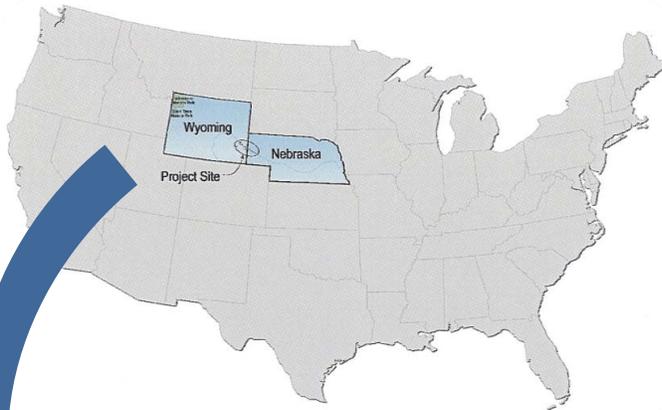


# Appraisal Investigation

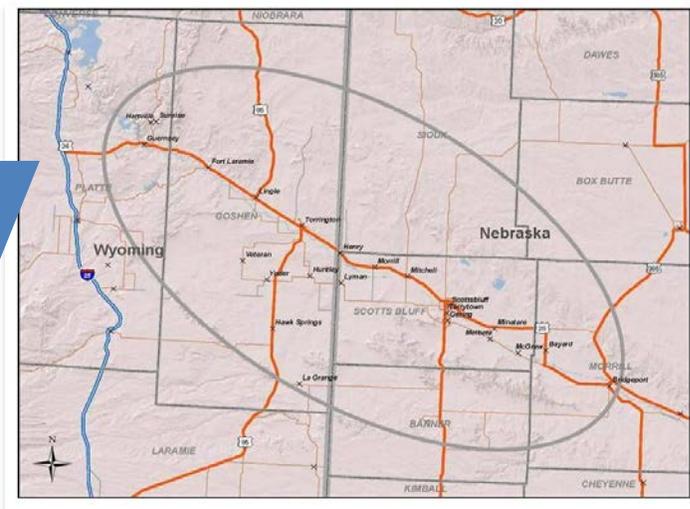
FOR THE

## Platte Alliance Water Supply

(PAWS)



*A Region Wide Municipal Rural Water Supply Project*



**DECEMBER 2013**

**Volume 2 of 2 (APPENDICES)**



# Appraisal Investigation

FOR THE

## Platte Alliance Water Supply



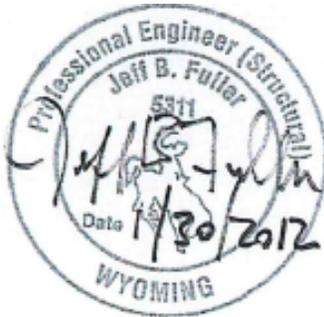
*A Region Wide Municipal Rural Water Supply Project*

**Prepared For:**

Goshen County, Wyoming in conjunction with Scotts Bluff County, Nebraska and the cities of Scottsbluff, Nebraska and Torrington, Wyoming

**Funding Provided By:**

The United States Bureau of Reclamation



# Platte Alliance Water Supply

## VOLUME 2 – APPENDICES

- Appendix A:** USBR Proposal  
Study Scope of Work  
Study Cost and Schedule  
Study Assistance Agreement Form
- Appendix B:** Modified Study Schedule
- Appendix C:** Participants/Sponsors  
Project Team  
Advisory Group  
Agency/Entity Contacts  
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Support/Endorsement Letters – Wyoming WWDC, Nebraska DNR
- Appendix D:** Pervious and Current Studies
- Appendix E:** Off-River Storage Sites
- Appendix F:** 2070 Population and Use Projections by Community
- Appendix G:** Cost Estimates
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- Appendix I:** Town of Douglas Water Quality Data





# ***Appendix A:***

## ***USBR Proposal***

**Study Scope of Work**  
**Study Cost and Schedule**  
**Study Assistance Agreement Form**



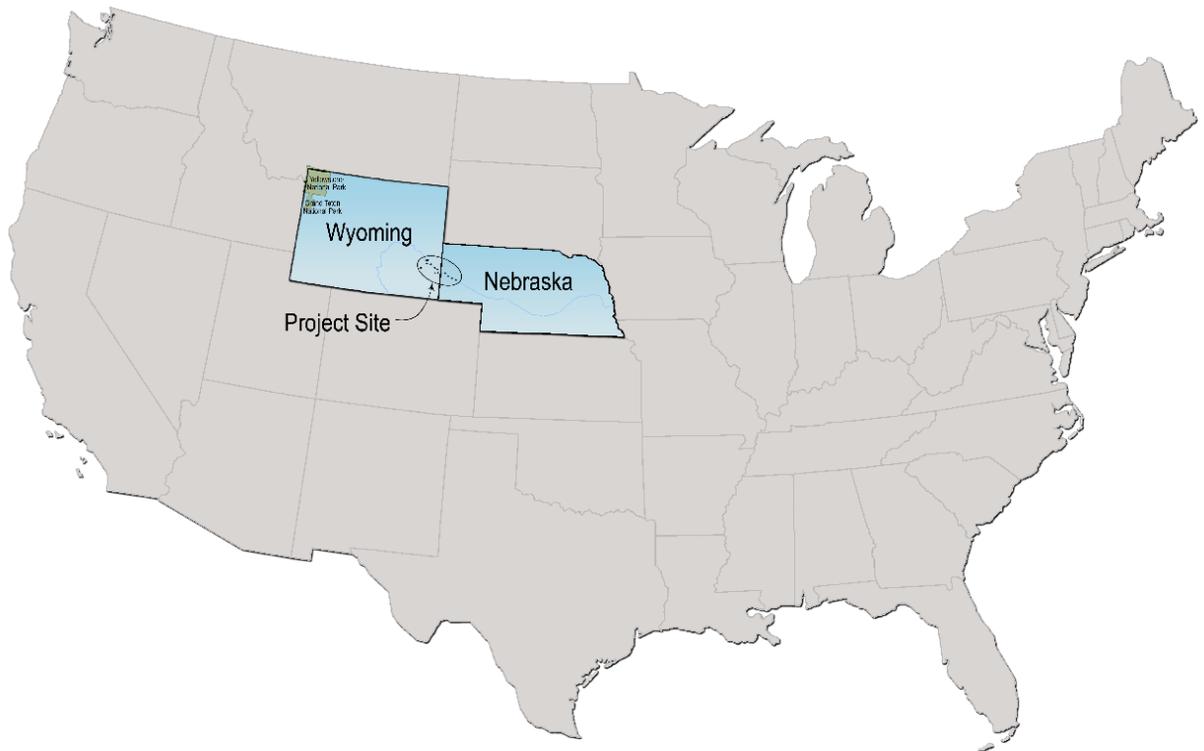
# PROPOSAL

to the

## Bureau of Reclamation

### Reclamation Rural Water Supply Program

*Funding Opportunity Announcement No. R10SF80458*



for an

## Appraisal Investigation

for the

## PLATTE ALLIANCE WATER SUPPLY ( PAWS )

A

### *Regional Municipal Rural Water Supply Project*

July 2010

July 13, 2010

Bureau of Reclamation  
Acquisition Operations Group  
Attn: Stephanie Bartlett  
Mail Code: 84-27810  
P.O. Box 25007  
Denver CO 80225

**Re:** 2010 Rural Water Supply Program - Funding Opportunity Announcement No. R10SF80458

**Proposal for an Appraisal Investigation**  
for the  
**PLATTE ALLIANCE WATER SUPPLY (PAWS)**  
**A Regional Municipal Rural Water Supply Project**

Dear Ms Bartlett:

*Goshen County, Wyoming, Scotts Bluff County, Nebraska, Torrington, Wyoming, Scottsbluff, Nebraska, and adjacent rural communities and rural areas along the North Platte River basin are experiencing deteriorating water quality. It is becoming increasingly difficult and expensive to meet public water quality standards. This lack of dependable water quality limits the ability of the region to remain vibrant and sustain current and future growth and economic vitality. **This Proposal is to request funds to conduct an Appraisal Investigation to identify potential solutions to remedy this situation.***

This Proposal responds to a favorable response from the Application Review Committee (ARC) to our previously submitted Statement of Interest, and, as an amendment identified within our previously submitted Statement of Interest, incorporates additional municipalities and areas in Western Nebraska experiencing the same water quality issues.

Goshen County, Wyoming and Scotts Bluff County, Nebraska is a rural, agricultural area located in southeastern Wyoming, and western Nebraska (*See the Location Map*). The agriculture aspect of this area comes from the raising of corn (a portion of the corn is produced and provided to the local ethanol plant), oats, wheat, sugar beets, hay, alfalfa, beans and other crops for food and/or feed for livestock. The average rainfall is 14 inches per year. The North Platte River flows west to east through the center of the area.

Most community potable water supplies within the area are from underground wells and the water quality has been deteriorating. It has been demonstrated that farming practices of adding fertilizers and herbicides has increased the level of nitrates in the water, and this increases as one travels downstream (from west to east).

This Proposal demonstrates that the subsequent Appraisal Investigation will address:

- The critical need to remedy increasingly deteriorating water quality issues within the area.
- Region wide solutions that can provide significant economies of scale.

- The North Platte River is the common, significant surface water supply for the entire region. The USBR provides operation and maintenance of the North Platte River and associated facilities throughout this entire region. The financial assistance provided by USBR through this Appraisal Investigation is essential (and is the **only** funding opportunity) toward development of region wide solutions.
  - As the region incorporates two states (Wyoming and Nebraska) the availability of State funds to study region wide solutions is administratively prohibitive.
  - The signatures to this Proposal demonstrate region wide support.
  - No other Federal Funds have been applied for, and we are not aware of any potential overlap with other Federal Programs.
- Region wide compliance with water management priorities and long term water planning.

We anticipate the Investigation will be completed within 13 months of the date of the award.

This Proposal is to request \$180,000 to conduct an Appraisal Investigation of the existing situation, identification of potential alternatives and recommend solutions.

Enclosed are a proposed detailed scope (narrative), budget and timeline for the Appraisal Investigation.

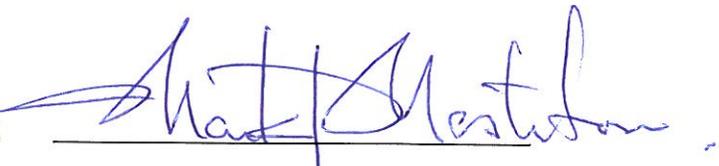
We have designated Mr. Robert (Bob) Juve as our region wide Authorized Representative. Please contact Bob Juve at (307) 532-4815 [rjuve@city-of-torrington.org](mailto:rjuve@city-of-torrington.org) if you have any questions and/or clarifications concerning this Proposal.

***We appreciate this opportunity, have a critical need, region wide support and we look forward to working with the Bureau toward implementation of improved region wide water supply facilities.***

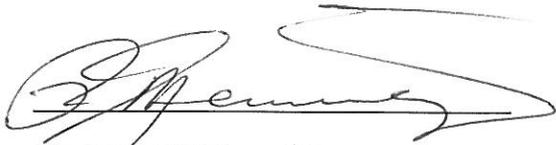
Respectfully Submitted:



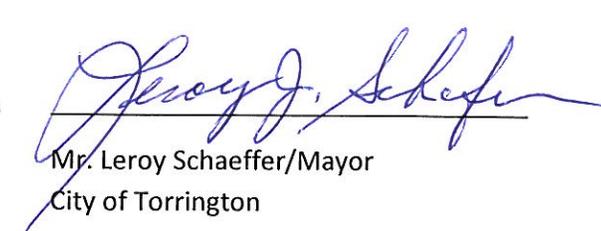
Mr. Jim Hudelson/Chairman  
Goshen County Commissioners



Mr. Mark Masterton/Chairman  
Scotts Bluff County Commissioners



Mr. Randy Meininger/Mayor  
City of Scottsbluff



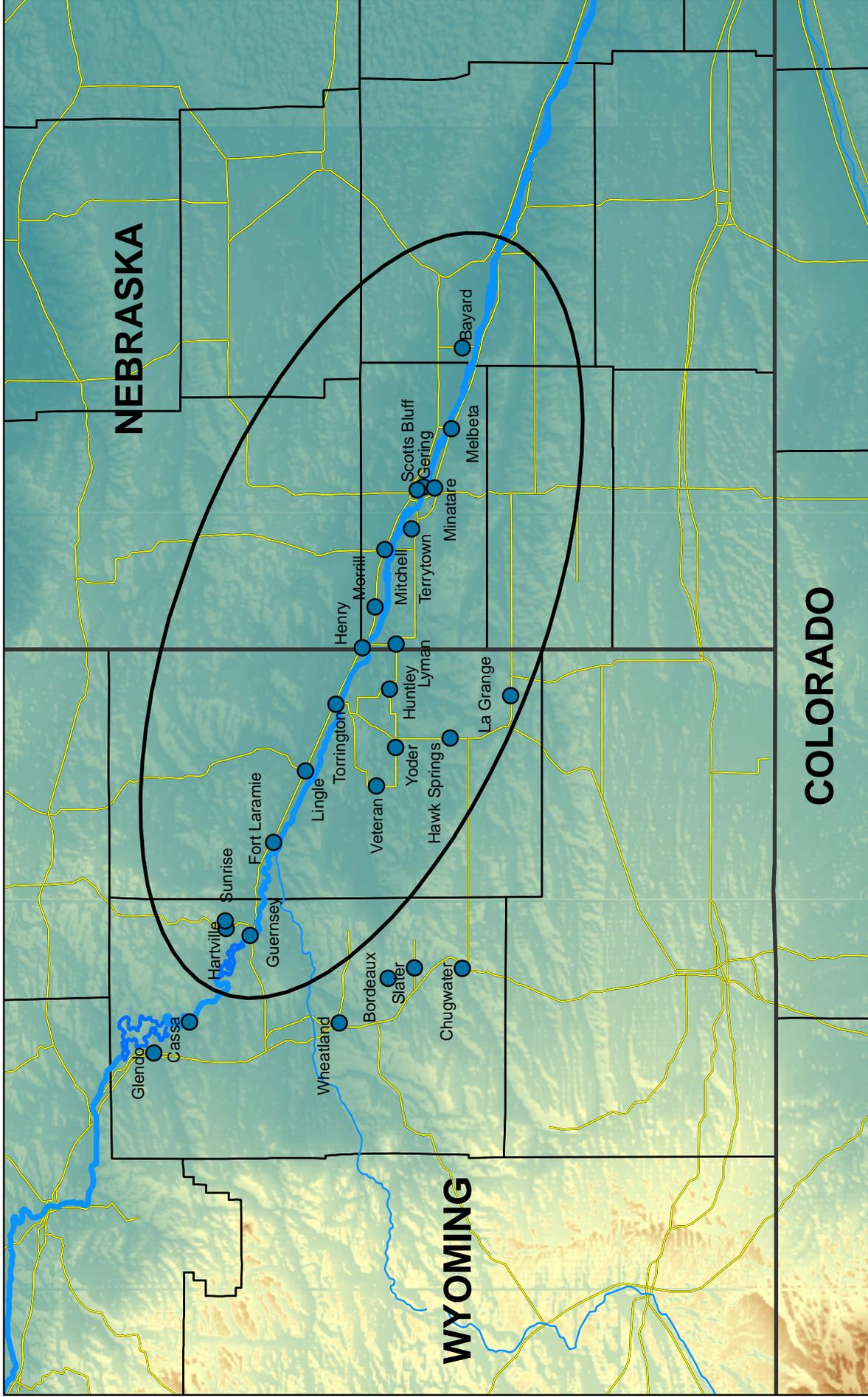
Mr. Leroy Schaeffer/Mayor  
City of Torrington

C: Mr. Robert D. Juve/Torrington City Engineer - Authorized Representative



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**PLATTE ALLIANCE WATER SUPPLY (PAWS)**  
Regional Municipal Water Supply Project  
**PROJECT AREA - LOCATION MAP**

Approximate Scale: 1 inch = 24 miles



# PLATTE ALLIANCE WATER SUPPLY ( PAWS )

A

## ***Regional Municipal Rural Water Supply Project***

# PROPOSAL

**July 2010**

We have included, as an appendix to this proposal the Statement of Interest previously submitted. Based on the positive response to the submitted Statement of Interest, we provide this Full Proposal.

***Project Description*** - *Southeast Wyoming (Goshen County) and Western Nebraska (Scotts Bluff County) and adjacent rural areas along the North Platte River basin are experiencing deteriorating water quality, and it is becoming increasingly difficult and expensive to meet public water quality standards. This lack of dependable water quality limits the ability of the region to remain vibrant and sustain current and future growth and economic vitality. This application is to request funds to conduct an Appraisal Investigation is to identify potential region wide solutions to remedy this situation.*

The following scope of work, schedule and cost estimate demonstrates how this proposed Appraisal Investigation effectively meets the funding criteria of;

- *Responding to an urgent and compelling need;*  
***The region is experiencing significant deteriorating water quality issues.***
- *Incorporating Regional Perspective;*  
***This region wide investigation includes the Platte Valley in Southeastern Wyoming and Western Nebraska, along the North Platte River drainage; incorporating numerous rural communities and water districts. The Bureau of Reclamation operates facilities and manages water in the North Platte River through this study area.***
- *Needed Financial Assistance;*  
***To date, with available local funding opportunities, only small, short term, local “band aid” fixes are able to be addressed.***
- *Avoiding Programmatic Overlap; and*  
***This region encompasses two states. There are currently no financial vehicles available to address this two state issue. This funding program provides that opportunity.***
- *Demonstrating Government Water Management Priorities;*



***As evidenced by the signatures attached to the cover letter, corresponding resolutions, the “in-kind” efforts identified within this proposal and the efforts to provide the background data and prepare this detailed proposal.***

## Scope of Work

### Introduction

#### ***SouthEast Wyoming (Goshen County)***

The 2000 Goshen County population was 12,538. Recent energy development, most predominately wind energy; construction of a state prison; and “migration” of people from the Front Range of Colorado have all led to the prospects for increased growth within the county. The 50-year projected population for Goshen County is less than 40,000. The City of Torrington is the county seat and additional municipalities within Goshen County include Fort Laramie, Lingle, La Grange, Yoder and rural water districts.

The City of Torrington well field, located adjacent to the North Platte River, is experiencing greater levels of nitrates and uranium. Similar occurrences are showing up in Lingle wells and the wells for Yoder and Hawk Springs. In 1998, Torrington added reverse osmosis (RO) treatment to reduce the levels of nitrates in the city water supply to comply with EPA regulations. These RO units blend waters from the various wells and filter to reduce the nitrate levels; and the discharge is then delivered through the sanitary sewer treatment processes. Operation and maintenance of these treatment facilities is a significant burden for local water operators; and as the EPA adds additional annual requirements for water quality operation, efforts will likely increase. The smaller municipalities are experiencing similar reductions in water quality, with some finding limited benefit by drilling additional wells in adjacent locations. Upstream in the North Platte River; and before runoff from significant areas of farmed land enter into the Platte River, it has been identified these nitrate levels are greatly reduced; and are within EPA requirements.

#### ***Western Nebraska (Scotts Bluff County)***

The 2000 Scotts Bluff County population was 36,951 with 76% of the population served by an existing public water system. The 50-year projected population to be served by public water systems is 40,000. This population includes the municipalities of Scottsbluff, Gering, Mitchell, Terrytown, Bayard, Morrill, Minatare, Lyman, Melbeta, McGrew and several non-community water systems. The cities of Bayard and Bridgeport are located in Morrill County.

All of the municipalities rely on ground water as their source for drinking water and have or are in the process of modifying their systems to meet EPA regulations. Western Nebraska communities have seen the need and the economic advantages of working together by developing regional alternatives. The Villages of Morrill, Lyman and Henry are in the process of developing a regional well field to meet arsenic, uranium and copper levels. The City of Scottsbluff has abandoned existing wells and constructed a new well field to meet arsenic, uranium and nitrate levels. The Cities of Minatare and



Bayard are in process of constructing of a regional water system to purchase water from the City of Scottsbluff to meet uranium and nitrate levels. The City of Gering has constructed a new well field to allow for blending of water from their existing wells to meet arsenic and uranium levels. The new well field was strategically located as to allow for regionalization between Scottsbluff and Gering if a treatment alternative becomes necessary. The Villages of Melbeta and McGrew currently do not have a public water system, however, may be forced into providing a source as the area develops.

Western Nebraska area wells continue to show an increase in contaminate levels. It has become an expected fact that treatment will become necessary in the future to meet EPA regulations. The operation and maintenance of groundwater treatment facilities will become a significant burden to each system.

In addition to the increase in contaminate levels, the North Platte River Basin in Scotts Bluff and Morrill Counties has been determined to be over-appropriated. Any new groundwater sources that create depletions to the river will have to be mitigated in time and place. This is a significant burden for the development of any new groundwater source that meets EPA regulations.

## **1. Project Administration**

For purposes of this Proposal we have identified the Counties and Municipalities of this study region as the Sponsor. The Authorized Representative for the Sponsor will be the contact with the USBR for this Appraisal Investigation. We provide a scope narrative and a budget associated with the identified tasks. We anticipate selection of a consultant for completion of many of the study activities. We also anticipate participation by many staff representatives, and elected officials, from communities and rural areas throughout the study area. We have included within the project budget approximately one day per week for municipal staff, largely the Authorized Representative, and estimate this represents less than 10 per cent of the actual time that will be spent by staff on this project, the remaining 90% is considered in-kind support for this project.

Initial discussions with the USBR and the Wyoming Water Development Commission have expressed support for further investigations/evaluations of the potentials of a regional water system to benefit this rural area. An ongoing discussion with these (and other) Federal, State and County officials is anticipated during investigations and development of alternatives.

### ***1.1 Consultant Selection***

Upon the USBR notice of award of the funding for this Appraisal Investigation, the Authorized Representative will initiate a consultant selection process. Initially the Authorized Representative will prepare a Request for Proposals (RFP) for distribution to interested and qualified engineering consultants. This RFP will “mirror” the tasks as identified within this Proposal. The Authorized Representative will identify a selection committee to review the proposals. USBR staff will be invited to review the RFP prior to distribution, and participate on this selection committee, if desired. Upon review of the engineering consultant proposals submitted, it is anticipated the committee will then select a



qualified engineering consultant. If the committee desires additional information and/or discussion with identified consultants, the committee may choose to conduct interviews with the top three (3) identified engineering consultants, prior to making a final decision.

### ***1.2 Joint Powers Board***

As this Appraisal Investigation is conducted, there will be continued discussions with the Counties, Municipalities and potential rural water districts regarding formation of a legal entity. The actual “make-up” of a Joint Powers Board may vary depending upon the outcomes of this Appraisal Investigation. As such, actual legal and legislative research and corresponding efforts to form an administrative entity will occur with subsequent Feasibility Studies, depending upon the outcome and recommendations of this Appraisal Investigation.

### ***1.3 Sponsor Meetings***

It is anticipated monthly progress meetings will be conducted during this Appraisal Investigation. The attached Project schedule will be updated monthly. These meetings will primarily be between the Sponsor’s Authorized Representative and the consultant; however additional staff and/or elected officials may attend, as deemed appropriate. Included will be coordination and collaboration with the Bureau of Reclamation; and USBR staff is always encouraged to participate, and can be included via conference call, if desired. The intent is to discuss and provide information to the Sponsor agencies, and reduce/eliminate the need for the Authorized Representative to continually attend county and municipal meetings to provide status updates.

## **2. Public Outreach**

### ***2.1 Public Meetings***

Conduct public meetings (2), the first to inform the interested public regarding the situation and solicit input, and the second to provide potential alternate solutions and receive input.

#### ***2.1.1 Initial Open House***

An initial open house will be conducted to introduce the Appraisal Investigation to the general public, gage interest, and receive input. Exhibits will be prepared to illustrate the need, potential regional water supply areas, issues and concepts. This is anticipated to be a three (3) hour open house format.

#### ***2.1.2 Appraisal Investigation Findings Open House***

An open house will be conducted to discuss preliminary investigations; discuss potential alternatives for providing region wide potable water to the area; and receive input. Exhibits will be prepared to illustrate concepts and alternatives. This is anticipated to be a three (3) hour open house format.



## **2.2 Web Site**

A project web site will be created. Project related information will be placed on the website as it is developed during the investigations. There will be opportunity to provide input to the web site. Links to this web site will be available from region wide municipality and county web sites. Potentially project FaceBook and Twitter accounts may be created as additional opportunities to disseminate information and receive comment during preparation of this Appraisal Investigation.

## **3. Review Existing Data & Previous Studies**

Review of existing data and previous studies. Contact the USBR, Wyoming State Engineer's office; Wyoming Water Development Commission; Nebraska Department of Natural resources, municipalities, and rural water districts to discuss the historical and current situation and acquire information from previous studies within the region. Identified previous studies may include:

- **Guernsey Hydraulic Study Level II** Wyoming Water Development Commission; November, 2003.
- **Fort Laramie Water Supply Rehabilitation Level II Study** Wyoming Water Development Commission; July, 2008.
- **Town of Lingle Water Supply Master Plan, Level I Project** Wyoming Water Development Commission; November, 1998.
- **Torrington, Wyoming Water Master Plan, Level I, Final Report** Wyoming Water Development Commission; November, 1995.
- **Construction and Testing Report Yoder No. 2 Production Well** Wyoming Water Development Commission; March, 1990.
- **Preliminary Engineering Report-Village of Lyman, Nebraska;** April, 2006.
- **Preliminary Engineering Report-Village of Henry, Nebraska;** May, 2008.
- **Preliminary Engineering Report (Supplement No. 1)-Village of Morrill, Nebraska;** October, 2005
- **Preliminary Engineering Report-City of Gering**
- **Preliminary Engineering Report (Revision No.1)-City of Minatare, Nebraska;** June, 2007.
- **Preliminary Engineering Report-City of Bridgeport**
- **Preliminary Engineering Report-City of Bayard, Nebraska;** September 2009.
- **Platte Goshen Regional Master Plan Level I Study** Wyoming Water Development Commission; September, 2004.
- **Platte River Basin Plan** Wyoming Water Development Commission; May, 2006.
- **Water and Related Land Resources of the Platte River Basin,** Wyoming State Engineer's Office; September, 1971.
- **Annual Operating Plans – North Platte River Basin** (and numerous additional project reports) U.S. Bureau of Reclamation.
- **Western Regional Water System Feasibility Study-Villages of Mitchell, Morrill, Lyman and Henry, Nebraska;** March 2007.
- **Feasibility Study-Cities of Bayard and Minatare, Nebraska;** May 2008.



This list of previous studies is evidence of the critical water supply need; and the concepts that regional water systems may provide preferred water supply solutions.

#### **4. Identification of Municipal Needs**

Discussions with city, county and rural water districts staff and elected officials, regarding current operations and potential improvements will be conducted. Information gathered may include historic daily, monthly and yearly water volumes processed; water processed versus metered use; historic water quality test results; water treatment operational schematics; current physical plant facilities and desired/anticipated upgrades; and historic and anticipated growth trends. Also, additional items of information will surely be identified that will aid in understanding of the current situation and future needs.

#### **5. Identification and Evaluation of Existing Water Rights**

Identification of current and future water right requirements will be identified. This task requires extensive discussion with the Bureau of Reclamation, the Wyoming State Engineer's Offices, the Nebraska Health and Human Services Offices, as well as each of the municipalities/rural water districts within the region as to existing water rights. Through these discussions, the concept is, with this project, to use existing water rights (the same water) differently, and not apply for new water rights.

In addition, discussions will be conducted with the Missouri Basin Power Cooperative to identify water supply opportunities associated with the Grayrocks Dam and Reservoir.

#### **6. Investigation of Subsurface Water Supply Opportunities**

This task includes investigation of underground formations to determine if there are deeper or adjacent underground waters of capacity and quality to be able to comply with EPA potable water standards with conventional treatment. Subsurface information will be obtained from the numerous previously drilled wells within the study area. This task does not anticipate drilling exploratory wells; however, this task may recommend drilling of exploratory wells, to further determine volume and quality of water, in future Feasibility Investigations.

#### **7. Evaluate Surface Water Supply Opportunities**

##### ***7.1 Reservoirs***

Research water stored within upstream reservoirs (Guernsey Reservoir and Grayrocks Reservoir); and determine if this water can be treated with conventional facilities to meet current and future EPA requirements. This potable water could then be delivered, by gravity, to downstream municipalities. (Note, Guernsey Reservoir and North Platte River flows are operated by the Bureau of Reclamation.) It is anticipated we will obtain water quality information regarding the water stored in the Glendo and Guernsey Reservoirs from the Bureau of Reclamation; and for water stored in Grayrocks Reservoir from the Missouri Basin Power Cooperative.



## **7.2 Stream flow**

The Bureau of Reclamation, as well as the Wyoming and Nebraska State engineer's Offices will be contacted to evaluate existing stream flow quality and volumes, and permitted requirements. With this information, and from discussions with these agencies, potential water supply alternatives will be considered.

## **8. Assess Economy of Scale of Regional System**

Nationwide, with the focus on public safety, the Environmental Protection Agency (EPA) is continually identifying additional constituents with standards to test for in public potable water supplies. Additional compliance regulations typically will expand the facility and operational requirements; and make it more difficult, and more expensive in staff and facilities, for small rural water systems to comply. As stated in the Introduction to this scope, several rural communities in Nebraska have already identified some operational and economic benefit to combination of water supply and treatment facilities. Further economic and operational benefits may be garnered through a larger region wide potable water system. These potential benefits will be addressed through identification of region wide alternatives.

## **9. Region wide Alternatives**

As stated in the introduction, this study will focus on addressing the immediate and long term water quality issues; providing potable water, economically, to the current customers. Also, as stated in the introduction, this region wide area incorporates two states; Nebraska and Wyoming.

### **9.1 Alternative Identification**

Potential alternative concepts may include:

- Obtain water from Grayrocks Reservoir, construct a water treatment plant downstream of the Reservoir and deliver potable water, piped gravity flow downstream to the rural municipalities and water districts.
- Obtain water from Guernsey Reservoir, construct a water treatment plant downstream of the Reservoir and deliver potable water, piped gravity flow downstream to the rural municipalities and water districts.
- Obtain water downstream of the confluence of the Laramie River and the North Platte River, construct a water treatment plant in vicinity of the confluence of the Laramie River and North Platte River, and deliver potable water, piped gravity flow downstream to the rural municipalities and water districts.
- Obtain water from an upstream alluvial well field, construct a water treatment plant downstream of the well field and deliver potable water, piped gravity flow downstream to the rural municipalities and water districts.

Concepts of these alternatives, and some not yet identified, are to:



- Utilize water upstream of the mineral contaminants; thereby utilizing conventional water treatment methods and thereby greatly reducing both current and anticipated future treatment requirements.
- Deliver water via gravity flow through a pipeline downstream to the rural municipalities and water districts; thus greatly reducing or eliminating pumping costs.

Issues to be addressed with these alternatives, and some not yet identified, include:

- Water rights and the ability to modify use, and/or transfer points of use.
- Administrative/legal requirements to comply with Wyoming and Nebraska state statutes.
- Interstate issues related to the North Platte River.

Each alternative may also include several options within the region wide alternative.

### ***9.2 Cost estimates***

Budget level project cost estimates for each alternative, including options within an alternative, will be prepared. Budget level cost estimates will be developed for the year 2012. They may be inflated to align with anticipated construction. Due to the volatility of the financial market these inflation rates then can all be modified, as deemed appropriate, in the future.

## **10. Report Preparation**

### ***10.1 Prepare Preliminary Report***

A Draft of the Appraisal Investigation Report will be prepared including references, tables, and figures. This will be considered a 90% Draft. Fifteen (15) color copies of the Draft Report will be provided to the Sponsor for dissemination.

### ***10.2 Sponsor/Agency Review***

The Sponsor will disseminate the Draft Report, as appropriate, for review. This schedule anticipates one month to receive all review comments.

### ***10.3 Adjudicate Input Received***

A meeting will be scheduled to address all review comments. This meeting will address the appropriate adjudication of comment. This meeting will provide specific direction for any ambiguous comments.

### ***10.4 Final Report Preparation***

Following receipt and adjudication of review comments, they will be incorporated into the Final **PLATTE ALLIANCE WATER SUPPLY (PAWS) Regional Municipal Rural Water Supply Project Appraisal Investigation Report.**

Color copies, including references, tables, figures and appendices of the Final Report will be produced.

In addition, color copies of an Executive Summary, of the Final Report will be prepared.



## 11. Deliver Final Report

Twenty five (25) copies of the final Appraisal Investigation Report and Executive Summary will be delivered.

### *Schedule and Cost Estimate*

The following schedule illustrates specific tasks; aligns with the tasks as discussed in the narrative; identifies a time frame for completion of the specific tasks; and provides a preliminary cost estimate for each task. Also, a breakdown of hours (and costs) by labor category is provided for each specific task.

As previously identified, the initial effort will be to select a consultant to perform the Appraisal Investigation. The cost estimate is based on a “typical” consultant rate schedule (which therefore would include all fringe benefits); and the estimated hours of a consultant to perform the identified tasks.

The hours shown for the Authorized Representative include approximately 6 hours per week to administer this Appraisal Investigation; and the rate does not include any fringe benefits. It is anticipated the Authorized Representative may indeed require significantly more hours than shown. These additional hours and the Authorized Representative fringe benefits are not specifically identified and will be considered as “in-kind” costs.



# PAWS-Region Wide Municipal Rural Water Supply Project

Outline Number	Task Name	Duration	Start	Finish
1.1	Consultant Selection	22 days	Mon 8/30/10	Tue 9/28/10
	<i>ID Resource Name</i>	<i>Units Work</i>	<i>Delay</i>	<i>Start Finish</i>
	11 Authorized Representative	27% 48 hrs	0 days	Mon 8/30/10 Tue 9/28/10
1.2	Joint Powers Board	90 days	Mon 8/30/10	Fri 12/31/10
	<i>ID Resource Name</i>	<i>Units Work</i>	<i>Delay</i>	<i>Start Finish</i>
	11 Authorized Representative	7% 48 hrs	0 days	Mon 8/30/10 Fri 12/31/10
1.3	Sponsor Meetings	270 days	Mon 8/30/10	Fri 9/9/11
	<i>ID Resource Name</i>	<i>Units Work</i>	<i>Delay</i>	<i>Start Finish</i>
	11 Authorized Representative	2% 48 hrs	0 days	Mon 8/30/10 Fri 9/9/11
3	Review Existing Data & Previous Studies	80 days	Wed 9/29/10	Tue 1/18/11
	<i>ID Resource Name</i>	<i>Units Work</i>	<i>Delay</i>	<i>Start Finish</i>
	1 Senior Manager	2% 12 hrs	0 days	Wed 9/29/10 Tue 1/18/11
	2 Engineer IV	2% 12 hrs	0 days	Wed 9/29/10 Tue 1/18/11
	4 Engineer I	5% 33 hrs	0 days	Wed 9/29/10 Tue 1/18/11
	9 Administrative Assistant	3% 19 hrs	0 days	Wed 9/29/10 Tue 1/18/11
	11 Authorized Representative	2% 12 hrs	0 days	Wed 9/29/10 Tue 1/18/11
4	Identification of Municipal Needs	50 days	Mon 10/18/10	Fri 12/24/10
	<i>ID Resource Name</i>	<i>Units Work</i>	<i>Delay</i>	<i>Start Finish</i>
	1 Senior Manager	3% 12 hrs	0 days	Mon 10/18/10 Fri 12/24/10
	2 Engineer IV	6% 24 hrs	0 days	Mon 10/18/10 Fri 12/24/10
	4 Engineer I	6% 24 hrs	0 days	Mon 10/18/10 Fri 12/24/10
	9 Administrative Assistant	3% 12 hrs	0 days	Mon 10/18/10 Fri 12/24/10
	11 Authorized Representative	3% 12 hrs	0 days	Mon 10/18/10 Fri 12/24/10
2.1.1	Initial Open House	10 days	Mon 10/25/10	Fri 11/5/10
	<i>ID Resource Name</i>	<i>Units Work</i>	<i>Delay</i>	<i>Start Finish</i>
	1 Senior Manager	1% 1 hr	0 days	Mon 10/25/10 Fri 11/5/10
	6 Engineering Technician I	25% 20 hrs	0 days	Mon 10/25/10 Fri 11/5/10
	9 Administrative Assistant	25% 20 hrs	0 days	Mon 10/25/10 Fri 11/5/10
	11 Authorized Representative	5% 4 hrs	0 days	Mon 10/25/10 Fri 11/5/10
2.2	Web Site	220 days	Mon 10/25/10	Fri 8/26/11
	<i>ID Resource Name</i>	<i>Units Work</i>	<i>Delay</i>	<i>Start Finish</i>
	5 Engineering Technician III	1% 24 hrs	0 days	Mon 10/25/10 Fri 8/26/11
	9 Administrative Assistant	2% 27 hrs	0 days	Mon 10/25/10 Fri 8/26/11
5	Identification and Evaluation of Existing Water Rights	60 days	Mon 11/15/10	Fri 2/4/11
	<i>ID Resource Name</i>	<i>Units Work</i>	<i>Delay</i>	<i>Start Finish</i>
	1 Senior Manager	5% 24 hrs	0 days	Mon 11/15/10 Fri 2/4/11
	2 Engineer IV	13% 64 hrs	0 days	Mon 11/15/10 Fri 2/4/11
	4 Engineer I	8% 40 hrs	0 days	Mon 11/15/10 Fri 2/4/11
	9 Administrative Assistant	3% 16 hrs	0 days	Mon 11/15/10 Fri 2/4/11
	11 Authorized Representative	3% 12 hrs	0 days	Mon 11/15/10 Fri 2/4/11
6	Investigation of Subsurface Water Supply Opportunities	60 days	Mon 11/15/10	Fri 2/4/11
	<i>ID Resource Name</i>	<i>Units Work</i>	<i>Delay</i>	<i>Start Finish</i>
	1 Senior Manager	5% 24 hrs	0 days	Mon 11/15/10 Fri 2/4/11
	2 Engineer IV	13% 64 hrs	0 days	Mon 11/15/10 Fri 2/4/11
	4 Engineer I	10% 48 hrs	0 days	Mon 11/15/10 Fri 2/4/11
	9 Administrative Assistant	3% 12 hrs	0 days	Mon 11/15/10 Fri 2/4/11
	11 Authorized Representative	3% 12 hrs	0 days	Mon 11/15/10 Fri 2/4/11

# PAWS-Region Wide Municipal Rural Water Supply Project

Outline Number	Task Name	Duration	Start	Finish			
7.1	Reservoirs	60 days	Mon 12/13/10	Fri 3/4/11			
	<b>ID</b>	<b>Resource Name</b>	<b>Units</b>	<b>Work</b>	<b>Delay</b>	<b>Start</b>	<b>Finish</b>
	1	Senior Manager	5%	24 hrs	0 days	Mon 12/13/10	Fri 3/4/11
	2	Engineer IV	10%	48 hrs	0 days	Mon 12/13/10	Fri 3/4/11
	9	Administrative Assistant	3%	12 hrs	0 days	Mon 12/13/10	Fri 3/4/11
	11	Authorized Representative	3%	12 hrs	0 days	Mon 12/13/10	Fri 3/4/11
7.2	Streamflow	60 days	Mon 12/13/10	Fri 3/4/11			
	<b>ID</b>	<b>Resource Name</b>	<b>Units</b>	<b>Work</b>	<b>Delay</b>	<b>Start</b>	<b>Finish</b>
	1	Senior Manager	5%	24 hrs	0 days	Mon 12/13/10	Fri 3/4/11
	2	Engineer IV	10%	48 hrs	0 days	Mon 12/13/10	Fri 3/4/11
	4	Engineer I	10%	48 hrs	0 days	Mon 12/13/10	Fri 3/4/11
	9	Administrative Assistant	3%	12 hrs	0 days	Mon 12/13/10	Fri 3/4/11
	11	Authorized Representative	3%	12 hrs	0 days	Mon 12/13/10	Fri 3/4/11
8	Assess Economy of Scale of Regional System	60 days	Mon 3/7/11	Fri 5/27/11			
	<b>ID</b>	<b>Resource Name</b>	<b>Units</b>	<b>Work</b>	<b>Delay</b>	<b>Start</b>	<b>Finish</b>
	1	Senior Manager	3%	16 hrs	0 days	Mon 3/7/11	Fri 5/27/11
	2	Engineer IV	7%	32 hrs	0 days	Mon 3/7/11	Fri 5/27/11
	4	Engineer I	7%	32 hrs	0 days	Mon 3/7/11	Fri 5/27/11
	9	Administrative Assistant	3%	12 hrs	0 days	Mon 3/7/11	Fri 5/27/11
	11	Authorized Representative	3%	12 hrs	0 days	Mon 3/7/11	Fri 5/27/11
9.1	Alternative Identification	75 days	Mon 4/4/11	Fri 7/15/11			
	<b>ID</b>	<b>Resource Name</b>	<b>Units</b>	<b>Work</b>	<b>Delay</b>	<b>Start</b>	<b>Finish</b>
	1	Senior Manager	15%	88 hrs	0 days	Mon 4/4/11	Fri 7/15/11
	2	Engineer IV	20%	120 hrs	0 days	Mon 4/4/11	Fri 7/15/11
	3	Engineer III	2%	12 hrs	0 days	Mon 4/4/11	Fri 7/15/11
	4	Engineer I	15%	88 hrs	0 days	Mon 4/4/11	Fri 7/15/11
	5	Engineering Technician III	17%	100 hrs	0 days	Mon 4/4/11	Fri 7/15/11
	9	Administrative Assistant	3%	16 hrs	0 days	Mon 4/4/11	Fri 7/15/11
	11	Authorized Representative	6%	35 hrs	0 days	Mon 4/4/11	Fri 7/15/11
9.2	Cost Estimates	20 days	Mon 6/6/11	Fri 7/1/11			
	<b>ID</b>	<b>Resource Name</b>	<b>Units</b>	<b>Work</b>	<b>Delay</b>	<b>Start</b>	<b>Finish</b>
	2	Engineer IV	15%	24 hrs	0 days	Mon 6/6/11	Fri 7/1/11
	4	Engineer I	25%	40 hrs	0 days	Mon 6/6/11	Fri 7/1/11
	9	Administrative Assistant	10%	16 hrs	0 days	Mon 6/6/11	Fri 7/1/11
10.1	Prepare Preliminary Report	20 days	Mon 7/4/11	Fri 7/29/11			
	<b>ID</b>	<b>Resource Name</b>	<b>Units</b>	<b>Work</b>	<b>Delay</b>	<b>Start</b>	<b>Finish</b>
	1	Senior Manager	15%	24 hrs	0 days	Mon 7/4/11	Fri 7/29/11
	2	Engineer IV	20%	32 hrs	0 days	Mon 7/4/11	Fri 7/29/11
	4	Engineer I	20%	32 hrs	0 days	Mon 7/4/11	Fri 7/29/11
	5	Engineering Technician III	40%	64 hrs	0 days	Mon 7/4/11	Fri 7/29/11
	9	Administrative Assistant	15%	24 hrs	0 days	Mon 7/4/11	Fri 7/29/11
	11	Authorized Representative	13%	20 hrs	0 days	Mon 7/4/11	Fri 7/29/11
2.1.2	Appraisal Investigation Findings Open House	10 days	Mon 7/18/11	Fri 7/29/11			
	<b>ID</b>	<b>Resource Name</b>	<b>Units</b>	<b>Work</b>	<b>Delay</b>	<b>Start</b>	<b>Finish</b>
	1	Senior Manager	1%	1 hr	0 days	Mon 7/18/11	Fri 7/29/11
	6	Engineering Technician I	25%	20 hrs	0 days	Mon 7/18/11	Fri 7/29/11
	9	Administrative Assistant	25%	20 hrs	0 days	Mon 7/18/11	Fri 7/29/11
	11	Authorized Representative	5%	4 hrs	0 days	Mon 7/18/11	Fri 7/29/11
10.2	Sponsor/Agency Review	20 days	Mon 8/1/11	Fri 8/26/11			

# PAWS-Region Wide Municipal Rural Water Supply Project

**Outline Number      Task Name      Duration      Start      Finish**

10.3      Adjudicate Input received      10 days      Mon 8/29/11      Fri 9/9/11

ID	Resource Name	Units	Work	Delay	Start	Finish
1	Senior Manager	35%	28 hrs	0 days	Mon 8/29/11	Fri 9/9/11
2	Engineer IV	35%	28 hrs	0 days	Mon 8/29/11	Fri 9/9/11

10.4      Final Report Preparation      10 days      Mon 9/12/11      Fri 9/23/11

ID	Resource Name	Units	Work	Delay	Start	Finish
1	Senior Manager	30%	24 hrs	0 days	Mon 9/12/11	Fri 9/23/11
4	Engineer I	50%	40 hrs	0 days	Mon 9/12/11	Fri 9/23/11
5	Engineering Technician III	50%	40 hrs	0 days	Mon 9/12/11	Fri 9/23/11
9	Administrative Assistant	50%	40 hrs	0 days	Mon 9/12/11	Fri 9/23/11

11      Deliver Final Report      0 days      Fri 9/30/11      Fri 9/30/11

# PAWS-Region Wide Municipal Rural Water Supply Project

ID	Resource Name	Type	Initials	Group	Max. Units	Std. Rate
1	Senior Manager	Work	S		100%	\$150.00/hr
2	Engineer IV	Work	E		100%	\$115.00/hr
3	Engineer III	Work	E		100%	\$95.00/hr
4	Engineer I	Work	E		100%	\$72.00/hr
5	Engineering Technician III	Work	E		100%	\$85.00/hr
6	Engineering Technician I	Work	E		100%	\$50.00/hr
7	Geologist II	Work	E		100%	\$75.00/hr
8	Professional Land Surveyor	Work	P		100%	\$95.00/hr
9	Administrative Assistant	Work	A		100%	\$50.00/hr
10	Expenses	Work	E		100%	\$100.00/hr
11	Authorized Representative	Work	A		100%	\$40.00/hr

**Attachment A1**



IN REPLY REFER TO:

GP-5000  
ADM-13.00

**United States Department of the Interior**

BUREAU OF RECLAMATION

Great Plains Region

P.O. Box 36900

Billings, Montana 59107-6900



DEC 28 2010

Mr. Robert Juve  
PO Box 250  
Torrington, WY 82240-0250

Subject: Cooperative Agreement No. R11AC60007 for the Platte Alliance Water Supply  
Appraisal Investigation

Dear Mr. Juve:

A fully executed copy of the subject agreement is enclosed for your records. Funds in the amount of \$180,000 are hereby reserved to cover payment of all earnings under this agreement. It is to be expressly understood that the Government has no obligation to provide funds in addition to those reserved in writing.

Please note the reporting requirements stated in the terms and conditions of the agreement. Progress Reports and Financial Reports are required semi-annual, with the first reports due April 1, 2011, for the reporting period ending March 30, 2011.

If you have any questions regarding the technical aspect of the agreement, please contact Kip Gjerde at 406 - 247-7750. Questions regarding the administration may be directed to me at (406) 247-7684.

Sincerely,

Lindsey Nafts  
Grants Officer

Enclosure

UNITED STATES DEPARTMENT OF THE INTERIOR  
BUREAU OF RECLAMATION  
ASSISTANCE AGREEMENT

1A. AGREEMENT NUMBER RJ1AC60007		1B. MOD NUMBER		2. TYPE OF AGREEMENT <input type="checkbox"/> GRANT <input checked="" type="checkbox"/> COOPERATIVE AGREEMENT		3. CLASS OF RECIPIENT Local Government	
4. ISSUING OFFICE (NAME, ADDRESS)  Bureau of Reclamation PO Box 36900 Billings, MT 59107-6900				5. RECIPIENT (NAME, ADDRESS, TELEPHONE)  Goshen County 2125 East A Street Torrington, WY 82240			
				EIN #:		83-60000108	
				DUNS #:		622951465	
				County:		Goshen	
				Congress. Dist.:			
6. ADMINISTRATIVE POINT OF CONTACT (NAME, ADDRESS, TELEPHONE, E-MAIL)  Lindsey Naftis Grants Officer Bureau of Reclamation Great Plains Regional Office PO Box 36900 Billings, MT 59107-6900 Ph. (406) 247-7684 Email. <a href="mailto:lnaftis@usbr.gov">lnaftis@usbr.gov</a>				7. RECIPIENT PROJECT MANAGER (NAME, ADDRESS, TELEPHONE, E-MAIL)  Robert Juve PO Box 250 Torrington, WY 82240-0250 Ph. (307) 532-4815			
8. GRANTS OFFICER TECHNICAL REPRESENTATIVE (NAME, ADDRESS)  J. Kip Gjerde, PE Bureau of Reclamation Great Plains Regional Office PO Box 36900 Billings, MT 59107-6900 Ph. (406) 247-7750 Email. <a href="mailto:jgjerde@usbr.gov">jgjerde@usbr.gov</a>				9A. INITIAL AGREEMENT EFFECTIVE DATE:  See Block 17		9B. MODIFICATION EFFECTIVE DATE:	
				10. COMPLETION DATE  02/01/2012			
11A. PROGRAM STATUTORY AUTHORITY WaterSMART: Water Energy Efficiency Grants FY2010 Public Law 111-11, Section 9504						11B. CFDA 15.507	
12. FUNDING INFORMATION		RECIPIENT/OTHER		RECLAMATION		13. REQUISITION NUMBER	
Total Estimated Amount of Agreement		\$0.00		\$200,000.00		14A. ACCOUNTING AND APPROPRIATION DATA  A 10-1998-0001-002-12-0-0(8)-411C-6050400	
This Obligation		\$0.00		\$180,000.00			
Previous Obligation		\$0.00		\$0.00			
Total Obligation		\$0.00		\$180,000.00			
Cost-Share %		0%		100		14B. TREASURY ACCOUNT FUNDING SYMBOL  14X0680	
15. PROJECT TITLE AND BRIEF SUMMARY OF PURPOSE AND OBJECTIVES OF PROJECT Plate Alliance Water Supply Appraisal Investigation. The sponsor will conduct an appraisal investigation to identify potential regional solutions for addressing water quality problems being experienced in southeast Wyoming (Goshen County) and western Nebraska (Scotts Bluff County).							
16a. Acceptance of this Assistance Agreement in accordance with the terms and conditions contained herein is hereby made on behalf of the above-named recipient  BY: <u>Jim Hudelson</u> DATE: <u>12/11/2010</u>				17a. Award of this Assistance Agreement in accordance with the terms and conditions contained herein is hereby made on behalf of the United States of America, Bureau of Reclamation  BY: <u>Lindsey Naftis</u> DATE: <u>12/27/2010</u>			
16b. NAME, TITLE, AND TELEPHONE NUMBER OF SIGNER  Jim Hudelson, Chairman, Goshen County Commissioners 307.532.2628  <input type="checkbox"/> Additional signatures are attached				17b. NAME OF GRANTS OFFICER  Lindsey Naftis Ph. (406) 247-7684			

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**Cooperative Agreement  
Between  
Bureau of Reclamation  
And  
Goshen County, Wyoming  
For  
Platte Alliance Water Supply Appraisal Investigation**

## **I. OVERVIEW AND SCHEDULE**

### **1. AUTHORITY**

This Cooperative Agreement (Agreement) is entered into between the United States of America, acting through the Department of Interior, Bureau of Reclamation, hereinafter referred to as "Reclamation," and Goshen County, Wyoming hereinafter referred to as the "Recipient" pursuant to Public Law 109-451, Section 105. The following section, provided in full text, authorizes Reclamation to award this financial assistance agreement:

#### *SEC. 105. APPRAISAL INVESTIGATIONS.*

- (a) In General. – On request of a non-Federal project entity with respect to a proposed rural water supply project that meets eligibility criteria published under section 103(c) and subject to the availability of appropriations, the Secretary may-*
- (3) provide a grant to, or enter into a cooperative agreement with, the non-Federal project entity to conduct an appraisal investigation, if the Secretary determines that –*
- (A) the non-Federal project entity is qualified to complete the appraisal investigation in accordance with the criteria published under section 103(c); and*
- (B) using the non-Federal project entity to conduct the appraisal investigation is a cost-effective alternative for completing the appraisal investigation.*

### **2. PUBLIC PURPOSE**

The sponsor will conduct an appraisal investigation to identify potential regional solutions for addressing water quality problems being experienced in southeast Wyoming (Goshen County) and western Nebraska (Scotts Bluff County). The lack of dependable water quality limits the ability of the region to remain vibrant and sustain current growth and economic vitality.

### 3. BACKGROUND AND OBJECTIVES

Title I of the Act authorizes the Secretary of the Interior, through the Bureau of Reclamation, to establish a program to work with small communities in rural areas to assess their potable water supply needs and to identify options to address those needs. Reclamation will work with these communities to investigate opportunities to ensure safe and adequate rural water supply projects for domestic, municipal, and industrial use; and plan the design and construction of rural water supply projects through the conduct of appraisal investigations and feasibility studies. Reclamation will review the appraisal investigation conducted by the recipient and will prepare an appraisal report that will include Reclamation's finding as to whether or not it is appropriate to proceed to a feasibility study.

### 4. PERIOD OF PERFORMANCE AND FUNDS AVAILABILITY

This Agreement becomes effective on the date shown in Block 17a of Form 7-2279, United States of America, Department of the Interior, Bureau of Reclamation, Assistance Agreement. The Agreement shall remain in effect until the date shown in Block 10 of Form 7-2279, United States of America, Department of the Interior, Bureau of Reclamation, Assistance Agreement. The period of performance for this Agreement may only be modified through written modification of the Agreement by a Reclamation Grants Officer (GO).

Pursuant to the Act of Congress of June 17, 1902 (32 Stat. 388), and acts amendatory thereof or supplementary thereto, all commonly known as Reclamation Law, funds for payment under this Agreement are included in Public Law 111-85. Funding for any optional year of the Agreement is contingent upon subsequent Congressional funding.

Reclamation has \$200,000 available for this Agreement. The Government's obligation under this Agreement is contingent upon the availability of appropriated funds from which payment for Agreement purposes can be made. No legal liability on the part of the Government for any payment may arise until funds are made available to the GO for this Agreement, and until the Recipient receives notice of such availability by the GO.

### 5. SCOPE OF WORK

The recipient's proposal (see Attachment A) contains a description of the work required to complete the investigation and submit a report to Reclamation. The description identifies and explains the major tasks; the cost estimate for each task; a breakdown of hours and costs by labor category for each task; and the schedule for each task and the overall project. Task 10.2 (Sponsor/Agency Review) identifies Reclamation's review task but did not provide a cost. The cost for Reclamation's review of the appraisal investigation and preparation of the appraisal report is \$20,000, resulting in an increase in the total award to \$200,000.

As mentioned above, Reclamation's review is identified in Task 10.2 and is proposed to occur near the conclusion of the study. Reclamation will follow its standard review process for

appraisal studies where in-progress reviews will occur at three key milestones: **A1 – Initial Meeting**; **A2 – Preliminary Findings**; and **A3 – Draft Report**. These generally correspond to Task 2.1.1 (Initial Open House) for A1; Task 2.1.2 (Appraisal Investigations Findings Open House) for A2; and Task 10.2 (Sponsor/Agency Review) for A3.

## 6. RESPONSIBILITY OF THE PARTIES

### 6.1 Recipient Responsibilities

6.1.1 The Recipient shall be responsible for carrying out the Scope of Work in accordance with the terms and conditions stated herein. The Recipient shall adhere to Federal, state, and local laws, regulations, and codes, as applicable, and shall obtain all required approvals and permits. If applicable, the Recipient shall also coordinate and obtain approvals from site owners and operators.

### 6.2 Reclamation Responsibilities

6.2.1 Conduct reviews and provide comments at key milestones as indicated in Section 5. Scope of Work section.

6.2.2 Prepare Reclamation’s Appraisal Report using the final Appraisal Investigation submitted by the recipient. 43 CFR Part 404 limits Reclamation’s review of an appraisal investigation to no longer than 180 days from its receipt of the appraisal investigation from the recipient, excluding time when Reclamation is waiting for additional information from the recipient.

## 7. BUDGET

### 7.1 Approved Budget

BUDGET ITEM DESCRIPTION	COMPUTATION		RECIPIENT FUNDING	OTHER FUNDING	RECLAMATION FUNDING	TOTAL COST
	S/Unit and Unit	Quantity				
<b>Personnel</b>						
Recipient					\$15,000	\$15,000
<b>CONTRACTUAL</b>						
Engineering Consultant					\$165,000	\$165,000
<b>TOTAL DIRECT COSTS--</b>					\$180,000	\$180,000
<b>INDIRECT COSTS - 0%</b>					None	None
<b>RECLAMATION COSTS</b>					\$20,000	\$20,000
<b>TOTAL PROJECT/ACTIVITY COSTS</b>					\$200,000	\$200,000

### 7.3 Cost Sharing Requirement

There is no cost sharing requirement since the total cost is equal to or less than \$200,000.

### 7.4 Pre-Award Incurrence of Costs

The Recipient shall be entitled to have incurred costs for this Agreement for allowable costs incurred on or after October 28, 2009, which if had been incurred after this Agreement was entered into, would have been allowable, allocable, and reasonable under the terms and conditions of this Agreement.

### 7.5 Allowable Costs (2 CFR Part §225)

Costs incurred for the performance of this Agreement must be allowable, allocable to the project, and reasonable. The following Office of Management and Budget (OMB) Circular, codified within the Code of Federal Regulations (CFR), governs the allowability of costs for Federal financial assistance:

2 CFR Part 225 (OMB Circular A-87), "Cost Principles for State, Local, and Indian Tribal Governments"

Expenditures for the performance of this Agreement must conform to the requirements within this Circular. The Recipient must maintain sufficient documentation to support these expenditures. Questions on the allowability of costs should be directed to the GO responsible for this Agreement.

The Recipient shall not incur costs or obligate funds for any purpose pertaining to operation of the program or activities beyond the expiration date stated in the Agreement. The only costs which are authorized for a period of up to 90 days following the project performance period are those strictly associated with closeout activities for preparation of the final report.

### 7.6 Changes (43 CFR §12.70).

(a) *General.* Recipients and subrecipients are permitted to rebudget within the approved direct cost budget to meet unanticipated requirements and may make limited program changes to the approved project. However, unless waived by the awarding agency, certain types of post-award changes in budgets and projects shall require the prior written approval of the awarding agency.

(b) *Relation to cost principles.* The applicable cost principles (see 43 §12.62) contain requirements for prior approval of certain types of costs. Except where waived, those requirements apply to all cooperative agreements and subagreements even if paragraphs (c) through (f) of this section do not.

(c) *Budget changes.*

(1) *Nonconstruction projects.* Except as stated in other regulations or an award document, recipients or subrecipients shall obtain the prior approval of the awarding agency whenever any of the following changes is anticipated under a nonconstruction award:

(i) Any revision which would result in the need for additional funding.

(ii) Unless waived by the awarding agency, cumulative transfers among direct cost categories, or, if applicable, among separately budgeted programs, projects, functions, or activities which exceed or are expected to exceed ten percent of the current total approved budget, whenever the awarding agency's share exceeds \$100,000.

(iii) Transfer of funds allotted for training allowances (i.e., from direct payments to trainees to other expense categories).

(d) *Programmatic changes.* Recipients or subrecipients must obtain the prior approval of the awarding agency whenever any of the following actions is anticipated:

(1) Any revision of the scope or objectives of the project (regardless of whether there is an associated budget revision requiring prior approval).

(2) Need to extend the period of availability of funds.

(3) Changes in key persons in cases where specified in an application or an agreement award. In research projects, a change in the project director or principal investigator shall always require approval unless waived by the awarding agency.

(4) Under nonconstruction projects, contracting out, subgranting (if authorized by law) or otherwise obtaining the services of a third party to perform activities which are central to the purposes of the award, *unless included in the initial funding proposal*. This approval requirement is in addition to the approval requirements of 43 §12.76 but does not apply to the procurement of equipment, supplies, and general support services.

(e) *Additional prior approval requirements.* The awarding agency may not require prior approval for any budget revision which is not described in paragraph (c) of this section.

(f) *Requesting prior approval.*

(1) A request for prior approval of any budget revision will be in the same budget format the recipient used in its application and shall be accompanied by a narrative justification for the proposed revision.

(2) A request for a prior approval under the applicable Federal cost principles (see §12.62) may be made by letter.

(3) A request by a subrecipient for prior approval will be addressed in writing to the recipient. The recipient will promptly review such request and shall approve or disapprove the request in writing. A recipient will not approve any budget or project revision which is inconsistent with the purpose or terms and conditions of the Federal award to the recipient. If the revision, requested by the subrecipient would result in a change to the recipient's approved project which requires Federal prior approval, the recipient will obtain the Federal agency's approval before approving the subrecipient's request.

## **7.7 Modifications**

Any changes to this Agreement shall be made by means of a written modification. Reclamation may make changes to the Agreement by means of a unilateral modification to address administrative matters, such as changes in address, no-cost time extensions, the addition of previously agreed upon funding, or deobligation of excess funds at the end of the Agreement. Additionally, a unilateral modification may be utilized by Reclamation if it should become necessary to suspend or terminate the Agreement in accordance with 43 CFR 12.83.

All other changes shall be made by means of a bilateral modification to the Agreement. No oral statement made by any person, or written statement by any person other than the GO, shall be allowed in any manner or degree to modify or otherwise effect the terms of the Agreement.

All requests for modification of the Agreement shall be made in writing, provide a full description of the reason for the request, and be sent to the attention of the GO. Any request for project extension shall be made at least 45 days prior to the expiration date of the Agreement or the expiration date of any extension period that may have been previously granted. Any determination to extend the period of performance or to provide follow-on funding for continuation of a project is solely at the discretion of Reclamation.

## **8. KEY PERSONNEL**

### **8.1 Recipient's Key Personnel**

The Recipient's Project Manager for this Agreement shall be:

Robert Juve  
City Engineer  
City of Torrington  
2125 East A Street  
Torrington, WY 82240

Changes to Key Personnel require compliance with 43 CFR 12.70(d)(3).

## 8.2 Reclamation's Key Personnel

### 8.2.1 Grants Officer (GO):

Lindsey Nafts  
Grants Officer  
Bureau of Reclamation  
Great Plains Regional Office  
PO Box 36900  
Billings, MT 59107-6900  
Ph. (406) 247-7684  
Email. [lnafts@usbr.gov](mailto:lnafts@usbr.gov)

The GO is the only official with legal delegated authority to represent Reclamation. The GO's responsibilities include, but are not limited to, the following:

- a) Formally obligate Reclamation to expend funds or change the funding level of the Agreement;
- b) Approve through formal modification changes in the scope of work and/or budget;
- c) Approve through formal modification any increase or decrease in the period of performance of the Agreement;
- d) Approve through formal modification changes in any of the expressed terms, conditions, or specifications of the Agreement;
- e) Be responsible for the overall administration, management, and other non-programmatic aspects of the Agreement including, but not limited to, interpretation of financial assistance statutes, regulations, circulars, policies, and terms of the Agreement;
- f) Where applicable, ensures that Reclamation complies with the administrative requirements required by statutes, regulations, circulars, policies, and terms of the Agreement.

### 8.2.2 Grants Officer Technical Representative (GOTR):

J. Kip Gjerde, PE  
Bureau of Reclamation  
PO Box 36900  
Billings, MT 59107-6900  
Ph. (406) 247-7750  
Email. [jgjerde@gp.usbr.gov](mailto:jgjerde@gp.usbr.gov)

The GOTR's authority is limited to technical and programmatic aspects of the Agreement. The GOTR's responsibilities include, but are not limited to, the following:

- a) Assist the Recipient, as necessary, in interpreting and carrying out the scope of work in the Agreement;
- b) Review, and where required, approve Recipient reports and submittals as required by the Agreement;
- c) Where applicable, monitor the Recipient to ensure compliance with the technical requirements of the Agreement;
- d) Where applicable, ensure that Reclamation complies with the technical requirements of the Agreement;

The GOTR does not have the authority to and may not issue any technical assistance which:

- a) Constitutes an assignment of additional work outside the scope of work of the Agreement;
- b) In any manner causes an increase or decrease in the total estimated cost or the time required for performance; or
- c) Changes any of the expressed terms, conditions, or specifications of the Agreement.

