Dam Emergency Action Plan	4/20/2011	9,600	0	9,600
SWC 528	5000	2009-11	McGregor Dam Emergency Action Plan	6/23/2009	25,000	0	25,000
SWC 568	5000	2011-13	Sheyenne River Snagging & Clearing Reaches 1-3 , Southeast Cass WRD	9/21/2011	255,750	0	255,750
SE 568	5000	2007-09	Sheyenne River Snagging & Clearing Project	4/11/2008	5,000	0	5,000
SWC 568	5000	2009-11	SCWRD Sheyenne River Snagging & Clearing Project	12/10/2010	362,250	0	362,250
SE 571	5000	2009-11	Oak Creek Snagging & Clearing Project	1/28/2011	5,000	0	5,000
SWC 620	5000	2007-09	Mandan Flood Control Protective Works (Levee)	9/29/2008	125,396	0	125,396
SE 642	5000	2009-11	Morton Co/Sweetbriar Dam Emergency Action Plan	5/17/2010	15,200	0	15,200
SWC 642-05	5000	2007-09	Sweetbriar Creek Dam Project	3/6/2009	26,356	0	26,356
SWC 646	5000	2009-11	Christine Dam Recreation Retrofit Project	10/26/2010	184,950	0	184,950
SWC 646	5000	2009-11	Hickson Dam Recreation Retrofit Project	10/26/2010	44,280	0	44,280
SWC 829	5000	2011-13	Rush River Dam Preliminary Soils & Hydraulic Study/Rush River WRD	9/21/2011	57,500	0	57,500
SE 839	5000	2009-11	Elm River Detention Dam No. 1 EAP	1/10/2011	12,160	0	12,160
SE 839	5000	2009-11	Elm River Detention Dam No. 3 EAP	12/6/2010	12,160	0	12,160
SWC 846	5000	2009-11	Morton Co.Square Butte Dam No. 5 EAP	12/10/2010	24,000	0	24,000
SWC 847	5000	2009-11	Swan-Buffero Detention Dam No. 12 Flood Control Dam Safety Project	7/28/2010	114,783	0	114,783
SE 847	5000	2009-11	Absaraka Dam Safety Analysis	8/31/2009	5,719	0	5,719
SWC 847	5000	2009-11	Swan Creek Diversion Channel Improvement Reconstruction	12/11/2009	76,528	0	76,528
SWC 928/988/1508	5000	2007-09	Southeast Cass WRD Bois, Wild Rice, & Antelope	6/23/2008	60,000	0	60,000
SE 929	5000	2009-11	Walsch Co. -Soukop Dam EAP	3/2/2011	10,000	0	10,000
SE 929	5000	2009-11	Walsch Co. -Chyle Dam EAP	5/6/2011	10,000	0	10,000
SWC 980	5000	2011-13	Maple River Watershed Food Water Retention Study/ Maple River WRD	9/21/2011	82,500	0	82,500
SE 985	5000	2009-11	Kolding Dam Emergency Action Plan	5/29/2009	9,600	0	9,600
SWC 1069	5000	2009-11	Cass County Drain No. 13 Improvement Reconstruction	8/18/2009	122,224	0	122,224
SWC 1070	5000	2009-11	Cass County Drain No. 14 Improvement Recon	8/18/2009	423,855	0	423,855
SWC 1088	5000	2009-11	Cass County Drain No. 37 Improvement Recon	8/18/2009	84,423	0	84,423
SWC 1093	5000	2007-09	Cass Co. Drain No. 45 Extension Project	3/17/2008	124,757	0	124,757
SWC 1101	5000	2011-13	Dickey Co. WRD, Yorktown-Maple Drainage Improvement Dist No. 3	9/21/2011	242,795	0	242,795
SWC 1101	5000	2011-13	Brokke Drain No. 30, Ervin Township, Traill Co.	9/21/2011	23,660	0	23,660
SWC 1101	5000	2011-13	Riverdale Township Improvement District #2 - Dickey -Sargent Co. WRD	9/21/2011	500,000	0	500,000
SE 1131	5000	2009-11	Elm River Detention Dam No. 2 Emergency Action Plan	12/6/2010	12,160	0	12,160
SWC 1131	5000	2009-13	Nelson Co. WRD Flood Related Water Projects	6/1/2011	250,000	0	250,000
SWC 1161	5000	2007-09	Pembina Co. Drain 55 Improvement Reconstruction	3/28/2011	88,868	0	88,868
SWC 1164	5000	2009-11	Pembina County Drain No. 64 Outlet Area Improvement	12/10/2010	41,480	0	41,480
SWC 1180	5000	2009-11	Richland Co. Drain No. 7 Improvement Reconstruction	3/11/2010	71,933	0	71,933
SWC 1219	5000	2011-13	District Drain No. 4 Reconstruction Project/ Sargent Co. WRD	9/21/2011	60,620	0	60,620
SWC 1219	5000	2011-13	City of Forman Floodwater Outlet - Sargent Co. WRD	9/21/2011	348,070	0	348,070
SWC 1232	5000	2009-11	Traill Co. Drain No. 13 Channel Extension Project	8/18/2009	23,575	0	23,575
SWC 1244	5000	2009-11	Traill Co. Drain No. 27 (Moen) Reconstruction & Extension	3/11/2010	678,485	0	678,485
SWC 1245	5000	2009-11	Traill Co. Drain No. 28 Extension & Improvement Project	3/28/2011	336,007	0	336,007
SWC 1252	5000	2011-13	Walsh Co. Reconstruction Drain No. 97	9/21/2011	50,551	0	50,551
SE 1289	5000	2009-11	McKenzie Co. Weed Control on Sovereign Lands	3/4/2011	11,705	0	11,705
SE 1291	5000	2009-11	Mercer County WRD Knife River Snagging & Clearing	11/1/2010	20,000	0	20,000
SWC 1299	5000	2009-11	City of Fort Ransom Riverbank Stabilization	9/1/2010	60,803	0	60,803
SE 1301	5000	2011-13	City of Wahpeton Water Reuse Feasibility Study/Richland Co.	9/8/2011	2,500	0	2,500
SE 1301	5000	2009-11	City of Lidgerwood Engineering & Feasibility Study for Flood Control	2/4/2011	15,850	0	15,850
SE 1303	5000	2011-13	Shortfood Creek Watershed Feasibility Study/ Sargent Co. WRD	9/15/2011	7,500	0	7,500
SE 1313	5000	2011-13	Ward Co. 2011 LIDAR Review & Data Creation Products	10/11/2011	16,311	0	16,311
SWC 1313	5000	2009-11	City of Minot/Ward Co. Aerial Photo & LIDAR	3/11/2010	186,780	0	186,780
SWC 1331	5000	2009-11	Richland Co. Drain No. 14 Improvement Reconstruction	3/11/2010	116,988	0	116,988
SWC 1344	5000	2009-11	Southeast Cass Sheyenne River (Horace Diversion Channel Site A)	3/11/2010	1,762,380	0	1,762,380
SWC 1344	5000	2011-13	Southeast Cass Sheyenne River Diversion Low-Flow Channel Areas 3 & 4	6/14/2011	2,802,000	0	2,802,000
SWC 1344	5000	2009-11	Southeast Cass Sheyenne Sheyenne Pump Station	3/28/2011	60,750	0	60,750
SE 1378	5000	2011-13	Clausen Springs Dam Emergency Action Plan /Barnes Co. WRD	8/23/2011	20,000	0	20,000
SWC 1378	5000	2009-11	Clausen Springs Dam Emergency Spillway Repair	10/26/2010	746,992	0	746,992
SWC 1392	5000	2011-13	U. S. Geological Hydrographic Survey of the Missouri River Bis - Washburn	6/15/2011	55,000	17,700	37,300
SE 1396	5000	2009-11	Dale Frink Consultant Services Agreement	10/26/2010	18,600	0	18,600
SWC 1401	5000	2009-11	International Boundary Roadway Dike Pembina	9/21/2009	227,431	0	227,431
SWC 1413	5000	2011-13	Traill Co/Buffero Coulee Snagging & Clearing	9/21/2011	25,000	0	25,000
SWC 1413	5000	2009-11	Traill Co/Buffero Coulee Snagging & Clearing	9/1/2010	26,000	0	26,000
SE 1431	5000	2009-11	NDDOT Aerial Photography - Missouri River	11/19/2010	35,177	35,177	0
SE 1433	5000	2009-11	Whitman Dam Emergency Action Plan	4/14/2011	10,000	0	10,000
SWC 1438	5000	2007-09	Mulberry Creek Drain Partial Improv Phase III	3/28/2011	226,118	0	226,118
SWC 1444	5000	2011-13	City of Pembina's Flood Control FEMA Levee Certification	3/11/2010	16,936	0	16,936
SE 1577	5000	2009-11	Burleigh Co - Fox Island 2010 Flood Hazard Mitigation Evaluation	8/9/2010	11,175	0	11,175
SWC 1577	5000	2009-11	Hazen Flood Control Levee (1517) & FEMA Accreditation	3/11/2010	449,500	0	449,500
SWC 1603	5000	2011-13	Rush River Drain No. 69, Armenia Township, Cass Co.	9/21/2011	313,500	0	313,500
SE 1607	5000	2011-13	Flood Inundation Mapping of Areas Along Souris & Des Lacs River	6/15/2011	13,011	0	13,011
SE 1625	5000	2009-11	Sovereign Lands Rules - ND Game & Fish	2/23/2010	6,788	0	6,788
SWC 1638	5000	2009-11	Red River Basin Non-NRCS Rural/Farmstead Ring Dike Program	6/23/2009	424,262	0	424,262
SWC 1667	5000	2011-13	Traill Co./Goose River Snagging & Clearing	9/21/2011	48,000	0	48,000
SWC 1667	5000	2009-11	Traill Co./Goose River Snagging & Clearing	9/1/2010	12,890	0	12,890
SWC 1671	5000	2011-13	Dead Cold Creek Dam 2011 Emergency Action Plan	6/14/2011	22,800	0	22,800

STATE WATER COMMISSION
PROJECTS/GRANTS/CONTRACT FUND
2011-2013 Biennium
Resources Trust Fund

GENERAL PROJECT OBLIGATIONS

Approved SWC By	No	Dept	Approved Biennium		Initial Approved Date	Total Approved	Total Payments	Sep-11 Balance
SWC	1705	5000	2011-13	Red River Basin Flood Control Coordinator Position	6/10/2011	36,000	0	36,000
SWC	1785	5000	2009-11	Maple River Dam EAP	8/18/2009	25,000	0	25,000
SE	1785	5000	2009-11	Sweetbriar Dam EAP	2/17/2010	15,200	0	15,200
SWC	1792	5000	2009-11	SE Cass Wild Rice River Dam Study Phase II	12/11/2009	130,000	0	130,000
SWC	1806	5000	2011-13	City of Argusville Flood Control Levee Project	9/21/2011	25,432	0	25,432
SWC	1842	5000	2011-13	SCWRD Wild Rice River Snagging & Clearing	9/21/2011	99,000	0	99,000
SE	1842	5000	2009-11	SCWRD Wild Rice River Snagging & Clearing	5/28/2009	4,331	0	4,331
SWC	1842	5000	2009-11	SCWRD Wild Rice River Snagging & Clearing	12/10/2010	100,625	0	100,625
SE	1842	5000	2009-11	Richland Co. - Ph 2- Wild Rice River Snagging & Clearing	2/1/2011	15,000	0	15,000
SWC	1842	5000	2009-11	Richland Co. Wild Rice River Snagging & Clearing Project - Reach 2	3/28/2011	47,500	0	47,500
SWC	XXXX	5000	2011-13	ND Dept of Health Non-Point Source EPA Pollution Program Priority Project	9/21/2011	200,000	0	200,000
SWC	1878-02	5000	2009-11	Maple-Steele Upper Maple River Dam PE & PD	12/10/2010	187,710	0	187,710
SWC	1882-01	5000	2009-11	(ESAP) Extended Storage Acreage Program	8/18/2009	63,554	0	63,554
SWC	1882-07	5000	2009-11	NDSU Development of SEBAL	9/1/2010	15,244	0	15,244
SWC	1878-02	5000	2011-13	Upper Maple River Dam Project Development & Preliminary Engineering	7/19/2011	187,710	0	187,710
SWC	1921	5000	2007-09	Square Butte Dam No. 6/Recreational Facility	3/23/2009	852,251	0	852,251
SWC	1942	5000	2007-09	Walsh County Assessment Drain 10, 10-1, 10-2	9/21/2009	37,267	0	37,267
SWC	1953	5000	2009-11	Walsh County Drain No. 73 Construction Project	8/18/2009	109,919	96,990	12,929
SWC	1960	5000	2009-11	Puppy Dog Flood Control Drain Construction	8/18/2009	796,976	0	796,976
SWC	1963	5000	2009-11	Beaver Bay Embankment Feasibility Study	8/10/2009	258,406	0	258,406
SWC	XXXX	5000	2011-13	USDA-APHIS North Dakota Wildlife Services - animal control/beaver mgmt	6/1/2011	250,000	0	250,000
SWC	1964	5000	2009-11	Hydraulic Effects of Rock Wedges Study- UND	11/12/2009	11,651	0	11,651
SWC	1965	5000	2009-11	ND Silver Jackets Team Charter & Action Plan	7/1/2011	0	821	(821)
SWC	1966	5000	2009-11	City of Oxbow Emergency Flood Fighting Barrier System	6/1/2010	188,400	0	188,400
SE	1967	5000	2009-11	Grand Forks County Legal Drain No. 55 2010 Construction	11/30/2010	9,652	0	9,652
SWC	1968	5000	2011-13	McClusky Canal Mile Marker 7.5 Irrigation Project Phase 1, GDCD	9/21/2011	489,039	0	489,039
SWC	1968	5000	2011-13	Absaraka Dam Improvement Rehabilitation Project	8/12/2011	114,783	0	114,783
SWC	1969	5000	2009-11	Construction of Walsh Co. Legal Assessment Drain # 71	3/28/2011	304,141	0	304,141
SWC	1970	5000	2009-11	Construction of Walsh Co. Legal Assessment Drain # 72	3/28/2011	144,807	0	144,807
SE	1971	5000	2011-13	DES Purchase of Mobile Stream Gages (2 temporary stream gages)	7/19/2011	8,000	0	8,000
SWC	1975	5000	2011-13	Walsh Co. Drain No. 31 Reconstruction Project	9/21/2011	111,116	0	111,116
SWC	1977	5000	2009-11	Jackson Township Improvement Dist. #1/Dickey-Sargent Co WRD	9/21/2011	500,000	0	500,000
SWC	1932	5000	2009-11	Peterson Slough into Dry Run Emergency	5/28/2010	32,150	0	32,150
SWC	1932	5000	2005-07	Michigan Spillway Rural Flood Assessment	8/30/2005	1,012,219	0	1,012,219
SWC	1932	5000	2005-07	Michigan Spillway Rural Flood Assessment Drain	8/30/2005	500,000	0	500,000
SE	PBS	5000	2009-11	PBS Documentary on Soil Salinity/Lake Agassiz RC & D	1/29/2010	1,000	0	1,000
SE	AOC/ARB/ND	5000	2009-11	NDSU Dept of Soil Science - NDAWN Center	3/8/2010	3,000	0	3,000
SE	AOC/RRBC	5000	2009-11	Red River Basin "A River Runs North"	6/30/2010	5,000	0	5,000
SWC	AOC/RRBC	5000	2011-13	Red River Basin Commission Contractor	8/2/2011	200,000	0	200,000
SWC	AOC/WEF	5000	2011-13	ND Water Education/North Dakota Water Magazine	6/10/2011	36,000	0	36,000
SWC	PS/IRR/NES	5000	2009-11	NDSU Williston Research Extension Center - purchase of irrigation equip	3/28/2011	60,050	0	60,050
SWC	PS/WRD/MRJ	5000	2009-11	Missouri River Joint Water Board, (MRJWB) Start up	12/5/2008	14,829	10,857	3,972
SE	PS/WRD/MRJ	5000	2011-13	Missouri River Joint Water Board, (MRJWB) Start up	8/2/2011	20,000	0	20,000
SE	PS/WRD/MRJ	5000	2011-13	Missouri River Joint Water Board (MRRIC) T. FLECK	8/2/2011	40,000	0	40,000
SE	PS/WRD/USR	5000	2011-13	Upper Sheyenne River WRB Administration (USRJWRB)	6/15/2011	6,000	0	6,000
TOTAL						20,347,423	161,545	20,185,878

**STATE WATER COMMISSION
PROJECTS/GRANTS/CONTRACT FUND
2011-2013 Biennium
Resources Trust Fund**

COMPLETED GENERAL PROJECTS

Approved By	SWC No	Dept	Approved Biennium		Initial Approved Date	Total Approved	Total Payments	Sep-11 Balance
SWC	1068	5000	2009-11	Cass County Drain No. 12 Improvement Reconstruction	8/18/2009	500,000	0	500,000
SWC	1971	5000	2009-11	DES Purchase of Mobile Stream Gages	3/28/2011	16,457	16,457	0
SWC	AOC/RRBC	5000	2009-11	Red River Basin Commission Contractor	7/1/2009	100,000	100,000	0

TOTAL

616,457 116,457 500,000

**A Summary of Water Availability, Allocation, Use,
and Water Use Monitoring for Oil Field Industrial
Needs in Western North Dakota**

**By
The Water Appropriations Division
North Dakota State Water Commission**

**Presented at the October 31, 2011 North Dakota State Water Commission
Meeting
State Office Building
Bismarck, North Dakota**

KEY POINTS

WATER AVAILABILITY ALLOCATION AND USE FOR OIL FIELD INDUSTRIAL USE IN NORTHWESTERN NORTH DAKOTA

- We are not depleting aquifers of glacial origin in northwestern North Dakota.
- Water level trends in the West Wildrose and Ray (near the City of Ray) aquifers may indicate long-term depletion.
- Water levels in the West Wildrose and Ray aquifers are and will be closely monitored in the future, and if long-term depletion is indicated, pumping for industrial use will be curtailed to protect the rights of other water users.
- Additional ground water is available for appropriation in northwestern North Dakota.
- We do not know how much additional water is available on a sustainable basis from aquifers in northwestern North Dakota.
- Due to hydrologic system uncertainty we must allocate additional ground water using an “incremental development” approach.
- The “incremental development” approach takes many years to allocate the volume of ground water that is sustainable.
- The “incremental development” approach to ground water management prevents full allocation of water quickly and in a timely manner.
- The Missouri River/Lake Sakakawea is very reliable water source in terms of both water quality and quantity.
- The State Engineer can grant approval on water permit applications from the Missouri River/Lake Sakakawea quickly and in a timely manner (generally within 90 days).
- Since the summer of 2010, the US Army Corps of Engineers (COE) has prevented access to the Missouri River/Lake Sakakawea pending a decision regarding levying “surplus storage” fees for municipal and industrial withdrawals from the Missouri River/Lake Sakakawea.
- “Surplus storage” fees may inhibit future diversion of water from the Missouri River/Lake Sakakawea
- In response to the COE limiting access to the Missouri River/Lake Sakakawea, the State Engineer developed policies to temporarily allow for the conversion of irrigation water permits to industrial water permits and to issue temporary water permits from surface water sources.
- For 2011, under these two temporary programs the State Engineer has approved 15,437.1 acre-feet of water for oil field industrial use.
- The Oil & Gas Division estimates 2500 new oil wells per year over the next 15-25 years with an average water demand of 2 million gallons per oil well.
- Estimated annual oil field water demand = 22,400 acre-feet.
- The State Engineer has currently permitted 46, 972.1 acre-feet for oil field industrial use.
- 20,000 acre-feet of the 46,972.1 acre-feet cannot be diverted and put to beneficial use due to COE policy preventing access to Missouri River/Lake Sakakawea.
- This still leaves 26,972.1 acre-feet, which is greater than the estimated 22,400 acre-feet annual demand.
- Water could be more efficiently distributed to oil field with access to Missouri River/Lake Sakakawea
- Current water use reporting/monitoring system used by Water Appropriations Division does not indicate large scale, widespread, permit exceedance or unauthorized water use for oil field applications.

- Five water users pumping in excess of their water allocations or pumping without permit authorization have been served with cease and desist orders, fined, and/or have had future allocations reduced in the amount of water pumped in excess.
- No undue harm to other water users has occurred from permit exceedance or unauthorized pumping.
- The Water Appropriations Division will initiate a more comprehensive industrial water use monitoring program beginning in 2012.
- Industrial water permit holders (>15 ac-ft/yr) for oil field water depots will be required to report monthly water use, and beginning and ending meter readings, that will be periodically checked by Water Appropriations Division staff to corroborate reported meter readings.
- In 2012, the Water Appropriations Division will pilot a remote, water metering telemetry system by purchasing one OnSet HOB0 telemetry system and two McCrometer Remote Connect RC45 telemetry systems and deploying them on selected existing water depots providing water to the oil industry.

Water Availability and Management Issues in Northwestern North Dakota

Ground Water Sources

The State Engineer allocates ground water from aquifers to maximize beneficial use while maintaining long-term sustainability of the resource. The primary goal is to prevent groundwater depletion resulting from sustained ground-water mining. Aquifers function as underground reservoirs that both store and transmit water. During periods of drought, more water will be withdrawn from storage and aquifer water levels will temporarily decline. During wetter periods, aquifer water levels will rise as the aquifer is recharged and more water moves into storage. In times of severe drought, as experienced, during the 1930's, pumping by permit holders with junior priority dates could be temporarily curtailed to protect the rights of permit holders and other water users with senior priority dates.

