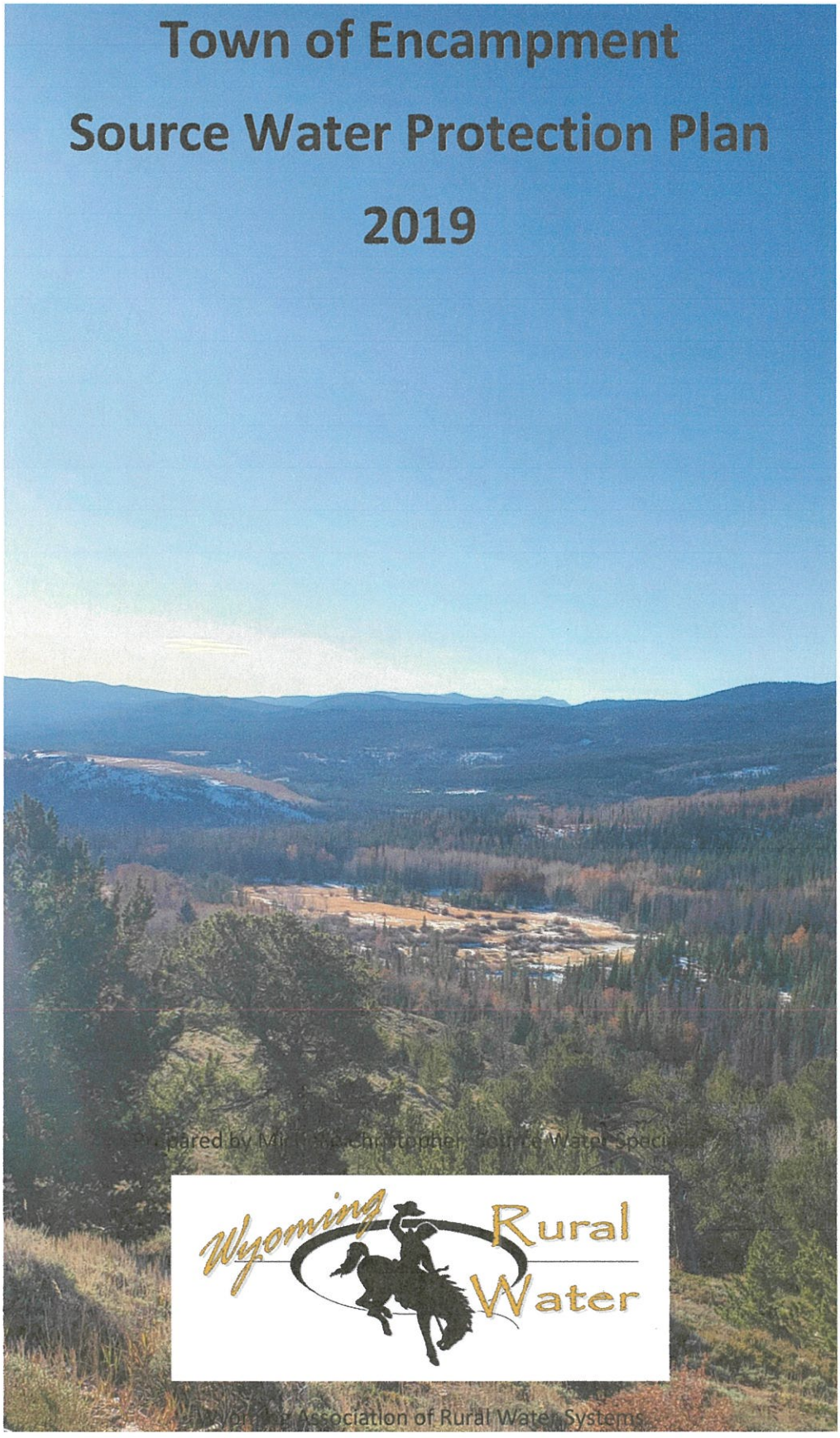
Town of Encampment

Source Water Protection Plan

2019



Prepared by Mr. [illegible] Source Water Specialist

Wyoming Rural Water

Wyoming Association of Rural Water Systems

Introduction

This document is meant to be a living work in progress. As soon as it becomes adopted, it wanes into obsolescence. People representing the various stakeholder entities will change, land management practices will change, and new contaminants of concern will emerge. This document belongs to the Town of Encampment and is created from the work and documents done for the Town, current and past legislation, and input from entities and personnel. Because of the fluid nature of this document, it is provided in both a printed and electronic "editable" format for ease up updating. A Steering Committee has been designated; it is hoped that the Town will become involved in the review of this document and that the multijurisdictional entities and agencies will be included in the discussion. In order to be effective, this plan must remain active. It should be revised, used and considered as wells are sited, new developments occur, zoning is changed, bylaws or ordinances are considered, businesses and industry are permitted and personnel changes. To remain current, if there are statements or observations written that do not serve the Town's interests, are incomplete or simply inaccurate, they should be rewritten by the committee in a way that provides guidance for long term source water protection. Entire sections could be added if new risks to the recharge area are identified, etc. This plan is simply a starting point: you can make it as current and effective as you choose. I hope that it does not merely become another binder on a shelf gathering dust.

The steering committee should meet annually and review the inventories of source water and contaminants, personnel, risks to the recharge area and make additions, corrections and updates as necessary. Given the editable format provided, it should require very little time, if it is kept current. If there are ever any questions, I would be happy to meet with the committee at any time, and assist with the first annual update.

I would like to thank all those who provided information and advice. The Town and its' representatives who have provided past records, contacted entities, and helped with locating and identifying risks.

Respectfully submitted,

Michelle Christopher, Source Water Specialist, Wyoming Association of Rural Water Systems

Encampment Source Water Protection Plan

August 2019

Background

Current Source Water Protection Plans are an outgrowth of decades of legislation, studies, and rising awareness surrounding our most precious resource—water. The following is a brief overview of legislative actions taken to protect the public and the quality of our water.

1974 Act

The **S**afe **D**rinking **W**ater **A**ct was one of several pieces of environmental legislation in the 1970s. Discovery of organic contamination in public drinking water and the lack of enforceable, national standards persuaded Congress to take action.

1986 Amendments