## **9. REPORTING REQUIREMENTS AND DISTRIBUTION**

### **9.1 Noncompliance**

Failure to comply with the reporting requirements contained in this Agreement may be considered a material non-compliance with the terms and conditions of the award. Non compliance may result in withholding of payments pending receipt of required reports, denying both the use of funds and matching credit for all or part of the cost of the activity or action not in compliance, whole or partial suspension or termination of the Agreement, recovery of funds paid under the Agreement, withholding of future awards, or other legal remedies in accordance with 43 CFR §12.83.

### **9.2 Financial Reports**

Financial Status Reports shall be submitted by means of the SF-425 and shall be submitted according to the Report Frequency and Distribution schedule below. All financial reports shall be signed by an Authorized Certifying Official for the Recipient's organization.

### 9.3 Monitoring and reporting program performance (43 CFR §12.80)

(a) *Monitoring by recipients.* Recipients are responsible for managing the day-to-day operations of cooperative agreement and subagreement supported activities. Recipients must monitor cooperative agreement and subagreement supported activities to assure compliance with applicable Federal requirements and that performance goals are being achieved. Recipient monitoring must cover each program, function or activity.

(b) *Nonconstruction performance reports.* The Federal agency may, if it decides that performance information available from subsequent applications contains sufficient information to meet its programmatic needs, require the recipient to submit a performance report only upon expiration or termination of cooperative agreement support. Unless waived by the Federal agency, this report will be due on the same date as the final Financial Status Report.

(1) Recipients shall submit semi-annual (every 180 days) performance reports. Semi-annual reports shall be due 30 days after the reporting period. The final performance report will be due 90 days after the expiration or termination of cooperative agreement support. If a justified request is submitted by a recipient, the Federal agency may extend the due date for any performance report. Additionally, requirements for unnecessary performance reports may be waived by the Federal agency.

(2) Performance reports will contain, for each cooperative agreement, brief information on the following:

(i) A comparison of actual accomplishments to the objectives established for the period. Where the output of the project can be quantified, a computation of the cost per unit of output may be required if that information will be useful.

(ii) The reasons for slippage if established objectives were not met.

(iii) Additional pertinent information including, when appropriate, analysis and explanation of cost overruns or high unit costs.

(3) Recipients will not be required to submit more than the original and two copies of performance reports.

(4) Recipients will adhere to the standards in this section in prescribing performance reporting requirements for sub recipients.

(d) *Significant developments.* Events may occur between the scheduled performance reporting dates which have significant impact upon the agreement or subagreement supported activity. In such cases, the recipient must inform the Federal agency as soon as the following types of conditions become known:

(1) Problems, delays, or adverse conditions which will materially impair the ability to meet the objective of the award. This disclosure must include a statement of the action taken, or contemplated, and any assistance needed to resolve the situation.

(2) Favorable developments which enable meeting time schedules and objectives sooner or at less cost than anticipated or producing more beneficial results than originally planned.

(e) Federal agencies may make site visits as warranted by program needs.

(f) *Waivers, extensions.*

(1) Federal agencies may waive any performance report required by this part if not needed.

(2) The recipient may waive any performance report from a subrecipient when not needed. The recipient may extend the due date for any performance report from a subrecipient if the recipient will still be able to meet its performance reporting obligations to the Federal agency.

**9.4 Report Frequency and Distribution.** The following table sets forth the reporting requirements for this Agreement.

REQUIRED REPORTS	Interim Reports	Final Report
<b>Program Performance Report</b>		
Format	No specific format required. See content requirements within Section 9.3 (43 CFR 12.80) above.	No specific format required. See content requirements within Section 9.3 (43 CFR 12.80) above.
Reporting Frequency	Semi-Annual (180 day interval)	Final Report due upon completion of Agreement's period of performance
Reporting Period	<b>For Semi-Annual Reporting:</b> October 1 through March 31 and April 1 through September 30.	Entire period of performance
Due Date	Within 30 days after the end of the Reporting Period	Within 90 days after the completion date of the Agreement
Submit to:	GO and GOTR	GO and GOTR
<b>Financial Status Report</b>		
Format	SF-425	SF-425
Reporting Frequency	Semi-Annual	Final Report due upon completion of Agreement's period of performance
Reporting Period	<b>For Semi-Annual Reporting:</b> October 1 through March 31 and April 1 through September 30.	Entire period of performance
Due Date	Within 30 days after the end of the Reporting Period	Within 90 days after the completion date of the Agreement
Submit to:	GO and GOTR	GO and GOTR

## **II. RECLAMATION STANDARD TERMS AND CONDITIONS - STATES, LOCAL GOVERNMENTS, AND FEDERALLY RECOGNIZED INDIAN TRIBAL GOVERNMENTS**

### **1. REGULATIONS**

The regulations at 43 CFR, Part 12, Subparts A, C, E, and F, are hereby incorporated by reference as though set forth in full text. The following Office of Management and Budget (OMB) Circulars, as applicable, and as implemented by 43 CFR Part 12, are also incorporated by reference and made a part of this Agreement. Failure of a Recipient to comply with any applicable regulation or circular may be the basis for withholding payments for proper charges made by the Recipient and/or for termination of support.

**1.1** Colleges and Universities that are Recipients or sub-recipients shall use the following:

2 CFR Parts 215 and 220 (Circular A 21), "Cost Principles for Educational Institutions"

Circular A 110, as amended September 30, 1999, "Uniform Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations" (Codification by Department of Interior, 43 CFR 12, Subpart F)

Circular A-133, revised June 27, 2003, "Audits of States, Local Governments, and Non-Profit Organizations"

**1.2** State, Local and Tribal Governments that are Recipients or sub-recipients shall use the following:

2 CFR Part 225 (Circular A 87), "Cost Principles for State, Local, and Indian Tribal Governments"

Circular A 102, as amended August 29, 1997, "Grants and Cooperative Agreements with State and Local Governments" (Grants Management Common Rule, Codification by Department of Interior, 43 CFR 12, Subpart C)

Circular A-133, revised June 27, 2003, Audits of States, Local Governments, and Non-Profit Organizations"

**1.3** Nonprofit Organizations that are Recipients or sub-recipients shall use the following:

2 CFR Part 230 (Circular A 122), "Cost Principles for Non-Profit Organizations"

Circular A 110, as amended September 30, 1999, "Uniform Administrative Requirements for Grants and Agreements With Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations" (Codification by Department of Interior, 43 CFR 12, Subpart F)

Circular A-133, revised June 27, 2003, "Audits of States, Local Governments, and Non-Profit Organizations"

1.4 Organizations other than those indicated above that are Recipients or sub-recipients shall use the basic principles of OMB Circular A-110 (Codification by Department of Interior, 43 CFR 12, Subpart F), and cost principles shall be in accordance with 48 CFR Subpart 31.2.

1.5 43 CFR 12.77 sets forth further regulations that govern the award and administration of subawards by State governments.

## 2. PAYMENT

### 2.1 Payment Standards. (43 CFR §12.61)

(a) *Scope.* This section prescribes the basic standard and the methods under which a Federal agency will make payments to recipients, and recipients will make payments to subrecipients and contractors.

(b) *Basic standard.* Methods and procedures for payment shall minimize the time elapsing between the transfer of funds and disbursement by the recipient or subrecipient, in accordance with Treasury regulations at 31 CFR part 205.

(c) *Advances.* Recipients and subrecipients shall be paid in advance, provided they maintain or demonstrate the willingness and ability to maintain procedures to minimize the time elapsing between the transfer of the funds and their disbursement by the recipient or subrecipient.

(d) *Reimbursement.* Reimbursement shall be the preferred method when the requirements in paragraph (c) of this section are not met.

(e) *Working capital advances.* If a recipient cannot meet the criteria for advance payments described in paragraph (c) of this section, and the Federal agency has determined that reimbursement is not feasible because the recipient lacks sufficient working capital, the awarding agency may provide cash or a working capital advance basis. Under this procedure the awarding agency shall advance cash to the recipient to cover its estimated disbursement needs for an initial period generally geared to the recipient's disbursing cycle. Thereafter, the awarding agency shall reimburse the recipient for its actual cash disbursements. The working capital advance method of payment shall not be used by recipients or subrecipients if the reason for using such method is the unwillingness or inability of the recipient to provide timely advances to the subrecipient to meet the sub recipient's actual cash disbursements.

(f) *Effect of program income, refunds, and audit recoveries on payment.*

- (1) Recipients and subrecipients shall disburse repayments to and interest earned on a revolving fund before requesting additional cash payments for the same activity.
- (2) Except as provided in paragraph (f)(1) of this section, recipients and subrecipients shall disburse program income, rebates, refunds, contract settlements, audit recoveries and interest earned on such funds before requesting additional cash payments.

(g) *Withholding payments.*

- (1) Unless otherwise required by Federal statute, awarding agencies shall not withhold payments for proper charges incurred by recipients or subrecipients unless—
  - (i) The recipient or subrecipient has failed to comply with agreement award conditions, or
  - (ii) The recipient or subrecipient is indebted to the United States.
- (2) Cash withheld for failure to comply with agreement award condition, but without suspension of the agreement, shall be released to the recipient upon subsequent compliance. When an agreement is suspended, payment adjustments will be made in accordance with §12.83(c).
- (3) A Federal agency shall not make payment to recipients for amounts that are withheld by recipients or subrecipients from payment to contractors to assure satisfactory completion of work. Payments shall be made by the Federal agency when the recipients or subrecipients actually disburse the withheld funds to the contractors or to escrow accounts established to assure satisfactory completion of work.

(h) *Cash depositories.*

- (1) Consistent with the national goal of expanding the opportunities for minority business enterprises, recipients and subrecipients are encouraged to use minority banks (a bank which is owned at least 50 percent by minority group members). A list of minority owned banks can be obtained from the Minority Business Development Agency, Department of Commerce, Washington, DC 20230.
- (2) A recipient or subrecipient shall maintain a separate bank account only when required by Federal-State Agreement.
  - (i) *Interest earned on advances.* Except for interest earned on advances of funds exempt under the Intergovernmental Cooperation Act (31 U.S.C. 6501 et seq.) and the Indian Self-Determination Act (23 U.S.C. 450), recipients and sub recipients shall promptly, but at least quarterly, remit interest earned on advances to the Federal agency. The recipient or subrecipient may keep interest amounts up to \$100 per year for administrative expenses.

## 2.2 Payment Method

**Requesting Payments** -- Requests for advance or reimbursement may be made by the following methods:

(1) **SF-270, Request for Advance or Reimbursement** - Recipients may submit an original and properly certified SF-270 form to the GO. For advance payments, this form may be submitted on a monthly basis, at least two weeks prior to the date on which funds are required, and on the basis of expected disbursements for the succeeding month and the amount of Federal funds already on hand. Requests for reimbursement may be submitted on a monthly basis, or more frequently if authorized by the (GO).

(2) **Automated Standard Application for Payments (ASAP)** - Recipients may utilize the Department of Treasury ASAP payment system to request advances or reimbursements. ASAP is a Recipient-initiated payment and information system designed to provide a single point of contact for the request and delivery of Federal funds.

*Recipients interested in enrolling in the ASAP system, please contact Dee Devillier at 303-445-3461 or Sheri Oren at 303-445-3448.*

## 3. PROCUREMENT STANDARDS (43 CFR §12.76)

(a) *States.* When procuring property and services under an agreement, a State will follow the same policies and procedures it uses for procurements from its non-Federal funds. The State will ensure that every purchase order or other contract includes any clauses required by Federal statutes and executive orders and their implementing regulations. Other recipients and sub recipients will follow paragraphs (b) through (i) in this section.

(b) *Procurement standards.*

(1) Recipients and subrecipients will use their own procurement procedures which reflect applicable State and local laws and regulations, provided that the procurements conform to applicable Federal law and the standards identified in this section.

(2) Recipients and subrecipients will maintain a contract administration system which ensures that contractors perform in accordance with the terms, conditions, and specifications of their contracts or purchase orders.

(3) Recipients and subrecipients will maintain a written code of standards of conduct governing the performance of their employees engaged in the award and administration of contracts. No employee, officer or agent of the recipient or subrecipient shall participate in selection, or in the award or administration of a contract supported by Federal funds if a conflict of interest, real or apparent, would be involved. Such a conflict would arise when:

(i) The employee, officer or agent,

(ii) Any member of his immediate family,

(iii) His or her partner, or

(iv) An organization which employs, or is about to employ, any of the above, has a financial or other interest in the firm selected for award. The recipient's or subrecipient's officers, employees or agents will neither solicit nor accept gratuities, favors or anything of monetary value from contractors, potential contractors, or parties to subagreements. Recipient and subrecipients may set minimum rules where the financial interest is not substantial or the gift is an unsolicited item of nominal intrinsic value. To the extent permitted by State or local law or regulations, such standards or conduct will provide for penalties, sanctions, or other disciplinary actions for violations of such standards by the recipient's and subrecipient's officers, employees, or agents, or by contractors or their agents. The awarding agency may in regulation provide additional prohibitions relative to real, apparent, or potential conflicts of interest.

(4) Recipient and subrecipient procedures will provide for a review of proposed procurements to avoid purchase of unnecessary or duplicative items. Consideration should be given to consolidating or breaking out procurements to obtain a more economical purchase. Where appropriate, an analysis will be made of lease versus purchase alternatives, and any other appropriate analysis to determine the most economical approach.

(5) To foster greater economy and efficiency, recipients and subrecipients are encouraged to enter into State and local intergovernmental agreements for procurement or use of common goods and services.

(6) Recipients and subrecipients are encouraged to use Federal excess and surplus property in lieu of purchasing new equipment and property whenever such use is feasible and reduces project costs.

(7) Recipients and subrecipients are encouraged to use value engineering clauses in contracts for construction projects of sufficient size to offer reasonable opportunities for cost reductions. Value engineering is a systematic and creative analysis of each contract item or task to ensure that its essential function is provided at the overall lower cost.

(8) Recipients and subrecipients will make awards only to responsible contractors possessing the ability to perform successfully under the terms and conditions of a proposed procurement. Consideration will be given to such matters as contractor integrity, compliance with public policy, record of past performance, and financial and technical resources.

(9) Recipients and subrecipients will maintain records sufficient to detail the significant history of a procurement. These records will include, but are not necessarily limited to the following: rationale for the method of procurement, selection of contract type, contractor selection or rejection, and the basis for the contract price.

(10) Recipients and subrecipients will use time and material type contracts only—

(i) After a determination that no other contract is suitable, and

(ii) If the contract includes a ceiling price that the contractor exceeds at its own risk.

(11) Recipients and subrecipients alone will be responsible, in accordance with good administrative practice and sound business judgment, for the settlement of all contractual and administrative issues arising out of procurements. These issues include, but are not limited to source evaluation, protests, disputes, and claims. These standards do not relieve the recipient or subrecipient of any contractual responsibilities under its contracts. Federal agencies will not substitute their judgment for that of the recipient or subrecipient unless the matter is primarily a Federal concern. Violations of law will be referred to the local, State, or Federal authority having proper jurisdiction.

(12) Recipients and subrecipients will have protest procedures to handle and resolve disputes relating to their procurements and shall in all instances disclose information regarding the protest to the awarding agency. A protestor must exhaust all administrative remedies with the recipient and subrecipient before pursuing a protest with the Federal agency. Reviews of protests by the Federal agency will be limited to:

(i) Violations of Federal law or regulations and the standards of this section (violations of State or local law will be under the jurisdiction of State or local authorities) and

(ii) Violations of the recipient's or subrecipient's protest procedures for failure to review a complaint or protest. Protests received by the Federal agency other than those specified above will be referred to the recipient or subrecipient.

(c) *Competition.*

(1) All procurement transactions will be conducted in a manner providing full and open competition consistent with the standards of §12.76. Some of the situations considered to be restrictive of competition include but are not limited to:

(i) Placing unreasonable requirements on firms in order for them to qualify to do business,

(ii) Requiring unnecessary experience and excessive bonding,

(iii) Noncompetitive pricing practices between firms or between affiliated companies,

(iv) Noncompetitive awards to consultants that are on retainer contracts,

(v) Organizational conflicts of interest,

(vi) Specifying only a "brand name" product instead of allowing "an equal" product to be offered and describing the performance of other relevant requirements of the procurement, and

(vii) Any arbitrary action in the procurement process.

(2) Recipients and subrecipients will conduct procurements in a manner that prohibits the use of statutorily or administratively imposed in-State or local geographical preferences in the evaluation of bids or proposals, except in those cases where applicable Federal statutes expressly mandate or encourage geographic preference. Nothing in this section preempts State licensing laws. When contracting for architectural and engineering (A/E) services, geographic location may be a selection criteria provided its application leaves an appropriate number of qualified firms, given the nature and size of the project, to compete for the contract.

(3) Recipients will have written selection procedures for procurement transactions. These procedures will ensure that all solicitations:

(i) Incorporate a clear and accurate description of the technical requirements for the material, product, or service to be procured. Such description shall not, in competitive procurements, contain features which unduly restrict competition. The description may include a statement of the qualitative nature of the material, product or service to be procured, and when necessary, shall set forth those minimum essential characteristics and standards to which it must conform if it is to satisfy its intended use. Detailed product specifications should be avoided if at all possible. When it is impractical or uneconomical to make a clear and accurate description of the technical requirements, a "brand name or equal" description may be used as a means to define the performance or other salient requirements of a procurement. The specific features of the named brand which must be met by offerors shall be clearly stated; and

(ii) Identify all requirements which the offerors must fulfill and all other factors to be used in evaluating bids or proposals.

(4) Recipients and subrecipients will ensure that all prequalified lists of persons, firms, or products which are used in acquiring goods and services are current and include enough qualified sources to ensure maximum open and free competition. Also, recipients and subrecipients will not preclude potential bidders from qualifying during the solicitation period.

(d) *Methods of procurement to be followed* —(1) *Procurement by small purchase procedures.* Small purchase procedures are those relatively simple and informal procurement methods for securing services, supplies, or other property that do not cost more than the simplified acquisition threshold fixed at 41 U.S.C. 403(11) (currently set at \$100,000). If small purchase procedures are used, price or rate quotations shall be obtained from an adequate number of qualified sources.

(2) Procurement by *sealed bids* (formal advertising). Bids are publicly solicited and a firm-fixed-price contract (lump sum or unit price) is awarded to the responsible bidder whose bid, conforming with all the material terms and conditions of the invitation for bids, is the lowest in price. The sealed bid method is the preferred method for procuring construction, if the conditions in §12.76(d)(2)(i) apply.

(i) In order for sealed bidding to be feasible, the following conditions should be present:

(A) A complete, adequate, and realistic specification or purchase description is available;

(B) Two or more responsible bidders are willing and able to compete effectively and for the business; and

(C) The procurement lends itself to a firm fixed price contract and the selection of the successful bidder can be made principally on the basis of price.

(ii) If sealed bids are used, the following requirements apply:

(A) The invitation for bids will be publicly advertised and bids shall be solicited from an adequate number of known suppliers, providing them sufficient time prior to the date set for opening the bids;

(B) The invitation for bids, which will include any specifications and pertinent attachments, shall define the items or services in order for the bidder to properly respond;

(C) All bids will be publicly opened at the time and place prescribed in the invitation for bids;

(D) A firm fixed-price contract award will be made in writing to the lowest responsive and responsible bidder. Where specified in bidding documents, factors such as discounts, transportation cost, and life cycle costs shall be considered in determining which bid is lowest. Payment discounts will only be used to determine the low bid when prior experience indicates that such discounts are usually taken advantage of; and

(E) Any or all bids may be rejected if there is a sound documented reason.

(3) Procurement by *competitive proposals*. The technique of competitive proposals is normally conducted with more than one source submitting an offer, and either a fixed-price or cost-reimbursement type contract is awarded. It is generally used when conditions are not appropriate for the use of sealed bids. If this method is used, the following requirements apply:

(i) Requests for proposals will be publicized and identify all evaluation factors and their relative importance. Any response to publicized requests for proposals shall be honored to the maximum extent practical;

(ii) Proposals will be solicited from an adequate number of qualified sources;

(iii) Recipients and subrecipients will have a method for conducting technical evaluations of the proposals received and for selecting awardees;

(iv) Awards will be made to the responsible firm whose proposal is most advantageous to the program, with price and other factors considered; and

(v) Recipients and subrecipients may use competitive proposal procedures for qualifications-based procurement of architectural/engineering (A/E) professional services whereby competitors' qualifications are evaluated and the most qualified competitor is selected, subject to negotiation of fair and reasonable compensation. The method, where price is not used as a selection factor, can only be used in procurement of A/E professional services. It cannot be used to purchase other types of services though A/E firms are a potential source to perform the proposed effort.

(4) Procurement by *noncompetitive proposals* is procurement through solicitation of a proposal from only one source, or after solicitation of a number of sources, competition is determined inadequate.

(i) Procurement by noncompetitive proposals may be used only when the award of a contract is infeasible under small purchase procedures, sealed bids or competitive proposals and one of the following circumstances applies:

(A) The item is available only from a single source;

(B) The public exigency or emergency for the requirement will not permit a delay resulting from competitive solicitation;

(C) The awarding agency authorizes noncompetitive proposals; or

(D) After solicitation of a number of sources, competition is determined inadequate.

(ii) Cost analysis, i.e., verifying the proposed cost data, the projections of the data, and the evaluation of the specific elements of costs and profits, is required.

(iii) Recipients and subrecipients may be required to submit the proposed procurement to the awarding agency for pre-award review in accordance with paragraph (g) of this section.

(e) *Contracting with small and minority firms, women's business enterprise and labor surplus area firms.* (1) The recipient and subrecipient will take all necessary affirmative steps to assure

that minority firms, women's business enterprises, and labor surplus area firms are used when possible.

(2) Affirmative steps shall include:

(i) Placing qualified small and minority businesses and women's business enterprises on solicitation lists;

(ii) Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;

(iii) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority business, and women's business enterprises;

(iv) Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority business, and women's business enterprises;

(v) Using the services and assistance of the Small Business Administration, and the Minority Business Development Agency of the Department of Commerce; and

(vi) Requiring the prime contractor, if subcontracts are to be let, to take the affirmative steps listed in paragraphs (e)(2) (i) through (v) of this section.

(f) *Contract cost and price.*

(1) Recipients and subrecipients must perform a cost or price analysis in connection with every procurement action including contract modifications. The method and degree of analysis is dependent on the facts surrounding the particular procurement situation, but as a starting point, recipients must make independent estimates before receiving bids or proposals. A cost analysis must be performed when the offeror is required to submit the elements of his estimated cost, e.g., under professional, consulting, and architectural engineering services contracts. A cost analysis will be necessary when adequate price competition is lacking, and for sole source procurements, including contract modifications or change orders, unless price reasonableness can be established on the basis of a catalog or market price of a commercial product sold in substantial quantities to the general public or based on prices set by law or regulation. A price analysis will be used in all other instances to determine the reasonableness of the proposed contract price.

(2) Recipients and subrecipients will negotiate profit as a separate element of the price for each contract in which there is no price competition and in all cases where cost analysis is performed. To establish a fair and reasonable profit, consideration will be given to the complexity of the work to be performed, the risk borne by the contractor, the contractor's investment, the amount of subcontracting, the quality of its record of past performance, and industry profit rates in the surrounding geographical area for similar work.

(3) Costs or prices based on estimated costs for contracts under agreements will be allowable only to the extent that costs incurred or cost estimates included in negotiated prices are consistent with Federal cost principles (see §12.62). Recipients may reference their own cost principles that comply with the applicable Federal cost principles.

(4) The cost plus a percentage of cost and percentage of construction cost methods of contracting shall not be used.

*(g) Awarding agency review.*

(1) Recipients and subrecipients must make available, upon request of the awarding agency, technical specifications on proposed procurements where the awarding agency believes such review is needed to ensure that the item and/or service specified is the one being proposed for purchase. This review generally will take place prior to the time the specification is incorporated into a solicitation document. However, if the recipient or subrecipient desires to have the review accomplished after a solicitation has been developed, the awarding agency may still review the specifications, with such review usually limited to the technical aspects of the proposed purchase.

(2) Recipients and subrecipients must on request make available for awarding agency pre-award review procurement documents, such as requests for proposals or invitations for bids, independent cost estimates, etc. when:

(i) A recipient's or subrecipient's procurement procedures or operation fails to comply with the procurement standards in this section; or

(ii) The procurement is expected to exceed the simplified acquisition threshold and is to be awarded without competition or only one bid or offer is received in response to a solicitation; or

(iii) The procurement, which is expected to exceed the simplified acquisition threshold, specifies a "brand name" product; or

(iv) The proposed award is more than the simplified acquisition threshold and is to be awarded to other than the apparent low bidder under a sealed bid procurement; or

(v) A proposed contract modification changes the scope of a contract or increases the contract amount by more than the simplified acquisition threshold.

(3) A recipient or subrecipient will be exempt from the pre-award review in paragraph (g)(2) of this section if the awarding agency determines that its procurement systems comply with the standards of this section.

(i) A recipient or subrecipient may request that its procurement system be reviewed by the awarding agency to determine whether its system meets these standards in order for

its system to be certified. Generally, these reviews shall occur where there is a continuous high-dollar funding, and third-party contracts are awarded on a regular basis.

(ii) A recipient or subrecipient may self-certify its procurement system. Such self-certification shall not limit the awarding agency's right to survey the system. Under a self-certification procedure, awarding agencies may wish to rely on written assurances from the recipient or subrecipient that it is complying with these standards. A recipient or subrecipient will cite specific procedures, regulations, standards, etc., as being in compliance with these requirements and have its system available for review.

(h) *Bonding requirements.* For construction or facility improvement contracts or subcontracts exceeding the simplified acquisition threshold, the awarding agency may accept the bonding policy and requirements of the recipient or subrecipient provided the awarding agency has made a determination that the awarding agency's interest is adequately protected. If such a determination has not been made, the minimum requirements shall be as follows:

(1) *A bid guarantee from each bidder equivalent to five percent of the bid price.* The "bid guarantee" shall consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the bidder will, upon acceptance of his bid, execute such contractual documents as may be required within the time specified.

(2) *A performance bond on the part of the contractor for 100 percent of the contract price.* A "performance bond" is one executed in connection with a contract to secure fulfillment of all the contractor's obligations under such contract.

(3) *A payment bond on the part of the contractor for 100 percent of the contract price.* A "payment bond" is one executed in connection with a contract to assure payment as required by law of all persons supplying labor and material in the execution of the work provided for in the contract.

(i) *Contract provisions.* A recipient's and subrecipient's contracts must contain provisions in paragraph (i) of this section. Federal agencies are permitted to require changes, remedies, changed conditions, access and records retention, suspension of work, and other clauses approved by the Office of Federal Procurement Policy.

(1) Administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as may be appropriate. (Contracts more than the simplified acquisition threshold)

(2) Termination for cause and for convenience by the recipient or subrecipient including the manner by which it will be effected and the basis for settlement. (All contracts in excess of \$10,000)

(3) Compliance with Executive Order 11246 of September 24, 1965, entitled "Equal Employment Opportunity," as amended by Executive Order 11375 of October 13, 1967, and

as supplemented in Department of Labor regulations (41 CFR chapter 60). (All construction contracts awarded in excess of \$10,000 by recipients and their contractors or subrecipients)

(4) Compliance with the Copeland "Anti-Kickback" Act (18 U.S.C. 874) as supplemented in Department of Labor regulations (29 CFR Part 3). (All contracts and subagreements for construction or repair)

(5) Compliance with the Davis-Bacon Act (40 U.S.C. 276a to 276a-7) as supplemented by Department of Labor regulations (29 CFR Part 5). (Construction contracts in excess of \$2000 awarded by recipients and subrecipients when required by Federal grant program legislation)

(6) Compliance with Sections 103 and 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-330) as supplemented by Department of Labor regulations (29 CFR Part 5). (Construction contracts awarded by recipients and subrecipients in excess of \$2000, and in excess of \$2500 for other contracts which involve the employment of mechanics or laborers)

(7) Notice of awarding agency requirements and regulations pertaining to reporting.

(8) Notice of awarding agency requirements and regulations pertaining to patent rights with respect to any discovery or invention which arises or is developed in the course of or under such contract.

(9) Awarding agency requirements and regulations pertaining to copyrights and rights in data.

(10) Access by the recipient, the subrecipient, the Federal grantor agency, the Comptroller General of the United States, or any of their duly authorized representatives to any books, documents, papers, and records of the contractor which are directly pertinent to that specific contract for the purpose of making audit, examination, excerpts, and transcriptions.

(11) Retention of all required records for three years after recipients or subrecipients make final payments and all other pending matters are closed.

(12) Compliance with all applicable standards, orders, or requirements issued under section 306 of the Clean Air Act (42 U.S.C. 1857(h)), section 508 of the Clean Water Act (33 U.S.C. 1368), Executive Order 11738, and Environmental Protection Agency regulations (40 CFR part 15). (Contracts, subcontracts, and subagreements of amounts in excess of \$100,000)

(13) Mandatory standards and policies relating to energy efficiency which are contained in the State energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Pub. L. 94-163, 89 Stat. 871).

#### 4. EQUIPMENT (43 CFR §12.72)

(a) *Title.* Subject to the obligations and conditions set forth in this section, title to equipment acquired under an agreement or subagreement will vest upon acquisition in the recipient or subrecipient respectively.

(b) *States.* A State will use, manage, and dispose of equipment acquired under an agreement by the State in accordance with State laws and procedures. Other recipients and subrecipients will follow paragraphs (c) through (e) of this section.

(c) *Use.*

(1) Equipment shall be used by the recipient or subrecipient in the program or project for which it was acquired as long as needed, whether or not the project or program continues to be supported by Federal funds. When no longer needed for the original program or project, the equipment may be used in other activities currently or previously supported by a Federal agency.

(2) The recipient or subrecipient shall also make equipment available for use on other projects or programs currently or previously supported by the Federal Government, providing such use will not interfere with the work on the projects or program for which it was originally acquired. First preference for other use shall be given to other programs or projects supported by the awarding agency. User fees should be considered if appropriate.

(3) Notwithstanding the encouragement in §12.65(a) to earn program income, the recipient or subrecipient must not use equipment acquired with agreement funds to provide services for a fee to compete unfairly with private companies that provide equivalent services, unless specifically permitted or contemplated by Federal statute.

(4) When acquiring replacement equipment, the recipient or subrecipient may use the equipment to be replaced as a trade-in or sell the property and use the proceeds to offset the cost of the replacement property, subject to the approval of the awarding agency.

(d) *Management requirements.* Procedures for managing equipment (including replacement equipment), whether acquired in whole or in part with agreement funds, until disposition takes place will, as a minimum, meet the following requirements:

(1) Property records must be maintained that include a description of the property, a serial number or other identification number, the source of property, who holds title, the acquisition date, and cost of the property, percentage of Federal participation in the cost of the property, the location, use and condition of the property, and any ultimate disposition data including the date of disposal and sale price of the property.

(2) A physical inventory of the property must be taken and the results reconciled with the property records at least once every two years.

(3) A control system must be developed to ensure adequate safeguards to prevent loss, damage, or theft of the property. Any loss, damage, or theft shall be investigated.

(4) Adequate maintenance procedures must be developed to keep the property in good condition.

(5) If the recipient or subrecipient is authorized or required to sell the property, proper sales procedures must be established to ensure the highest possible return.

(e) *Disposition.* When original or replacement equipment acquired under an agreement or subagreement is no longer needed for the original project or program or for other activities currently or previously supported by a Federal agency, disposition of the equipment will be made as follows:

(1) Items of equipment with a current per-unit fair market value of less than \$5,000 may be retained, sold or otherwise disposed of with no further obligation to the awarding agency.

(2) Items of equipment with a current per unit fair market value in excess of \$5,000 may be retained or sold and the awarding agency shall have a right to an amount calculated by multiplying the current market value or proceeds from sale by the awarding agency's share of the equipment.

(3) In cases where a recipient or subrecipient fails to take appropriate disposition actions, the awarding agency may direct the recipient or subrecipient to take excess and disposition actions.

(f) *Federal equipment.* In the event a recipient or subrecipient is provided Federally-owned equipment:

(1) Title will remain vested in the Federal Government.

(2) Recipients or subrecipients will manage the equipment in accordance with Federal agency rules and procedures, and submit an annual inventory listing.

(3) When the equipment is no longer needed, the recipient or subrecipient will request disposition instructions from the Federal agency.

(g) *Right to transfer title.* The Federal awarding agency may reserve the right to transfer title to the Federal Government or a third part named by the awarding agency when such a third party is otherwise eligible under existing statutes. Such transfers shall be subject to the following standards:

(1) The property shall be identified in the agreement or otherwise made known to the recipient in writing.

(2) The Federal awarding agency shall issue disposition instruction within 120 calendar days after the end of the Federal support of the project for which it was acquired. If the Federal awarding agency fails to issue disposition instructions within the 120 calendar-day period the recipient shall follow 12.72(e).

(3) When title to equipment is transferred, the recipient shall be paid an amount calculated by applying the percentage of participation in the purchase to the current fair market value of the property.

## 5. SUPPLIES (43 CFR §12.73)

(a) *Title.* Title to supplies acquired under an agreement or subagreement will vest, upon acquisition, in the recipient or subrecipient respectively.

(b) *Disposition.* If there is a residual inventory of unused supplies exceeding \$5,000 in total aggregate fair market value upon termination or completion of the award, and if the supplies are not needed for any other Federally sponsored programs or projects, the recipient or subrecipient shall compensate the awarding agency for its share.

## 6. INSPECTION

Reclamation has the right to inspect and evaluate the work performed or being performed under this Agreement, and the premises where the work is being performed, at all reasonable times and in a manner that will not unduly delay the work. If Reclamation performs inspection or evaluation on the premises of the Recipient or a sub-Recipient, the Recipient shall furnish and shall require sub-recipients to furnish all reasonable facilities and assistance for the safe and convenient performance of these duties.

## 7. AUDIT (31 U.S.C. 7501-7507)

Non-Federal entities that expend \$500,000 or more in a year in Federal awards shall have a single or program-specific audit conducted for that year in accordance with the Single Audit Act Amendments of 1996 (31 U.S.C. 7501-7507) and revised OMB Circular A-133. Federal awards are defined as Federal financial assistance and Federal cost-reimbursement contracts that non-Federal entities receive directly from Federal awarding agencies or indirectly from pass-through entities. They do not include procurement contracts, under agreements or contracts, used to buy goods or services from vendors. Non-Federal entities that expend less than \$500,000 a year in Federal awards are exempt from Federal audit requirements for that year, except as noted in A-133, § \_\_\_.215(a), but records must be available for review or audit by appropriate officials of the Federal agency, pass-through entity, and General Accounting Office (GAO).

## 8. ENFORCEMENT (43 CFR §12.83)

(a) *Remedies for noncompliance.* If a recipient or subrecipient materially fails to comply with any term of an award, whether stated in a Federal statute or regulation, an assurance, in a State plan or application, a notice of award, or elsewhere, the awarding agency may take one or more of the following actions, as appropriate in the circumstances:

- (1) Temporarily withhold cash payments pending correction of the deficiency by the recipient or subrecipient or more severe enforcement action by the awarding agency,
- (2) Disallow (that is, deny both use of funds and matching credit for) all or part of the cost of the activity or action not in compliance,
- (3) Wholly or partly suspend or terminate the current award for the recipient's or subrecipient's program,
- (4) Withhold further awards for the program, or
- (5) Take other remedies that may be legally available.

(b) *Hearings, appeals.* In taking an enforcement action, the awarding agency will provide the recipient or subrecipient an opportunity for such hearing, appeal, or other administrative proceeding to which the recipient or subrecipient is entitled under any statute or regulation applicable to the action involved.

(c) *Effects of suspension and termination.* Costs of recipient or subrecipient resulting from obligations incurred by the recipient or subrecipient during a suspension or after termination of an award are not allowable unless the awarding agency expressly authorizes them in the notice of suspension or termination or subsequently. Other recipient or subrecipient costs during suspension or after termination which are necessary and not reasonably avoidable are allowable if:

- (1) The costs result from obligations which were properly incurred by the recipient or subrecipient before the effective date of suspension or termination, are not in anticipation of it, and, in the case of a termination, are noncancellable, and,
- (2) The costs would be allowable if the award were not suspended or expired normally at the end of the funding period in which the termination takes effect.

(d) *Relationship to Debarment and Suspension.* The enforcement remedies identified in this section, including suspension and termination, do not preclude recipient or subrecipient from being subject to "Debarment and Suspension" under E.O. 12549 ((2 CFR 29.5.12 and 2 CFR 1400, Subpart C).

## **9. TERMINATION FOR CONVENIENCE (43 CFR §12.84)**

Except as provided in 43 CFR §12.83 awards may be terminated in whole or in part only as follows:

(a) By the awarding agency with the consent of the recipient or subrecipient in which case the two parties shall agree upon the termination conditions, including the effective date and in the case of partial termination, the portion to be terminated, or

(b) By the recipient or subrecipient upon written notification to the awarding agency, setting forth the reasons for such termination, the effective date, and in the case of partial termination, the portion to be terminated. However, if, in the case of a partial termination, the awarding agency determines that the remaining portion of the award will not accomplish the purposes for which the award was made, the awarding agency may terminate the award in its entirety under either §12.83 or paragraph (a) of this section.

## **10. DEBARMENT AND SUSPENSION (2 CFR §1400)**

The Department of the Interior regulations at 2 CFR 1400—Governmentwide Debarment and Suspension (Nonprocurement), which adopt the common rule for the governmentwide system of debarment and suspension for nonprocurement activities, are hereby incorporated by reference and made a part of this Agreement. By entering into this Cooperative Agreement with the Bureau of Reclamation, the Recipient agrees to comply with 2 CFR 1400, Subpart C, and agrees to include a similar term or condition in all lower-tier covered transactions. These regulations are available at <http://www.gpoaccess.gov/ecfr/>.

## **11. DRUG-FREE WORKPLACE (43 CFR §43)**

The Department of the Interior regulations at 43 CFR 43—Governmentwide Requirements for Drug-Free Workplace (Financial Assistance), which adopt the portion of the Drug-Free Workplace Act of 1988 (41 U.S.C. 701 et seq, as amended) applicable to grants and cooperative Agreements, are hereby incorporated by reference and made a part of this Agreement. By entering into this grant or cooperative Agreement with the Bureau of Reclamation, the Recipient agrees to comply with 43 CFR 43, Subpart B, if the Recipient is not an individual, or with 43 CFR 43, Subpart C, if the Recipient is an individual. These regulations are available at <http://www.gpoaccess.gov/ecfr/>.

## **12. ASSURANCES AND CERTIFICATIONS INCORPORATED BY REFERENCE**

The provisions of the Assurances, SF 424B or SF 424D as applicable, executed by the Recipient in connection with this Agreement shall apply with full force and effect to this Agreement. All anti-discrimination and equal opportunity statutes, regulations, and Executive Orders that apply to the expenditure of funds under Federal contracts, grants, and cooperative Agreements, loans,

and other forms of Federal assistance. The Recipient shall comply with Title VI or the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, the Age Discrimination Act of 1975, and any program-specific statutes with anti-discrimination requirements. The Recipient shall comply with civil rights laws including, but not limited to, the Fair Housing Act, the Fair Credit Reporting Act, the Americans with Disabilities Act, Title VII of the Civil Rights Act of 1964, the Equal Educational Opportunities Act, the Age Discrimination in Employment Act, and the Uniform Relocation Act.

Such Assurances also include, but are not limited to, the promise to comply with all applicable Federal statutes and orders relating to nondiscrimination in employment, assistance, and housing; the Hatch Act; Federal wage and hour laws and regulations and work place safety standards; Federal environmental laws and regulations and the Endangered Species Act; and Federal protection of rivers and waterways and historic and archeological preservation.

### 13. COVENANT AGAINST CONTINGENT FEES

The Recipient warrants that no person or agency has been employed or retained to solicit or secure this Agreement upon an Agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide offices established and maintained by the Recipient for the purpose of securing Agreements or business. For breach or violation of this warranty, the Government shall have the right to annul this Agreement without liability or, in its discretion, to deduct from the Agreement amount, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee

### 14. TRAFFICKING VICTIMS PROTECTION ACT OF 2000 (2 CFR §175.15)

(a) To implement the trafficking in persons requirement in section 106(g) of the TVPA, as amended, a Federal awarding agency must include the award term in paragraph (b) of this section in—

(1) A grant or cooperative agreement to a private entity, as defined in §175.25(d); and

(2) A grant or cooperative agreement to a State, local government, Indian tribe or foreign public entity, if funding could be provided under the award to a private entity as a subrecipient.

(b) The award term that an agency must include, as described in paragraph (a) of this section, is:

#### I. Trafficking in persons.

##### a. Provisions applicable to a recipient that is a private entity .

1. You as the recipient, your employees, subrecipients under this award, and subrecipients' employees may not—

i. Engage in severe forms of trafficking in persons during the period of time that the award is in effect;

ii. Procure a commercial sex act during the period of time that the award is in effect; or

iii. Use forced labor in the performance of the award or subawards under the award.

2. We as the Federal awarding agency may unilaterally terminate this award, without penalty, if you or a subrecipient that is a private entity —

i. Is determined to have violated a prohibition in paragraph a.1 of this award term; or

ii. Has an employee who is determined by the agency official authorized to terminate the award to have violated a prohibition in paragraph a.1 of this award term through conduct that is either—

A. Associated with performance under this award; or

B. Imputed to you or the subrecipient using the standards and due process for imputing the conduct of an individual to an organization that are provided in 2 CFR part 180, “OMB Guidelines to Agencies on Governmentwide Debarment and Suspension (Nonprocurement),” as implemented by our agency at 2 CFR part 1400.

*b. Provision applicable to a recipient other than a private entity.* We as the Federal awarding agency may unilaterally terminate this award, without penalty, if a subrecipient that is a private entity—

1. Is determined to have violated an applicable prohibition in paragraph a.1 of this award term; or

2. Has an employee who is determined by the agency official authorized to terminate the award to have violated an applicable prohibition in paragraph a.1 of this award term through conduct that is either—

i. Associated with performance under this award; or

ii. Imputed to the subrecipient using the standards and due process for imputing the conduct of an individual to an organization that are provided in 2 CFR part 180, “OMB Guidelines to Agencies on Governmentwide Debarment and Suspension (Nonprocurement),” as implemented by our agency at 2 CFR part 1400.

*c. Provisions applicable to any recipient.*

1. You must inform us immediately of any information you receive from any source alleging a violation of a prohibition in paragraph a.1 of this award term.

2. Our right to terminate unilaterally that is described in paragraph a.2 or b of this section:
  - i. Implements section 106(g) of the Trafficking Victims Protection Act of 2000 (TVPA), as amended (22 U.S.C. 7104(g)), and
  - ii. Is in addition to all other remedies for noncompliance that are available to us under this award.
3. You must include the requirements of paragraph a.1 of this award term in any subaward you make to a private entity.

d. *Definitions* . For purposes of this award term:

1. "Employee" means either:
  - i. An individual employed by you or a subrecipient who is engaged in the performance of the project or program under this award; or
  - ii. Another person engaged in the performance of the project or program under this award and not compensated by you including, but not limited to, a volunteer or individual whose services are contributed by a third party as an in-kind contribution toward cost sharing or matching requirements.
2. "Forced labor" means labor obtained by any of the following methods: the recruitment, harboring, transportation, provision, or obtaining of a person for labor or services, through the use of force, fraud, or coercion for the purpose of subjection to involuntary servitude, peonage, debt bondage, or slavery.
3. "Private entity":
  - i. Means any entity other than a State, local government, Indian tribe, or foreign public entity, as those terms are defined in 2 CFR 175.25.
  - ii. Includes:
    - A. A nonprofit organization, including any nonprofit institution of higher education, hospital, or tribal organization other than one included in the definition of Indian tribe at 2 CFR 175.25(b).
    - B. A for-profit organization.
4. "Severe forms of trafficking in persons," "commercial sex act," and "coercion" have the meanings given at section 103 of the TVPA, as amended (22 U.S.C. 7102).

(c) An agency may use different letters and numbers to designate the paragraphs of the award term in paragraph (b) of this section, if necessary, to conform the system of paragraph designations with the one used in other terms and conditions in the agency's awards

#### 15. NEW RESTRICTIONS ON LOBBYING (43 CFR §18)

The Recipient agrees to comply with 43 CFR 18, New Restrictions on Lobbying, including the following certification:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the Recipient, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying" in accordance with its instructions.

(3) The Recipient shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subagreements, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify accordingly. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.



# ***Appendix B:***

## ***Modified Study Schedule***

**PLATTE ALLIANCE WATER SUPPLY  
( PAWS )  
REGION WIDE MUNICIPAL RURAL WATER SUPPLY PROJECT  
9-30**

Outline Number	Task Name	Duration	Start	Finish	Cost	% Complete	Actual Cost	2011											
								J	F	M	A	M	J	J	A	S	O	N	
0	<b>PAWS-Region Wide Municipal Rural Water Supply Project</b>	<b>251 days</b>	<b>Mon 1/3/11</b>	<b>Mon 12/19/11</b>	<b>\$180,000.00</b>	<b>82%</b>	<b>\$155,735.60</b>												
1	<b>Project Administration</b>	<b>200 days</b>	<b>Mon 1/3/11</b>	<b>Fri 10/7/11</b>	<b>\$5,760.00</b>	<b>68%</b>	<b>\$3,744.00</b>												
1.1	Consultant Selection	22 days	Mon 1/3/11	Tue 2/1/11	\$1,920.00	100%	\$1,920.00												
1.2	Joint Powers Board	90 days	Mon 1/3/11	Fri 5/6/11	\$1,920.00	0%	\$0.00												
1.3	Sponsor Meetings	200 days	Mon 1/3/11	Fri 10/7/11	\$1,920.00	95%	\$1,824.00												
2	<b>USBR Review</b>	<b>165 days</b>	<b>Mon 3/21/11</b>	<b>Fri 11/4/11</b>	<b>\$0.00</b>	<b>56%</b>	<b>\$0.00</b>												
2.1	Initial Review (Overview/briefing)	5 days	Mon 3/21/11	Fri 3/25/11	\$0.00	100%	\$0.00												
2.2	Draft Review	20 days	Mon 5/23/11	Fri 6/17/11	\$0.00	100%	\$0.00												
2.3	Final Review	20 days	Mon 10/10/11	Fri 11/4/11	\$0.00	0%	\$0.00												
3	<b>Public Outreach</b>	<b>170 days</b>	<b>Mon 1/24/11</b>	<b>Fri 9/16/11</b>	<b>\$8,010.00</b>	<b>95%</b>	<b>\$5,700.00</b>												
3.1	<b>Public Meetings</b>	<b>75 days</b>	<b>Mon 4/4/11</b>	<b>Fri 7/15/11</b>	<b>\$4,620.00</b>	<b>71%</b>	<b>\$2,310.00</b>												
3.1.1	Advisory Group Meeting	10 days	Mon 4/4/11	Fri 4/15/11	\$0.00	100%	\$0.00												
3.1.2	Initial Open House	10 days	Mon 4/18/11	Fri 4/29/11	\$2,310.00	100%	\$2,310.00												
3.1.3	Advisory Group Meeting	5 days	Fri 6/10/11	Thu 6/16/11	\$0.00	100%	\$0.00												
3.1.4	Appraisal Investigation Findings Open House	10 days	Mon 7/4/11	Fri 7/15/11	\$2,310.00	0%	\$0.00												
3.2	<b>Web Site</b>	<b>170 days</b>	<b>Mon 1/24/11</b>	<b>Fri 9/16/11</b>	<b>\$3,390.00</b>	<b>100%</b>	<b>\$3,390.00</b>												
4	<b>Review Existing Data &amp; Previous Studies</b>	<b>30 days</b>	<b>Wed 2/2/11</b>	<b>Tue 3/15/11</b>	<b>\$6,986.00</b>	<b>100%</b>	<b>\$6,986.00</b>												
5	<b>Identification of Municipal Needs</b>	<b>30 days</b>	<b>Mon 2/21/11</b>	<b>Fri 4/1/11</b>	<b>\$7,368.00</b>	<b>100%</b>	<b>\$7,368.00</b>												
5.1	Water Quantity	30 days	Mon 2/21/11	Fri 4/1/11	\$2,456.00	100%	\$2,456.00												
5.2	Water Quality	30 days	Mon 2/21/11	Fri 4/1/11	\$4,912.00	100%	\$4,912.00												
6	<b>Identification and Evaluation of Existing Water Rights</b>	<b>60 days</b>	<b>Mon 3/21/11</b>	<b>Fri 6/10/11</b>	<b>\$15,120.00</b>	<b>100%</b>	<b>\$15,120.00</b>												
7	<b>Investigation of Subsurface Water Supply Opportunities</b>	<b>40 days</b>	<b>Mon 3/21/11</b>	<b>Fri 5/13/11</b>	<b>\$15,496.00</b>	<b>100%</b>	<b>\$15,496.00</b>												
8	<b>Evaluate Surface Water Supply Opportunities</b>	<b>40 days</b>	<b>Mon 4/4/11</b>	<b>Fri 5/27/11</b>	<b>\$23,856.00</b>	<b>100%</b>	<b>\$23,856.00</b>												
8.1	Reservoirs	40 days	Mon 4/4/11	Fri 5/27/11	\$10,200.00	100%	\$10,200.00												
8.2	Streamflow	40 days	Mon 4/4/11	Fri 5/27/11	\$13,656.00	100%	\$13,656.00												
9	<b>Assess Economy of Scale of Region Wide System</b>	<b>40 days</b>	<b>Mon 5/30/11</b>	<b>Fri 7/22/11</b>	<b>\$9,464.00</b>	<b>100%</b>	<b>\$9,464.00</b>												
10	<b>Regional Alternatives</b>	<b>65 days</b>	<b>Mon 3/21/11</b>	<b>Fri 6/17/11</b>	<b>\$51,616.00</b>	<b>100%</b>	<b>\$51,616.00</b>												
10.1	Alternative Identification	60 days	Mon 3/21/11	Fri 6/10/11	\$45,176.00	100%	\$45,176.00												
10.2	Cost Estimates	20 days	Mon 5/23/11	Fri 6/17/11	\$6,440.00	100%	\$6,440.00												
11	<b>Report Preparation</b>	<b>101 days</b>	<b>Mon 6/20/11</b>	<b>Mon 11/7/11</b>	<b>\$36,324.00</b>	<b>62%</b>	<b>\$16,385.60</b>												
11.1	Prepare Preliminary Report	81 days	Mon 6/20/11	Mon 10/10/11	\$17,024.00	78%	\$16,385.60												
11.2	Sponsor/Agency Review	10 days	Tue 10/11/11	Mon 10/24/11	\$0.00	0%	\$0.00												
11.3	Adjudicate Input received	5 days	Tue 10/25/11	Mon 10/31/11	\$7,420.00	0%	\$0.00												
11.4	Final Report Preparation	5 days	Tue 11/1/11	Mon 11/7/11	\$11,880.00	0%	\$0.00												
12	<b>Deliver Final Report</b>	<b>0 days</b>	<b>Mon 11/7/11</b>	<b>Mon 11/7/11</b>	<b>\$0.00</b>	<b>0%</b>	<b>\$0.00</b>												
13	<b>USBR Report Preparation</b>	<b>15 days</b>	<b>Tue 11/8/11</b>	<b>Mon 11/28/11</b>	<b>\$0.00</b>	<b>0%</b>	<b>\$0.00</b>												
14	<b>USBR Denver Office Review</b>	<b>15 days</b>	<b>Tue 11/29/11</b>	<b>Mon 12/19/11</b>	<b>\$0.00</b>	<b>0%</b>	<b>\$0.00</b>												

\*NOTE\* The schedule was subsequently extended for a final report deliverable in November 2012 to incorporate additional investigation and input.



# ***Appendix C:***

## ***Participants/Sponsors***

### ***Project Team***

- ***Meeting Notes***

### ***Advisory Group***

- ***Meeting Notes***

### ***Agency-Entity Contacts***

### ***Public Meeting***

### ***Support/Endorsement Letters***

- ***Wyoming WWDC***
- ***Nebraska DNR***

## *Project Team*

Bob Juve, P.E.  
*Project Representative*  
Torrington City Engineer  
P.O. Box 250  
Torrington, WY 82240  
307-532-4815  
[RJuve@City-of-Torrington.org](mailto:RJuve@City-of-Torrington.org)

David A. Schaff, P.E.  
MC Schaff and Associates, Inc.  
818 South Beltline Highway East  
Scottsbluff, NE 69361  
308-635-1926  
[dschaff@mcschaff.com](mailto:dschaff@mcschaff.com)

Lyle D Myler  
Deputy Area Manager  
Bureau of Reclamation Wyoming Area Office  
705 Pendell Blvd.  
P.O. Box 1630  
Mills, WY 82644  
307-261-5676  
[lmyler@usbr.gov](mailto:lmyler@usbr.gov)

Mike Sarchet  
Twin Cities Development Association, Inc.  
2620 College Park  
Scottsbluff, NE 69361  
308-635-6710  
[twincities@wncc.net](mailto:twincities@wncc.net)

Matthew P. Ruder, P.E.  
DOWL HKM  
16W. 8th Street  
Sheridan, Wyoming 82801  
307-672-9006  
[mruder@dowlhkm.com](mailto:mruder@dowlhkm.com)

Jeffery B. Fuller, P.E.  
*Project Manager*  
3099 Big Horn Avenue  
Sheridan, Wyoming 82801  
307-752-9768  
[JeffB-Fuller@live.com](mailto:JeffB-Fuller@live.com)

Frank Strong, IV, P.E.  
MC Schaff and Associates, Inc.  
818 South Beltline Highway East  
Scottsbluff, NE 69361  
308-635-1926  
[fstrong@mcschaff.com](mailto:fstrong@mcschaff.com)

James H. (Kip) Gjerde  
Bureau of Reclamation  
Billings, MT  
406-247-7750  
[JGjerde@usbr.gov](mailto:JGjerde@usbr.gov)

Tom Troxel  
Torrington Water Department Manager  
P.O. Box 250  
Torrington, WY 822540  
[TTroxel@City-of-Torrington.org](mailto:TTroxel@City-of-Torrington.org)

The Project Team, via conference call, convened periodically, initially more regularly, to address study requirements, issues and direction as the study progressed. These discussions proved beneficial to receive valuable input from various perspectives. Following are Meeting Notes from these conference calls.



## Meeting Notes

### The Appraisal Investigation for the **Platte Alliance Water Supply Project**

#### Kick-Off Meeting

Thursday, February 3 at 1:00 pm

Participants: Bob Juve, Kip Gjerde, Lyle Myler, Mike Sarchet, Tom Troxel, Dave Schaff, Jeff Fuller (sign in sheet attached,; and via phone conference Joe? and ?

- Opening remarks – Bob Juve, PE, Project Manager
  - *Bob related the project objective as stated in the Appraisal Investigation proposal ...” Southeast Wyoming and Western Nebraska and adjacent rural areas along the North Platte River basin are experiencing deteriorating water quality, and it is becoming increasingly difficult and expensive to meet public water quality standards. This lack of dependable water quality limits the ability of the region to remain vibrant and sustain current and future growth and economic vitality. This application is to request funds to conduct an Appraisal Investigation to identify potential region wide solutions to remedy this situation.” Bob expressed engineering solutions may be rather straightforward; however, legal (water rights, etc) and administrative (2 different states) issues may significant.*
- Introductions
  - Project team & consultant(s), etc. – Bob Juve
    - **Bob Juve** is City Engineer for the City of Torrington and is the Goshen County Representative and Project Manager for this Appraisal Investigation
    - Goshen County has contracted with DOWL HKM (DH) to lead the Appraisal Investigation- **Jeff Fuller** will be the lead for DH
    - DH teamed with MC Schaff & Assoc (MCS)-**Dave Schaff** will be the lead for MCS
    - **Tom Troxel** manages the Torrington Water Department and has an in-depth understanding of the regional issues
    - **Mike Sarchet** of Twin Cities Development Assoc provides significant understanding to Nebraska water requirements
  - Reclamation review team – Kip Gjerde, Grants Officer Technical Representative
    - **Kip Gjerde** of the USBR Billings office will serve as the USBR Grants Officer Technical Representative and primary day-to-day contact
    - The project geographic area is within the jurisdiction of the Wyoming Area Office-**Lyle Myler** USBR Wyoming Area Office Deputy Area Manager will be the Wyoming Area contact
    - Joe?
    - ?
- Cooperative agreement reporting – Kip Gjerde
  - Performance reports per Sec. 9.3 (Oct 1 – March 31; April 1 through September 30; repeating)
    - *Kip referred to Sec 9.3 of the Goshen County/USBR agreement and noted the first Progress and Financial Reports are due April 30, 2011 for the reporting period ending March 31, 2011; and every 6 months.*
  - Financial status reports per section 9.2 (same frequency as above, use SF-425)
    - *Kip stated to use USBR SF-425 for the bi-annual Financial Reports.*
  - Reclamation reviews – A1, A2 and A3 milestones (additional discussions as appropriate)
    - *With a review of the Gant chart provided in the County Proposal, it was determined additional USBR reviews should occur: A1-prior to Task 2.1.1 Initial Open House; A2-prior*

to Task 2.1.2 Appraisal Investigation Findings Open House; and A3-included in Task 10.2 Sponsor/Agency Review. It was noted the schedule in the Gant chart provided in the Cooperative agreement has been modified, and with this meeting would be further adjusted; and these Reclamation reviews would be inserted as tasks into the Gant chart. Kip also mentioned USBR reviews could be more frequent and/or informal reviews could be utilized to assist during the Investigation.

- Appraisal investigation requirements – Kip Gjerde
  - Reclamation Manual Directives and Standards (D&S) CMP TRMR-31
    - Sec. 10
      - *Kip referred to Section 10 of the Reclamation Manual and identified Section 10A as the requirements for public and agency coordination efforts; and Section 10B as to the content. It was mentioned the headings under 10B could serve as a guide for designation as Chapters within the Report.*
    - See also Sec. 11
      - *Kip referred to Section 11 of the Reclamation Manual which further referred to 404.44 of the Federal Register Rules and Regulations that identifies criteria for recommendation of an Appraisal Report to progress to a Feasibility Study. The better the Appraisal Investigation Report responds to these criteria, the better the chances for advancement to a Feasibility Study. Also highlighted were 404.44 criteria (10) economic benefits; (11) sponsor capability to fund operation, maintenance and replacement of the facilities; and (12) other factors (the administration is exploring all opportunities for reduced energy use).*
    - Integrate “Additional Required Content” – Sec. 10 & FOA
    - Coordinate with USDA/RUS, EPA and others (see looking ahead)
      - *USDA/RUS has expressed a willingness to be involved and be a potential future funding resource. The group will contact USDA as they identify alternative scenarios.*
- Appraisal report requirements – Kip Gjerde
  - D&S CMP TRMR-31
    - Section 11
    - Rule 404.44
      - *Kip reviewed the Appraisal Report requirements, and where this information is located.*
- Looking ahead – Kip Gjerde
  - Feasibility study proposal prioritization criteria
    - Urgent and compelling need
    - Regional or watershed perspective
    - Indian tribes or tribal organizations
    - Financial need
    - Programmatic overlap
      - *Kip again reiterated key prioritization criteria to address with this Appraisal Investigation to progress to a Feasibility Study.*
- History/overview – Bob Juve
  - Previous studies and efforts
    - *Bob relayed the previous studies as listed in the Proposal. Many of these studies were prepared by the consultants, and they are aware of the others. This Appraisal Investigation will utilize this information as much as possible. Much pertinent data is available from these studies.*
  - Status of ‘water coalition’ activity (pipeline from Flaming Gorge)
    - *As the City of Torrington is a Wyoming Coalition member, Bob spoke to the status of the “Flaming Gorge” project. Torrington is looking at this as a long term future potential water supply. Currently, there appears to be no beneficial “overlap” with the PAWS and the “Flaming Gorge” studies. There is definitely a*

sense that politically, no “Flaming Gorge” water would be set aside for use in Nebraska.

- Other

- *Additional discussion included:*

- This project aligns with the USBR objective of assisting in regionalization of rural water supply projects.*

- The USBR is anticipating the funding for rural feasibility studies to be available as early as September, 2011.*

- Anticipate approximately three weeks for Area office review of the completed Appraisal Investigation Report followed by approximately a three week review period for the Denver office.*

- Project correspondence will be through Bob Juve and Lyle Myler and Kip, then routed (or copied) to Jeff and Dave. To expedite communication Jeff and Dave may provide direct correspondence to Lyle; however Bob will be notified (and/or copied) and Kip will be routed (copied) on all relevant correspondence.***

- The Niobrara Oil play in Southeast Wyoming, Nebraska, Colorado and Kansas may play a role in water availability within the PAWS study area.*

- The Build the Wyoming We Want program is participating in a High Plains Initiative (HPI) with Platte and Goshen counties. This initiative is a public planning process to identify “what we want the area to look like” in 40 years. The PAWS Appraisal Investigation and the HIP Initiative have a common interest in the availability of quality water. Communication and coordination with the HPI is necessary for the success of this Investigation.*

- The USBR has a Water Smart program with grant opportunities for water treatment demonstration (pilot) projects. Information on this program is available on the USBR website.*

- Next Steps – All

- *The consultants will review the Gant Chart (schedule) to incorporate the USBR reviews and determine how much they can compress the schedule to accommodate the potential September, 2011 funding availability. The revised Gant chart will be distributed to all participants.*
  - *Attached is a revised Gant Chart (schedule) incorporating the additional USBR review periods and compressing the schedule to “put our best foot forward” to be in line for the Feasibility Study funding cycle. Note the compressed schedule identifies a final deliverable of September 9, 2011; and also identifies the USBR Casper and Denver office review time periods. **We suggest it will take the entire team working together to meet this aggressive schedule; and if there are issues that impact this schedule immediately bring them to the attention of the team.***

Telephone Conference Bridge: 877-691-5734; Leader 8692830; Participant 2127141



## Meeting Notes

### The Appraisal Investigation for the **Platte Alliance Water Supply Project**

#### Conference Call

Wednesday, February 16 at 8:30 pm

Participants: Bob Juve, Kip Gjerde, Lyle Myler, Dave Schaff, Jeff Fuller via phone conference

- Discussed the revised schedule
  - Kip- We are probably ok w.r.t. final reviews and the anticipated funding application time period, as the Feasibility proposal can be prepared simultaneously with the USBR reviews, until the closing date for the funding applications. We need to review the timing of anticipated funding as we get closer to the date.
  - Kip-Modify task 13 to read USBR Report Preparation.
  - Kip-The USBR Initial Review (Task 2.1) time period can be reduced as this will mainly be an overview and briefing of the project.
  - Kip-Revise tasks such that they are linked- as the USBR Final Review Task 2.3 should be followed by Adjudicate Input Received Task 11.3 and subsequently followed by USBR Report Preparation Task 13.
  - Kip-Water Quality seems to be the critical issue and it is not shown on the schedule. Maybe show water quality as a subtask under Municipal Needs Task 5.
  - Jeff will revise schedule.
- Discussed Advisory Committee
  - Lyle-Incorporate the Advisory Committee sooner rather than later in the process to get their reaction/input to the alternatives specifically w.r.t. water law. Need to formalize Advisory Committee, send a letter to all, with a brief overview of the project and what is expected of them (agenda). Bob will prepare and send letters.
  - Lyle-The Wyoming office will get busy with "spring runoff" the 1<sup>st</sup> or 2<sup>nd</sup> week in March.
- Discussed Public Outreach
  - Bob- Mentioned Wyoming has the Goshen Area Governments meetings and Nebraska has the Mayor-to-Mayor meetings to disseminate project information and updates. Also the High Plains Initiative (HPI) in Goshen and Platte counties should include information on this project within their efforts.
  - Identified "others" to be included in project outreach – Lou Harmon in Wyoming-Missouri Basin-USDA-EPA-rural utilities-etc.
  - Jeff mentioned the Web page will be a DOWL HKM project web page and links can be included with community, county web sites, as well. The web page will have public and a "members only" portion for this group to use. Will have a draft disseminated to this group prior to "going live".
  - Bob will be the project contact for all public inquiries (individual or media).