With increased demand for water for oil field use (hydro-fracing), concern has been expressed about how aquifers in western North Dakota have responded to increased pumping. As a result, the State Engineer has increased monitoring in aquifers throughout most of western North Dakota. Attached are aquifer maps and associated hydrographs showing water-level trends in the Little Muddy, Hofflund, West Wildrose, Killdeer, Ray and Tobacco Garden aquifers (Figs. 1-6). Except for the West Wildrose and Ray aquifers, there is no evidence of sustained ground-water mining and depletion. There is some concern with water-level trends in the West Wildrose and Ray aquifers (near the city of Ray) (Figs. 2 and 5). As a result, water levels in these aquifers will continue to be closely monitored. If future pumping should indicate a water level trend that would result in aquifer depletion, pumping will be curtailed by the State Engineer to protect the rights of water users with senior priority dates including domestic/stock water supplies. The large water-level decline in the Hofflund aquifer from about 2001 through 2009 is due almost entirely to the decline in water levels of Lake Sakakawea, because Lake Sakakawea is hydraulically connected to the Hofflund aquifer (Fig. 4). Except for the West Wildrose aquifer, all aquifers show a significant rise in water levels during 2010 in response to the wetter climate conditions and associated increases in ground water recharge.

There is additional ground water available for appropriation in most aquifers in western North Dakota. At this point in time, it is not possible to determine the maximum volume of ground water that can be withdrawn annually on a sustainable basis from each aquifer. Due to climate variability, aquifer recharge and discharge are characterized by a significant amount of uncertainty. Considerable uncertainty also exists with respect to aquifer geometry and hydraulic properties. In addition, large-scale pumping in some aquifers may cause water quality degradation.

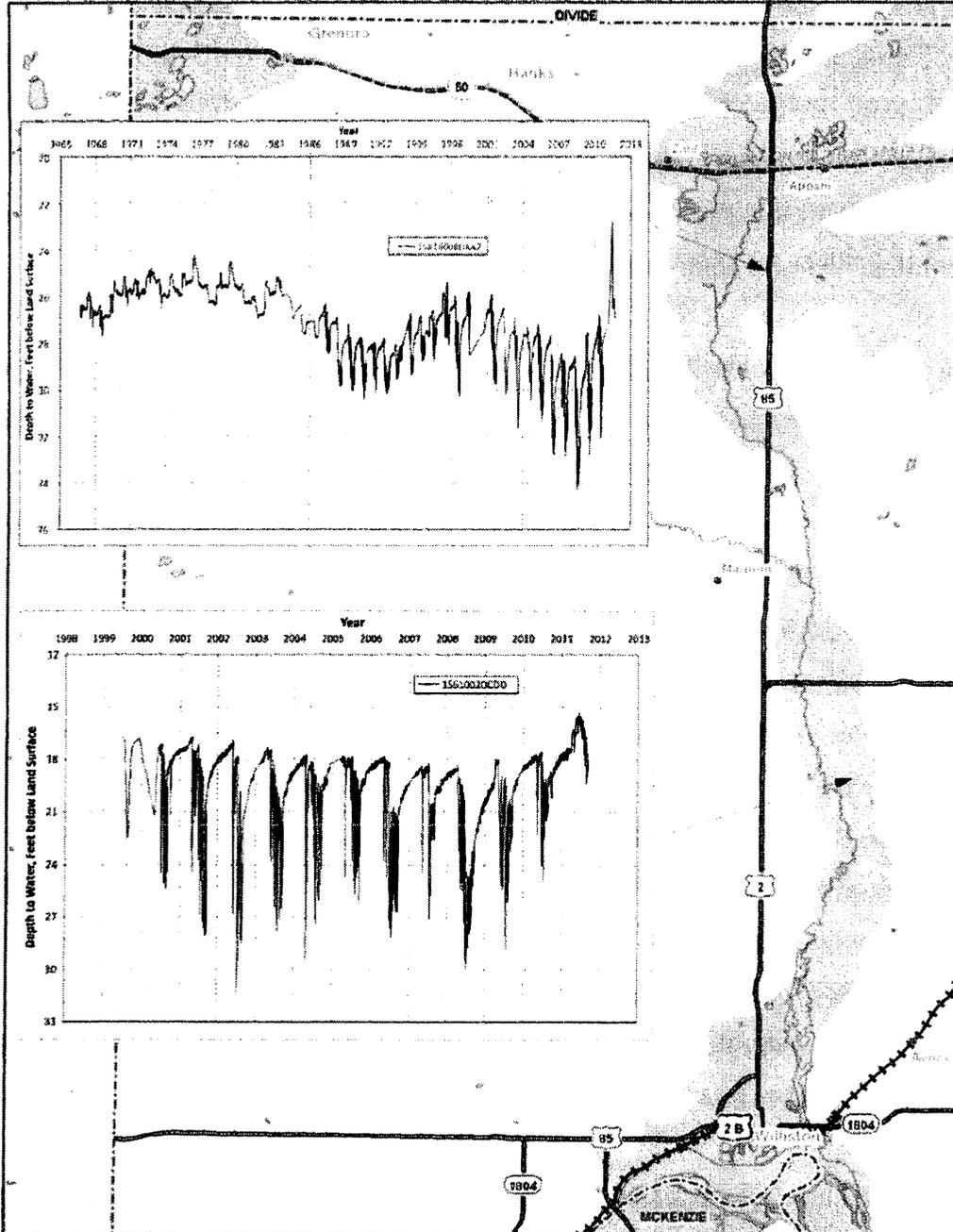


Figure 1. Hydrographs of observation wells completed in Little Muddy Aquifer north of Williston, ND in Williams County.

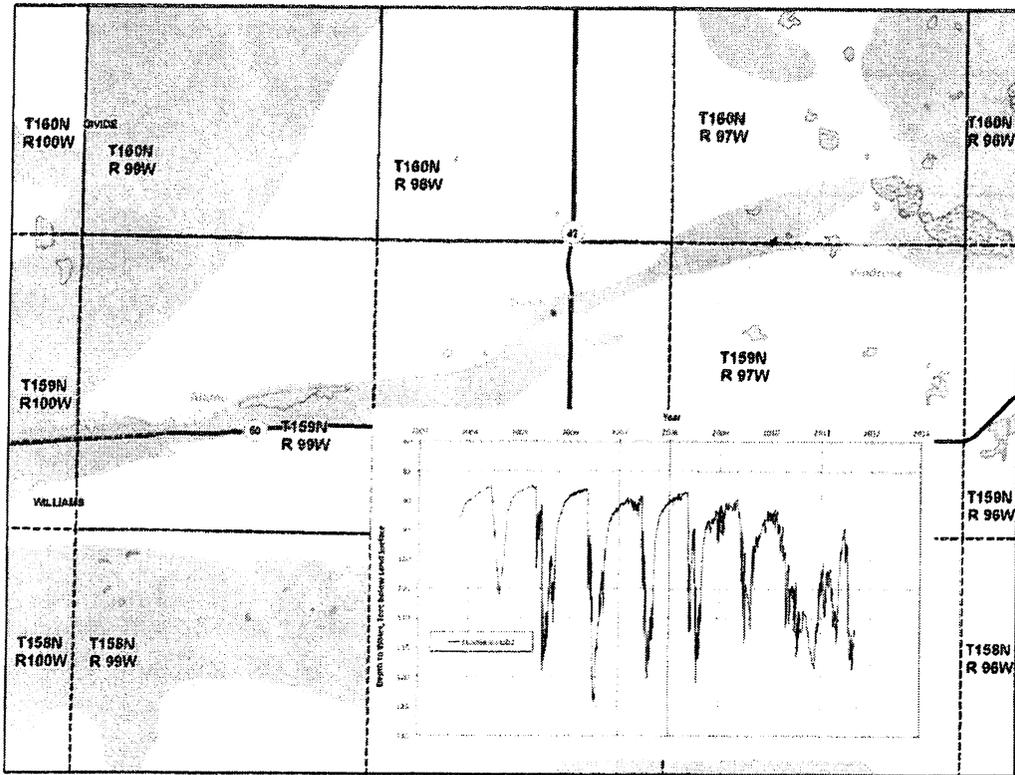


Figure 2. Hydrograph of observation well completed in West Wildrose Aquifer, 2-miles west of Wildrose, ND.

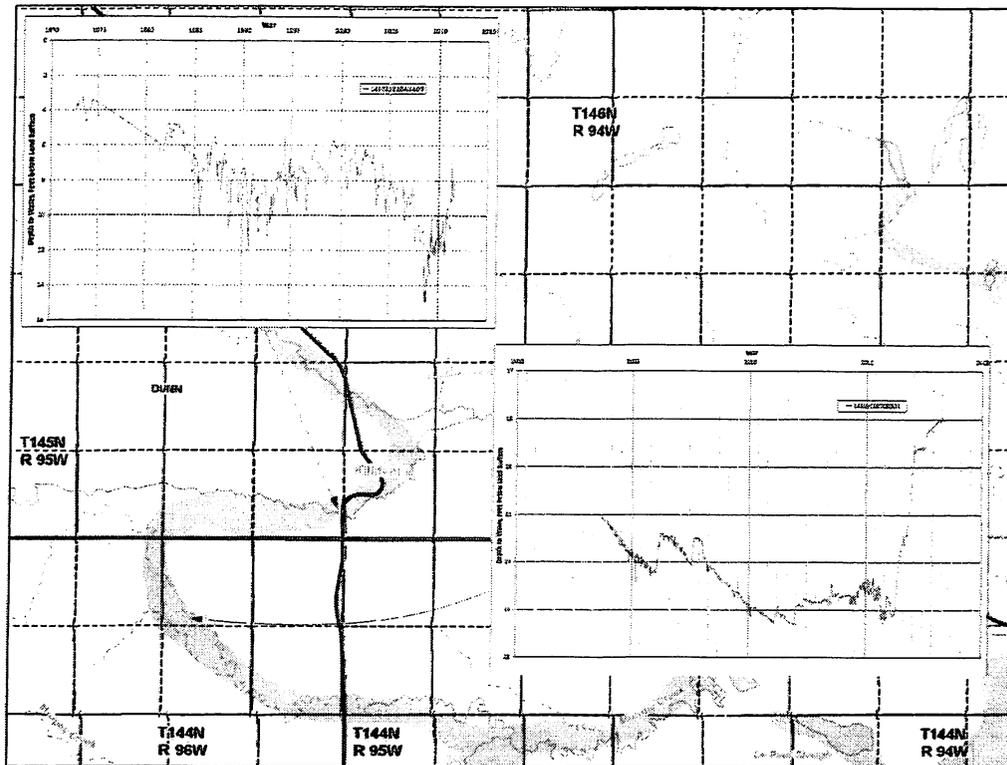


Figure 3. Hydrographs of observation wells completed in Killdeer Aquifer around Killdeer, ND.

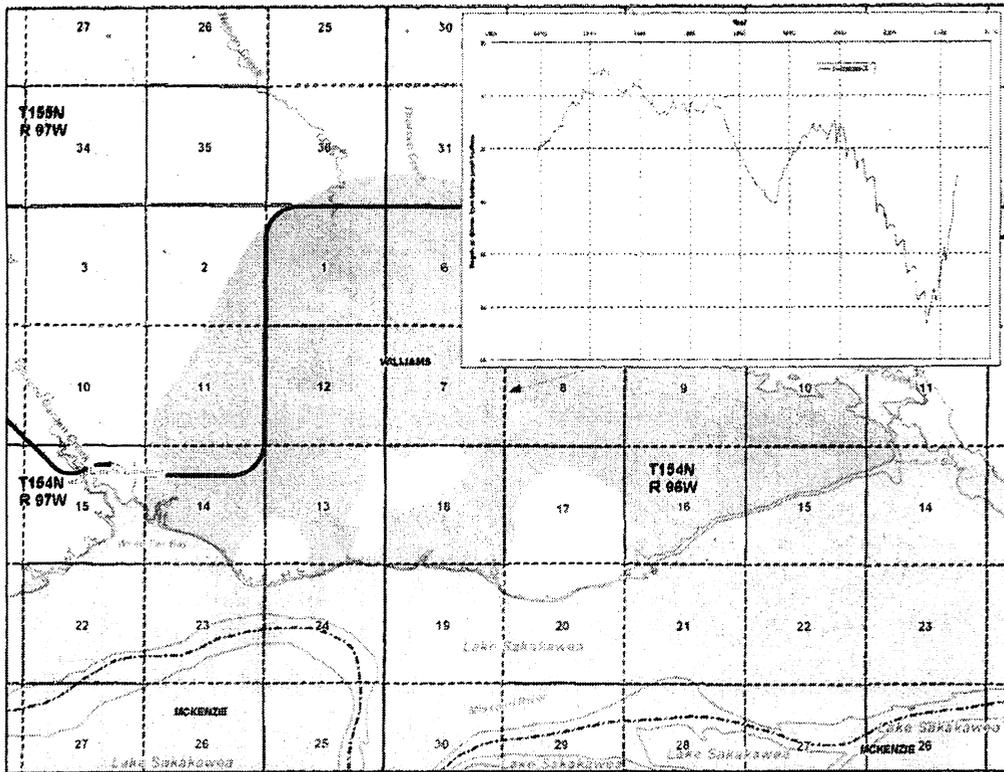


Figure 4. Hydrograph of observation well completed in Hofflund Aquifer in southeastern Willams County, North Dakota.

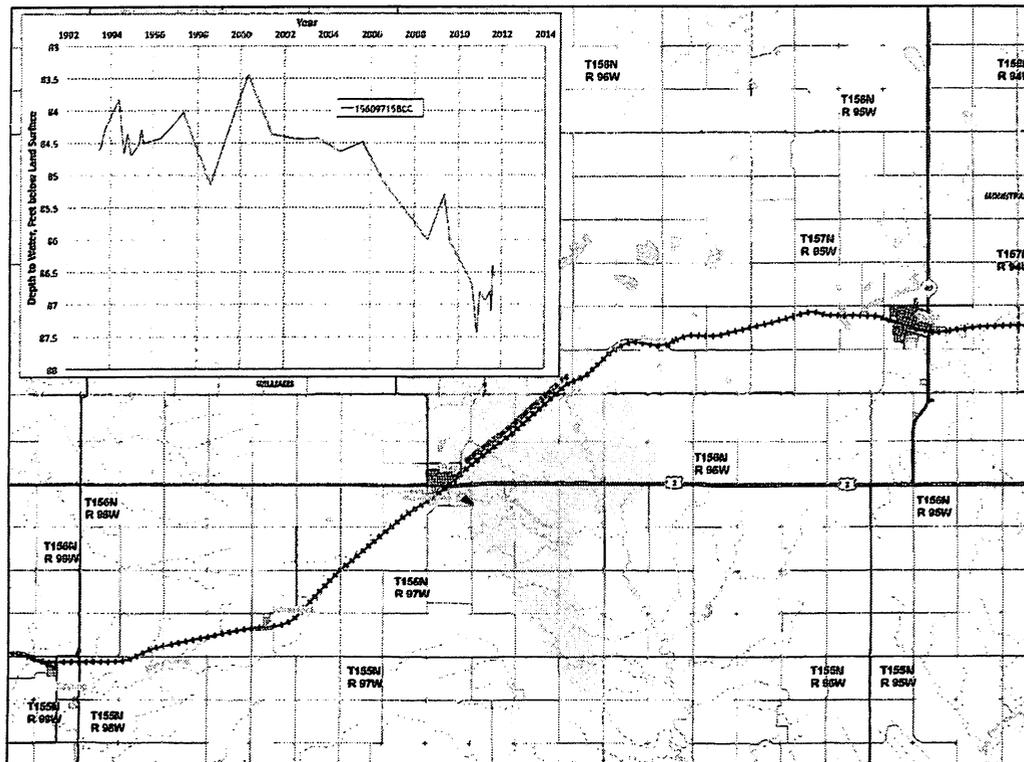


Figure 5. Hydrograph of observation well completed in Ray Aquifer just south of Ray-Tloga Water Supply well field near Ray, ND.

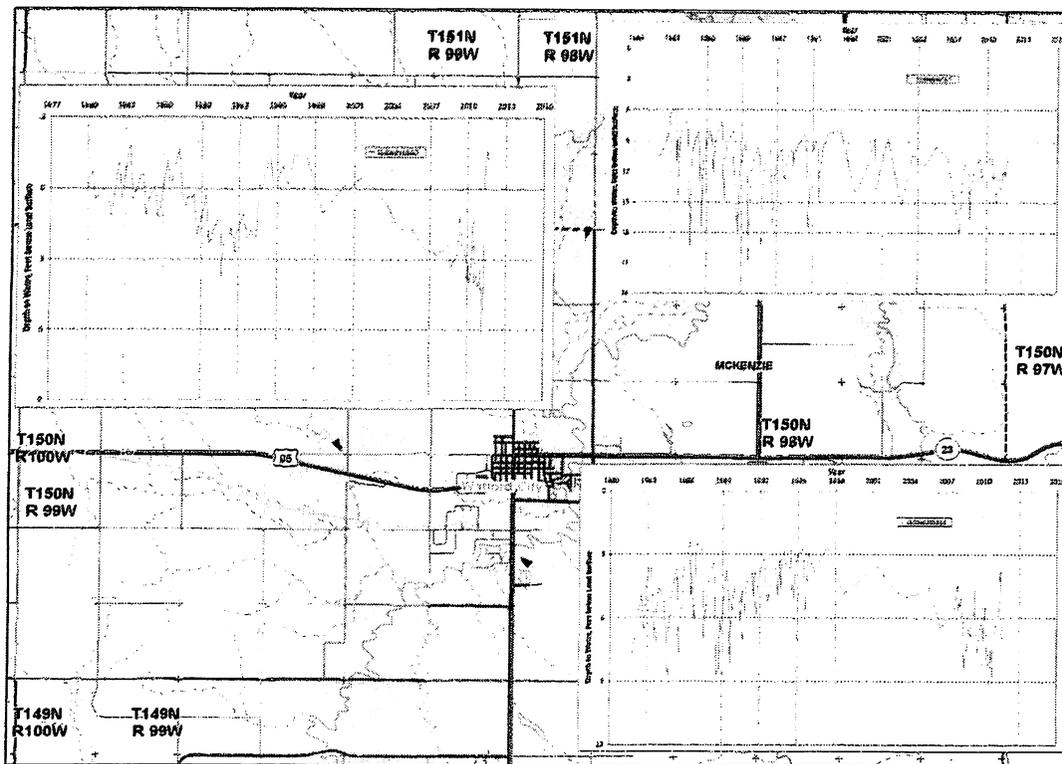


Figure 6. Hydrographs of observation wells completed in Tobacco Garden Creek Aquifer around Watford City, ND in McKenzie County.

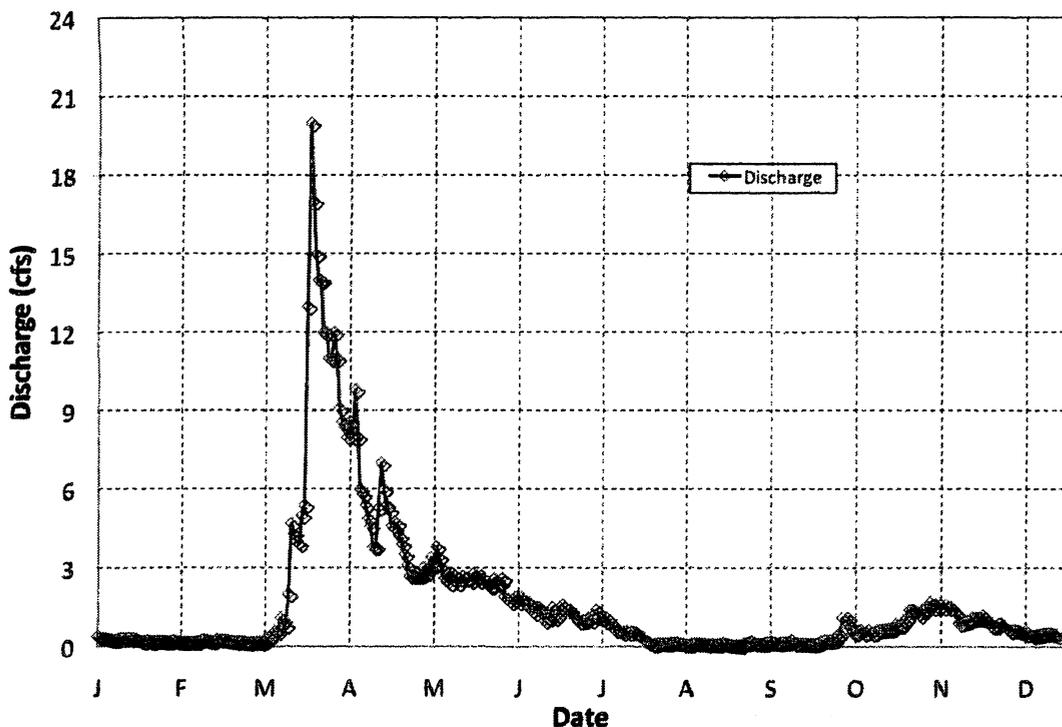
Given the above uncertainties, the State Engineer allocates ground water using an “incremental development” approach. Initially, conservative amounts of ground water are approved for appropriation in a given aquifer by the State Engineer and action on additional water permit applications is deferred pending the analysis of aquifer response data. Based on the fact that aquifers respond rather slowly to increased pumping, it can take two to three years or more of water level/quality monitoring before additional water permit applications can be approved. In short, additional ground water is expected to be available for appropriation in most of the aquifers in western North Dakota. At this time, we do not know what that maximum sustainable amount is and we will not be able to allocate that maximum sustainable amount in a very timely manner.

Surface Water Resources

Surface water supplies, other than the Missouri River/Lake Sakakawea, do not have the potential to satisfy a large part of the water needs for oil field industrial use in western North Dakota. Many of the streams and small rivers will have a significant volume of flow in the spring resulting from snowmelt (Fig. 7). However, during the rest of the year, these streams and small rivers have little to no flow and are very dependent upon precipitation and to some extent, ground water input from bank storage to

generate any additional flows. Therefore, the streams and small rivers are not deemed dependable for the amount of water needed in the future for oil field/industrial use in western North Dakota.