The **1986 SDWA amendments** required EPA to apply future NPDWRs (National Primary Drinking Water Regulations) to both community and non-transient non-community water systems when it evaluated and revised current regulations. The first case in which this was applied was the "Phase I" final rule, published on July 8, 1987. At that time NPDWRs were promulgated for certain synthetic volatile organic compounds and applied to non-transient non-community water systems as well as community water systems. This rulemaking also clarified that non-transient non-community water systems were not subject to MCLs that were promulgated before July 8, 1987. The 1986 amendments were signed into law by President Ronald Reagan on June 19, 1986.

In addition to requiring more contaminants to be regulated, the 1986 amendments included:

- Well head protection
- New monitoring for certain substances
- Filtration for certain surface water systems
- Disinfection for certain groundwater systems
- Restriction on lead in solder and plumbing
- More enforcement powers.

1996 SDWA Amendments

In 1996, Congress amended the **S**afe **D**rinking **W**ater **A**ct amendments to emphasize sound science and risk-based standard setting, small water supply system flexibility and technical assistance, community-empowered source water assessment and protection, public right-to-

know, and water system infrastructure assistance through a multi-billion-dollar state revolving loan fund. They were signed into law by President Bill Clinton on August 6, 1996.

Main Points of the 1996 Amendments

1. Consumer Confidence Reports: All community water systems must prepare and distribute annual reports about the water they provide, including information on detected contaminants, possible health effects, and the water's source.
2. Cost-Benefit Analysis: EPA must conduct a thorough cost-benefit analysis for every new standard to determine whether the benefits of a drinking water standard justify the costs.
3. Drinking Water State Revolving Fund. States can use this fund to help water systems make infrastructure or management improvements or to ***help systems assess and protect their source water***.
4. Microbial Contaminants and Disinfection Byproducts: EPA is required to strengthen protection for microbial contaminants, including *cryptosporidium,* while strengthening control over the byproducts of chemical disinfection. EPA promulgated the *Stage 1 Disinfectants and Disinfection Byproducts Rule* and the *Interim Enhanced Surface Water Treatment Rule* to address these risks.
5. Operator Certification: Water system operators must be certified to ensure that systems are operated safely. EPA issued guidelines in 1999 specifying minimum standards for the certification and recertification of the operators of community and non-transient, non-community water systems. These guidelines apply to state operator certification programs. All states are currently implementing EPA-approved operator certification programs.
6. Public Information and Consultation: SDWA emphasizes that consumers have a right to know what is in their drinking water, where it comes from, how it is treated, and how to help protect it. EPA distributes public information materials (through its Drinking Water Hotline, Safewater web site, and Resource Center) and holds public meetings, working with states, tribes, water systems, and environmental and civic groups, to encourage public involvement.
7. Small Water Systems: Small water systems are given special consideration and resources under SDWA, to make sure they have the managerial, financial, and technical ability to comply with drinking water standards.