The next project team conference call is scheduled for  
Wednesday, February 23 @ 8:30 am.

The call in number is 866-866-2244      Participant code 4809321#



## Meeting Notes

### The Appraisal Investigation for the **Platte Alliance Water Supply Project**

#### Conference Call

Wednesday, February 23 at 8:30 pm

*Participants: Bob Juve, Tom Troxel, Kip Gjerde, Lyle Myler, Dave Schaff, Jeff Fuller via phone conference*

- Discussed Advisory committee invite letter
  - *Review name of Advisory committee to comply with Federal definitions -Lyle will talk with John and provide editorial input to Bob*
  - *Previously identified committee nominations include Mike Purcell, John Lawson, Jim Schneider, Ken Myers, and Jim Hudelson*
- Discussed the revised schedule
  - *All – appears to address our previous discussions – may later add a 3<sup>rd</sup> “Advisory” committee meeting*
- Discussed Web site
  - *Kip-This is a local study and should operate under local laws w.r.t. public access requirements.*
  - *Site will include a Project Team “area” which will be password protected.*
  - *Web site will include form for public to complete and submit to site.*
  - *Jeff mentioned the Web page will be a DOWL HKM project web page and links can be included with community, county web sites, as well.*
- Discussed Information Review
  - *Have PDF of Wyoming Studies as listed on Funding Proposal on web site, or links to site and in process of getting Nebraska studies in PDF onto site, as well – from this will provide very brief synopsis of each study-should provide concise problem statement, i.e. water quality (arsenic, TDS, nitrates, etc)current and anticipated, and how regulation is addressed.*
- Discussed Alternative scenarios
  - *Develop “several” or those identified in studies and provide very brief description of alternative, potentially visual exhibit, and list of scenario attributes.*
  - *All of this should be reviewed by this group and disseminated to “Input” Committee prior to their first meeting.*
  - *Bob will be the project contact for all public inquiries (individual or media).*

The next project team conference call is scheduled for  
Wednesday, March 2 @ 8:30 am.

The call in number is 866-866-2244      Participant code 4809321#



## Meeting Notes

### The Appraisal Investigation for the **Platte Alliance Water Supply Project**

#### Conference Call

Wednesday, March 2 at 8:30 pm

*Participants: Bob Juve, Tom Troxel, Dave Schaff, Jeff Fuller, Frank Strong and Kip Gjerde and Lyle Myler via phone conference. Mike Sarchet called in and will be unable to attend.*

- Discussed Advisory Group
  - *Jeff to develop a draft summary cover sheet to send out to the Advisory Group of common problems and potential alternatives. Will be available for review for next meeting.*
  - *Bob will continue to contact the Advisory Group to set a meeting date the week of March 14 – 18.*
- *Discussed Report considerations*
  - *Kip mentioned we need to address additional aspects (other than engineering) in report, as well; including economic value of the area, trends, environmental, baseline social and economic “lay of the land”, etc.*
  - *Jeff to email Lyle and Kip the Building the Wyoming We Want/ High Plains Initiative (BW3/HPI) summary*
  - *Kip will check with the review team economist for more data*
  - *EIS on Platte River can be located at [www.PlatteRiver.org](http://www.PlatteRiver.org) web site*
  - *Reports for Rural Development Agency census data, demographics and how changing*
  - *Lyle mentioned refer to [www.PlatteRiverProgram.org](http://www.PlatteRiverProgram.org) to get the EIS on mainstem reservoirs*
- Discussed the revised schedule
  - *Jeff will revise the schedule to show the Advisory Group meeting the week of March 14 – 18 and move the public meeting to the first week in April*
- Discussed Web site
  - *For the project team, we will utilize Fillezilla. Jeff will get usernames and password with access directions to the project team.*
  - *The web site is “up and running” with previous studies on the site.*
- Discussed Information Review
  - *Jeff disseminated the “summaries” of previous studies so far, on the site. All thought this format was OK.*
  - *Dave and Frank will provide “summaries” for Nebraska studies*
- Discussed format for public meeting.
  - *Kip mentioned need for press release, and format can be “as you usually do”. The discussion was to have a public look at exhibits, followed by a brief (15-20 min) presentation, followed by more time for public to look at exhibits.*
- Bob will “touch base” with Hawk Springs

The next project team conference call is scheduled for  
Wednesday, March 9 @ 8:30 am.

The call in number is 866-866-2244      Participant code 4809321#



## Meeting Notes

### The Appraisal Investigation for the **Platte Alliance Water Supply Project**

#### Conference Call

Wednesday, March 16 at 8:30 pm

Participants: Bob Juve, Tom Troxel, Jeff Fuller, Frank Strong, Matt Ruder and Lyle Myler and Kip Gjerde via phone conference.

- Discussed Advisory Group
  - Bob has finalized an initial meeting with the Advisory Group for Thursday April 14 from 9 to noon, with lunch provided at the Torrington city hall.
  - Dave and Bob will have brief discussions with Jim Schneider prior to the Advisory Group meeting to provide Jim a project overview.
  - The Advisory meeting has been delayed several weeks, to accommodate members' schedules, as it was deemed beneficial to "find" a time where ALL could attend.
  - It is believed the initial public Open House should also be delayed, and occur following the Advisory Group Initial meeting.
  - Kip did not think it was necessary to delay the USBR Initial review until after the Initial Advisory Group meeting and public Open House; therefore the USBR Initial review schedule remains scheduled for next week.
- Discussed Web site
  - Fillezilla, a secure web site for this project, is up and running. The project team should all have username and password access directions. Jeff, and others, will post files as appropriate.
  - Jeff posted AppraisalReport20110314, under the Report Preparation folder to the site. Jeff asked all to review this document, and for Kip to review the draft document to evaluate if it provides sufficient information to conduct the USBR Initial Review (Overview/briefing). Generally the review is for the technical staff to get "on board" with the problem and how we are going about solving it. Kip will review and get back to Jeff later this week.
  - The web site is "up and running" with previous studies on the site.
- Discussed Information Review
  - Project studies listed in the Proposal have been summarized and placed on the Fillezilla site (incorporated in the AppraisalReport20110314 file). Review input is appreciated.
- Discussed the initial public meeting
  - The discussion was to have a public look at exhibits, followed by a brief (15-20 min) presentation, followed by more time for public to look at exhibits. Additional discussion is needed as to the format for the meeting. Based on the timing of the Initial Advisory group meeting, the initial public Open House is scheduled for 4-18 through 4-29. Frank mentioned the Rural Water Conference is scheduled in Casper from 4-26 thru 4-29 and this may pose a conflict. (Suggest the evening of Monday April 25, in Torrington, as a time and place). Jeff will look at public notice requirements.
- Discussed not to contact Missouri Basin Power Cooperative w.r.t. Grayrocks Reservoir until after the initial Advisory Group meeting.
- Frank Strong and Matt Ruder will be added to the emails for the weekly project team conference calls.

The next project team conference call is scheduled for  
Wednesday, March 23 @ 8:30 am.

The call in number is 866-866-2244

Participant code 4809321#



## Meeting Notes

### The Appraisal Investigation for the **Platte Alliance Water Supply Project**

#### Conference Call

Wednesday, March 23 at 8:30 pm

Participants: Bob Juve, Tom Troxel, Dave Schaff, Mike Sarchet, Jeff Fuller, Frank Strong, Matt Ruder, Lyle Myler and Kip Gjerde via phone conference.

- Discussed Advisory Group
  - Dave met with Jim Schneider; and Bob and Dave met with Jim Schneider, to introduce him to the project. He appeared to be keenly interested in the project. He did express concern there were a lot of projects vying for very little funding.
  - Bob has finalized an initial meeting with the Advisory Group for Thursday April 14 from 9 to noon, with lunch provided at the Torrington city hall.
  - Lyle suggested providing general information on concepts to the group prior to the meeting, to stimulate discussion.
- Discussed Public Meeting
  - The discussion was to have a public look at exhibits, followed by a brief (15-20 min) presentation, followed by more time for public to look at exhibits. Additional discussion is needed as to the format for the meeting. Bob mentioned the format may not be finalized until after the Advisory Group input. He will secure the Rendezvous room at the Goshen County Fairgrounds, the evening of Monday April 25, in Torrington, from 5pm to 9pm.
  - Jeff will prepare draft public notice (press release) for review by this group.
  - Bob, et al, will individually notify community sponsors within the area.
  - Kip mentioned the goal of this Investigation is to move on to a Feasibility Study. We should be talking to other Federal agencies for ways to leverage funding. We should provide Individual notices to USDA, WY and NE; and other potential funding partners (EPA Revolving fund, Brian Mark; etc).
- Discussed Web site
  - All (Bob is still working through it) have "gained" access to the Filezilla site.
- Discussed Information Review
  - Jeff posted AppraisalReport20110314, under the Report Preparation folder to the site. Kip will review and provide comments. Kip did highlight that this report should address; the funding announcement identified additional required content (pg 16), and listed four items to consider.
  - Project studies listed in the Proposal have been summarized and placed on the Filezilla site (incorporated in the AppraisalReort20110314 file). Review input is appreciated.

#### Discussed potential alternatives and issues

- Jeff mentioned, generally the project area with a projected population of 50,000 and an average 250gpcpd requires approximately 43 ac ft per day water supply. Frank mentioned typically Western NE has been 300 gpcpd (gallons per capita per day) with a peaking factor of 3. Jeff mentioned this is less than historical average usage for most of these communities. Kip mentioned this is higher than "typically" identified, and will be harder to convince reviewers.
- We should consider a lower average usage; however alternative identification thinking should not be constrained in any way.
- Kip reiterated all O, M and R costs will be provided by the sponsors. Evaluate what people are willing to pay. USBR's emphasis is on regionalization, and RD, et al, may provide assistance with local issues.
- Mike mentioned in rural areas, low income people standing in line to purchase bottled water. Maybe consider alternatives to provide local potable water distribution sites, rather than extend individual piping a significant distance to individual users.

The next project team conference call is scheduled for  
Wednesday, March 30 @ 8:30 am.

The call in number is 866-866-2244

Participant code 4809321#



## Meeting Notes

### The Appraisal Investigation for the **Platte Alliance Water Supply Project**

#### Conference Call

Wednesday, March 30 at 8:30 pm

*Participants: Bob Juve, Tom Troxel, Dave Schaff, Mike Sarchet, Jeff Fuller, Frank Strong, and Lyle Myler; Matt Ruder and Kip Gjerde were not able to participate.*

- Discussed Advisory Group
  - *Lyle suggested providing alternatives to the group prior to the meeting, as the participants have significant expertise to provide input and not let the study "go down the wrong road".*
  - *Show Advisory Group regionalization is a "necessity".*
- Discussed Public Meeting
  - *The draft public meeting notice was distributed. Dave commented, maybe phrase to suggest combinations of alternatives or other alternatives can be considered. Bob will confirm the meeting location and time. Jeff will adjust the meeting notice and distribute to all.*
  - *Bob will contact all entities (towns/counties water districts; publish in the Torrington Telegram and Scottsbluff Star Herald, and contact the Torrington radio for a spot public service announcement.*

Discussed potential alternatives and issues

- *Discussed PAWS system criteria: USE-Published 2010 census populations of 4 counties; with 1% growth per year for 60 years (life of system) for design population; Look at 1% for all however consider 2% for Scottsbluff and Torrington; USE- 225 gpcpd. Fire flows, industrial water use (look at industrial use), and distribution system upgrades will be individual community considerations.*
- *Identified 3 "areas" for public meeting exhibits.*
  1. *Quantity required and why (purpose and need). Jeff will provide system population spreadsheet and exhibit.*
  2. *Graphic of quality degradation. Frank is putting together water quality exhibit(s) (maybe combine with EPA considerations, secondary/primary/operator regulations: and include individual cost vs regional cost comparisons).*
  3. *Synopsis of previous reports/problems/solutions. Jeff will initiate exhibit and Frank provide additional NE information.*
- *Tom provided Jeff with Greyrocks chemical treatment operators contact information.*
- *Draft Advisory Group meeting agenda and exhibits will be provided for review at the next conference call.*

The next project team conference call is scheduled for  
Wednesday, April 6 @ 8:30 am.

The call in number is 866-866-2244      Participant code 4809321#



## Meeting Notes

### The Appraisal Investigation for the **Platte Alliance Water Supply Project**

Conference Call  
Wednesday, April 6 at 8:30 am

Participants: Bob Juve, Tom Troxel, Dave Schaff, Mike Sarchet, Jeff Fuller, Frank Strong, Lyle Myler, Matt Ruder and Kip Gjerde.

- Discussed USBR review comments
  - Kip mentioned areas of weakness (noticed by reviewers) w.r.t. criteria to proceed to next level of study. **Need to integrate all prioritization criteria in expression of need for project; and water demand is high relative to “other” studies.**
  - Discussed this study must “sell” to subsequent funding opportunities, and “sell” to constituents. Example study identified 15% reduction in use (180 gpcpd down to 153 compared to PAWS 300 down to 255), and we can use this same approach for this study. Evaluate summer vs winter use to “identify” domestic versus outside (irrigation) use. Identify conservation measures (metering, leak detection studies, rates to encourage conservation, etc).
  - Frank will look into if recent metering of NE municipalities has reduced usage. Provide appraisal level calculation of “ability to pay” at 400 gpcpd vs 200 gpcpd.
  - Mike mentioned people will adjust and adapt to reduced water usage if there is a tiered approach tied to tiered transition.
- Discussed Public Meeting
  - The final public meeting notice will be published April 13 and 20 in Torrington Telegram and Scottsbluff Star Herald for April 25 public meeting.
- Discussed potential alternatives and issues
  - Discussed eliminating Wheatland and Chugwater populations from Platte County as PAWS will not supply them water.
  - Discussed water quality “trends” over time. Bob will provide previous and ongoing nitrate studies in Goshen County.
  - Frank will research NRD nitrate trend information.
  - Kip inquired regulatory controls (reducing nitrate use in irrigation). Frank mentioned the damage has already been done; and Mike mentioned it will get more complicated soon, as wetter years are drawing the nitrates down into the water supply, and anticipates, due to hydrologic changes in the past 20 years, a spike in nitrate levels.
  - Kip mentioned if alternative recommends dam height in excess of 50-feet and capacity of greater than 2400 acre-feet; those facilities may be ineligible for funding. We will wait until after initial Advisory Group meeting input and if necessary, address this issue then.
- Will provide table of contents and agenda for items to be discussed at Advisory Group meeting for next conference call.

The next project team conference call is scheduled for  
Tuesday, April 12 @ 8:30 am.

The call in number is 866-866-2244      Participant code 4809321#



## Meeting Notes

### The Appraisal Investigation for the **Platte Alliance Water Supply Project**

Conference Call  
Tuesday, April 12 at 8:30 am

*Participants: Bob Juve, Tom Troxel, Jeff Fuller, Frank Strong, Matt Ruder, Kip Gjerde and Deana. Dave Schaff, Mike Sarchet and Lyle Myler were unavailable.*

- Discussed the upcoming Advisory Group meeting
  - *Discussed table of contents and agenda for items to be discussed at Advisory Group meeting. There was general consensus that the agenda and content is appropriate.*
  - *Discussed exhibits; each participant will receive a notebook with information and exhibits. This notebook will include a spreadsheet identifying cost of regional system.*
  - *Kip mentioned innovation is a key criteria for consideration by USBR for subsequent funding; and discussing innovation potentials with the partners (Advisory Group) should be incorporated.*
  - *Deena mentioned the "parking lot" concept to keep the meeting focused yet not overlook some issue for later discussion.*
  - *There will be a large study area map available.*
  - *The project team will meet at City Hall between 8:00 and 8:30 for any last minute preparations.*
  - *Kip will call in.*
  - *Dave Schaff will not be available and Jim Hudelson may only be available for a short time. Others should be present.*
- Discussed potential alternatives and issues
  - *Discussed water quality "trends" over time. Bob will provide previous and ongoing nitrate studies in Goshen County.*
  - *Frank will research NRD nitrate trend information.*

The next project team conference call is scheduled for  
Wednesday, April 20 @ 8:30 am.

The call in number is 866-866-2244      Participant code 4809321#



## Meeting Notes

### The Appraisal Investigation for the **Platte Alliance Water Supply Project**

Conference Call  
Wednesday, April 20 at 8:30 am

*Participants: Bob Juve, Tom Troxel, Jeff Fuller, Frank Strong, Matt Ruder, Kip Gjerde, Dave Schaff and Lyle Myler. Mike Sarchet was unavailable.*

- Discussed the upcoming Public Meeting
  - *The public meeting is scheduled for Monday April 25, from 6pm to 8pm at the Rendezvous Room at the Goshen County Fairgrounds.*
  - *Identified that there will be a brief presentation and exhibits will be placed around the room for participants to view and ask questions before and after the presentation.*
  - *Presentation should include similar information as provided in the Advisory Group notebooks, stressing the need and identifying the project status and alternative concepts (general solutions); discuss water conservation concepts which may impose controls on water use that aren't currently in place; identify the need to reduce water use, reduce energy, innovate and demonstrate environmental benefits for this project to be eligible for subsequent funding; identify regionalization concept with several WY and NE examples; and refer to the web site for further information and opportunity for additional and subsequent input.*
  - *Bob Juve is providing invitations to communities and rural districts.*
  - *Kip mentioned regulators and Rural Development. Also invitations to rural water users SEO and WY DEQ and counterpart in Nebraska.*
  - *Although invited, is probably not necessary USBR attend.*
- Discussed potential alternatives and issues
  - *Dave mentioned he has received positive feedback from NE representatives on Advisory meeting discussions.*

The next project team conference call is scheduled for  
Wednesday, April 27 @ 8:30 am.

The call in number is 866-866-2244      Participant code 4809321#



## Meeting Notes

### The Appraisal Investigation for the **Platte Alliance Water Supply Project**

#### Conference Call

Wednesday, April 27 at 8:30 am

*Participants: Bob Juve, Jeff Fuller, Matt Ruder, Kip Gjerde, and Lyle Myler.  
Mike Sarchet, Tom Troxel, Dave Schaff and Frank Strong were unavailable.*

- Discussed the Public Meeting
  - *Bob summarized public meeting, approximately 28 participated (and when contacted for invitations another 6 had reasons they would not be able to make the meeting).*
  - *The public meeting attendance list is attached.*
  - *There were several good questions, discussions and input, and no negative comments.*
  - *Bob talked with someone representing the Hawk Springs area and noted we were aware of their situation.*
- *Bob mentioned he had received the financial forms to be completed to accompany funding payments. He has some questions regarding the forms, and a call in to the USBR office. Kip offered to assist, if needed.*
- *Bob and Lyle attended a Platte Water Basin Advisory meeting this week. The state is initiating a basin wide groundwater water quality study; which probably won't provide data in time to be incorporated into this study.*
- *The next weeks will be spent preparing the draft report for the next USBR review. Kip provided that the effort should focus on CMP TRMR-31 section 10b. The USBR is not hung up on format; however need to make sure the required criteria are well presented. Kip offered to review pieces of the draft as it gets "fleshed" out.*
- *Jeff will contact the Missouri Basin Power Cooperative.*
- *Next week's conference call is cancelled.*

The next project team conference call is scheduled for  
Wednesday, May 11 @ 8:30 am.

The call in number is 866-866-2244      Participant code 4809321#



## Meeting Notes

### The Appraisal Investigation for the **Platte Alliance Water Supply Project**

#### Conference Call

Wednesday, May 18 at 8:30 am

Participants: *Bob Juve, Jeff Fuller, Tom Troxel, Frank Strong and Matt Ruder.*  
*Mike Sarchet, Dave Schaff, Kip Gjerde, and Lyle Myler and were unavailable.*

- Discussion of the previously distributed water usage spreadsheet included;
  - *The spreadsheet identified 155 average gpcpd for the projected population for the 4 counties; excepting the communities of Wheatland and Chugwater in Platte County. This identified a significant future reduction on usage of the current average gpcpd of 439 gpcpd.*
  - *PAWS treatment and transmission facilities will be designed to deliver the peak daily demand (2x the average gpcpd, or 310gpcpd) for the forecasted population.*
- The public project web site has been updated, including the existing document category, and the public meeting presentation.
- The PAWS system will incorporate a transmission pipeline extending from the vicinity of Guernsey to Bridgeport; with either surface water or ground water supply; with options for "remote" communities to either extend pipeline facilities or retrieve water at a "fill" station.
- A goal of the PAWS regional system is to reduce energy and water use; encourage potable water metering; and discourage the use of potable water for irrigation use.
- Initiate contacts with Steve Smith attorney for the Nebraska Central Irrigation District.
- Initiate contacts with Randy Tullis, Wyoming State Engineers Office for the Goshen/Platte District.

The next project team conference call is scheduled for

Wednesday, May 25 @ 8:30 am.

The call in number is 866-866-2244      Participant code 4809321#



## Meeting Notes

### The Appraisal Investigation for the **Platte Alliance Water Supply Project** Conference Call Wednesday, May 25 at 8:30 am

Participants: Frank Strong, Dave Schaff, Tom Troxel, Kip Gjerde and Jeff Fuller.  
Bob Juve, Mike Sarchet, Matt Ruder and Lyle Myler and were unavailable.

Discussed the water supply concept

- Frank had distributed a preliminary concept (4 plan and profile sheets) pipeline alignment.
  - The pipeline was designed to accommodate the peak day usage. This usage was calculated for the future population of the four counties at a peak day demand of 2 times average day demand of 155 gpcpd. This provides for a peak day delivery of 34MGD.
  - Approximate "tap" locations for the communities was identified with the remaining county usage tap identified at the eastern county line.
  - The pipeline alignment begins at Guernsey and basically follows Highway 20/26 to Bridgeport. This provides for velocities 5 to 6 ft/sec, with a minimum 35 psi dynamic hydraulic grade line pressure and maximum pressure of approximately 200 psi. This includes 3 pressure reducing stations along the alignment.
  - The beginning of the preliminary concept alignment would be adjusted depending upon the water source (reservoir, wells or a combination).
  - Kip mentioned to investigate the potential for hydropower at the pressure reducing stations.
  - It was discussed to It was noted that approximately 12 MGD is identified for "county" use, approximately 1/3 of the total peak day delivery.
  - It was noted the regional concept is to deliver potable water "wholesale" to the communities and/or rural water districts; and individual communities will provide facility improvements "accept" this water. For most communities this should not be a significant expense, however for Veteran, Huntley, Yoder, Hawk Springs and LaGrange in Wyoming and Melbeta and McGrew in Nebraska additional pipeline will be required to get the water from the supply pipeline to the community.
  - It was discussed as we develop the cost estimates, we will need some form of documentation demonstrating support or "good faith" from the communities to endorse this concept; and this most likely will depend largely on the cost and how will this be funded.
  - Previous comments were that if the larger communities, Scottsbluff, Gering and Torrington, were to support this concept that would be sufficient; however it appears additional communities support may be required to demonstrate sufficient support for the regional project.
  - It was also discussed that a significant portion of the demand includes future population (growth). We need to focus on the compelling current need; as this project is not just to accommodate future anticipated growth.
  - It was also discussed that for "county" use, or communities not directly along the pipeline, "fill" stations may make sense (Tom mentioned he has received several requests from Hawk Springs area residents for locations to "fill" containers for potable water.).

Follow on Discussions

- Tom asked of the status of several previous items; mention of talk to Randy Tullis (WY SEO) and Steve Smith regarding the Central Irrigation District. Dave and Frank will take the lead, and coordinate with Bob to initiate discussions with Steve Smith; and Jeff will take the lead, and coordinate with Bob to initiate discussions with Randy Tullis.
- Tom mentioned due to the "wet" spring, Torrington is expecting water quality to change significantly. Torrington is acquiring a full set of baseline water samples to "monitor" potential changes; and, as well identify any changes potentially due to oil and gas exploration.
- Jeff mentioned initial discussions with Missouri Basin Cooperative regarding potential use of Greyrocks reservoir seemed encouraging; however haven't been able to coordinate with the appropriate people for a "meaningful" discussion.
- It was mentioned to talk with Rural Development (in each state) to identify "support" for regionalization, and potential funding opportunities.

The next project team conference call is scheduled for  
Wednesday, June 1 @ 8:30 am.

The call in number is 866-866-2244 Participant code 4809321#



## Meeting Notes

### The Appraisal Investigation for the **Platte Alliance Water Supply Project**

Conference Call  
Wednesday, June 1 at 8:30 am

*Participants: Frank Strong, Matt Ruder and Jeff Fuller.*

*Bob Juve, Mike Sarchet, Lyle Myler, Dave Schaff, Tom Troxel, Kip Gjerde were unavailable.*

Discussed the schedule and outstanding issues

- *The intent is to get the draft documents ready to submit to USBR for their review.*
- *Frank has developed concept pipeline plan and profile sheets, from Guernsey to Bridgeport. The water use assumptions, tap locations and pressures were discussed.*
- *Items to be included within the draft report should include, identification of need (exhibits of uranium, nitrates and arsenic concentrations within the PAWS area), current potable water situation for PAWS entities, current water use for PAWS entities, concept alternatives, alternative cost estimates, anticipated water demand for PAWS entities, current water use costs, projected water use costs, etc.*
- *The intent is to transmit the draft report to Kip on Friday, June 3 (This did not happen; however, and the report was transmitted on Tuesday, June 6).*

The next project team conference call is scheduled for  
Wednesday, June 8 @ 8:30 am.

The call in number is 866-866-2244      Participant code 4809321#



## Meeting Notes

### The Appraisal Investigation for the **Platte Alliance Water Supply Project**

Conference Call  
Wednesday, June 8 at 8:30 am

*Participants: Bob Juve, Tom Troxel, Dave Schaff, Frank Strong, Matt Ruder and Jeff Fuller.  
Mike Sarchet, Lyle Myler and Kip Gjerde were unavailable.*

Discussed the schedule and outstanding issues

- *Briefly reviewed the content of the draft report transmitted to USBR for review; and identified outstanding issues. Jeff noted the USBR has been very responsive and the intent is to have reviewers' comments to back to Kip by June 17, 2011. Jeff will transmit hard copies of the Draft Report without the Appendices to the project team.*
- *Discussed the upcoming Advisory Group meeting scheduled for Monday June 13 at 1:00pm at Torrington City Hall. Jeff will transmit hard copies the Draft Report to the Advisory Group (overnight mail) and verify attendance at the meeting on June 13, or potential conference call, or reschedule the meeting as with river flooding situations, there may be urgent issues that would prevent attendance at the meeting.*
- *Discussed the need to meet with Steve Smith/attorney for Central Irrigation District, Randy Tullis/Wyoming SEO, Basin Electric, and others to provide information on the study and solicit input.*
- *Discussed a generic letter to the communities and water districts within the PAWS area to provide information on the PAWS Appraisal Investigation and study report, to enlist support and note that all details have not been addressed.*

The next project team conference call is scheduled for  
Wednesday, June 15 @ 8:30 am  
The call in number is 866-866-2244 Participant code 4809321#



## Meeting Notes

### The Appraisal Investigation for the **Platte Alliance Water Supply Project** Conference Call Wednesday, June 29 at 8:30 am

*Participants: Bob Juve, Kip Gjerde, Lyle Myler, Matt Ruder and Jeff Fuller.  
Frank Strong, Dave Schaff, Tom Troxel and Mike Sarchet were unavailable.*

#### Discussions

- *Discussed supply reservoir options*
  - *One or more reservoirs?*
  - *Identify volume and height of dam (evaluate funding eligibility)*
  
- *Discussed incorporation of USBR review comments*
  - *Jeff mentioned incorporation of comments of previous interim review, and subsequent review. Kip mentioned he would review USBR budget to ensure adequate budget for final review. Kip will conduct "along the way" reviews as budget allows; and he is always available to respond to questions. Jeff mentioned address recent comments in 3 weeks and provide an updated report to Kip.*
  
- *Kip mentioned USBR will be looking at*
  - *Breadth of alternatives*
  - *Buying water rights from willing sellers*
  - *Point of use, point of entry options*
  - *Unimpaired ground water*
  - *No Action, and how will this address EPA requirements*
  
- *Bob will work on a letter and/or communication with the municipalities to identify support of the concept and for further study.*
  
- *Reminder of meetings with*
  - *Jim Schneider*
  - *Randy Tullis*
  - *Pat Tyrrell and Mike Purcell*
  - *BEPC*

The next project team conference call is scheduled for  
Wednesday, July 6 @ 8:30 am.  
The call in number is 866-866-2244      Participant code 4809321#



## Meeting Notes

### The Appraisal Investigation for the **Platte Alliance Water Supply Project** Conference Call Wednesday, July 6 at 8:30 am

*Participants: Bob Juve, Frank Strong, Matt Ruder, Kip Gjerde and Jeff Fuller.  
Dave Schaff, Mike Sarchet, Tom Troxel and Lyle Myler and were unavailable.*

Discussed the water supply concept

- *Jeff had distributed a site map of potential reservoir sites in the Guernsey reservoir area.*
- *Each site has differing attributes w.r.t. volume of water, water surface area, location adjacent to Guernsey Reservoir and/or the North Platte River, inundation area and potential inundated facilities, etc*
- *Initial required volume estimate assumed peak day demand (34MGD) for 90 days (assumed during the summer months) for a volume of approximately 9200 acre feet. The thought is... fill the reservoir (appears pump from Guernsey Reservoir and/ or the North Platte River) in the spring and use water from the reservoir during the summer months (as this is the irrigation season); and throughout the winter, pump as needed.*
- *This concept will require a change on the point of delivery for the municipalities. The municipalities would modify existing points of delivery (existing wells) upstream to the reservoir, and abandon some existing wells, use some existing wells for nonpotable uses (eg. water parks, etc), and potentially use some existing wells to maintain instream flows.*
- *Frank mentioned the only instream flow issues in Nebraska may be from the state line to above the Farmers Irrigation District intake near Henry, as there should be a net benefit below Farmers Irrigation District intake. This concern would only apply during irrigation season.*
- *A "mass balance" evaluation will be conducted to identify maintenance of current instream flow requirements.*

Follow on Discussions

- *Kip mentioned development of the appraisal level cost of No Action will be the barometer to evaluate all alternatives.*
- *Frank mentioned Steve Smith is not now the attorney for the Central Irrigation District; and Frank will contact Farmers Irrigation District and Central Irrigation District to set a time for Dave, Bob and Frank, to meet with staff.*
- *Jeff will set up meetings for Jeff and Bob to meet with Randy Tullis SEO Board of Control; and Pat Tyrrell (SEO) and Mike Purcell (WWDC).*
- *Kip mentioned CMP TMR 31 is used to review all work under analysis with this program; with particular attention to Section 10 (page 21) w.r.t. innovation, water conservation, environmental benefits and reducing energy use.*
  - *Include analysis of reduced pumping costs for one location rather than for every municipality/district.*
  - *Program to reduce irrigation use with potable water.*
  - *Hydropower potential at pressure reducing stations.*
  - *Maintenance of instream flows.*
  - *Provide "fill" stations for individual rural users and/ or small rural water districts*
- *Jeff is to continue effort to set up additional BEPC meetings.*
- *Jeff will continue to address USBR review comments.*

The next project team conference call is scheduled for  
Wednesday, July 13 @ 8:30 am  
The call in number is 866-866-2244 Participant code 4809321#



## Meeting Notes

### The Appraisal Investigation for the **Platte Alliance Water Supply Project** Conference Call Wednesday, July 13, at 8:30 am

*Participants: Bob Juve, Frank Strong, Tom Troxel, Kip Gjerde and Jeff Fuller.  
Dave Schaff Mike Sarchet, and Lyle Myler were unavailable.*

#### Contacts

- *Frank has a meeting scheduled with Steve Smith, the attorney for Farmers Irrigation District and the NRD, and farmers Irrigation District personnel tomorrow.*
- *Frank is pursuing a meeting with Central Irrigation District personnel.*
- *Bob has scheduled a meeting for Friday, July 15 with Randy Tullis/SEO Board of Control*
- *A meeting has been scheduled with WY SEO and WWDC for July 27 at 9:00 am in Cheyenne.*
- *Jeff is pursuing additional discussions with BEPC.*
- *Dave is pursuing discussions with Jim Schneider.*
- *Bob is finalizing to municipalities identifying the need and garnering support for a regional project.*
- *Jeff will contact Lou Harmon/WY DEQ.*

#### Project Team

- *Jeff retired from DOWL HKM effective June 17, 2011, and has been unable to formulate an agreement to continue to work on this project through DOWL HKM. The County desires to keep the project team intact, and as such has terminated the agreement with DOWL HKM and will execute a similar agreement (identical scope and schedule) with MC Schaff. Jeff will continue on through MC Schaff. The intent is to make this change invisible to the progress of this study.*

#### Status

- *Bob stated as of July 1, he has received invoices (6) from DOWL HKM, through July 13, 2011 for \$91,525, approximately 51% of the project budget. Bob will verify with the County previous amounts paid, and outstanding balances to get the account current.*
- *Kip will check with Lindsey on status of Bureau reimbursement to the County.*
- *The project is approximately 2 to 3 weeks behind schedule. There are sufficient resources available to meet the schedule. Items that may impact the schedule are the ability to schedule meetings in a timely manner with personnel and agencies key to the project.*

#### Discussions

- *Kip mentioned he has received a response that an embankment (dam) over 50-feet in height would be ineligible for funding under this program. He also noted this "feature" cannot be separated from this project.*
- *Discussion as to specifics of embankment requirements (eg height, freeboard, etc). Kip will inquire.*
- *If critical to project, may submit a letter to apply for an exception.*
- *Potentially initially construct a smaller embankment, and if and when need expands, construct an embankment enlargement is a subsequent phase.*
- *Jeff will evaluate previously identified locations for embankment height.*
- *Kip mentioned No Action Alternative costs may include "SWAG" on what regulators think is out there 10 years.*

The next project team conference call is scheduled for  
Wednesday, July 20 @ 8:30 am  
The call in number is 866-906-9888 Participant code 3174795#



## Meeting Notes

The Appraisal Investigation for the **Platte Alliance Water Supply Project**  
Conference Call  
Wednesday, July 20, at 8:30 am

*Participants: Bob Juve, Frank Strong and Jeff Fuller.*

*Dave Schaff, Mike Sarchet, Lyle Myler, Tom Troxel and Kip Gjerde were unavailable.*

Discussion:

- *Dave and Frank met with the Farmer's Irrigation District (the first Nebraska diversion downstream of the State Line).*
  - *They understood and concurred with the potable water quality need.*
  - *They will require mitigation for any depletion of streamflow at their diversion.*
- *Bob met with Randy Tullis/WY SEO.*
  - *Bob informed Randy of the project and project status.*
  - *Randy mentioned the biggest "hurdle" will be storing water for Nebraska in Wyoming.*
  - *Changing points of diversion is not a significant issue.*
  - *Wyoming is initiating permitting for non potable groundwater.*
- *Dave and Frank have scheduled a meeting tomorrow (7-21-11) to meet with representatives of Nebraska Central Power and Irrigation District.*
- *Discussed recent conversations with Kip, with respect to funding and reservoir eligibility; and dam size options with respect to water rights.*
- *Discussed contracts and invoices relative to Jeff Fuller's change of employment.*

The project team conference call scheduled for  
Wednesday, July 27 is cancelled as the project team will be meeting with the Wyoming  
SEO and WWDC.



## Meeting Notes

The Appraisal Investigation for the **Platte Alliance Water Supply Project**  
Conference Call  
Wednesday, August 3, at 8:30 am

*Participants: Bob Juve, Frank Strong and Jeff Fuller.*

*Dave Schaff, Mike Sarchet, Lyle Myler, Tom Troxel and Kip Gjerde were unavailable.*

### Discussion

- *Discussed most recent meetings with the WY SEO and WWDC; and Nebraska Central irrigation District.*
- *Bob is preparing a draft of a letter to the communities soliciting support for the project.*
- *As Jim Schneider was unable to attend the last Advisory Meeting of June 13, 2011; Bob will contact Jim Schneider to "find" a time and location to meet and discuss the project status and receive input from Jim.*

The project team conference call scheduled for  
Wednesday, August 10 is cancelled.

## *Advisory Group*

Jim Hudelson, Chairman  
Goshen County Commissioner  
2125 East A Street  
Torrington, WY 82240  
307-532-2628  
[Jhudelson@goshencounty.org](mailto:Jhudelson@goshencounty.org)

Ken Meyer  
Scottsbluff County Commissioner  
1825 10th Street  
Gering, NE 69341  
308-630-6243  
[kmeyer@scottsbluffcounty.org](mailto:kmeyer@scottsbluffcounty.org)

Jim Schneider  
Deputy Director  
Nebraska Department of Natural Resources  
301 Centennial Mall South  
Lincoln, NE 68509-4676  
402-471-3141  
[jim.schneider@nebraska.gov](mailto:jim.schneider@nebraska.gov)

Mike Purcell, Director  
Wyoming Water Development Commission  
6920 Yellowtail Rd.  
Cheyenne, WY 82002  
307-777-7626  
<http://wwdc.state.wy.us>

John Lawson, Area Manager  
United States Bureau of Reclamation  
Wyoming Area Office  
Mills, WY 82644  
307-261-5671  
[www.usbr.gov/gp/wyao/](http://www.usbr.gov/gp/wyao/)

The PAWS area includes rural communities along the North Platte River in both Wyoming and Nebraska. There is a long history of political, administrative and operational considerations within the North Platte River drainage; regarding state water compacts, individual state water law and North Platte River operations. Input, both historical and current perspectives, from these elected and state officials provides significant value toward legal ramifications, administrative requirements involved in the potential implementation of identified regional concepts.

During the course of this Appraisal Investigation this group was provided information on regional potable water supply concepts being considered. On two occasions the Project Team met with the Advisory Group for discussions to glean their perspectives; and in addition, on several occasions specific issues were discussed with these individuals.

Following are the agenda and meeting notes of the two Advisory Group meetings.



## Meeting Notes

### The Appraisal Investigation for the **Platte Alliance Water Supply Project**

Advisory Group Meeting  
Thursday, April 14 at 9:00 am

**Participants:**

Advisory Board: *Jim Schneider, Mike Purcell, Ken Meyer, Jon Wade, and via conference call John Lawson; Jim Hudelson was unavailable*

Project Team: *Bob Juve, Tom Troxel, Jeff Fuller, Frank Strong, Matt Ruder, Mike Sarchet and via conference call Kip Gjerde and Lyle Myler; Dave Schaff was unavailable.*

The agenda included:

**9:00am Introductions/Housekeeping**

**9:15am Project Overview**

*Purpose and Need  
USBR Funding Application  
Consultant Selection  
Administration  
Schedule*

**9:45am Introduce Alternatives**

*Do Nothing  
Surface Water  
Ground Water*

**10:00am Break**

**10:10am Alternative Attributes**

*10 minutes for each Advisory Group member to provide perspectives*

**11:00am Advisory Group Discussion and Input**

*Criteria (Population/Use/Storage/Water Rights/Operation/etc)*

**12:00noon Summarize**

**12:15pm Lunch**

Each Participant was provided a notebook containing an

Agenda  
Invitation and memo of the project background and function of the Advisory Group  
USBR funding application  
A summary of previous pertinent reports reviewed  
Project schedule  
Population and use projections  
Alternatives and attributes, along with exhibits demonstrating study area uranium, nitrate and arsenic concentrations

Bob Juve provided housekeeping and project background summary and status

Discussion included...

- It was noted that this study is a water quality issue, not new development, not looking for new water; at the end of the day water rights will be moved to a common point of diversion, moving existing entitlements, reorganizing existing entitlements for common good.
- Advised to think outside of the box wrt alternatives and allocating existing entitlements
- If municipalities have their own water, then they won't get into ag water
- Look at operational issues - As a whole the same water currently being used – as every Wyoming community has water rights for their future
- In Wyoming as a response to ag, communities already have entitlements, just using them in a different way. The closer you move entitlements the more success you will be able to have.
- Nebraska depletions to the river have to be mitigated
- How you accomplish “common” point in Nebraska, do not stop, mitigate, as sometimes money is just as good.

- Nebraska has the most population and the worst quality; therefore study stand to benefit NE more. Study area population is approximately 2/3 Nebraska and 1/3 Wyoming.
- In dealing with byproducts of removal, show some conservation benefit, easier to achieve with “common system”
- Consider more than 1 (possibly 2 or 3) centralized operation not necessary, if there is some good water available, bring it into the system.
- Institutional/governance issues need to be addressed
- Bring at least 1 “feasible” alternative forward, can have several potential “feasible” alternatives
- Identify what will be the water charge per month – If currently there is a \$30 charge per month and this study identifies a \$90 charge per month, then it probably won’t be supported.
- Address capability to pay, EPAS looks at 5% to 10% of median income.
- The Sponsor(s) need to demonstrate ability to pay all future O,M and R costs
- Nebraska attitude “don’t mess with the water we worked so hard to get”
- Use ag reservoirs, as in Wheatland #1, #2 and or #3? Discuss with them.
- Use Greyrocks reservoir? Discuss with them.
- Nebraska Irrigation districts have contracts with USBR for specific use, can they “give up” some for Glendo storage?
- Generally, for every 1000 ac/ft of use have 2500 ac/ft of carry over space in Glendo.
- If communities curtail their current water use could they take over your (ag) water use.
- Look at groundwater, not hydrologically connected to the North Platte River opportunities.
- Look at getting water out of Guernsey
- It will be easier to transfer rights “up” mainstem
- Guernsey transfers, in rover
- Glendo, water 40,000 acre feet going downstream to Central Irrigation District, during summer. Do they have a delivery point for all of that water, only a small amount?
- We should discuss with Central irrigation District (Steve Smith)
- Need to demonstrate innovation, conservation, environmental benefits.

The next Advisory Group meeting was scheduled for  
Monday June 13, @ 1:00 pm @ Torrington City Hall.



## Meeting Notes

### The Appraisal Investigation for the **Platte Alliance Water Supply Project**

Advisory Group Meeting  
Monday, June 13 at 1:00 pm

**Participants:**

Advisory Board: *Jim Hudelson, Ken Meyer, and via conference call Mike Purcell and John Lawson. Jim Schneider was unavailable.*

Project Team: *Bob Juve, Tom Troxel, Jeff Fuller, Dave Schaff, Frank Strong, Matt Ruder, Mike Sarchet, and via conference call Kip Gjerde and Lyle Myler.*

Basin Electric Power Cooperative (BEPC): Levi Michelson and John Size

The agenda included:

**Introductions/Housekeeping**

**Draft Report Summary**

*Purpose and Need*

*Schedule*

**Alternatives**

*Do Nothing*

*Surface Water*

*Ground Water*

**Discussion**

Each Participant was previously provided a copy of the PAWS 20110613Draft Report.

Bob Juve provided housekeeping information and led introductions.

Jeff Fuller provided a brief summary of the Draft Report.

Discussion included...

- Kip mentioned that all Alternatives will be compared to the No Action alternative costs.
- Ken mentioned that customers will not "buy" rate increases of 2 to 3 times current rates.
  - It was noted the Bridgeport, Alliance and Torrington have all implemented recent rate increases
  - Delineate the difference between individual system cost increases and an increase with a regional system.
- It was noted that EPA current and projected requirements and corresponding costs need to be identified.
- John Lawson mentioned that Alternative #2 identified a reservoir on Guernsey State Park lands. These lands are now Federal Lands and the area is a National Historic site. Federal requirements and processes to incorporate changes to the area to accommodate an alternative such as this will be very cumbersome, and probably make this alternative not feasible.
- John Lawson identified water rights concerns, i.e. where will we get the water, and can we get a point of use change from NE to WY?
- Mike Purcell stated we needed to illustrate how we are affecting the river at various key points. Continue to deplete river, but at a different place? Retiring existing systems and replacing with alternate system.
- BEPC personnel mentioned the currently required instream flows, and how will these be addressed? BEPC has been short of water, as it is, and how will this be implemented without affecting their water supply.
- It was noted that this study is a water quality issue, not new development, not looking for new water; at the end of the day water rights will be moved to a common point of diversion, moving existing entitlements, reorganizing existing entitlements for common good.
- Advised to think outside of the box wrt alternatives and allocating existing entitlements
- If municipalities have their own water, then they won't get into ag water

- Look at operational issues - As a whole the same water currently being used – as every Wyoming community has water rights for their future
- In Wyoming as a response to ag, communities already have entitlements, just using them in a different way. The closer you move entitlements the more success you will be able to have.
- Nebraska depletions to the river have to be mitigated
- How you accomplish “common” point in Nebraska, do not stop, mitigate, as sometimes money is just as good.
- Nebraska has the most population and the worst quality; therefore study stand to benefit NE more. Study area population is approximately 2/3 Nebraska and 1/3 Wyoming.
- In dealing with byproducts of removal, show some conservation benefit, easier to achieve with “common system”
- Consider more than 1 (possibly 2 or 3) centralized operation not necessary, if there is some good water available, bring it into the system.
- Institutional/governance issues need to be addressed
- Bring at least 1 “feasible” alternative forward, can have several potential “feasible” alternatives
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- Use ag reservoirs, as in Wheatland #1, #2 and or #3? Discuss with them.
- Use Greyrocks reservoir? Discuss with them.
- Nebraska Irrigation districts have contracts with USBR for specific use, can they “give up” some for Glendo storage?
- Generally, for every 1000 ac/ft of use have 2500 ac/ft of carry over space in Glendo.
- If communities curtail their current water use could they take over your (ag) water use.
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- It will be easier to transfer rights “up” mainstem
- Glendo, water 40,000 acre feet going downstream to Central Irrigation District, during summer. Do they have a delivery point for all of that water, only a small amount?
- We should discuss with Central irrigation District (Steve Smith)
- Need to demonstrate innovation, conservation, environmental benefits.

## *Agency-Entity Contacts*

Throughout this Appraisal Investigation we met individually with agencies and Entities (stakeholders) within the PAWS area to inform them of this study and receive input and perspectives on alternative concepts.

Meetings included:

Wyoming Department of Environmental Quality  
*Lou Harmon*

Wyoming State Engineer's Office  
*Harry Labonde-Deputy State Engineer*  
*Randy Tullis-Control Officer*

Nebraska Central Irrigation District  
*Mike Drain-*

Wyoming Water Development Commission  
*Mike Purcell-Director WWDC*  
*Jon Wade-Planning Department Head*

Nebraska Department of Natural Resources  
*Jim Schneider-Deputy Director NDNR*  
*Jennifer*  
*Steve Gaul-*

Basin Electric Power Cooperative  
*Brad Thompson-Plant Manager*  
*John Ciz-Plant Engineer*  
*Levi Michelson*

Nebraska Department of Health and Human Services  
*Jack Daniels-Administrator*

Farmers Irrigation District  
*Kevin Adams-District Manager*  
*Steve Smith-Attorney*

Following is a spreadsheet of contact information of contacted personnel and meeting notes of some of those discussions.



## *Public Meetings*

During the course of this Appraisal Investigation, one public meeting was held within the project area.

This initial public meeting was held in Torrington, WY on Monday, April 25<sup>th</sup>, 2011 at the Goshen County Fairgrounds Rendezvous Room.

The purpose of this first meeting was to inform the public of the study and to receive input from the constituents of the study area. The public notice, slide presentation, and attendance list are provided below.

# ***Public Meeting***



## ***Platte Alliance Water Supply (PAWS)***

**Where:** Goshen County Fairgrounds Rendezvous Room

**When:** Monday April 25, 2011 5:00pm through 8:00pm

*The Platte Alliance Water Supply (PAWS) Study, funded through a grant from the United States Bureau of Reclamation (USBR), is an alliance of Scotts Bluff and Morrill Counties in Nebraska, and Goshen and Platte Counties in Wyoming; and the municipal and rural water districts within these counties.*

Deteriorating water quality issues in Southeast Wyoming (Goshen County), Western Nebraska (Scotts Bluff County) and adjacent rural areas along the North Platte River basin are making it increasingly difficult and expensive to meet public water quality standards. Higher water contamination levels, additional EPA regulations, an over-appropriation of current resources and an increasing population limit the ability of the region to sustain current and future growth and economic vitality.

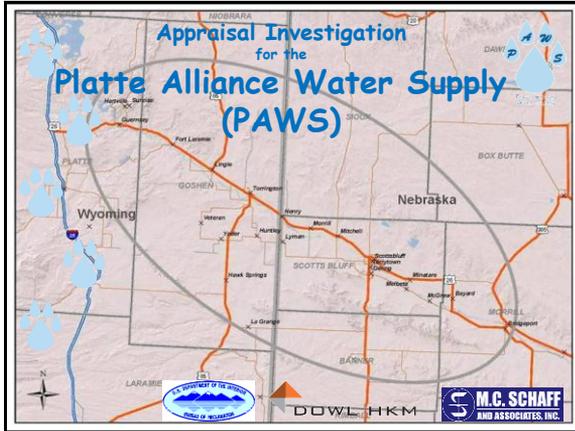
*Region wide water quality issues and trends:*

- √ Surface water quality diminishes from west to east through the study area.
- √ Ground water quality diminishes from west to east through the study area.
- √ Water quality (surface water and ground water) continues to diminish over time.
- √ The Environmental Protection Agency (EPA) continues to incorporate regulations for additional water quality constituents; with corresponding increased operational requirements.
- √ There appears to be a significant potential for economic benefit of a region wide system to address the water quality issues.

*Region wide alternatives may include:*

- √ **Do nothing**
  - Each municipality or rural water district will continue to address specific water treatment, as necessary.
- √ **Upstream Groundwater sources**
- √ **Upstream Surface water sources**
- √ **Combinations or other alternatives**

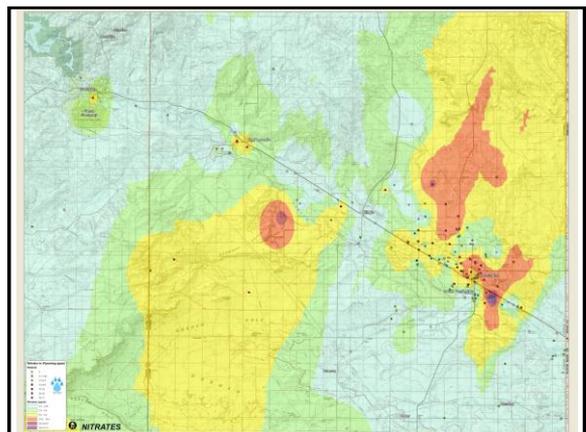
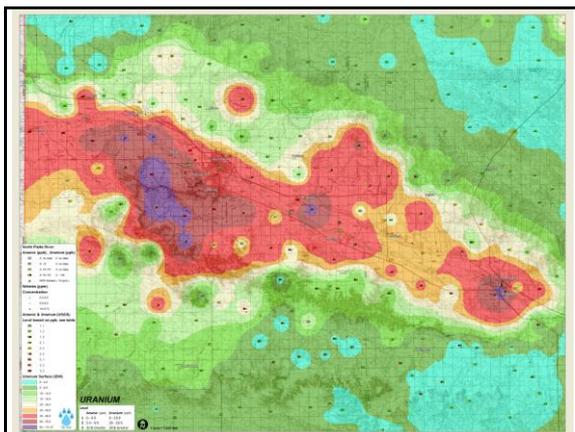
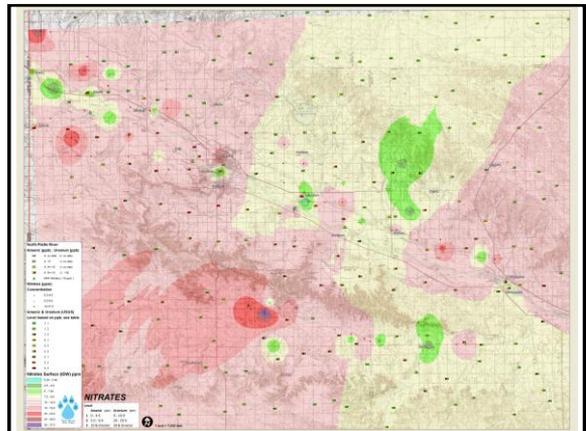
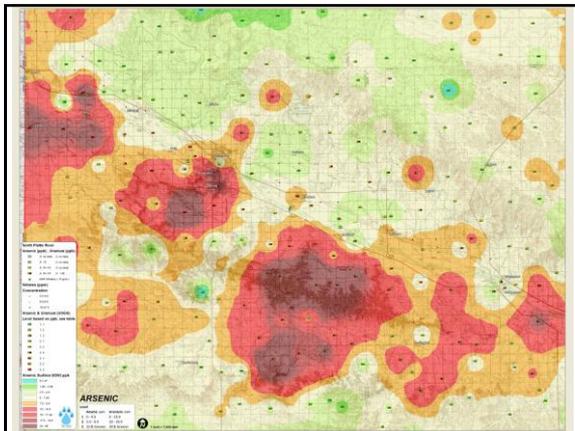
A brief presentation of the objectives and scope of the study will be provided at 6:00pm. The remainder of the time will be available for the public to review the exhibits and converse with members of the study team.

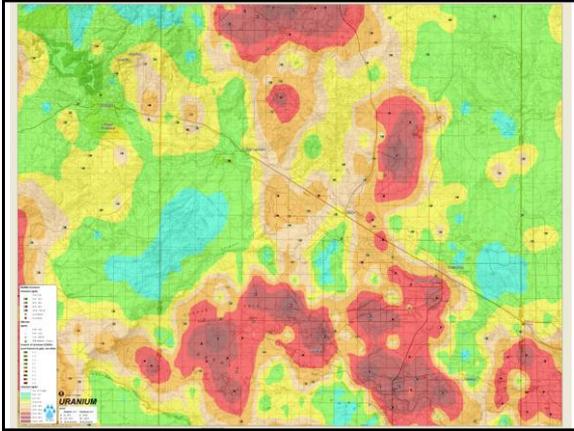


**N E E D**

Deteriorating water quality issues in Southeast Wyoming (Goshen County), Western Nebraska (Scotts Bluff County) and adjacent rural areas along the North Platte River basin are making it increasingly difficult and expensive to meet public water quality standards.

Higher water contamination levels, additional EPA regulations, an over-appropriation of current resources and an increasing population limit the ability of the region to sustain current and future growth and economic vitality.





The Platte Alliance Water Supply (PAWS) Study, funded through a grant from the United States Bureau of Reclamation (USBR), is an alliance of Scotts Bluff and Morrill Counties in Nebraska, and Goshen and Platte Counties in Wyoming; and the municipal and rural water districts within these counties.

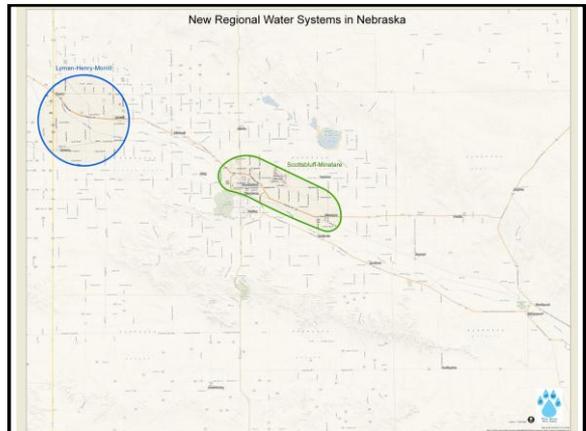
**Regionalization of Potable water systems**

Examples in Wyoming include:

- ❖ Shoshone Municipal Regional Water System
- ❖ Big Horn Regional water System
- ❖ Sheridan Area Water System

Examples in Nebraska include:

- ❖ Western Nebraska Joint Water Board
- ❖ BIC Joint Water Agency



**Regionalization of Potable water systems**

- ❖ Provides funding opportunities
  - United States Bureau of Reclamation
  - Rural Development/EPA Revolving Fund
  - Wyoming Water Development Commission
- ❖ Assists Source Water Protection Planning
- ❖ Reduces Costs

**PAWS**

**Regional Water System Operating Principles**

- ✓ This system is to more efficiently treat and provide **potable** water to municipalities and rural water districts
- ✓ This system will promote potable water conservation
- ✓ This system is not to provide “new” water – it will transfer existing municipal and rural water districts rights to beneficial regional locations
- ✓ This system will not violate the provisions of the existing Nebraska/Wyoming water compact

**Platte Alliance Water Supply (PAWS)**  
*Population and Use Projections*

County populations for the year 2000 are provided for information only.  
Populations are based on the 2010 census for each county with a 1% per year growth factor.  
Assume the PAWS system delivers average daily flows to water municipalities and/or water districts.  
Peak day demands will be addressed with user storage facilities.  
Average daily demand is assumed to be 255 gallons per capita per day.

	2000	2007	2010	2020	2030	2040	2050	2060	2070	
<b>Platte County</b>	8807		8867	1,036 ksa	9,524	10,575	11,082	12,504	14,254	15,245
Wheatland	2,549	3,193								
Chaparral	244	233								
<b>Goshen County</b>	12,538	13,149	5.7% gain	14,635	16,166	17,858	19,726	21,790	24,069	
<b>Scotts Bluff County</b>	20,951	36,370	.02% gain	40,838	45,110	49,830	55,043	60,802	67,163	
<b>Morrill County</b>	5,440	5,942	2.3% loss	5,530	6,152	6,796	7,567	8,282	9,263	
<b>Total PAWS Population</b>	66,302		66,613	73,579	81,279	89,781	99,175	109,950		
<b>Total Volume (gal) =</b>	15,177,010		16,985,805	18,762,045	20,726,145	22,894,115	25,289,628	28,031,210		
<b>Total Volume (pcfd) =</b>	49.28		49.28	54.43	60.13	66.29	73.14	81.11		

#1 Platte County population minus the 2007 populations of the Towns of Chaparral and Wheatland  
#2 Galtons/ avg day @ 2.5%gain  
#3 Acres/Foot/avg day @ 7.8 gal/cuft and 43.50cuft/acre

**Alternatives**

**Water Supply from:**

- Cityworks Reservoir
- Guernsey Reservoir
- Wells @ Wheatland Plate
- Wells in vicinity of Laramie/North Platte River confluence
- Whalen Reservoir

**OPTIONS with All Alternatives:**

- Blending of water supply with existing sources
- Potable water conservation, to reduce the volume of treated water needed
- Redundancy
- Water Quantity (gpcpd)

**Attributes/Issues**

- Privately owned (Missouri Basin Power Cooperative)
- Water Quality
- Reliable Water Supply
- Water Rights
- Reservoir Operations
- Water Quality
- Reservoir Operations
- Water Rights
- Water Rights
- Water Quality
- Water Reliability
- Water Rights
- Water Quality
- Water Quantity
- Reservoir Disengagement
- Reservoir Operations
- Water Quality
- Water Reliability

**PAWS Timeframe**

**Appraisal Investigation**

*Initial Public Open House* April 25, 2011

*All Findings Open House* Mid July 2011

**Appraisal Investigation Complete** **September 2011**

**Feasibility Study Funding** **December 2011**

**Feasibility Study** **January–August 2012**

**Design** **Fall 2012 – Fall 2013**

**Construction** **2014 - 2015**

Platte Alliance  
Water Supply

**Contact us**

**Project Representative**  
Bob Juve, P.E.  
Torrington City Engineer  
P.O. Box 250  
Torrington, WY 82240  
307-532-4815  
[RJuve@City-of-Torrington.org](mailto:RJuve@City-of-Torrington.org)  
**PLEASE DIRECT PROJECT CORRESPONDENCE TO BOB JUVE**

**Web site**  
<http://www.hkminc.com/projects/PAWS/index.htm>





# Platte Valley water resources focus of new supply investigations

By SANDRA HANSEN  
Ag Editor

TORRINGTON, Wyo. — Concern over increasing levels of hazardous elements in the drinking water of communities along the North Platte River Valley has led to the creation of a regional search for safe future sources.

"Deterioration of the quality of potable water along the North Platte is a common thread of all studies on the issue," said Bob Juve, Torrington city engineer, and member of the Platte Alliance Water Supply (PAWS) organization, as he opened a public meeting Monday evening. "That made it seem like a regional effort is a good idea."

Consequently, the City of Torrington, Goshen County, and the City of Scottsbluff and Scotts Bluff County, joined forces last fall, and submitted a grant proposal to the U.S. Bureau of Reclamation office in Billings, Mont. It was approved just before the holidays, and when the new year started, the group began weekly meetings and contacting other agencies, in the search for a long-term solution that would avoid future problems. Also involved are the municipal and rural water districts within the two counties.

Earlier this month, the PAWS group met with John Lawson, area manager at the U.S. Bureau of Reclamation office in Casper, Wyo.; Bill Purcell, head of the Wyoming Water Development Commission; and Jim Schneider, deputy director of the Nebraska Department of Natural Resources, to discuss options.

"We aren't looking for new water," Juve emphasized. "We're

looking at trading with upstream sources, or other opportunities that might be out there."

Monday's public meeting was an initial step in the Appraisal Investigation segment of the study. The document states that these deteriorating water quality issues are making it increasingly difficult and expensive to meet quality standards. Additional EPA regulations, over appropriation of current resources, and increasing population, limit the ability to sustain current and future growth and economic viability.

PAWS efforts cover the region between Guernsey, Wyo., and Bridgeport. According to Juve, surface and ground water quality conditions deteriorate from west to east through the area. They continue to diminish over time, and the EPA continues to tighten regulations, and increase operational requirements.

Considering these issues, Juve said the PAWS group feels a regional-wide system would be a significant economic benefit for all concerned communities.

Region-wide alternatives may include upstream ground water or surface water sources, combinations of these, or other options. PAWS believes that regionalization of potable water systems could lead to more funding sources, assist with source water protection planning, and reduce construction and regulation costs.

As a regional system, PAWS could more efficiently treat and provide potable water to municipalities and rural water districts; promote water conservation;

See **WATER**, page 2A

# STAR-HERALD

Wednesday, April 27, 2011

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PRIDE IN THE PANHANDLE



Photo by Sandra Hansen  
*Among the concerns of local residents and the EPA, are levels of harmful elements such as arsenic in local water supplies along the North Platte River Valley. A new action group, the Platte Alliance Water Supply organization, was established in late 2010 to investigate opportunities for improving the region's water supplies. Goshen County, Wyo., and Scotts Bluff County, along with other agencies, plan to develop safe potable water for future Platte Valley residents.*

# WATER: Concern over increase in hazardous elements led to search for safe sources

Continued from page 1

transfer existing municipal and rural water districts' water rights to beneficial regional locations; and above all, Juve said PAWS actions will not violate the provisions of the existing Nebraska/Wyoming compact. Current total PAWS population

based on 2010 census figures is 60,000, with a volume requirement of 15.3 million gallons of water, based on 255 gallons per capita per day.

Going forward, an All Findings Open House is planned for mid-July 2011; Appraisal Investigation completed, September 2011; Feasibility study, January — August

2012; Design, Fall 2012-13; Construction — 2014-15.

"We're just at the data gathering point now," Juve said. "The concept is to get water upstream, which has better quality, and use it to improve quality downstream. Quality limits growth, so this would be one way to hedge costs and meet needs of future growth."

## *Support-Endorsement Letters*

Following are letters from the lead state agencies of Wyoming and Nebraska supporting and endorsing subsequent feasibility studies of the identified PAWS alternatives.

THE STATE



OF WYOMING

MATTHEW H. MEAD  
GOVERNOR

## Water Development Commission

6920 YELLOWTAIL ROAD

TELEPHONE: (307) 777-7626

CHEYENNE, WY 82002

FAX: (307) 777-6819

Michael K. Purcell  
Director

Nick Bettas  
Floyd Canfield  
Mitchel Cottenor  
Philip Habeck  
Shawn Hall  
William Resor  
Margo Sabec  
Jeanette Sekon  
Kent Shurtieff  
James Wilson

January 18, 2012

Bob Juve/Project Representative  
Torrington City Engineer  
PO Box 250  
436 East 22<sup>nd</sup> Avenue  
Torrington, WY 82240-0250

Re: Platte Alliance Water Supply Project

Dear Bob,

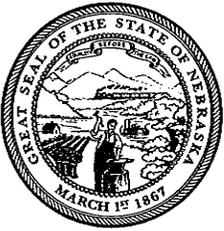
As you are aware, the Wyoming Water Development Office (WWDO) was represented on the Advisory Group for this Appraisal Investigation and provided discussion and input to the study. Water quality along the North Platte River basin presents an ever increasing challenge and a regional interstate solution appears to provide significant cost benefits for both Nebraska and Wyoming.