Figure 7. – Mean daily stream discharge for the period of record in the East Fork of Shell Creek near Parshall, ND

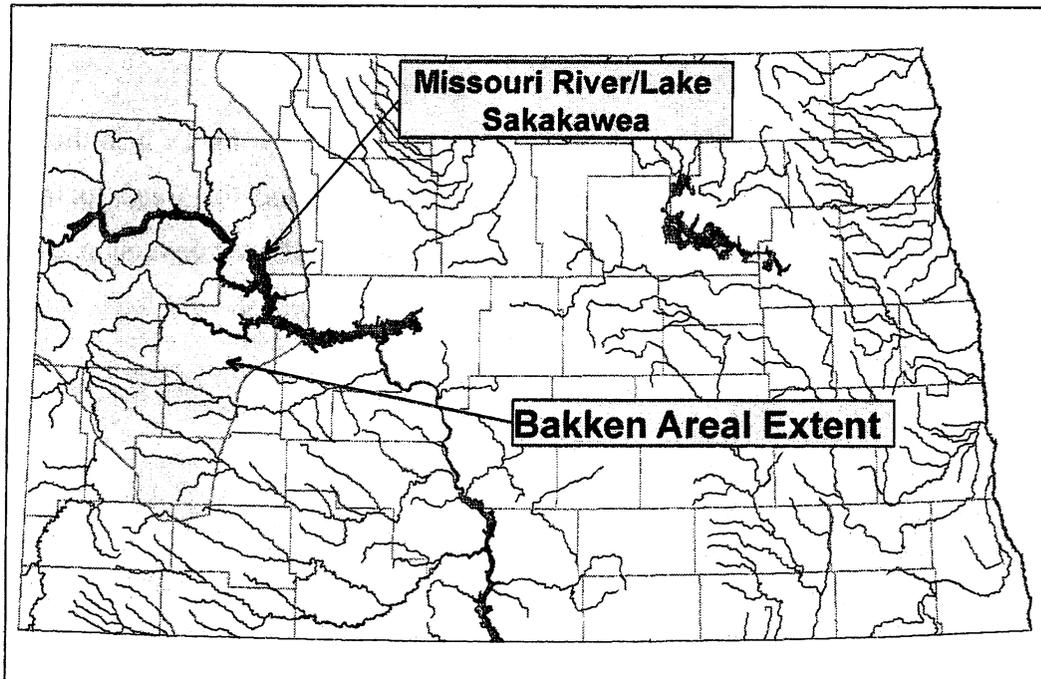


Smaller streams and rivers also are characterized by temporal variability in water quality. During spring runoff periods, streams and rivers generally are characterized by lower dissolved solids (salts) concentrations. After the spring snowmelt period, base flows in rivers and streams generally are characterized by increased dissolved solids concentrations in response to an increase in ground-water input from bank storage. Changes in water chemistry generally are not acceptable for oil field industrial use.

There is one water source in western North Dakota that can easily meet the needs of the oil industry, and that source is the Missouri River/Lake Sakakawea. The Missouri River/Lake Sakakawea is a reliable water supply in terms of both quantity and quality. In addition, the Missouri River/Lake Sakakawea is a strategically located water source that essentially bisects the area of Bakken oil development (Fig 8). Due to the large volume of flow in the Missouri River in northwest North Dakota and small levels of demand relative to the large volume of natural flows, water permit applications requesting to divert water from the Missouri River can generally be processed by the State Engineer in a timely manner

(about 90 days). Since the summer of 2010, the US Army Corps of Engineers (COE) has prevented access to the Missouri River/Lake Sakakawea for industrial use until a decision is made regarding the levying of “surplus storage” fees on municipal and industrial water users.

Figure 8. – Location of Lake Sakakawea/Missouri River in relation to the extent of the Bakken oil field



The proposed fee is \$20.91 per acre-foot of water allocated on an annual basis, not what is actually used on an annual basis. This “surplus storage” fee may inhibit future diversion of water for beneficial use from the Missouri River/Lake Sakakawea.

Access to other areas of the Missouri River and other tributary streams and rivers covered by COE flowage easements may also be restricted and pumping may be subject to “surplus storage” fees. This issue is currently under evaluation by COE legal staff. Until a final decision is made by the COE regarding “surplus storage” fees, no new permits will be issued by the COE allowing access to the Missouri River/Lake Sakakawea for the diversion of water for industrial use.

In addition to the above, the COE will be placing the following conditions on new water intakes in Lake Sakakawea. These are:

1. No less than a 25-mile radius between industrial intakes that are authorized on Lake Sakakawea.
2. A market study will be required.
3. Existing infrastructure will be considered (main roads, utilities, etc.)
4. An Environmental Assessment is required.
5. There are several environmental requirements as well to protect critical habitat, migratory birds, threatened and endangered species, etc.

Given these requirements, permit evaluations and the issuance of permits by the COE in the future will likely not be completed in a timely manner. To meet the current demand for water to facilitate oil production, the State Engineer has developed policies to temporarily allow conversion of irrigation permits to industrial (water depot) permits and to issue temporary water permits from surface water sources.

Temporary Conversion of Irrigation Water Permits to Industrial Use

In 2010, the State Engineer developed a policy to allow for the temporary conversion of existing irrigation use permits to industrial use permits as a result of action by the COE to prevent access to the Missouri River/Lake Sakakawea. As a condition to the temporary industrial water permit issued, the permit holder must forgo irrigation on a specified tract of land for the entire calendar year. The annual volume of water temporarily permitted for industrial use is based on the average annual irrigation use over the tract of land and not the full annual irrigation allocation. This requirement was deemed necessary to prevent over allocation that could occur in an aquifer if there were numerous temporary conversions approved for industrial use.

Table 1 lists the permits that have been approved for temporary conversion from irrigation to industrial use. The volume of temporary conversions to industrial use was 573 acre-feet in 2010 and 2,464 acre-feet in 2011. Figure 9 shows the areal distribution of all approved water permits allowing for conversion from irrigation to industrial use in 2011.

**Table 1. -- Temporary Water Permits Allowing for Conversion from Irrigation to Industrial Use
(as of 10/12/11)**

PERMIT NUMBER	PERMIT HOLDER	POINT OF DIVERSION	REQUESTED		SOURCE	TEMP NUMBER	INDUSTRIAL ALLOCATION Acre-feet	START DATE	END DATE
			APPROP	GW/SW					
3010	MARK JOHNSRUD	15009806A	275	GW	Tobacco Garden Aquifer	2010-4138	151	5/6/10	12/31/10
3511	MARK JOHNSRUD	15109831D	240	GW	Tobacco Garden Aquifer	2010-4139	128	5/6/10	12/31/10
2510	DON REISTAD	15310234C	100	GW	Skjermo Lake Aquifer	2010-4259	50	7/1/10	12/31/10
2454	JOHN M. AMES, et. tal.	16009732D	187.7	GW	West Wildrose Aquifer	2010-4256	50	8/11/10	12/31/10
1077	ALVIN JACOBSON	155100178B	60.4	SW	Little Muddy River	2010-4337	60.4	9/15/10	12/31/10
4983	KRABSETH FARMS LLC	15810021B	191	GW	Little Muddy Aquifer	2010-4350	68	10/15/10	12/31/10
5208	GERALD W. BERGER	15610005C	595	GW	Little Muddy Aquifer	2010-4342	33	11/4/10	12/31/10
5209	JEFFREY W. BERGER	15610005C	33.1	GW	Little Muddy Aquifer	2010-4342	33	11/4/10	12/31/10
2454	JOHN M. AMES, et. tal.	16009732D	187.7	GW	West Wildrose Aquifer	2010-4343	112	1/1/11	12/21/11
4669	L. DUANE BERG	15910017D	214.5	GW	Little Muddy Aquifer	2010-4351	114	1/1/11	12/31/11
4983	KRABSETH FARMS LLC	15810021B	191	GW	Little Muddy Aquifer	2010-4348	68	1/1/11	12/31/11
5427A	JOHNSON, BRUCE	15510017A	190	GW	Little Muddy Aquifer	2010-4397	45	1/1/11	12/31/11
3750	GREG QUARNE	15909505C	450	GW	Undefined aquifer	2010-4400	129	1/1/11	12/31/11
5560	DALLAS LALIM	15409616B	320	GW	Hoffund Aquifer	2010-4333	145	1/11/11	12/31/11
1077	ALVIN JACOBSON	155100178B	60.4	SW	Little Muddy River	2010-4353	28.1	1/11/11	12/31/11
3010	MARK JOHNSRUD	15009806A	151	GW	Tobacco Garden Aquifer	2011-4410	151	1/1/11	12/31/11
3511	MARK JOHNSRUD	15109831D	128	GW	Tobacco Garden Aquifer	2011-4411	128	1/1/11	12/31/11
2510	DON REISTAD	15310234C	100	GW	Skjermo Lake Aquifer	2011-4412	100	1/1/11	12/31/11
3974	RICK SORENSON	15610020C	92.1	GW	Little Muddy Aquifer	2011-4418	91	1/18/11	12/31/11
5677	RICK SORENSON	16010028D	92.1	GW	Smoky Butte Aquifer	2011-4419	70	1/18/11	12/31/11
5239	TERRY SMITH	15610021C	307	GW	Little Muddy Aquifer	2011-4420	274	1/25/11	12/31/11
5386	TIM DWYER	15110214B	234	GW	Charbonneau Aquifer	2011-4435	106	4/15/11	10/15/11
3493	RICHARD GJEDSAL ESTATE	16310232S	55	GW	Skjermo Lake Aquifer	2011-4437	15	1/1/11	12/31/11
3493	RICHARD GJEDSAL ESTATE	16210206N	55	GW	Skjermo Lake Aquifer	2011-4439	11	1/1/11	12/31/11
3493	RICHARD GJEDSAL ESTATE	16310231E	55	GW	Skjermo Lake Aquifer	2011-4440	1	1/1/11	12/31/11
5408	RON AND MAVIS BERRY	15110436D	92	GW	Charbonneau Aquifer	2011-4453	92	5/1/11	12/31/11
1017	JOHN M. AMES, et. al.	16009732D	200	GW	West Wildrose Aquifer	2011-4467	127	4/15/11	12/31/11
5684	BRATCHER FARMS	15110109B	200	GW	Charbonneau Aquifer	2011-4486	118	6/1/11	12/31/11
5340	MIKE DWYER	15110220D	41.7	GW	Charbonneau Aquifer	2011-4591	42	7/21/11	12/31/11
5757	TOBY HELGESON	15810032B	120	GW	Little Muddy Aquifer	2011-4690	98	9/21/11	12/31/11
5704	BILL SHELDON	15409618D	400	GW	Hoffund Aquifer	2011-4719	399	10/3/11	12/31/11

2010 Total = 573 acre-feet
2011 Total = 2,464 acre-feet

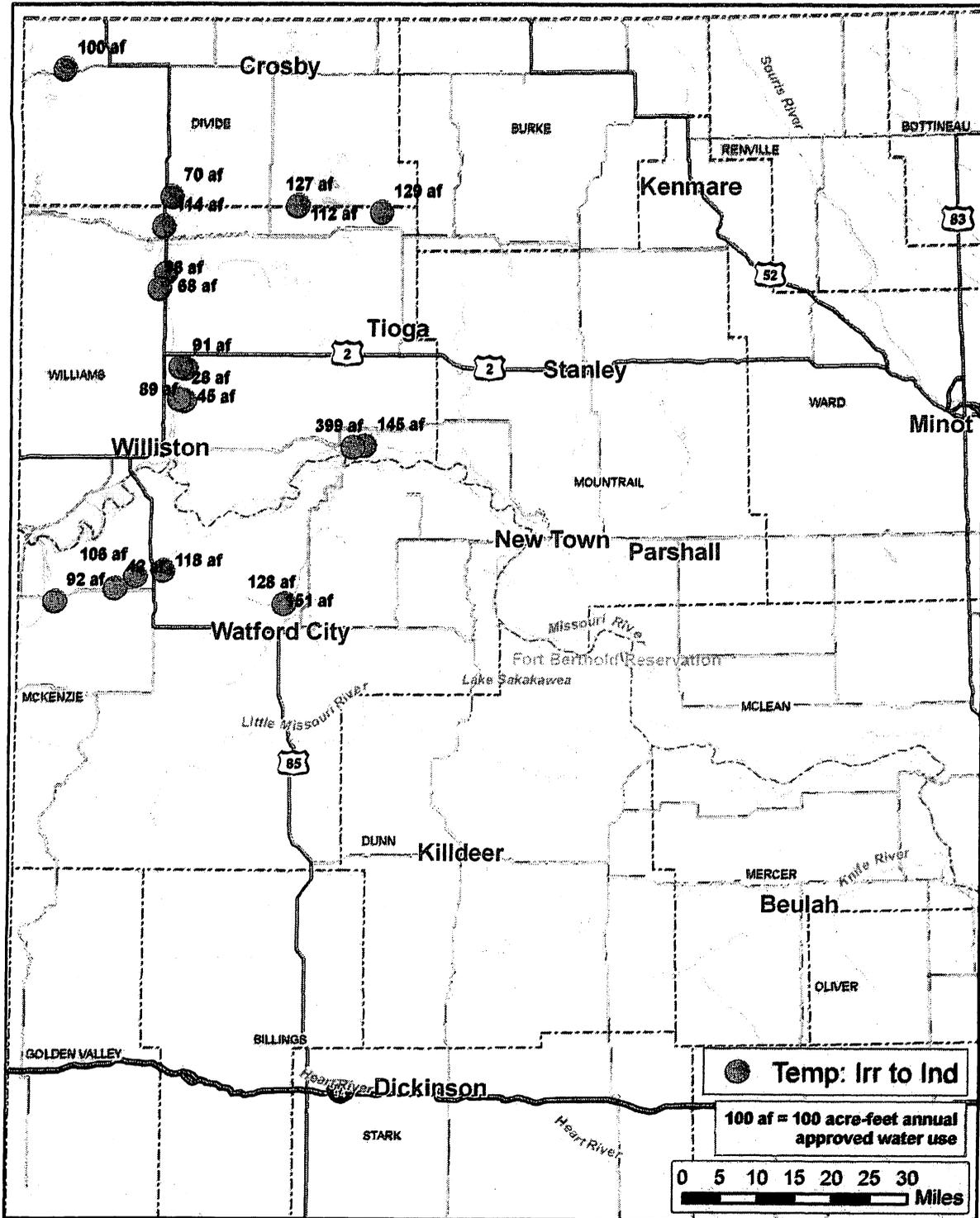


Figure 9. Location of temporary water permits for conversion of irrigation to industrial use

Temporary Surface Water Permits for Oil Field Industrial Use

As a result of the COE action to prevent new diversion of water for industrial use from the Missouri River/Lake Sakakawea, the State Engineer also developed a policy of issuing temporary water permits for industrial use from surface water bodies. The abnormally wet climate currently prevalent in western North Dakota has created a landscape containing numerous surface water bodies (ponds/sloughs), some of which are flooding roads, agricultural fields and other industrial infrastructure. These waters generally are characterized by low dissolved solids (salts) concentrations and can be used as “frac” water by the oil industry. Therefore, the State Engineer is currently providing access to these surface water bodies using temporary water permits. Temporary water permits are valid for up to one year and do not constitute a permanent water right. These permits can be revoked by the State Engineer at any time should continued pumping cause undue harm to any prior water user. The State Engineer has applied different water use measuring conditions based on the amount of the permitted temporary annual water allocation. For temporary allocations less than or equal to 15 acre-feet per year the permit holder is not required to install an in-line, continuously recording water meter. The permit holder is however required to record the amount of water sold and report this amount on the annual water use report form provided by the State Engineer. For temporary allocations greater than 15 acre-feet, the permit holder is required to install an in-line continuously recording water meter and report annual water use on the annual water use report form provided by the State Engineer. Table 2 lists temporary surface water permits for oil field use (locations, allocations and expiration dates) for temporary surface water permits issued in excess of 15 acre-feet with the potential to operate at some time during 2011. As of October 3, 2011, the total volume of surface water approved in Table 2 is 12,448.5 acre-feet. Table 3 lists temporary surface water permits issued for less than or equal to 15 acre-feet with the potential to operate at some time during 2011. As of October 3, 2011, the total volume of water approved in Table 3 is 524.6 acre-feet. The locations of approved temporary surface water permits for oil field industrial use in 2011 are shown in Figure 10.

Table 2. -- Temporary surface water permits issued for amounts greater than 15 acre-feet

Permit_Num	Name	Location	Use_Type	Acre_Ft	End_Date
ND2011-4590	Doug Landblom and Kar	14309609D	INDUSTRIAL-Water Depot	18.0	3/31/12
ND2011-4520	Zavanna, LLC	15510014D	INDUSTRIAL-Water Depot	19.3	7/1/11
ND2011-4516	James Pojorlie	14609913C	INDUSTRIAL-Water Depot	20.0	5/15/12
ND2011-4576	Baytex Energy LTD USA	15809933D	INDUSTRIAL-Water Depot	20.0	11/30/11
ND2011-4667	Baytex Energy LTD USA	16210029B	INDUSTRIAL-Water Depot	20.0	3/15/12
ND2011-4680	International Western C	15509322C	INDUSTRIAL-Water Depot	20.6	12/20/11
ND2011-4587	International Western C	15410010E	INDUSTRIAL-Water Depot	24.5	9/30/11
ND2011-4498	International Western C	15509323C	INDUSTRIAL-Water Depot	24.5	8/1/11
ND2010-4372	William E. Jorgenson	14909530A	INDUSTRIAL-Water Depot	25.8	11/19/11
ND2010-4353	Alvin L. Jacobson	15510017B	INDUSTRIAL-Water Depot	28.1	12/31/11
ND2010-4075	Steve Mortenson	15410209C	INDUSTRIAL-Water Depot	30.0	3/14/11
ND2010-4396	Connie Fichter	14209733C	INDUSTRIAL-Water Depot	30.0	5/1/11
ND2011-4470	John Sickler	14209420C	INDUSTRIAL-Water Depot	30.0	11/1/11
ND2010-4395	Les Schneider	14309633C	INDUSTRIAL-Water Depot	30.0	4/30/11
ND2011-4471	Weston Dvorak	14309535B	INDUSTRIAL-Water Depot	30.0	9/20/11
ND2011-4474	Dave Steffan	14309720D	INDUSTRIAL-Water Depot	30.0	9/15/11
ND2011-4451	Edward Dvorak	14309523D	INDUSTRIAL-Water Depot	30.0	7/15/11
ND2011-4673	Byron Kubik	14309623A	INDUSTRIAL-Water Depot	30.0	6/30/12
ND2011-4672	Byron Kubik	14309614B	INDUSTRIAL-Water Depot	30.0	6/30/12
ND2011-4574	Harlan Rebsom	14309502C	INDUSTRIAL-Water Depot	30.0	1/1/12
ND2011-4478	Colin Schmidt	14409735C	INDUSTRIAL-Water Depot	30.0	9/15/11
ND2011-4472	Jeffrey Schmidt	14409714B	INDUSTRIAL-Water Depot	30.0	9/1/11
ND2011-4517	James Pojorlie	14609913B	INDUSTRIAL-Water Depot	30.0	5/15/12
ND2010-4368	Thomas Simpson	15809719B	INDUSTRIAL-Water Depot	30.0	2/10/11
ND2010-4379	Jeffrey Schmidt	14409714B	INDUSTRIAL-Water Depot	35.0	3/31/11
ND2011-4524	Zavanna-LLC	15510035A	INDUSTRIAL-Water Depot	38.7	7/1/11
ND2011-4521	Zavanna-LLC	15510024A	INDUSTRIAL-Water Depot	38.7	7/1/11
ND2011-4602	International Western C	15509216W	INDUSTRIAL-Water Depot	38.7	8/22/11
ND2011-4575	Les Schneider	14309633C	INDUSTRIAL-Water Depot	40.0	5/1/12
ND2011-4441	Les Schneider	14309626C	INDUSTRIAL-Water Depot	40.0	6/27/11
ND2011-4573	Les Schneider	14309626C	INDUSTRIAL-Water Depot	40.0	5/1/12
ND2011-4644	Billy K. Scott	14409532D	INDUSTRIAL-Water Depot	40.0	7/31/12
ND2011-4543	Baytex Energy LTD USA	16209911A	INDUSTRIAL-Water Depot	40.0	11/30/11
ND2011-4444	Betty Weyrauch	15509628C	INDUSTRIAL-Water Depot	42.0	12/31/11
ND2011-4425	Zavanna, LLC	15510032A	INDUSTRIAL-Water Depot	50.0	12/31/11
ND2011-4585	Neal Nelson	15709614W	INDUSTRIAL-Water Depot	50.0	10/1/11
ND2011-4691	Neal Nelson	15709614W	INDUSTRIAL-Water Depot	50.0	11/30/11
ND2011-4536	Agri - Industries, Inc.	15909707C	INDUSTRIAL-Water Depot	50.0	5/30/12
ND2011-4483	Zavanna, LLC	15510035A	INDUSTRIAL-Water Depot	58.0	6/1/11
ND2011-4646	Cartwright Circle Project	15110426C	INDUSTRIAL-Water Depot	60.0	12/31/11
ND2010-4132	Courtney Krenz	15409514C	INDUSTRIAL-Water Depot	61.0	4/24/11
ND2011-4528	Courtney Krenz	15409514C	INDUSTRIAL-Water Depot	61.0	4/20/12
ND2011-4556	Petro-Hunt, LLC	15710001D	INDUSTRIAL-Water Depot	64.4	6/22/12
ND2011-4666	MTS	15409113C	INDUSTRIAL-Water Depot	77.3	8/31/12
ND2011-4620	Alvin L. Jacobson	15510017B	INDUSTRIAL-Water Depot	90.0	3/31/12
ND2010-4170	Steve Mortenson-4183	15410216C	INDUSTRIAL-Water Depot	0.0	6/16/11
ND2010-4183	Steve Mortenson	15410216C	INDUSTRIAL-Water Depot	100.0	6/16/11
ND2011-4558	Dallas Lalim	15709307C	INDUSTRIAL-Water Depot	100.0	6/30/12
ND2011-4567	Gary Sparks	16209808A	INDUSTRIAL-Water Depot	100.0	6/30/12
ND2011-4493	Allan and Donna Kromai	12910028B	INDUSTRIAL-Water Depot	110.0	4/25/12
ND2011-4566	Samson Resources Co.	16309830A	INDUSTRIAL-Water Depot	128.9	6/20/12
ND2011-4580	Rick Rice	14709532D	INDUSTRIAL-Water Depot	160.0	7/1/12
ND2010-4345	Trenton Water Depot, Li	15310217CD	INDUSTRIAL-Water Depot	500.0	10/13/11
ND2011-4499	City of Stanley	15609133B	INDUSTRIAL-Water Depot	500.0	12/31/11
ND2011-4475	Williams County Park Di	15710115B	INDUSTRIAL-Water Depot	500.0	2/1/12
ND2011-4645	Ron and Mavis Berry	15110426C	INDUSTRIAL-Water Depot	600.0	9/30/12
ND2010-4387	Steve Mortenson	15210414B	INDUSTRIAL-Water Depot	750.0	10/26/11
ND2010-4386	Trenton Water Depot, Li	15310217CD	INDUSTRIAL-Water Depot	750.0	10/26/11
ND2011-4476	Eldean and Sandy Flynn	15010421N	INDUSTRIAL-Water Depot	1,220.0	12/31/11
ND2011-4647	Ron and Mavis Berry	15010410D	INDUSTRIAL-Water Depot	1,612.0	8/21/12
ND2011-4637	Ron & Mavis Berry	15010402B	INDUSTRIAL-Water Depot	1,612.0	6/14/12
ND2011-4692	Steve Mortenson	15310217CD	INDUSTRIAL-Water Depot	2,000.0	10/13/12