Source Water Assessments

In the 1996 amendments to the SDWA, the scope of Source Water Protection was expanded to include surface water systems and specific Source Water Assessments were required. The Source Water Assessments were designed to be evaluations of each water system that identified water quality threats to drinking water sources and described the seriousness of the threat.

During the 1998 legislative session, the Wyoming legislature funded 10%, or $1.2 million, of the 1997 federal Drinking Water State Revolving Fund to develop a SWAP program and to complete Source Water Assessments.

The SWAP is a two-part program consisting of source water assessments and source water protection plans. Due to Wyoming's unique primacy status, the completion of source water assessments for PWSs was voluntary. By June of 2004, each PWS that requested a plan was completed by Trihydro and Lidstone; this was the first part of the two-part program. The second part, or Source Water Protection Plan, is to be created and implemented locally; this is the phase that puts "horsepower" to the information.

The Source Water Assessment includes:

- Source Water Area Delineation for Surface Water
- Contaminant Inventory
    - Point Source. Usually regulated. Fixed location (i.e. underground fuel tanks, injection wells etc.)
    - Non-point Source. Usually land uses (i.e. agriculture, irrigation, forest fire)
- Susceptibility Analysis for groundwater
    - Physical integrity of the well and conveyances
    - Sensitivity (land and strata contaminants pass through to well)
    - Nature of potential contaminants

It is understood that the best source of information and vigilance is on the ground in the local PWS. The Contaminant Inventory needs to be reviewed and updated by local operators and officials as circumstances change. Non-point sources of contamination should be monitored and local planning and regulations should be implemented to protect the source water now and in the future from both point and non-point contaminants.

The Source Water Assessment is the data "backbone" of a Source Water Protection Plan.

The Town of Encampment had completed an extensive Watershed Study and Source Water Protection Plan in 2006. Water quality data was gathered to determine a baseline for various parameters. This information has been incorporated into the most current SWPP.

Source Water Protection Plan

The Farm Service Agency and EPA have funded Source Water Protection Specialists through Wyoming Association of Rural Water Systems (WARWS) to help PWSs develop Source Water Protection Plans.

The Source Water Protection Plan includes:

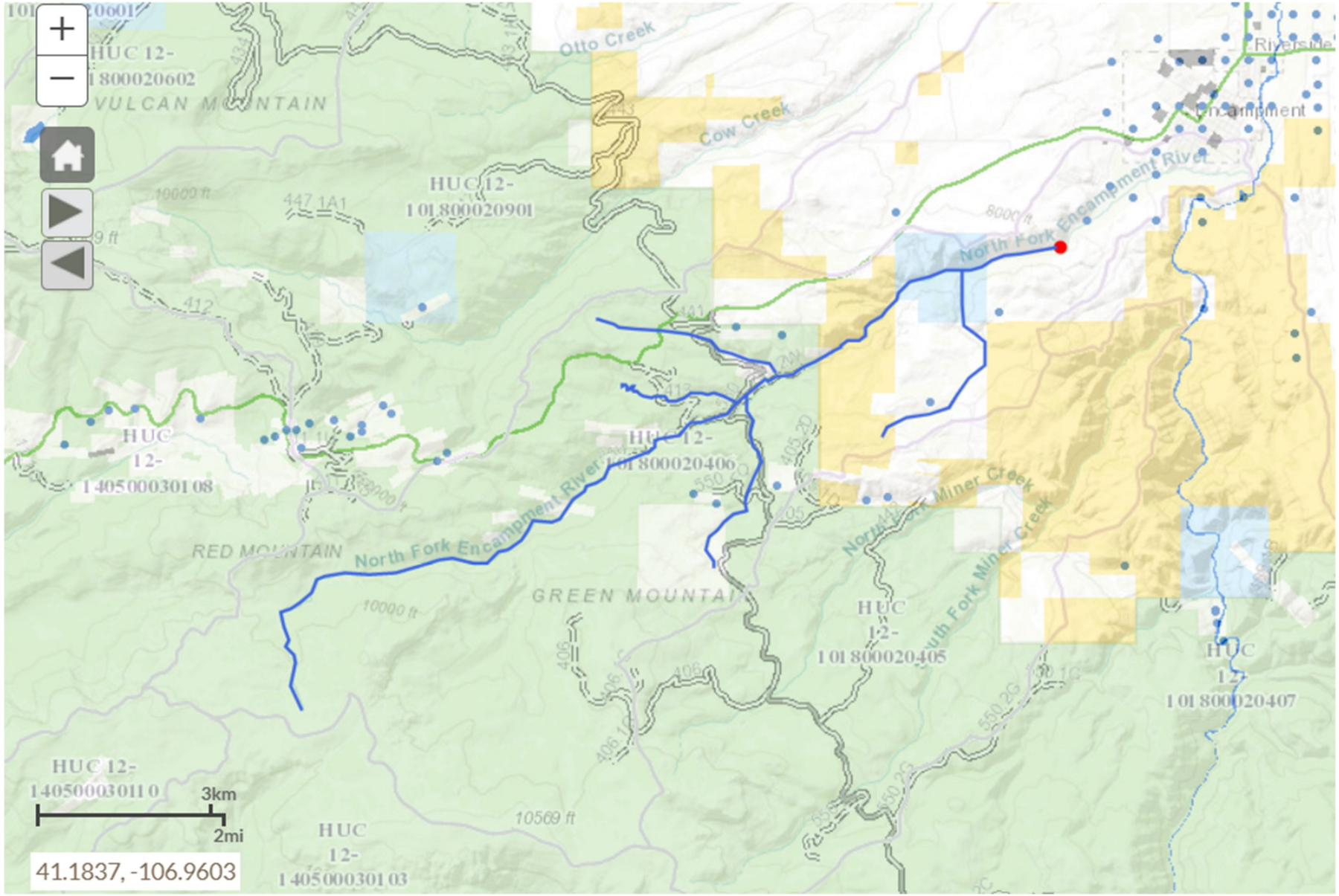
1. Source Water Area Delineation (from your Source Water Assessment)
2. Source Water Inventories (from your well intakes, SWAP)
3. Potential Contaminant Inventories (from SWAP and local committee)

4. Define each entity's areas of responsibility/authority re: Potential Sources of Contamination (PSOCs)
5. Preventative measures that may be initiated by each entity (committee discussion)
6. Contingency plan to supply safe water in the event of disruption/contamination (committee discussion)
7. A Steering Committee to review and update plan and follow through on measures and commitments from entities.

Local implementation and involvement is the difference between the Assessment and the Protection Plan. A Source Water Protection Plan is ***not*** a study, document, or an amalgamation of engineering data; rather, it is a local implementation of largely extant data. As such, information produced, reproduced, and referenced in this SWPP document is not to be regarded as technical productions. Any technical information produced for this plan is done for the sole purpose of implementing a SWPP and is for the use of local implementers; care has been taken to ensure accuracy. It is also understood that information used herein from previous sources is largely from public information in the public domain and/or property of the town of Encampment. Therefore, no great effort will be expended in citing sources used in this plan other than to acknowledge the sources used in its preparation. Some of these printed sources are included in the plan as an appendix. Others are included in part as appendices. No attempt to take credit or plagiarize by the preparer should be inferred.