The WWDO supports the continued and expanded evaluation of project.

Sincerely,

A handwritten signature in black ink that reads "Mike Purcell".

Mike Purcell  
Director



**Dave Heineman**  
Governor

# STATE OF NEBRASKA

**DEPARTMENT OF NATURAL RESOURCES**  
Brian P. Dunnigan, P.E.  
Director

February 2, 2012

IN REPLY TO:

Bob Juve – Project Representative  
Torrington City Engineer  
PO Box 250  
436 East 22<sup>nd</sup> Avenue  
Torrington, WY 82240-0250

Dear Bob,

As you are aware, I was a member on the Advisory Group for this Appraisal Investigation and provided discussion and input to the study. Water quality along the North Platte River basin presents an ever increasing challenge and a regional interstate solution appears to provide significant cost benefits for both Nebraska and Wyoming.

Based on the findings of the study, I would agree that continued and expanded evaluation of this project is warranted.

Sincerely,

A handwritten signature in black ink, appearing to read "Jim Schneider".

Jim Schneider  
Deputy Directory  
Nebraska Department of Natural Resources

admin-dir/Schneider/2012



# ***Appendix D:***

## ***Previous & Current Studies***



## Existing Data & Previous Studies

Many studies have been conducted evaluating water supply in the project area. Identified studies listed chronologically, with the most recent studies listed first.

Identified studies include:

1. **Preliminary Engineering Report-City of Bayard, Nebraska:** September, 2009.
2. **Feasibility Study-Cities of Bayard and Minatare, Nebraska:** September, 2009.
3. **Fort Laramie Water Supply Rehabilitation Level II Study - Wyoming Water Development Commission:** July, 2008.
4. **Preliminary Engineering Report-Village of Henry, Nebraska:** May, 2008.
5. **Preliminary Engineering Report-City of Bridgeport (With Supplemental No 1):** November 2006 & August 2007.
6. **Preliminary Engineering Report (with Revision No. 1)-City of Minatare, Nebraska:** June, 2007.
7. **Western Regional Water System Feasibility Study-Villages of Mitchell, Morrill, Lyman and Henry, Nebraska:** March, 2007.
8. **Preliminary Engineering Report-City of Gering “New Water Source Review”:** August, 2006.
9. **Section 319 Nonpoint Source Pollution Control Program Assessment Project:** June, 2006.
10. **Platte River Basin Plan - Wyoming Water Development Commission:** May, 2006.
11. **Preliminary Engineering Report-Village of Lyman, Nebraska;** April, 2006.
12. **Preliminary Engineering Report (Supplement No. 1)-Village of Morrill, Nebraska:** October, 2005.
13. **Final Report – Initial Assessment North Platte Natural Resources District Arsenic and Uranium Study, Nebraska - U.S. Army Corps of Engineers for the North Platte Natural Resource District:** March – July, 2005.
14. **Platte Goshen Regional Master Plan Level I Study – Wyoming Water Development Commission:** September, 2004.
15. **Guernsey Hydraulic Study Level II - Wyoming Water Development Commission:** November, 2003.
16. **Groundwater/surface water Interactions and Sources of Nitrogen and Uranium in an Irrigated area of Nebraska;** I.M. Verstraeten, J.K. Bohlke & T.F. Keaemer, U.S. Geological Survey- Tracers and Modeling in Hydrogeology - IAHS Publ. no 262.2000. - Proceedings of the TraM’2000 Conference held at Liege, Belgium: May 2000.
17. **USGS Fact Sheet 100-01: Use of Environmental Tracers and Isotopes to Evaluate Sources of Water, Nitrate, and Uranium in an Irrigated Alluvial Valley, Nebraska:** I.M. Verstraeten, J.K. Bohlke & T.F. Keaemer, U.S. Geological Survey & J.C. Cannia, North Platte Natural Resources District, Gering, NE.



- 18. Results of Nitrate Sampling in the Torrington, Wyoming, Wellhead Protection Area, 1994-98:** 1999.
- 19. Town of Lingle Water Supply Master Plan, Level I Project - Wyoming Water Development Commission:** November, 1998.
- 20. Torrington, Wyoming Water Master Plan, Level I (1995) and Level I-Phase II (1997) - Wyoming Water Development Commission:** November 1995 & 1997.
- 21. Guernsey Water Supply Master Plan – Level I - Wyoming Water Development Commission:** November, 1995.
- 22. Reconnaissance of Ground-Water Quality in the North Platte Natural Resources District, Western Nebraska USGS Water Resources Investigations Report 94-4057:** 1995.
- 23. Wellhead Protection (WHP) Program, Chapter II, Groundwater Investigation Monitoring Wells – Wyoming Water Development Commission, Chapter IV, Groundwater Monitoring Results – NPS 319:** September, 1994.
- 24. Wellhead Protection (WHP) Program Guidance Document.**
- 25. Construction and Testing Report Yoder No. 2 Production Well - Wyoming Water Development Commission:** March, 1990.
- 26. Water and Related Land Resources of the Platte River Basin - Wyoming State Engineer’s Office:** September, 1971.
- 27. Annual Operating Plans-North Platte River Basin (and numerous additional project reports) U.S. Bureau of Reclamation.**

Specific studies regarding deep groundwater resources include:

- Reference 22. Reconnaissance of Ground-Water Quality in the North Platte Natural Resources District, Western Nebraska USGS Water Resources Investigations Report 94-4057;
- Reference 23. Wellhead Protection (WHP) Program, Chapter II, Groundwater Investigation Monitoring Wells – Wyoming Water Development Commission, Chapter IV, Groundwater Monitoring Results – NPS 319: September 1994.

In addition, since the beginning of this study, the Town of Yoder (2010 population 164) has drilled several deep groundwater wells, which have proven to provide a higher quality water supply. However, the water quantity from these wells is significantly limited and deemed to be insufficient and not cost effective for a regional system (WWDC Yoder Groundwater Level II Study, Final Report, October 2011).

In addition, a portion of Platte County and Goshen County (in an area located at the upstream end of this project area) has been designated as a control area which does not allow new groundwater wells

([http://seo.wyo.gov/groundwater/groundwater control areas and advisory boards](http://seo.wyo.gov/groundwater/groundwater_control_areas_and_advisory_boards)).



Following are brief summaries of some of these studies pertinent to this Appraisal Investigation. While this provides a comprehensive listing of previous studies, this is not intended to be the total exhaustive list of all previous pertinent studies. These studies provide a valuable history, data and evaluations of the growing awareness and local efforts to address water quality problems within the project area.

## **1. Preliminary Engineering Report-City of Bayard, Nebraska: September, 2009.**

*“The scope of this report is to evaluate the condition and the ability of the existing public water system to supply a sufficient quality and quantity of potable water to the users of the system and to present recommendations of needed improvements.”*

*The report identifies issues with the current water supply exceeding the MCL of 10 µg/l for nitrate, such that the City is under an Administrative Order from the State of Nebraska Department of Health & Human Services. The City’s water storage & distribution system also has deficiencies in terms of an under-sized storage tank that is in poor condition (needs re-coating), cast iron mains in corrosive soils that have deteriorated to the point of needing replacement, a need for replacing out-dated water meters for compatibility with their touch-read system, and approximately 40 lead services that need to be replaced to avoid system lead contamination.*

*This report references alternatives for a new water source as identified in the Feasibility Study for the Cities of Bayard and Minatare. See elsewhere within this document for additional information.*

*This report recommends proposed improvements to include distribution system improvements and the immediate construction of a water treatment plant for compliance with the Administrative Order. The report was prepared in conjunction with the Feasibility Study for the Cities of Bayard & Minatare (September, 2009). As recommended in the Feasibility Study, the City will be constructing a treatment plant for nitrate removal.*

## **2. Feasibility Study-Cities of Bayard and Minatare, Nebraska: September, 2009.**

*“The scope of this report is to evaluate the condition and the ability of the existing public water system to supply a sufficient quality and quantity of potable water to the users of the system and to present recommendations of needed improvements.”*

*This Study evaluates alternatives to address the findings of the Preliminary Engineering Reports, namely the need to address Bayard’s AO for exceeding the MCL for nitrates and Minatare’s AO for exceeding the MCL for Uranium. The report identifies four options for potential water sources, namely the City of Scottsbluff, a new potential well field north of Minatare, expanding the existing facilities of Minatare, and expanding the existing facilities of Bayard.*

*In conjunction with potential water sources, a series of six alternatives were considered:*

- 1. Purchasing water from the City of Scottsbluff*
- 2. Bayard & Minatare each treat their existing sources*
- 3. Expand & treat Bayard’s source water for both Cities*
- 4. Expand & treat Minatare’s source water for both Cities*
- 5. Development of a new regional well field*



6. *Bayard treats its existing water source and Minatare will purchase water from the City of Scottsbluff.*

*Of these alternates, the Study recommends Alternate 6, Bayard treating its existing water source and Minatare purchasing water from Scottsbluff as the most cost-effective, long term solution for both communities. At this time, the Cities are following the recommendation of this option from the Feasibility Study.*

### **3. Fort Laramie Water Supply Rehabilitation Level II Study - Wyoming Water Development Commission: July, 2008.**

*The purpose of this study is to evaluate the Town's municipal water system. There is insufficient data available to determine existing or predict future water demand. The Town's water supply is from two wells, one permitted in 1949, and the second drilled in 1967. Water treatment consists of a sodium hyperchlorate injection system at each wellhead. Improvement options include; construct a new water storage tank to increase storage capacity; replace the existing 6-inch line between the wells and tank with dual 8-inch lines; replace existing 6-inch, 4-inch and smaller pipes in the distribution system with larger lines; create a water system records system; adopt a progressive water use rate structure; improve chlorine disinfection system; incorporate system security measures; incorporate a leak detection program; and restore the Town's surface irrigation system.*

### **4. Preliminary Engineering Report-Village of Henry, Nebraska: May, 2008.**

*"The scope of this report is to evaluate the condition and the ability of the existing public water system to supply a sufficient quality and quantity of potable water to the users of the system and to present recommendations of needed improvements."*

*The report acknowledges that the Village is currently under a Lead/Copper Exceedance Advisory. Both of the Village's source wells are identified to produce corrosive water causing corrosion in domestic supply piping. It also identifies issues with the current storage tank as being undersized and having a failing foundation, a failing transmission main from the storage tank to the distribution system that needs replacement, and a lack of sufficient isolation valves within the distribution network.*

*The report recommends connection to a proposed regional water system, installation of water meters, construction of a new 50,000 gallon storage tank with an 8-inch main from the tank to the distribution system, and the installation of additional main line water valves.*

*As recommended in the Western Regional Water System Feasibility Study for the City of Mitchell, Village of Morrill, Village of Lyman and Village of Henry (March 2007), the Village will be entering into a regional well field for combined use with Morrill & Lyman.*

### **5. Preliminary Engineering Report-City of Bridgeport (With Supplemental No 1): November 2006 & August 2007.**



*“The purpose of this report is to present the results of studies, preliminary planning, distribution system analysis, and recommendations for addition to water production, treatment, storage, and distribution facilities. The report outlines a long-range plan of improvements for the Bridgeport water system.”*

*The report identified the City’s two storage tanks (250,000 and 50,000 gallon capacities) and two existing production wells. The report indicates that the City has adequate capacity to meet current and future year 2027) maximum day demands, but insufficient “firm capacity” when considering the removal of the largest well from service. The City has a third well available for emergency use, but it does not meet Safe Drinking water Act standards, Use of this third well would subsequently require system flushing and disinfection after each use. The majority of the current distribution system consists of cast iron 4-inch and 6-inch mains. The system is deficient with an inability to provide adequate fire protection and maintenance staff characterized the distribution in “fair to poor” condition.*

*The City received an Administrative Order (AO), effective June 13, 2005 for violation of the Uranium Maximum Contamination Level (MCL). As referenced in the AO, testing of the City’s two production wells in 2004 and 2005 determined Uranium concentrations well in excess of the MCL of 30 ug/L (between 41 ug/L and 115 ug/L). The City also issued a “Do Not Drink” public notice effective July 13, 2005 as a result of these high Uranium levels.*

*In the process of preparing this report, the City and Engineer evaluated seven (7) areas as potential well sites. Testing of these areas reduced the considered well field locations down to four (4) possible sites. These four sites appear to have the potential to meet the City’s long-term needs and capable of producing water that meets drinking water quality standards, The report presents an Engineer’s Opinion of Probable Cost for developing a well field in these regions, and the cost per account per month ranges from \$70.80 to \$104.44.*

*The report also presents treatment options for addressing the referenced Uranium MCL exceedance. Of the treatment options, Ion Exchange, Reverse Osmosis and Point of Use/Point of Entry treatment, the most significant concern is the disposal of the waste stream that will be generated by the selected treatment process. The report presents an Engineer’s Opinion of Probable Cost per account per month ranging from \$63.15 to \$97.00 for these three treatment options.*

*Given the economic differences between developing a new well field and the proposed treatment options, the report recommends treatment as the most cost-effective approach for the City to provide water that meets current drinking water quality standards.*

*The Supplement to the report builds upon the Preliminary Engineering Report’s recommendation for water treatment with a recommendation for the consolidation of the municipal well field (i.e. construction of supplemental wells) to provide a centralized treatment plant. Based upon observations in the Supplement, the report recommends development of two 1,000gpm wells in the northeast area of the community with improvements to the distribution system pipelines to provide sufficient flow to the community, and the construction of an Ion Exchange treatment plant. The anticipated additional cost per account per month for “Ion Exchange with Onsite Regeneration & Offsite Brine Disposal (no grant)” is presented as \$68.37.*



## **6. Preliminary Engineering Report (with Revision No. 1)-City of Minatare, Nebraska: June, 2007.**

*“The scope of this report is to evaluate the condition and the ability of the existing public water system to supply a sufficient quality and quantity of potable water to the users of the system and to present recommendations of needed improvements.”*

*This report identifies issues with the current water supply exceeding the MCL for Uranium, an undersized elevated storage tank that does not provide sufficient system pressure and an immediate concern where corrosive soils are causing severe issues with the degradation and failure of the current distribution system, which is substantially cast iron and ductile iron pipe. The report presents alternatives issues with the source water (blending, treatment and a regional system), storage (grade-level and elevated tanks) and it recommends the immediate replacement or abandonment of the failing distribution system. It also recommends the evaluation of potential well fields as new source water with an alternate of a transmission main and booster pump station to draw water from the City of Scottsbluff.*

*Revision No. 1 to the report addresses minor revisions as requested by the funding agency.*

*The combined Feasibility Study for the communities of Minatare & Bayard was prepared subsequent to the PER. Pursuant to that Feasibility Study, the City of Minatare is pursuing the option to purchase water from Scottsbluff, construct a new booster pump station and transmission pipeline from Scottsbluff to Minatare, replace the deficient distribution mains and construct a new 250,000 gallon storage tank.*

## **7. Western Regional Water System Feasibility Study-Villages of Mitchell, Morrill, Lyman and Henry, Nebraska: March, 2007.**

*“The scope of this report is to evaluate the condition and the ability of the existing public water system to supply a sufficient quality and quantity of potable water to the users of the system and to present recommendations of needed improvements.”*

*This report evaluates alternatives to address the Village of Henry’s Lead/Copper Exceedance Advisory for Copper, the Village of Lyman’s Administrative Order for Uranium MCL Violation, the Village of Morrill’s Administrative Order for Uranium MCL Violation and three-year extension for compliance with the new Arsenic MCL. The report notes that the City of Mitchell is not presently under any Administrative Order for water quality, and that they have just begun compliance sampling for Uranium.*

*The Study references that the Village of Lyman participated in pilot EPA demonstration projects testing both an Absorptive Media process and a Coagulation/Filtration process. The Absorptive Media was found cost prohibitive due to the need for pH control and the Coagulation/Filtration process generates a larger volume of backwash than the Village can accommodate with their existing sewage treatment lagoons. Additionally, a secondary study was conducted testing a separate absorptive media, which was found to have the same pH control issue as the EPA demonstration project.*



The Study identifies three potential water sources:

- Using Mitchell's existing wells. The City has sufficient pumping capacity if they return a stand-by well to service (Well 621) and test results for their supply water meet current drinking water quality standards for Arsenic and Uranium. The City's pumping capacity is 2,900 gpm and a regional system would require approximately 2,650 gpm.
- Drawing on Morrill's well field. Water quality tests for this aquifer indicate fluctuating levels of Arsenic & Uranium and Arsenic has tested as high as 10.1µg/l. This would not permit any increase in the Arsenic level without requiring treatment. Additionally, this well field appears to have a shallow aquifer that is impacted by a nearby irrigation canal and a low-lying swampy area. The irrigation canal appears to dilute the Uranium & Arsenic, when in use. Increased pumping activity may draw water from the swampy area resulting in increased levels of Uranium. The report suggests additional sampling to evaluate the effects of these nearby factors.
- Developing a potential well field approximately four miles north of Lyman. The water quality of this aquifer appears to meet current drinking water standards.

The Study proposes a series of 8 alternatives between the potential water sources, including treatment of existing sources. Of these alternatives a recommendation is made for the development of Lyman's well field to serve the Villages of Henry, Lyman and Morrill, with the City of Mitchell continuing to use its existing wells. The Study recognizes the advantages of providing water that meets current drinking water quality standards, expected longer well field life without the need for treatment, allows for economy of scale of a single treatment plant (if needed), proposes a centralized well field between the affected communities, allows continued use of Well 931 by Morrill to blend water and postpone treatment. The Study also notes a current disadvantage of a "higher" construction cost that is mid-range among the considered alternates.

## **8. Preliminary Engineering Report-City of Gering "New Water Source Review": August, 2006.**

This report notes that the implementation of the 1996 Safe Drinking Water Act (SDWA) amendments regarding Arsenic and Uranium affect Gering and proposes two alternates to address changes (reduction) in allowable MCLs. Of these requirements, Gering has wells that exceed the Arsenic MCL. However, these wells are only brought online to meet peak demand periods and when blended with the other wells, the City is able to meet the Arsenic MCL requirement. With regards to the Uranium MCL, the City received a Notice of Uranium MCL Violation on June 1, 2005. The two alternates proposed in the report address means to meet the Uranium MCL. The alternates proposed in the report include an option to secure a new water source and the construction of a new treatment facility.

The report refers to the City securing a water source from a 35-acre parcel northwest of the City (Gueck property). Water quality test results from this field indicate that it is a suitable supply, but test results returned average values up to 26.15 ppb (mg/l). The report discusses the effects of blending the new and existing sources and presents information for consideration regarding future increases in the Uranium level and how close it may approach the MCL (25 to 26 ppb versus the 30 ppb requirement). The second alternative posed by this report includes the treatment of the City's existing source water. The report recommends the City have a third party review to address Uranium Water Quality data, assess (pose) a desired safety factor in



comparison to the MCL and review the implications of treatment with the possible new source Uranium quality and smaller partial flow treatment.

## **9. Section 319 Nonpoint Source Pollution Control Program Assessment Project: June, 2006.**

*A major target of this project was to establish and implement an effective monitoring program including lysimeter and groundwater analysis for nitrate. A total of 375 groundwater samples were collected and analyzed for nitrate, nitrite, and ammonia between August 2003 and May 2006. A total of 16 lysimeters were installed at four different farm sites north of Torrington. A total of 152 soil samples were collected and analyzed. Nitrate trends at 5 of 9 sites were increasing. Water samples in 11 of 22 wells exceeded the primary drinking water standard of 10 mg/L as established by the US. Environmental Protection Agency.*

## **10. Platte River Basin Plan - Wyoming Water Development Commission: May, 2006.**

*Current water uses:*

### ***Agricultural Water Use (83%)***

*Almost half of Wyoming's irrigated acres lie within the Platte River Basin, and nearly half of the state's livestock are raised in the basin.*

#### *Irrigation Projects*

- *The North Platte Project*
- *The Kendrick Project*
- *The Kortess Unit of the Pick-Sloan Missouri River Basin Project*
- *The Glendo Unit of the Pick-Sloan Missouri River Basin Project*

### ***Municipal and Domestic Water Use (3%)***

*"According to the Environmental Protection Agency (EPA), there are 54 active municipal and community public water systems within Wyoming's Platte River Basin. A total of 198,107 people within the Platte River Basin are served by these community systems. This population utilizes a combination of surface water and groundwater and demands an average of 41.0 million gallons per day (mgd), or roughly 210 gallons per capita per day (gpcpd), and a peak daily amount of 110.8 mgd.*

*Based on rural domestic and non-community public water system usage, the average total domestic water usage for the Platte River Basin is estimated to range from 8.29 mgd to 15.36 mgd. Assuming a rural domestic population of 47,138 and an average demand of 150 to 300 gallons per capita per day (gpcpd), estimated rural domestic groundwater use ranges from 7.07 mgd to 14.14 mgd. For the 16,270 people in the subbasin who use the 79 no-community public water systems, estimated domestic water usage is 1.22 mgd based on an estimated 75 gpcpd."*

### ***Industrial Water Use (13%)***

*"Industries that consume the most water in the Platte River Basin between 1981 and 2000 were the oil, coal, and uranium exploration and extraction industries..."*

*...Total permitted industrial use of water in the Wyoming Platte River Basin is comprised of approximately 75 percent groundwater and 25 percent surface water."*



### **Recreational Water Use (1%)**

*“There are several types of recreation in the Platte River Basin that are directly contingent upon a stable water resource. These include, but are not limited to, boating, fishing, waterfowl hunting, swimming, camping, skiing, snowmobiling, and golfing. With the exception of the Basin’s nineteen golf courses, these recreational uses are generally non-consumptive in nature yet rely upon a consistent water source, whether it is a running stream or a standing water body.”*

### **Environmental Water Use**

*Environmental water use in the Platte River Basin includes maintenance of minimum stream flow rates and reservoir water levels to protect new and existing fisheries and wildlife habitat. Water consumption due to environmental use is minimal and due primarily to evaporative loss.*

### **Water Use from Storage**

*Federal reservoirs include:*

- *Seminole Reservoir*
- *Kortes Reservoir*
- *Pathfinder Reservoir*
- *Alcova Reservoir*
- *Gray Reef Reservoir*
- *Glendo Reservoir*
- *Guernsey Reservoir*

*Storage capacity of these reservoirs is in excess of 3 million acre-feet. In addition, the plan provides information on reservoirs that have capacities over 1,000 acre-feet, or that serve as a significant water supply within the River Basin.*

### **Demand Projections**

*“Information was developed to establish a baseline for projecting long-term economic and demographic activity, and projecting future water demand. Water demands, both in terms of diversions and consumptive use were developed under three scenarios: High, Low, and Mid economic growth. The economic and demographic data were applied to develop water demand projections for the three growth scenarios.”*

## **11. Preliminary Engineering Report-Village of Lyman, Nebraska; April, 2006.**

*“The scope of this report is to evaluate the condition and the ability of the existing public water system to supply a sufficient quality and quantity of potable water to the users of the system and to present recommendations of needed improvements.”*

*The report notes that the existing water source exceeds MCLs for both Arsenic and Uranium, such that the Village is under an Administrative Order from Nebraska Department of Health & Human Services to discontinue use of two of its three wells and the third well is also shown to exceed these same MCLs and has been removed from service because it is under the direct influence of surface water.*

*The Village has two storage towers, a 100,000 gallon main tank and a secondary 50,000 gallon tower. The secondary tower has been removed from service because it is at a higher elevation than the main tank and the only well/pump capable of feeding it, Well 901, has been removed*



from service. However, this secondary tower needs to be brought back into service as the main tank does not have capacity equal to the average daily water use.

The Village's distribution system is also in poor condition, with several cast iron mains at the end of their service life. These mains need to be replaced. The distribution system also incorporates several redundant mains that need to be eliminated with their service taps relocated. Parallel newer and larger mains have been installed adjacent to these redundant mains.

The PER proposes two phases of improvements to the system: Phase 1 consists of installing water meters, replace deteriorated mains, elimination of mains and tying in dead-end mains; Phase 2 consists of developing a new water source and new transmission main(s) required to connect this source to the distribution system as well as the construction of a booster pump for the main tower to enable reconnection of the secondary storage tower. The recommendation of the report is to pursue Phase 1 improvements and to evaluate alternate water sources prior to Phase 2.

Subsequent to the PER, as recommended in the Western Regional Water System Feasibility Study for the City of Mitchell, Village of Morrill, Village of Lyman and Village of Henry (March 2007), the Village will be entering into a regional well field for combined use with Morrill & Henry.

## **12. Preliminary Engineering Report (Supplement No. 1)-Village of Morrill, Nebraska: October, 2005.**

*"The scope of this report is to evaluate the condition and ability of the existing public water system to supply a sufficient quality and quantity of potable water to the users of the system and to present recommendations of needed improvements."*

*This report identifies issues with two of the Village's three domestic wells exceeding MCL's for Uranium and Arsenic, insufficient water storage capacity and distribution system deficiencies regarding a limited number of undersized mains and dead-end lines. The report presents alternatives to address each of these issues and recommends a series of improvements to be carried out in four phases:*

*Phase 1 – install water meters to promote water conservation and replace existing deteriorated mains that act as transmission constrictions in the distribution system.*

*Phase 2 – construction of a new elevated water storage tank.*

*Phase 3 – development of new water source and new water mains for connection to the new storage tank from Phase 2.*

*Phase 4 – Installation of new mains to eliminate dead-end mains and the enlargement of existing under-sized mains.*

*The immediate recommendation of the report is to pursue the construction of Phase 1 improvements only and evaluate new water sources prior to pursuing Phases 2 through 4.*

*Supplement No. 1 to the report addresses minor revisions as requested by the funding agency.*



Subsequent to the PER, as recommended in the Western Regional Water System Feasibility Study for the City of Mitchell, Village of Morrill, Village of Lyman and Village of Henry (March 2007), the Village will be entering into a regional well field for combined use with Lyman & Henry.

### **13. Final Report – Initial Assessment North Platte Natural Resources District Arsenic and Uranium Study, Nebraska - U.S. Army Corps of Engineers for the North Platte Natural Resource District: March – July, 2005.**

*This report was prepared in response to the EPA revised standard decreasing the MCL for arsenic in drinking water from 50 parts per billion (ppb) to 10 ppb (10 ug/L). The report is a part of the Corps of Engineers Planning Assistance to States Program (Section 22 Program) and was proposed to assess the problem facing communities in the North Platte River basin in an area from the Wyoming border to approximately Lewellen, Nebraska to determine the feasibility of alternatives to meet the new drinking water standards (arsenic, uranium and nitrate mitigation).*

*The various alternatives presented in the report include:*

- *Alternative Water Supply (Combining service(s) to multiple communities)*
- *Coagulation Assisted Micro-Filtration (high capital and O&M costs)*
- *Enhanced Lime Softening (rejected)*
- *Oxidation/Filtration (low capital and O&M costs)*
- *Activated Alumina (low capital cost, high O&M cost)*
- *Granular Ferric Hydroxide (low capital cost, moderate O&M cost)*
- *Ion Exchange (moderate capital cost, low O&M cost)*
- *Reverse Osmosis (high capital cost, moderate O&M cost)*
- *Electro dialysis Reversal (high capital and O&M cost)*

*The report presents cost estimates for these alternatives based on a single system for the overall North Platte NRD, and for dual systems that split the NRD into eastern and western service areas. While the report recommends that “the most appropriate feasible remedial action alternative be selected and implemented at the earliest possible time”, it does not favor a specific alternative as a recommendation.*

### **14. Platte Goshen Regional Master Plan Level I Study – Wyoming Water Development Commission: September, 2004.**

*“The purpose of this study was to investigate the feasibility of developing a regional water system (Regional System) for several communities in Platte and Goshen Counties, Wyoming. Communities within the study area include Hartville, Guernsey, Fort Laramie, Lingle, Torrington, Huntley, Veteran, Yoder and Hawk Springs.”*

*“The Regional System concept was initiated in part because of increasingly stringent Environmental Protection Agency (EPA) regulations concerning drinking water quality. The Regional System could mitigate high operations and management (O&M) costs and the expense of system upgrades that may be required in order to comply with existing and future EPA national Primary Drinking Water Standards. In addition, potential water quality problems in the area warrant further investigation of alternatives. Elevated levels of EPA regulated constituents threaten the ground water quality in Platte and Goshen Counties. The primary water quality problems are associated with nitrates, uranium and arsenic.”*



#### **“Existing Systems**

- *The Town of Hartville relies on water wells located approximately four and a half miles from town. The well water is conveyed to Hartville by a single 30+year old transmission line, resulting in a vulnerable water supply. In addition, high pumping costs related to the length of transmission line also burden the town. The town is required to import their water because ground water in town contains levels of nitrates and uranium that exceed EPA standards.*
- *Guernsey relies on three alluvial wells to supply the municipal water system. Guernsey’s Well #2 is subject to spill contamination because of its close proximity to the railroad. Guernsey’s wells also feed directly into their distribution system, adding to the cost of future treatment, if required.*
- *Fort Laramie relies on two alluvial wells that lie 30 feet apart. The close proximity of the town’s only two water supply wells make Fort Laramie’s water supply vulnerable to spill contamination. The town has also had problems with coliform violations during recent water sampling. Also, the town’s water storage capacity is very limited (less than ¼ of the maximum daily demand).*
- *The Town of Lingle utilizes three alluvial wells that supply the distribution system directly. A regional water quality investigation indicated numerous wells around Lingle have nitrate levels exceeding 10ug/L. However, Lingle’s wells have not yet exceeded the nitrate standard, Recent water level decline and limited storage volume is a concern.*
- *Torrington has been treating their water supply since 2000 for nitrate concentrations in the ground water that exceed the EPA’s 10ug/L standard. Torrington uses reverse osmosis (RO) systems to treat water that is then blended with untreated water to a nitrate concentration that is below 10ug/L. The town has also installed new wells to reduce their reliance on operating the reverse osmosis systems. Ongoing O&M costs to maintain the RO systems and regulated EPA parameters, such as uranium and arsenic, are a concern.*
- *The Town of Yoder depends on four relatively low yielding water supply wells that are located approximately three miles north of town. A single four-inch transmission line that runs from the town’s well fields serves the town. This single line source leaved the town without a redundant water supply. Water quality sampling results revealed that the town’s water supply approached the WEPA standard for arsenic and uranium (within 25% of the standard). The quantity and quality of available source water is a concern. Yoder is unable to provide storage to met its average daily demand (ADD).*
- *The small communities of Huntley, Veteran and Hawk Springs all rely on private domestic water wells. Since the EPA does not require that private water supplies be tested and adhere to EPA water quality standards, the residents of these communities could be drinking water that may pose a health risk. Recent sampling revealed one well in Veteran that approached the EPA standard for uranium. Another well sampled in Hawk Springs yielded results that were significantly above the EPA standard for uranium and nearly exceeded the EPA nitrate standard. Secondary standards, like total dissolved solids and sodium are on-going taste concerns.”*

## **15. Guernsey Hydraulic Study Level II - Wyoming Water Development**

**Commission:** November, 2003.

*The Town of Guernsey 2000 census population was 1,155. The purpose of this study is to develop a plan for maintenance and rehabilitation of the water storage tank. Re-evaluate the distribution system now that some of the 1995 Level I Master Plan improvement*



*recommendations have been constructed; evaluate improvements necessary to provide water service to areas of new development; evaluate pending groundwater disinfection rules of the SWDA; and develop a funding and financing plan to support recommended improvements.*

*August 25, 2003 the Town received an Administrative Order from the Region 8 EPA office cited for two monitoring requirements. The Total Coliform Rule (TCR), and initial monitoring of a new water source (Well #4) for radioactivity. A review of water quality testing done when Well #4 was developed in 2001 indicated high radon levels, which is not unusual for this area of Wyoming.*

*The report recommended rehabilitation of the storage tank; replacement/rehabilitation of some distribution lines; absolute regulatory requirements that require disinfection of groundwater have not been promulgated, and may not be in the very near future. It is assumed the previous TC violations, as identified in EPA's Administrative Order were isolated instances and are not expected to be repeated; therefore disinfection is not required at this time; construct a dedicated 10-inch diameter transmission line that will transport water directly from all three municipal wells to the location of the existing storage tank, where mixing equipment will be provided for the mitigation of high radon levels; update the Wellhead Protection Plan.*

**16. Groundwater/surface water Interactions and Sources of Nitrogen and Uranium in an Irrigated area of Nebraska; I.M. Verstraeten, J.K. Bohlke & T.F. Keaemer, U.S. Geological Survey- Tracers and Modeling in Hydrogeology - IAHS Publ. no 262.2000. - Proceedings of the TraM'2000 Conference held at Liege, Belgium: May 2000.**

*The effects of irrigation canals and the North Platte River on groundwater in western Nebraska, USA, were evaluated using chemical and isotopic data. The data indicated that groundwater in the associated alluvium generally is <20 years old with estimated recharge rates from about 10 to >100 cm year<sup>-1</sup>. Most groundwater is derived from surface water, as shown by H<sub>2</sub>O and U isotope analyses. Seasonal losses of canal water to the aquifer cause some changes in groundwater quality. In the deepest parts of the alluvium, some water quality may reflect precipitation recharge, older river water, or cross-formational flow.*

*The distribution and isotopic composition of NO<sub>3</sub><sup>-</sup> are consistent with increased fertilizer use over time. Relatively high U concentrations in groundwater may be attributed to dissolution of volcanic ash or other minerals in underlying bedrock. The relatively high concentration of U in surface water at times is attributed to seepage from U-rich groundwater and flow of U-rich surface water from a tributary.*

*Note: Study area is in the vicinity of the Sioux/Scotts Bluff county line – from approximately N41°54'00" / W103°46'30" to N42°08'45" / W104°03'05".*

**17. USGS Fact Sheet 100-01: Use of Environmental Tracers and Isotopes to Evaluate Sources of Water, Nitrate, and Uranium in an Irrigated Alluvial Valley, Nebraska: I.M. Verstraeten, J.K. Bohlke & T.F. Keaemer, U.S. Geological Survey & J.C. Cannia, North Platte Natural Resources District, Gering, NE.**



This document presents the same information as presented in the conference proceedings listed above (IAHS Publ. no 262.2000).

**18. Results of Nitrate Sampling in the Torrington, Wyoming, Wellhead Protection Area, 1994-98: 1999.**

*“A monitoring program for nitrate in groundwater in and near Torrington, Wyoming was conducted by the Town of Torrington from April 1994 through March 1997, and cooperatively by the Town of Torrington and the U.S. Geological Survey from May 1997 through August 1998. Trends in nitrate concentrations were determined for the period of time covered by both monitoring programs. A significant trend was detected at 34 of the 72 sites. Twenty-six sites had nitrate concentrations that were increasing, and eight sites had nitrate concentrations that were decreasing. Nitrogen isotope data were also collected at selected sites. These data indicate that the source of nitrate in the groundwater in and around Torrington is probably not from human or animal waste, but rather organic soil nitrogen, or ammonium or nitrate fertilizer.”*

**19. Town of Lingle Water Supply Master Plan, Level I Project - Wyoming Water Development Commission: November, 1998.**

*“This report presents the results of a Level I reconnaissance investigation to develop a water supply master plan for the Town of Lingle.” The existing system does not include individual water meters nor does it include water meters at the wells; therefore, water consumption was estimated based on Wyoming DEQ/Water Quality Division regulations. Water samples collected and analyzed over the last 5 years indicate that the quality from the Town’s three wells is good. Recommendations included: existing storage capacity is sufficient for current and future demands; installation of water meters; installation of chlorination system; replacement of many undersized distribution lines to increase fire flows throughout town; and develop a Wellhead Protection Plan.*

**20. Torrington, Wyoming Water Master Plan, Level I (1995) and Level I-Phase II (1997) - Wyoming Water Development Commission: November 1995 & 1997.**

*Level I*

*“The purpose of this Level I investigation is to evaluate Torrington’s water supply, storage, and distribution system to determine the condition and remaining useful life of system components, and to identify improvement required for the water system to provide for the long term future of the community.”*

*Water Demand*

<i>Estimated/projected population</i>	<i>1995</i>	<i>2020</i>
<i>City of Torrington</i>	<i>6435</i>	<i>7913</i>
<i>Rural Areas</i>	<i>1510</i>	<i>4780</i>
<i>Totals</i>	<i>7945</i>	<i>12693</i>

<i>Per capita Demand rates</i>	<i>Torrington</i>	<i>Rural</i>
<i>Winter Daily demand</i>	<i>235</i>	<i>100</i>
<i>Average Daily Demand</i>	<i>432</i>	<i>150</i>



Maximum Daily Demand

1071

375

Comparing production records with billing records identified approximate 30% during summer months and 40% during winter months is not accounted for.

*Estimated Existing and projected Water Demands*

<u>Daily Demand (mgd)</u>	<u>Year</u>	<u>Torrington</u>	<u>Rural</u>	<u>Total</u>
Winter	1995	1.5	0.2	1.7
Winter	2020	1.9	0.5	2.4
Average Daily	1995	2.8	0.2	3.0
Average Daily	2020	3.4	0.7	4.1
Maximum Daily	1995	6.9	0.6	7.5
Maximum Daily	2020	8.5	1.8	10.3

*Water Supply*

*Four (4) improvements were identified:*

1. *Due to their age, replace Well #5 and #9*
2. *Copper was present in water samples which indicates a phosphate based corrosion inhibitor chemical should be fed at each of the well sites. A corrosion control plan approved by EPA should be developed.*
3. *The Groundwater Disinfection Rule (GDR), if and when promulgated by EPA will require the chlorine feed facilities constructed at each of the well sites.*
4. *Based on the scenario that nitrate levels in the Town wells continue to increase, Torrington should pursue development of a new well field west of the golf course. Prior to implementing the effects of long-term pumping on nitrate levels in the water supply should be investigated and modeled. The gold course well field will consist of eight wells, each having a capacity of 1000 gpm.*

*Storage and Distribution System*

*Identified improvements included:*

- *Replace undersized mains to meet fire flow requirements*
- *Change pump motor starters*
- *Eliminate dead-end mains*
- *Replace undersized mains to meet minimum size requirements*
- *Construction of the Hillcrest Delivery System to increase pressures in this area.*

*Regional Water System*

*Preliminary designs were prepared for facilities required to deliver water to the rural areas identified, including: East Highway, West Highway Sewer District, Area West of West Highway Sewer District, McKenna Road, Cottonwood 1&2, and Coffee Grounds.*

*Level I-Phase II*

*“The purpose of this Level I, Phase II investigation is to further refine concept designs and cost estimates in order to evaluate Torrington’s water supply, storage, and distribution system.”*



“Normally, a level I study is a preliminary investigation that identifies improvements to be further studied during a Level II program. When the source of supply is groundwater, a Level II program is normally used to verify the presence of adequate quantity and quality of groundwater. Torrington’s case is somewhat different in that there is not a concern that the source will produce adequate quantity. Also, because the main issue regarding quality for Torrington is nitrate concentration, it is highly unlikely that a normal Level II program will be able to prove or disprove the viability of the proposed well field. We believe the only way to improve everyone’s comfort level with the proposed well field would be to include an extended period, (6-month), pump test.”

The remaining improvements identified in Phase I and corresponding cost estimates were further refined.

Summary of current and projected water uses (af/yr)

	Current Diversions	Current Consumptive Use	Projected Use by Growth Scenario (acre-feet/yr)					
			Diversions			Consumptive Use		
			Low	Mid	High	Low	Mid	High
Agricultural	1,559,300	668,300	1,527,200	1,559,600	1,647,600	655,200	667,600	707,600
Municipal/Domestic	49,100	24,500	71,000	75,600	89,000	35,400	37,800	44,600
Industrial	104,200	104,200	75,290	92,450	115,760	75,290	92,450	115,760
Recreational	8,440	4,410	8,440	9,740	12,240	4,410	5,010	6,310
<b>Total</b>	<b>1,721,040</b>	<b>801,410</b>	<b>1,681,930</b>	<b>1,737,390</b>	<b>1,864,600</b>	<b>770,300</b>	<b>802,860</b>	<b>874,270</b>
Surface water	1,528,000	677,000	1,511,100	1,546,900	1,661,400	669,400	684,400	748,200
Groundwater	193,040	124,410	170,830	190,490	203,200	100,900	118,460	126,070

### **Future Water Use Opportunities**

“Future development and use of water in Wyoming’s Platte River Basin may be limited or otherwise impacted by a variety of factors, including water availability, funding, public involvement, court decrees, Platte River Recovery Implementation Program (PRRIP), water quality, and regulatory issues.”

Structural future water use opportunities include:

- Groundwater augmentation – non-hydrologically connected to North Platte River surface water
- Upper Laramie River storage opportunities
- Transbasin diversions
- Snow Fence
- Stormwater capture, storage, treatment, and management; irrigation with treated municipal wastewater; grey water irrigation; and municipal irrigation using untreated water
- Modification of Pathfinder Dam and Reservoir
- Coal bed natural gas (methane)
- Regionalization of public water supply systems
- Co-production of electricity and hydrogen from existing hydropower facilities
- Improving agricultural irrigation system efficiencies

Non-structural future water use opportunities include:



- Drought response planning
- Weather modification
- Water conservation
- Water right transfers
- Enhancing recreational use of water resources
- Increasing runoff from national forests based on modified U.S. Forest Service policies and practices
- Water exchange/banking
- Multi-purpose flood control programs
- Utilization of WWDC's small water project program

#### **Future Water Plan Directives**

*"The Plan and Water Atlas are intended to be used as a reference for Wyoming citizens and State agencies to understand the present uses of water and potential for future development of the resources within the Basin."*

## **21. Guernsey Water Supply Master Plan – Level I - Wyoming Water Development Commission: November, 1995.**

*"The purpose of this study was to determine the condition and remaining useful life of the water supply, storage, transmission, and distribution system for the Town, and to determine the cost of necessary repairs, replacement, or rehabilitation of the system to serve the existing and future demands of the community." The Town currently uses 3 production wells. The study recommends verification of existing water rights and well permits, abandonment of one well, drilling of a new well, incorporate implement a Wellhead Protection Program for all wells; future accommodations for water treatment disinfection requirements; and a future water treatment plant to remove iron and manganese as concentrations exceed the secondary standards of the Safe Drinking Water Act (SDWA).*

## **22. Reconnaissance of Ground-Water Quality in the North Platte Natural Resources District, Western Nebraska USGS Water Resources Investigations Report 94-4057: 1995.**

*"This Report presents a reconnaissance of the ground-water quality in the North Platte Natural Resources District of Western Nebraska (Sioux, Scotts Bluff, Banner, Morrill and Garden counties). 120 wells completed in the following formations ere sampled during June and July of 1991, representing:*

- *Water-bearing units in the unconfined Quaternary age, Ogallala Group, and Arikaree Group;*
- *Fractured-bedrock and sand water-bearing units in the Brule Formation;*
- *Confined Chadron Formation water-bearing units;*
- *Undifferentiated water-bearing units of Cretaceous age."*

*"Overall, more than 75% of the water samples had dissolved nitrate plus nitrite as nitrogen concentrations equal to or less than 6 ug/L. Water samples from six wells completed in Quaternary-age water-bearing units and fractured-bedrock water-bearing units from the Brule Formation exceed US EPA Primary MCL of 10ug/L for dissolved nitrate plus nitrite as nitrogen.*



*Water samples collected from sandstone and conglomerate of the confined Chadron Formation water-bearing units and undifferentiated water-bearing units of Cretaceous age had concentrations of dissolved nitrate plus nitrite as nitrogen generally less than the detection level, possibly indicating the presence of a reducing environment disassociating the dissolved-nitrate ion as supported by low dissolved-oxygen concentrations detected in water from these units or leaching at depth due to the presence of confining layers. Water from several wells completed in Quaternary-age water-bearing units and fractured-bedrock and sand water-bearing units in the Brule Formation had detectable concentrations of (agricultural herbicides). Insecticides were not detected in ground water in the study area.”*

*“Overall, the quality of water from Chadron Formation and undifferentiated water-bearing units of Cretaceous age is not suitable for domestic and irrigation use, due to high pH and concentrations of calculated dissolved solids, sodium, chloride, fluoride, arsenic, and beryllium that exceeded US EPA Primary or Secondary MCLs.”*

*“Water-quality data from the Quaternary-age water-bearing units indicated that adjusted gross-alpha activities in the units also exceeded US EPA MCLs. 39 of the 44 wells in all water-bearing units, except for the Aikaree Group water-bearing units had radon activities that exceeded the (then) proposed Primary MCL of 300 picocuries per liter. The radon activities were different in water samples from the fractured-bedrock and sand water-bearing units in the Brule Formation than in those from the other water-bearing units. None of the 44 water samples from wells completed in Quaternary-age and Ogallala Group water-bearing units had uranium concentrations that exceed the US EPA MCL of 20mg/L.”*

*Note that this document was prepared in 1995, prior to the EPA adoption of the 30ug/L Uranium MCL. Per the Report, the measured total-uranium concentration varied from 0.1 to 72 ug/L with a median of 11 ug/L and a standard deviation of 13ug/L.*

### **23. Wellhead Protection (WHP) Program, Chapter II, Groundwater Investigation Monitoring Wells – Wyoming Water Development Commission, Chapter IV, Groundwater Monitoring Results – NPS 319: September, 1994.**

*“Numerous processes are available which effectively remove nitrate contamination from water (Bouwer, 1990). However, when economic factors and technical problems are taken into consideration, the number of viable options available to the Town of Torrington becomes extremely limited.*

*For example, although reverse osmosis is an excellent method for removing nitrates from water, the enormous costs of this type of system precludes its use in a community with limited economic resources. Currently, available ion exchange resins are generally incompatible with high sulfate waters found in the area. Treating the water in a treatment plant designed for surface water would negate all of the benefits derived from using groundwater.*

*In light of these problems, only two viable options are suggested. These include the relocation of wells to areas with persistently low levels of nitrate contamination and/or the initiation of management programs designed to monitor and limit the amount of nitrate entering the groundwater system.*



*If the Town should decide to relocate wells, the two most promising sites are in the west-central and the extreme northeastern parts of the study area.”*

#### **24. Wellhead Protection (WHP) Program Guidance Document.**

*“In 1986, Amendments to the Safe Drinking Water Act (SDWA) established the Wellhead Protection (WHP) Program. Under these Amendments, each state was called upon to develop, and submit to EPA for approval, a plan that would protect ground water which supplies wells, well fields, springs, and tunnels that provide drinking water to the general public. The basic, minimum elements’ that states must address and include in their WHP plans are also specified in the SDWA.*

*On September 18, 1997 Wyoming became the 46<sup>th</sup> state to have an EPA-approved Wellhead Protection Program. This Document represents Wyoming’s Wellhead Protection (WHP) plan, and is intended to serve as a guideline to communities, Public Water Systems (PWSs; See Glossary), and others wishing to develop local WHP plans that will meet the minimum criteria for approval by the Wyoming Department of Environmental Quality (WDEQ) and the EPA.”*

#### **25. Construction and Testing Report Yoder No. 2 Production Well - Wyoming Water Development Commission: March, 1990.**

*“In 1982, the Town of Yoder commenced n a project to rehabilitate its municipal water supply.” Following a groundwater investigation, a test well was drilled south of Town. Insufficient quantity and quality of groundwater was encountered in the test well. The Town continued to use the existing water supply system; and in 1989 the Town initiated another test well investigation. The results of this investigation; drilled and tested one production well approximately 3 miles north of Town; and recommended development of 3 production wells in this area to meet the Towns water quantity and quality needs.*

#### **26. Water and Related Land Resources of the Platte River Basin - Wyoming State Engineer’s Office: September, 1971.**

*“The quality of interstate waters in the Basin generally is within the limits of established standards.”*

*“If economic projections are valid, water will ultimately have to be imported into the Basin.”*

*When compared to more recent studies, this study reveals how water quality standards have become more stringent and quality of water in the basin has diminished over the past 40 years. This study also details water uses and quantities prior to 1971.*

#### **27. Annual Operating Plans-North Platte River Basin (and numerous additional project reports) U.S. Bureau of Reclamation.**

*“This report concerns the operation of all Bureau of Reclamation (Reclamation) facilities in the North Platte River Drainage Basin above and including Guernsey Dam as well as the four inland lakes near Scottsbluff, Nebraska.”*



# ***Appendix E:***

## ***Off-River Water Storage Sites***

Several sites were identified in the Guernsey area as potential PAWS water storage facilities. Each of the sites had attributes (some beneficial and some detrimental) as potential storage facilities for the PAWS system. These were eliminated because they did not provide the required storage within the maximum embankment criteria. If the dam embankment height and the reservoir capacity restrictions are to be removed, it would merit additional review of these sites as a potential storage facility location. A brief description of these additional sites is provided below.



EVALUATION OF RESERVOIR OPTIONS WITH THE FOLLOWING PARAMETERS:

- RESERVOIR FORMED VIA EMBANKMENT (NO EXCAVATION)
- MAXIMUM EMBANKMENT HEIGHT OF 50-FT AND WORKING WATER DEPTH OF 48-FT TO AVOID CLASSIFICATION OF A "LARGE DAM" SUBJECT TO FEDERAL APPROVAL
- MAXIMUM IMPOUNDMENT OF 5,000 AC-FT ALSO DUE TO "LARGE DAM" REGULATIONS





## EMIGRANT TRAIL RESERVOIR

STORAGE CAPACITY: 705 AC-FT  
MAXIMUM WATER DEPTH: 41'  
SURFACE AREA AT HWL: 46 ACRES  
MAXIMUM WATER ELEVATION: 4553'  
EXISTING GROUND ELEVATION: 4505'



## EMIGRANT TRAIL RESERVOIR

STORAGE CAPACITY: 705 AC-FT

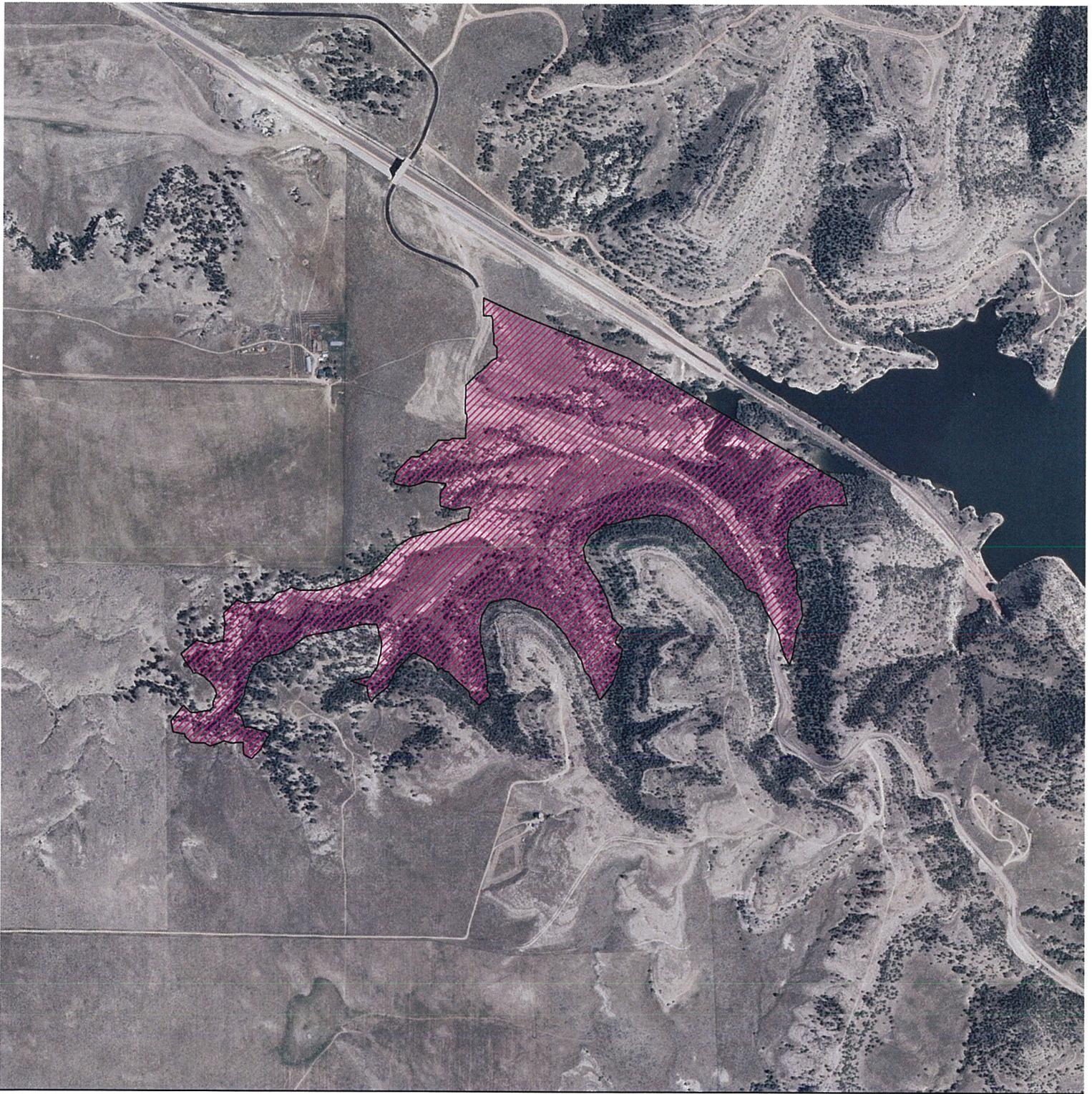
MAXIMUM WATER DEPTH: 41'

SURFACE AREA AT HWL: 46 ACRES

MAXIMUM WATER ELEVATION: 4553'

EXISTING GROUND ELEVATION: 4505'





## NEWEL BAY RESERVOIR

STORAGE CAPACITY: 634 AC-FT

MAXIMUM WATER DEPTH: 48'

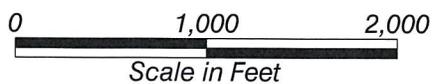
SURFACE AREA AT HWL: 126 ACRES

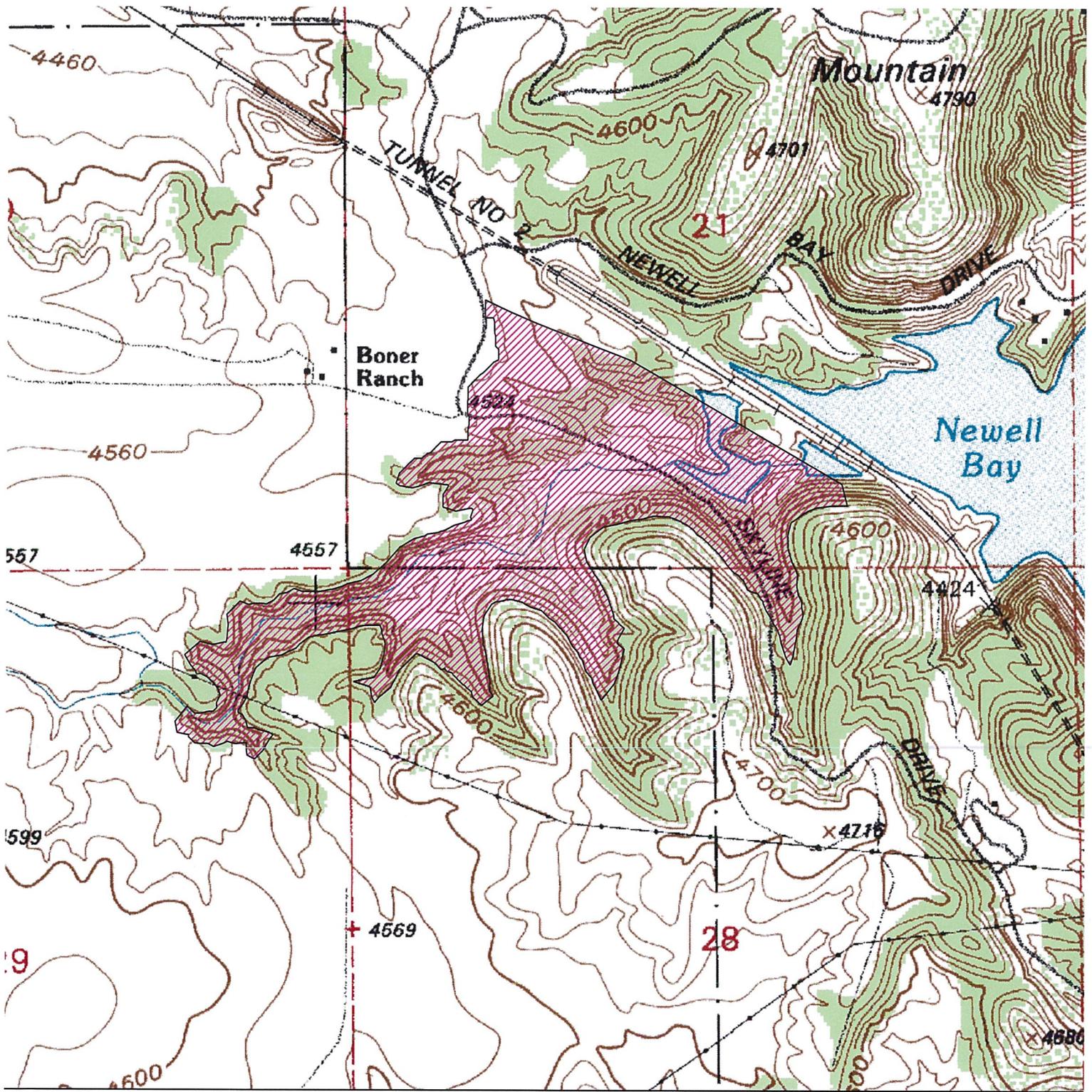
MAXIMUM WATER ELEVATION: 4,448'

EXISTING GROUND ELEVATION: 4,400'



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## NEWELL BAY RESERVOIR

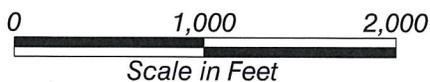
STORAGE CAPACITY: 634 AC-FT

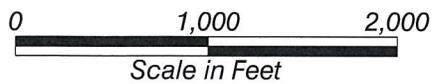
MAXIMUM WATER DEPTH: 48'

SURFACE AREA AT HWL: 126 ACRES

MAXIMUM WATER ELEVATION: 4,448'

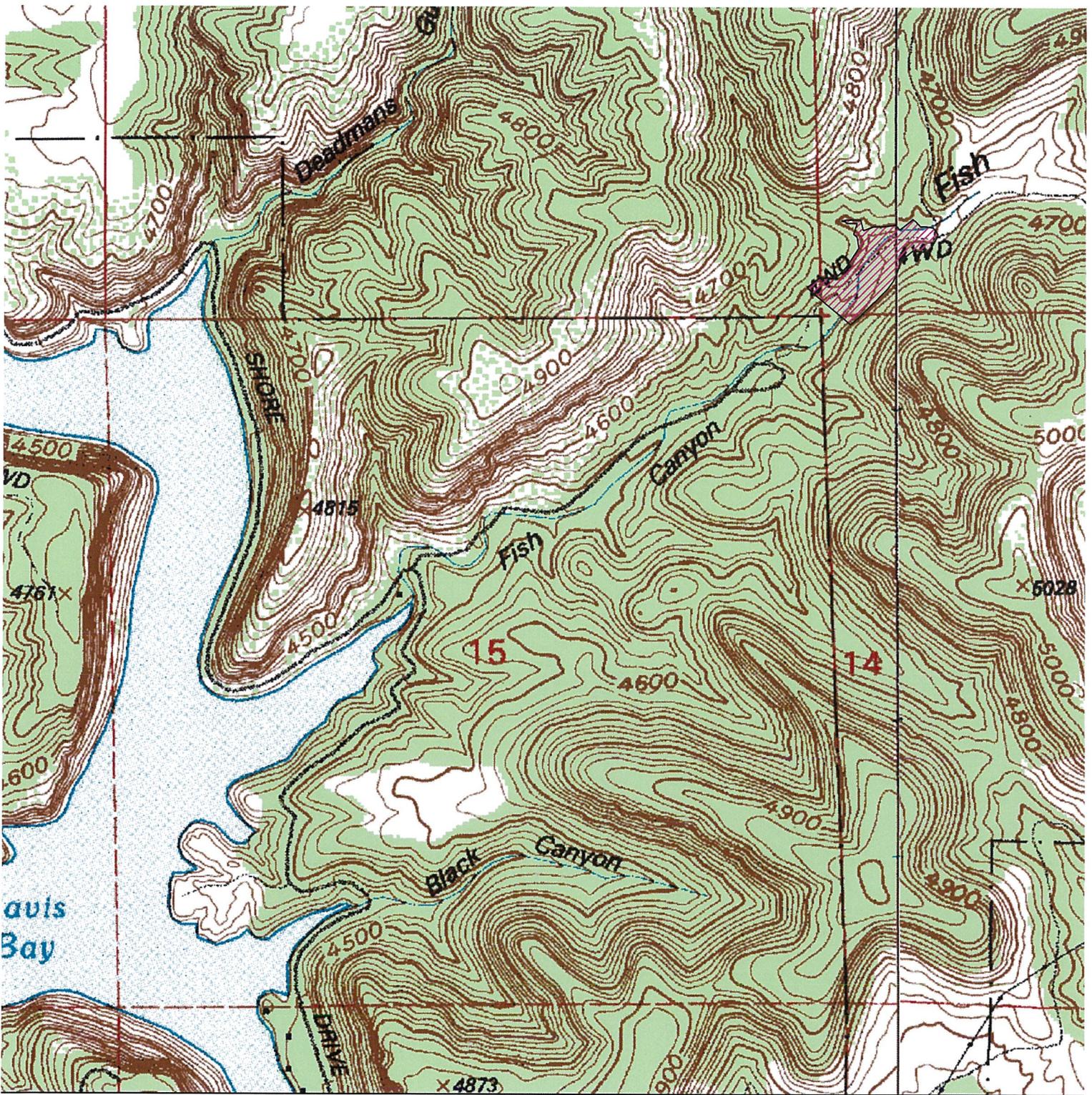
EXISTING GROUND ELEVATION: 4,400'





## FISH CANYON RESERVOIR

STORAGE CAPACITY: 120 AC-FT  
MAXIMUM WATER DEPTH: 48'  
SURFACE AREA AT HWL: 7 ACRES  
MAXIMUM WATER ELEVATION: 4,601'  
EXISTING GROUND ELEVATION: 4,553'