Grand Total 12,448.5

Table 3. -- Temporary surface water permits issued for amounts less than and equal to 15 acre-feet

Permit_Num	Name	Location	Use_Type	Acre_Ft	End_Date
ND2011-4495	Chris Anderson	15410203A	Single-oil well development	5.2	6/30/11
ND2011-4413	Gene Harris	14709729B	Single-oil well development	6.0	1/4/12
ND2011-4571	SM Energy	16310029BB	Single-oil well development	6.3	8/1/11
ND2011-4572	SM Energy	16310030BB	Single-oil well development	6.3	8/1/11
ND2011-4570	SM Energy	16310014BB	Single-oil well development	6.3	8/1/11
ND2011-4569	SM Energy	16310015AA	Single-oil well development	6.3	8/1/11
ND2011-4608	LaVern Miller	15610320C	Single-oil well development	9.0	9/15/11
ND2011-4611	Zavanna-LLC	15409928D	Single-oil well development	9.7	8/31/11
ND2010-4292	Mann Enterprises, LLC	14609532C	Single-oil well development	10.0	8/31/11
ND2011-4487	Bruce Johnson	15510017A	Single-oil well development	10.0	6/15/11
ND2011-4686	Baytex Energy LTD USA	15909805B	Single-oil well development	10.0	3/15/12
ND2010-4385	International Western Company	15010005A	Single-oil well development	11.0	1/31/11
ND2010-4390	International Western Company	15410328D	Single-oil well development	11.0	1/31/11
ND2011-4612	Jesse Sipe	14509909N	Single-oil well development	11.9	8/9/12
ND2011-4581	Cecilia Stroh	14309618B	Single-oil well development	12.0	5/31/12
ND2011-4423	Doug Landblom and Karen Landblom	14309609D	Single-oil well development	12.0	5/25/11
ND2010-4335	Joe Schmalz	14409710D	Single-oil well development	12.0	1/1/11
ND2011-4424	Joe Schmaltz	14409710D	Single-oil well development	12.0	6/20/11
ND2010-4405	Jason Kadrmas	14209636CA	Single-oil well development	12.5	4/30/11
ND2010-4394	LaDonna Kubik	14209636A	Single-oil well development	12.5	5/1/11
ND2010-4339	Colin Schmidt	14409735C	Single-oil well development	12.5	3/10/11
ND2010-4279	Jeffrey Schmidt	14409714B	Single-oil well development	12.5	1/1/11
ND2011-4497	International Western Company	15010005A	Single-oil well development	12.9	7/15/11
ND2011-4494	International Western Company	15209813B	Single-oil well development	12.9	6/30/11
ND2011-4588	International Western Company	15510308D	Single-oil well development	12.9	8/15/11
ND2011-4615	Lew Holland	15909707D	Single-oil well development	13.9	5/1/12
ND2011-4624	Randy E. Kudrna	14309530A	Single-oil well development	15.0	8/9/12
ND2010-4373	Frank Kulish	14409728A	Single-oil well development	15.0	3/10/11
ND2011-4525	EOG Resources	15409019B	Single-oil well development	15.0	5/31/12
ND2011-4540	EOG Resources	15409019B	Single-oil well development	15.0	6/15/12
ND2011-4579	EOG Resources	15409019B	Single-oil well development	15.0	7/6/12
ND2011-4589	EOG Resources	15409019B	Single-oil well development	15.0	7/18/12
ND2011-4609	EOG Resources	15409019B	Single-oil well development	15.0	7/31/12
ND2011-4623	EOG Resources	15409019B	Single-oil well development	15.0	7/31/12
ND2011-4648	EOG Resources	15409019B	Single-oil well development	15.0	7/31/12
ND2011-4668	EOG Resources	15409619B	Single-oil well development	15.0	8/31/12
ND2011-4617	Earl Jensen	15609003B	Single-oil well development	15.0	11/30/11
ND2011-4618	Earl Jensen	15709034A	Single-oil well development	15.0	11/30/11
ND2011-4619	Earl Jensen	15708930C	Single-oil well development	15.0	11/30/11
ND2011-4526	EOG Resources	15809035N	Single-oil well development	15.0	5/31/12
ND2011-4553	EOG Resources	15809011C	Single-oil well development	15.0	6/21/12
ND2010-4404	Les Mariner	16009115D	Single-oil well development	15.0	12/20/11
ND2010-4384	Les Mariner	16009115A	Single-oil well development	15.0	11/25/11
Grand Total				524.6	

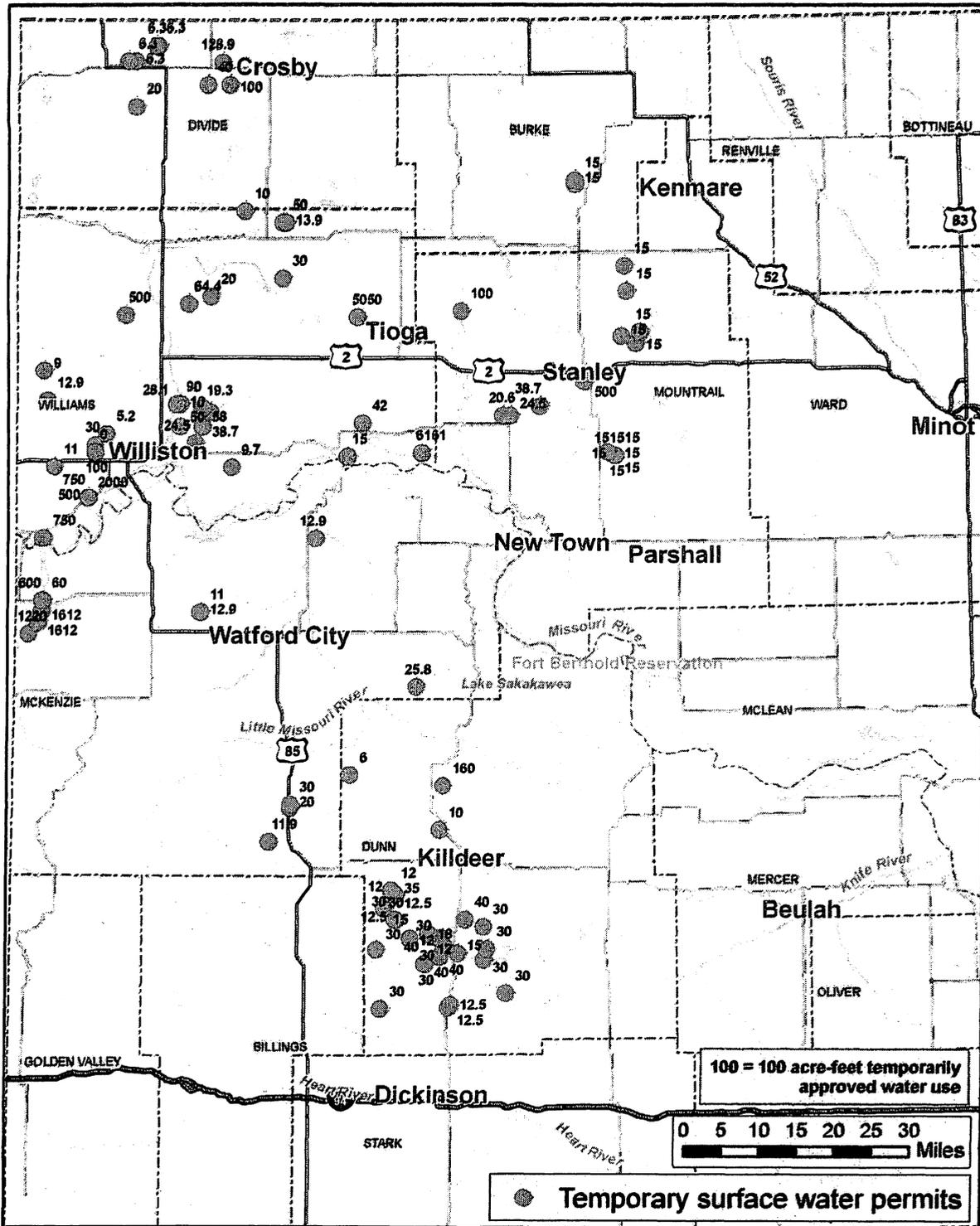


Figure 10. Location of temporary permits approved from surface water sources

Approved Conditional Water Permits for Water Depots to Serve the Oil Industry in Western North Dakota.

As of October 14, 2011, the State Engineer has issued 60 conditional water permits (51 from ground water sources and 9 from surface water sources) for oil field industrial use (water depots). The annual volume of ground water permitted for oil field industrial use is 4,706 acre-feet (Table 4) and the annual volume of surface water permitted for oil field industrial use is 26,829 acre-feet (Table 5). Of the 26,829 acre-feet surface water amount, 20,000 acre-feet cannot be developed and put to beneficial use due to current COE policy preventing access to Lake Sakakawea. A map showing the location of approved conditional water permits for industrial use (water depots) from both surface and ground-water sources is shown in Figure 11. A map showing the location of water depots that are operational and associated annual industrial water allocations is shown in Figure 12.

Table 4. -- Approved water permits for water depots providing water to the oil industry (ground water sources)

<u>No.</u>	<u>Permit holder</u>	<u>Permitted Acra-feet</u>
3218	Leo Fisher	27.00
3308	Chimney Butte Land, A Thompson	30.00
3689	Larry Signalness	120.00
3701	William Pavlenko	80.00
3792	Landtech	60.00
3813	Kimberly Syth (from Mason)	60.00
3882	Alice Simonson	19.40
3889	S & J Anderson	20.00
4063	Clarence Schollmeyer	20.00
5723	Mike Ames (Wildrose)	20.00
5739	Missouri Basin Well Service	52.00
5761	Terry Ortloff	20.00
5761A	Terry Ortloff	20.00
5779	Energy Equity	20.00
5814	Alan Svangstu	30.00
5828A	Mike Ames (Nesson)	20.00
5843	Basic Energy Services	40.00
5915	Manley Truchan	20.00
5949	City of New Town	200.00
5952	Olson Farms	100.00
5960	Jerry & Rich Wurtz	40.00
5968	James Edward	120.00
5973	Mike Ames (Nesson)	30.00
5974	Mike Ames (Wildrose)	20.00
5975	Jerry Wurtz/M Ames	50.00
5988	James Dennis	120.00
5989	Manley Truchan	130.00
6005	Dunn Co. Golf Course	75.00
6006	City of Killdeer	75.00
6007	Greg Nordsven	120.00
6023	City of Stanley	92.00
6024	Clark and Jane Rismon	100.00
6027	R & T Water Supply	400.00
6032	Jim Schaper	125.00
6033	Rodney Barstad	30.00
6036	Thoral & Patrica Sax	50.00
6038	Dwyght Lindberg	50.00
6049	Earl Jensen	120.00
6086	City of Watford City	175.00
6091	Arnold Moll	250.00
6102	City of Powers Lake	200.00
6106	Alice Simonson	130.60
6143	Terry Smith	100.00
6156	Mike Ames (Nesson)	200.00
6157	Roger Baker	50.00
6159	City of Grenora	50.00
6170	Roger Baker	50.00
6173	Russell Garkjen	200.00
6180	Donald Simpson	300.00
6199	Thoral & Patrica Sax	75.00
6201	Dallas Lalim	200.00
	Total	4706.00

Table 5. – Approved Water Permits for Water Depots Providing Surface Water to the Oil Industry (surface water sources)

Permit No.	Permit Holder	Permitted (acre-feet)
5509	City of Parshall	50
5754	State Water Commission	630
5859	LeMoine Hartel	129
5958A	City of Parshall	370
6003	Robert Ferebee	50
6065	D, S, & J Pennington	800
6121	Hexon Earth Const.	2000*
6124M	International Western	6000*
6124N	International Western	6000*
6124S	International Western	6000*
6235	Central Dakota Water	4800
	Total	26,829

***Access to water prevented by COE**

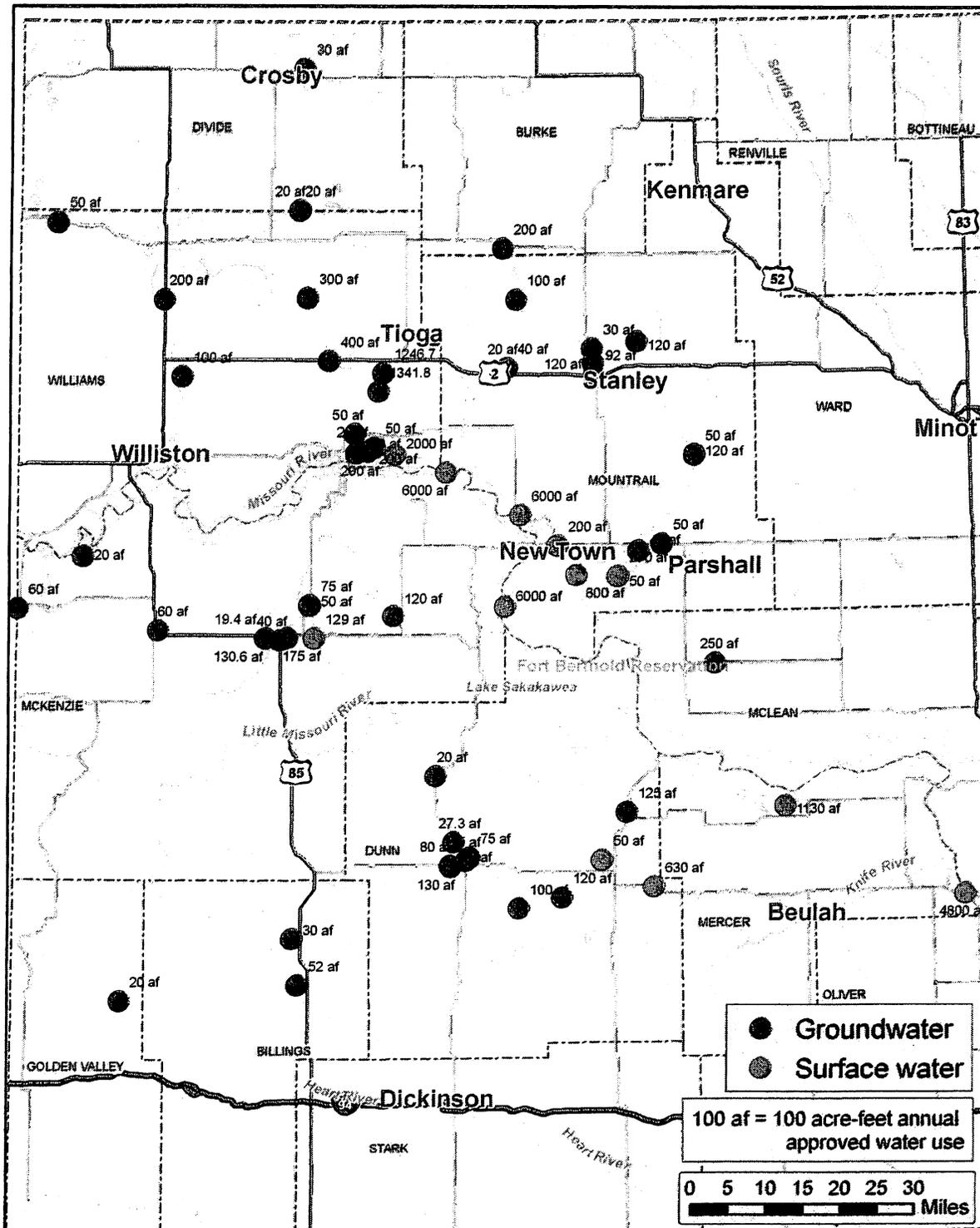


Figure 11. Location of approved water permits from surface and ground water sources

Estimated Oil Field Demand for Water and the Current Volume of Water Permitted by the State Engineer

The Oil & Gas Division of the North Dakota State Industrial Commission estimates that about 2500 more new oil wells per year will be drilled in North Dakota over the next 15 to 25 years. Based on an average water use of 2 million gallons of water per oil well, this amounts to an annual water demand of 22,400 acre-feet.

The State Engineer has approved an annual water appropriation from both surface and ground water sources of 46,972.1 acre-feet under conditional, temporary surface water, and temporary irrigation conversion to industrial water permits (Table 6).

Table 6 – Permitted Surface and Ground Water amounts

Permit Type	Acre-Feet
Conditional Water (ground water)	4,706
Conditional Water (surface water)	26,829
Temporary Surface Water (<15 ac-ft)	524.6
Temporary Surface Water (≥15 ac-ft)	12,448.5
Temporary Conversion (irrigation to industrial)	2,464
Total	46,972.1

Of the 26,829 acre-feet conditionally approved surface water permits, 20,000 acre-feet cannot be developed due to current COE policy preventing access to the Missouri River/Lake Sakakawea. This still leaves 26,972.1 acre-feet that can be put to beneficial use, which is greater than the estimated annual oil field demand of 22,400 acre-feet. However, 12,973.1 acre-feet are dependent upon continued wetter than normal climate conditions. Water could be more efficiently distributed throughout the oil field in western North Dakota with access to the Missouri River/Lake Sakakawea.

Water Use For Approved Industrial Use Water Permits (Water Depots)

Ground Water

Annual industrial ground water use from 2004 through 2010 for water depots serving the oil industry is summarized in Table 7. It is noted that some cities are selling water to the oil industry under their municipal water permits. The State Engineer is allowing this practice as long as 1) the permitted annual municipal allocation is not exceeded, and 2) the permit holder will apply for a new, industrial conditional water permit. The water use shown in Table 7 is derived from annual water use reports that are filled out by the permit holder and sent to the State Engineer at the end of each calendar year.