## FISH CANYON RESERVOIR

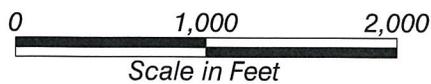
STORAGE CAPACITY: 120 AC-FT

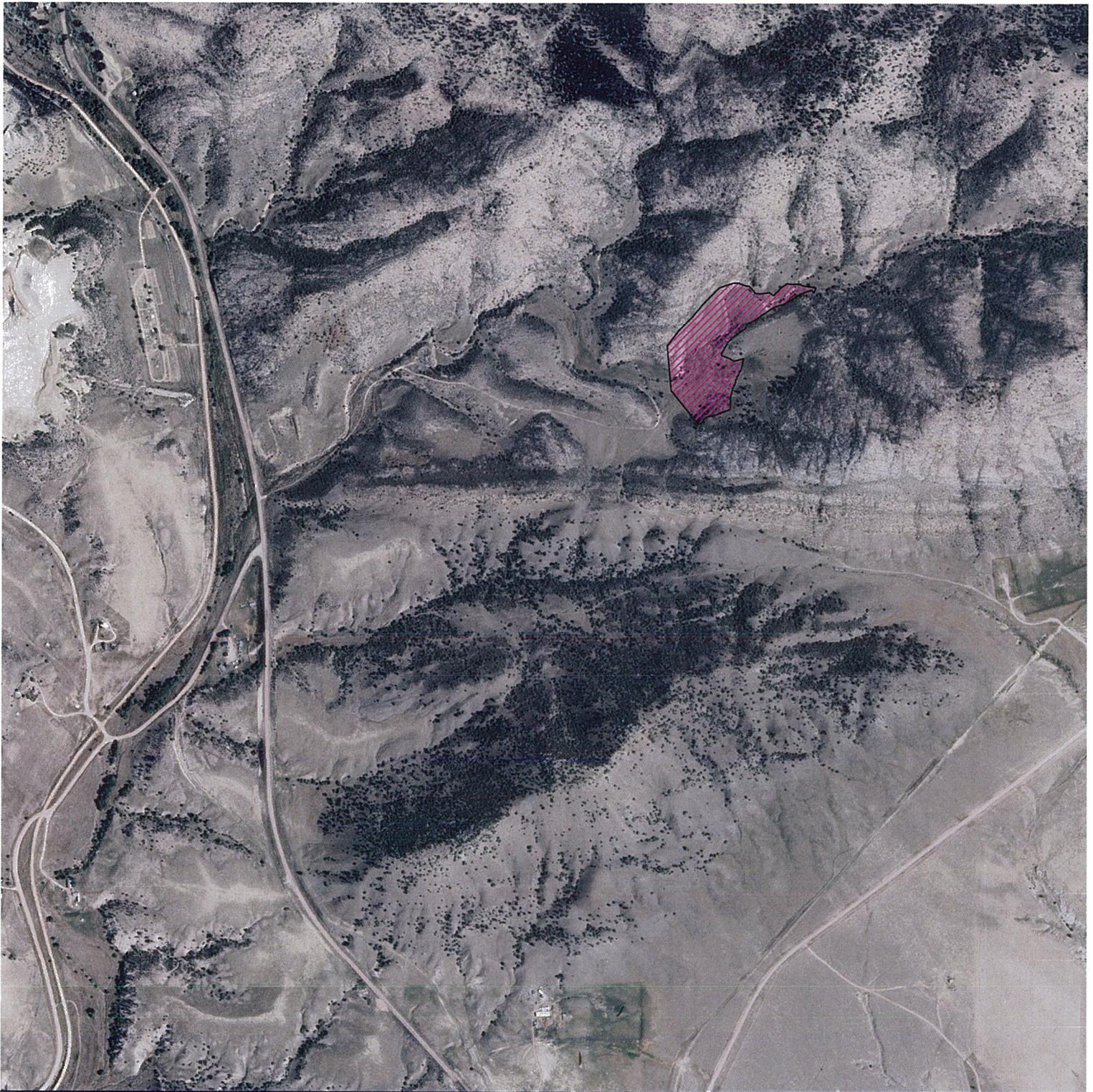
MAXIMUM WATER DEPTH: 48'

SURFACE AREA AT HWL: 7 ACRES

MAXIMUM WATER ELEVATION: 4,601'

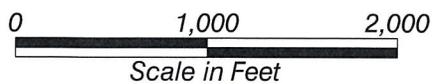
EXISTING GROUND ELEVATION: 4,553'

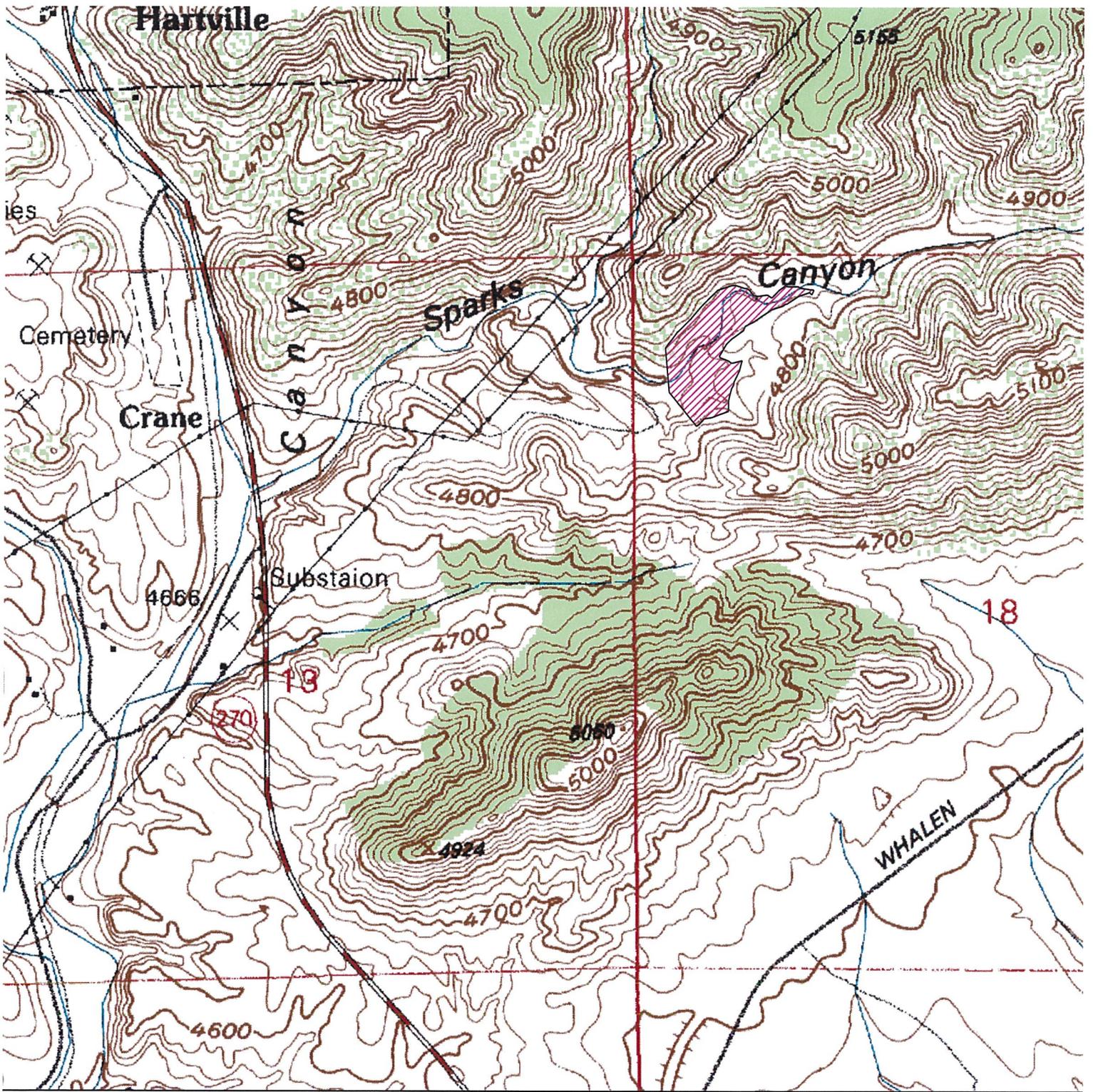




## SPARKS CANYON RESERVOIR

STORAGE CAPACITY: 167 AC-FT  
MAXIMUM WATER DEPTH: 48'  
SURFACE AREA AT HWL: 10 ACRES  
MAXIMUM WATER ELEVATION: 4,755'  
EXISTING GROUND ELEVATION: 4,707'





## SPARKS CANYON RESERVOIR

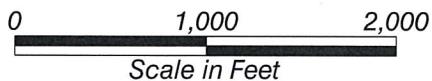
STORAGE CAPACITY: 167 AC-FT

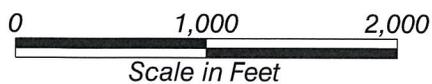
MAXIMUM WATER DEPTH: 48'

SURFACE AREA AT HWL: 10 ACRES

MAXIMUM WATER ELEVATION: 4,755'

EXISTING GROUND ELEVATION: 4,707'





## MIDDLE LAKE RESERVOIR

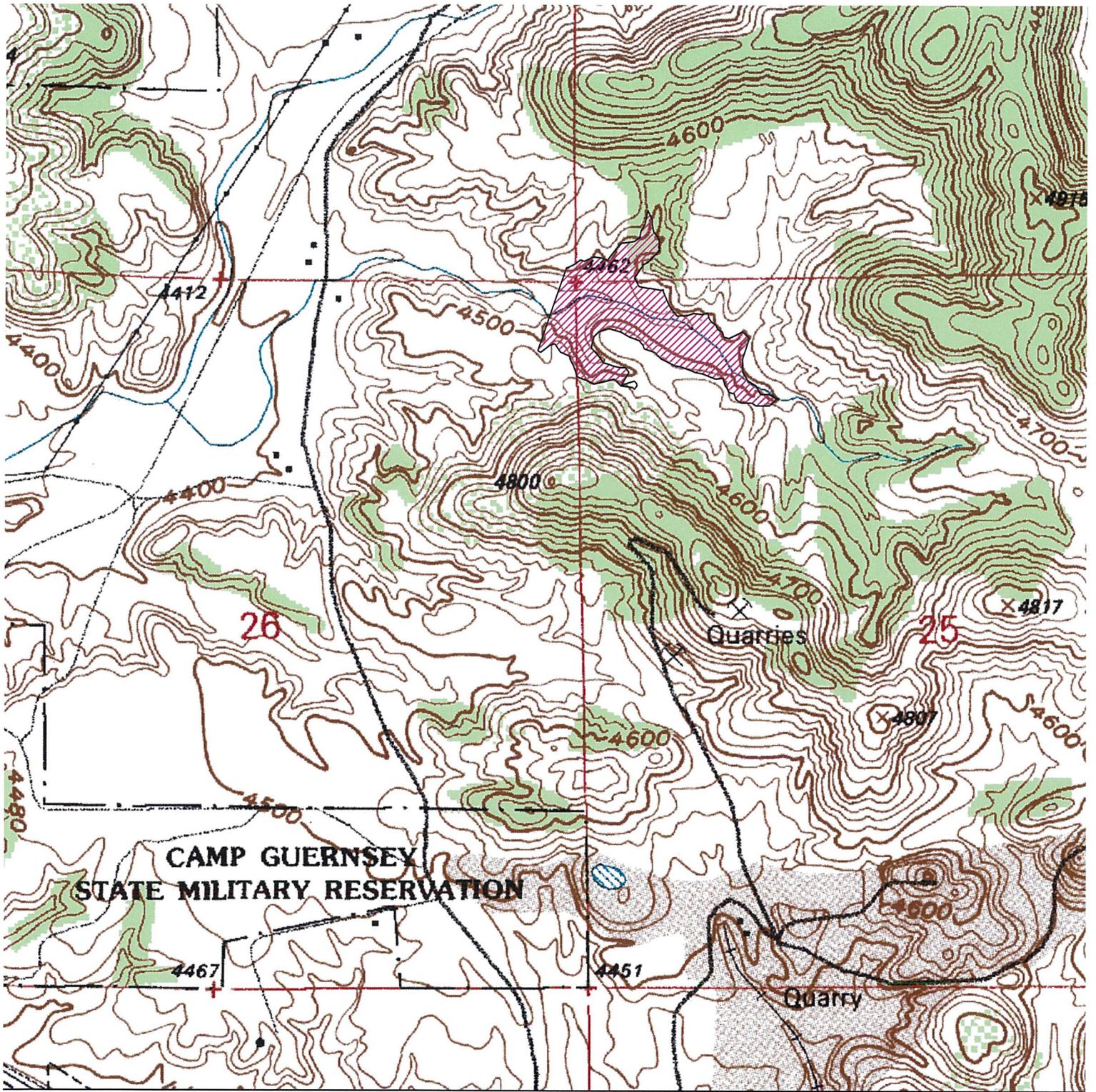
STORAGE CAPACITY: 346 AC-FT

MAXIMUM WATER DEPTH: 48'

SURFACE AREA AT HWL: 20 ACRES

MAXIMUM WATER ELEVATION: 4,508

EXISTING GROUND ELEVATION: 4,460



## MIDDLE LAKE RESERVOIR

STORAGE CAPACITY: 346 AC-FT

MAXIMUM WATER DEPTH: 48'

SURFACE AREA AT HWL: 20 ACRES

MAXIMUM WATER ELEVATION: 4,508

EXISTING GROUND ELEVATION: 4,460

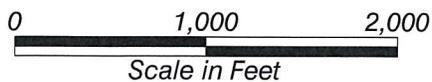


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0 1,000 2,000

Scale in Feet



## WARM SPRINGS CANYON RESERVOIR

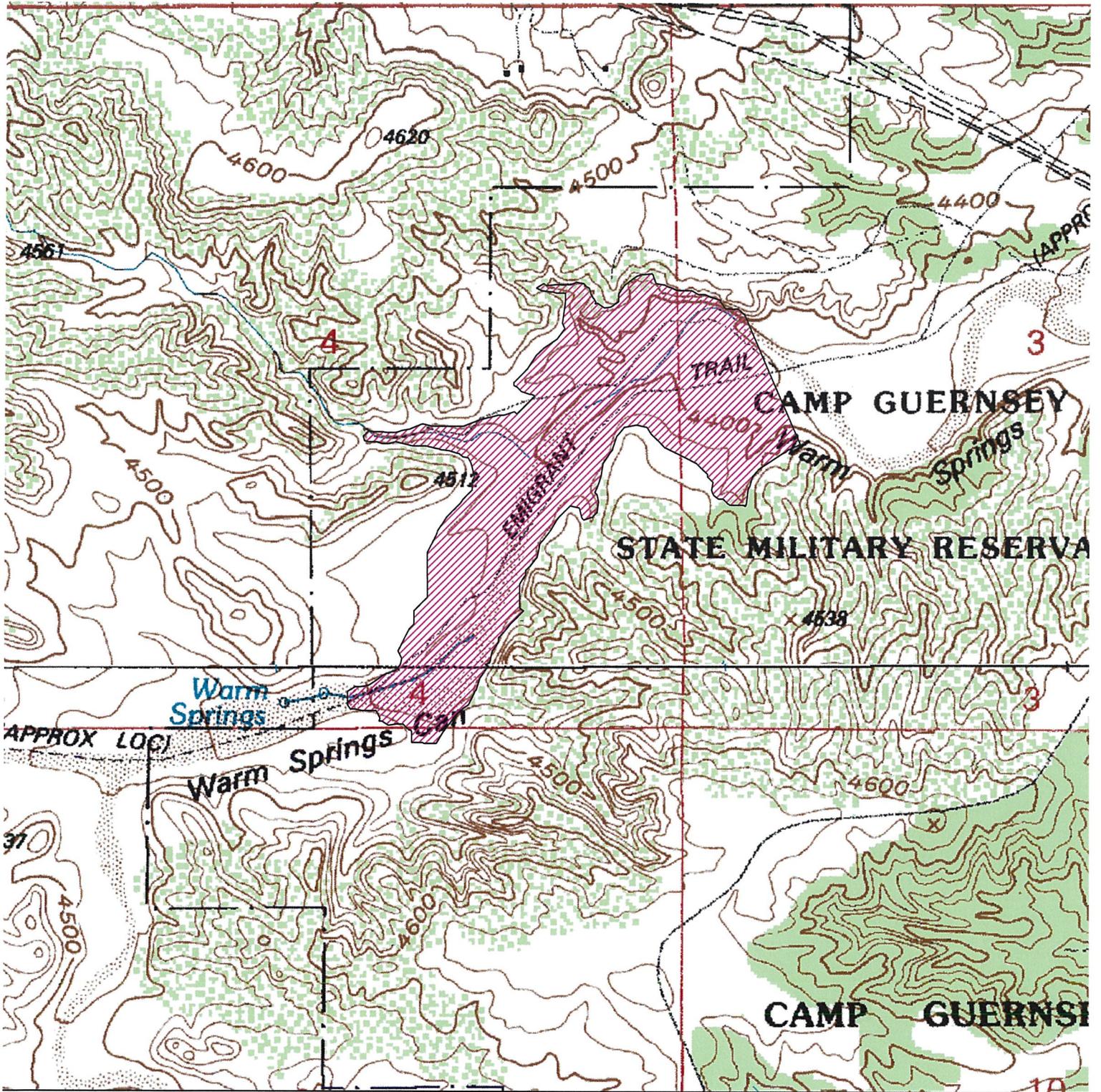
STORAGE CAPACITY: 1,468 AC-FT

MAXIMUM WATER DEPTH: 48'

SURFACE AREA AT HWL: 90 ACRES

MINIMUM WATER ELEVATION: 4,428

MAXIMUM WATER ELEVATION: 4,380



**WARM SPRINGS CANYON RESERVOIR**

STORAGE CAPACITY: 1,468 AC-FT

MAXIMUM WATER DEPTH: 48'

SURFACE AREA AT HWL: 90 ACRES

MINIMUM WATER ELEVATION: 4,428

MAXIMUM WATER ELEVATION: 4,380



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# ***Appendix F:***

## ***2070 Population and Use Projections by Community***

# PAWS

## 2007 *Population and Use Projections*

<i>MUNICIPALITY</i>	<i>PEAK FLOW</i>		<i>2070 POPULATION</i> <i>From chart</i>	<i>PEAK FLOW</i>
	<i>MGD</i>	<i>2070 POP</i>		<i>CFS</i>
Guernsey	.60	1935		.93
Hartville	.16	516		.25
Platte County	2.20	7097		3.40
	2.96	9548	9558	4.57
Ft Laramie	.13	419		.20
Lingle	.28	903		.43
Veteran	.03	97		.05
Yoder	.09	290		.14
Hawk Springs	.04	129		.06
LaGrange	.19	613		.29
Torrington	3.20	10,323		4.94
Goshen County	3.50	11,290		5.4
	7.46	24,064	24,069	11.51
Henry	.09	290		.14
Lyman	.23	742		.35
Morrill	.53	1710		.82
Mitchell	1.01	3258		1.56
Gering	4.36	14,065		6.73
Scottsbluff	8.38	27,032		12.93
Terrytown	.68	2194		1.05
Melbeta	.08	258		.12
Minitare	.49	1581		.76
McGrew	.06	194		.09
Scottsbluff County	4.91	15,839		7.58
	20.82	67,163	67,163	32.13
Bayard	.62	2000		.96
Bridgeport	.80	2581		1.23
Morrill County	1.42	4581		2.19
	2.84	9161	9160	4.38
TOTAL	34.08	109,936	109,950	52.59

Million Gallons per Day (MGD) X 1,000,000 = population (2070)  
310 peak gallons per capita per day

$$\text{MGD X 1,000,000} = \frac{\text{gal}}{\text{day}} \times \frac{1 \text{ day}}{24 \text{ hour}} \times \frac{1 \text{ hour}}{60 \text{ minutes}} \times \frac{1 \text{ minute}}{60 \text{ seconds}} \times \frac{1 \text{ cubic foot}}{7.5 \text{ gallons}} = \frac{\text{cubic feet}}{\text{second}}$$



# ***Appendix G:***

## ***Cost Estimates***



# PAWS

Platte Alliance Water Supply (PAWS)

## No Action Alternative Individual WTP at each Municipality and County

<u>Item #</u>	<u>Item</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Extension</u>
1	Hartville/Sunrise WTP	1	LS \$565,639.43 / LS	\$565,639.43
2	Guernsey WTP	1	LS \$3,465,727.33 / LS	\$3,465,727.33
3	Platte County WTP	1	LS \$5,176,931.86 / LS	\$5,176,931.86
4	Fort Laramie WTP	1	LS \$1,279,274.56 / LS	\$1,279,274.56
5	Lingle WTP	1	LS \$2,094,111.15 / LS	\$2,094,111.15
6	Torrington WTP	1	LS \$10,477,817.04 / LS	\$10,477,817.04
7	Veteran WTP	1	LS \$314,686.19 / LS	\$314,686.19
8	Yoder WTP	1	LS \$1,008,937.12 / LS	\$1,008,937.12
9	Huntley WTP	1	LS \$259,142.44 / LS	\$259,142.44
10	Hawk Springs WTP	1	LS \$568,645.98 / LS	\$568,645.98
11	La Grange WTP	1	LS \$1,617,069.85 / LS	\$1,617,069.85
12	Goshen County WTP	1	LS \$7,029,159.48 / LS	\$7,029,159.48
13	Henry WTP	1	LS \$995,483.46 / LS	\$995,483.46
14	Lyman WTP	1	LS \$1,832,401.86 / LS	\$1,832,401.86
15	Morrill WTP	1	LS \$3,196,382.91 / LS	\$3,196,382.91
16	Mitchell WTP	1	LS \$4,901,257.49 / LS	\$4,901,257.49
17	Scottsbluff WTP	1	LS \$19,771,407.18 / LS	\$19,771,407.18
18	Terrytown WTP	1	LS \$3,770,150.69 / LS	\$3,770,150.69
19	Gering WTP	1	LS \$12,838,400.01 / LS	\$12,838,400.01
20	Minatare WTP	1	LS \$3,036,390.64 / LS	\$3,036,390.64
21	Melbeta WTP	1	LS \$900,878.09 / LS	\$900,878.09
22	Mcgrew WTP	1	LS \$741,817.08 / LS	\$741,817.08
23	Scottsbluff County WTP	1	LS \$8,791,034.55 / LS	\$8,791,034.55
24	Bayard WTP	1	LS \$3,536,357.68 / LS	\$3,536,357.68
26	Bridgeport WTP	1	LS \$4,212,531.91 / LS	\$4,212,531.91
26	Morrill County WTP	1	LS \$3,869,755.57 / LS	\$3,869,755.57
			Total	\$106,251,391.57
27			Design Contingencies @ 15%	\$15,937,708.74
			Total	\$122,189,100.30
28			Mobilization @ 5%	\$6,109,455.02
			Total	\$128,298,555.32
29			Construction Contingencies @ 25%	\$32,074,638.83
			Total	\$160,373,194.15
30			Permitting/Land Acquisition @ 5%	\$8,018,659.71
			Total	\$168,391,853.85
			<b>Project Total</b>	<b>\$170,000,000.00</b>



# PAWS

Platte Alliance Water Supply (PAWS)

## Regional System with Supply from Grayrocks Reservoir

<u>Item #</u>	<u>Item</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Extension</u>
33	42-inch Diameter Pipeline	211300 LF	\$330.00 / LF	\$69,729,000.00
34	36-inch Diameter Pipeline	118000 LF	\$270.00 / LF	\$31,860,000.00
35	24-inch Diameter Pipeline	83200 LF	\$140.00 / LF	\$11,648,000.00
36	16-inch Diameter Pipeline	123700 LF	\$100.00 / LF	\$12,370,000.00
38	Dewatering	104000 LF	\$50.00 / LF	\$5,200,000.00
39	Pressure Reducing Station	3 Each	\$250,000.00 / Each	\$750,000.00
40	Municipal (Users) Water Taps	25 Each	\$20,000.00 / Each	\$500,000.00
41	17 MGD Treatment Plant	1 LS	\$16,980,250.00 / LS	\$16,980,250.00
32	Grayrocks Reservoir Modifications	1 LS	\$16,000,000.00 / LS	\$16,000,000.00
43	Grayrocks WTP Intake	1 LS	\$2,000,000.00 / LS	\$2,000,000.00
46	Grayrocks WTP Outlet	1 LS	\$20,000,000.00 / LS	\$20,000,000.00
			Total	\$187,037,250.00
27			Design Contingencies @ 15%	\$28,055,587.50
			Total	\$215,092,837.50
28			Mobilization @ 5%	\$10,754,641.88
			Total	\$225,847,479.38
29			Construction Contingencies @ 25%	\$56,461,869.84
			Total	\$282,309,349.22
30			Permitting/Land Acquisition @ 5%	\$14,115,467.46
			Total	\$296,424,816.68
31			River Depletion Mitigation/Storage	\$30,000,000.00
			Total	\$326,424,816.68
			<b>Project Total</b>	<b>\$328,000,000.00</b>



# PAWS

Platte Alliance Water Supply (PAWS)

## Regional System with Supply from a New Off-River Site - Whalen Reservoir

<u>Item #</u>	<u>Item</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Extension</u>
33	42-inch Diameter Pipeline	211300 LF	\$330.00 / LF	\$69,729,000.00
34	36-inch Diameter Pipeline	118000 LF	\$270.00 / LF	\$31,860,000.00
35	24-inch Diameter Pipeline	83200 LF	\$140.00 / LF	\$11,648,000.00
36	16-inch Diameter Pipeline	123700 LF	\$100.00 / LF	\$12,370,000.00
38	Dewatering	100000 LF	\$50.00 / LF	\$5,000,000.00
39	Pressure Reducing Station	3 Each	\$250,000.00 / Each	\$750,000.00
40	Municipal (Users) Water Taps	25 Each	\$20,000.00 / Each	\$500,000.00
41	17 MGD Treatment Plant	1 LS	\$16,980,250.00 / LS	\$16,980,250.00
43	Whalen Dam Construction	1 LS	\$20,000,000.00 / LS	\$20,000,000.00
37	River Intake and Pump Station	1 LS	\$8,000,000.00 / LS	\$8,000,000.00
44	Whalen WTP Intake	1 LS	\$1,000,000.00 / LS	\$1,000,000.00
46	Whalen WTP Outlet	1 LS	\$3,000,000.00 / LS	\$3,000,000.00
			Total	\$180,837,250.00
27			Design Contingencies @ 15%	\$27,125,587.50
			Total	\$207,962,837.50
28			Mobilization @ 5%	\$10,398,141.88
			Total	\$218,360,979.38
29			Construction Contingencies @ 25%	\$54,590,244.84
			Total	\$272,951,224.22
30			Permitting/Land Acquisition @ 5%	\$13,647,561.21
			Total	\$286,598,785.43
			River Depletion Mitigation/Storage	\$30,000,000.00
31			Total	\$316,598,785.43
			<b>Project Total</b>	<b>\$318,000,000.00</b>

The City of Torrington provided the following calculations and assumptions of the cost to operate and maintain (O&M) the existing Reverse Osmosis plants.

<b>Water Costs &amp; Rates</b>	<b>FY2010</b>	<b>FY2011</b>	<b>FY2012</b>	<b>FY12 Capital Pgm</b>
<i>Budget Period</i>	7/2009 to 6/2010	7/2010 to 6/2011	7/2011 to 6/2012	7/2010 to 6/2011
<i>Gallons Produced</i>	501,732,153	545,044,275	545,044,275	545,044,275
<i>In Thousands</i>	501,732	545,044	545,044	545,044

<i>Budget Line Items</i>	<i>Actual</i>	<i>Actual</i>	<i>Approved</i>	<i>Approved</i>
1 <i>Power &amp; Pump</i>	\$339,504	\$322,256	\$615,515	\$615,515
2 <i>Special Projects</i>	\$378,835	\$253,051	\$147,505	\$1,572,944
<i>Total Costs</i>	\$718,339	\$575,307	\$763,020	\$2,188,459

<i># of Taps</i>	2700	2,700	2,700	2,700
<i>Base Rate</i>	\$20	\$20	\$25	\$25

<i>Monthly Income from Base</i>	\$54,000	\$54,000	\$67,500	\$67,500
<i>Yearly Income from Base</i>	\$648,000	\$648,000	\$810,000	\$810,000
<i>Total Costs less Base Income</i>	\$70,339	\$(72,693)	\$(46,980)	\$1,378,459

<i>Gallons in Base Rate</i>	8000	8,000	8,000	8,000
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<i>Adjusted Gallons (less Base)</i>	480,132,153	523,444,275	523,444,275	523,444,275
<i>In Thousands</i>	480,132	523,444	523,444	523,444

<i>Additional Cost per 1,000 Gals</i>	\$0.15	\$(0.14)	\$(0.09)	\$2.63
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3 <i>Gross Costs per 1,000 Gallons</i>	\$1.43	\$1.06	\$1.40	\$4.02
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**Notes**

- 1 *Costs of Non Potable production, Hydrants/Meters & Taps maintenance removed from calculations associated with South Torrington*
- 2 *Capital Program Costs*
- 3 *Total Costs divided by Total Gallons produced*

*The average of the costs per 1,000 gallons is \$1.98. We suggest that first the Special Projects line is intended to represent Distribution capital as well as plant capital, but that both have been sorely under-funded, so if we were to assume a robust Plant maintenance program, the average would likely be low...a 25% increase on that average is \$2.50. This would likely be higher in small communities. **Therefore, \$2.50 per 1,000 gallons appears a reasonable estimate of existing operation and maintenance costs.***

**Platte Alliance Water Supply  
(PAWS)**

***Appraisal Investigation***

**Appraisal Investigation Cost Estimate**

***No Action Alternative***

***Supply from Grayrocks Reservoir***

***Supply from New Off-River Site (Whalen Reservoir)***

*Unit Price level October, 2011*

***Bid Item Descriptions***

**Cost Estimate Item No.**

***1 through 26***

**Bid Item Description**

***WTP***, Lump Sum (*LS*) A 30% cost estimate used for the expansion and modification to the existing wastewater facilities is based on the construction of a Reverse Osmosis (RO) treatment plant at each community. A typical RO plant is operated at 50%, treated with a waste stream of 25% of the treated water produced. The waste stream will need to flow to the waste water treatment facility to provide proper treatment. It has been our experience that the waste water treatment facilities for these small rural communities do not have adequate capacity to handle the additional flows and will be required to expand their facilities. The cost of expansion is based on a cost of \$12 per daily gallon treated and equates to 30% of the cost to construct the water treatment plant.

***27***

- ***Design contingencies***, 15% of construction cost

***28***

- ***Mobilization***, 5% of construction cost

***29***

- ***Construction contingencies***, 25% of construction cost

***30***

- ***Permitting and land acquisition cost***, 5% of construction cost

- 31** - **River Depletion Mitigation/Storage**, purchase of agricultural water rights to meet PAWS water supply demands is based on \$3000 per acre for 10,000 acres for \$30,000,000.
- 32** - **Grayrocks Reservoir Modifications** , Lump Sum (LS) This item includes dredging and stockpiling at a disposal site, including contouring to blend with existing topography, of approximately 8,000,000 Cubic Yard of material at \$2/CY within the normal high water line of Grayrocks Reservoir. It is assumed an on-site disposal area is identified within 2 miles of the dredge area.
- 33** - **42-inch Diameter Pipeline**, Linear Foot (LF) This item includes the typical pipeline trench of 6-inches of imported pipe bedding material, 1-foot minimum trench width both sides of pipe, minimum 5-foot pipe bury to the top of the pipe; and a trench wall excavation above the bottom 3 foot of trench 2H:1V minimum, with a greater (flatter) trench slope along 10% of the alignment due to soil conditions. Compaction shall be 80% over pasture terrain and 95% beneath roads and streets and other identified critical settlement areas. This LF unit price also includes the cost of the metallic pipe, corrosion protection, excavation, bedding, backfill, pipe fittings, pressure relief valves (at high points approximately every ¼ mile), flushing hydrants (approximately every 2 miles), river/stream and irrigation ditch crossings (assume every 2 miles), pavement replacement, and landscape restoration.
- 34** - **36-Inch Diameter Pipeline**, Linear Foot (LF) This item includes the typical pipeline trench of 6-inches of imported pipe bedding material, 1-foot minimum trench width both sides of pipe, minimum 5-foot pipe bury to the top of the pipe; and a trench wall excavation above the bottom 3 foot of trench 2H:1V minimum, with a greater (flatter) trench slope along 10% of the alignment due to soil conditions. Compaction shall be 80% over pasture terrain and 95% beneath roads and streets and other identified critical settlement areas. This LF unit price also includes the cost of the metallic pipe, corrosion protection, excavation, bedding, backfill, pipe fittings, pressure relief valves (at high points approximately every ¼ mile), flushing hydrants (approximately every 2 miles), river/stream and irrigation ditch crossings (assume every 2 miles), pavement replacement, and landscape restoration.
- 35** - **24-inch Diameter Pipeline**, Linear Foot (LF) This item includes the typical pipeline trench of 6-inches of imported pipe bedding material, 1-foot minimum trench width both sides of pipe, minimum 5-foot pipe

bury to the top of the pipe; and a trench wall excavation above the bottom 3 foot of trench 2H:1V minimum, with a greater (flatter) trench slope along 10% of the alignment due to soil conditions. Compaction shall be 80% over pasture terrain and 95% beneath roads and streets and other identified critical settlement areas. This LF unit price also includes the cost of the PVC pipe, corrosion protection for all metallic fittings, excavation, bedding, backfill, pipe fittings, pressure relief valves (at high points approximately every ¼ mile), flushing hydrants (approximately every 2 miles), river/stream and irrigation ditch crossings (assume every 2 miles), pavement replacement, and landscape restoration.

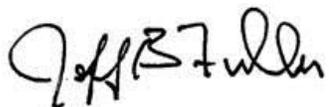
- 36**                    **-16-inch Diameter Pipeline**, Linear Foot (LF) This item includes the typical pipeline trench of 6-inches of imported pipe bedding material, 1-foot minimum trench width both sides of pipe, minimum 5-foot pipe bury to the top of the pipe; and a trench wall excavation above the bottom 3 foot of trench 2H:1V minimum, with a greater (flatter) trench slope along 10% of the alignment due to soil conditions. Compaction shall be 80% over pasture terrain and 95% beneath roads and streets and other identified critical settlement areas. This LF unit price also includes the cost of the PVC pipe, corrosion protection for all metallic fittings, excavation, bedding, backfill, pipe fittings, pressure relief valves (at high points approximately every ¼ mile), flushing hydrants (approximately every 2 miles), river/stream and irrigation ditch crossings (assume every 2 miles), pavement replacement, and landscape restoration.
- 37**                    **- River Intake and Pump Station**, Lump Sum (LS) This item includes construction of a filter gallery and pump station at the North Platte River to pump water to Whalen Reservoir. Items included in this lump sum amount include: filter gallery is river bed; stream restoration; 2 pumps, a 24-foot by 24-foot concrete masonry pump station building, including mechanical and electrical, and associated piping; land acquisition (1/2 acre); site access road (approximately 1 mile); 36-inch pump intake piping (500 feet) 36-inch pump outlet piping (8,000 feet); concrete Whalen reservoir intake facility.
- 38**                    **-Dewatering**, Linear Foot (LF) this item assumes dewatering will be required along approximately 20% of the transmission pipeline alignment. Dewatering is assumed to be required immediately following trench excavation, during pipeline installation and until backfill of the pipeline trench, in areas where water is encountered.

- 39**                    **-Pressure Reducing Station**, Each (EA) Three pressure reducing stations are identified along the proposed transmission pipeline alignment. Each pressure reducing stations costs assume a 20-foot x 20-foot building, access roads and adjacent site work, all electrical and mechanical facilities to the building, pressure reducing valves and bypass piping, as needed. The cost of each of the three pressure reducing stations will be reduced, to some degree, as the pipe sizes and corresponding fittings and valves are smaller. However, this estimate uses one cost for each of the three pressure reducing stations.
- 40**                    **-Municipal (Users) Water Tap**, Each (EA) This item includes a 12-foot x 12-foot building housing the main transmission line with control valves access roads and adjacent site work, all electrical and mechanical facilities to the building, pressure reducing valves and bypass piping, as needed. The cost of each of the municipal water tap facilities will vary, to some degree, as the pipe sizes and corresponding fittings and valves will vary due to the transmission pipe size, and the size of the municipal tap pipe. However, this estimate uses one cost for each of the municipal water tap locations.
- 41**                    **-17 Million Gallons per Day (MGD) Water Treatment Plant**, Lump Sum (LS) This Lump Sum includes: land acquisition, access roads and site work, concrete masonry building including all electrical and mechanical facilities for a conventional coagulation and disinfection water treatment plant including the building, inlet piping and outlet piping. It is assumed this facility will be constructed to expand to double the plant capacity in the future, if needed.
- 42**                    **-Whalen Dam Construction**, Lump Sum (LS) Assumptions and quantity estimates of the dam embankment include: At the deepest point, the embankment will be 48-foot tall and impound approximately 4800acre feet of water. The dam construction cost amount includes minimal clearing within the reservoir footprint, clearing and grubbing of the embankment footprint. An embankment is estimated with a 20-foot top width with 4:1 upstream and downstream embankment slopes along the 1500 length of the embankment (400,000CY). The upstream face will include 3-foot riprap (12,000CY). A 4-foot bentonite key will extend 12-foot below the embankment through the center of the embankment (11,000CY). A 24-foot wide x 4-foot deep concrete emergency spillway, will extend across the top and down the downstream face of the embankment to a concrete stilling basin. The

outlet works will be a 5-foot square concrete box with a 4-foot steel pipe connection to the water treatment plant intake, and extending into the emergency spillway stilling basin. Embankment material will be taken from the reservoir area.

- 43** -**Grayrocks WTP Intake**, Lump Sum (LS) This lump sum item includes a 48-inch pipe connection into the Grayrocks Outlet Works piping and extending this 48-inch pipe (1000 feet) to the PAWS WTP building.
- 44** -**Whalen WTP Intake**, Lump Sum (LS) this lump sum item includes: a 48-inch pipe (1000 feet) to connect the Whalen Dam outlet works facilities to the WTP, including associated fittings and valves.
- 45** -**Grayrocks WTP Outlet**, Lump Sum (LS) This lump sum item includes a pump, associated piping and a 42-inch pipe ( 40,000 feet) to extend from the WTP to the connection with the water transmission pipeline at the east side of Guernsey.
- 46** -**Whalen WTP Outlet**, Lump Sum (LS) This lump sum item includes a pump, associated piping and a 42-inch pipe (18,829 feet) to extend from the WTP to the connection with the water transmission pipeline at the east side of Guernsey.

*These Cost Estimates were prepared by Jeff Fuller and Frank Strong November, 2011.*



Jeff Fuller



Frank Strong

*These Cost Estimates were reviewed and discussed with Bob Juve, Dave Schaff and Todd Hepworth December 2011 and January 2012.*



Bob Juve



Dave Schaff



Todd Hepworth



# ***Appendix H:***

## ***USBR Review***

### ***Comments/Discussion***



## **Introduction to Appendix H**

Throughout this Appraisal Investigation, the study team received input from USBR staff. This Appendix includes documents received by USBR staff and provides responses to those comments which were incorporated into the study report.

USBR staff providing guidance, input and clarification include:

Kip Gjerde  
John Lawson  
Lyle Mylar  
Chris Perry  
Bob Jurenka  
Mike Kramer  
Deena Larsen  
Steve Piper  
Dan Donaldson  
Jeff Baysinger

USBR staff provided input to the discussions at the Project Team conference calls, and the Advisory Group Meetings.

In addition, this appendix includes comments received from USBR staff on draft versions of the Appraisal Investigation Report; and responses to these comments.

We wish to express our thanks and appreciation to these staff, as the investigation and recommendations were greatly enhanced through their input and involvement.

**United States Bureau of Reclamation Comments**

**Platte Alliance Water Supply (PAWS) - Draft Appraisal Investigation Report stamped 9-16-11**

<u>From</u>	<u>Location in Report</u>	<u>Comment/Problem</u>	<u>Recommended Solution</u>	<u>Addressed and Discussion</u>
1. Bob Jurenka, Environmental Engineer, 86-68120	Chapter 2	In the 2nd paragraph, the Towns of Bridgeport and Bayard are omitted, yet they are listed later in the report. (i.e. Chapter 4, pages 4 and 5)	Add to this section all of the towns that will be in the study area.	<b>Bayard was added to the paragraph, Bridgeport was already listed. All towns are listed.</b>
2. Bob Jurenka	Chapter 2 Page 4	The description for the Town of Gering includes that this town is "evaluating development of additional wells; and or construction of treatment facilities." The report does not describe the current status of this localized treatment or how such facilities would interface with this project's alternatives.	Add to the report's chapters 2 or 3, a description of the current status of this localized treatment and how such facilities interface with this project's alternatives.	<b>Added discussion to 3rd paragraph of Chapter 3...This PAWS Appraisal Investigation provides a regional system to provide potable water at a tap to the treated water transmission pipeline for each community in the study area. Communities, on an individual basis, will address modifications and upgrades to their current water storage and distribution infrastructure, and comingling of their existing water supply.</b>
3. Bob Jurenka	Chapter 2 Page 5	The description for the Bayard states that this town has built a nitrate removal WTP. The report does not describe the current status of this localized treatment or how such facilities would interface with this project's alternatives.	Add to the report's chapters 2 or 3, a description of the current status of this localized treatment and how such facilities interface with this project's alternatives.	<b>Added discussion to 3rd paragraph of Chapter 3...This PAWS Appraisal Investigation provides a regional system to provide potable water at a tap to the treated water transmission pipeline for each community in the study area. Communities, on an individual basis, will address modifications and upgrades to their current water storage and distribution infrastructure, and comingling of their existing water supply.</b>

4. Bob Jurenka	Chapter 2 Page 5	The description for the Bridgeport states that this town is implementing two new wells and construction of a ion exchange WTP. The report does not describe the current status of this localized treatment or how such facilities would interface with this project's alternatives.	Add to the report's chapters 2 or 3, a description of the current status of this localized treatment and how such facilities interface with this project's alternatives.	<b>Added discussion to 3rd paragraph of Chapter 3...This PAWS Appraisal Investigation provides a regional system to provide potable water at a tap to the treated water transmission pipeline for each community in the study area. Communities, on an individual basis, will address modifications and upgrades to their current water storage and distribution infrastructure, and comingling of their existing water supply.</b>
5. Bob Jurenka	Chapter 3 Page 1	Paragraph 6 states that over 80% of the water used in the PAWS is for irrigation. Since the new WTP will be for potable water, a table of demands vs. time is needed.	Add to the report in section 4, a table of demands by years for the WTP. This is also needed to substantiate how the WTP will be constructed in phases.	<b>The statement that 80% of the water is currently used for irrigation is to highlight that this is a water quality issue not a water quantity issue. The Population and Use Projections table provided in Chapter 4 provides demand (average day peak day volumes) for every ten years. Also a table has been added in APPENDIX F to show the peak day demand for each community in 2070.</b>

6. Bob Jurenka	Chapter 3 Page 3	The WTP is described as being built in two phases. No flow vs. time information is provided to substantiate that two 17 mgd phases is justified	Add to section 4 the expected flow rate this WTP will need to meet. If Towns have new local WTP's, state how those plants will be used in conjunction with the new federally funded WTP.	<b>The time versus flow information is provided in the Population and Use Projections table provided in Chapter 4. These projections show a peak demand in 2070 of 34 MGD. As this report identifies opportunities to reduce potable water consumption and the municipalities may elect to initially comingle the PAWS potable water with their current treatment facilities. The 34MGD water treatment plant would be designed to initially construct 50% of the capacity (17MGD) and ; expand the facility in the future, as needed. From the Population and Use Projections table this would be after 2045. See also discussion with respect to comment 10.</b>
7. Bob Jurenka	Chapter 4 Page 4	The WTP is described as being built in two phases. No flow vs. time information is provided to substantiate that two 17 mgd phases is justified.	Add to section 4 the expected flow rate this WTP will need to meet. If Towns have new local WTP's, state how those plants will be used in conjunction with the new federally funded WTP.	<b>Refer to comment #6.</b>
8. Bob Jurenka	Chapter 4 Page 5	The WTP is described as being built in two phases. No flow vs. time information is provided to substantiate that two 17 mgd phases is justified	Add to section 4 the expected flow rate this WTP will need to meet. If Towns have new local WTP's, state how those plants will be used in conjunction with the new federally funded WTP.	<b>Refer to comment #6.</b>
9. Bob Jurenka	Chapter 4 Page 5	Waylen Canyon Reservoir is used in the 4th paragraph however, exhibits 4.2A, 4.2B, and 4.2C, spell it Whalen.	Correct spelling	<b>Corrected. Whalen is the correct spelling.</b>

10. Bob Jurenka	Chapter 4 Page 5	USBR criteria is cited with no specificity.	Add the specific criteria that limits construction of a reservoir. Will the criteria allow the 2nd phase expansion described later in the 4th paragraph.	<b>The specific criteria... new reservoirs must have less than 50-foot embankment height and less than 5000 acre-feet water capacity for funding eligibility in this program... is listed in the fourth paragraph on Chapter 4 page 5. This investigation does not address funding for subsequent expansion of the constructed facilities. It is noted that expansion of these facilities is anticipated at least 25 years in the future; and the reduced operational and maintenance costs resulting with the construction of these facilities will "break even" in approximately 10 years. It is anticipated the regional system will then be creating a capital improvement fund to assist with future expansions.</b>
11. Bob Jurenka	Chapter 4 Page 5	An intake is described with no details as to type.	Provide descriptions of the intake and, for the cost estimate, provide documentation supporting the design and its costs.	<b>A "generic" description of the intake is included in the assumptions to the cost estimate.</b>
12. Bob Jurenka	Chapter 4 Page 6	The first complete paragraph states that the N. Platte River flow into Nebraska is to be maintained. It states that municipalities may have to utilize their existing wells to pump to the river to maintain these (N. Platte River) flows. The subsequent cost estimates section does not list costs for these wells to pump to the river.	Identify all costs for this alternative associated with pumping well water to the river.	<b>This paragraph has been revised to replace the third sentence of this paragraph with...An assumption of this investigation is existing municipal wells are under the influence of surface water. Changing the point of use and eliminating pumping will maintain existing North Platte River flows....</b>

<p>13. Bob Jurenka</p>	<p>Chapter 4</p>	<p>A Reverse Osmosis Treatment Cost curve is provided with no descriptions of the type of RO membrane used, whether or not it includes cartridge filters, feed pumps, clean-In place equipment, concentrate disposal equipment, or spent cleaning chemical neutralization.</p>	<p>Provide details supporting the costs in the cost curve.</p>	<p><b>The cost is based on information produced by Harn R/O Systems. The cost represents a complete system; including cartridge filters, feed pumps, clean in place equipment, and spent cleaning chemical neutralization.</b></p>
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14. Bob Jurenka	Chapter 4	A note at the bottom of this page, (Conceptual costs for the No Action Alternative) claims to add 30% to the individual WTP costs to account for wastewater treatment of wastewater flow from each WTP. There are no details justifying that 30% of the WTP cost realistically covers the WWTP cost.	<p>A. Provide details justifying that an estimate of 30% of WTP costs closely estimates WWTP costs for the wastewater flow from the WTP.</p> <p>B. Why does option 1 (No-Action) include such an allowance while options 2 and 3 do not?</p>	<p><b>A. The 30% cost estimate used for the expansion and modification to the existing wastewater facilities is based on the construction of a RO treatment plant at each community. A typical RO plant is operated at 50% treated with a waste stream of 25% of the treated water produced. The waste stream will need to flow to the waste water treatment facility to provide proper treatment. It has been our experience that the waste water treatment facilities for these small rural communities do not have adequate capacity to handle the additional flows and will be required to expand their facilities. The cost of expansion is based on a cost of \$12 per daily gallon treated and equates to 30% of the cost to construct the water treatment plant. B. The water supply for the alternatives is from an upstream source (Grayrocks Reservoir and/or Whalen Dam), and these sources do not have the nitrate, arsenic nor uranium amounts present therefore water treatment is anticipated to include disinfection and turbidity control; and the wastewater will not require subsequent treatment prior to discharge.</b></p>
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15. Bob Jurenka	Chapter 4	WTP unit and total capital costs are presented in columns 7 and 8, respectively. No explanation is provide on how the unit cost is derived and it does not seem to match the Reverse Osmosis Treatment Cost curve, at least for Bayard.	A. Provide an example of how the Reverse Osmosis Treatment Cost curve is used. B. Describe if cost estimates include disposal of all plant residuals. Include description of methods of disposal (i.e. truck hauling etc.)and identify the locations of final disposal sites.	<b>A. For Bayard, the capital cost per gallon is \$4.40 this is derived from the trend line equation shown on the curve. <math>Y=3.738*(.618)^{-0.34}=\\$4.40</math> per gallon. <math>\\$4.40</math> times 618,000 gallons = 2,719,200. The cost was completed in MS Excel and did not round off the \$4.40 figure. B. The costs are based on discharge water being disposed of at the water treatment plant and the spent membranes being disposed of (hailed by truck) to a landfill.</b>
16. Jeff Baysinger Water Conveyance Group	Chapter 2 Page 7	Ways to show water conservation and other ways to discourage water users from using potable water are not clearly shown.	Would like to see a sentence or two to clarify what are the means or methods to discourage water uses not requiring potable water	<b>Yes. See Page 7 of Chapter 2, the last paragraph....Some rural communities are currently exploring or implementing some of these potable water conservation measures. The City of Torrington is implementing a process for irrigation of some city parks with non-potable irrigation water. Other communities are exploring similar options.</b>

17. Jeff Baysinger	Chapter 4 Page 2	Ways to show water conservation and other ways to discourage water users from using potable water are not clearly shown.	If we clarify the means to discourage water users from requiring potable water, would there be expectations that the 155 gpcpd could be even further reduced?	<b>Yes. Currently, the communities do not have dual (potable and non-potable) water supply systems. However on a case by case basis, each community will address conservation opportunities (ways to utilize non-potable water for parks, recreation areas, lawns, etc.). Through metering and tiered potable water costs, residents will realize the financial benefits of water conservation.</b>
18. Jeff Baysinger	Drawing General	Need an overall view	Would like to see an overall schematic drawing depicting the water supply connection alternatives (4-1A or 1B) to the entire pipeline system. This drawing should precede drawing 4-T1.	<b>4-1 has been revised to show an overview map of the Plan &amp; Profile sheets and reservoir supply option locations.</b>
19. Jeff Baysinger	Drawing	hydraulic grade lines are unclear	a. Would like to see mention where the hydraulic grade line starts as to how this connects to the supply alternatives	<b>The hydraulic grade lines were based on providing adequate pressure to supply water to each community at existing water pressures. The alternatives have been revised to simplify connection points.</b>
20. Jeff Baysinger	Drawing	Flow rates are missing	b. Would like to see flow rates also shown on the drawings. Flow rates need to be provided up to all turnouts.	<b>The flow rates have been added.</b>
21. Jeff Baysinger	Drawing	Drawings are incomplete.	Pipe, pumping plant needs, and tanks need to be shown. These drawings need to refer back to 4-T1 as to how the water pressure is elevated to the starting hydraulic grade line.	<b>For both the Grayrocks and the Whalen Dam Alternatives, the potable water supply will be pumped from the outlet of the water treatment plant to the hydraulic grade line East of Guernsey at the beginning of the transmission line.</b>

22. Jeff Baysinger	Conceptual Cost Estimate	Trench info missing	While the notes mention earthwork is included in the pipeline pricing, would like to see written description of a typical assumed trench. Info would include width and cover.	<b>The pipeline trench will consist: of 6-inch of pipe bedding; 1-foot minimum trench width both sides of pipe; minimum 5-foot pipe bury to the top of the pipe; and trench wall excavation above the bottom 3 foot of trench 2H:1V minimum, and maybe greater slope depending upon soil conditions. Compaction shall be 80% over pasture terrain and 95% beneath roads and streets and other identified critical settlement areas. These and additional assumptions have been included with the cost estimates.</b>
23. Jeff Baysinger	Conceptual Cost Estimate	Items need to be tied to pipeline drawings	Would like to see the items tied to the pipeline drawings for quantity verification. For example, the 12-inch pipeline is not shown on drawings.	<b>The drawings have been revised and stationing is shown in the plan &amp; profile views.</b>
24. Jeff Baysinger	Conceptual Cost Estimate	How many PRVs are needed?	Three PRVs are listed and shown on drawings at Stations 1175, 2500, and 3850. Would a 4th PRV be needed at the Bridgeport end, Station 5350?	<b>Only three PRVs are needed. The static pressure at Bridgeport would be 210 psi. A PRV would not be required because the control valve to Bridgeport would be designed to handle the pressure drop (dual function valve). Pressure control valving will be required for each community tap location to supply the water compatible with existing pressures.</b>
25. Jeff Baysinger	Conceptual Cost Estimate	Where are unlisted items?	Clearly show unlisted items	<b>Unlisted items are identified with the assumptions included with each cost estimate.</b>

<p>26. Dan Donaldson, Senior Estimating Engineer, Reclamation, TSC, Denver, CO 80225</p>	<p>Conceptual Cost Estimate</p>	<p>1. Unit Price Level missing (quarter, year), for example (Jan 2011). The quarter that the unit prices were developed should be either; Jan, Apr, Jul or Oct along with the year the unit prices were developed.</p>	<p>Indicate directly on the estimate worksheet. Reference Estimate Worksheet - Guide for Designers for an example.</p>	<p><b>The Unit Price Level (October, 2011) is included with the cost estimates.</b></p>
<p>27. Dan Donaldson</p>	<p>Conceptual Cost Estimate</p>	<p>2. No indication (signatures and dates) of quality control/quality assurance check or peer review (quantities and prices).</p>	<p>Indicate directly on the estimate worksheet. Reference Estimate Worksheet - Guide for Designers for an example.</p>	<p><b>The cost estimates were compiled by Jeff Fuller and Frank Strong, based on many recent similar bid tabs of projects in the vicinity of the project area. These cost estimates were reviewed by Bob Juve, Dave Schaff, Frank Strong, and Todd Hepworth and updates were discussed and incorporated, as appropriate.</b></p>
<p>28. Dan Donaldson</p>	<p>Conceptual Cost Estimate</p>	<p>Allowance for mobilization cost appears missing. Typically, for Reclamation appraisal level estimates, a plug 5% value is used for mobilization. Contingencies @ 15% appears low for Conceptual Cost Estimate (or Reclamation appraisal level estimate). Typically, for Reclamation appraisal level estimates, contingencies are broken out as follows; design contingencies (typically 10% to 15% for appraisal level estimates) and construction contingencies (typically 25% for appraisal level estimates). Therefore, we would expect at least 35% (+/-) to more than 40% (+/-) range for total contingency amount. No amount for Allowance for Procurement Strategies (APS) indicated. See Reclamation Manual - Directives and Standards - FAC 09-01 - Cost Estimating for more information regarding both Contingencies and APS. Do the unit prices include an allowance for escalation during construction? Is there a need to also add an allowance for escalation to the Notice to Proceed milestone date? There was no indication if escalation costs were considered. Please reference Reclamation Manual - Directives and Standards - FAC 09-01 - Cost Estimating for more information regarding allowances for escalation. Non-Contract type cost percentage (Engineering, 7% Design/8% Construction) or 15% appear to be low per Reclamation typical non-contract cost percentage for similar work. Typically, for Reclamation appraisal level estimates, a non-contract percentage of 20% to 50% is applied. For a large civil works job such as this one, that percentage tends to be towards the lower end of the typical range. Backup supporting cost estimating information regarding all allowances and non-contract cost percentages shown were missing as to how those percentages were generated. Please provide all supporting documentation, calculations, historical data references, etc. that support the development of those cost percentages shown.</p>	<p><b>Construction cost estimates were initially based on Wyoming Water Development Commission (WWDC) format, which have historically provided relatively reliable results. We have adjusted this format to more align with USBR format (which provided more conservative estimates). We provided costs based on October 2011, and based on the recent economic situations, we have not "escalated" to any future milestone date.</b></p>	

29. Dan Donaldson	Conceptual Cost Estimate	All unit prices (except for the Water Treatment Plant) lacked supporting backup estimating documentation on how the unit prices were developed. There were also many lump sum items with no sub-breakdown information and supporting cost estimating information as to how those lump sum costs were developed. Please provide supporting cost estimating information so that an independent review to determine the reasonableness of the unit prices can be conducted. For example, the reservoir modifications lump sum item has a note about dredging the existing reservoir to provide 5000 acre-feet of additional storage. No indication of the amount of dredged material and/or where that material would be wasted or other related cost estimating assumptions or development of costs provided.	<b>Additional information regarding the assumptions used in development of the unit price and lump sum items is provided in APPENDIX G to this Appraisal Investigation.</b>
30. Dan Donaldson	Conceptual Cost Estimate	It appears that for the two Conceptual Cost Estimates (Supply from Grayrocks Reservoir Project Total of \$265M and the Supply from a New Off-River Site Project Total of \$300M, respectively), that the list of major cost items may be incomplete (missing key cost drivers). For example (for the pipelines) there was no indication on whether roadway or railroad crossings, removal/replacement of utilities for pipelines through town or city urban areas, were included in the Project Total Cost. For dike work, many major cost items could be missing including; clearing, diversion and care of river, cofferdams, spillway feature, riprap layer, filter layer, grouting, etc. Please verify that all of the major cost driver items (scope of work) are accounted for in each alternative.	<b>Additional information regarding the assumptions used in development of the unit price and lump sum items is provided in APPENDIX G to this Appraisal Investigation.</b>
31. Dan Donaldson	Conceptual Cost Estimate	Geology information was missing regarding excavation items whether excavation would be rock or common soil or a combination of both (if combination than what percentage of rock or common excavation for the quantities shown?)? Please provide supporting backup estimate information. Profiles (Exhibit 4-1A and 4-1B) for the pipeline running from Grayrocks Reservoir appeared to have significant elevation gains or drops. Was this steep terrain accounted for in the cost estimate? The dewatering item did not indicate the duration (e/.g, how many months?), amount of water to be removed (e.g. cfs or gpm), what type of dewatering system assumed (e.g., deep wells, well points, etc.), the number, size, and depth of wells, pumping per day/week (24/7, 8 hours day/5 days week, etc.) in order to determine the reasonableness of the unit price noted.	<b>No geologic investigations were performed for this Appraisal Investigation. General subsurface geologic conditions were based on significant pipeline work in the project area by the project team. Pipe unit prices were developed by comparison with many recent projects in the area, which included similar geologic conditions (and required similar dewatering, rock, dust abatement, etc.) It is felt this provides a reliable Appraisal Investigation estimate.</b>

32. Dan Donaldson	Conceptual Cost Estimate	Pipeline unit prices did not provide backup information to indicate exactly what type of pipe. The report states "metallic". Does that mean steel or ductile iron pipe? Type and quantity of pipe embedment material that was assumed (e.g., CLSM, gravel, sand, etc.) was not noted. Assumed pipe excavation slope (e.g., 1:1, 2:1, etc.) and soil cover depth was not noted regarding the pipe trench section. No indication of amount of rock excavation assumed. No indication whether dust abatement costs were considered in the pipeline unit prices. The report notes that pipe unit price includes; excavation, corrosion protection, bedding, backfill, fittings, valves, flushing hydrants, river/stream crossings, landscape restoration, pavement replacement, etc. PAWS estimates pipe unit prices appear to be low by about 15% to 30% (+/-) based on a rough comparison analysis of a recent Reclamation steel pipeline estimate.	<b>Pipeline prices indicated metallic pipe. Experience has been that if similar corrosion pipe protection measures are required, metallic pipe prices (ductile iron and steel) are similar. Refer to comment 22 and 31 (above) for pipe trench assumptions.</b>
33. Dan Donaldson	Conceptual Cost Estimate	The Dam item did not indicate how many cubic yards of material is needed to build it, where the material to build the dam is to be obtained from (e.g., local on-site borrow source, or commercial source), how far the haul distance is (e.g., one-way in miles), what the configuration of the dam is (e.g., slope, width, length, etc.), any access issues (e.g., does an access road(s) need to be constructed, etc.), does the dam need to have a filter zone and if so how many cubic yards is filter and what type of filter, where/how far is the filter material coming from as per above comment. Does the dam need protective cover (riprap, etc.) and if so what is the quantity?	<b>Additional information regarding the assumptions used in development of the unit price and lump sum items is provided in APPENDIX G to this Appraisal Investigation.</b>
34. Dan Donaldson	Conceptual Cost Estimate	Supporting cost estimating backup information of the proposed Water Treatment Plant (WTP) items is based on an historical cost curve graph. The cost curve in the report did not indicate what projects the graph's cost represented or if they were based on bid abstracts and how the data was normalized to 2011 dollars (what assumptions were used and/or what escalation rate was applied to get the graph's costs in 2011 dollars?). Also, supporting cost estimating backup information of the WTP Intake item is missing and how that lump sum item cost was developed.	<b>See Comment #13.</b>
35. Economics	Chapter 2 Page 11	The discussion in the Socio-Economic Conditions section on page 11 of Chapter II indicates that the area is characterized as rural agricultural, with low growth and a stable low to moderate standard of living. Population statistics are provided, but other socio-economic statistics such as median household income, per capita income, unemployment, type of employment, and poverty rates should be provided for the study area (the county level is adequate) and for all of Wyoming and Nebraska as a basis of comparison. This would provide context for the statements made about current conditions.	<b>Additional discussion has been provided in Chapter 2.</b>
36. Economics	General	The Socio-Economic Conditions section indicates population stability or low growth. The population projections used to estimate future demands are then based on a significant 1% growth rate. I did not look up all of the counties, but the historical population of Goshen and Scotts Bluff Counties from 1980 to 2010 would not seem to support a 1% annual growth rate (see below). More information needs to be provided to support the 1% annual growth rate used in the analysis.	<b>Additional historical population discussion is provided in Chapter 2.</b>

37. Economics	General	The cost tables indicate O&M costs are based on a 50 year system and 3% inflation. Generally an economic analysis should be based on current real costs applied throughout the project period (this can vary if real costs are expected to change, but not if costs are expected to change at the same rate as the general inflation level) discounted using the current project planning rate (which is currently 4%).	<b>Based on the scenario that O&amp;M costs have significantly increased (greater than 3%) in the recent past; the 3% inflation number reflects that it is anticipated these costs will continue to increase well above the general inflation level. This is due to the additional requirements of the Safe Drinking Water Act, requiring greater levels of operator certifications, operator required reporting, and increased sampling requirements and for additional constituents.</b>
38. Economics	General	The capital costs appear to be based on an overnight cost. Although not necessarily required at the appraisal level, there should be some consideration of including interest during construction (IDC) or at least mention that IDC is not included (or how it was calculated if IDC is included).	<b>Interest during construction (IDC) has not been included in the cost estimates.</b>
39. Economics	General	The tables in Chapter IV: Alternatives that show estimated increased water costs per connection are very good and helpful. This information needs to be combined with the current water rate information provided in Chapter II, pages 6 and 7 to address affordability. The total annual cost of water service can be divided by median household income to derive a percentage of household income spent on water. This can then be compared to thresholds used by the states or federal agencies (such as the 2.5% threshold used by EPA) to evaluate affordability at the appraisal level.	<b>An additional table has been added showing the EPA threshold and the project water rates.</b>
40. Economics	General	Are the benefits provided by the alternatives equal across all alternatives? The comparison of costs (favoring least cost) is valid only if the end outputs (benefits) are equal. If there are qualitative differences between alternatives these need to be clearly indicated in a separate section in addition to the cost differences.	<b>Yes, the benefits of the proposed alternatives are equal.</b>

41. GP Region - Kip Gjerde and Chris Perry	General	<p>The range of alternatives described in the report did not include consideration of innovative technologies for treatment of low-quality water, other than reverse osmosis, which Reclamation considers a mature technology. We suggest considering the viability of other technologies, including nanofiltration. Opportunities for wastewater reuse for non-potable uses should also be considered. Please describe potential barriers to use of innovative technologies and recycling.</p>	<p><b>Other treatment technologies were noted; and some provided for more cost effective treatment of some constituents; however, reverse osmosis was identified as it has the "flexibility" to be modified to treat varying water quality and additional constituents. Also, community water quality appears to be continually deteriorating. It didn't appear there was a specific treatment technology that each community could utilize to provide quality water, therefore reverse osmosis was used to develop costs for the No Action Alternative. If each community is to provide individual water treatment, yes, each may identify a technology more specific to their water quality situation.</b></p>
42. GP Region - Kip Gjerde and Chris Perry	General	<p>Please describe viability for blending locally-treated supplies with a regional water supply.</p>	<p><b>Blending is a very viable and desired short term solution that allows communities to blend initially and provide time to develop water conservation solutions. There remains a concern that existing water sources will continue to deteriorate; and future EPA MCL's may preclude blending as a long-term solution.</b></p>

43. GP Region - Kip Gjerde and Chris Perry	General	The report did not discuss the potential to use or produce renewable energy despite the statement that the study area has been identified as a potential area for wind energy development. We suggest analyzing opportunities to utilize wind energy and other potential renewable energy opportunities, such as solar and micro-hydropower, at an appraisal level of detail and using readily available information. For instance, there is some discussion in Chapter IV on page 4 about generating power at pressure reducing stations. That concept should be further developed to describe suitability (local geography, conditions, availability of skilled labor, etc.), cost, affordability, environmental, construction, and operations and maintenance (OMR) considerations.	<b>Additional discussion is provided in Chapter 4.</b>
44. GP Region - Kip Gjerde and Chris Perry	General	Please clarify whether/how much of the average historic demands (which range from 0 to 1168 gpcd in Chapter II, Page 8), No Action demands (155 gpcd) and project demands (155 gpcd in Chapter IV, Page 2) include commercial irrigation uses. The Program considers such uses to be ineligible (generally greater than 1 acre) per the Guidance that follow these comments. Please make the appropriate adjustments to remove ineligible uses. In addition, please clarify the following sections in regard to ineligible use (e.g., commercial irrigation): <b>a.</b> Chapter II, Page 8 which states that PAWS is not intended for regular irrigation use. <b>b.</b> Chapter II, page 10 regarding mitigation methods. Clarify that mitigation via the Program may only be used to provide water for eligible uses. <b>c.</b> Chapter III, Page 1, last paragraph that states "...with numerous administrative and irrigation requirements". Clarify that ineligible irrigation requirements cannot be met by the Program.	<b>No current commercial irrigation uses within the study area were included in the development of historic or forecasted water demands. a. PAWS is intended for potable water use. b. Mitigation may reconcile Wyoming and Nebraska water rights and is not intended to provide potable water, nor any potable water facilities, for irrigation purposes. c. A regional rural potable water delivery system must effectively address and manage rural potable water delivery with numerous administrative and water right requirements.</b>
45. GP Region - Kip Gjerde and Chris Perry	Chapter 2 Page 10	Purchase of agricultural rights was said to be a less desirable mitigation method because a significant amount of farm land would be affected. Please indicate the approximate amount of acres that would be affected.	<b>Approximately 10,000 acres is assumed.</b>

46. GP Region - Kip Gjerde and Chris Perry	Chapter 4 Pages 1-3	<p>The No Action alternative, e.g., where users continue to utilize the area's groundwater resources, appears to be viable from a water supply standpoint. However, regional systems served by deep groundwater wells were ruled out in Chapter IV, Page 7-8, in part because of challenges of modifying the WY/NE water compact. We observe that the recommended alternative would also require changes to the compact and state constitutions, changes which were determined not to be "a significant challenge." The reasons for dropping the groundwater alternative are not consistent with statements made in support of the recommended alternative. The report should explain why groundwater can be used on the one hand and not on the other to meet the same demand, determine if there are opportunities to retain and/or modify some of the alternatives dropped, and which would be recommended to be further examined in a more detailed feasibility study. We are looking for rationale for dropping groundwater, and are not requiring more alternative development work. If upon your further review, groundwater options could be viable including opportunities to blend local supplies with a regional supply, the report could document your findings and suggest they be examined in a more detailed feasibility study.</p>	<p><b>Two types of groundwater are identified. Alluvial (shallow) wells and deep groundwater wells (greater than 1000 feet deep). Currently shallow wells are being used by the PAWS communities for water supplies. These wells have been identified as being under the influence of surface water, have become contaminated, and meeting potable water standards is increasingly difficult and cost prohibitive. Yes, blending the water from these wells with the regional system water would provide some "relief". Refer to comment #2, #6 and #42. Deep groundwater wells appear to provide a better quality; however no locations have been identified within the project area, with potential deep groundwater availability in the volumes required for a regional system.</b></p>
47. GP Region - Kip Gjerde and Chris Perry	Chapter 4 Page 2	<p>It appears that reducing demands to 155 gpcd will be accomplished by reducing irrigation and non-potable consumption. In order for a valid comparison of this rate to the 300 gpcd 'conservation rate', both should consider reduced irrigation and non-potable consumption. We suggest describing other specific conservation and demand reduction measures that could be used to further support the 155 gpcd rate, e.g., tiered pricing, metering, etc.</p>	<p><b>Yes, these conservation measures have been discussed in comment #16 and #17.</b></p>

48. GP Region - Kip Gjerde and Chris Perry	Chapter 4 Pages 4-5	Describe the water supply availability/reliability for utilizing Basin Electric's Grayrocks Reservoir, including if water supplies are likely sufficient to justify expanding the facility to provide additional capacity for a regional water supply project.	<b>Grayrocks Reservoir was completed in 1978, as a source to the cooling towers for the coal fired power plant. Water supply is very weather dependent, and has varied significantly since the dam was completed. It appears there are likely sufficient water supplies available. However, maintaining existing water right obligations and ensuring the priority for water to Basin Electric need to be studied further in a subsequent Feasibility Study.</b>
49. GP Region - Kip Gjerde and Chris Perry	Chapter 4 Page 5	Please describe the water supply availability/reliability during winter months for the proposed new off-river site (Whalen Canyon Reservoir).	<b>Appraisal Investigation analysis have identified water from the North Platte River could be made available during the winter months to supply Whalen Reservoir. North Platte River intake and pumping facilities to Whalen Reservoir are included in the cost estimates.</b>
50. GP Region - Kip Gjerde and Chris Perry	Chapter 4 Page 6	Clarify how mitigation costs (e.g., pumping wells to the river) are accounted for in the cost estimates.	<b>They are not included in the cost estimate, as it has been evaluated that pumping to the river will not be required. Refer to comment #12.</b>

51. GP Region - Kip Gjerde and Chris Perry	Table in Chapter 4 Page 9	The table states that the PAWS system will provide average daily flows to users and that peak day demands will be addressed with user storage facilities. We agree with that strategy to utilize existing storage and distribution infrastructure for meeting peak needs downstream of the transmission line's wholesale tap. The project's water treatment plant and transmission pipeline design and costs, however, used a peaking factor of 2.0. Please revise the water treatment plant and transmission pipeline design and cost estimates to account for providing average daily flow and not peak flow.	<b>The existing water storage at each connection is meant to handle the hourly peak flows within each day. The 2.0 peaking used in this report is for the peak day summer flows, which would be encountered on a sustained basis. A sustained summer daily demand of 2x the average annual flow, the system would not have sufficient storage volume or time to replenish reservoirs without meeting the average anticipated summer daily demand.</b>
52. GP Region - Kip Gjerde and Chris Perry	General	The report contains references attributing farm practices as a significant contributing factor to poor water quality, e.g., high nitrates. Although land management opportunities is not the focus of a rural water project, § 404.44 (c) (6) of the Rule states that the appraisal report should describe how the alternatives use integrated water resources management. We suggest describing the measures that the potable water users or state/Federal agencies could take in conjunction with a regional supply project to improve land management practices aimed at reducing or stabilizing the impact on groundwater quality.	<b>While we agree with the implementation of land management practices to reduce negative impact of high nitrates, the recommended alternative water supplies are taken upstream of high nitrate water quality issues, eliminating the problem. Therefore, land management measures downstream of the water supply intake, in fact, will not impact the recommendations of this Appraisal Investigation.</b>
53. GP Region - Kip Gjerde and Chris Perry	General	Section 404.44 (c) (1) of the Rule requires that "viable water supplies and water rights sufficient to supply the proposed service area" be identified. Chapter VI, Page 1, states that a Joint Powers Board is necessary to secure the necessary water supply for a regional project and that doing so is not a significant challenge because of strong support. The report should substantiate strong support for the constitutional and administrative changes needed to secure sufficient water supplies, such as appending letters from each of the state water management and administration entities.	<b>Letters from The Wyoming Water Development Commission and the Nebraska Department of Natural Resources have been added in APPENDIX C.</b>

54. GP Region - Kip Gjerde and Chris Perry	General	In the No Action cost estimate table, please provide support for the assumption for increasing water treatment plant costs by 30%.	<b>This has been discussed in comment #14.</b>
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## **Conference Call**

Subject: **Discuss response to USBR final review comments**  
Final review comment letter attached

*September 4, 2012 at 10:00am Mountain time*

Participants: Kip Gjerde/USBR  
Bob Juve/Torrington-Goshen County  
Lyle Mylar/USBR  
Chris Perry/USBR  
Bob Jurenka/USBR  
Deena Larsen/USBR  
Mike Kramer /USBR  
Steve Piper/USBR  
Jeff Fuller/jbf consulting, LLC

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Comment 5 – Revise the narrative to clarify health and safety threats and what the alternative is to accomplish.

*The narrative has been revised to incorporate these suggested clarifications*

Comment 6, 7, and 8 - The flow rate in year 2045 does not correlate to 17 mgd.

*Reword the narrative such that the initial water treatment plant sizing of 17 mgd will be ½ of the ultimate capacity. Eliminate reference to the 2045 flow rates.*

Comment 12 – Describe RO recovery and reuse of spent RO membranes.

*Costs for RO recovery and disposal of spent membranes are briefly addressed (taken from current costs incurred and processes utilized by the City of Torrington with their RO treatment) in the “No Action” alternative. They are not re addressed in the recommended alternative, as the assumption is RO treatment will not be required in a regional water treatment plant with a water supply located from the North Platte River in the vicinity of the Town of Guernsey. Refer to the water quality analysis provided by the Town of Douglas in Appendix I.*

Comment 35 – Provide additional support for the 1% growth rate.

*The narrative in Chapters 2 and 4 has been modified to clarify and provide additional support for the 1% growth rate.*

Comment 37 – Clarify increased costs due to inflation.

*The narrative has been clarified and modified as suggested.*

Comment 39 – Clarify affordability.

*A table, Exhibit 2H, has been inserted at the end of Chapter II to incorporate the EPA threshold information, as suggested.*

Comment 41 – Provide additional detail on other treatment technologies.

*With the discussion, there was an assumption by the reviewers that treatment at a single site would be similar to what occurs today. The investigators did not make it clear that with a single treatment plant located upstream end of the regional area, water treatment would be greatly simplified, and innovative water treatment technologies to eliminate nitrates, arsenic and uranium would not be required. To provide support of this assumption, recent (2011) water quality information from the Town of Douglas, water supply from the North Platte River, indicates only slow sand filter and chlorination is required. This information has been included in an Appendix I.*

Comment 42 – It was suggested a wider range of potentially viable alternatives that include integrated water management considerations to reduce nitrates due to irrigation fertilizer management practices.

*It was discussed that the water contaminates include nitrates, uranium and arsenic. It does not appear that land management practices could be modified sufficiently to reduce the nitrate concentrations to meet requirements, and this would do nothing to reduce the uranium and arsenic concentrations. The selected alternative assumes providing a water supply at an upstream location that does not have the nitrate, uranium and arsenic concentrations.*

Comment 46 – Include a discussion of the viability of deep groundwater well sources.

*The report contains a map identifying groundwater control areas (the state of Wyoming has identified no additional groundwater wells in these areas), and areas of groundwater under the influence of the North Platte River (due to the Wyoming/Nebraska water compact groundwater wells are not allowed in these areas). In addition, existing groundwater wells have not produced the volume of water to cost effectively meet the PAWS requirements. This significantly reduces groundwater viability.*

Comment 48 and 49 – Provide basis for the statements “there are likely sufficient water supplies available”, and “water ...could be made available”.

*Discussion included ...there are likely sufficient water supplies available...If necessary there are significant upstream agricultural water rights. This PAWS system could purchase necessary agricultural water rights, if needed, and allow this water to flow in the Laramie River downstream to Grayrocks Reservoir. This is not a “new” concept as during the 2004 to 2007 drought years, Missouri Basin purchased additional agricultural water rights to maintain Grayrocks Reservoir minimum pool for power generation. Purchase of these water rights is also discussed in the cost estimates section.*

*“water...could be made available...Currently there are water rights for approximately 20,000 acre feet of water stored in Glendo Reservoir currently released to Nebraska Irrigation Districts during the summer irrigation season. Purchase of these agricultural water rights would allow release and use of this water during winter months to supply Whalen Reservoir.*

**Subject: Reclamation Response to Appendix H  
Platte Alliance Water Supply Appraisal Investigation, January 2012**

Bob.

There are only a few remaining loose ends that we need addressed per the comments listed below. Please call if you would like to discuss. If need be, I can arrange for the reviewer(s) to be on a call if further clarification is needed.

Comments

5. Bob Jurenka and Kip Gjerde. The Problem and Opportunity Statements (Chapter III page 2) section should be revised to link the problems that will be addressed to the need identified in the first paragraph in Chapter III Page 1. It would appear that the specific problems to be addressed are threats to public health and safety for potable uses as related to EPA primary and secondary standards. The sentence describing that 80% of the water use in the PAWS area is for irrigation could be deleted, unless the study proposes to reduce the negative effects of commercial irrigation on ground water quality. The Planning Objectives and Constraints (Chapter III Page 2) section should set the specification for what alternative plans are to accomplish. Examples could be to meet the 2070 (or other appropriate year) rural and municipal water supply needs, provide potable water that meet standards, identify a project that is affordable or something similar.

6, 7, 8. Bob Jurenka. In the Population and Use Projections table, the flow rate in year 2045 does not correlate to 17 mgd, e.g., the table indicates the rate to be between around 13 mgd average and 26 mgd peak (the basis for design). Please clarify the water treatment plant sizing and methodology for both phases.

12. Bob Jurenka. If the RO recovery is 12-15%, a sizeable waste stream would result. The report should identify and describe the disposal method with costs at the appraisal level of detail. Secondly, spent RO membranes are typically cleaned and reused for several years before being replaced. Since membrane disposal costs are small compared to membrane replacement costs, we suggest identifying membrane replacement costs if they are readily available. Lastly, because membranes require cleaning with low or high pH solutions, a description of the disposal method and costs should be presented.

35. Steve Piper. The discussion at Chapter II Page 11 indicates that "it is believed" spillover from Goshen County to other counties as well as a potential energy boom leads to a reasonable growth rate of 1%. Please provide more support for this statement, such as whether there are shortages of services in Goshen County that would lead to this spillover, if there are indicators of increased energy activity in the area or any comparative advantages for growth in this area compared to other parts of the region. Alternatively, a growth range could be used to measure the sensitivity of use projections and community project costs to population assumptions.

37. Steve Piper. The response to the comment indicates that costs will increase above inflation. However, note 8 in the table that is third from the last page of Chapter IV conflicts with that response. The response says that O&M costs are increasing at 3% above the inflation rate, or a real increase in O&M costs of 3%. This is what the note needs to say to correspond with how we would typically treat increasing costs.

39. Steve Piper. Our previous comment indicated that affordability needs to be better addressed. The response to the comment indicated that an additional table has been added showing the EPA threshold and project water rates. I see the table showing rates on Chapter II Page 6 and the water rate increases in the two tables at the end of Chapter IV, but I do not see anything in the tables comparing representative water costs to the EPA threshold of 2.5% of median household income. This could simple be an additional column in the table on Chapter II page 6. For example: the median household income from the 5 year 2006 to 2010 American Community Survey (Census Bureau) for Torrington is \$40,991. Multiplying this times 2.5% results in annual water cost threshold of \$1,025 annually or \$85.40 per month. This could then be put in a separate column which can then be compared to current water costs and what the cost would be with the project. It appears that the only community that would be greater than the threshold is Gering. This information would satisfy the affordability analysis.

41. Chris Perry. Regarding innovative technologies, the report states other treatment technologies were noted but does not provide any details and only focuses on RO which is a mature technology. Please provide an appraisal level discussion of opportunities to treat and use low-quality or non-potable water, water reuse-based or brackish/saline water supplies through innovative technologies. The write up should explore suitability to the local geography, availability of skilled labor, cost, affordability, environmental impacts, construction, operations and maintenance, etc..

42. Chris Perry and Kip Gjerde. Please provide the basis for the statement that blending is a "short term solution". The report explains that the water supply problem for the region is a water quality issue caused partially by land management practices that result in high nitrate levels. Based on Response 52, it appears that the study focused only on upstream solutions based on the assumption that continued degradation of water quality due to high nitrates precludes blending and other possible treatment alternatives as long-term solutions. It would appear that improved land management practices may counteract the continued degradation of groundwater quality and improve the viability of blending in the long-term. Please revise the report to present a wider range of potentially viable alternatives that include integrated water management considerations. An example is control of irrigation fertilizer management practices to reduce or stabilize nitrate or other contamination.

46. Chris Perry and Kip Gjerde. The response does not adequately answer the question originally posed regarding the viability of various groundwater supply options, including deep groundwater. It would appear that continued use of alluvial wells may be an option if appropriate treatment technologies were utilized. As noted in the comments above, the report does not include discussions of innovative treatment nor integrated management practices in alternatives. As stated in the original comment, deep groundwater sources may provide good quality water, but the response states that deep groundwater sources were not identified. Please revise the report to include a discussion of the viability of deep groundwater well sources, including the known presence or absence of sources of sufficient quantity as indicated from existing information developed by the state(s), USGS or other sources.

48 and 49. Chris Perry and Kip Gjerde. Please provide details of the basis for the statements "there are likely sufficient water supplies available" and that "water ... could be made available".



## Platte Alliance Water Supply (PAWS) *Appraisal Investigation*

Conference Call: Monday, April 22, 2013 @ 2:00pm

Participants: Zach Rothmire; Chris Perry; Kip Gjerde; Bob Juve; Jeff Fuller

This memorandum provides additional information and clarification to the **Appraisal Investigation** for the **Platte Alliance Water Supply Report** issued November 2012; to aid the USBR in their review and completion of a Final Report.

This information will be appended within Volume 2 Appendix H: USBR Review Comments/Discussion.

- Modify Chapter II, **EXHIBIT H - PAWS Water Rate Increase**; to insert a column to include the existing water rate plus the water rate increase for a direct comparison to the EPA "Affordability" Water Rate. The modified EXHIBIT H is attached to this memorandum.
- Modify the **Platte Alliance Water Supply (PAWS) Population and Use Projections** table following page 9 in Chapter IV to delete the column on population gain/loss percentages. The modified table is attached to this memorandum.
- Clarify the cost estimates provided on Chapter 4, page 7. Add the following paragraph following the first paragraph listing the alternative costs.

These alternative costs represent capital construction costs only and do not reflect Operation and Maintenance costs. Operation and Maintenance cost savings of either alternative versus the No Action Alternative represent a savings of approximately \$15.2 Million per year. Therefore the additional capital cost of either alternative would "break even" with the No Action scenario within 10 years. Therefore total project costs (including capital and O&M costs) after 10 years would be:

No Action	\$322 Million
Regional System with Supply from Grayrocks Reservoir	\$328 Million
Regional System with Supply from New Off-River Site-Whalen Reservoir	\$318 Million

This \$15.2 Million reduction in Operation and Maintenance costs would continue in each of the following years.

- In Chapter II, page 11 Socio-Economic Conditions; elaborate/reiterate the information contained in the tables on Exhibit 2G. Insert the following paragraph after the first paragraph.

*Table 1 Poverty Estimates and Percentages within the PAWS Area, Statewide and in the United States* illustrates poverty percentages in the counties within the PAWS area are slightly higher



(3-5 percentage points) than all counties within Wyoming and Nebraska; and very similar to the national (US) poverty percentages.

*Table 2 Median Household Income and Percentages within the PAWS Area, Statewide and in the United States* illustrates the median household income of these counties is relatively 80 to 90 percent of the median household income for all Wyoming and Nebraska counties; with similar comparisons (80 to 90 percent) to the national (US) percentages.

- Do the alternatives require system water storage tanks and surge tanks? No, as discussed in the last paragraph of page 3, Chapter IV, page each rural community would continue to provide water storage tanks for peak use and fire demands.
- Add information that an upstream water source would be of a higher quality. In Chapter IV, page 1, third paragraph, following the third sentence, insert water quality information for the Town of Douglas is included in Appendix I.
- Provide the USGS and WY SEO report references. A listing and review of Previous and Current Studies is included in Appendix D.
- Discuss considerations of innovative technologies. Add a paragraph following the third paragraph of Chapter IV, page 1.

The real innovation of the recommended alternative is the economic benefit of regionalization of water systems for these rural communities, and securing a water source (upstream in the North Platte River) which does not have nitrates, uranium and arsenic concentrations in excess of EPA requirements.

- Discuss renewable energy. Insert an additional paragraph in Chapter II, page 3 following the second paragraph.

The power needs for these alternatives is largely at the water treatment plant, and subsequently at several pressure control buildings. Potentially power (solar and/or hydro) could be produced at the pressure control buildings, and this would be considered in the subsequent feasibility study. The power requirements at these pressure control buildings are very small, and the source depends upon proximity to existing power, and the volumes and head of pressure control needs. There are no opportunities for purchase of federal hydropower, and there are no non-Federal hydro power producers in the area.

- Will there, in 2070, be enough water rights to support the project? Is there a description of the corresponding water rights that the entities have which are proposed to be transferred upstream showing that water rights are equal to or greater than these average demands?



The water supplies and water rights to supply the proposed service area will be of greater sufficiency under the proposed regional system than they would otherwise be, simply based on regional control of a requirement to implement conservation to get to the 155 gpcpd consumption rate (which, from a wholesale perspective is much more likely to be successful than individual efforts town-to-town). Specific rights are currently in place for each municipality; those rights will necessarily be reallocated/ reassigned/ transferred, or whatever is appropriate and required as the process develops – the details of this is to be defined in the feasibility study yet to come. On the Wyoming side of the border, only recently, have water rights issued by the State been set with a volumetric cap. Prior to that (meaning rights issued prior to perhaps the 1990's which includes the lion's share of municipal rights in the Valley) there are few if any volumetric restrictions from a rights perspective. However, there are limitations from the Platte River Compact and the Depletions Program under that Compact. Torrington, as example, has a volumetric cap at approximately 30% above current consumption under the Depletions Program. The ways around that cap are (1) new or additional sources of water (which is why Torrington is also participating in the Colorado-Wyoming Water Appropriation and Supply Project); (2) greater efficiency of use (conservation providing the same volume of water to a greater number of users); (3) increased non-potable supply that could potentially be counted differently under the Program than potable supply); and/or (4) modifications to wastewater treatment processes that have a positive effect on the Depletions Program. On the Nebraska side of the border, only recently has there been any restriction placed on groundwater use. This means that as a general statement, with the majority of municipal rights potentially tied to groundwater there has been no cap on use volume.

- Provide a description of the storage water scheme that explains how the reservoir is intended to meet mitigation requirements (senior water rights) and project needs.

Summer flows in the North Platte River primarily provide downstream irrigation water. As such meeting PAWS average or summer peaking potable rural water needs may prove problematic; due to river capacities and water right constraints. Therefore an upstream storage reservoir allows PAWS to meet these water delivery requirements. The upstream reservoir is sized to meet USBR funding requirements (less than 5,000 acre feet capacity) and comply with the North Platte River summer irrigation stream flow requirements. A 5,000 acre foot capacity reservoir will provide the PAWS 2007 average day potable water demand (49.4 acre foot/day) for approximately 100 days; mitigating river depletion during irrigation season. The reservoir can then be filled during non irrigation season.

- Clarify the buy-out of agriculture water rights.

This scenario is discussed in the first paragraph of page 10 of Chapter II. It is further identified in the detailed cost estimates provided in APPENDIX G: Cost estimates as item 31.

<b>PAWS Water Rate Increase</b>					
<b>PAWS Community</b>	<b>Existing Water Rates (per month)</b>	<b>Water Usage Fee Structure Notes</b>	<b>Water Rate Increase(1) (per month)</b>	<b>Total - Existing Water Rate plus Water Rate Increase (per month)</b>	<b>EPA "Affordability" Water Rates(2) (per month)</b>
<b>Hartville</b>	\$26.00	per tap per month	\$31.94*	\$57.94	\$35.81
<b>Guernsey</b>	\$30.00 \$0.50 \$1.00	per tap per month (first 15,000 gallons) Additional per tap per month (15,000-75,000 gallons) Additional per tap per month (>75,000 gallons)	\$31.94	\$61.94	\$101.82
<b>Fort Laramie</b>	\$33.50	per tap per month (for 30,000 gallons)	\$31.94	\$65.44	\$65.54
<b>Lingle</b>	\$28.00	per tap per month	\$31.94	\$59.94	\$82.19
<b>Torrington</b>	\$20.00 \$1.00 \$2.20 \$2.75	per tap per month (first 8,000 gallons) Additional per tap per month per thousand gallons (8,000-42,000 gallons) Additional per tap per month per thousand gallons (50,000-100,000 gallons) Additional per tap per month per thousand gallons (>100,000 gallons)	\$31.94	\$51.94	\$85.40
<b>Yoder</b>	\$31.05 \$0.55 \$1.00 \$2.00	per tap per month (first 7,300 gallons) Additional per tap per month per thousand gallons (7,300-17,300 gallons) Additional per tap per month per thousand gallons (17,300-32,700 gallons) Additional per tap per month per thousand gallons (>32,700 gallons)	\$31.94	\$62.99	\$108.15
<b>Henry (a)</b>	\$40.50	per tap per month	\$31.94*	\$72.44	\$65.63
<b>Lyman</b>	\$30.00 \$1.50	per tap per month (first 5,000 gallons) Additional per tap per month per thousand gallons (>5,000 gallons)	\$31.94*	\$61.94	\$60.27
<b>Morrill</b>	\$18.00 \$1.50	per tap per month (first 5,000 gallons) Additional per tap per month per thousand gallons (>5,000 gallons)	\$31.94	\$49.94	\$71.97
<b>Mitchell</b>	\$13.50 \$1.15	per tap per month for the first 3,000 gallons Additional per tap per month per thousand gallons (>3,000 gallons)	\$31.94	\$45.44	\$77.53
<b>Scottsbluff</b>	\$8.87 \$1.77	per tap per month (first 10,000 gallons) Additional per tap per month per thousand gallons (>10,000 gallons)	\$31.94	\$40.81	\$72.15
<b>Terrytown</b>	\$22.31	per tap per month	\$31.94*	\$54.25	\$54.15
<b>Gering</b>	\$123.75 \$1.38	per tap per month (first 5000 gallons) Additional per tap per month per thousand gallons (>5,000 gallons)	\$31.94*	\$155.69	\$92.03
<b>Minatare (b)</b>	\$18.50	per tap per month	\$31.94	\$50.44	\$75.69
<b>Bayard</b>	\$12.00 \$2.20	per tap per month Additional per tap per month per 1,000 gallons	\$31.94	\$43.94	\$73.79
<b>Bridgeport</b>	\$33.00 \$2.20	per tap per month Additional per tap per 1,000 gallons	\$31.94	\$64.94	\$75.25

(a) Evaluating a charge of \$30.00 per tap per month and a \$1.05 per month per tap per 1,000 gallons.

(b) Evaluating a charge of \$42.50 per tap per month (first 5,000 gallons) and a per tap per thousand gallons (>5,000 gallons).

(1) Projected Water Rate Increase from Capital and O&M Cost for Regional Water Treatment Plant and Transmission System based on a 75% grant/25% loan at 4% interest rate for 40 years

(2) Based on the EPA threshold of 2.5% of median household income, with data from the 5-year (2006-2010) American Community Survey.

(\* )Those PAWS communities in which the total rate exceeds the "affordability" water rate



# Platte Alliance Water Supply (PAWS)

## Population and Use Projections

County populations for the year 2000 are provided for information only

Populations are based on the 2010 census for each county with a 1% per year growth factor

Assume the PAWS system delivers average daily flows to **users** (municipalities and/or water districts)

Peak day demands will be addressed with **user** storage facilities

Average daily demand is assumed to be 155 gallons per capita per day

	2000	2007	2010	2020	2030	2040	2050	2060	2070
<b>Platte County</b>	8807		8667	9,574	10,575	11,682	12,904	14,254	15,745
Wheatland	3548	3393							
Chugwater	244	233							
#1			5041	5568	6151	6795	7505	8291	9558
<b>Goshen County</b>	12,538		13,249	14,635	16,166	17,858	19,726	21,790	24,069
<b>Scotts Bluff County</b>	36951		36,970	40,838	45,110	49,830	55,043	60,802	67,163
<b>Morrill County</b>	5440		5042	5,570	6,152	6,796	7,507	8,292	9,160
<b>Total PAWS Population</b>			60,302	66,611	73,579	81,279	89,781	99,175	109,950
<b>Total AVG VOLUME (gal)</b> #2			9,346,810	10,324,705	11,404,745	12,598,245	13,916,055	15,372,125	17,042,250
<b>Total AVG VOLUME (ac-ft)</b> #3			27.1	29.9	33.1	36.5	40.4	44.6	49.4
<b>Total MAX VOLUME (gal)</b> #2			18,693,620	20,649,410	22,809,490	25,196,490	27,832,110	30,744,250	34,084,500
<b>Total MAX VOLUME (ac-ft)</b> #3			54.2	59.9	66.1	73.1	80.7	89.2	98.8

#1 Platte County population minus the 2007 populations of the Towns of Chugwater and Wheatland

#2 Gallons/ avg day @ 155gpcpd

#3 Acre-Feet/avg day @ 7.48 gal/cuft and 43,560sqft/acre



## **Platte Alliance Water Supply (PAWS) Appraisal Investigation**

Conference Call: Tuesday, April 30, 2013 @ 3:00pm

Participants: Zachary Rothmire; Chris Perry; Dan Donaldson; Joseph Gemperline; Steve Piper;  
Kip Gjerde; Bob Juve; Jeff Fuller

This memorandum provides additional information and clarification to the **Appraisal Investigation** for the **Platte Alliance Water Supply Report** issued November 2012; to aid the USBR in their review and completion of a Final Report.

This memorandum of clarifications follows the memorandum of clarifications provided for the conference call on April 22, 2013; and responds to the subsequent comments. This information will be appended within Volume 2 Appendix H: USBR Review Comments/Discussion; and is added to or modifies the comment/clarification modifications from the April 22, 2013 conference call.

Assuming no additional edits/clarifications, these edits will be incorporated into the **Final Appraisal Investigation for the North Plate Alliance Water Supply Report**, including Volumes 1 and 2; and the Final Report will be "reissued".

### CLARIFICATIONS INCLUDE:

1. Insert additional information to identify an *aggregate* (average) EPA 2-1/2% affordability water rate for the entire PAWS area; and modify the **EXHIBIT 2H - PAWS Water Rate Increase** table in Chapter II.

*This information is provided below.*

To "aggregate" the water rate increase and EPA "Affordability" index, use the 2070 populations for the incorporated communities (taken from the cost estimate spreadsheets) multiplied by the affordability rate for these communities within each county (taken from EXHIBIT H). (Note, some small communities and rural areas do not have an EPA "AFFORDABILITY" water rate. These areas have been designated with an N/A.) This provides a county wide affordability index. Take each county wide affordability index and multiply by the 2070 county populations (taken from the Platte Alliance Water Supply (PAWS) Population and Use Projections in Chapter 4), for each of the 4 counties. Divide this total number by the total PAWS area 2070 population of 109,550 to produce a PAWS EPA "Affordability" Water Rate.

<b>PAWS</b>			
<b>PAWS Community</b>	<b>A 2070 Population</b>	<b>B EPA "Affordability" Water Rate (per month)</b>	<b>2070 Population multiplied by EPA "Affordability" Water Rate (A X B)</b>
Hartville/Sunrise	124	\$35.81	4440.44
Guernsey	1933	\$101.82	196818.06
Platte County	7101	N/A	
<i>Summation</i>			201258.50
<i>Population Served</i>			2057
<i>Aggregate Water Rate</i>			\$97.84
<b>All of Platte County</b>	9158		\$97.84
Fort Laramie	427	\$65.54	27985.58
Lingle	901	\$82.19	74053.19
Torrington	10333	\$85.40	882438.20
Veteran	51	N/A	
Yoder	298	\$108.15	32228.70
Huntley	38	N/A	
Hawk Springs	125	N/A	
La Grange	609	N/A	
Goshen County	11287	N/A	
<i>Summation</i>			1016705.67
<i>Population Served</i>			11959
<b>All of Goshen County</b>	24069		\$85.02
Henry	292	\$65.63	19163.96
Lyman	736	\$60.27	44358.72
Morrill	1710	\$71.97	123068.70
Mitchell	3268	\$77.53	253368.04
Scottsbluff	27043	\$72.15	1951152.45
Terrytown	2196	\$54.15	118913.40
Gering	14058	\$92.03	1293757.74
Minatare	1582	\$75.69	119741.58
Melbeta	251	N/A	
McGrew	187	N/A	
Scotts Bluff County	15840	N/A	
<i>Summation</i>			3923524.59
<i>Population Served</i>			50885
<b>All of Scotts Bluff County</b>	67163		\$77.11
Bayard	1993	\$73.79	147063.47
Bridgeport	2598	\$75.25	195499.50
Morrill County	4569	N/A	
<i>Summation</i>			342562.97
<i>Population Served</i>			4591
<b>All of Morrill County</b>	9160		\$74.62
<b>All of Platte County</b>	9158	\$97.84	896018.72
<b>All of Goshen County</b>	24069	\$85.02	2046346.38
<b>All of Scotts Bluff County</b>	67163	\$77.11	5178938.93
<b>All of Morrill County</b>	9160	\$74.62	683519.2
<b>Summation: All of PAWS Area</b>	109550		8804823.23
<b>PAWS Aggregate "Affordability" water rate</b>			<b>\$80.37</b>

## EXHIBIT 2H

<b>PAWS Water Rate Increase</b>					
<b>PAWS Community</b>	<b>Existing Water Rates (per month)</b>	<b>Water Usage Fee Structure Notes</b>	<b>Water Rate Increase(1) (per month)</b>	<b>Total-Existing Water Rate plus Water Rate increase (per month)</b>	<b>EPA Aggregate Affordability Water Rates(2) (per month)</b>
<b>Hartville</b>	\$26.00	per tap per month	\$30.18	\$56.18	\$80.37
<b>Guernsey</b>	\$30.00	per tap per month (first 15,000 gallons)	\$30.18	\$60.18	\$80.37
	\$0.50	Additional per tap per month (15,000-75,000 gallons)			
	\$1.00	Additional per tap per month (>75,000 gallons)			
<b>Fort Laramie</b>	\$33.50	per tap per month (for 30,000 gallons)	\$30.18	\$63.68	\$80.37
<b>Lingle</b>	\$28.00	per tap per month	\$30.18	\$58.18	\$80.37
<b>Torrington</b>	\$20.00	per tap per month (first 8,000 gallons)	\$30.18	\$50.18	\$80.37
	\$1.00	Additional per tap per month per thousand gallons (8,000-42,000 gallons)			
	\$2.20	Additional per tap per month per thousand gallons (50,000-100,000 gallons)			
	\$2.75	Additional per tap per month per thousand gallons (>100,000 gallons)			
<b>Yoder</b>	\$31.05	per tap per month (first 7,300 gallons)	\$30.18	\$61.23	\$80.37
	\$0.55	Additional per tap per month per thousand gallons (7,300-17,300 gallons)			
	\$1.00	Additional per tap per month per thousand gallons (17,300-32,700 gallons)			
	\$2.00	Additional per tap per month per thousand gallons (>32,700 gallons)			
<b>Henry (a)</b>	\$40.50	per tap per month	\$30.18	\$70.68	\$80.37
<b>Lyman</b>	\$30.00	per tap per month (first 5,000 gallons)	\$30.18	\$60.18	\$80.37
	\$1.50	Additional per tap per month per thousand gallons (>5,000 gallons)			
<b>Morrill</b>	\$18.00	per tap per month (first 5,000 gallons)	\$30.18	\$48.18	\$80.37
	\$1.50	Additional per tap per month per thousand gallons (>5,000 gallons)			
<b>Mitchell</b>	\$13.50	per tap per month for the first 3,000 gallons	\$30.18	\$43.68	\$80.37
	\$1.15	Additional per tap per month per thousand gallons (>3,000 gallons)			
<b>Scottsbluff</b>	\$8.87	per tap per month (first 10,000 gallons)	\$30.18	\$39.05	\$80.37
	\$1.77	Additional per tap per month per thousand gallons (>10,000 gallons)			
<b>Terrytown</b>	\$22.31	per tap per month	\$30.18	\$52.49	\$80.37
<b>Gering *</b>	\$123.75	per tap per month (first 5000 gallons)	\$30.18	\$153.93	\$80.37
	\$1.38	Additional per tap per month per thousand gallons (>5,000 gallons)			
<b>Minatare (b)</b>	\$18.50	per tap per month	\$30.18	\$48.68	\$80.37
<b>Bayard</b>	\$12.00	per tap per month	\$30.18	\$42.18	\$80.37
	\$2.20	Additional per tap per month per 1,000 gallons			
<b>Bridgeport</b>	\$33.00	per tap per month	\$30.18	\$63.18	\$80.37
	\$2.20	Additional per tap per 1,000 gallons			

(a) Evaluating a charge of \$30.00 per tap per month and a \$1.05 per month per tap per 1,000 gallons.

(b) Evaluating a charge of \$42.50 per tap per month (first 5,000 gallons) and a per tap per thousand gallons (>5,000 gallons).

(1) Projected Water Rate Increase from Capital and O&M Cost for Regional Water Treatment Plant and Transmission System based on a 50% grant/50% loan at 4% interest rate for 40 years

(2) Based on the regional aggregate EPA threshold of 2.5% of median household income, with data from the 5-year (2006-2010) American Community Survey.

(\*) Those PAWS communities in which the total rate exceeds the aggregate affordability water rate.



2. Clarify the cost estimates provided in Chapter 4, page 7.

*Replace the three paragraphs with the following:*

*These Appraisal Level cost estimates are based on October 2011 Unit Price Level estimates and no Interest During Construction (IDC).*

<b>No Action</b>	$\$486M + \$170M = \$656\text{Million}$
<b>Regional System-Grayrocks Reservoir Supply</b>	$\$328M + \$217M = \$545\text{Million}$
<b>Regional System- New Off-River Site-Whalen Reservoir Supply</b>	$\$318M + \$217M = \$535\text{Million}$

*These costs include capital construction costs for the No Action alternative (to upgrade the existing municipal water treatment plants to provide Reverse Osmosis Treatment); capital construction costs for the two alternatives (to include a regional water treatment plant with conventional treatment and transmission facilities); and operation and maintenance costs (for the 50-year life of the facilities) for all alternatives.*

Cost estimate project costs are detailed in Appendix G: Cost Estimates

3. Provide the USGS and WY SEO report references regarding deep groundwater resources. A listing and review of Previous and Current Studies is included in Appendix D. List the individual referenced reports.

*They include: Reference 22. Reconnaissance of Ground-Water Quality in the North Platte Natural Resources District, Western Nebraska USGS Water Resources Investigations Report 94-4057; Reference 23. Wellhead Protection (WHP) Program, Chapter II, Groundwater Investigation Monitoring Wells – Wyoming Water Development Commission, Chapter IV, Groundwater Monitoring Results – NPS 319: September 1994.*

*In addition, since the beginning of this study, the Town of Yoder (2010 population 164) has drilled several deep groundwater wells, which have proven to provide a higher quality water supply. However, the water quantity from these wells is significantly limited and deemed to be insufficient and not cost effective for a regional system.*

*In addition, a portion of Platte County and Goshen County (in an area located at the upstream end of this project area) has been designated as a control area which does not allow new groundwater wells.*



*Geologic information and existing studies have not demonstrated the quantity is available from deep groundwater sources. The costs to acquire (pump) from these sources is not competitive; and these alternatives were dropped from further consideration.*

4. Provide a stand-alone section that describes the public health, safety and economic benefits of the recommended alternative.

*Insert the following paragraph in Chapter IV, page 1, immediately prior to the ALTERNATIVES CONSIDERED section.*

*The recommended alternative consisting of a regional potable water system with an upstream water supply provides...*

- **Enhanced health and safety benefits.** *A single source for water treatment rather than many smaller sources can more effectively provide the monitoring and treatment of the water supply. Also the recommended alternative identifies an upstream point of use, with a water quality that eliminates the need to treat for arsenic, uranium and nitrates.*
- **Increased level of service.** *A single source for water treatment can more effectively monitor water quality and adapt to changes in water quality as well as changes in identification of constituents within the water supply.*
- **Improved cost efficiency.** *The Environmental Protection Agency (EPA) is continuing to expand certification requirements for operators and monitoring and notification of the water quality of water supplies; therefore the operation and maintenance of a single regional system is much less expensive than many smaller systems; and this benefit will continue to increase in the future. This also allows for more cost effective adaptability to address future requirements.*

*It is demonstrated the capital costs for construction of a regional PAWS facility (at a 50% grant, 50% loan at 4%) will break even with current O&M costs within 12 years, and the required increase in water rates to individual users within the PAWS system are within EPA "affordability" parameters.*



5. Identify the calculations and assumptions of the cost to operate and maintain the plant.

The City of Torrington provided the following information.

<b>Water Costs &amp; Rates</b>	<b>FY2010</b>	<b>FY2011</b>	<b>FY2012</b>	<b>FY12 Capital Pgm</b>
<i>Budget Period</i>	7/2009 to 6/2010	7/2010 to 6/2011	7/2011 to 6/2012	7/2010 to 6/2011
<i>Gallons Produced</i>	501,732,153	545,044,275	545,044,275	545,044,275
<i>In Thousands</i>	501,732	545,044	545,044	545,044

<i>Budget Line Items</i>	<i>Actual</i>	<i>Actual</i>	<i>Approved</i>	<i>Approved</i>
1 <i>Power &amp; Pump</i>	\$339,504	\$322,256	\$615,515	\$615,515
2 <i>Special Projects</i>	\$378,835	\$253,051	\$147,505	\$1,572,944
<i>Total Costs</i>	\$718,339	\$575,307	\$763,020	\$2,188,459

<i># of Taps</i>	2700	2,700	2,700	2,700
<i>Base Rate</i>	\$20	\$20	\$25	\$25

<i>Monthly Income from Base</i>	\$54,000	\$54,000	\$67,500	\$67,500
<i>Yearly Income from Base</i>	\$648,000	\$648,000	\$810,000	\$810,000
<i>Total Costs less Base Income</i>	\$70,339	\$(72,693)	\$(46,980)	\$1,378,459

<i>Gallons in Base Rate</i>	8000	8,000	8,000	8,000
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<i>Adjusted Gallons (less Base)</i>	480,132,153	523,444,275	523,444,275	523,444,275
<i>In Thousands</i>	480,132	523,444	523,444	523,444

<i>Additional Cost per 1,000 Gals</i>	\$0.15	\$(0.14)	\$(0.09)	\$2.63
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3 <i>Gross Costs per 1,000 Gallons</i>	\$1.43	\$1.06	\$1.40	\$4.02
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### Notes

- 1 *Costs of Non Potable production, Hydrants/Meters & Taps maintenance removed from calculations associated with South Torrington*
- 2 *Capital Program Costs*
- 3 *Total Costs divided by Total Gallons produced*

*The average of the costs per 1,000 gallons is \$1.98. We suggest that first the Special Projects line is intended to represent Distribution capital as well as plant capital, but that both have been sorely under-funded, so if we were to assume a robust Plant maintenance program, the average would likely be low...a 25% increase on that average is \$2.50. This would likely be higher in small communities. **Therefore, \$2.50 per 1,000 gallons appears a reasonable estimate of existing operation and maintenance costs.***

### *The spreadsheets*

- ***Population and Use Projections;***
  - ***No Action Alternative Individual WTP at each Municipality and County;***
  - ***Regional System with Supply from a New Off-River Site-Whalen Reservoir;***
  - ***Regional System with Supply from Grayrocks Reservoir;***
  - ***Water Treatment Plant Capital and O&M Cost - Individual Water Treatment Plants compared to a Single Regional Water Treatment Plant;***
  - ***Projected Water Rate Increases from Capital and O&M Cost- for Individual Water Treatment Plants for each Municipality and County; and***
  - ***Projected Water Rate Increases from Capital and O&M Cost for Regional Water Treatment Plant and Transmission System;***
- have been modified to incorporate these modified operation and maintenance costs.*



# Platte Alliance Water Supply (PAWS)

## Population and Use Projections

County populations for the year 2000 are provided for information only

Populations are based on the 2010 census for each county with a 1% per year growth factor

Assume the PAWS system delivers average daily flows to **users** (municipalities and/or water districts)

Peak day demands will be addressed with **user** storage facilities

Average daily demand is assumed to be 155 gallons per capita per day

	2000	2007	2010	2020	2030	2040	2050	2060	2070
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<b>Total MAX VOLUME (gal) #2</b>			18,693,620	20,649,410	22,809,490	25,196,490	27,832,110	30,744,250	34,084,500
<b>Total MAX VOLUME (ac-ft) #3</b>			54.2	59.9	66.1	73.1	80.7	89.2	98.8

#1 Platte County population minus the 2007 populations of the Towns of Chugwater and Wheatland

#2 Gallons/ avg day @ 155gpcpd

#3 Acre-Feet/avg day @ 7.48 gal/cuft and 43,560sqft/acre



# PAWS

Platte Alliance Water Supply (PAWS)

## No Action Alternative Individual WTP at each Municipality and County

<u>Item #</u>	<u>Item</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Extension</u>
1	Hartville/Sunrise WTP	1	LS \$565,639.43 / LS	\$565,639.43
2	Guernsey WTP	1	LS \$3,465,727.33 / LS	\$3,465,727.33
3	Platte County WTP	1	LS \$5,176,931.86 / LS	\$5,176,931.86
4	Fort Laramie WTP	1	LS \$1,279,274.56 / LS	\$1,279,274.56
5	Lingle WTP	1	LS \$2,094,111.15 / LS	\$2,094,111.15
6	Torrington WTP	1	LS \$10,477,817.04 / LS	\$10,477,817.04
7	Veteran WTP	1	LS \$314,686.19 / LS	\$314,686.19
8	Yoder WTP	1	LS \$1,008,937.12 / LS	\$1,008,937.12
9	Huntley WTP	1	LS \$259,142.44 / LS	\$259,142.44
10	Hawk Springs WTP	1	LS \$568,645.98 / LS	\$568,645.98
11	La Grange WTP	1	LS \$1,617,069.85 / LS	\$1,617,069.85
12	Goshen County WTP	1	LS \$7,029,159.48 / LS	\$7,029,159.48
13	Henry WTP	1	LS \$995,483.46 / LS	\$995,483.46
14	Lyman WTP	1	LS \$1,832,401.86 / LS	\$1,832,401.86
15	Morrill WTP	1	LS \$3,196,382.91 / LS	\$3,196,382.91
16	Mitchell WTP	1	LS \$4,901,257.49 / LS	\$4,901,257.49
17	Scottsbluff WTP	1	LS \$19,771,407.18 / LS	\$19,771,407.18
18	Terrytown WTP	1	LS \$3,770,150.69 / LS	\$3,770,150.69
19	Gering WTP	1	LS \$12,838,400.01 / LS	\$12,838,400.01
20	Minatare WTP	1	LS \$3,036,390.64 / LS	\$3,036,390.64
21	Melbeta WTP	1	LS \$900,878.09 / LS	\$900,878.09
22	McGrew WTP	1	LS \$741,817.08 / LS	\$741,817.08
23	Scottsbluff County WTP	1	LS \$8,791,034.55 / LS	\$8,791,034.55
24	Bayard WTP	1	LS \$3,536,357.68 / LS	\$3,536,357.68
26	Bridgeport WTP	1	LS \$4,212,531.91 / LS	\$4,212,531.91
26	Morrill County WTP	1	LS \$3,869,755.57 / LS	\$3,869,755.57
			Total	\$106,251,391.57
27			Design Contingencies @ 15%	\$15,937,708.74
			Total	\$122,189,100.30
28			Mobilization @ 5%	\$6,109,455.02
			Total	\$128,298,555.32
29			Construction Contingencies @ 25%	\$32,074,638.83
			Total	\$160,373,194.15
30			Permitting/Land Acquisition @ 5%	\$8,018,659.71
			Total	\$168,391,853.85
			<b>Project Total</b>	<b>\$170,000,000.00</b>



# PAWS

Platte Alliance Water Supply (PAWS)

## Regional System with Supply from a New Off-River Site - Whalen Reservoir

<u>Item #</u>	<u>Item</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Extension</u>
33	42-inch Diameter Pipeline	211300 LF	\$330.00 / LF	\$69,729,000.00
34	36-inch Diameter Pipeline	118000 LF	\$270.00 / LF	\$31,860,000.00
35	24-inch Diameter Pipeline	83200 LF	\$140.00 / LF	\$11,648,000.00
36	16-inch Diameter Pipeline	123700 LF	\$100.00 / LF	\$12,370,000.00
38	Dewatering	100000 LF	\$50.00 / LF	\$5,000,000.00
39	Pressure Reducing Station	3 Each	\$250,000.00 / Each	\$750,000.00
40	Municipal (Users) Water Taps	25 Each	\$20,000.00 / Each	\$500,000.00
41	17 MGD Treatment Plant	1 LS	\$16,980,250.00 / LS	\$16,980,250.00
43	Whalen Dam Construction	1 LS	\$20,000,000.00 / LS	\$20,000,000.00
37	River Intake and Pump Station	1 LS	\$8,000,000.00 / LS	\$8,000,000.00
44	Whalen WTP Intake	1 LS	\$1,000,000.00 / LS	\$1,000,000.00
46	Whalen WTP Outlet	1 LS	\$3,000,000.00 / LS	\$3,000,000.00
			Total	\$180,837,250.00
27			Design Contingencies @ 15%	\$27,125,587.50
			Total	\$207,962,837.50
28			Mobilization @ 5%	\$10,398,141.88
			Total	\$218,360,979.38
29			Construction Contingencies @ 25%	\$54,590,244.84
			Total	\$272,951,224.22
30			Permitting/Land Acquisition @ 5%	\$13,647,561.21
			Total	\$286,598,785.43
			River Depletion Mitigation/Storage	\$30,000,000.00
31			Total	\$316,598,785.43
			<b>Project Total</b>	<b>\$318,000,000.00</b>



# PAWS

Platte Alliance Water Supply (PAWS)

## Regional System with Supply from Grayrocks Reservoir

<u>Item #</u>	<u>Item</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Extension</u>
33	42-inch Diameter Pipeline	211300 LF	\$330.00 / LF	\$69,729,000.00
34	36-inch Diameter Pipeline	118000 LF	\$270.00 / LF	\$31,860,000.00
35	24-inch Diameter Pipeline	83200 LF	\$140.00 / LF	\$11,648,000.00
36	16-inch Diameter Pipeline	123700 LF	\$100.00 / LF	\$12,370,000.00
38	Dewatering	104000 LF	\$50.00 / LF	\$5,200,000.00
39	Pressure Reducing Station	3 Each	\$250,000.00 / Each	\$750,000.00
40	Municipal (Users) Water Taps	25 Each	\$20,000.00 / Each	\$500,000.00
41	17 MGD Treatment Plant	1 LS	\$16,980,250.00 / LS	\$16,980,250.00
32	Grayrocks Reservoir Modifications	1 LS	\$16,000,000.00 / LS	\$16,000,000.00
43	Grayrocks WTP Intake	1 LS	\$2,000,000.00 / LS	\$2,000,000.00
46	Grayrocks WTP Outlet	1 LS	\$20,000,000.00 / LS	\$20,000,000.00
			Total	\$187,037,250.00
27			Design Contingencies @ 15%	\$28,055,587.50
			Total	\$215,092,837.50
28			Mobilization @ 5%	\$10,754,641.88
			Total	\$225,847,479.38
29			Construction Contingencies @ 25%	\$56,461,869.84
			Total	\$282,309,349.22
30			Permitting/Land Acquisition @ 5%	\$14,115,467.46
			Total	\$296,424,816.68
31			River Depletion Mitigation/Storage	\$30,000,000.00
			Total	\$326,424,816.68
			<b>Project Total</b>	<b>\$328,000,000.00</b>

# PAWS

Platte Alliance Water Supply (PAWS)

## Water Treatment Plant Capital and O&M Cost Individual Water Treatment Plants compared to a Single Regional Water Treatment Plant



County 155 gpcpd  
 County \$2.50 O&M per 1000  
 Municipality 155 gpcpd  
 Municipality \$2.50 O&M per 1000  
 Operator Increase \$80,000.00 per year per Municipality and County  
 Growth Rate 1.00% per year

Community	Population 2010	Population 2070	Per Capita (gpd)	Avg day (mgd)	Max Day (mgd)	Capital Cost per gallon	WTP Capital Cost	O&M per 1,000 gal	Annual O&M	Operators increase	Annual Treatment Plant Rehab	Total O&M
Hartville/Sunrise	68	124	155	0.019	0.038	\$11.32	\$435,107.26	\$2.50	\$17,538.25	\$80,000.00	\$8,702.15	\$106,240.40
Guemsey	1064	1933	155	0.300	0.599	\$4.45	\$2,665,944.10	\$2.50	\$273,398.69	\$80,000.00	\$53,318.88	\$406,717.57
Platte County	3909	7101	155	1.101	1.101	\$3.62	\$3,982,255.27	\$2.50	\$1,004,347.69	\$80,000.00	\$79,645.11	\$1,163,992.79
Fort Laramie	235	427	155	0.066	0.132	\$7.43	\$984,057.36	\$2.50	\$60,393.81	\$80,000.00	\$19,681.15	\$160,074.96
Lingle	496	901	155	0.140	0.279	\$5.77	\$1,610,854.73	\$2.50	\$127,435.19	\$80,000.00	\$32,217.09	\$239,652.28
Torrington	5688	10333	155	1.602	3.203	\$2.52	\$8,059,859.26	\$2.50	\$1,461,473.69		\$161,197.19	\$1,622,670.87
Veteran	28	51	155	0.008	0.016	\$15.31	\$242,066.30	\$2.50	\$7,213.31	\$80,000.00	\$4,841.33	\$92,054.64
Yoder	164	298	155	0.046	0.092	\$8.40	\$778,105.48	\$2.50	\$42,148.38	\$80,000.00	\$15,522.11	\$137,670.48
Huntley	21	38	155	0.006	0.012	\$16.92	\$199,340.34	\$2.50	\$5,374.63	\$80,000.00	\$3,986.81	\$89,361.43
Hawk Springs	69	125	155	0.019	0.039	\$11.29	\$437,419.99	\$2.50	\$17,679.69	\$80,000.00	\$8,748.40	\$108,428.09
La Grange	335	609	155	0.094	0.189	\$6.59	\$1,243,899.89	\$2.50	\$66,135.44	\$80,000.00	\$24,878.00	\$191,013.44
Goshen County	6213	11287	155	1.749	1.749	\$3.09	\$5,407,045.75	\$2.50	\$1,596,405.06	\$80,000.00	\$108,140.92	\$1,784,545.98
Henry	161	292	155	0.045	0.091	\$8.46	\$765,756.51	\$2.50	\$41,299.75	\$80,000.00	\$15,315.13	\$136,614.88
Lyman	405	736	155	0.114	0.228	\$6.18	\$1,409,539.89	\$2.50	\$104,098.00	\$80,000.00	\$28,190.80	\$212,288.80
Morrill	941	1710	155	0.265	0.530	\$4.64	\$2,458,756.09	\$2.50	\$241,858.13	\$80,000.00	\$49,175.12	\$371,033.25
Mitchell	1799	3268	155	0.507	1.013	\$3.72	\$3,770,188.07	\$2.50	\$462,217.75	\$80,000.00	\$75,403.96	\$617,621.71
Scottsbluff	14886	27043	155	4.192	8.383	\$1.81	\$15,208,774.76	\$2.50	\$3,824,894.31		\$304,175.50	\$4,129,069.81
Terrytown	1209	2196	155	0.340	0.681	\$4.26	\$2,900,115.91	\$2.50	\$310,596.75	\$80,000.00	\$56,002.32	\$448,599.07
Gering	7738	14058	155	2.179	4.358	\$2.27	\$9,875,692.32	\$2.50	\$1,988,328.38		\$197,513.85	\$2,185,842.22
Minatare	871	1582	155	0.245	0.490	\$4.76	\$2,335,685.11	\$2.50	\$223,754.13	\$80,000.00	\$46,713.70	\$350,467.83
Melbeta	138	251	155	0.039	0.078	\$8.91	\$692,983.14	\$2.50	\$35,500.81	\$80,000.00	\$13,859.66	\$129,360.48
Mcgreg	103	187	155	0.029	0.058	\$9.84	\$570,628.52	\$2.50	\$28,448.81	\$80,000.00	\$11,412.57	\$117,861.38
Scottsbluff County	8719	15840	155	2.455	2.455	\$2.75	\$6,762,334.27	\$2.50	\$2,240,370.00	\$80,000.00	\$135,246.69	\$2,455,616.69
Bayard	1097	1993	155	0.309	0.618	\$4.40	\$2,720,275.14	\$2.50	\$281,884.94	\$80,000.00	\$54,405.50	\$416,290.44
Bridgeport	1430	2598	155	0.403	0.805	\$4.02	\$3,240,409.16	\$2.50	\$367,454.63	\$80,000.00	\$64,808.18	\$512,262.81
Morrill County	2515	4569	155	0.708	0.708	\$4.20	\$2,976,735.06	\$2.50	\$646,227.94		\$59,534.70	\$705,762.64
	60302	109550		16.980	27.947		\$81,731,839.67		\$15,494,478.13	\$1,760,000.00	\$1,634,636.79	\$18,889,114.92

Centralized Plant	Population 2010	Population 2070	Per Capita (gpd)	Avg day (mgd)	Max Day (mgd)	Capital Cost per gallon	WTP Capital Cost	O&M per 1,000 gal	Annual O&M	Operators increase	Treatment Plant Rehab	Total O&M
Total	60302	109550	155	16.980	33.961	\$1.00	\$33,960,500.00	\$1.25	\$7,747,239.06		\$679,210.00	\$8,426,449.06

Annual O&M Cost Savings for a Centralized Plant **\$10,462,665.86**

Present Day Value of O&M Cost Savings (50 years) **\$269,201,923.35**

	50-year O&M	Capital Cost	Total Cost
No Action	\$486,012,469.15	\$170,000,000	\$656,012,469
Regional System-Grayrocks Reservoir Supply	\$216,810,545.80	\$328,000,000	\$544,810,546
Regional System-New Off-River-Whalen Reservoir Supply	\$216,810,545.80	\$318,000,000	\$534,810,546

- Notes:
- All Cost are based on 2070 population and water usage.
  - Capital cost per gallon for each treatment plant are based on Reverse Osmosis Treatment Cost Curve for the maximum day.
  - The capital cost are calculated by multiplying the capital cost per gallon and the maximum day. O&M cost per 1,000 gallons are based on operating cost provided by the City of Torrington, Wyoming.
  - The annual O&M cost was calculating by multiplying the average day, 365 days, and the O&M cost per 1,000 gallons.
  - The operators cost increase is based on a \$10.00 per hour increase in salary times 2000 hours each year times two operators times a benefits factor of 2.
  - Annual treatment plant rehab is based on a 40% of capital cost to rehab the plant every 20 years. Total O&M is calculated by adding the annual O&M, operators increases and the annual treatment plant rehab.
  - The O&M Savings was calculated by subtracting the total O&M for the centralized plant from the total O&M for the individual treatment plants.
  - The present day value of O&M cost savings is based on a 50 year system; and O&M costs increasing at a rate of 3% above the inflation rate, or a real increase in O&M costs of 3%.
  - The \$1.25 per 1,000 gallon O&M cost for surface water treatment was taken from the Texas, 2008 EPA Manual.

# PAWS

Platte Alliance Water Supply (PAWS)

## Projected Water Rate Increases from Capital and O&M Cost for Individual Water Treatment Plants for each Municipality and County



Loan Term 40 years  
Interest Rate 4%

	2070 Pop	Capital Cost	25% Grant and 75 % Loan				50% Grant and 50 % Loan				75% Grant and 25 % Loan			
			Annual Payment	Annual O&M	Total Annual Cost	Monthly Increase per services	Annual Payment	Annual O&M	Total Annual Cost	Monthly Increase per services	Annual Payment	Annual O&M	Total Annual Cost	Monthly Increase per services
Hartville/Sunrise	124	\$896,450.12	\$31,483.74	\$106,240.40	\$137,724.14	\$231.39	\$20,989.16	\$106,240.40	\$127,229.56	\$213.76	\$10,494.58	\$106,240.40	\$116,734.98	\$196.13
Guernsey	1933	\$5,492,636.30	\$192,903.92	\$406,717.57	\$599,621.49	\$64.63	\$128,602.62	\$406,717.57	\$535,320.18	\$57.70	\$64,301.31	\$406,717.57	\$471,018.88	\$50.77
Platte County	7101	\$8,204,628.10	\$288,150.33	\$1,163,992.79	\$1,452,143.12	\$42.60	\$192,100.22	\$1,163,992.79	\$1,356,093.01	\$39.79	\$96,050.11	\$1,163,992.79	\$1,260,042.90	\$36.97
Fort Laramie	427	\$2,027,450.30	\$71,204.99	\$160,074.96	\$231,279.95	\$112.84	\$47,469.99	\$160,074.96	\$207,544.95	\$101.26	\$23,735.00	\$160,074.96	\$183,809.96	\$89.68
Lingle	901	\$3,318,838.97	\$116,559.16	\$239,652.28	\$356,211.44	\$82.36	\$77,706.10	\$239,652.28	\$317,358.39	\$73.38	\$38,853.05	\$239,652.28	\$278,505.33	\$64.40
Torrington	10333	\$16,605,702.85	\$583,199.95	\$1,622,670.87	\$2,205,870.82	\$44.47	\$388,799.97	\$1,622,670.87	\$2,011,470.84	\$40.56	\$194,399.98	\$1,622,670.87	\$1,817,070.86	\$36.64
Veteran	51	\$498,728.44	\$17,515.57	\$92,054.64	\$109,570.21	\$447.59	\$11,677.05	\$92,054.64	\$103,731.69	\$423.74	\$5,838.52	\$92,054.64	\$97,893.16	\$399.89
Yoder	298	\$1,599,007.69	\$56,157.89	\$137,670.48	\$193,828.37	\$135.51	\$37,438.59	\$137,670.48	\$175,109.08	\$122.42	\$18,719.30	\$137,670.48	\$156,389.78	\$109.33
Huntley	38	\$410,700.27	\$14,423.98	\$89,361.43	\$103,785.41	\$569.00	\$9,615.99	\$89,361.43	\$98,977.42	\$542.64	\$4,807.99	\$89,361.43	\$94,169.43	\$516.28
Hawk Springs	125	\$901,215.03	\$31,651.09	\$106,428.09	\$138,079.18	\$230.13	\$21,100.73	\$106,428.09	\$127,528.81	\$212.55	\$10,550.36	\$106,428.09	\$116,978.45	\$194.96
La Grange	609	\$2,562,803.05	\$90,006.83	\$191,013.44	\$281,020.26	\$96.13	\$60,004.55	\$191,013.44	\$251,017.99	\$85.87	\$30,002.28	\$191,013.44	\$221,015.71	\$75.61
Goshen County	11287	\$11,140,119.47	\$391,246.14	\$1,784,545.98	\$2,175,792.12	\$40.16	\$260,830.76	\$1,784,545.98	\$2,045,376.74	\$37.75	\$130,415.38	\$1,784,545.98	\$1,914,961.36	\$35.35
Henry	292	\$1,577,685.74	\$55,409.05	\$136,614.88	\$192,023.93	\$137.00	\$36,939.37	\$136,614.88	\$173,554.25	\$123.83	\$18,469.68	\$136,614.88	\$155,084.56	\$110.65
Lyman	736	\$2,904,070.64	\$101,992.30	\$212,288.80	\$314,281.10	\$66.88	\$67,994.87	\$212,288.80	\$280,283.67	\$79.34	\$33,997.43	\$212,288.80	\$246,286.23	\$69.71
Morrill	1710	\$5,065,767.48	\$177,912.09	\$371,033.25	\$548,945.34	\$66.88	\$118,608.06	\$371,033.25	\$489,641.31	\$59.65	\$59,304.03	\$371,033.25	\$430,337.28	\$52.43
Mitchell	3268	\$7,767,727.30	\$272,806.17	\$617,621.71	\$890,427.88	\$56.76	\$181,870.78	\$617,621.71	\$799,492.49	\$60.97	\$90,935.39	\$617,621.71	\$708,557.10	\$45.17
Scottsbluff	27043	\$31,334,591.10	\$1,100,485.31	\$4,129,069.81	\$5,229,555.11	\$40.29	\$733,656.87	\$4,129,069.81	\$4,862,726.68	\$37.46	\$366,828.44	\$4,129,069.81	\$4,495,898.24	\$34.64
Terrytown	2196	\$5,975,099.76	\$209,848.26	\$448,599.07	\$658,447.33	\$62.47	\$139,898.84	\$448,599.07	\$588,497.91	\$55.83	\$69,949.42	\$448,599.07	\$518,548.49	\$49.19
Gering	14058	\$20,346,858.02	\$714,591.05	\$2,185,842.22	\$2,900,433.27	\$42.98	\$476,394.03	\$2,185,842.22	\$2,662,236.25	\$39.45	\$238,197.02	\$2,185,842.22	\$2,424,039.24	\$35.92
Minatare	1582	\$4,812,204.72	\$169,006.85	\$350,467.83	\$519,474.68	\$68.41	\$112,671.23	\$350,467.83	\$463,139.06	\$60.99	\$56,335.62	\$350,467.83	\$406,803.44	\$53.57
Melbeta	251	\$1,427,751.01	\$50,143.27	\$129,360.48	\$179,503.75	\$148.99	\$33,428.85	\$129,360.48	\$162,789.33	\$135.12	\$16,714.42	\$129,360.48	\$146,074.90	\$121.24
McGrew	187	\$1,175,664.16	\$41,289.87	\$117,861.38	\$159,151.25	\$177.31	\$27,526.58	\$117,861.38	\$145,387.96	\$161.97	\$13,763.29	\$117,861.38	\$131,624.67	\$146.64
Scottsbluff County	15840	\$13,932,416.17	\$489,312.89	\$2,455,616.69	\$2,944,929.57	\$38.73	\$326,208.59	\$2,455,616.69	\$2,781,825.28	\$36.59	\$163,104.30	\$2,455,616.69	\$2,618,720.98	\$34.44
Bayard	1993	\$5,604,574.36	\$196,835.24	\$416,290.44	\$613,125.68	\$64.09	\$131,223.49	\$416,290.44	\$547,513.93	\$57.23	\$65,611.75	\$416,290.44	\$481,902.19	\$50.37
Bridgeport	2598	\$6,676,204.88	\$234,471.40	\$512,262.81	\$746,734.21	\$59.88	\$156,314.27	\$512,262.81	\$668,577.07	\$53.61	\$78,157.13	\$512,262.81	\$590,419.94	\$47.35
Morrill County	4589	\$6,132,957.94	\$215,392.31	\$705,762.64	\$921,154.95	\$42.00	\$143,594.88	\$705,762.64	\$849,357.51	\$38.73	\$71,797.44	\$705,762.64	\$777,560.08	\$35.45
	109550	\$168,391,853.85	\$5,913,999.65	\$18,889,114.92	\$24,803,114.57	<b>Average Increase</b>								
						<b>\$47.17</b>	\$3,942,666.44	\$18,889,114.92	\$22,831,781.35	<b>Average Increase</b>				
										<b>\$43.42</b>	\$1,971,333.22	\$18,889,114.92	\$20,860,448.14	<b>Average Increase</b>
														<b>\$39.67</b>

- Capital Cost are from "WTP Capital and O&M Cost - Individual WTP compared to a Regional WTP"
- Annual Payment was calculated assuming either 25%, 50%, or 75% grants, a 40 year loan and an interest rate of 4%.
- Monthly Increase per services for each municipality and county was calculated based on total annual cost from debt repayment and O&M with 2.5 people per service.
- The Average Monthly Increase was calculated based on the total annual cost from debt repayment and O&M for all municipalities and counties with 2.5 people per service.