Table 7. – Reported annual ground water use from 2004-2010 for water depots serving the oil industry

Permit#	Date_Issued	Name	2004 AcFt	2005 AcFt	2006 AcFt	2007 AcFt	2008 AcFt	2009 AcFt	2010 AcFt
1209	9/24/64	ALEXANDER, CITY OF	0.1	0.1	0	0.1	41	42	38
3218	2/29/80	FISCHER, LEO	0.4	0.2	3.1	1.7	No Use	No Use	No Use
3586	1/19/83	ALEXANDER, CITY OF	25.1	47.5	88	99.3	55	54	47.1
3689	4/11/84	SIGNALNESS, LARRY J.	5.8	4.4	4.4	4.4	4.4	46.8	119.3
3701	5/8/84	PAVLENKO, WILLIAM	7.7	10.9	25.7	71.3	114.7	147.7	27.2
3792	7/23/85	LANDTECH ENTERPRISES LTD. CO.	28.6	42.6	29.1	9	10.7	7.9	16.7
3813	1/27/86	MASON, W.J.	1.5	5	7.2	7.7	7.8	5.1	12.1
3882	9/11/86	SIMONSON, ALICE	7.1	10.1	17.9	17.9	13	55.2	59.6
3889	10/15/86	ANDERSON, STANLEY AND JANET	13.1	10.5	6.3	11.2	11.8	7.6	9.6
3909	7/16/87	TIOGA, CITY OF	2.5	0.4	0.2	15.4	113.1	45.4	82.9
4063	4/20/89	SCHOLLMMEYER, CLARENCE D.	3.6	0	1.5	1.8	0	15.1	6.9
5426	4/10/01	WESTHOPE, CITY OF	57.9	56.7	59.7	57.7	67.1	68.6	69.7
5723	4/21/05	AMES, JOHN M. and AMES, JANIS G.	Not Devl	3	9.4	23.8	36.7	25.2	24.2
5761	2/8/06	ORTLOFF, TERENCE	Not Devl	Not Devl	0.4	9.4	12	11	10.3
5761A	2/8/06	ORTLOFF, TERENCE	Not Devl	0.4					
5814	10/17/07	SVANGSTU, ALAN	Not Devl	Not Devl					
5828A	1/10/07	AMES, JOHN M. AND JANIS G.	Not Devl	Not Devl	Not Devl	37.9	38.5	5.7	19.5
5843	2/22/08	SHEEHAN, MIKE	Not Devl	Not Devl	Not Devl	Not Devl	10	7	6.9
5915	10/17/07	TRUCHAN, MANLEY	Not Devl	Not Devl	Not Devl	Not Devl	159.6	20.3	20
5949	4/3/09	NEW TOWN, CITY OF	Not Devl	143.8	74				
5952	12/11/08	OLSON FARMS	Not Devl	23.8	99.2				
5960	7/14/08	WURTZ, JERRY AND RICHARD	Not Devl	Not Devl	Not Devl	Not Devl	No Use	No Use	No Use
5968	7/3/08	EDWARDS, JAMES WILLIS	Not Devl	Not Devl	Not Devl	Not Devl	27.7	53.5	21.3
5973	4/21/09	AMES, JOHN M. and AMES, JANIS G.	Not Devl	18.2	29.1				
5974	3/8/10	AMES, JOHN M. and AMES, JANIS G.	Not Devl	27.5					
5975	7/14/08	WURTZ, JERRY & RICH - AMES, MIKE	Not Devl	Not Devl	Not Devl	Not Devl	5.2	52.1	61.3
5988	7/11/08	DENNIS, JAMES E.	Not Devl	Not Devl	Not Devl	Not Devl	No Use	No Use	No Use
5989	5/1/09	TRUCHAN, MANLEY	Not Devl	132.2	131.1				
6005	6/17/09	DUNN COUNTY GOLF COURSE	Not Devl	35.8	75.7				
6006	6/17/09	KILLDEER, CITY OF	Not Devl	74.4	66.8				
6007	7/15/08	NORDSVEN, GREG	Not Devl	No Use	66.4				
6023	3/9/10	STANLEY, CITY OF	Not Devl	100.5					
6024	3/8/10	RISMON, CLARK O. AND JANE V.	Not Devl	85.3					
6027	12/12/08	R & T WATER SUPPLY	Not Devl	406.3					
6032	1/21/09	SCHAPER, JIM	Not Devl	2.9	107				
6033	4/27/10	BARSTAD, RODNEY W.	Not Devl	No Use					
6036	5/3/10	SAX, THORAL AND PATRICIA	Not Devl	18.3					
6049	6/7/10	JENSEN, EARL L.	Not Devl	117.8					
6091	3/31/10	MOLL, ARNOLD	Not Devl	Not Devl					
6106	6/21/10	SIMONSON, ALICE	Not Devl	155.6					
6156	8/31/10	AMES, JOHN M.	Not Devl	180.5					
6157	12/17/10	BAKER, ROGER AND MARILYN	Not Devl	Not Devl					
6170	12/17/10	BAKER, ROGER AND MARILYN	Not Devl	Not Devl					
857	7/18/60	KENMARE, CITY OF	Municipal	Municipal	Municipal	Municipal	Municipal	Municipal	38.8
6180		SIMPSON, DONALD N.	Not Devl	17.6					
1217		Powers Lake	Municipal	Municipal	Municipal	Municipal	Municipal	Municipal	172.5
752		City of Crosby	Municipal	Municipal	Municipal	Municipal	Municipal	Municipal	39.7
213p & 3992		Watford City (Estim. Oil Indust)	Municipal	Municipal	Municipal	Municipal	50	100	190.2
1188	7/29/64	City of Grenora (Estim. Oil Indust)	Municipal	Municipal	Municipal	Municipal	Municipal	12.1	17.1
1743	2/26/71	MINOT, CITY OF	Municipal	Municipal	Municipal	Municipal	Municipal	Municipal	0.3
Totals of All Permits			153.4	191.4	252.9	368.6	778.3	1,213.4	2,870.3

Not Devl = The permit was either not in existence, or the permit holder had not developed the permit site.

No Use = The permit holder reported that the well was not pumped for that year.

Surface water

Table 8 lists both conditionally approved surface water permits and water permit applications for surface water that are in the review process. In the case of approved permits, the volume listed is the annual quantity of water approved. In the case of applications, the volume of water listed is the annual quantity of water applied for. The total volume of surface water approved annually under conditional water permits is 26,829 acre-feet and the total volume of surface water requested and in the review process is 70,281 acre-feet.

Table 8. – Approved permits and applications for oil field industrial use from surface water sources

NUMBER	NAME	SOURCE	PRIORITY DATE	END OF COMMENT	PERMIT STATUS	VOLUME (acre-feet/year)
5958A	CITY OF PARSHALL	MISSOURI RIVER-LAKE SAKAKAWEA	10/22/2003	N/A	Conditionally Approved	370
6065	JACK & DON PENNINGTON	MISSOURI RIVER-LAKE SAKAKAWEA	12/04/2004	N/A	conditionally approved	800
6121	HEXON EARTH CONSTRUCTION	MISSOURI RIVER-LAKE SAKAKAWEA	11/15/2005	N/A	conditionally approved	2,000
6124	INTERNATIONAL WESTERN CO.	MISSOURI RIVER-LAKE SAKAKAWEA	12/14/2005	N/A	Conditionally approved	18,000
6115	STEVE MORTENSON (Missouri River)	MISSOURI RIVER	01/06/2006	03/28/2006	Application In Process	5,000
6117	STEVE MORTENSON (Lake Trenton)	MISSOURI RIVER	01/06/2006	03/28/2006	Application In Process	5,000
6139	INTERNATIONAL WESTERN CO.	MISSOURI RIVER-LAKE SAKAKAWEA	02/23/2006	05/16/2006	Application In Process	6,000
6151	KODIAK OIL AND GAS CORP	MISSOURI RIVER-LAKE SAKAKAWEA	04/08/2006	07/18/2006	Application In Process	3,000
6155	PEASE, BERNARD	MISSOURI RIVER-LAKE SAKAKAWEA	04/22/2006	08/22/2006	Application In Process	1,000
6169	SAKAKAWEA PIPELINE COMPANY	MISSOURI RIVER-LAKE SAKAKAWEA	05/25/2006	09/26/2006	Application In Process	4,900
6183	CONTINENTAL RESOURCES	MISSOURI RIVER-LAKE SAKAKAWEA	06/14/2006	PUB	Application In Process	2,000
6147	CITY OF PARSHALL	MISSOURI RIVER-LAKE SAKAKAWEA	03/31/2006	09/26/2006	Application in Process	1,000
6182	WILLISTON BASIN HOLDINGS	MISSOURI RIVER-LAKE SAKAKAWEA	08/08/2006	11/14/2006	Application In Process	1,950
6145	NDSWC (SWPP) Org. date-4/1/2010	MISSOURI RIVER-LAKE SAKAKAWEA	09/06/2006	11/14/2006	Application In Process	8,000
6223	SCHETTLER, ROBERT	LITTLE MISSOURI RIVER	01/18/2007	04/17/2007	Application In Process	15
6229	JACOBSON, ALVIN	LITTLE MUDDY RIVER	02/07/2007	05/30/2007	Application In Process	90
6230	LAKE SAKAKAWEA & ASSOCIATES	MISSOURI RIVER-LAKE SAKAKAWEA	02/22/2007		Application in Process	1,600
6235	CENTRAL DAKOTA WATER WORKS	MISSOURI RIVER	03/02/2007	05/24/2007	conditnally approved	4,800
6237	BERRY, RON & MAVIS	YELLOWSTONE RIVER	03/08/2007	05/22/2007	Application in Process	200
6238	REISS, JOHN	SPRING CREEK/KNIFE RIVER	03/14/2007	05/30/2007	Application in Process	300
6240	FLYNN, ELDEAN AND SANDY	YELLOWSTONE RIVER	03/15/2007	06/05/2007	Application in Process	3,200
6176	SHELDON, WILLIAM & JEAN	MISSOURI RIVER-LAKE SAKAKAWEA	04/17/2007	05/30/2007	Application in Process	1,000
6294	CITY OF WILLISTON	MISSOURI RIVER	07/28/2007	PUB	Application in Process	20,000
6296	DELTA SINCLAIR, INC.	EIGHT-MILE CREEK	08/04/2007	PUB	Application in Process	180
6298	NORTHERN IMPROVEMENT	GREEN RIVER	08/14/2007	PUB	Application In Process	1
6301	KULCZYK, JOHNNY DAVID	MISSOURI RIVER-LAKE SAKAKAWEA	08/21/2007	PUB	Application in Process	1,000
6302	STRATA CORPORATION	LITTLE MUDDY RIVER	09/05/2007	PUB	Application In Process	45
				TOTAL TOTAL	GRANTED PENDING	21,170 70,281
		MISSOURI RIVER-LAKE SAKAKAWEA	31,450			
			10/11/2007		TOTAL	91,451

As shown in Table 8, most of the approved and pending water permits seek to divert water from the Missouri River/Lake Sakakawea. As previously mentioned, since the summer of 2010, the COE has prevented any new access to water from the Missouri River/Lake Sakakawea until a decision is made regarding the levying “surplus storage” fees on irrigation and industrial water users. As a result, four of the five conditionally approved water permits by the State Engineer amounting to 26,829 acre-feet of water annually cannot be developed and water cannot be put to beneficial use. For 2010, the water use reported for the above conditionally approved surface water permits is 1,606.5 acre-feet (Table 9). Total reported industrial use in western North Dakota from both surface and ground water sources under both conditional and temporary water permits is 5,722.2 acre-feet (Table 10).

Table 9. -- Industrial water depot water use from surface water permits

Permit No.	Date Issued	Name	2010 (AcFt)
1565	7/22/68	SMITH, TERRY A.	15.9
3459	3/8/82	KADRMAS, GLEN	No Use
3801	8/27/85	TUHY, VINCENT	No Use
5754	3/31/06	N.D. SWC (South West Pipeline)	284.9
5859	4/23/07	HARTEL, LEMOINE AND CLARICE	64.2
5958A	3/8/10	PARSHALL, CITY OF	308.5
6065	6/15/10	PENNINGTON, DONALD	560.7
Municipal Water Depot Use from Surface Water Permits			
720	8/7/57	CITY OF WILLISTON *	372.3
Total Acre-Feet			1,606.5
* In 2010, the City of Williston reported selling 372.3 Acre-Feet of total water for industrial use			
No Use = The permit holder reported that the well was not pumped for that year.			

Table 10. -- Total reported industrial water use in 2010 for water depots in western North Dakota

(Tabulated by Water Appropriations Division April 7, 2011)	
ANNUAL WATER USE FOR INDUSTRIAL/MUNICIPAL WATER PERMITS THAT PROVIDE WATER FOR WATER DEPOTS FROM GROUND WATER SOURCES	
Year 2010 Total Acre-Feet	2,870.3
ANNUAL WATER USE FOR INDUSTRIAL/MUNICIPAL WATER PERMITS THAT PROVIDE WATER FOR WATER DEPOTS FROM SURFACE WATER SOURCES	
Year 2010 Total Acre-Feet	1,606.5
TEMPORARY SURFACE WATER PERMITS FOR INDUSTRIAL-OILFIELD APPLICATIONS	
Year 2010 Total Acre-Feet	896.1
TEMPORARY CONVERSION OF IRRIGATION TO INDUSTRIAL WATER PERMITS	
Year 2010 Total Acre-Feet	349.3

Total Annual Use (Acre-Feet)	5,722.2

Water Metering and Water Use Reporting

Currently, all conditionally approved industrial use water permits and temporary water permits in excess of 15 acre-feet per year, are required to properly install an in-line continuous recording totalizing water flow-meter to measure the quantity of water pumped. The metering condition is as follows:

- 1) Prior to the beneficial use of water, an in-line continuous recording totalizing water flowmeter shall be installed on the pump discharge line to measure the quantity of water pumped from the water source. The water flowmeter must meet the following requirements:
 - a. The water flowmeter must be certified by the manufacturer to record neither less than 98 percent nor more than 102 percent of the actual volume of water passing the water flowmeter when installed according to the manufacturer's instructions.
 - b. The water flowmeter must have a display that is readable at all times, whether the system is operating or not.
 - c. The water flowmeter must have a totalizer that meets the following criteria:
 - i. Is continuously updated to read directly only in acre-feet, acre-inches, gallons, cubic feet, or barrels (42 U.S. gallons),
 - ii. Has sufficient capacity, without cycling past zero more than once each year, to record the quantity of water diverted in any one calendar year,
 - iii. Has a dial or counter that can be timed with a stopwatch over not more than a 10-minute period to accurately determine the rate of flow under normal operating conditions, and
 - iv. Has a nonvolatile memory if the meter is equipped with an electronic totalizer.

- d. The water flowmeter must be installed according to manufacturer's specifications and must be properly maintained according to manufacturer's recommendations, including proper winterization such as removal during the winter.
- e. The water flowmeter shall be available for inspection by the representatives of the State Engineer.

As previously mentioned, temporary surface water permits diverting less than or equal to 15 acre-feet annually, are exempted from the above metering condition. However, these permit holders are required to monitor water use by other means.

All industrial water permit holders are required by statute (NDC61-04-27) to report annual water use to the State Engineer. In early January of each year, water use report forms are mailed to all holders of industrial water permits. Each permit holder is required to fill out the water use report form and return the form to the State Engineer. A water use specialist compiles the water use data and it is stored in our electronic database, and is available on our website.

Given the concern for the potential of permit exceedance and unauthorized pumping for oil field industrial use, the Water Appropriations Division currently reads in-line meters on a monthly frequency at 14 water depots in selected aquifers to monitor water use. To date, monthly meter readings do not show water use in excess of permitted amounts. A map showing the locations of these water depot sites where monthly meter readings are made is presented in Figure 13.

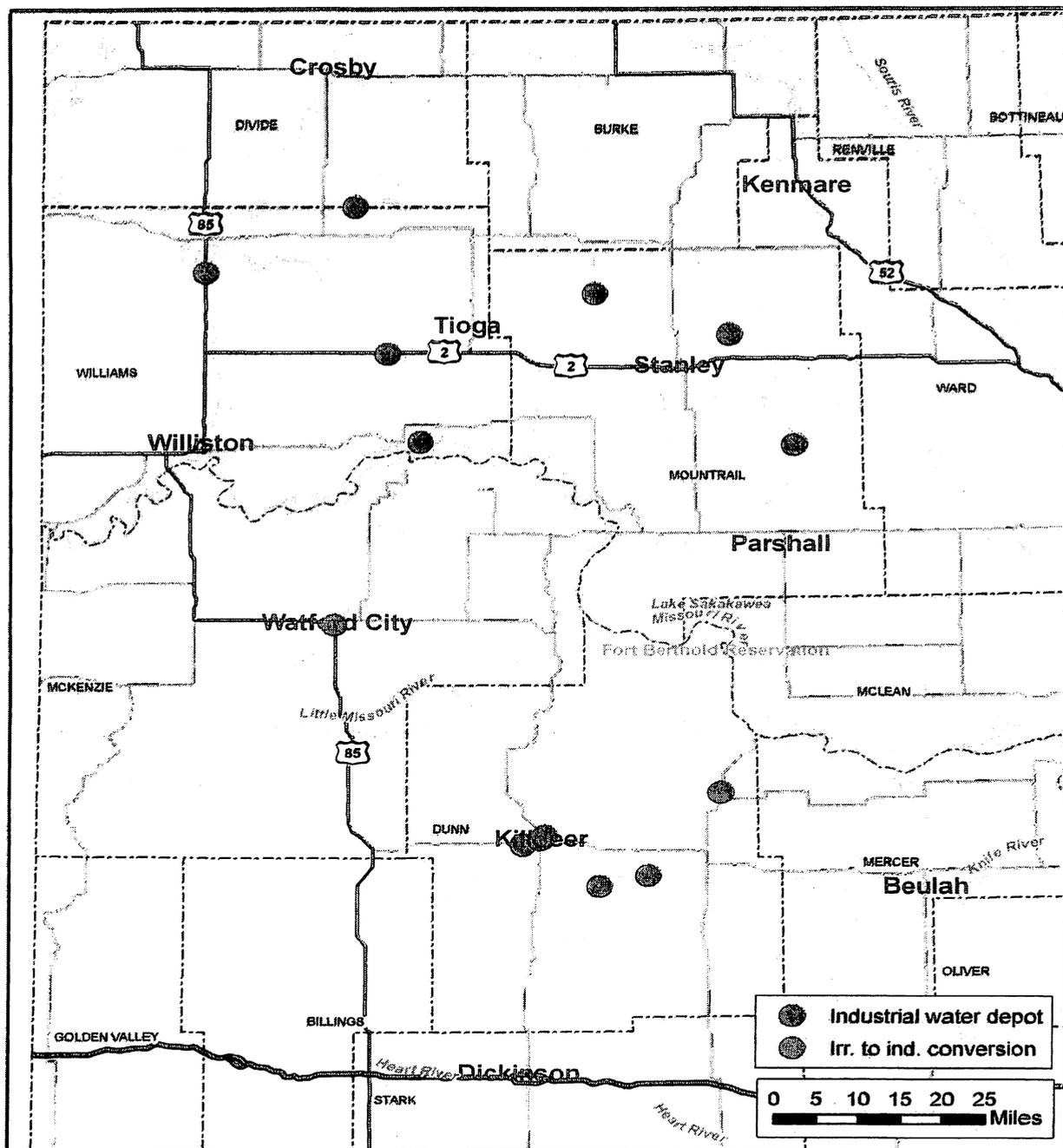


Figure 13. Locations of depots where water meter has been checked monthly

Based on the current water use monitoring program used by the Water Appropriations Division, there is no indication of large-scale, wide-spread permit exceedance or unauthorized pumping of surface or ground water for oil field industrial use. In addition, based on the current water level monitoring program used by the Water Appropriations Division, the aquifers (except for possibly the West Wildrose and the Ray aquifers) currently providing water supplies for oil field industrial use, show no indication of depletion. In addition, there are no reported cases where other water users have experienced undue harm to their water supplies from oil field industrial pumping.

Actions have been taken by the State Engineer on five water users for permit exceedance or unauthorized use that provide water at depots for oil field industrial applications. Actions include cease and desist orders, monetary fines, and reductions in future annual use based on the amounts of past unauthorized use. No undue harm to other water users occurred in the above cases of permit exceedance or unauthorized water use.

Remote Metering Devices

During the 2011 legislative session, Sections 9 and 15 of Senate Bill 2020 directed the State Engineer to require all water permit holders diverting greater than or equal to 15 acre-feet of water for oil field industrial use to purchase and maintain remote metering devices to measure the quantity of water pumped. Sections 9 and 15 of Senate Bill 2020 were proposed in response to concern over permit exceedance and unauthorized pumping for oil field industrial use. On May 18, 2011, Governor Dalrymple vetoed Sections 9 and 15 of Senate Bill 2020 noting the State Water Commission is in the best position to develop and enforce an effective system of water metering, including sealed meters, regular reporting, periodic compliance checks, and appropriate administrative oversight. As previously mentioned, the State Engineer requires the installation of continuous recording in-line water meters of all industrial water permits pumping greater than or equal to 15 acre-feet annually. Beginning in 2012, these water permits for water depots serving the oil industry will also be required to send in monthly industrial water use reports on forms provided by the State Engineer (Appendix I). The forms will require the listing of the meter reading at the beginning of the month and the end of the month. In addition, the Water Appropriations Division is developing a more comprehensive water meter monitoring program that will be initiated beginning in 2012.

Also, during 2012, the Water Appropriations Division plans on deploying one OnSet HOB0 Telemetry system, and two McCrometer Remote Connect RC45 Telemetry metering systems at existing water depots as a pilot study program (Appendix II). Given that this is a relatively new technology it is very important to establish a remote metering system pilot program to evaluate potential problems and shortcomings that typically occur when employing new technologies. Attached is a summary of various remote meter telemetry systems and components that have been identified and researched by the Water Appropriations Division (Appendix II).

APPENDIX I - 1

WATER APPROPRIATIONS DIVISION (701) 328-2754

October 4, 2011

Addressed to each of about 50 water depot owners

Dear industrial water permit holder:

RE: SWC Project No. 1400

To better monitor industrial water sales in northwest North Dakota, beginning in January 2012, water sellers to the oil industry will be required to send in water use monthly. Specifically, for the month just ended water depot operators are to send in beginning of the month and end of the month (beginning of the next month) readings from their water meters.

Forms are enclosed. Include the day and time of the meter reading and send the information to the State Engineer's office. If the water meter is repaired or replaced, indicate this action in the "comments" section of the reporting form. The monthly information can be mailed (Mike Hove, 900 East Boulevard, Bismarck, ND 58505), faxed (701-328-3696, ATTN: Mike Hove), or emailed (mhove@nd.gov).

Staff from the State Engineer's office will periodically record water meter readings at water depots throughout the year to verify reported meter readings.

Robert Shaver, Director
Water Appropriations Division

AW:/
Encl.

APPENDIX I - 2

January 2012 water use

Permit holder: _____ Permit No.(s): _____

Depot/meter designation/location: _____

Meter brand name, model, & serial no.: _____

Meter reading on or about January 1: _____

Mark unit meter reads in: (circle one) gallons barrels acre-feet

Date and time meter read: Date _____ Time: _____

Meter reading on or about February 1: _____

Date and time meter read: Date _____ Time: _____

2nd meter at depot (if applicable):

Depot/meter designation/location: _____

Meter brand name, model, & serial no.: _____

Meter reading on or about January 1: _____

Mark unit meter reads in: (circle one) gallons barrels acre-feet

Date and time meter read: Date _____ Time: _____

Meter reading on or about February 1: _____

Date and time meter read: Date _____ Time: _____

Comments:

Mail to: Mike Hove, 900 East Boulevard, Bismarck, ND 58505

Fax: 701-328-3696, ATTN: Mike Hove

Email: mhove@nd.gov

APPENDIX II - 1

Remote Telemetry Systems

McCrometer RemoteCONNECT RC45 Telemetry System:

http://www.mccrometer.com/products/product_remotecomnect.asp

http://www.mcwatersolutions.com/30120-xx_RC45_RemoteCONNECT_Configuration_Sheet_1.0.pdf

The McCrometer RemoteCONNECT RC45 Telemetry System is a wireless data collection system designed to work with flowmeters and other water management sensors. The logger has web-site integration, which can allow data to be transferred to the Office of the State Engineer.. This meter will be available in about four weeks and will be purchased for use in the preliminary project. The estimated cost for the telemetry system and one year data plan is \$1,600.

On-Set HOB0 Cellular Data Logger:

<http://www.onsetcomp.com/products/data-loggers/u30-gsm>

The State Engineers Office has purchased one fully configured logger and solar panel with a 1 year data plan for \$1,578. Additional data plans can be purchased for \$300 per year. This system will be integrated with existing water depot meters as part of the preliminary study. The logger has web-site integration, which allows data transferred to the State Engineers Office. The logger will arrive on October 19, 2011.

North Dakota State Radio:

<http://www.nd.gov/des/state-radio/>

A preliminary meeting with Jim Crow & Larry Ruebel indicated that developing a telemetry system with State Radio, which would meet the needs of the State Engineer would require an Environmental Impact Statement (EIS). The EIS could take 3 to 5 years, and cost over \$500,000.

Watch Technologies WiSi Mini RTU:

http://www.watchtechnologies.com/product_mini_demo.html

The WiSi is a fully integrated miniature Remote Telemetry Unit (RTU) with a weatherproof fully encapsulated assembly and solar panel. This system requires a radio communications network, in addition to a satellite connection. The individual logger/telemetry system is \$2,200. The satellite hub station is approximately \$4,000. This does not included communication costs. Possible State Radio integration may be needed.

Design Solutions & Integration:

<http://ds-integration.net/contact-design-solutions-integration.htm>

This company provides a completed SCADA solution for water depots in western North Dakota. Currently this system is in use by Basic Energy, who has worked with the State Engineer on the initial portion of the preliminary study (data communication). The City of Killdeer will be implementing this system in 2 to 4 weeks, and will be working with the State Engineer on the data communication portion of the preliminary study. This system costs approximately \$17,000 - \$50,000, depending on complexity.

APPENDIX II - 2



Configuration Sheet

RemoteCONNECT Model RC45

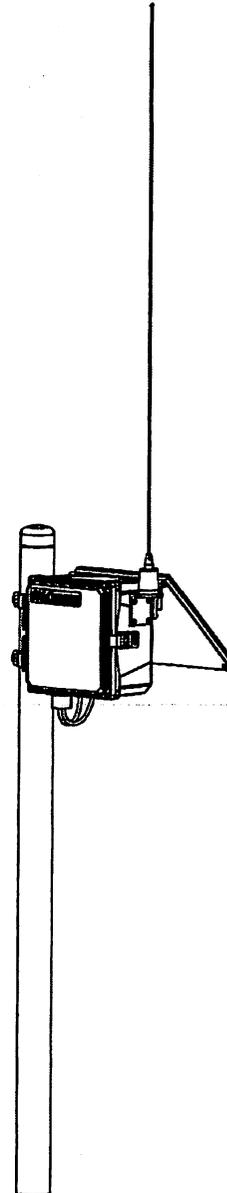
OVERVIEW

The McCrometer RemoteCONNECT RC45 Telemetry System is a wireless data collection system designed to work with flowmeters and other agriculture water management sensors. The RC45 is a valuable irrigation management tool and improves irrigation efficiency by delivering up-to-date crop data via the internet. Users can connect their new or existing flowmeter to the RC45 in addition to other agricultural water management sensors such as soil moisture, water level, and rain gauges. Data collected from this system can be used by farmers and irrigators, state organizations, water conservancy districts and researchers.

With the RC45 you will know how much water is being applied and when. Save time, fuel, and labor with the McCrometer RemoteCONNECT.

INSTALLATION

The RemoteCONNECT RC45 Telemetry System is a mast mounted system that is typically mounted within close proximity of the flowmeter or water management sensors. The system is easy to install and retrofit onto existing flowmeters.



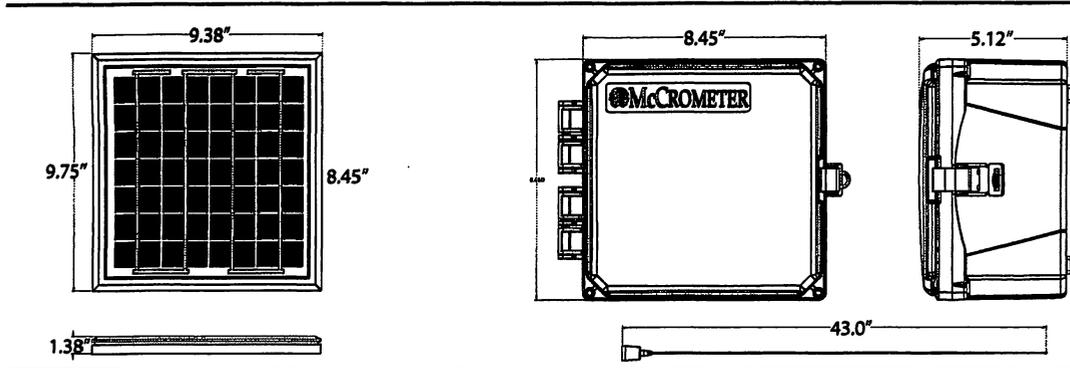
TECHNICAL OVERVIEW

2 Analog Inputs	0-5 volts, 0-1 mA, 0-20 mA
1 Frequency Inputs	0-10KHz, active low
1 Accumulator Input	Wind Miles Rain
1 Analog Output	0-5V 0-1mA 4-20mA, user-configurable range
1 Pulse Output	(Momentary) open drain FET
Antenna	Tapered steel whip 137 to 148 MHz
Internal battery	5 AHr, 12 Volts DC
Quiescent current drain (low power mode)	120 uA
Operating or searching for a satellite	160 mA
Transmitting Current	1.8 – 2.0 Amps



APPENDIX II - 3

Dimensions



Specifications

Operating Modes:

Timed Transmissions: Sensor data values are reported to the website at user programmable time intervals.

Event Mode Transmissions: Alarm reports are generated and sent with the regular timed transmissions.

Forced Mode Transmissions: An analog range is determined by setting a high and low limit in the RC45 PC board. The RC45 will transmit an alarm immediately when the high or low set points are reached.

Sensor Inputs:

Digital Input: The RC45 is equipped with two pulse counters. One pulse counter can be set to accumulate volumetric pulses in engineering units (i.e. Acre Feet, Gallons) and is equipped with an internal pulse divider. The second pulse counter is provided for rain bucket tip recording. The second pulse input can be configured as a second flow meter totalizer with the addition of an E7000-04 powered flow transmitter or the X7000 pulse divider PC board.

Analog Sensor Inputs: Features two configurable analog 0-5V, 0-1 mA, and 4-20mA sensor inputs. Changes can be made to analog #1 and #2 by adding the axial resistors to the correct terminals to configure other current outputs.

Frequency Input: There is a single frequency signal input which can be used to measure rates such as flow rate. The frequency range is 0-10KHz with an active low (falling edge) on the sensor input.

Battery voltage and Flow Run Time sensors:

The battery voltage is reported with the transmission of data. The time the pump has been running or the time of flow is contained internal to the MPU chip and no extra circuits or sensor channels are required.

Analog Output: 0-5V (standard) 0-1 mA, 4-20mA, User Configurable Range

Pulse Output: (Momentary) open drain FET

Installation Locations: Any location with an unobstructed view of the sky.

Power Supply: 300mA Solar, 110VAC supply, or both with battery backup. Five year rechargeable battery life.

Environmental:

Relative Humidity: 0 to 100% non-condensing

Operating Temperature Range: -40° to 140° F (-40° to 60° C) –

Enclosure: NEMA 4, polycarbonate, with hinged door and locking hasp

Satellite Constellation: Orbcomm



3255 WEST STETSON AVENUE • HEMET, CALIFORNIA 92545 USA

TEL: 951-652-6811 • 800-220-2279 • FAX: 951-652-3078

Printed in The U.S.A.

Lit. # 30120-05 Rev.1.0/05-11

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APPENDIX II - 4

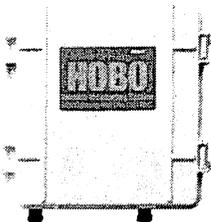
[International Dealer Locator](#)

Questions? Call: 1-800-564-4377 or [Chat Live](#)

[Shopping Cart](#) \$0.00

SEARCH

HOBO U30 Cellular Data Logger - U30-GSM 15 Channel Web-based Monitoring System



[Zoom Image](#) [/images/product_images/large/U30-GSM.jpg](#)

Starting at \$850

Please use the tabs below to configure your U30 system.

Questions? - Call 1-800-564-4377

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[Description & Features](#) [Detailed Specifications](#) [Documentation](#) [FAQs](#) [Resources](#)

The HOBO Remote Monitoring System is a remote data logging and monitoring device with built in cellular communications that can be easily reconfigured and adapted to measure a wide variety of applications. Up to 15 channels of data can be recorded and monitored remotely via Onset's web-enabled software platform, [HOBOlink](#) (<http://files.webinar/HOBOlinkDemo/HOBOlinkDemo.html>),™

In addition, you can set alarms to trip for specific sensor readings that you select or for overall system conditions, such as when the memory or battery is running low. See the [HOBOlink Demo](#) (<http://files.webinar/HOBOlinkDemo/HOBOlinkDemo.html>).

Key Features:

- HOBO U30 can be used in more than 30 countries
- Provides real-time remote access to environmental and energy data
- Rugged enclosure ensures reliable performance in both indoor and outdoor environments
- Fully-Integrated expandable communications
- Set up is quick and easy with plug-and-play sensors
- Fast data offload via USB
- Optional analog inputs with sensor excitation
- Includes relay that can be activated on user-defined alarm conditions

Learn More >

Data Plans

- > [US HOBOlink Data Plans](#) (<http://www.onsetcomp.com/files/US-Data-Plans-Overview-Slide-2012.pdf>)
- > [International HOBOlink Plans](#) (<http://www.onsetcomp.com/files/2012-08-06-International-Data-Plans-Overview-Slide-2012.pdf>)
- > [AT&T data coverage map](#) (<http://www.att.com/coverage/coverage.html>)
- > [T-Mobile data coverage map](#) (<http://www.t-mobile.com/coverage.html>)
- > [Global and EU coverage](#) (<http://www.onsetcomp.com/files/20120801-and-EU-Data-Plans-Overview-2012.pdf>)

Featured Resources

- > [U30 Product Tour](#) ([download_request_request?download_type=webinars&view=1&download_request_u30_product_tour=1&submit=Submit](http://www.onsetcomp.com/download_request_request?download_type=webinars&view=1&download_request_u30_product_tour=1&submit=Submit))
- > [HOBOlink Demo](#) (<http://files.webinar/HOBOlinkDemo/HOBOlinkDemo.html>)
- > [View Live Data Feeds](#) ([live systems](#))
- > [Download Order Sheet](#) (http://www.onsetcomp.com/files/20120801-U30_Sales_orderform.pdf)

Web Services

- > [HOBOlink web services](#) (<http://www.onsetcomp.com/hobolink-web-services.html>)

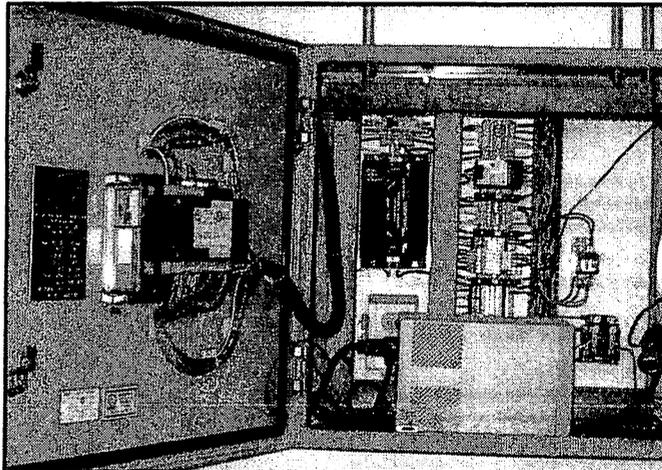
Environment:

The U30-GSM Data Logger is for use in **Indoor and Outdoor** environments

APPENDIX II - 5

General POD Information of Basic Energy Water Permit #5843

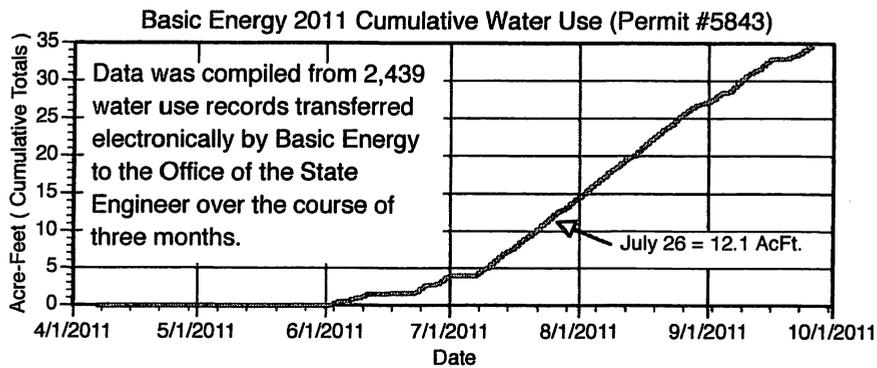
POD : 150099240	Geographic Data (Auto-Generated)	
Beneficial Use : 01/01/2011	Civil Township : Unorganized Territory	
POD Status : Active	County : McKenzie	
Basin : Little Missouri River	Sub-Basin : Lower Little Missouri River	
Subreach : 005	Watershed : Cherry Creek	
Aquifer : Tobacco Garden Creek	Sub-Watershed : Town of Watford City	
SubAquifer :	Longitude : -103.28837	
Source : Ground Water	Latitude : 47.79379	
Source Name :	* Coordinates are NAD83	
Irrigation Type :		
Req. AcFt : 40.00	App. AcFt :	40.00
Req. Acre : 0.00	App. Acre :	0.00
Req. Rate : 400.00	App. Rate :	200.00
Req. Storage : 0.00	App. Storage :	0.00



Data Logging & Control System at Basic Energy Site



Flow Meter at Basic Energy Site
July 26 reading = 12.1 Acre-Feet.





North Dakota Irrigation Association

Dedicated to strengthening and expanding irrigation to build and diversify our economy.

APPENDIX "D"

October 31, 2011

P.O. Box 2254

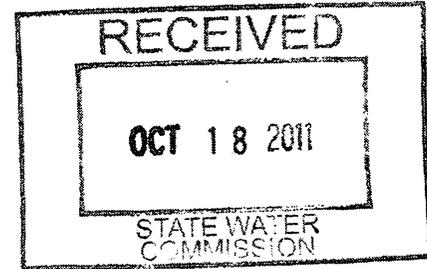
Bismarck, ND 58502

701-223-4615, 701-223-4645 (fax)

e-mail: ndirrigation@btinet.net

October 18, 2011

State Engineer Todd Sando
ND State Water Commission
900 East Boulevard
Bismarck, ND 58505



Dear Mr. Sando:

This letter concerns the issue of metering water usage under water permits issued by the Office of the State Engineer.

First, the North Dakota Irrigation Association is comprised of irrigators, businesses, companies, and other irrigation supporters across North Dakota. Our mission is "To strengthen and expand irrigation to build and diversify our economy."

We asked for, strongly supported, and deeply appreciated Governor Dalrymple's veto of the remote meter requirement contained in SB 2020 at the end of the 2011 Legislative Session. Governor Dalrymple articulated some of the reasons which provided the basis of the veto, and there are additional reasons not articulated which also support the veto.

That being said, we strongly support Governor Dalrymple's direction that the State Engineer upgrade the metering program for water usage. We also support strong enforcement for those who violate the terms of their water permit, particularly the volume of water appropriated. We would like to recommend the following improvements for metering and reporting of water usage, along with enforcement measures.

1. For those water permits whereby an irrigation use has been converted to industrial use on a temporary basis, we recommend monthly reporting. This would not impose an undue burden on those who have converted water permits to industrial use temporarily.
2. If the holder of a water permit exceeds the volume of water appropriated, we recommend that the Office of the State Engineer enforce an appropriate penalty that will be a deterrence for any water permit holder from exceeding the terms of the permit.
3. It is further recommended that a water permit holder which has exceeded the appropriated amount may be required to install a remote meter so volume pumped can be monitored more frequently pending the success of a proposed pilot program.

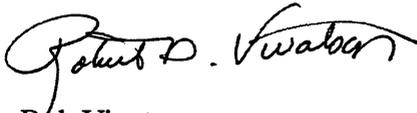
We would like briefly address the issue of the temporary conversion of a water permit from irrigation to industrial use. First, most of these conversions take place for irrigators many of whom do not own

minerals under the land but suffer the impacts of oil development in their areas. Revenues received stay in the local community, being spent to upgrade farming operations. According to Lynn Helms, every drop of water available will be needed for future oil development. This includes water from municipalities, water from the WAWS project, water from private water providers, and others.

It should also be noted that there have been no violations of the terms of water permits temporarily converted from irrigation to industrial use. The violations addressed by the Office of the State Engineer in the 2010 and 2011 were by two private water providers and a municipality. In each instance the State Engineer implemented formal actions and penalties.

We strongly support enforcement when water permit holders exceed the volume of water appropriated, and will cooperate fully to make sure that irrigators who have received temporary authorization to convert to industrial use do not exceed their allocated volume. Thank you for your consideration of these comments.

Sincerely,

A handwritten signature in black ink, appearing to read "Bob Vivatson". The signature is written in a cursive style with a large initial "B".

Bob Vivatson
Chairman

cc: Governor Dalrymple

To: State Water Commission Members

From: Bob Werkhoven, Valley City Mayor

Governor Dalrymple and State Water Commission Members, we are pleased that you are willing to listen to the concerns of those of us downstream on the Sheyenne River have, regarding potential impacts of Devils Lake drainage and excess water issues we are currently experiencing.

Commissioner Pedersen has chaired a committee that has been working on permanent flood control for about a year and has some costs and visuals he will go over with you.

We would like to reiterate some of the concerns we (Valley City, Ft. Ransom and Lisbon) have regarding the Devils Lake issue. The Sheyenne River and basin, it appears, including entities along its banks, are going to be the hydraulic conveyance that is going to restore inundated land in the Devils Lake basin, or will be impacted by the restoration of inundated land. It seems the Sheyenne River is going to be a huge part of the solution to the Devils Lake problem. It's about time, in our opinion, that some funding be allocated towards downstream mitigation as has been and is being done in the Devils Lake area.

Downstream entities also continue to fight high water periodically in the Sheyenne River, to the point that we are uncertain of the erosion that is occurring and has occurred to our river banks, and what that erosion is doing to the integrity and stability of the river banks up and down the Sheyenne River.

The river is behaving as Mother Nature intended and is trying to make more room in the channel to accommodate increased water volumes by widening the channel through erosion, a common phenomenon.

What potential impact that may have on commercial buildings and homes along the river is unknown. There is no room to place sandbags or clay dikes between structures and the riverbank in many areas. Commissioner Pedersen has some pictures of that in his presentation. I might add that when we were removing Hesco bags after the water subsided this spring, we noticed in a couple of areas that the bags were leaning toward the river channel, which would indicate some cavitations or instability of the bank, and had it failed, we would have had a breach in the dike system.

Water is having a negative impact on the infrastructure of the three downstream communities and continues to flood highly productive farmland annually. At even minor stage flooding, Valley City loses 30% of its storm sewer capacity which would ideally require three additional lift stations. Without controls, the planned emergency outlet at the Tolna Coulee and the gravity flow out of Stump Lane will put downstream entities in a precarious, vulnerable situation during spring flooding on the Sheyenne. If Stump Lake overflows, there is a potential for 3,000 cfs or more flowing into the Sheyenne. There needs to be some kind of control, such as replacing drop logs particularly during our spring flood season in the operations of the emergency outlet on the Tolna Coulee.

We are at major flood stage when our gage reads 17'. The gage is located near the little dam, about one block south of 4th Street SW or about 2 blocks upstream from the I-94 structures. At a gage reading of 17', water flow is restricted at the 4th Street SW bridge, and at about 20' gage reading there is a 1.5' head build up.

With an additional 3,000 cfs from the emergency outlet on top of the approximately 7,500 cfs we normally experience for a short period of time (20.6' gage) we would be coping with 10,500 cfs which would theoretically put us at about 24' gage. At a gage reading of 21', we are getting the bottom beam flange's of the 8th Ave SW bridge (1 block downstream) wet (based on engineering estimates) and also the bottom beam flanges of the I-94 bridges (2.5 blocks downstream).

A 3 foot head would be built up at the 8th Avenue SW bridge if we got an additional 3,000 cfs and who knows at the 4th Street SW bridge. Serious flooding would occur in our opinion because containment would be next to impossible.

Permanent dikes continue to be built in the Devils Lake region, but there is no plan for permanent flood protection or buyout funding for downstream entities, or compensation for potential higher water treatment costs which are estimated to be potentially between \$57,000 and \$130,000 per year. With the additional gravity flow outlet at Stump Lake and the east end outlet, we have gone from anticipating treating water with sulfate content of 500 ppm to 600 ppm to perhaps quadrupling that number to around 2200 to 2500 ppm. It seems the water being transferred by the water transfer rule should be a little more comparable from a chemical standpoint.

Sulfates are not destroyed by treatment, they are transferred and reduced by dilution.

We continue to blame the Devils Lake problem in part on the wet cycle, a wet cycle that does not stop in the Devils Lake Basin, but is being experienced statewide, including the Sheyenne Basin. We build dikes and take them down. Erosion is becoming a huge problem. Stopping erosion may require driving sheet piling in areas where soils are vulnerable to erosion.

Dikes go up fast because of the urgency at that time, but removal is the difficult part because the damage shows up then, requiring costly repairs and angry property owners. This anger caused by dike construction which damages yards etc. continues to take place with increased regularity. Our concern for Valley City, Ft. Ransom and Lisbon is that our system of containment will fail at some point when we get an unexpected storm during high river levels and a river bank cave-in, causing either a back-up of water, over-topping a dike and a breach of a levy or a jetty action, or having the dike cave in along with a building allowing water into the city through a dike breach.. The river channel of the Sheyenne is simply not large enough to accommodate anticipated increased flows at this point. We (Lisbon, Valley City, Fort Ransom) don't want to be another Minot.