# PAWS

Platte Alliance Water Supply (PAWS)

## Projected Water Rate Increases from Capital and O&M Cost for Regional Water Treatment Plant and Transmission System



Loan Term 40 years  
Interest Rate 4%

	2070 Pop	Capital Cost	25% Grant and 75 % Loan				50% Grant and 50 % Loan				75% Grant and 25 % Loan			
			Annual Payment	Annual O&M	Total Annual Cost	Monthly Increase per services	Annual Payment	Annual O&M	Total Annual Cost	Monthly Increase per services	Annual Payment	Annual O&M	Total Annual Cost	Monthly Increase per services
Hartville/Sunrise	124	\$359,945.23	\$12,641.44	\$9,537.93	\$22,179.37	\$37.26	\$8,427.63	\$9,537.93	\$17,965.55	\$30.18	\$4,213.81	\$9,537.93	\$13,751.74	\$23.10
Guemsey	1933	\$5,611,081.70	\$197,063.78	\$148,683.94	\$345,747.72	\$37.26	\$131,375.85	\$148,683.94	\$280,059.80	\$30.18	\$65,687.93	\$148,683.94	\$214,371.87	\$23.10
Platte County	7101	\$20,612,670.01	\$723,926.49	\$546,200.04	\$1,270,126.53	\$37.26	\$482,617.66	\$546,200.04	\$1,028,817.70	\$30.18	\$241,308.83	\$546,200.04	\$787,508.87	\$23.10
Fort Laramie	427	\$1,239,488.82	\$43,531.42	\$32,844.31	\$76,375.73	\$37.26	\$29,020.95	\$32,844.31	\$61,865.25	\$30.18	\$14,610.47	\$32,844.31	\$47,354.78	\$23.10
Lingle	901	\$2,615,408.49	\$91,854.35	\$69,303.79	\$161,158.15	\$37.26	\$61,236.24	\$69,303.79	\$130,540.03	\$30.18	\$30,618.12	\$69,303.79	\$99,921.91	\$23.10
Torrington	10333	\$29,994,468.28	\$1,053,419.67	\$794,801.44	\$1,848,221.02	\$37.26	\$702,279.72	\$794,801.44	\$1,497,081.16	\$30.18	\$351,139.86	\$794,801.44	\$1,145,941.30	\$23.10
Veteran	51	\$148,041.99	\$5,199.30	\$3,922.86	\$9,122.16	\$37.26	\$3,466.20	\$3,922.86	\$7,389.06	\$30.18	\$1,733.10	\$3,922.86	\$5,655.96	\$23.10
Yoder	298	\$865,029.67	\$30,380.24	\$22,921.79	\$53,302.03	\$37.26	\$20,253.49	\$22,921.79	\$43,175.28	\$30.18	\$10,126.75	\$22,921.79	\$33,048.53	\$23.10
Huntley	38	\$110,305.80	\$3,873.99	\$2,922.91	\$6,796.90	\$37.26	\$2,582.66	\$2,922.91	\$5,505.57	\$30.18	\$1,291.33	\$2,922.91	\$4,214.24	\$23.10
Hawk Springs	125	\$362,848.01	\$12,743.39	\$9,614.84	\$22,358.23	\$37.26	\$8,495.59	\$9,614.84	\$18,110.44	\$30.18	\$4,247.80	\$9,614.84	\$13,862.64	\$23.10
La Grange	609	\$1,767,795.53	\$62,085.80	\$46,843.52	\$108,929.31	\$37.26	\$41,390.53	\$46,843.52	\$88,234.05	\$30.18	\$20,695.27	\$46,843.52	\$67,538.78	\$23.10
Goshen County	11287	\$32,763,724.33	\$1,150,677.13	\$868,181.93	\$2,018,859.06	\$37.26	\$767,118.08	\$868,181.93	\$1,635,300.01	\$30.18	\$383,559.04	\$868,181.93	\$1,251,740.97	\$23.10
Henry	292	\$847,612.96	\$29,768.56	\$22,460.28	\$52,228.83	\$37.26	\$19,845.71	\$22,460.28	\$42,305.98	\$30.18	\$9,922.85	\$22,460.28	\$32,383.13	\$23.10
Lyman	736	\$2,136,449.11	\$75,033.08	\$56,612.20	\$131,645.28	\$37.26	\$50,022.05	\$56,612.20	\$106,634.25	\$30.18	\$25,011.03	\$56,612.20	\$81,623.23	\$23.10
Morrill	1710	\$4,963,780.84	\$174,329.57	\$131,531.06	\$305,860.63	\$37.26	\$116,219.71	\$131,531.06	\$247,750.78	\$30.18	\$58,109.86	\$131,531.06	\$189,640.92	\$23.10
Mitchell	3268	\$9,486,298.49	\$333,163.18	\$251,370.48	\$584,533.66	\$37.26	\$222,108.79	\$251,370.48	\$473,479.26	\$30.18	\$111,054.39	\$251,370.48	\$362,424.87	\$23.10
Scottsbluff	27043	\$78,499,990.87	\$2,756,955.92	\$2,080,113.76	\$4,837,069.68	\$37.26	\$1,837,970.61	\$2,080,113.76	\$3,918,084.37	\$30.18	\$918,985.31	\$2,080,113.76	\$2,999,099.06	\$23.10
Terrytown	2196	\$6,374,513.92	\$223,875.87	\$168,913.58	\$392,789.45	\$37.26	\$149,250.58	\$168,913.58	\$318,164.16	\$30.18	\$74,625.29	\$168,913.58	\$243,538.87	\$23.10
Gering	14058	\$40,807,339.11	\$1,433,172.59	\$1,081,323.79	\$2,514,496.38	\$37.26	\$955,448.39	\$1,081,323.79	\$2,036,772.18	\$30.18	\$477,724.20	\$1,081,323.79	\$1,559,047.98	\$23.10
Minatare	1582	\$4,592,204.47	\$161,280.34	\$121,685.46	\$282,965.80	\$37.26	\$107,520.23	\$121,685.46	\$229,205.69	\$30.18	\$53,760.11	\$121,685.46	\$175,445.58	\$23.10
Meibeta	251	\$728,598.81	\$25,688.73	\$19,306.61	\$44,895.33	\$37.26	\$17,059.15	\$19,306.61	\$36,365.76	\$30.18	\$8,529.58	\$19,306.61	\$27,836.18	\$23.10
McGrew	187	\$542,820.63	\$19,064.11	\$14,383.81	\$33,447.92	\$37.26	\$12,709.41	\$14,383.81	\$27,093.21	\$30.18	\$6,364.70	\$14,383.81	\$20,738.51	\$23.10
Scottsbluff County	15840	\$45,980,100.41	\$1,614,842.36	\$1,218,393.00	\$2,833,235.36	\$37.26	\$1,078,561.57	\$1,218,393.00	\$2,294,954.57	\$30.18	\$538,280.79	\$1,218,393.00	\$1,756,673.79	\$23.10
Bayard	1993	\$5,785,248.74	\$203,180.61	\$153,299.07	\$356,479.68	\$37.26	\$135,453.74	\$153,299.07	\$288,752.81	\$30.18	\$67,726.87	\$153,299.07	\$221,025.94	\$23.10
Bridgeport	2598	\$7,541,433.14	\$264,858.61	\$199,834.91	\$464,693.53	\$37.26	\$176,572.41	\$199,834.91	\$376,407.32	\$30.18	\$88,286.20	\$199,834.91	\$288,121.12	\$23.10
Morrill County	4569	\$13,262,820.63	\$465,796.38	\$351,441.77	\$817,238.15	\$37.26	\$310,530.92	\$351,441.77	\$661,972.69	\$30.18	\$155,265.46	\$351,441.77	\$506,707.23	\$23.10
	109550	\$318,000,000.00	\$11,168,306.82	\$8,426,449.06	\$19,594,755.88	\$37.26	\$7,445,637.88	\$8,426,449.06	\$15,871,986.94	\$30.18	\$3,722,768.94	\$8,426,449.06	\$12,149,218.00	\$23.10
				<b>Average Increase</b>		<b>\$37.26</b>		<b>Average Increase</b>		<b>\$30.18</b>		<b>Average Increase</b>		<b>\$23.10</b>

- Capital Cost are the capital cost for the Off-River Storage distributed by population
- Annual Payment was calculated assuming either 25%, 50%, or 75% grants, a 40 year loan and an interest rate of 4%.
- Monthly Increase per services for each municipality and county was calculated based on total annual cost from debt repayment and O&M with 2.5 people per service.
- The Average Monthly Increase was calculated based on the total annual cost from debt repayment and O&M for all municipalities and counties with 2.5 people per service.



6. Discuss considerations of innovative technologies. Add the following paragraphs following the third paragraph of Chapter IV, page 1.

*All cost scenarios demonstrated the economies of a regional system coupled with an upstream water supply intake, significantly reducing the treatment requirements; is significantly more cost effective than the NO Action or other alternatives evaluated.*

*The real innovation of the recommended alternative is the economic benefit of regionalization of water systems for these rural communities, and securing a water source (upstream in the North Platte River) which does not have nitrates, uranium and arsenic concentrations in excess of EPA requirements with only chlorination and sand filter.*

*A cursory evaluation identified no advanced and/or current additional innovative treatment technologies would be neither applicable nor beneficial to the water treatment processes. While not recommended within this study, it is prudent to be aware that as future technologies "evolve" there may be some future application.*



## **Platte Alliance Water Supply (PAWS) Appraisal Investigation**

Conference Call: Wednesday, December 4, 2013 @ 1:00pm

Participants: Kip Gjerde; Bob Juve; Jeff Fuller; Josh Fuller

This memorandum provides notes of the discussions on the conference call; including addressing the latest USBR comments and additional information regarding project schedule, close out and reimbursement.

The following are USBR suggestions/edits/clarifications of the responses submitted to the USBR on October 6, 2013. The USBR suggestions/edits/clarifications are listed (note the numbers correspond to the 10-06-2013 submitted responses), and the subsequent discussion is in italics.

#1 - Economic/demographic concerns have been adequately addressed. Exhibit H adequately addresses the affordability question, the population table is clear, and the Table 1 and Table 2 poverty and household income statements provide relevant comparisons.

(Jeff: check out the note on pg. 2 of your document just above the table, that start with "To "aggregate" the water rate increase...". In the third line, should "EXHIBIT H" be "EXHIBIT 2H"?).

*Yes, this is correct and will be shown as 2H in the Final Report.*

#2 - Cost estimates...while the notes mention earthwork is included in the pipeline pricing, we would like to see a written description of a typical assumed trench, including width and cover. Second, if a PRV needed at Bridgeport, please make the appropriate revisions.

(Jeff, since it appears you are not accounting for unlisted items in the estimate, I suggest providing some backup information for why that is appropriate here.)

*Volume 2 Appendix G-Cost Estimates provides this level of detail and recited portions of this narrative. At the time, due to the suggested Report page limitation, the thought was to provide this detail in an Appendix. This detail includes a PRV valve to provide water to each rural community at existing pressures. Kip mentioned this was not apparent at Bridgeport as the hydraulic grade line was not reduced at this location. The transmission pipeline hydraulic grade line would not necessarily be reduced at each rural community location, only the supply to the community (as in the case of Bridgeport). Jeff will review, for accuracy, the hydraulic grade line at Bridgeport. Kip said this response addresses this USBR concern.*

#3 - For the second paragraph of the response (Yoder) and the third paragraph (Platte & Goshen Counties), provide the reference documents that backs up the information.

*A sentence naming the specific documents that provide this information will be added.*

#4 - Ok.

#5 - Ok.



#6 - Regarding innovative approaches, we have indicated previously that there may be limited opportunities for innovation on the production side. We have also suggested that innovation could be investigated in the treatment and disposal of the RO concentrate, such as via ABMet from GE Water ([http://www.gewater.com/products/equipment/other\\_equipment/ABMet.jsp](http://www.gewater.com/products/equipment/other_equipment/ABMet.jsp)). I would like to discuss your thoughts on performing at least a cursory investigation of the pros and cons of that technology for this project, the approximate costs, and a description for whether it's worth considering in a feasibility study.

*During design alternative analysis, they had very cursorily reviewed this innovation and this specific internet location. Initial results were that this treatment option did not mention specifically the removal of uranium and nitrates; therefore was not considered viable. Kip mentioned evaluation of innovative technologies, and renewable energy (hydroelectric and solar) are currently key desired project considerations. Jeff mentioned potential hydroelectric and solar considerations are discussed for each PRV location, with further consideration identified for the feasibility study phase when specific pipeline pressures are better identified. Jeff said they will provide additional narrative indicating innovative technologies would be again addressed, to a greater level of detail, in subsequent feasibility studies. Kip said this would adequately respond to this suggestion.*

The project schedule was discussed...

Jeff stated they should be able to get these comments incorporated into the Final Report, including another review of the entire documents for accuracy of incorporation of this and previous comments within 2 to 3 weeks.

Kip stated the USBR should have their final report completed within 4 weeks of receipt of the Sponsor's Final Report. Their process is submittal to Kip, Kip's review, then on to the Commission at which point the document essentially goes public.

It was noted both Wyoming and Nebraska participants are anxious to proceed, and Bob asked if this Report could be submitted to these entities for information and discussion at the same time as the USBR is preparing their report. Kip said this would be OK, suggesting a caveat noting that the USBR had not given final sign-off.

Invoicing was discussed. It is understood the Sponsor now has the necessary information to "connect" with the new USBR invoicing protocol; and the latest invoice should be processed and paid for within the next 2 weeks.

Both Nebraska and Wyoming are anxious to proceed with a feasibility study. A very draft feasibility study scope has been discussed with the Wyoming Water Development Commission. \$400,000 was mentioned as an initial thought for the feasibility study fee estimate. Kip said these initial budgets are often "overran" when all USBR requirements are incorporated. A copy of this draft scope will be forwarded to Kip for information and comment.



# ***Appendix I:***

## ***Town of Douglas Water Quality Data***

# 2011 Annual Water Quality Report

## **Is my water safe?**

We are pleased to present this year's Annual Water Quality Report (Consumer Confidence Report) as required by the Safe Drinking Water Act (SDWA). This report is designed to provide details about where your water comes from, what it contains, and how it compares to standards set by regulatory agencies. This report is a snapshot of last year's water quality. We are committed to providing you with information because informed customers are our best allies.

## **Do I need to take special precautions?**

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Water Drinking Hotline (800-426-4791).

## **Where does my water come from?**

Our water source consists of Little Boxelder Spring, Sheep Mountain Well and treated water drawn off the North Platte River.

## **Source water assessment and its availability**

Our source water assessment is available from the City Hall or Public Works.

## **Why are there contaminants in my drinking water?**

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's (EPA) Safe Drinking Water Hotline (800-426-4791).

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity: microbial contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife; inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, or farming; pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses; organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems; and radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities. In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

### **How can I get involved?**

If you want to learn more, please attend any of our regularly scheduled meetings. They are held on the second and fourth Monday of every month at 7:00 PM at the City Hall, located at 101 North 4th Street.

### **Water Conservation Tips**

Did you know that the average U.S. household uses approximately 400 gallons of water per day or 100 gallons per person per day? Luckily, there are many low-cost and no-cost ways to conserve water. Small changes can make a big difference – try one today and soon it will become second nature.

- Take short showers - a 5 minute shower uses 4 to 5 gallons of water compared to up to 50 gallons for a bath.
- Shut off water while brushing your teeth, washing your hair and shaving and save up to 500 gallons a month.
- Use a water-efficient showerhead. They're inexpensive, easy to install, and can save you up to 750 gallons a month.
- Run your clothes washer and dishwasher only when they are full. You can save up to 1,000 gallons a month.
- Water plants only when necessary.
- Fix leaky toilets and faucets. Faucet washers are inexpensive and take only a few minutes to replace. To check your toilet for a leak, place a few drops of food coloring in the tank and wait. If it seeps into the toilet bowl without flushing, you have a leak. Fixing it or replacing it with a new, more efficient model can save up to 1,000 gallons a month.
- Adjust sprinklers so only your lawn is watered. Apply water only as fast as the soil can absorb it and during the cooler parts of the day to reduce evaporation.
- Teach your kids about water conservation to ensure a future generation that uses water wisely. Make it a family effort to reduce next month's water bill!
- Visit [www.epa.gov/watersense](http://www.epa.gov/watersense) for more information.

### **Cross Connection Control Survey**

The purpose of this survey is to determine whether a cross-connection may exist at your home or business. A cross connection is an unprotected or improper connection to a public water distribution system that may cause contamination or pollution to enter the system. We are responsible for enforcing cross-connection control regulations and insuring that no contaminants can, under any flow conditions, enter the distribution system. If you have any of the devices listed below please contact us so that we can discuss the issue, and if needed, survey your connection and assist you in isolating it if that is necessary.

- Boiler/ Radiant heater (water heaters not included)
- Underground lawn sprinkler system
- Pool or hot tub (whirlpool tubs not included)
- Additional source(s) of water on the property
- Decorative pond
- Watering trough

### **Source Water Protection Tips**

Protection of drinking water is everyone's responsibility. You can help protect your community's drinking water source in several ways:

- Eliminate excess use of lawn and garden fertilizers and pesticides – they contain hazardous chemicals that can reach your drinking water source.
- Pick up after your pets.
- If you have your own septic system, properly maintain your system to reduce leaching to water sources or consider connecting to a public water system.
- Dispose of chemicals properly; take used motor oil to a recycling center.
- Volunteer in your community. Find a watershed or wellhead protection organization in your community and volunteer to help. If there are no active groups, consider starting one. Use EPA's Adopt Your Watershed to locate groups in your community, or visit the Watershed Information Network's How to Start a Watershed Team.
- Organize a storm drain stenciling project with your local government or water supplier. Stencil a message next to the street drain reminding people "Dump No Waste - Drains to River" or "Protect Your Water." Produce and distribute a flyer for households to remind residents that storm drains dump directly into your local water body.

### **Additional Information for Lead**

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. City of Douglas is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

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## **Water Quality Data Table**

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of contaminants in water provided by public water systems. The table below lists all of the drinking water contaminants that we detected during the calendar year of this report. Although many more contaminants were tested, only those substances listed below were found in your water. All sources of drinking water contain some naturally occurring contaminants. At low levels, these substances are generally not harmful in our drinking water. Removing all contaminants would be extremely expensive, and in most cases, would not provide increased protection of public health. A few naturally occurring minerals may actually improve the taste of drinking water and have nutritional value at low levels. Unless otherwise noted, the data presented in this table is from testing done in the calendar year of the report. The EPA or the State requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not vary significantly from year to year, or the system is not considered vulnerable to this type of contamination. As such, some of our data, though representative, may be more than one year old. In this table you will find terms and abbreviations that might not be familiar to you. To help you better understand these terms, we have provided the definitions below the table.

<u>Contaminants</u>	<u>MCLG</u> or <u>MRDLG</u>	<u>MCL,</u> <u>TT, or</u> <u>MRDL</u>	<u>Your</u> <u>Water</u>	<u>Range</u> <u>Low</u>   <u>High</u>		<u>Sample</u> <u>Date</u>	<u>Violation</u>	<u>Typical Source</u>
<b>Disinfectants &amp; Disinfectant By-Products</b>								
(There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants)								
Haloacetic Acids (HAA5) (ppb)	NA	60	45.75	42.7	48.8	2011	No	By-product of drinking water chlorination
TTHMs [Total Trihalomethanes] (ppb)	NA	80	61.05	48.8	73.3	2011	No	By-product of drinking water disinfection
<b>Inorganic Contaminants</b>								
Barium (ppm)	2	2	0.03	ND	0.1	2011	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Fluoride (ppm)	4	4	0.4	0.3	0.6	2011	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate [measured as Nitrogen] (ppm)	10	10	0.6	0.1	0.8	2011	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Arsenic (ppb)	0	10	4	ND	7	2011	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Sodium (optional) (ppm)		MPL	18.7	9.1	26	2011	No	Erosion of natural deposits; Leaching
<b>Microbiological Contaminants</b>								
Turbidity (NTU)	NA	1	100	NA		2011	No	Soil runoff
100% of the samples were below the TT value of 1. A value less than 95% constitutes a TT violation. The highest single measurement was 1.393. Any measurement in excess of 5 is a violation unless otherwise approved by the								
<b>Radioactive Contaminants</b>								
Alpha emitters (pCi/L)	0	15	9.2	8.4	10.5	2011	No	Erosion of natural deposits
Radium (combined 226/228) (pCi/L)	0	5	0.7	0.5	0.8	2011	No	Erosion of natural deposits
Uranium (ug/L)	0	30	13	NA		2011	No	Erosion of natural deposits
<b>Volatile Organic Contaminants</b>								
Xylenes (ppm)	10	10	0.0007	ND	0.0014	2008	No	Discharge from petroleum factories; Discharge from chemical factories
<u>Contaminants</u>	<u>MCLG</u>	<u>AL</u>	<u>Your</u> <u>Water</u>	<u>Sample</u> <u>Date</u>	<u># Samples</u> <u>Exceeding AL</u>	<u>Exceeds</u> <u>AL</u>	<u>Typical Source</u>	
<b>Inorganic Contaminants</b>								
Copper - action level at consumer taps (ppm)	1.3	1.3	0.49	2009	0	No	Corrosion of household plumbing systems; Erosion of natural deposits	

Lead - action level at consumer taps (ppb)	0	15	3	2009	1	No	Corrosion of household plumbing systems; Erosion of natural deposits
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Unit Descriptions	
Term	Definition
ug/L	ug/L : Number of micrograms of substance in one liter of water
ppm	ppm: parts per million, or milligrams per liter (mg/L)
ppb	ppb: parts per billion, or micrograms per liter (µg/L)
pCi/L	pCi/L: picocuries per liter (a measure of radioactivity)
NTU	NTU: Nephelometric Turbidity Units. Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system.
NA	NA: not applicable
ND	ND: Not detected
NR	NR: Monitoring not required, but recommended.

Important Drinking Water Definitions	
Term	Definition
MCLG	MCLG: Maximum Contaminant Level Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
MCL	MCL: Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
TT	TT: Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.
AL	AL: Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
Variances and Exemptions	Variances and Exemptions: State or EPA permission not to meet an MCL or a treatment technique under certain conditions.
MRDLG	MRDLG: Maximum residual disinfection level goal. The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
MRDL	MRDL: Maximum residual disinfectant level. The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
MNR	MNR: Monitored Not Regulated
MPL	MPL: State Assigned Maximum Permissible Level

**For more information please contact:**

Contact Name: Joshua M. Oberlander  
Address:  
420 W Grant St  
Douglas, WY 82633  
Phone: (307) 358-9750  
E-Mail: joberlander@cityofdouglas.org



# ANALYTICAL SUMMARY REPORT

August 29, 2010

Douglas City of  
420 W Grant St  
Douglas, WY 82633

Workorder No.: C10080335

Project Name: PWS5600137 C/SW

Energy Laboratories, Inc. received the following 2 samples for Douglas City of on 8/10/2010 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C10080335-001	SP01	08/10/10 10:59	08/10/10	Drinking Water	Metals by ICP/ICPMS, Drinking Water Cyanide, SDWA Mercury, Drinking Water Mercury Analysis Prep Fluoride E515.1 Chlorinated Herbicides E300.0 Anions Nitrogen, Nitrite Nitrogen, Nitrate + Nitrite Metals Preparation by EPA 200.2 504 sample microextraction E504 Pesticides Pesticides, Carbamates SDWA 525-Semi-Volatile Organic Compounds, SDWA
C10080335-002	SP03	08/10/10 08:45	08/10/10	Drinking Water	Same As Above

This report was prepared by Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:



**CLIENT:** Douglas City of  
**Project:** PWS5600137 C/SW  
**Sample Delivery Group:** C10080335

**Report Date:** 08/29/10

## CASE NARRATIVE

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### BRANCH LABORATORY SUBCONTRACT ANALYSIS

Tests associated with analyst identified as ELI-B were subcontracted to Energy Laboratories, 1120 S. 27th St., Billings, MT, EPA Number MT00005.

### LABORATORY ANALYTICAL REPORT

**Client:** Douglas City of  
**Project:** WY5600137  
**Lab ID:** C10080335-001  
**Client Sample ID:** SP01

**Report Date:** 08/29/10  
**Collection Date:** 08/10/10 10:59  
**Date Received:** 08/10/10  
**Matrix:** Drinking Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>INORGANIC COMPOUNDS</b>							
Antimony	ND	mg/L		0.001	0.006	E200.8	08/24/10 04:37 / sml
Arsenic	0.006	mg/L		0.005	0.01	E200.8	08/24/10 04:37 / sml
Barium	ND	mg/L		0.1	2	E200.8	08/24/10 04:37 / sml
Beryllium	ND	mg/L		0.0005	0.004	E200.8	08/27/10 01:17 / sml
Cadmium	ND	mg/L		0.0005	0.005	E200.8	08/24/10 04:37 / sml
Chromium	ND	mg/L		0.05	0.1	E200.8	08/24/10 04:37 / sml
Copper	0.01	mg/L		0.01	1.3	E200.8	08/24/10 04:37 / sml
Cyanide, Total	ND	mg/L		0.005	0.2	Kelada mod	08/12/10 14:00 / eli-b
Fluoride	0.3	mg/L		0.1	4	A4500-F C	08/11/10 14:36 / ja
Lead	0.002	mg/L		0.001	0.015	E200.8	08/24/10 04:37 / sml
Mercury	ND	mg/L		0.0002	0.002	E245.1	08/11/10 13:04 / rdw
Nickel	ND	mg/L		0.02	0.1	E200.8	08/24/10 04:37 / sml
Nitrogen, Nitrate+Nitrite as N	0.8	mg/L		0.1	10	E353.2	08/19/10 20:59 / ljl
Nitrogen, Nitrite as N	ND	mg/L		0.1	1	A4500-NO2 B	08/10/10 16:56 / ja
Selenium	ND	mg/L		0.005	0.05	E200.8	08/24/10 04:37 / sml
Sodium	9.0	mg/L		0.5		E200.7	08/17/10 20:25 / cp
Sulfate	37	mg/L		1		E300.0	08/17/10 23:36 / ljl
Thallium	ND	mg/L		0.0004	0.002	E200.8	08/24/10 04:37 / sml
<b>SYNTHETIC ORGANIC COMPOUNDS - PESTICIDES</b>							
1,2-Dibromo-3-chloropropane	ND	ug/L		0.02	0.2	E504.1	08/14/10 00:05 / jlr
1,2-Dibromoethane	ND	ug/L		0.01	0.05	E504.1	08/14/10 00:05 / jlr
1,2,3-Trichloropropane	ND	ug/L		0.05		E504.1	08/14/10 00:05 / jlr
Surr: 1,1,1,2-Tetrachloroethane	100	%REC		70-130		E504.1	08/14/10 00:05 / jlr
<b>SYNTHETIC ORGANIC COMPOUNDS - HERBICIDES</b>							
2,4-D	ND	ug/L		1.0	70	E515.1	08/16/10 21:54 / eli-b
2,4-DB	ND	ug/L		2.5		E515.1	08/16/10 21:54 / eli-b
Dalapon	ND	ug/L		2.5	200	E515.1	08/16/10 21:54 / eli-b
Dicamba	ND	ug/L		0.25		E515.1	08/16/10 21:54 / eli-b
Dichlorprop	ND	ug/L		1.0		E515.1	08/16/10 21:54 / eli-b
Dinoseb	ND	ug/L		1.0	7	E515.1	08/16/10 21:54 / eli-b
Pentachlorophenol	ND	ug/L		0.040	1	E515.1	08/16/10 21:54 / eli-b
Picloram	ND	ug/L		0.50	500	E515.1	08/16/10 21:54 / eli-b
2,4,5-TP (Silvex)	ND	ug/L		0.20	50	E515.1	08/16/10 21:54 / eli-b
Surr: DCAA	74.0	%REC		70-130		E515.1	08/16/10 21:54 / eli-b
<b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>							
Alachlor	ND	ug/L		0.10	2	E525.2	08/18/10 20:50 / eli-b
Aldrin	ND	ug/L		0.10		E525.2	08/18/10 20:50 / eli-b
Aroclor 1016	ND	ug/L		0.080		E525.2	08/18/10 20:50 / eli-b
Aroclor 1221	ND	ug/L		2.0		E525.2	08/18/10 20:50 / eli-b
Aroclor 1232	ND	ug/L		0.50		E525.2	08/18/10 20:50 / eli-b

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.

### LABORATORY ANALYTICAL REPORT

**Client:** Douglas City of  
**Project:** WY5600137  
**Lab ID:** C10080335-001  
**Client Sample ID:** SP01

**Report Date:** 08/29/10  
**Collection Date:** 08/10/10 10:59  
**Date Received:** 08/10/10  
**Matrix:** Drinking Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>							
Aroclor 1242	ND	ug/L		0.30		E525.2	08/18/10 20:50 / eli-b
Aroclor 1248	ND	ug/L		0.10		E525.2	08/18/10 20:50 / eli-b
Aroclor 1254	ND	ug/L		0.10		E525.2	08/18/10 20:50 / eli-b
Aroclor 1260	ND	ug/L		0.20		E525.2	08/18/10 20:50 / eli-b
Atrazine	ND	ug/L		0.10	3	E525.2	08/18/10 20:50 / eli-b
Benzo(a)pyrene	ND	ug/L		0.10	0.2	E525.2	08/18/10 20:50 / eli-b
bis(2-ethylhexyl)Adipate	ND	ug/L		0.50	400	E525.2	08/18/10 20:50 / eli-b
bis(2-ethylhexyl)Phthalate	ND	ug/L		2.0	6	E525.2	08/18/10 20:50 / eli-b
Butachlor	ND	ug/L		0.10		E525.2	08/18/10 20:50 / eli-b
Chlordane	ND	ug/L		1.0	2	E525.2	08/18/10 20:50 / eli-b
Dieldrin	ND	ug/L		0.10		E525.2	08/18/10 20:50 / eli-b
Endrin	ND	ug/L		0.10	2	E525.2	08/18/10 20:50 / eli-b
gamma-BHC (Lindane)	ND	ug/L		0.10	0.2	E525.2	08/18/10 20:50 / eli-b
Heptachlor	ND	ug/L		0.10	0.4	E525.2	08/18/10 20:50 / eli-b
Heptachlor epoxide	ND	ug/L		0.10	0.2	E525.2	08/18/10 20:50 / eli-b
Hexachlorobenzene	ND	ug/L		0.10	1	E525.2	08/18/10 20:50 / eli-b
Hexachlorocyclopentadiene	ND	ug/L		0.10	50	E525.2	08/18/10 20:50 / eli-b
Methoxychlor	ND	ug/L		0.10	40	E525.2	08/18/10 20:50 / eli-b
Metolachlor	ND	ug/L		0.10		E525.2	08/18/10 20:50 / eli-b
Metribuzin	ND	ug/L		0.10		E525.2	08/18/10 20:50 / eli-b
Propachlor	ND	ug/L		0.10		E525.2	08/18/10 20:50 / eli-b
Simazine	ND	ug/L		0.10	4	E525.2	08/18/10 20:50 / eli-b
Toxaphene	ND	ug/L		2.0	3	E525.2	08/18/10 20:50 / eli-b
Surr: 1,3-Dimethyl-2-nitrobenzene	112	%REC		70-130		E525.2	08/18/10 20:50 / eli-b
Surr: Perylene-d12	99.0	%REC		70-130		E525.2	08/18/10 20:50 / eli-b
Surr: Pyrene-d10	103	%REC		70-130		E525.2	08/18/10 20:50 / eli-b
Surr: Triphenylphosphate	103	%REC		70-130		E525.2	08/18/10 20:50 / eli-b
- Note: The federal MCL for total PCB's is 0.5 ug/L as Decachlorobiphenyl (DCB). PCB screening at the reporting limits given for the individual Aroclors meets or exceeds federal and state requirements for "Total PCB" monitoring if Aroclors are not detected.							
<b>SYNTHETIC ORGANIC COMPOUNDS - PESTICIDES, CARBAMATES</b>							
Aldicarb	ND	ug/L		0.40	3	E531.1	08/12/10 02:37 / swc
Aldicarb sulfone	ND	ug/L		0.40	2	E531.1	08/12/10 02:37 / swc
Aldicarb sulfoxide	ND	ug/L		0.41	4	E531.1	08/12/10 02:37 / swc
Carbaryl	ND	ug/L		0.40		E531.1	08/12/10 02:37 / swc
Carbofuran	ND	ug/L		0.40	40	E531.1	08/12/10 02:37 / swc
3-Hydroxycarbofuran	ND	ug/L		0.40		E531.1	08/12/10 02:37 / swc
Methiocarb	ND	ug/L		0.50		E531.1	08/12/10 02:37 / swc
Methomyl	ND	ug/L		0.40		E531.1	08/12/10 02:37 / swc
Oxamyl	ND	ug/L		0.40	200	E531.1	08/12/10 02:37 / swc
Baygon	ND	ug/L		0.40		E531.1	08/12/10 02:37 / swc
Surr: BDMC	88.0	%REC		70-130		E531.1	08/12/10 02:37 / swc

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

**Client:** Douglas City of  
**Project:** WY5600137  
**Lab ID:** C10080335-002  
**Client Sample ID:** SP03

**Report Date:** 08/29/10  
**Collection Date:** 08/10/10 08:45  
**Date Received:** 08/10/10  
**Matrix:** Drinking Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>INORGANIC COMPOUNDS</b>							
Antimony	ND	mg/L		0.001	0.006	E200.8	08/24/10 04:44 / sml
Arsenic	ND	mg/L		0.005	0.01	E200.8	08/24/10 04:44 / sml
Barium	ND	mg/L		0.1	2	E200.8	08/24/10 04:44 / sml
Beryllium	ND	mg/L		0.0005	0.004	E200.8	08/27/10 01:24 / sml
Cadmium	ND	mg/L		0.0005	0.005	E200.8	08/24/10 04:44 / sml
Chromium	ND	mg/L		0.05	0.1	E200.8	08/24/10 04:44 / sml
Copper	ND	mg/L		0.01	1.3	E200.8	08/24/10 04:44 / sml
Cyanide, Total	ND	mg/L		0.005	0.2	Kelada mod	08/12/10 14:02 / eli-b
Fluoride	0.3	mg/L		0.1	4	A4500-F C	08/11/10 14:55 / ja
Lead	ND	mg/L		0.001	0.015	E200.8	08/24/10 04:44 / sml
Mercury	ND	mg/L		0.0002	0.002	E245.1	08/11/10 13:10 / rdw
Nickel	ND	mg/L		0.02	0.1	E200.8	08/24/10 04:44 / sml
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.1	10	E353.2	08/19/10 21:02 / ljl
Nitrogen, Nitrite as N	ND	mg/L		0.1	1	A4500-NO2 B	08/10/10 16:56 / ja
Selenium	ND	mg/L		0.005	0.05	E200.8	08/24/10 04:44 / sml
Sodium	33	mg/L		0.5		E200.7	08/17/10 20:29 / cp
Sulfate	112	mg/L		1		E300.0	08/17/10 23:52 / ljl
Thallium	ND	mg/L		0.0004	0.002	E200.8	08/24/10 04:44 / sml
<b>SYNTHETIC ORGANIC COMPOUNDS - PESTICIDES</b>							
1,2-Dibromo-3-chloropropane	ND	ug/L		0.02	0.2	E504.1	08/14/10 01:24 / jlr
1,2-Dibromoethane	ND	ug/L		0.01	0.05	E504.1	08/14/10 01:24 / jlr
1,2,3-Trichloropropane	ND	ug/L		0.05		E504.1	08/14/10 01:24 / jlr
Surr: 1,1,1,2-Tetrachloroethane	110	%REC		70-130		E504.1	08/14/10 01:24 / jlr
<b>SYNTHETIC ORGANIC COMPOUNDS - HERBICIDES</b>							
2,4-D	ND	ug/L		1.0	70	E515.1	08/16/10 22:23 / eli-b
2,4-DB	ND	ug/L		2.5		E515.1	08/16/10 22:23 / eli-b
Dalapon	ND	ug/L		2.5	200	E515.1	08/16/10 22:23 / eli-b
Dicamba	ND	ug/L		0.25		E515.1	08/16/10 22:23 / eli-b
Dichlorprop	ND	ug/L		1.0		E515.1	08/16/10 22:23 / eli-b
Dinoseb	ND	ug/L		1.0	7	E515.1	08/16/10 22:23 / eli-b
Pentachlorophenol	ND	ug/L		0.040	1	E515.1	08/16/10 22:23 / eli-b
Picloram	ND	ug/L		0.50	500	E515.1	08/16/10 22:23 / eli-b
2,4,5-TP (Silvex)	ND	ug/L		0.20	50	E515.1	08/16/10 22:23 / eli-b
Surr: DCAA	79.0	%REC		70-130		E515.1	08/16/10 22:23 / eli-b
<b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>							
Alachlor	ND	ug/L		0.10	2	E525.2	08/18/10 21:29 / eli-b
Aldrin	ND	ug/L		0.10		E525.2	08/18/10 21:29 / eli-b
Aroclor 1016	ND	ug/L		0.080		E525.2	08/18/10 21:29 / eli-b
Aroclor 1221	ND	ug/L		2.0		E525.2	08/18/10 21:29 / eli-b
Aroclor 1232	ND	ug/L		0.50		E525.2	08/18/10 21:29 / eli-b

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.

### LABORATORY ANALYTICAL REPORT

**Client:** Douglas City of  
**Project:** WY5600137  
**Lab ID:** C10080335-002  
**Client Sample ID:** SP03

**Report Date:** 08/29/10  
**Collection Date:** 08/10/10 08:45  
**Date Received:** 08/10/10  
**Matrix:** Drinking Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>							
Aroclor 1242	ND	ug/L		0.30		E525.2	08/18/10 21:29 / eli-b
Aroclor 1248	ND	ug/L		0.10		E525.2	08/18/10 21:29 / eli-b
Aroclor 1254	ND	ug/L		0.10		E525.2	08/18/10 21:29 / eli-b
Aroclor 1260	ND	ug/L		0.20		E525.2	08/18/10 21:29 / eli-b
Atrazine	ND	ug/L		0.10	3	E525.2	08/18/10 21:29 / eli-b
Benzo(a)pyrene	ND	ug/L		0.10	0.2	E525.2	08/18/10 21:29 / eli-b
bis(2-ethylhexyl)Adipate	ND	ug/L		0.50	400	E525.2	08/18/10 21:29 / eli-b
bis(2-ethylhexyl)Phthalate	ND	ug/L		2.0	6	E525.2	08/18/10 21:29 / eli-b
Butachlor	ND	ug/L		0.10		E525.2	08/18/10 21:29 / eli-b
Chlordane	ND	ug/L		1.0	2	E525.2	08/18/10 21:29 / eli-b
Dieldrin	ND	ug/L		0.10		E525.2	08/18/10 21:29 / eli-b
Endrin	ND	ug/L		0.10	2	E525.2	08/18/10 21:29 / eli-b
gamma-BHC (Lindane)	ND	ug/L		0.10	0.2	E525.2	08/18/10 21:29 / eli-b
Heptachlor	ND	ug/L		0.10	0.4	E525.2	08/18/10 21:29 / eli-b
Heptachlor epoxide	ND	ug/L		0.10	0.2	E525.2	08/18/10 21:29 / eli-b
Hexachlorobenzene	ND	ug/L		0.10	1	E525.2	08/18/10 21:29 / eli-b
Hexachlorocyclopentadiene	ND	ug/L		0.10	50	E525.2	08/18/10 21:29 / eli-b
Methoxychlor	ND	ug/L		0.10	40	E525.2	08/18/10 21:29 / eli-b
Metolachlor	ND	ug/L		0.10		E525.2	08/18/10 21:29 / eli-b
Metribuzin	ND	ug/L		0.10		E525.2	08/18/10 21:29 / eli-b
Propachlor	ND	ug/L		0.10		E525.2	08/18/10 21:29 / eli-b
Simazine	ND	ug/L		0.10	4	E525.2	08/18/10 21:29 / eli-b
Toxaphene	ND	ug/L		2.0	3	E525.2	08/18/10 21:29 / eli-b
Surr: 1,3-Dimethyl-2-nitrobenzene	108	%REC		70-130		E525.2	08/18/10 21:29 / eli-b
Surr: Perylene-d12	93.0	%REC		70-130		E525.2	08/18/10 21:29 / eli-b
Surr: Pyrene-d10	104	%REC		70-130		E525.2	08/18/10 21:29 / eli-b
Surr: Triphenylphosphate	108	%REC		70-130		E525.2	08/18/10 21:29 / eli-b
- Note: The federal MCL for total PCB's is 0.5 ug/L as Decachlorobiphenyl (DCB). PCB screening at the reporting limits given for the individual Aroclors meets or exceeds federal and state requirements for "Total PCB" monitoring if Aroclors are not detected.							
<b>SYNTHETIC ORGANIC COMPOUNDS - PESTICIDES, CARBAMATES</b>							
Aldicarb	ND	ug/L		0.40	3	E531.1	08/19/10 17:19 / swc
Aldicarb sulfone	ND	ug/L		0.40	2	E531.1	08/19/10 17:19 / swc
Aldicarb sulfoxide	ND	ug/L		0.41	4	E531.1	08/19/10 17:19 / swc
Carbaryl	ND	ug/L		0.40		E531.1	08/19/10 17:19 / swc
Carbofuran	ND	ug/L		0.40	40	E531.1	08/19/10 17:19 / swc
3-Hydroxycarbofuran	ND	ug/L		0.40		E531.1	08/19/10 17:19 / swc
Methiocarb	ND	ug/L		0.50		E531.1	08/19/10 17:19 / swc
Methomyl	ND	ug/L		0.40		E531.1	08/19/10 17:19 / swc
Oxamyl	ND	ug/L		0.40	200	E531.1	08/19/10 17:19 / swc
Baygon	ND	ug/L		0.40		E531.1	08/19/10 17:19 / swc
Surr: BDMC	96.0	%REC		70-130		E531.1	08/19/10 17:19 / swc

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



# QA/QC Summary Report

**Client:** Douglas City of  
**Project:** PWS5600137 C/SW

**Report Date:** 08/29/10  
**Work Order:** C10080335

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> A4500-F C										Batch: R135989
<b>Sample ID:</b> MBLK		Method Blank								Run: MANTECH_100811A
Fluoride		ND	mg/L	0.05						08/11/10 10:15
<b>Sample ID:</b> LCS		Laboratory Control Sample								Run: MANTECH_100811A
Fluoride		0.980	mg/L	0.10	98	90	110			08/11/10 10:17
<b>Sample ID:</b> C10080205-003AMS		Sample Matrix Spike								Run: MANTECH_100811A
Fluoride		1.24	mg/L	0.10	84	80	120			08/11/10 15:08
<b>Sample ID:</b> C10080205-003AMSD		Sample Matrix Spike Duplicate								Run: MANTECH_100811A
Fluoride		1.24	mg/L	0.10	84	80	120	0	10	08/11/10 15:11

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

**Client:** Douglas City of  
**Project:** PWS5600137 C/SW

**Report Date:** 08/29/10  
**Work Order:** C10080335

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A4500-NO2 B</b>								Batch: A2010-08-10_6_NO2_01		
<b>Sample ID: MBLK-1</b>		Method Blank								
Nitrogen, Nitrite as N		ND	mg/L	0.001						Run: HACH DR3000_100810A 08/10/10 16:55
<b>Sample ID: LCS-2</b>		Laboratory Control Sample								
Nitrogen, Nitrite as N		1.01	mg/L	2.0	101	90	110			Run: HACH DR3000_100810A 08/10/10 16:55
<b>Sample ID: C10080294-001AMS</b>		Sample Matrix Spike								
Nitrogen, Nitrite as N		0.0528	mg/L	0.10	99	90	110			Run: HACH DR3000_100810A 08/10/10 16:57
<b>Sample ID: C10080294-001AMSD</b>		Sample Matrix Spike Duplicate								
Nitrogen, Nitrite as N		0.0525	mg/L	0.10	98	90	110		10	Run: HACH DR3000_100810A 08/10/10 16:57

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

**Client:** Douglas City of  
**Project:** PWS5600137 C/SW

**Report Date:** 08/29/10  
**Work Order:** C10080335

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E200.7										Batch: 27043
<b>Sample ID:</b> MB-27043		Method Blank								Run: ICP2-C_100817A 08/17/10 20:01
Sodium		ND	mg/L	0.3						
<b>Sample ID:</b> LCS3-27043		Laboratory Control Sample								Run: ICP2-C_100817A 08/17/10 20:05
Sodium		26.6	mg/L	1.0	106	85	115			
<b>Sample ID:</b> C10080422-005AMS3		Sample Matrix Spike								Run: ICP2-C_100817A 08/17/10 21:13
Sodium		38	mg/L	0.50	104	70	130			
<b>Sample ID:</b> C10080422-005AMSD		Sample Matrix Spike Duplicate								Run: ICP2-C_100817A 08/17/10 21:17
Sodium		38	mg/L	0.50	107	70	130	1.7	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

## QA/QC Summary Report

**Client:** Douglas City of  
**Project:** PWS5600137 C/SW

**Report Date:** 08/29/10  
**Work Order:** C10080335

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>										Batch: 27043
<b>Sample ID: MB-27043</b>	10	Method Blank					Run: ICPMS2-C_100823A			08/24/10 04:10
Antimony		0.0006	mg/L	0.0003						
Arsenic		ND	mg/L	0.0008						
Barium		0.002	mg/L	0.0002						
Cadmium		ND	mg/L	7E-05						
Chromium		0.002	mg/L	0.0005						
Copper		ND	mg/L	0.0002						
Lead		ND	mg/L	8E-05						
Nickel		ND	mg/L	9E-05						
Selenium		ND	mg/L	0.0008						
Thallium		ND	mg/L	0.0004						
<b>Sample ID: LCS3-27043</b>	10	Laboratory Control Sample					Run: ICPMS2-C_100823A			08/24/10 04:17
Antimony		0.60	mg/L	0.0010	119	85	115			S
Arsenic		0.52	mg/L	0.0010	104	85	115			
Barium		0.54	mg/L	0.10	108	85	115			
Cadmium		0.26	mg/L	0.0010	103	85	115			
Chromium		0.49	mg/L	0.050	98	85	115			
Copper		0.52	mg/L	0.010	103	85	115			
Lead		0.54	mg/L	0.0010	108	85	115			
Nickel		0.49	mg/L	0.050	98	85	115			
Selenium		0.52	mg/L	0.0010	104	85	115			
Thallium		0.52	mg/L	0.00040	105	85	115			
- Response for Antimony is above standard QA limit. This could indicate a high bias for the sample results. Since there were no detectable analyte responses, and the remainder of the run QA is within acceptance range, this batch is approved.										
<b>Sample ID: C10080422-005AMS3</b>	10	Sample Matrix Spike					Run: ICPMS2-C_100823A			08/24/10 05:04
Antimony		0.61	mg/L	0.0010	122	70	130			
Arsenic		0.52	mg/L	0.0010	104	70	130			
Barium		0.60	mg/L	0.10	109	70	130			
Cadmium		0.26	mg/L	0.0010	103	70	130			
Chromium		0.48	mg/L	0.050	96	70	130			
Copper		1.5	mg/L	0.010	87	70	130			
Lead		0.56	mg/L	0.0010	109	70	130			
Nickel		0.58	mg/L	0.050	97	70	130			
Selenium		0.51	mg/L	0.0010	102	70	130			
Thallium		0.54	mg/L	0.00040	107	70	130			
<b>Sample ID: C10080422-005AMSD</b>	10	Sample Matrix Spike Duplicate					Run: ICPMS2-C_100823A			08/24/10 05:38
Antimony		0.62	mg/L	0.0010	125	70	130	2.5	20	
Arsenic		0.52	mg/L	0.0010	104	70	130	0.5	20	
Barium		0.61	mg/L	0.10	111	70	130	2	20	
Cadmium		0.26	mg/L	0.0010	104	70	130	0.9	20	
Chromium		0.48	mg/L	0.050	96	70	130	0.2	20	
Copper		1.5	mg/L	0.010	97	70	130	3.4	20	
Lead		0.56	mg/L	0.0010	110	70	130	0.6	20	
Nickel		0.60	mg/L	0.050	101	70	130	3.5	20	
Selenium		0.51	mg/L	0.0010	102	70	130	0.7	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.



## QA/QC Summary Report

**Client:** Douglas City of  
**Project:** PWS5600137 C/SW

**Report Date:** 08/29/10  
**Work Order:** C10080335

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E200.8										Batch: 27043
<b>Sample ID:</b> C10080422-005AMSD	10	Sample Matrix Spike Duplicate								Run: ICPMS2-C_100823A 08/24/10 05:38
Thallium		0.54	mg/L	0.00040	108	70	130	0.4	20	
<b>Method:</b> E200.8										Batch: 27043
<b>Sample ID:</b> MB-27043		Method Blank								Run: ICPMS2-C_100826A 08/27/10 00:50
Beryllium		ND	mg/L	6E-05						
<b>Sample ID:</b> LCS3-27043		Laboratory Control Sample								Run: ICPMS2-C_100826A 08/27/10 00:57
Beryllium		0.25	mg/L	0.0010	102	85	115			
<b>Sample ID:</b> C10080422-005AMS3		Sample Matrix Spike								Run: ICPMS2-C_100826A 08/27/10 02:11
Beryllium		0.25	mg/L	0.0010	99	70	130			
<b>Sample ID:</b> C10080422-005AMSD		Sample Matrix Spike Duplicate								Run: ICPMS2-C_100826A 08/27/10 02:18
Beryllium		0.25	mg/L	0.0010	101	70	130	1.8	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

**Client:** Douglas City of  
**Project:** PWS5600137 C/SW

**Report Date:** 08/29/10  
**Work Order:** C10080335

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E245.1										Batch: 27028
<b>Sample ID:</b> MB-27028		Method Blank								Run: CVAA_C203_100811A 08/11/10 12:53
Mercury		ND	mg/L	2E-05						
<b>Sample ID:</b> LCS-27028		Laboratory Control Sample								Run: CVAA_C203_100811A 08/11/10 12:55
Mercury		0.00486	mg/L	0.00020	97	90	110			
<b>Sample ID:</b> C10080335-001BMS		Sample Matrix Spike								Run: CVAA_C203_100811A 08/11/10 13:06
Mercury		0.00485	mg/L	0.00020	97	85	115			
<b>Sample ID:</b> C10080335-001BMSD		Sample Matrix Spike Duplicate								Run: CVAA_C203_100811A 08/11/10 13:08
Mercury		0.00490	mg/L	0.00020	98	85	115	1.1	10	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

**Client:** Douglas City of  
**Project:** PWS5600137 C/SW

**Report Date:** 08/29/10  
**Work Order:** C10080335

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E300.0</b>										Batch: R136250
<b>Sample ID: LCS</b>		Laboratory Control Sample					Run: IC2-C_100817A			08/17/10 13:04
Sulfate		37.9	mg/L	1.0	95	90	110			
<b>Sample ID: MBLK</b>		Method Blank					Run: IC2-C_100817A			08/17/10 13:19
Sulfate		ND	mg/L	0.04						
<b>Sample ID: C10080190-001AMS</b>		Sample Matrix Spike					Run: IC2-C_100817A			08/17/10 14:52
Sulfate		2320	mg/L	8.0		80	120			A
<b>Sample ID: C10080190-001AMSD</b>		Sample Matrix Spike Duplicate					Run: IC2-C_100817A			08/17/10 15:07
Sulfate		2360	mg/L	8.0		80	120	1.6	20	A

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.



## QA/QC Summary Report

**Client:** Douglas City of  
**Project:** PWS5600137 C/SW

**Report Date:** 08/29/10  
**Work Order:** C10080335

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E353.2										Batch: R136271
<b>Sample ID:</b> MBLK-1		Method Blank								Run: TECHNICON_100819A
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.04						08/19/10 19:49
<b>Sample ID:</b> LCS-2		Laboratory Control Sample								Run: TECHNICON_100819A
Nitrogen, Nitrate+Nitrite as N		2.54	mg/L	0.10	102	90	110			08/19/10 19:52
<b>Sample ID:</b> C10080282-002EMS		Sample Matrix Spike								Run: TECHNICON_100819A
Nitrogen, Nitrate+Nitrite as N		2.08	mg/L	0.10	104	90	110			08/19/10 20:07
<b>Sample ID:</b> C10080282-002EMSD		Sample Matrix Spike Duplicate								Run: TECHNICON_100819A
Nitrogen, Nitrate+Nitrite as N		2.00	mg/L	0.10	100	90	110	3.9	10	08/19/10 20:09

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



## QA/QC Summary Report

**Client:** Douglas City of  
**Project:** PWS5600137 C/SW

**Report Date:** 08/29/10  
**Work Order:** C10080335

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E504.1</b>										Batch: 27061
<b>Sample ID: C10080352-001GMS</b>	4	Sample Matrix Spike								Run: ECD1-C_100816A 08/14/10 02:43
1,2-Dibromo-3-chloropropane		0.251	ug/L	0.020	100	65	135			
1,2-Dibromoethane		0.270	ug/L	0.010	107	65	135			
1,2,3-Trichloropropane		0.274	ug/L	0.050	109	65	135			
Surr: 1,1,1,2-Tetrachloroethane				0.020	92	70	130			
<b>Sample ID: LCS-27061</b>										Run: ECD1-C_100816A 08/13/10 17:00
1,2-Dibromo-3-chloropropane		0.249	ug/L	0.020	100	70	130			
1,2-Dibromoethane		0.269	ug/L	0.010	108	70	130			
1,2,3-Trichloropropane		0.263	ug/L	0.050	105	70	130			
Surr: 1,1,1,2-Tetrachloroethane				0.020	99	70	130			
<b>Sample ID: MB-27061</b>										Run: ECD1-C_100816A 08/13/10 15:43
1,2-Dibromo-3-chloropropane		ND	ug/L	0.020						
1,2-Dibromoethane		ND	ug/L	0.010						
1,2,3-Trichloropropane		ND	ug/L	0.050						
Surr: 1,1,1,2-Tetrachloroethane				0.020	96	70	130			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

## QA/QC Summary Report

**Client:** Douglas City of  
**Project:** PWS5600137 C/SW

**Report Date:** 08/29/10  
**Work Order:** C10080335

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E515.1</b>										Batch: B_48284
<b>Sample ID: MB-48284</b>	10	Method Blank					Run: SUB-B152403			08/12/10 19:04
2,4-D		ND	ug/L	1.0						
2,4-DB		ND	ug/L	2.5						
Dalapon		ND	ug/L	2.5						
Dicamba		ND	ug/L	0.25						
Dichlorprop		ND	ug/L	1.0						
Dinoseb		ND	ug/L	1.0						
Pentachlorophenol		ND	ug/L	0.040						
Picloram		ND	ug/L	0.50						
2,4,5-TP (Silvex)		ND	ug/L	0.20						
Surr: DCAA				0.10	76	70	130			
<b>Sample ID: LCS-48284</b>	10	Laboratory Control Sample					Run: SUB-B152403			08/12/10 18:32
2,4-D		5.64	ug/L	1.0	113	70	130			
2,4-DB		6.27	ug/L	2.5	125	70	130			
Dalapon		3.55	ug/L	2.5	71	70	130			
Dicamba		5.24	ug/L	0.25	105	70	130			
Dichlorprop		6.41	ug/L	1.0	128	70	130			
Dinoseb		3.96	ug/L	1.0	79	70	130			
Pentachlorophenol		4.54	ug/L	0.040	91	70	130			
Picloram		5.08	ug/L	0.50	102	70	130			
2,4,5-TP (Silvex)		5.22	ug/L	0.20	104	70	130			
Surr: DCAA				0.10	81	70	130			
<b>Sample ID: B10080913-001AMS</b>	5	Sample Matrix Spike					Run: SUB-B152403			08/13/10 00:56
2,4-D		12.2	ug/L	1.0	244	65	135			S
2,4-DB		10.5	ug/L	2.5	210	65	135			S
Dinoseb		3.60	ug/L	1.0	72	65	135			
2,4,5-TP (Silvex)		6.18	ug/L	0.20	124	65	135			
Surr: DCAA				0.10	57	70	130			S
<b>Sample ID: B10080913-001AMSD</b>	5	Sample Matrix Spike Duplicate					Run: SUB-B152403			08/13/10 01:28
2,4-D		11.3	ug/L	1.0	226	65	135	7.7	40	S
2,4-DB		5.37	ug/L	2.5	107	65	135	65	40	R
Dinoseb		3.06	ug/L	1.0	61	65	135	16	40	S
2,4,5-TP (Silvex)		5.77	ug/L	0.20	115	65	135	6.9	40	
Surr: DCAA				0.10	62	70	130			S
- The sample used for the MS/MSD analysis had severe matrix interference possibly from the Sodium Thiosulfate used as preservative. Normal QC limits were not achievable with the matrix interference.										
<b>Sample ID: B10080913-001AMS</b>	6	Sample Matrix Spike					Run: SUB-B152404			08/13/10 01:28
Dalapon		3.51	ug/L	2.5	70	65	135			
Dicamba		3.86	ug/L	0.25	77	65	135			
Dichlorprop		4.55	ug/L	1.0	91	65	135			
Pentachlorophenol		3.88	ug/L	0.040	78	65	135			
Picloram		4.97	ug/L	0.50	99	65	135			
Surr: DCAA				0.10	142	70	130			S

**Qualifiers:**

RL - Analyte reporting limit.  
R - RPD exceeds advisory limit.

ND - Not detected at the reporting limit.  
S - Spike recovery outside of advisory limits.