All three cities mentioned have run out of money due to the frequency of flooding during this wet cycle, and have had their economies negatively impacted because of high water events the past few years. One of Valley City's important industries lost production days because some of their employees had to protect their homes or had difficulty getting to work (bridges closed, rural

road washed out) not to mention school days lost by high school and college students whose help sandbagging was critical in our successful flood fight over the past few years. Valley City, Ft. Ransom and Lisbon need financial assistance for buy-outs and permanent flood protection.

See Attachment

We are well aware of the problems in the Devils Lake basin, but we think downstream problems caused by the same water threatening the Devils Lake basin also threatens the Sheyenne Basin and qualifies for financial aid through a mitigation program, a program that we need to expedite. We want to avoid a disaster and hope it doesn't take a disaster to implement a remedy to our water problems.

Entity	2009 Spring Flood Disaster-Cost Summary	2011 Spring Flood Disaster-Cost Summary
USACOE Levee Construction & (Removal in 2009)	\$ 4,300,000.00	\$ 3,018,000.00
National Guard	\$ 906,000.00	\$ 744,000.00
NDDOT Share Roads	\$ 640,000.00	\$ 440,000.00
FEMA/State	\$ 6,959,000.00	\$ 3,459,000.00
USACOE Section 594	\$ 2,300,000.00	\$ -
FEDERAL/STATE SHARE	\$ 15,105,000.00	\$ 7,661,000.00
THE CITY OF VALLEY CITY	\$ 1,047,000.00	\$ 1,043,000.00
Estimated Total Cost per disaster	\$ 16,152,000.00	\$ 8,704,000.00
		Note #1: Road damage excluding the Urban Road System estimated at \$1.2 million and FEMA approved \$560,000 in damages - balance is local responsibility (\$640,000)
		Note #2: NE Storm Sewer lift station received significant amount of damage approx \$80,000 to repair. FEMA approved \$6,000 in damages - balance is local responsibility (\$74,000)

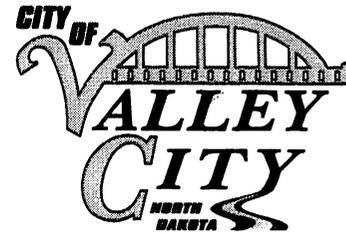
Testimony of Matt Pedersen, Valley City Commissioner

& Valley City Permanent Flood Protection Task Force Chairman

North Dakota State Water Commission

Governor Jack Dalrymple, Chairman

October 31, 2011



Financial Impacts of Recent Flooding: Stayed Dry but at a High Cost - \$34,000,000

Executive Financial Summary for 2009 and 2011 Floods:

Entity	2009 Flood	2011 Flood
USACOE – Levee Construction	\$4,300,000	\$3,018,000
National Guard	906,000	744,000
NDDOT Share Roads	640,000	440,000
FEMA / State of ND	6,959,000	3,459,000
CDBG – Sanitary Sewer	300,000	
USACOE – Sanitary Sewer	2,300,000	
Valley City – Local Cost-Share	1,047,000	1,043,000
Total Costs Incurred to-date	\$16,452,000	\$8,704,000
Estimated Future Costs to Incur:		
Valley City – NE Storm Sewer Lift Station		800,000
Valley City – Road damages net of FEMA		640,000
Estimated Total Costs	\$16,452,000	\$10,144,000
Estimated Total Valley City Cost-Share	\$1,047,000	\$2,483,000

Other Costs Incurred as a Result of the 2009 Flood:

Entity / Event	2009 Flood
Valley City State University	\$823,000
Mandatory Closing of Non-Essential Businesses	6,000,000
Valley City Parks & Recreation	200,000
Mercy Hospital	361,000
Total	\$7,384,000

Local Cost-Share:

- Valley City's local share was \$1,047,000 and \$1,043,000 - \$2,483,000 in 2009 and 2011, respectively
- Valley City's financial resources are nearly exhausted from recent flooding
- High priority projects have been delayed or cancelled as Valley City's local share has been covered through monies intended for Economic Development and Infrastructure (streets, storm sewer, sanitary sewer)
- Important facts to put local cost-share impacts into perspective:
 - 2009 and 2011 local cost-share nearly doubled city expenditures
 - Valley City levies \$1,150,000 annually for city operations equating to 97 mills
 - If we levied the local cost-share, that would be an additional 85 mills

What's at Risk?

Both the 2009 and 2011 spring floods mirrored the 500-year flood event modeling of approximately 21 feet. At 21 feet, the below table illustrates the real estate that is subjected to extensive loss if an emergency levee were to fail.

	Floodway	100 Year Floodplain	500 Year Floodplain	Total
Residential	11,065,800	38,111,200	17,932,900	67,109,900
Commercial	8,932,100	14,419,800	16,878,500	40,230,400
Exempt (estimated)*	30,249,586	54,995,997	24,682,435	109,928,018
Total	\$50,247,486	\$107,526,997	\$59,493,835	\$217,268,318

* - Notable Exempt properties include 9 VCSU buildings (\$40,549,618), Mercy Hospital (\$35,000,000), Valley City Auditorium and Recreation Center (\$9,000,000), Post Office (\$3,000,000), Washington Elementary School (\$6,000,000) and the City Hall/Police/Fire Station Complex (\$5,500,000). The value of several exempt churches are not included in above detail.

The above table summarizes why **permanent flood protection is a priority 1 investment in Valley City** to diminish the risk of catastrophic loss caused by inferior emergency levies, Hesco containers and sandbags.

Valley City can't continue to bet our future on the durability of such inadequate, temporary flood protection.

Devils Lake Imminent Threat:

- The ever-increasing **risk of Devils Lake requires significant investment of mitigation funds in Valley City** to protect our community and ensure public safety.
- **Less than 900,000 acre-feet of storage remain** before natural overflow at 1,458. The spring inflows of 2009 and 2011 were approximately 600,000 acre-feet each. Prior to spring 2009, the average inflows into Devils Lake were 250,000 acre-feet annually.
- **Once natural overflow occurs, the Sheyenne River watershed's size increases by 55%** from 6,900 square miles to 10,710 square miles as the Devils Lake Basin comprises 3,810 square miles.
- Increased outlet capacity via the new pump-based east-end outlet and planned gravity-based outlet through Stump Lake **will dramatically increase the risk of flood damages** both during spring melt and summer rain events that occurred in 2011.

Research and Analysis:

- The Valley City Commission formed a Permanent Flood Protection Task Force (Task Force) in 2010 comprised of community and business leaders chaired by Commissioner Matt Pedersen
- The Task Force has **partnered with the US Army Corps of Engineers (Corps)** on a Reconnaissance Study to determine federal interest in a project in Valley City. The **Reconnaissance Study concluded Valley City has a significant and growing need for flood protection given the risks of Devils Lake.** The Corps is working on draft 2 of the Reconnaissance Study at the request of their division headquarters to better reflect the 2009 and 2011 flood events and 3,000 cfs from Devils Lake in an effort to achieve a Cost to Benefit Ratio in excess of 1.0.
- The Task Force has been **working closely with the ND State Water Commission** on more short-term solutions such as building clay levees where Phase 1 and Phase 2 buy-outs would occur starting in 2012. The ND State Water Commission is **analyzing the feasibility of permanent flood protection where Phase 1 and Phase 2 buy-outs are scheduled to occur** as well as more long-term solutions like straightening the river channel in two key locations and reducing the impacts of some bridges.
- The Task Force has been **working with a leading flood wall company** that designed and manufactured the flood walls used in East Grand Forks, MN. They have identified several areas in Valley City where **there solution would work perfectly.** Primarily, we are considering their product **on the campus of VCSU and along Main Street to protect downtown.**

Valley City's Key Asks of the State of North Dakota:

Immediate Needs (2011 - 2012):

Phase 1 Acquisitions of Right of way for Emergency Levees Program:

VISION:

- Increase public safety
- Nearly eliminate the dependency on sandbags and Hesco containers as Sandbag Central is an excessive drain on our community, especially Valley City High School and VCSU students
- Lower risk of flood damage to neighborhoods and key community assets like the downtown business district and VCSU
- Increase efficiency of emergency levee construction
- Reduce disruption associated with contingency dikes
- Enable permanent flood protection long-term

INVESTMENT COST: \$3,600,000

SCOPE: 32 structures along the river's edge including 27 single-family homes, 4 apartment buildings and 1 commercial building. **All of the 32 Phase 1 buy-out candidates agree to be bought-out in 2012** assuming a fair offer currently based on 110% of city assessed value prior to 2009 flood damage.

Additional Immediate Needs and Associated Key Asks:

1. **ND State Water Commission to sponsor updating the hydrology and flood plain of the Sheyenne River incorporating the Devils Lake Basin into the Sheyenne River watershed.** This will be crucial for Valley City, Fort Ransom and Lisbon when planning flood protection if Devils Lake reaches 1,458.
2. **ND State Water Commission to sponsor the development of a Master Flood Protection Plan for Valley City and downstream inclusive of Fort Ransom and Lisbon.** This master plan will serve as a roadmap for the recurring phased investments in these communities' flood protection. This master plan will likely be available in a more timely manner than a Corps Feasibility Study.
3. Strong state support to **fast-track upstream retention on the Sheyenne River's main stem near Cooperstown** as identified by Moore Engineering. We would request that the **ND State Water Commission fund the engineering for the feasibility phase.**

Upcoming Needs (2012 – 2014):

Protect VCSU and Downtown Business District:

VISION:

- **Conduct Phase 2 of acquisitions of right of way and relocations**
- **Protect university district** through a series of flood walls and permanent clay levees along College Street and 5th Ave, SW as well as necessary storm sewer modifications
- **Protect downtown business district** with a permanent clay levee along 4th St, SW and 4th St, SE and a flood wall along Main Street as well as necessary storm sewer modifications
- **Address erosion concerns** along Main Street and College Street and other priority areas

INVESTMENT COST: \$19,850,000

SCOPE:

Investment	University District	Downtown District
Phase 2 acquisitions of right of way	\$1,350,000	
Permanent Clay Levees	3,500,000	3,000,000
VCSU Flood Wall	5,000,000	
Main Street Flood Wall		4,000,000
Storm Sewer Modifications	2,000,000	1,000,000
Total	\$11,850,000	\$8,000,000

Future Needs (2014 and beyond):

Permanent Flood Protection as Envisioned by Master Flood Protection Plan:

VISION:

- Continue with acquisitions of right of way as necessary to support permanent flood protection envisioned in Master Flood Protection Plan and not already covered in Phases 1-2
- Construct clay levees where determined feasible by Master Flood Protection Plan
- Implement necessary improvements to storm sewer system

INVESTMENT COST: \$20,000,000 - \$30,000,000

SCOPE: Early engineering estimates determined an extensive permanent flood protection solution for Valley City would cost \$40,000,000 to \$50,000,000 with approximately \$20,000,000 - \$23,000,000 of it being consumed in Phases 1 and 2 as detailed above. These estimates do not include investments in upstream retention.

Lisbon, ND Flood Protection 2011

Introduction:

Why are we here? - We are here to ask for your help in protecting the City of Lisbon from the Sheyenne River and Mother Nature. We have experienced 3 years running of Major Flooding in the City of Lisbon.

Excessive moisture over the last 3 years has filled surrounding lakes, sloughs, and ditches, creating more run off combined with the heavy rain and snowfall for us to deal with.

Lisbon Flood Stages:

Minor Flooding occurs at 15' to 17'

Moderate Flooding occurs at 17' to 19'

Major Flooding occurs at 19' and up

Once the temporary emergency levees are in place and the river reaches a certain level we need to pump water over the levees due to storm sewers being closed off to the river. We asked our City Superintendent to give us some numbers on pump management during flood operations.

2009

-On 3-23-09 the river level was at 14' when Lisbon started to run extra pumps and bypass the lift station.

-Pump operations continued and increased as the river rose and decreased until 5-17-09 when the river level hit 11.18'. At that time, sewers, run off, and river inflows decreased to allow gates to be reopened.

- High river level for the year was 22.86' - 3 feet over old record

- Highway #27 bridge was closed for about 3 weeks - Water on bridge at 19'5"

2010

- No by pass info available. Bypass was limited this year.

- High river level for the year was 19.46'

- River level came up and went down much quicker this year.

2011

-On 4-11-11 river level was 17.07' when Lisbon started to run extra pumps and began to bypass the lift station.

-This continued until 5-16-11 when the river level hit 12.97'

-High river level for this year was 21.59.

Each of these 3 years temporary levees were constructed and removed, with the exception of 2010. A levee extension was allowed by FEMA to keep them and we added to the levee for the 2011 flood fight.

Due to high costs of fighting the river our city has depleted their funds and net worth to an extreme level. We are to the point to financial instability to where normal operations in our community are at risk.

Our City Police and Street Department have been asked to cut back on budgets due to the lack of funding. When we start to ask this we are asking them to work with old or outdated equipment for longer periods of time. This imposes safety concerns down the road.

The more the budget suffers, the more other normal operations become abnormal which makes it harder for a community to run its business.

5 years ago we ask our engineer to present a plan to bring Lisbon's infrastructure up to date city wide.

2008 - Phase 1 Water/Sewer Improvement	\$2.5 million
75% Sales Tax	1% Sales Tax Increase
25% Assessments	

2009 - Phase 2 Water/Sewer Improvement	\$1.5 Million
50% Sales Tax	Increase ½% Sales Tax
50% Assessments/Reallocation of funds	

Phase 3 & 4 were tabled do to 2009 Flood. To date are not funded.

- City Engineer has been asked to apply for grant money which our portion if grant is awarded would require over \$3 per household per month on sewer bill.
- this improvement for the amount of \$3,150,000 (City Cost of \$472,500) would address a major issue with water infiltration into our sewer system by lining sewer lines, eliminating clay tile, refurbishing 10 manholes, and relocating our south lift station to assist in pumping when the river is high, eliminating the need to bypass sewer into the river as much. It would also assist in pumping directly to the lagoon taking the pressure off the main lift.

We have a need and a responsibility to protect our city, our residence, and their property. We have great response from our Fire Department, and our volunteers, but how long do we put them in harms way. How long before something terrible happens, a levee slough or blowout could easily happen and endanger many lives and properties.

Looking Forward: What needs to be done?

The need and time to plan for the future is now. The future we are told is to be wet and continued flood issues will remain.

What can be done right now? Lisbon has several areas that permanent levee could be put in place. We have acquired properties with city funds during the 1st buyout process combined with areas of land we already own that could be put into motion at any time if funding was available. It is unlikely that any permanent levee could be put in until next spring. However, the buyouts of some 22 homes that are in the floodway and the entire levee could be put in place through the summer of 2012 if funding was available.

We have several areas of concern that deal with erosion. We will, without a doubt need dollars to be spent on wrapping certain areas of the river to prevent future damage to more properties.

Engineering will be needed in both of these issues. We do not have the ability to hire the engineering. We have done a flood study in the recent past before our buyout process began. It shows soil boring along the river channel and the recommended 18 homes that needed to be bought to clear the way for future emergency levees. That tool should be a great time and money savings.

-According to where the flood study shows the Floodway, we would need to have another round of buyouts to gain access to the floodway. An estimated 22 more homes will need to be purchased with City or State funding to allow permanent levee construction.

- River clean up. The river has been inundated by trees that have been washed away. This prevents flow of ice and water from freely running through the Sheyenne. This should be done from Bald Hill Dam all the way through and past Lisbon.

Cost?

Moore Engineering has provided an Engineers Opinion of Probable Cost of Construction in the amount of \$12,470,000 at this time. Land Acquisitions (Home Buyouts) in the amount of \$1,980,000. And Professional Services in the amount of \$3,750,000. Totaling \$18,200,000.

Erosion control is undetermined all together. We have not had anyone look at this issue financially. We did ask the Office of the State Water Commission to assist us in this and levee costs, but have not received any feedback.

Closing:

We hope that our statement here today has shown clear that we are a city in need of your assistance. We are aware of the concerns and critical issue of Devils Lake to the North. It is necessary that we prepare our community for the future dangers that lie ahead in terms of the Sheyenne River.

Whether or not we see Devils Lake water in slow controlled volumes or the potential high uncontrolled, we need your help to prepare us and keep our citizens safe. Understandably, an uncontrolled release at Devils Lake would likely flood our city with or without permanent levee, we need to be under the assumption that the outlet being constructed will be in place soon enough to prevent that disaster. It is Mother Nature we need to concern ourselves with. We are confident that permanent levee will protect us from her. However, we need your help to complete this task.

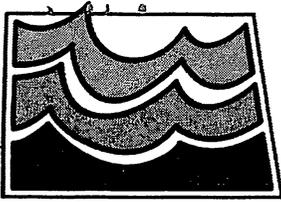
**SHEYENNE RIVER FLOOD PROTECTION
CITY OF LISBON, ND**

Engineer's Opinion of Probable Cost

ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL
1. Storm Sewer - 12" RCP	L.F.	600	\$28.00	\$16,800.00
2. Storm Sewer - 15" RCP	L.F.	1,200	\$30.00	\$36,000.00
3. Storm Sewer - 18" RCP	L.F.	800	\$35.00	\$28,000.00
4. Storm Sewer - 24" RCP	L.F.	2,900	\$45.00	\$130,500.00
5. Storm Sewer - 36" RCP	L.F.	800	\$75.00	\$60,000.00
6. Storm Sewer - 42" RCP	L.F.	300	\$150.00	\$45,000.00
7. Storm Sewer - 54" RCP	L.F.	200	\$200.00	\$40,000.00
8. Storm Sewer Manhole	Each	20	\$5,000.00	\$100,000.00
9. Storm Sewer Inlet	Each	60	\$1,500.00	\$90,000.00
10. Storm Water Lift Station	Each	5	\$260,000.00	\$1,300,000.00
11. Street Removal	L.F.	2,000	\$95.00	\$190,000.00
12. Subgrade Preparation	S.Y.	8,900	\$2.00	\$17,800.00
13. Reinforcement Fabric	S.Y.	8,900	\$2.50	\$22,250.00
14. Aggregate Base Course	S.Y.	8,900	\$12.00	\$106,800.00
15. Asphalt Base Course - 3"	S.Y.	8,000	\$15.00	\$120,000.00
16. Asphalt Wearing Course - 2"	S.Y.	8,000	\$14.00	\$112,000.00
17. Curb & Gutter	L.F.	2,000	\$30.00	\$60,000.00
18. Water Main Relocation	L.F.	2,000	\$20.00	\$40,000.00
19. Fire Hydrant	Each	7	\$2,500.00	\$17,500.00
20. Water Service Line - 1"	L.F.	800	\$18.00	\$14,400.00
21. Corporation - 1"	Each	20	\$250.00	\$5,000.00
22. Curb Stop & Box - 1"	Each	20	\$300.00	\$6,000.00
23. Sanitary Sewer Main Relocation	L.F.	2,000	\$25.00	\$50,000.00
24. Sanitary Sewer Manhole	Each	10	\$5,500.00	\$55,000.00
25. Sanitary Sewer Service Line	L.F.	800	\$22.00	\$17,600.00
26. Sanitary Sewer Connection	Each	20	\$250.00	\$5,000.00
27. Road & RR Closure Structure	Each	7	\$200,000.00	\$1,400,000.00
28. Concrete Flood Wall	L.F.	2,000	\$1,800.00	\$3,600,000.00
29. Earthen Levee (Embankment - Import)	C.Y.	170,000	\$10.00	\$1,700,000.00
30. Topsoil Removal & Replace	S.Y.	140,000	\$1.50	\$210,000.00
31. Ditching	L.F.	8,000	\$2.00	\$16,000.00
32. Clearing & Grubbing	L.Sum	1	\$25,000.00	\$25,000.00
33. Rip-Rap (Slope Protection)	C.Y.	18,000	\$45.00	\$810,000.00
34. Erosion Control	L.Sum	1	\$40,000.00	\$40,000.00
35. Traffic Control	L.Sum	1	\$25,000.00	\$25,000.00
36. Seeding	Acre	10	\$6,500.00	\$65,000.00
37. Testing Allowance	L.Sum	1	\$35,000.00	\$35,000.00
38. Contingencies	L.Sum	1	\$1,858,350.00	\$1,858,350.00
Total Construction				\$12,470,000.00
*Professional Services				\$3,750,000.00
Land Acquisition (Home Buyouts)				\$1,980,000.00
TOTAL PROJECT				\$18,200,000.00

*Professional Services Include:

Legal, Bonding, Administration, Bond Discount, Fiscal Agent,
Capitalized Interest, Civil, Geotechnical & Structural Engineering



North Dakota State Water Commission

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MEMORANDUM

TO: Governor Jack Dalrymple
Members of the State Water Commission
FROM: ~~Sando~~ Todd Sando, P.E., Chief Engineer - Secretary
SUBJECT: Devils Lake – Projects and Hydraulic Update
DATE: October 18, 2011

1) Hydrologic Update:

The Devils Lake water surface elevation has remained stable throughout the last month, after hitting a peak elevation of 1454.3 in late June.

	CURRENT	1 MONTH AGO		1 YEAR AGO	
		VALUE	CHANGE	VALUE	CHANGE
Elevation (ft-msl)	1453.7	1453.7	0	1451.4	+2.3
Area (acres)	201,000	201,000	0	176,000	+25,000
Volume (acre-feet)	4.04 million	4.04 million	0	3.61 million	+431,000

The volumes and areas above were obtained from the area-capacity table found on the Commission's website. The USGS has estimated the total inflow into Devils Lake for the water year of 2011 to be 595,000 ac.-ft., which is a record.

2) West End Outlet:

The West Outlet has operated since May and transferred more than 38,000 acre-feet of water from Devils Lake despite mechanical problems with the pumps at the Josephine pump station. In August, three of the four pumps at the Josephine Station went down due to mechanical problems. The outlet operated at 75 cfs on the single remaining pump from August 22nd until October 14th when one of the 50 cfs pumps was returned to service. The outlet is now operating at 125 cfs. The remaining damaged 50 cfs and 75 cfs pumps will be returned to service as soon as they come back from the manufacturer. However, this is not expected to be before the end of this season.