# QA/QC Summary Report

**Client:** Douglas City of  
**Project:** PWS5600137 C/SW

**Report Date:** 08/29/10  
**Work Order:** C10080335

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E515.1										Batch: B_48284
<b>Sample ID:</b> B10080913-001AMSD	6	Sample Matrix Spike Duplicate					Run: SUB-B152404			08/13/10 01:59
Dalapon		4.56	ug/L	2.5	91	65	135	26	40	
Dicamba		3.76	ug/L	0.25	75	65	135	2.6	40	
Dichlorprop		3.72	ug/L	1.0	74	65	135	20	40	
Pentachlorophenol		3.13	ug/L	0.040	63	65	135	21	40	S
Picloram		5.35	ug/L	0.50	107	65	135	7.4	40	
Surr: DCAA				0.10	205	70	130			S

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

## QA/QC Summary Report

**Client:** Douglas City of  
**Project:** PWS5600137 C/SW

**Report Date:** 08/29/10  
**Work Order:** C10080335

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E525.2</b>										Batch: B_48421	
<b>Sample ID: MB-48421</b>										08/18/10 16:18	
		25 Method Blank			Run: SUB-B152601						
Alachlor		ND	ug/L	0.10							
Aldrin		ND	ug/L	0.10							
Atrazine		ND	ug/L	0.10							
Benzo(a)pyrene		ND	ug/L	0.10							
bis(2-ethylhexyl)Adipate		ND	ug/L	0.50							
bis(2-ethylhexyl)Phthalate		ND	ug/L	2.0							
Butachlor		ND	ug/L	0.10							
Chlordane		ND	ug/L	1.0							
Dieldrin		ND	ug/L	0.10							
Endrin		ND	ug/L	0.10							
gamma-BHC (Lindane)		ND	ug/L	0.10							
Heptachlor		ND	ug/L	0.10							
Heptachlor epoxide		ND	ug/L	0.10							
Hexachlorobenzene		ND	ug/L	0.10							
Hexachlorocyclopentadiene		ND	ug/L	0.10							
Methoxychlor		ND	ug/L	0.10							
Metolachlor		ND	ug/L	0.10							
Metribuzin		ND	ug/L	0.10							
Propachlor		ND	ug/L	0.10							
Simazine		ND	ug/L	0.10							
Toxaphene		ND	ug/L	2.0							
Surr: 1,3-Dimethyl-2-nitrobenzene				0.10	115	70	130				
Surr: Perylene-d12				0.10	103	70	130				
Surr: Pyrene-d10				0.10	106	70	130				
Surr: Triphenylphosphate				0.10	113	70	130				
<b>Sample ID: MB-48421</b>										08/18/10 16:18	
		11 Method Blank			Run: SUB-B152601						
Aroclor 1016		ND	ug/L	0.080							
Aroclor 1221		ND	ug/L	2.0							
Aroclor 1232		ND	ug/L	0.50							
Aroclor 1242		ND	ug/L	0.30							
Aroclor 1248		ND	ug/L	0.10							
Aroclor 1254		ND	ug/L	0.10							
Aroclor 1260		ND	ug/L	0.20							
Surr: 1,3-Dimethyl-2-nitrobenzene				0.10	103	70	130				
Surr: Perylene-d12				0.10	108	70	130				
Surr: Pyrene-d10				0.10	110	70	130				
Surr: Triphenylphosphate				0.10	120	70	130				
<b>Sample ID: LCS-48421</b>										08/18/10 16:57	
		23 Laboratory Control Sample			Run: SUB-B152601						
Alachlor		2.63	ug/L	0.10	131	70	130			S	
Aldrin		2.74	ug/L	0.10	137	70	130			S	
Atrazine		2.23	ug/L	0.10	112	70	130				
Benzo(a)pyrene		2.14	ug/L	0.10	107	70	130				
bis(2-ethylhexyl)Adipate		2.43	ug/L	0.50	122	70	130				

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

## QA/QC Summary Report

**Client:** Douglas City of  
**Project:** PWS5600137 C/SW

**Report Date:** 08/29/10  
**Work Order:** C10080335

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E525.2</b>										Batch: B_48421	
<b>Sample ID: LCS-48421</b>		23 Laboratory Control Sample			Run: SUB-B152601			08/18/10 16:57			
bis(2-ethylhexyl)Phthalate		3.53	ug/L	2.0	176	70	130			S	
Butachlor		2.66	ug/L	0.10	133	70	130			S	
Dieldrin		2.37	ug/L	0.10	119	70	130				
Endrin		2.27	ug/L	0.10	114	70	130				
gamma-BHC (Lindane)		2.35	ug/L	0.10	118	70	130				
Heptachlor		2.75	ug/L	0.10	138	70	130			S	
Heptachlor epoxide		2.71	ug/L	0.10	136	70	130			S	
Hexachlorobenzene		2.28	ug/L	0.10	114	70	130				
Hexachlorocyclopentadiene		1.97	ug/L	0.10	99	70	130				
Methoxychlor		2.35	ug/L	0.10	118	70	130				
Metolachlor		2.48	ug/L	0.10	124	70	130				
Metribuzin		2.16	ug/L	0.10	108	70	130				
Propachlor		2.78	ug/L	0.10	139	70	130			S	
Simazine		2.20	ug/L	0.10	110	70	130				
Surr: 1,3-Dimethyl-2-nitrobenzene				0.10	114	70	130				
Surr: Perylene-d12				0.10	99	70	130				
Surr: Pyrene-d10				0.10	110	70	130				
Surr: Triphenylphosphate				0.10	106	70	130				
<b>Sample ID: TOX-48421</b>		5 Laboratory Control Sample			Run: SUB-B152601			08/18/10 17:36			
Toxaphene		44.0	ug/L	2.0	110	70	130				
Surr: 1,3-Dimethyl-2-nitrobenzene				0.10	109	70	130				
Surr: Perylene-d12				0.10	107	70	130				
Surr: Pyrene-d10				0.10	104	70	130				
Surr: Triphenylphosphate				0.10	111	70	130				
<b>Sample ID: Ar1660-48421</b>		6 Laboratory Control Sample			Run: SUB-B152601			08/18/10 18:15			
Aroclor 1016		1.90	ug/L	0.080	95	70	130				
Aroclor 1260		2.61	ug/L	0.20	130	70	130				
Surr: 1,3-Dimethyl-2-nitrobenzene				0.10	101	70	130				
Surr: Perylene-d12				0.10	113	70	130				
Surr: Pyrene-d10				0.10	115	70	130				
Surr: Triphenylphosphate				0.10	109	70	130				
<b>Sample ID: B10081082-001FMS</b>		23 Sample Matrix Spike			Run: SUB-B152601			08/18/10 18:54			
Alachlor		2.24	ug/L	0.10	112	70	130				
Aldrin		2.43	ug/L	0.10	122	70	130				
Atrazine		2.40	ug/L	0.10	120	70	130				
Benzo(a)pyrene		2.15	ug/L	0.10	107	70	130				
bis(2-ethylhexyl)Adipate		2.35	ug/L	0.50	118	70	130				
bis(2-ethylhexyl)Phthalate		3.60	ug/L	2.0	180	70	130			S	
Butachlor		2.13	ug/L	0.10	106	70	130				
Dieldrin		1.76	ug/L	0.10	88	70	130				
Endrin		1.54	ug/L	0.10	77	70	130				
gamma-BHC (Lindane)		2.46	ug/L	0.10	123	70	130				
Heptachlor		2.74	ug/L	0.10	137	70	130			S	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

## QA/QC Summary Report

**Client:** Douglas City of  
**Project:** PWS5600137 C/SW

**Report Date:** 08/29/10  
**Work Order:** C10080335

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E525.2</b>										Batch: B_48421
<b>Sample ID: B10081082-001FMS</b>	23	Sample Matrix Spike			Run: SUB-B152601				08/18/10 18:54	
Heptachlor epoxide		2.63	ug/L	0.10	131	70	130			S
Hexachlorobenzene		2.59	ug/L	0.10	129	70	130			
Hexachlorocyclopentadiene		1.87	ug/L	0.10	94	70	130			
Methoxychlor		2.28	ug/L	0.10	114	70	130			
Metolachlor		2.35	ug/L	0.10	118	70	130			
Metribuzin		2.57	ug/L	0.10	128	70	130			
Propachlor		2.59	ug/L	0.10	129	70	130			
Simazine		2.35	ug/L	0.10	118	70	130			
Surr: 1,3-Dimethyl-2-nitrobenzene				0.10	113	70	130			
Surr: Perylene-d12				0.10	100	70	130			
Surr: Pyrene-d10				0.10	125	70	130			
Surr: Triphenylphosphate				0.10	107	70	130			
<b>Sample ID: B10081082-001FMSD</b>	23	Sample Matrix Spike Duplicate			Run: SUB-B152601				08/18/10 19:33	
Alachlor		1.97	ug/L	0.10	99	70	130	13	40	
Aldrin		2.08	ug/L	0.10	104	70	130	16	40	
Atrazine		2.14	ug/L	0.10	107	70	130	11	40	
Benzo(a)pyrene		2.12	ug/L	0.10	106	70	130	1.4	40	
bis(2-ethylhexyl)Adipate		2.38	ug/L	0.50	119	70	130	1.3	40	
bis(2-ethylhexyl)Phthalate		3.35	ug/L	2.0	168	70	130	7.2	40	S
Butachlor		2.04	ug/L	0.10	102	70	130	4.3	40	
Dieldrin		1.86	ug/L	0.10	93	70	130	5.5	40	
Endrin		1.51	ug/L	0.10	76	70	130	2	40	
gamma-BHC (Lindane)		2.27	ug/L	0.10	114	70	130	8	40	
Heptachlor		2.43	ug/L	0.10	122	70	130	12	40	
Heptachlor epoxide		2.38	ug/L	0.10	119	70	130	10	40	
Hexachlorobenzene		2.26	ug/L	0.10	113	70	130	14	40	
Hexachlorocyclopentadiene		1.95	ug/L	0.10	98	70	130	4.2	40	
Methoxychlor		2.28	ug/L	0.10	114	70	130	0	40	
Metolachlor		2.14	ug/L	0.10	107	70	130	9.4	40	
Metribuzin		2.38	ug/L	0.10	119	70	130	7.7	40	
Propachlor		2.57	ug/L	0.10	128	70	130	0.8	40	
Simazine		2.00	ug/L	0.10	100	70	130	16	40	
Surr: 1,3-Dimethyl-2-nitrobenzene				0.10	112	70	130			
Surr: Perylene-d12				0.10	99	70	130			
Surr: Pyrene-d10				0.10	108	70	130			
Surr: Triphenylphosphate				0.10	106	70	130			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

## QA/QC Summary Report

**Client:** Douglas City of  
**Project:** PWS5600137 C/SW

**Report Date:** 08/29/10  
**Work Order:** C10080335

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E525.2</b>								Analytical Run: B_R152601		
<b>Sample ID: 525_CCV_5</b>		23 Continuing Calibration Verification Standard							08/18/10 12:29	
Alachlor		2.32	ug/L	0.10	116	70	130			
Aldrin		2.73	ug/L	0.10	137	70	130			S
Atrazine		2.25	ug/L	0.10	113	70	130			
Benzo(a)pyrene		2.08	ug/L	0.10	104	70	130			
bis(2-ethylhexyl)Adipate		2.19	ug/L	0.50	109	70	130			
bis(2-ethylhexyl)Phthalate		2.09	ug/L	2.0	104	70	130			
Butachlor		2.09	ug/L	0.10	104	70	130			
Dieldrin		2.35	ug/L	0.10	118	70	130			
Endrin		2.22	ug/L	0.10	111	70	130			
gamma-BHC (Lindane)		2.23	ug/L	0.10	112	70	130			
Heptachlor		2.59	ug/L	0.10	129	70	130			
Heptachlor epoxide		2.37	ug/L	0.10	119	70	130			
Hexachlorobenzene		2.16	ug/L	0.10	108	70	130			
Hexachlorocyclopentadiene		2.13	ug/L	0.10	106	70	130			
Methoxychlor		2.04	ug/L	0.10	102	70	130			
Metolachlor		2.06	ug/L	0.10	103	70	130			
Metribuzin		2.26	ug/L	0.10	113	70	130			
Propachlor		2.16	ug/L	0.10	108	70	130			
Simazine		2.16	ug/L	0.10	108	70	130			
Surr: 1,3-Dimethyl-2-nitrobenzene				0.10	106	70	130			
Surr: Perylene-d12				0.10	91	70	130			
Surr: Pyrene-d10				0.10	113	70	130			
Surr: Triphenylphosphate				0.10	102	70	130			
<b>Sample ID: CLD_CCV_5</b>		5 Continuing Calibration Verification Standard							08/18/10 13:08	
Chlordane		18.3	ug/L	1.0	92	70	130			
Surr: 1,3-Dimethyl-2-nitrobenzene				0.10	112	70	130			
Surr: Perylene-d12				0.10	89	70	130			
Surr: Pyrene-d10				0.10	99	70	130			
Surr: Triphenylphosphate				0.10	103	70	130			
<b>Sample ID: TOX_CCV_5</b>		5 Continuing Calibration Verification Standard							08/18/10 13:47	
Toxaphene		37.0	ug/L	2.0	93	70	130			
Surr: 1,3-Dimethyl-2-nitrobenzene				0.10	101	70	130			
Surr: Perylene-d12				0.10	91	70	130			
Surr: Pyrene-d10				0.10	95	70	130			
Surr: Triphenylphosphate				0.10	108	70	130			
<b>Sample ID: Ar1660_CCV_5</b>		6 Continuing Calibration Verification Standard							08/18/10 14:26	
Aroclor 1016		1.32	ug/L	0.080	83	70	130			
Aroclor 1260		3.82	ug/L	0.20	96	70	130			
Surr: 1,3-Dimethyl-2-nitrobenzene				0.10	98	70	130			
Surr: Perylene-d12				0.10	97	70	130			
Surr: Pyrene-d10				0.10	105	70	130			
Surr: Triphenylphosphate				0.10	106	70	130			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

## QA/QC Summary Report

**Client:** Douglas City of  
**Project:** PWS5600137 C/SW

**Report Date:** 08/29/10  
**Work Order:** C10080335

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E531.1</b>								Analytical Run: R135985		
<b>Sample ID: ICV_09r</b>	11	Initial Calibration Verification Standard						08/10/10 13:11		
Aldicarb		9.9	ug/L	0.40	99	80	120			
Aldicarb sulfone		9.6	ug/L	0.40	96	80	120			
Aldicarb sulfoxide		11	ug/L	0.41	106	80	120			
Carbaryl		9.9	ug/L	0.40	99	80	120			
Carbofuran		9.9	ug/L	0.40	99	80	120			
3-Hydroxycarbofuran		10	ug/L	0.40	102	80	120			
Methiocarb		10.0	ug/L	0.50	100	80	120			
Methomyl		9.6	ug/L	0.40	96	80	120			
Oxamyl		9.9	ug/L	0.40	99	80	120			
Baygon		10	ug/L	0.40	102	80	120			
Surr: BDMC				0.40	106	70	130			
<b>Method: E531.1</b>								Batch: R135985		
<b>Sample ID: MBLK_36r</b>	11	Method Blank						Run: HPLC202-C_100810A 08/11/10 10:40		
Aldicarb		ND	ug/L	0.40						
Aldicarb sulfone		ND	ug/L	0.40						
Aldicarb sulfoxide		ND	ug/L	0.41						
Carbaryl		ND	ug/L	0.40						
Carbofuran		ND	ug/L	0.40						
3-Hydroxycarbofuran		ND	ug/L	0.40						
Methiocarb		ND	ug/L	0.50						
Methomyl		ND	ug/L	0.40						
Oxamyl		ND	ug/L	0.40						
Baygon		ND	ug/L	0.40						
Surr: BDMC				0.40	95	70	130			
<b>Sample ID: LFB_37r</b>	11	Laboratory Fortified Blank						Run: HPLC202-C_100810A 08/11/10 11:23		
Aldicarb		7.3	ug/L	0.40	91	80	120			
Aldicarb sulfone		7.3	ug/L	0.40	92	80	120			
Aldicarb sulfoxide		8.4	ug/L	0.41	105	80	120			
Carbaryl		7.7	ug/L	0.40	96	80	120			
Carbofuran		7.8	ug/L	0.40	98	80	120			
3-Hydroxycarbofuran		8.0	ug/L	0.40	100	80	120			
Methiocarb		8.2	ug/L	0.50	103	80	120			
Methomyl		7.8	ug/L	0.40	98	80	120			
Oxamyl		8.5	ug/L	0.40	106	80	120			
Baygon		7.7	ug/L	0.40	96	80	120			
Surr: BDMC				0.40	102	70	130			
<b>Sample ID: LFBD_38r</b>	11	Laboratory Fortified Blank Duplicate						Run: HPLC202-C_100810A 08/11/10 12:07		
Aldicarb		7.4	ug/L	0.40	92	80	120	1	20	
Aldicarb sulfone		7.5	ug/L	0.40	93	80	120	1.8	20	
Aldicarb sulfoxide		7.5	ug/L	0.41	94	80	120	11	20	
Carbaryl		7.8	ug/L	0.40	97	80	120	1	20	
Carbofuran		7.7	ug/L	0.40	97	80	120	1	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

## QA/QC Summary Report

**Client:** Douglas City of  
**Project:** PWS5600137 C/SW

**Report Date:** 08/29/10  
**Work Order:** C10080335

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E531.1</b>										Batch: R135985
<b>Sample ID: LFBD_38r</b>										08/11/10 12:07
11 Laboratory Fortified Blank Duplicate Run: HPLC202-C_100810A										
3-Hydroxycarbofuran		7.8	ug/L	0.40	97	80	120	2.4	20	
Methiocarb		7.9	ug/L	0.50	98	80	120	4.7	20	
Methomyl		7.3	ug/L	0.40	91	80	120	6.9	20	
Oxamyl		7.9	ug/L	0.40	99	80	120	7	20	
Baygon		7.9	ug/L	0.40	99	80	120	2.3	20	
Surr: BDMC				0.40	99	70	130	0	20	
<b>Sample ID: C10080201-001G MS</b>										08/11/10 14:17
11 Sample Matrix Spike Run: HPLC202-C_100810A										
Aldicarb		8.0	ug/L	0.40	100	80	120			
Aldicarb sulfone		8.2	ug/L	0.40	103	80	120			
Aldicarb sulfoxide		7.5	ug/L	0.41	94	80	120			
Carbaryl		8.0	ug/L	0.40	100	80	120			
Carbofuran		7.8	ug/L	0.40	97	80	120			
3-Hydroxycarbofuran		8.3	ug/L	0.40	104	80	120			
Methiocarb		7.9	ug/L	0.50	99	80	120			
Methomyl		7.8	ug/L	0.40	97	80	120			
Oxamyl		8.7	ug/L	0.40	108	80	120			
Baygon		7.8	ug/L	0.40	98	80	120			
Surr: BDMC				0.40	94	70	130			
<b>Sample ID: C10080201-001G MSD</b>										08/11/10 15:01
11 Sample Matrix Spike Duplicate Run: HPLC202-C_100810A										
Aldicarb		7.9	ug/L	0.40	99	80	120	1.1	20	
Aldicarb sulfone		7.4	ug/L	0.40	93	80	120	10	20	
Aldicarb sulfoxide		7.4	ug/L	0.41	93	80	120	1.6	20	
Carbaryl		7.9	ug/L	0.40	98	80	120	2.1	20	
Carbofuran		7.6	ug/L	0.40	95	80	120	2.1	20	
3-Hydroxycarbofuran		7.8	ug/L	0.40	98	80	120	5.8	20	
Methiocarb		8.0	ug/L	0.50	100	80	120	0.9	20	
Methomyl		8.0	ug/L	0.40	100	80	120	3.4	20	
Oxamyl		7.6	ug/L	0.40	94	80	120	14	20	
Baygon		7.8	ug/L	0.40	97	80	120	0.5	20	
Surr: BDMC				0.40	95	70	130	0	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

## QA/QC Summary Report

**Client:** Douglas City of  
**Project:** PWS5600137 C/SW

**Report Date:** 08/29/10  
**Work Order:** C10080335

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E531.1</b>								Analytical Run: R136352			
<b>Sample ID: ICV_09r</b>	11	Initial Calibration Verification Standard						08/19/10 14:25			
Aldicarb		9.6	ug/L	0.40	96	80	120				
Aldicarb sulfone		10	ug/L	0.40	102	80	120				
Aldicarb sulfoxide		10	ug/L	0.41	101	80	120				
Carbaryl		9.8	ug/L	0.40	98	80	120				
Carbofuran		10	ug/L	0.40	103	80	120				
3-Hydroxycarbofuran		10	ug/L	0.40	100	80	120				
Methiocarb		9.3	ug/L	0.50	93	80	120				
Methomyl		10	ug/L	0.40	100	80	120				
Oxamyl		11	ug/L	0.40	106	80	120				
Baygon		10	ug/L	0.40	103	80	120				
Surr: BDMC				0.40	101	70	130				
<b>Method: E531.1</b>								Batch: R136352			
<b>Sample ID: MBLK_10r</b>	11	Method Blank						Run: HPLC202-C_100819A		08/19/10 15:08	
Aldicarb		ND	ug/L	0.40							
Aldicarb sulfone		ND	ug/L	0.40							
Aldicarb sulfoxide		ND	ug/L	0.41							
Carbaryl		ND	ug/L	0.40							
Carbofuran		ND	ug/L	0.40							
3-Hydroxycarbofuran		ND	ug/L	0.40							
Methiocarb		ND	ug/L	0.50							
Methomyl		ND	ug/L	0.40							
Oxamyl		ND	ug/L	0.40							
Baygon		ND	ug/L	0.40							
Surr: BDMC				0.40	92	70	130				
<b>Sample ID: LFB_11r</b>	11	Laboratory Fortified Blank						Run: HPLC202-C_100819A		08/19/10 15:52	
Aldicarb		8.6	ug/L	0.40	107	80	120				
Aldicarb sulfone		8.2	ug/L	0.40	103	80	120				
Aldicarb sulfoxide		8.9	ug/L	0.41	111	80	120				
Carbaryl		8.4	ug/L	0.40	104	80	120				
Carbofuran		8.5	ug/L	0.40	106	80	120				
3-Hydroxycarbofuran		8.4	ug/L	0.40	105	80	120				
Methiocarb		8.4	ug/L	0.50	105	80	120				
Methomyl		8.9	ug/L	0.40	111	80	120				
Oxamyl		7.9	ug/L	0.40	98	80	120				
Baygon		9.0	ug/L	0.40	113	80	120				
Surr: BDMC				0.40	96	70	130				
<b>Sample ID: LFBD_12r</b>	11	Laboratory Fortified Blank Duplicate						Run: HPLC202-C_100819A		08/19/10 16:35	
Aldicarb		8.3	ug/L	0.40	103	80	120	3.4	20		
Aldicarb sulfone		8.2	ug/L	0.40	103	80	120	0.4	20		
Aldicarb sulfoxide		8.1	ug/L	0.41	101	80	120	9.8	20		
Carbaryl		8.3	ug/L	0.40	103	80	120	0.8	20		
Carbofuran		8.4	ug/L	0.40	105	80	120	1.2	20		

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

## QA/QC Summary Report

**Client:** Douglas City of  
**Project:** PWS5600137 C/SW

**Report Date:** 08/29/10  
**Work Order:** C10080335

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E531.1</b>										Batch: R136352
<b>Sample ID: LFBD_12r</b> 11 Laboratory Fortified Blank Duplicate      Run: HPLC202-C_100819A      08/19/10 16:35										
3-Hydroxycarbofuran		8.3	ug/L	0.40	104	80	120	0.8	20	
Methiocarb		8.3	ug/L	0.50	104	80	120	1.6	20	
Methomyl		8.1	ug/L	0.40	101	80	120	9.5	20	
Oxamyl		8.2	ug/L	0.40	102	80	120	3.5	20	
Baygon		8.4	ug/L	0.40	105	80	120	6.6	20	
Surr: BDMC				0.40	93	70	130	0	20	
<b>Sample ID: C10080335-002H MS</b> 11 Sample Matrix Spike      Run: HPLC202-C_100819A      08/19/10 18:02										
Aldicarb		8.1	ug/L	0.40	101	80	120			
Aldicarb sulfone		8.0	ug/L	0.40	100	80	120			
Aldicarb sulfoxide		8.6	ug/L	0.41	108	80	120			
Carbaryl		8.4	ug/L	0.40	104	80	120			
Carbofuran		8.4	ug/L	0.40	105	80	120			
3-Hydroxycarbofuran		8.7	ug/L	0.40	108	80	120			
Methiocarb		8.8	ug/L	0.50	110	80	120			
Methomyl		13	ug/L	0.40	164	80	120			S
Oxamyl		8.8	ug/L	0.40	110	80	120			
Baygon		8.4	ug/L	0.40	105	80	120			
Surr: BDMC				0.40	103	70	130			
- Spike recovery for one analyte is high. This is a matrix related bias since the MS MSD pair both exhibit this same behavior yet have an acceptable RPD. This batch is approved.										
<b>Sample ID: C10080335-002H MSD</b> 11 Sample Matrix Spike Duplicate      Run: HPLC202-C_100819A      08/19/10 18:46										
Aldicarb		8.0	ug/L	0.40	100	80	120	0.9	20	
Aldicarb sulfone		7.7	ug/L	0.40	96	80	120	4.2	20	
Aldicarb sulfoxide		8.9	ug/L	0.41	111	80	120	2.7	20	
Carbaryl		8.5	ug/L	0.40	107	80	120	2.1	20	
Carbofuran		8.7	ug/L	0.40	109	80	120	3.5	20	
3-Hydroxycarbofuran		8.6	ug/L	0.40	107	80	120	1	20	
Methiocarb		8.6	ug/L	0.50	107	80	120	2.2	20	
Methomyl		14	ug/L	0.40	171	80	120	4.1	20	S
Oxamyl		7.6	ug/L	0.40	95	80	120	14	20	
Baygon		8.2	ug/L	0.40	102	80	120	2.6	20	
Surr: BDMC				0.40	96	70	130	0	20	
- Spike recovery for one analyte is high. This is a matrix related bias since the MS MSD pair both exhibit this same behavior yet have an acceptable RPD. This batch is approved.										

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.



# QA/QC Summary Report

**Client:** Douglas City of  
**Project:** PWS5600137 C/SW

**Report Date:** 08/29/10  
**Work Order:** C10080335

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: Kelada mod</b>								Analytical Run: SUB-B152272		
<b>Sample ID: ICV-1</b> Initial Calibration Verification Standard 08/12/10 13:45										
Cyanide, Total		0.149	mg/L	0.0050	99	90	110			
<b>Method: Kelada mod</b>								Batch: B_R152272		
<b>Sample ID: LFB-2</b> Laboratory Fortified Blank Run: SUB-B152272 08/12/10 13:47										
Cyanide, Total		0.105	mg/L	0.0050	105	90	110			
<b>Sample ID: MBLK-3</b> Method Blank Run: SUB-B152272 08/12/10 13:49										
Cyanide, Total		ND	mg/L	0.002						
<b>Sample ID: B10081105-005EMS</b> Sample Matrix Spike Run: SUB-B152272 08/12/10 14:24										
Cyanide, Total		255	mg/L	2.0	87	90	110			S
<b>Sample ID: B10081105-005EMSD</b> Sample Matrix Spike Duplicate Run: SUB-B152272 08/12/10 14:25										
Cyanide, Total		257	mg/L	2.0	89	90	110	0.9	10	S

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

PLEASE PRINT (Provide as much information as possible.)

Company Name: <i>City of Douglas, WY</i>	Project Name, PWS, Permit, Etc. <i>OWS # 5600137 C/SW</i>	Sample Origin State: <i>WY</i>	EPA/State Compliance: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Report Mail Address: <i>420 W Grant St. Douglas WY 82633</i>	Contact Name: <i>Joshua Oberlander</i>	Phone/Fax: <i>PH: 307-358-9750 Fax: 307-358-5944</i>	Email: <i>joberlander@cityofdouglas.org</i>
Invoice Address: <i>P.O. Box 1030 Douglas WY 82633</i>	Invoice Contact & Phone: <i>Finance Dept. 307-358-3462</i>	Purchase Order: <i>61156</i>	Quote/Bottle Order:

Special Report/Formats:			Number of Containers Sample Type: <input type="checkbox"/> A W <input type="checkbox"/> S V B O DW <input type="checkbox"/> Air Water <input type="checkbox"/> Soils/Solids <input type="checkbox"/> Vegetation <input type="checkbox"/> Bioassay <input type="checkbox"/> Other DW - Drinking Water	ANALYSIS REQUESTED										SEE ATTACHED	Standard Turnaround (TAT)	R U S H	Contact ELI prior to RUSH sample submittal for charges and scheduling - See Instruction Page	Shipped by: <i>Hand Del</i>
<input type="checkbox"/> DW	<input type="checkbox"/> POTW/WWTP	<input type="checkbox"/> State: _____		<input type="checkbox"/> EDD/EDT (Electronic Data) Format: _____	<input type="checkbox"/> LEVEL IV	<input type="checkbox"/> NELAC											Comments:	Cooler ID(s): <i>174</i>
SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)			Collection Date	Collection Time	MATRIX											Receipt Temp <i>10 °C</i>		On Ice: <input checked="" type="radio"/> Y <input type="radio"/> N
1 SP 01			8-10-10	10:39	1-W											Custody Seal		On Bottle <input checked="" type="radio"/> Y <input type="radio"/> N
2 SP 01			8-10-10	08:40	1-W											On Cooler <input checked="" type="radio"/> Y <input type="radio"/> N		Intact <input checked="" type="radio"/> Y <input type="radio"/> N
3 SP 03			8-10-10	08:45	1-W											Signature Match <input checked="" type="radio"/> Y <input type="radio"/> N		LABORATORY USE ONLY
4 SP 03			8-10-10	08:40	1-W													
5																		
6																		
7																		
8																		
9																		
10																		

<b>Custody Record MUST be Signed</b>	Relinquished by (print): <i>Tim D. Sullivan</i>	Date/Time: <i>8-10-10 12:00</i>	Signature: <i>[Signature]</i>	Received by (print):	Date/Time:	Signature:
	Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
	Sample Disposal:	Return to Client:	Lab Disposal:	Received by Laboratory:	Date/Time: <i>8/10/10 12:00</i>	Signature: <i>[Signature]</i>

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at [www.energylab.com](http://www.energylab.com) for additional information, downloadable fee schedule, forms, and links.

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# ANALYTICAL SUMMARY REPORT

September 30, 2011

Douglas City of  
420 W Grant St  
Douglas, WY 82633

Workorder No.: C11080954

Project Name: WY5600137 C/SW

Energy Laboratories, Inc. Casper WY received the following 4 samples for Douglas City of on 8/24/2011 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C11080954-001	SP-03	08/24/11 07:15	08/24/11	Drinking Water	Metals by ICP/ICPMS, Drinking Water Cyanide, SDWA Mercury, Drinking Water Mercury Analysis Prep E300.0 Anions Nitrogen, Nitrite Nitrogen, Nitrate + Nitrite Metals Preparation by EPA 200.2 Gross Alpha, Gross Beta Radium 226 + Radium 228 Radium 226, Total Radium 228, Total
C11080954-002	Area 4 #1	08/24/11 09:20	08/24/11	Drinking Water	Field Parameters Haloacetic Acids E524.2 SDWA THMs
C11080954-003	Area 5 #1	08/24/11 10:20	08/24/11	Drinking Water	Same As Above
C11080954-004	Trip Blank 6420	08/24/11 00:00	08/24/11	Aqueous	E524.2 SDWA THMs

The analyses presented in this report were performed at Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing. All samples are reported on an as received basis unless otherwise indicated.

If you have any questions regarding these test results, please call.

Report Approved By:



**CLIENT:** Douglas City of  
**Project:** WY5600137 C/SW  
**Sample Delivery Group:** C11080954

**Report Date:** 09/30/11

## CASE NARRATIVE

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### COMBINED RA226+RA228 CALCULATION

The result for the combined Ra226/228 calculation is performed by adding the Ra226 activity to the Ra228 activity. If one or both of these activities is negative or less than the 40CFR\_DL, one half the 40CFR\_DL is substituted for the respective value below the 40CFR\_DL. This may produce a value for the combined radium activities larger than the sum of the two original activities. This method of calculating the sum of the activities for these two radionuclides is in accordance with the guidance in 40CFR141.26(a)(4).

### BRANCH LABORATORY SUBCONTRACT ANALYSIS

Tests associated with analyst identified as ELI-B were subcontracted to Energy Laboratories, 1120 S. 27th St., Billings, MT, EPA Number MT00005.



### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Douglas City of  
**Project:** WY5600137  
**Lab ID:** C11080954-001  
**Client Sample ID:** SP-03

**Report Date:** 09/30/11  
**Collection Date:** 08/24/11 07:15  
**Date Received:** 08/24/11  
**Matrix:** Drinking Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>MAJOR IONS</b>							
Nitrogen, Nitrate+Nitrite as N	0.1	mg/L		0.1	10	E353.2	08/25/11 16:51 / dc
Sodium	26	mg/L		0.5		E200.7	08/26/11 22:24 / cp
Sulfate	94	mg/L		1		E300.0	08/27/11 23:47 / ljl
<b>RADIONUCLIDES - TOTAL</b>							
Gross Alpha	8.4	pCi/L			15	E900.0	09/18/11 07:40 / ep
Gross Alpha precision (±)	1.5	pCi/L				E900.0	09/18/11 07:40 / ep
Gross Alpha MDC	0.9	pCi/L				E900.0	09/18/11 07:40 / ep
Radium 226	0.1	pCi/L	U			E903.0	09/27/11 13:56 / js
Radium 226 precision (±)	0.1	pCi/L				E903.0	09/27/11 13:56 / js
Radium 226 MDC	0.1	pCi/L				E903.0	09/27/11 13:56 / js
Radium 228	0.3	pCi/L	U			RA-05	09/21/11 15:26 / plj
Radium 228 precision (±)	0.6	pCi/L				RA-05	09/21/11 15:26 / plj
Radium 228 MDC	0.7	pCi/L				RA-05	09/21/11 15:26 / plj
Radium 226 + Radium 228	0.5	pCi/L	U		5	A7500-RA	09/28/11 12:35 / res
Radium 226 + Radium 228 precision (±)	0.6	pCi/L				A7500-RA	09/28/11 12:35 / res
Radium 226 + Radium 228 MDC	0.7	pCi/L				A7500-RA	09/28/11 12:35 / res
- See case narrative regarding combined Ra226+Ra228 calculation.							
<b>INORGANIC COMPOUNDS</b>							
Antimony	ND	mg/L		0.001	0.006	E200.8	08/25/11 13:28 / sml
Arsenic	ND	mg/L		0.005	0.01	E200.8	08/25/11 13:28 / sml
Barium	ND	mg/L		0.1	2	E200.8	08/25/11 13:28 / sml
Beryllium	ND	mg/L		0.0005	0.004	E200.8	08/25/11 13:28 / sml
Cadmium	ND	mg/L		0.0005	0.005	E200.8	08/25/11 13:28 / sml
Chromium	ND	mg/L		0.05	0.1	E200.8	08/25/11 13:28 / sml
Fluoride	0.3	mg/L		0.1	4	E300.0	08/27/11 23:47 / ljl
Cyanide, Total	ND	mg/L		0.005	0.2	Kelada mod	08/30/11 13:28 / eli-b
Mercury	ND	mg/L		0.0002	0.002	E245.1	08/30/11 10:01 / rdw
Nickel	ND	mg/L		0.02	0.1	E200.8	08/25/11 13:28 / sml
Nitrogen, Nitrite as N	ND	mg/L		0.1	1	A4500-NO2 B	08/24/11 15:40 / lmc
Selenium	ND	mg/L		0.005	0.05	E200.8	08/25/11 13:28 / sml
Thallium	ND	mg/L		0.0004	0.002	E200.8	08/25/11 13:28 / sml

**Report Definitions:**  
 RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 MDC - Minimum detectable concentration

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.  
 U - Not detected at minimum detectable concentration

### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Douglas City of  
**Project:** WY5600137  
**Lab ID:** C11080954-002  
**Client Sample ID:** Area 4 #1

**Report Date:** 09/30/11  
**Collection Date:** 08/24/11 09:20  
**DateReceived:** 08/24/11  
**Matrix:** Drinking Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>VOLATILE ORGANIC COMPOUNDS - TRIHALOMETHANES</b>							
Bromodichloromethane	7.64	ug/L		0.50		E524.2	09/01/11 04:22 / jlr
Bromoform	0.88	ug/L		0.50		E524.2	09/01/11 04:22 / jlr
Chlorodibromomethane	1.86	ug/L		0.50		E524.2	09/01/11 04:22 / jlr
Chloroform	38.4	ug/L		0.50		E524.2	09/01/11 04:22 / jlr
Trihalomethanes, Total	48.8	ug/L		0.50	80	E524.2	09/01/11 04:22 / jlr
Surr: Dibromofluoromethane	102	%REC		70-130		E524.2	09/01/11 04:22 / jlr
Surr: p-Bromofluorobenzene	90.0	%REC		70-130		E524.2	09/01/11 04:22 / jlr
Surr: Toluene-d8	85.0	%REC		70-130		E524.2	09/01/11 04:22 / jlr
<b>HALOACETIC ACIDS</b>							
Dibromoacetic acid	0.94	ug/L		0.25		E552.2	09/01/11 22:32 / eli-b
Dichloroacetic acid	22.0	ug/L		0.75		E552.2	09/01/11 22:32 / eli-b
Monobromoacetic acid	ND	ug/L		0.50		E552.2	09/01/11 22:32 / eli-b
Monochloroacetic acid	2.68	ug/L		0.75		E552.2	09/01/11 22:32 / eli-b
Trichloroacetic acid	23.2	ug/L		2.5		E552.2	09/02/11 09:04 / eli-b
Bromochloroacetic acid	3.07	ug/L		0.50		E552.2	09/01/11 22:32 / eli-b
Total Regulated Haloacetic Acids	48.8	ug/L		0.25	60	E552.2	09/01/11 22:32 / eli-b
Surr: 2,3-Dibromopropionic acid	91.0	%REC		70-130		E552.2	09/01/11 22:32 / eli-b
<b>FIELD PARAMETERS</b>							
Chlorine, Residual Free (Field)	0.56	mg/L				FIELD	08/24/11 09:20 / ***
*** Performed by Sampler							

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.

### LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

**Client:** Douglas City of  
**Project:** WY5600137  
**Lab ID:** C11080954-003  
**Client Sample ID:** Area 5 #1

**Report Date:** 09/30/11  
**Collection Date:** 08/24/11 10:20  
**Date Received:** 08/24/11  
**Matrix:** Drinking Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>VOLATILE ORGANIC COMPOUNDS - TRIHALOMETHANES</b>							
Bromodichloromethane	12.6	ug/L		0.50		E524.2	09/01/11 04:58 / jlr
Bromoform	1.18	ug/L		0.50		E524.2	09/01/11 04:58 / jlr
Chlorodibromomethane	4.40	ug/L		0.50		E524.2	09/01/11 04:58 / jlr
Chloroform	55.2	ug/L		5.0		E524.2	09/01/11 20:16 / jlr
Trihalomethanes, Total	73.3	ug/L		0.50	80	E524.2	09/01/11 04:58 / jlr
Surr: Dibromofluoromethane	98.0	%REC		70-130		E524.2	09/01/11 04:58 / jlr
Surr: p-Bromofluorobenzene	88.0	%REC		70-130		E524.2	09/01/11 04:58 / jlr
Surr: Toluene-d8	87.0	%REC		70-130		E524.2	09/01/11 04:58 / jlr
<b>HALOACETIC ACIDS</b>							
Dibromoacetic acid	0.52	ug/L		0.25		E552.2	09/01/11 23:09 / eli-b
Dichloroacetic acid	12.3	ug/L		0.75		E552.2	09/01/11 23:09 / eli-b
Monobromoacetic acid	ND	ug/L		0.50		E552.2	09/01/11 23:09 / eli-b
Monochloroacetic acid	3.20	ug/L		0.75		E552.2	09/01/11 23:09 / eli-b
Trichloroacetic acid	26.6	ug/L		2.5		E552.2	09/02/11 09:22 / eli-b
Bromochloroacetic acid	2.18	ug/L		0.50		E552.2	09/01/11 23:09 / eli-b
Total Regulated Haloacetic Acids	42.7	ug/L		0.25	60	E552.2	09/01/11 23:09 / eli-b
Surr: 2,3-Dibromopropionic acid	102	%REC		70-130		E552.2	09/01/11 23:09 / eli-b
<b>FIELD PARAMETERS</b>							
Chlorine, Residual Free (Field)	0.18	mg/L				FIELD	08/24/11 10:20 / ***
*** Performed by Sampler							

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.

**LABORATORY ANALYTICAL REPORT**

Prepared by Casper, WY Branch

**Client:** Douglas City of  
**Project:** WY5600137  
**Lab ID:** C11080954-004  
**Client Sample ID:** Trip Blank 6420

**Report Date:** 09/30/11  
**Collection Date:** 08/24/11  
**Date Received:** 08/24/11  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>VOLATILE ORGANIC COMPOUNDS - TRIHALOMETHANES</b>							
Bromodichloromethane	ND	ug/L		0.50		E524.2	09/01/11 05:35 / jlr
Bromoform	ND	ug/L		0.50		E524.2	09/01/11 05:35 / jlr
Chlorodibromomethane	ND	ug/L		0.50		E524.2	09/01/11 05:35 / jlr
Chloroform	ND	ug/L		0.50		E524.2	09/01/11 05:35 / jlr
Trihalomethanes, Total	ND	ug/L		0.50	80	E524.2	09/01/11 05:35 / jlr
Surr: Dibromofluoromethane	100	%REC		70-130		E524.2	09/01/11 05:35 / jlr
Surr: p-Bromofluorobenzene	89.0	%REC		70-130		E524.2	09/01/11 05:35 / jlr
Surr: Toluene-d8	84.0	%REC		70-130		E524.2	09/01/11 05:35 / jlr

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Douglas City of  
**Project:** WY5600137 C/SW

**Report Date:** 09/30/11  
**Work Order:** C11080954

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A4500-NO2 B</b>								Batch: A2011-08-24_6_NO2_01		
<b>Sample ID: MBLK-1</b>		Method Blank								
Nitrogen, Nitrite as N		ND	mg/L	0.10				Run: HACH DR3000-2_110824C		08/24/11 15:38
<b>Sample ID: LCS-2</b>		Laboratory Control Sample								
Nitrogen, Nitrite as N		1.03	mg/L	0.20	103	90	110	Run: HACH DR3000-2_110824C		08/24/11 15:39
<b>Sample ID: C11080954-001AMS</b>		Sample Matrix Spike								
Nitrogen, Nitrite as N		0.0311	mg/L	0.10	65	90	110	Run: HACH DR3000-2_110824C		08/24/11 15:52 S
- Matrix spike recoveries outside the acceptance range are considered matrix-related.										
<b>Sample ID: C11080954-001AMSD</b>		Sample Matrix Spike Duplicate								
Nitrogen, Nitrite as N		0.0321	mg/L	0.10	67	90	110	Run: HACH DR3000-2_110824C		08/24/11 15:53 S
- Matrix spike recoveries outside the acceptance range are considered matrix-related.										

**Qualifiers:**

RL - Analyte reporting limit.  
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.  
S - Spike recovery outside of advisory limits.



# QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Douglas City of  
**Project:** WY5600137 C/SW

**Report Date:** 09/30/11  
**Work Order:** C11080954

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E200.7										Batch: R149897
<b>Sample ID:</b> MB-110826A		Method Blank								Run: ICP2-C_110826A 08/26/11 14:26
Sodium		ND	mg/L	0.50						
<b>Sample ID:</b> LFB-110826A		Laboratory Fortified Blank								Run: ICP2-C_110826A 08/26/11 14:30
Sodium		50.0	mg/L	0.50	100	85	115			
<b>Sample ID:</b> C11080905-002BMS2		Sample Matrix Spike								Run: ICP2-C_110826A 08/26/11 22:16
Sodium		160	mg/L	0.50	99	70	130			
<b>Sample ID:</b> C11080905-002BMSD		Sample Matrix Spike Duplicate								Run: ICP2-C_110826A 08/26/11 22:20
Sodium		160	mg/L	0.50	102	70	130	2.0	20	

**Qualifiers:**

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Douglas City of  
**Project:** WY5600137 C/SW

**Report Date:** 09/30/11  
**Work Order:** C11080954

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>										
Batch: R149823										
<b>Sample ID: LRB</b>	9	Method Blank								
Run: ICPMS2-C_110825A										
08/25/11 12:29										
Antimony		ND	mg/L	0.0010						
Arsenic		ND	mg/L	0.0050						
Barium		ND	mg/L	0.10						
Beryllium		ND	mg/L	0.00050						
Cadmium		ND	mg/L	0.00050						
Chromium		ND	mg/L	0.050						
Nickel		ND	mg/L	0.020						
Selenium		ND	mg/L	0.0050						
Thallium		ND	mg/L	0.00040						
<b>Sample ID: LFB</b>	9	Laboratory Fortified Blank								
Run: ICPMS2-C_110825A										
08/25/11 12:32										
Antimony		0.0582	mg/L	0.0010	97	85	115			
Arsenic		0.0548	mg/L	0.0010	91	85	115			
Barium		0.0582	mg/L	0.0010	97	85	115			
Beryllium		0.0528	mg/L	0.0010	88	85	115			
Cadmium		0.0549	mg/L	0.0010	91	85	115			
Chromium		0.0544	mg/L	0.0010	91	85	115			
Nickel		0.0560	mg/L	0.0010	93	85	115			
Selenium		0.0517	mg/L	0.0010	86	85	115			
Thallium		0.0571	mg/L	0.0010	95	85	115			
<b>Sample ID: C11080905-002BMS4</b>	9	Sample Matrix Spike								
Run: ICPMS2-C_110825A										
08/25/11 13:19										
Antimony		0.056	mg/L	0.0010	111	70	130			
Arsenic		0.058	mg/L	0.0010	112	70	130			
Barium		0.088	mg/L	0.0010	108	70	130			
Beryllium		0.047	mg/L	0.0010	94	70	130			
Cadmium		0.051	mg/L	0.0010	102	70	130			
Chromium		0.053	mg/L	0.050	88	70	130			
Nickel		0.064	mg/L	0.050	107	70	130			
Selenium		0.063	mg/L	0.0010	109	70	130			
Thallium		0.055	mg/L	0.00040	109	70	130			
<b>Sample ID: C11080905-002BMSD</b>	9	Sample Matrix Spike Duplicate								
Run: ICPMS2-C_110825A										
08/25/11 13:22										
Antimony		0.056	mg/L	0.0010	112	70	130	0.8	20	
Arsenic		0.057	mg/L	0.0010	110	70	130	1.5	20	
Barium		0.087	mg/L	0.0010	108	70	130	0.3	20	
Beryllium		0.047	mg/L	0.0010	94	70	130	0.6	20	
Cadmium		0.051	mg/L	0.0010	102	70	130	0.7	20	
Chromium		0.053	mg/L	0.050	89	70	130	0.6	20	
Nickel		0.061	mg/L	0.050	102	70	130	3.3	20	
Selenium		0.061	mg/L	0.0010	105	70	130	2.7	20	
Thallium		0.055	mg/L	0.00040	110	70	130	0.5	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



# QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Douglas City of  
**Project:** WY5600137 C/SW

**Report Date:** 09/30/11  
**Work Order:** C11080954

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E245.1										Batch: 30982
<b>Sample ID:</b> MB-30982		Method Blank								Run: CVAA_C203_110830A 08/30/11 09:43
Mercury		ND	mg/L	0.00020						
<b>Sample ID:</b> LCS-30982		Laboratory Control Sample								Run: CVAA_C203_110830A 08/30/11 09:46
Mercury		0.00463	mg/L	0.00020	93	85	115			
<b>Sample ID:</b> C11080995-003BMS		Sample Matrix Spike								Run: CVAA_C203_110830A 08/30/11 10:08
Mercury		0.00525	mg/L	0.00020	105	85	115			
<b>Sample ID:</b> C11080995-003BMSD		Sample Matrix Spike Duplicate								Run: CVAA_C203_110830A 08/30/11 10:09
Mercury		0.00502	mg/L	0.00020	100	85	115	4.4	10	

**Qualifiers:**

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

## QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Douglas City of  
**Project:** WY5600137 C/SW

**Report Date:** 09/30/11  
**Work Order:** C11080954

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E300.0</b>								Analytical Run: IC2-C_110826A		
<b>Sample ID: ICV082611-10</b>	2	Initial Calibration Verification Standard								08/26/11 16:24
Fluoride		5.09	mg/L	0.10	102	90	110			
Sulfate		40.7	mg/L	1.0	102	90	110			
<b>Method: E300.0</b>								Batch: R149929		
<b>Sample ID: ICB082611-11</b>	2	Method Blank						Run: IC2-C_110826A		08/26/11 16:57
Fluoride		ND	mg/L	0.10						
Sulfate		ND	mg/L	1.0						
<b>Sample ID: LFB082611-12</b>	2	Laboratory Fortified Blank						Run: IC2-C_110826A		08/26/11 17:12
Fluoride		5.10	mg/L	0.10	102	90	110			
Sulfate		40.3	mg/L	1.0	101	90	110			
<b>Sample ID: C11080953-001AMS</b>	2	Sample Matrix Spike						Run: IC2-C_110826A		08/27/11 23:16
Fluoride		11.4	mg/L	0.20	108	80	120			
Sulfate		132	mg/L	1.6	105	80	120			
<b>Sample ID: C11080953-001AMSD</b>	2	Sample Matrix Spike Duplicate						Run: IC2-C_110826A		08/27/11 23:32
Fluoride		11.6	mg/L	0.20	110	80	120	1.6	10	
Sulfate		131	mg/L	1.6	104	80	120	0.7	10	

**Qualifiers:**

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

## QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Douglas City of  
**Project:** WY5600137 C/SW

**Report Date:** 09/30/11  
**Work Order:** C11080954

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E353.2										Batch: R149835
<b>Sample ID:</b> MBLK-1		Method Blank								Run: TECHNICON_110825A 08/25/11 15:16
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.10						
<b>Sample ID:</b> LCS-2		Laboratory Control Sample								Run: TECHNICON_110825A 08/25/11 15:18
Nitrogen, Nitrate+Nitrite as N		2.45	mg/L	0.10	98	90	110			
<b>Sample ID:</b> LFB-3		Laboratory Fortified Blank								Run: TECHNICON_110825A 08/25/11 15:21
Nitrogen, Nitrate+Nitrite as N		2.04	mg/L	0.10	104	90	110			
<b>Sample ID:</b> C11080986-001CMS		Sample Matrix Spike								Run: TECHNICON_110825A 08/25/11 17:01
Nitrogen, Nitrate+Nitrite as N		2.67	mg/L	0.10	118	90	110			S
- Matrix spike recoveries outside the acceptance range are considered matrix-related.										
<b>Sample ID:</b> C11080986-001CMSD		Sample Matrix Spike Duplicate								Run: TECHNICON_110825A 08/25/11 17:03
Nitrogen, Nitrate+Nitrite as N		2.72	mg/L	0.10	121	90	110	1.9	10	S
- Matrix spike recoveries outside the acceptance range are considered matrix-related.										

**Qualifiers:**

RL - Analyte reporting limit.  
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.  
S - Spike recovery outside of advisory limits.

# QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Douglas City of  
**Project:** WY5600137 C/SW

**Report Date:** 09/30/11  
**Work Order:** C11080954

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E524.2</b>										
Batch: R150088										
<b>Sample ID: 083111_LCS_4</b>	8	Laboratory Control Sample					Run: SATURNCA_110831B			08/31/11 14:09
Bromodichloromethane		9.92	ug/L	0.50	99	70	130			
Bromoform		9.52	ug/L	0.50	95	70	130			
Chlorodibromomethane		8.64	ug/L	0.50	86	70	130			
Chloroform		9.68	ug/L	0.50	97	70	130			
Trihalomethanes, Total		37.8	ug/L	0.50	94	70	130			
Surr: Dibromofluoromethane				0.50	97	70	130			
Surr: p-Bromofluorobenzene				0.50	95	70	130			
Surr: Toluene-d8				0.50	94	70	130			
<b>Sample ID: 083111_MBLK_6</b>	8	Method Blank					Run: SATURNCA_110831B			08/31/11 15:21
Bromodichloromethane		ND	ug/L	0.50						
Bromoform		ND	ug/L	0.50						
Chlorodibromomethane		ND	ug/L	0.50						
Chloroform		ND	ug/L	0.50						
Trihalomethanes, Total		ND	ug/L	0.50						
Surr: Dibromofluoromethane				0.50	97	70	130			
Surr: p-Bromofluorobenzene				0.50	88	70	130			
Surr: Toluene-d8				0.50	86	70	130			
<b>Sample ID: C11080904-001HMS</b>	8	Sample Matrix Spike					Run: SATURNCA_110831B			08/31/11 21:05
Bromodichloromethane		82.0	ug/L	5.0	82	70	130			
Bromoform		52.8	ug/L	5.0	53	70	130			S
Chlorodibromomethane		66.0	ug/L	5.0	66	70	130			S
Chloroform		106	ug/L	5.0	106	70	130			
Trihalomethanes, Total		307	ug/L	5.0	77	70	130			
Surr: Dibromofluoromethane				0.50	100	70	130			
Surr: p-Bromofluorobenzene				0.50	94	70	130			
Surr: Toluene-d8				0.50	86	70	130			
<b>Sample ID: C11080904-001HMSD</b>	8	Sample Matrix Spike Duplicate					Run: SATURNCA_110831B			08/31/11 21:41
Bromodichloromethane		65.2	ug/L	5.0	65	70	130	23	20	SR
Bromoform		18.8	ug/L	5.0	19	70	130	95	20	SR
Chlorodibromomethane		40.0	ug/L	5.0	40	70	130	49	20	SR
Chloroform		106	ug/L	5.0	106	70	130	0.4	20	
Trihalomethanes, Total		230	ug/L	5.0	57	70	130	29	20	SR
Surr: Dibromofluoromethane				0.50	96	70	130			
Surr: p-Bromofluorobenzene				0.50	94	70	130			
Surr: Toluene-d8				0.50	89	70	130			

**Qualifiers:**

RL - Analyte reporting limit.  
MDC - Minimum detectable concentration  
S - Spike recovery outside of advisory limits.

ND - Not detected at the reporting limit.  
R - RPD exceeds advisory limit.

# QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Douglas City of  
**Project:** WY5600137 C/SW

**Report Date:** 09/30/11  
**Work Order:** C11080954

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E524.2</b>										
Batch: R150135										
<b>Sample ID: 090111_LCS_4</b>	4	Laboratory Control Sample								
Chloroform		9.88	ug/L	0.50	99	70	130			09/01/11 17:51
Surr: Dibromofluoromethane				0.50	96	70	130			
Surr: p-Bromofluorobenzene				0.50	100	70	130			
Surr: Toluene-d8				0.50	92	70	130			
<b>Sample ID: 090111_MBLK_6</b>	4	Method Blank								
Chloroform		ND	ug/L	0.50						09/01/11 19:03
Surr: Dibromofluoromethane				0.50	94	70	130			
Surr: p-Bromofluorobenzene				0.50	94	70	130			
Surr: Toluene-d8				0.50	85	70	130			
<b>Sample ID: C11080876-001AMS</b>	4	Sample Matrix Spike								
Chloroform		164	ug/L	5.0	99	70	130			09/02/11 01:07
Surr: Dibromofluoromethane				0.50	96	70	130			
Surr: p-Bromofluorobenzene				0.50	91	70	130			
Surr: Toluene-d8				0.50	89	70	130			
<b>Sample ID: C11080876-001AMSD</b>	4	Sample Matrix Spike Duplicate								
Chloroform		161	ug/L	5.0	96	70	130	2.0	20	09/02/11 01:44
Surr: Dibromofluoromethane				0.50	94	70	130			
Surr: p-Bromofluorobenzene				0.50	94	70	130			
Surr: Toluene-d8				0.50	92	70	130			

**Qualifiers:**

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Douglas City of  
**Project:** WY5600137 C/SW

**Report Date:** 09/30/11  
**Work Order:** C11080954

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E552.2</b>										
Batch: B_56738										
<b>Sample ID: B11082796-001ADP</b>	8	Sample Duplicate								
Run: SUB-B172021										
09/02/11 01:53										
Dibromoacetic acid		ND	ug/L	0.25					40	
Dichloroacetic acid		ND	ug/L	0.75					40	
Monobromoacetic acid		ND	ug/L	0.50					40	
Monochloroacetic acid		ND	ug/L	0.75					40	
Trichloroacetic acid		ND	ug/L	0.50					40	
Bromochloroacetic acid		ND	ug/L	0.50					40	
Total Regulated Haloacetic Acids		ND	ug/L	0.25					40	
Surr: 2,3-Dibromopropionic acid				1.2	79	70	130			
<b>Sample ID: B11082795-001AMS</b>	7	Sample Matrix Spike								
Run: SUB-B172021										
09/02/11 01:17										
Dibromoacetic acid		6.70	ug/L	0.25	115	70	130			
Dichloroacetic acid		13.0	ug/L	0.75	108	70	130			
Monobromoacetic acid		8.04	ug/L	0.50	100	70	130			
Monochloroacetic acid		17.6	ug/L	1.8	147	70	130			SD
Trichloroacetic acid		7.02	ug/L	0.50	175	70	130			S
Bromochloroacetic acid		10.0	ug/L	0.50	125	70	130			
Surr: 2,3-Dibromopropionic acid				1.2	94	70	130			
<b>Sample ID: LCS-56738</b>	7	Laboratory Control Sample								
Run: SUB-B172021										
09/01/11 17:19										
Dibromoacetic acid		4.58	ug/L	0.25	115	70	130			
Dichloroacetic acid		14.2	ug/L	0.75	118	70	130			
Monobromoacetic acid		8.15	ug/L	0.50	102	70	130			
Monochloroacetic acid		12.8	ug/L	0.75	107	70	130			
Trichloroacetic acid		4.32	ug/L	0.50	108	70	130			
Bromochloroacetic acid		9.50	ug/L	0.50	119	70	130			
Surr: 2,3-Dibromopropionic acid				1.2	97	70	130			
<b>Sample ID: MB-56738</b>	8	Method Blank								
Run: SUB-B172021										
09/01/11 16:42										
Dibromoacetic acid		ND	ug/L	0.25						
Dichloroacetic acid		ND	ug/L	0.75						
Monobromoacetic acid		ND	ug/L	0.50						
Monochloroacetic acid		ND	ug/L	0.75						
Trichloroacetic acid		ND	ug/L	0.50						
Bromochloroacetic acid		ND	ug/L	0.50						
Total Regulated Haloacetic Acids		ND	ug/L	0.25						
Surr: 2,3-Dibromopropionic acid				1.2	87	70	130			

**Qualifiers:**

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

S - Spike recovery outside of advisory limits.

ND - Not detected at the reporting limit.

D - RL increased due to sample matrix.



# QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Douglas City of  
**Project:** WY5600137 C/SW

**Report Date:** 09/30/11  
**Work Order:** C11080954

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E900.0</b>								Batch: GrAB-1168		
<b>Sample ID: MB-GrAB-1168</b>	3	Method Blank				Run: TENNELEC-3_110914A			09/18/11 07:39	
Gross Alpha		1.4	pCi/L							
Gross Alpha precision (±)		0.61	pCi/L							
Gross Alpha MDC		0.54	pCi/L							
<b>Sample ID: Th230-GrAB-1168</b>		Laboratory Control Sample				Run: TENNELEC-3_110914A			09/18/11 07:40	
Gross Alpha		100	pCi/L	96		80	120			
<b>Sample ID: C11080866-001AMS</b>		Sample Matrix Spike				Run: TENNELEC-3_110914A			09/18/11 07:40	
Gross Alpha		110	pCi/L	104		70	130			
<b>Sample ID: C11080866-001AMSD</b>		Sample Matrix Spike Duplicate				Run: TENNELEC-3_110914A			09/18/11 07:40	
Gross Alpha		110	pCi/L	107		70	130	2.5	20	
<b>Sample ID: C11081070-001ADUP</b>	3	Sample Duplicate				Run: TENNELEC-3_110914A			09/18/11 20:03	
Gross Alpha		2.2	pCi/L					110	20	R
Gross Alpha precision (±)		2.0	pCi/L							
Gross Alpha MDC		2.0	pCi/L							

- Duplicate RPD is outside of the acceptance range for this analysis; however, the RER of 1.5 for Gross Alpha and 1.0 for Gross Beta is less than the limit of 2.0. This batch is approved.

**Qualifiers:**

RL - Analyte reporting limit.  
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.  
R - RPD exceeds advisory limit.



# QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Douglas City of  
**Project:** WY5600137 C/SW

**Report Date:** 09/30/11  
**Work Order:** C11080954

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E903.0</b>								Batch: RA226-5591		
<b>Sample ID: C11080970-001AMS</b>		Sample Matrix Spike				Run: G542M_110830A			09/27/11 16:20	
Radium 226		14	pCi/L		109	80	120			
<b>Sample ID: C11080970-001AMSD</b>		Sample Matrix Spike Duplicate				Run: G542M_110830A			09/27/11 16:20	
Radium 226		13	pCi/L		104	80	120	4.0	24.1	
<b>Sample ID: C11080978-001ADUP</b>	3	Sample Duplicate				Run: G542M_110830A			09/27/11 16:20	
Radium 226		0.034	pCi/L					200	20	UR
Radium 226 precision (±)		0.10	pCi/L							
Radium 226 MDC		0.12	pCi/L							
- Duplicate RPD is outside of the acceptance range for this analysis; however, the RER of 0.2 is less than the limit of 2.0. This batch is approved.										
<b>Sample ID: MB-RA226-5591</b>	3	Method Blank				Run: G542M_110830A			09/27/11 16:20	
Radium 226		0.035	pCi/L							U
Radium 226 precision (±)		0.11	pCi/L							
Radium 226 MDC		0.18	pCi/L							
<b>Sample ID: LCS-RA226-5591</b>		Laboratory Control Sample				Run: G542M_110830A			09/27/11 16:20	
Radium 226		6.4	pCi/L		101	80	120			

**Qualifiers:**

RL - Analyte reporting limit.  
MDC - Minimum detectable concentration  
U - Not detected at minimum detectable concentration

ND - Not detected at the reporting limit.  
R - RPD exceeds advisory limit.



# QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Douglas City of  
**Project:** WY5600137 C/SW

**Report Date:** 09/30/11  
**Work Order:** C11080954

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: Kelada mod</b>								Analytical Run: SUB-B171692		
<b>Sample ID: ICV</b> Initial Calibration Verification Standard 08/30/11 11:46										
Cyanide, Total		0.101	mg/L	0.0050	101	90	110			
<b>Method: Kelada mod</b>								Batch: B_56650		
<b>Sample ID: MB</b> Method Blank Run: SUB-B171692 08/30/11 11:51										
Cyanide, Total		ND	mg/L	0.0050						
<b>Sample ID: LFB</b> Laboratory Fortified Blank Run: SUB-B171692 08/30/11 11:49										
Cyanide, Total		0.101	mg/L	0.0050	101	90	110			
<b>Sample ID: B11082458-001DMS</b> Sample Matrix Spike Run: SUB-B171692 08/30/11 13:23										
Cyanide, Total		0.308	mg/L	0.0060	103	90	110			
<b>Sample ID: B11082458-001DMSD</b> Sample Matrix Spike Duplicate Run: SUB-B171692 08/30/11 13:26										
Cyanide, Total		0.309	mg/L	0.0060	103	90	110	0.3	10	
<b>Sample ID: B11082302-008HMS</b> Sample Matrix Spike Run: SUB-B171692 08/30/11 12:40										
Cyanide, Total		0.0975	mg/L	0.0050	98	90	110			
<b>Sample ID: B11082302-008HMSD</b> Sample Matrix Spike Duplicate Run: SUB-B171692 08/30/11 12:43										
Cyanide, Total		0.0974	mg/L	0.0050	97	90	110	0.1	10	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

MDC - Minimum detectable concentration



## QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Douglas City of  
**Project:** WY5600137 C/SW

**Report Date:** 09/30/11  
**Work Order:** C11080954

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: RA-05</b>								Batch: RA228-3869		
<b>Sample ID: LCS-228-RA226-5591</b>	Laboratory Control Sample			Run: TENNELEC-3_110830E		09/21/11 15:26				
Radium 228		6.8	pCi/L	107		80	120			
<b>Sample ID: MB-RA226-5591</b>	3	Method Blank		Run: TENNELEC-3_110830E		09/21/11 15:26				
Radium 228		-0.27	pCi/L	U						
Radium 228 precision (±)		0.64	pCi/L							
Radium 228 MDC		0.70	pCi/L							
<b>Sample ID: C11080978-001ADUP</b>	3	Sample Duplicate		Run: TENNELEC-3_110830E		09/21/11 15:26				
Radium 228		0.46	pCi/L			8.7	20	U		
Radium 228 precision (±)		0.66	pCi/L							
Radium 228 MDC		0.68	pCi/L							
<b>Sample ID: C11081066-001AMS</b>	Sample Matrix Spike			Run: TENNELEC-3_110830E		09/21/11 15:26				
Radium 228		13	pCi/L	97		70	130			
<b>Sample ID: C11081066-001AMSD</b>	Sample Matrix Spike Duplicate			Run: TENNELEC-3_110830E		09/21/11 15:26				
Radium 228		12	pCi/L	91		70	130	6.5	20	

**Qualifiers:**

RL - Analyte reporting limit.  
MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.  
U - Not detected at minimum detectable concentration

# Workorder Receipt Checklist



C11080954

Login completed by: Edith McPike  
Reviewed by: BL2000\cwagner  
Reviewed Date: 8/25/2011

Date Received: 8/24/2011

Received by: em

Carrier Hand Del  
name:

- |                                                                                                                                                             |                                         |                             |                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-----------------------------|-------------------------------------------------|
| Shipping container/cooler in good condition?                                                                                                                | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/>            |
| Custody seals intact on shipping container/cooler?                                                                                                          | Yes <input type="checkbox"/>            | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| Custody seals intact on sample bottles?                                                                                                                     | Yes <input type="checkbox"/>            | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| Chain of custody present?                                                                                                                                   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |                                                 |
| Chain of custody signed when relinquished and received?                                                                                                     | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |                                                 |
| Chain of custody agrees with sample labels?                                                                                                                 | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |                                                 |
| Samples in proper container/bottle?                                                                                                                         | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |                                                 |
| Sample containers intact?                                                                                                                                   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |                                                 |
| Sufficient sample volume for indicated test?                                                                                                                | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |                                                 |
| All samples received within holding time?<br>(Exclude analyses that are considered field parameters<br>such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.) | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |                                                 |
| Container/Temp Blank temperature:                                                                                                                           | 7.2°C On Ice                            |                             |                                                 |
| Water - VOA vials have zero headspace?                                                                                                                      | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | No VOA vials submitted <input type="checkbox"/> |
| Water - pH acceptable upon receipt?                                                                                                                         | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Applicable <input type="checkbox"/>         |

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Contact and Corrective Action Comments:

None