(Continued)

The volume of water released from the start-up in May to the end of September is shown in the following table. The September value is an estimate at this time.

MONTH	VOLUME
May	1,672 ac.- ft.
June	12,549 ac.-ft.
July	13,283 ac.-ft.
August	6,117 ac.-ft.
September (est)	4,600 ac. -ft.
TOTAL	38,221 ac. - ft.

The 38,221 ac.-ft. corresponds to 2.3 inches off the lake at the estimated water surface area at this time. The latest sulfate concentration from the lab tests is 228 mg/L from a water sample taken below Baldhill Dam on September 28, 2011.

3) East End Outlet:

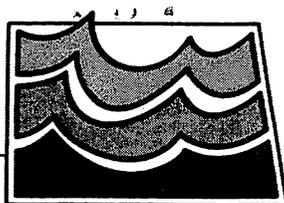
Work on this project is well underway, and pipe installation is progressing at a vigorous pace. Over 4,000 feet of steel pipe at the west end of the route has been installed, while nearly 3,000 feet of concrete pipe has been installed at the east end of the route. The total route is approximately 27,000 feet long. A pre-construction meeting was held on October 20th for the intake structure. Bids were opened for the outfall structure on October 11, 2011, and the low bid of \$7,598,756 was from ICS, Inc. A notice of award has been sent to ICS.

4) Emergency Gravity Water Transfer Channel:

The Devils Lake Joint Water Resource Board is working on acquiring access rights to enter the proposed lands for wetland delineation and soils exploration. Most of the affected landowners oppose the project and are not providing right of entry to their properties. The Joint Board is pursuing legal action to force the right of entry.

5) Tolna Coulee Control Structure:

This project has been awarded and a pre-construction meeting was held on October 13th. The contractor, Wagner Construction, Inc., International Falls, Minnesota, has started providing submittals for review and mobilizing equipment to the site.



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MEMORANDUM

TO: Governor Jack Dalrymple
Members of the State Water Commission
FROM: ~~J. J.~~ Todd Sando, P.E., Chief Engineer-Secretary
SUBJECT: Western Area Water Supply Project – Design Approval and Project Update
DATE: October 19, 2011

Phase II Approval

The Western Area Water Supply Authority (Authority) is requesting approval for Phase II of the Western Area Water Supply Project (Project), which includes design work relating to Phase III. The overall concept of Phase II requires approval by the State Water Commission. The work includes pipelines and reservoirs to connect the regional water systems to the Williston Water Treatment Plant and expansion of the Treatment Plant.

As presented, Phase I and Phase II exceeds available funding. The Authority is expanding service in McKenzie County as signups have far exceeded initial estimates. The positive of this is getting the domestic needs served. In the initial plans there were needs assessments planned for most (but not all) of the rural areas to be served by Phase III development. The engineering for Phase III that is included in Phase II is now expanded to include signup campaign, preliminary engineering and final design for rural water service in Burke and Divide Counties. There is an expectation that as water needs are identified, and contracts are awarded, that projects may require even more funding.

The Commission previously approved Phase I and \$25 million from the Resources Trust Fund. At this point, the recommendation is to approve Phase II and Phase III design work, which will include development of a Phase II concept that is within the funding contained H.B. 1206.

Engineering Selection Process

The Authority selected Advanced Engineering and Environmental Services, Inc, (AE2S) as the project's engineering firm and has entered into a contract. The State Engineer's designee on the Authority did vote against the negotiated contract. The two issues of concern were that the Authority did not negotiate on fees, and they placed a limit on the engineer's liability for their work on the project. With projects of this magnitude, the negotiation of rates can include a discount off the standard rate as the engineer's costs for project development are reduced. We had discussed with the Authority several options including a negotiation of a discount off the standard rates or a disclosure of level of profit and setting profit on the engineer contract. The engineering firm indicated they do not negotiate from their standard rate with any of their customers and they would not disclose their level of profit. The Authority accepted a standard fee contract and agreed to limit the engineer's liability responsibility to the amounts in their insurance contract.

Construction

State Water Commission staff reviewed and approved specific plans and specifications on the following projects.

JACK DALRYMPLE, GOVERNOR
CHAIRMAN

TODD SANDO, P.E.
CHIEF ENGINEER AND SECRETARY

Project	Description	Contractor	Cost	Completed	Completion
Regional Reservoir No. 1 to Bakken Industrial Park Pipeline	30-inch to 12-inch pipeline in Williston	Merryman Excavation	\$4,018,645.00	35%	May 31, 2012
US 2 to County Hwy No. 7 Watermain	24-inch to 12-inch pipeline in Williston	Metro Construction	\$3,867,336.20	97%	November 30, 2011
Williston 26 th St Pump Station	Increase capacity of Williston pump station	John T Jones Construction	\$721,656.00	55%	May 31, 2012

Fill Depot Siting Process

The project engineer’s memorandum for the Western Area Water Supply Project (WAWSP) – Fill Depot Siting Process is attached. The project legislation stated “The western area water supply authority shall consider in the process of locating industrial water depots the location of private water sellers so as to minimize the impact on private water sellers.” The Authority is documenting the changes they are making to water depot locations and their discussions with private water sellers. Depots will be discussed with the private water providers on water depot demands and locations.

Funding

The State Water Commission approved \$25,000,000 for Phase I on June 21. The Authority has approved pay vouchers of \$5.8 million, which have been paid by the State Water Commission. In order for the Authority to access the remaining loans of \$85,000,000, the Bank of North Dakota’s letter of conditions require State Water Commission approval of Phase II.

The Industrial Commission approved four advance loans for the Project and the Bank of North Dakota has issued a letter of commitment dated September 16, 2011. The Bank of North Dakota shall manage the loans. As required for the Authority to receive cost-share they have:

- 1) Provided a conceptual framework for water purchase agreements between the Authority and entities;
- 2) Provided a framework for agreements under which the Authority would purchase water from Williston and contract for use of existing infrastructure from other entities for transmission of Project water;
- 3) Provided a listing of all leased or owned facilities or infrastructure;
- 4) Demonstrated the conceptual framework is consistent and supportive of the financial projections in the Project business plan.

I recommend the State Water Commission approve the design work for Phase II and Phase III, to allow completion of a Phase II concept that is within the funding identified in H.B. 1206, to be submitted to the Commission.



WESTERN AREA

WATER SUPPLY AUTHORITY

October 17, 2011

Mr. Todd Sando, PE, State Engineer
North Dakota State Water Commission
900 E Boulevard Ave
Bismarck ND 58505

RE: Western Area Water Supply Project Approval

Dear Mr. Sando,

House Bill (HB) 1206 established the Western Area Water Supply Authority (WAWSA) to develop a regional water system for northwest North Dakota. It further specified oversight for the project by the North Dakota State Water Commission (NDSWC). It more specifically stated that "In relation to initial construction of the system and debt repayment, the authority shall present the overall plan and contract plans and specifications for the project to the state water commission for approval." This letter is intended to request approval of the plan that has been developed by WAWSA.

Since HB 1206 was passed, the following major activities have been accomplished by WAWSA:

- Official organization of the WAWSA was completed, including the development of bylaws approved by the Attorney General.
- Approval for Phase I of the Western Area Water Supply Project was obtained from the State Water Commission.
- Approval of a loan package from the Industrial Commission and the Bank of North Dakota was obtained.
- A solicitation process for legal services was completed. WAWSA selected and negotiated a contract with Vogel Law Firm.
- A solicitation process for engineering services was completed. WAWSA selected and negotiated a contract with Advanced Engineering and Environmental Services, Inc. (AE2S).
- A list of agreements needed with the member entities has been identified.
- WAWSA has closed on the loan documents from the Bank of North Dakota.

The WAWSA is currently in the process of hiring a manager, and anticipates hiring additional full time staff as needed to properly monitor the project. In the mean time, WAWSA has approved a task order with AE2S that will provide the administrative support for the project. WAWSA appointed a treasurer and secretary from the Board and has developed a process to complete general accounting to monitor its financial condition and submit payment vouchers. In addition WAWSA has directed AE2S to develop a capital accounting system that will be used to track the overall capital budget and track changes in



WESTERN AREA WATER SUPPLY AUTHORITY

Mr. Todd Sando, PE, State Engineer
North Dakota State Water Commission
RE: Western Area Water Supply Project Approval
October 17, 2011
Page 2 of 2

the project. It is envisioned that the capital accounting product will be used routinely to report changes in the project to the NDSWC.

Attached to this letter are three memoranda that summarize:

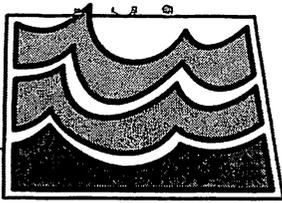
- The plan for development of the final design and construction of the project;
- The required agreements between the WAWSA and its members, which set forth the mechanism for generating revenues and covering revenue requirements;
- The process developed to consider the impacts to the private water providers.

WAWSA is confident that the project administration and development activities have been well thought out and that a competent team of legal and design professionals has been assembled to complete the project in accordance with HB 1206, Bank of North Dakota Loan covenants, and with State Water Commission policies and procedures. WAWSA respectfully requests that the Western Area Water Supply Project be approved for final design and construction as presented using available funds from WAWSA revenues and loan proceeds from the Bank of North Dakota not to exceed \$110 million.

Sincerely,

A handwritten signature in black ink, appearing to read 'Denton Zubke', with a long horizontal flourish extending to the right.

Denton Zubke Chairman
Western Area Water Supply Authority



North Dakota State Water Commission

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MEMORANDUM

TO: Governor Jack Dalrymple
Members of the State Water Commission
FROM: ~~Jack~~ Todd Sando, P.E., Chief Engineer-Secretary
SUBJECT: NAWS – Project Update
DATE: October 19, 2011

Supplemental EIS

Reclamation held a cooperating agency meeting on September 14 for the NAWS Supplemental EIS. Agenda includes purpose and need, alternative analysis, water needs and supply, transbasin effects, resource analysis, Missouri River depletion, climate change, and the schedule. When the Supplemental EIS is completed, the report will be provided to the federal court.

Manitoba & Missouri Lawsuit

The Federal Court issued an order on March 5, 2010, requiring Reclamation to take a hard look at (1) the cumulative impacts of water withdrawal on the water levels of Lake Sakakawea and the Missouri River, and (2) the consequences of biota transfer into the Hudson Bay Basin, including Canada. The most recent order dated October 25, 2010, allows construction on the improvements in the Minot Water Treatment Plant to proceed, however it does not allow design work to continue on the intake.

Design and Construction Update

Table 1 - NAWS Contracts under Construction				
Contract	Contract Award	Contractor	Contract Amount	Remaining Obligations
2-2C Kenmare	10/1/08	Northern Improvement	\$4,853,166.87	\$164,764.63
5-2C Storage	3/27/09	Caldwell Tanks, KY	\$1,843,903.64	\$93,270.18
2-2D Mohall	7/24/09	American Infrastructure, CO In Default – Being taken on by the Bonding Co - EMC	\$5,196,586.13	\$128,207.84
2-3A Minot AFB	1/4/11	S.J. Louis Construction	\$5,864,000.00	\$4,243,638.88
2-3B Upper Souris/Glenburn	1/4/11	S.J. Louis Construction	\$3,747,982.00	\$1,435,782.28
Total Remaining Construction Contract Obligations				\$6,065,663.81

Table 2 – Design Work on Upcoming NAWs Construction Contracts		
	Bid Opening	Contract Cost Estimate
7-1A Filtration & Piping Minot WTP	September 27, 2011	\$10 million

Contract 2-2C – The contract includes 52 miles of 10”-12” pipeline for the Kenmare-Upper Souris pipeline. The contract was awarded to Northern Improvement on October 1, 2008. The substantial completion letter was signed on November 20th. Water service to Kenmare was started on December 7, 2009. Water service to Upper Souris Water District at the Donnybrook turnout started December 22, 2009. The seeding for portions of the contract has completed, however there are several areas requiring reseeding. Contract closeout is expected following final seeding.

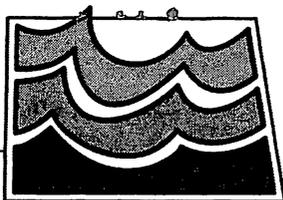
Contract 5-2C - The contract includes a 1 million gallon storage reservoir near Kenmare. The welded tank was lifted in place on the concrete pedestal on November 18, 2009. The tank is now in service. This contract should be closed out in the near future.

Contract 2-2D - The contract covers 62 miles of pipeline for the Mohall/Sherwood/All Seasons pipeline. The contract was awarded to American Infrastructure, Colorado. There remains 2000 feet of pipe to be placed. Contractor provided notice of voluntary default. The Contract Surety, EMC took over the contract and hired S.J. Louis Construction to complete the remaining work. They are in the process of disinfecting and flushing the pipeline. A pre-final inspection is taking place the week of October 17th. We anticipate providing service to Mohall, Sherwood, and All Seasons Water Users District prior to freeze up this fall.

Contract 2-3A – The contract covers 13 miles of 24” pipeline between the north side of Minot to the Minot Air Force Base. Work began in early September. The contractor, S.J. Louis, is making acceptable progress and will continue as long as the weather allows this fall.

Contract 2-3B – The contract covers the 13 miles of 16” pipeline north of the Minot Air Force Base along Highway 83 to provide service to Upper Souris Water District at their treatment plant and at Glenburn. Work began in late August and is nearly 50% complete.

Design on Contract 7-1A – The Federal Court on October 25, 2010, approved construction in the Minot Water Treatment Plant with the piping and filters. The SCADA telemetry system for the Northern Tier has been incorporated into this contract, as well as the design and programming for the SCADA for the entire project. Bids were opened September 27th and will be covered in a separate memorandum.



North Dakota State Water Commission

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MEMORANDUM

TO: Governor Jack Dalrymple
Members of the State Water Commission
FROM: Todd S. Sando, P.E., Chief Engineer - Secretary
SUBJECT: SWPP Project Update
DATE: October 17, 2011

Oliver, Mercer, North Dunn (OMND) Regional Service Area

Contract 3-1D OMND Water Treatment Plant Building and Membrane Equipment Installation: Work has progressed much better with the improved weather since spring. All concrete for the lower level of the treatment plant has been placed. Erection of the pre-cast concrete walls for the upper level is complete. The electrical and mechanical contracts are proceeding well. We are still about three months behind schedule. Estimated total project cost is \$11.1 million.

Contract 3-1E OMND Water Treatment Plant Concentrate Disposal Facility:

The contract was awarded to Carstensen Contracting, Inc. on August 31st 2011 and work began on September 27th 2011. Pipeline installation started from the water treatment plant and is progressing north. The drilling and the diving subcontractors are mobilized and plan to start working this week. Total project cost is \$4.7 million

Contract 2-8B Main Transmission Line from Hazen to Stanton and Beulah to Center Elevated Tank: This contract was awarded to Kamphuis Pipeline Company last July and work began on April 18, 2011. All pipelines are installed and tested. The booster station start up was on September 14, 2011. The pipeline from Hazen to Stanton has been chlorinated. The chlorination from Beulah to Center tank will be coordinated with the 2-8C/D contractor. Estimated total project cost is \$5.1 million.

Contract 5-15A Zap Potable Reservoir: This contract was awarded to Maguire Iron, Inc. in July 2010. Site work began in late October. The reservoir is erected and painting is complete. The contractor is currently working on the inlet and outlet tie-ins. Estimated total project cost is \$1.4 million.

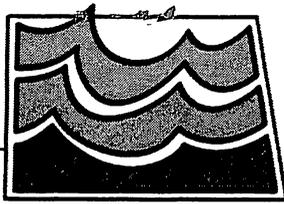
Contract 5-16 Center Elevated Tank: Landmark Construction began work this summer. The concrete pedestal and most of the site work is complete. Erection of the welded steel tank is under way. The substantial completion date is July 15, 2012. Estimated total project cost is \$1.8 million.

Contract 2-8C/D Main Transmission Line from Center Elevated Tank to Center: This contract was awarded to Niebur Development on May 31, 2011. Construction began in July and is currently progressing very well. The installation of pipeline around the City of Center and the line from Hannover to the Missouri West Water System remains to be completed. Substantial completion is scheduled for July 2012. Estimated total project cost is \$7.2 million.

Contract 7-9C Zap Service Area Rural Distribution Line Phase I: This project was bid August 4, 2011. The Commission approved award of the contract to Northern Improvement Co. at its August 17, 2011, conference call meeting. We received the concurrence of award from the Garrison Diversion Conservancy District and the Bureau of Reclamation. The contract documents have been executed. The contractor does not plan on starting construction until Spring 2012. Estimated total project cost is \$5.9 million.

Contract 7-9D Zap Service Area Rural Distribution Line Phase II: Design work has begun. The submittal set from the Engineer is expected soon. This contract will consist of 140 miles of PVC pipeline serving 232 users. The fieldwork for the cultural resource work has been completed. The report from the archaeology subcontractor, which is anticipated in early November, will be forwarded to the Bureau of Reclamation for their approval. It is anticipated that the contract will be bid this winter. Estimated total project cost is \$5.6 million.

TSS:SSP/1736-05



North Dakota State Water Commission

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MEMORANDUM

TO: Governor Jack Dalrymple
Members of the State Water Commission
FROM:  Todd Sando, P.E., Chief Engineer/Secretary
SUBJECT: Missouri River Update
DATE: October 19, 2011

On October 17, system storage in the six mainstem reservoirs was 59.7 million acre-feet (MAF), 5.4 MAF above the average system storage for the end of October, and 1.2 MAF less than last year. Runoff for the calendar year is projected to reach 60.4 MAF, 244% of normal. The previous record of 49 MAF was reached in 1997. Total system storage peaked at 72.8 MAF in June. The previous storage record was 72.1 MAF in 1975.

On October 17, Lake Sakakawea was at an elevation of 1842.3 feet msl, this is 4.4 feet lower than a year ago and 5.9 feet above its average daily elevation for October. The elevation of Lake Sakakawea peaked this summer at 1854.6 feet msl, on July 2. The record elevation of Lake Sakakawea is 1854.8 feet msl, which was set in July of 1975. The maximum daily October elevation occurred in 1975 and is 1848.2 feet msl. On October 17, releases from Garrison Dam were 25,900 cfs. Releases were reduced to 26,000 cfs at the end of September, and will remain there until freeze-up in December, then the Corps will cut releases to 19,000 cfs for a few weeks and then gradually go back up to 24,000 cfs in January and February of 2012. The maximum release out of Garrison Dam this summer was 150,600 cfs on June 26. The previous maximum release was 65,200 cfs in July 1975.

The elevation of Lake Oahe was 1608.8 feet msl on October 17; this is 0.4 feet lower than last year and 9.1 feet higher than the average daily October elevation. The elevation of Lake Oahe peaked this summer at 1619.7 feet msl on June 27, setting a new record elevation. Previously, the record elevation was 1618.7 feet msl, which occurred in June 1995. The maximum daily October elevation occurred in 1997 and is 1616.9 feet msl.

The elevation of Ft. Peck was 2237.9 feet msl on October 17; this is 2.1 feet higher than a year ago and 7.5 feet higher than the average daily October elevation. The elevations of Fort Peck Lake peaked this summer at 2252.3 feet msl on June 16, setting a new record elevation. Previously, the record elevation was 2251.6 feet msl, which occurred in July 1975. The maximum daily October elevation occurred in 1978 and is 2248.0 feet msl.

On September 29 Water Commission Staff met with the USGS's National Research Team from Weston, Virginia. The USGS is exploring the idea of doing a channel migration study on the Missouri River in North Dakota. Included in the study would be the development of a model that would be able to predict channel migration due to the effects of changing flows, bank protection, and channel alteration. Currently, Water Commission staff is gathering GIS data to

provide to the USGS. From this the USGS will have a better understanding of the data available and be able to draft a project proposal.

The Corps has released its draft 2011-2012 Annual Operating Plan (AOP) for the Missouri River System. An AOP meeting will be held in Bismarck on November 1 at the Best Western Ramkota Hotel. The Corps will hold an open house from 1pm – 4pm for one-on-one question and answer time, and then will have its formal public meeting at 7 pm.

On October 13, Todd Sando, Chief Engineer-Secretary to the Water Commission, sent a letter to Brigadier General McMahon in Portland and Colonel Ruch in Omaha expressing his concern that there was not enough consideration to the National Weather Service's long term outlook, or the persistence in wet and dry cycles in the draft AOP. Todd's recommendation was to reduce the March 1 target elevation of Lake Sakakawea to 1835 ft, and to release the additional volume this fall before freeze-up. Reducing the March 1 target elevation would evacuate an additional 750,000 ac-ft, which is equivalent to releases of 10,000 cfs for 38 days. An additional 10,000 cfs would raise the stage in Bismarck approximately 2 feet.

State Water Commission staff is in the process of investigating two sites that had significant fluvial geomorphologic changes occur due to flooding this year.

The first site of concern is the sandbar located at the confluence of the Heart River with the Missouri River. The concern is that the sandbar could obstruct ice flow from the Heart River next spring, and potentially cause flooding. To date, there has been several site visits, and a topographic survey has been completed of the sandbar and surrounding channels. State Water Commission staff is currently developing several alternatives to attempt to alleviate potential ice jams, including dredging, ice dusting, and physical removal of ice from the channel.

The second site is located on Apple Creek near the University of Mary's north property line. Significant slumping of the high bluff along the banks has occurred. The area of concern has reduced the width of Apple Creek from its normal width of approximately 60-80 feet, bank to bank, to a width of 30-40 feet. State Water Commission staff was alerted to the problem on October 16, and made a site visit. The slump alters conveyance at low flows, but appears as though it would not greatly impact conveyance during high flows. There are no visible structures that would be impacted due to bank instability, in the immediate area. Beyond being aware of the situation and occasional monitoring, no additional action will be taken at this time.

BE:KC:mmb/1392