Electronic and Printed Sources Made Available to WARWS for This Plan

- Encampment Source Water Protection Plan, ___ 2006
- Encampment Source Water Assessment, Lidstone and Associates, 2004
- Wyoming State Engineer's ePermit Website
- Nrex.wyo.gov for mapping


Otto Creek
Cow Creek
Encampment
Riverside
North Fork Encampment River
HUC 12-
101800020602
VULCAN MOUNTAIN
HUC 12-
101800020901
HUC 12-
101800020406
HUC 12-
140500030108
RED MOUNTAIN
GREEN MOUNTAIN
North Fork Miner Creek
HUC 12-
101800020405
HUC 12-
101800020407
HUC 12-
140500030110
HUC 12-
140500030103
10000 ft
10569 ft
3km
2mi
41.1837, -106.9603

Potential Sources of Contamination in the Recharge Area

Source Water Assessment Identified Point Sources

No Point Sources of Contamination were identified in the 2004 Lidstone Source Water Assessment, nor the 2006 Watershed Protection Plan

Other Possible Point Sources

Future Development

Potential development of a small ski-area could require a high-volume septic system that would affect downstream water quality.

Implementations

- Share Source Water Protection Plan delineation maps and goals with permitting and regulatory agencies including Carbon County Planning and Zoning Commission, WYDEQ, State Engineer's Office, BLM and USFS for consideration in applications for permits
- Use local paper and postings at agricultural venues to raise awareness that proper storage of fuels and chemicals ca protect their own water supply as well as those downstream.
- Have Carbon County Planning and Zoning include the North Encampment Watershed as an overlay in their mapping database.
- Request that the County notify the Town of Building Permits within the watershed

Source Water Assessment Identified Non-Point Sources

Transportation Corridor

Hwy 70 is a seasonally open, designated Scenic Byway. It receives mostly recreational and local traffic, with some commercial traffic – mostly from logging operations. While it unlikely that a large spill of contaminants would occur, a large volume could reach the Grand Encampment Ditch within a day.

Forest and County roads – these roads are unpaved, low speed roads that see mostly local or recreational traffic. Sediment during event storms or spring runoff could increase the turbidity of the river.

Implementations

- WYDOT requires reporting and total remediation of spills by haulers or their surety. In any case, spills in close proximity to the waterways that supply Encampment's water treatment plant require additional urgency. Commercial Vehicles, law enforcement, highway and road and bridge crews should remain vigilant in spill cleanup near waterways – time is of the essence. Commercial Vehicles can share incident management policies with local governments and keep them apprised of materials being hauled.
- Best Management Practices (BMPs) should be followed during design and maintenance of roads.
- Maintain contact with WYDOT maintenance and law enforcement personnel to be notified of spills.

Forest Lands

USFS lands comprise 14,026 acres of the watershed and are managed for multiple use, including grazing, logging, recreation and mining. The largest concern in the North Encampment Watershed is fire and fire suppression chemicals.

Implementation

- The USFS implements BMPs. The USFS had adopted specific management practices within their Land and Resource Management Plan. These include guidelines specific to the North Fork Encampment River portion of the Sierra Madre Geographic Area.
    - Emphasize water quality in special uses, minerals, grazing, recreation and other resource areas.
    - Coordinate with state public health officials to ensure municipal water quality will not be degraded by management activities.
    - Consider protection of municipal supply water when determining which best management practices apply.
    - Promptly restore disturbed areas contributing to water quality degradation
    - Consider acquisition, by purchase or exchange, of non-federal lands when:
        - The community does not have the capability to acquire the essential tract.
        - The National Forest program will provide the best insurance against existing or potential uses that are incompatible with effective municipal supply watershed management.
    - Use Minimum Impact Suppression Tactics (MIST) during fire suppression activities in order to minimize impacts to water quality.
    - Consider protection of the municipal supply watershed and long-term forest conditions when determining which appropriate management response to employ.

BLM Rangelands

The BLM comprises 1,598 acres within the watershed and has some degree of control as to the permitted uses that are allowed on BLM controlled lands. Major activities in the watershed include grazing and pesticide spraying.

Implementation

- Applications for permitted uses on BLM ground should be reviewed considering the watershed delineated in the Source Water Assessment.
- The North Fork Encampment River watershed should be included in the watershed amendment of the Rawlins Field Office RMP.

Other Sources of Contamination

It is important to note that in the 2006 319 Watershed Testing, no contaminants of concern were found in excess of the DEQ Water Quality Standards, and only several were detected at all. In the most recent (2018) Synthetic Organic Chemical (SOC) round of monitoring, no contaminants were found at the detection limits. Only fluoride and sodium were detected during the 2018 Inorganic Chemical monitoring, and fluoride was detected at 0.1 mg/L (EPA Maximum Contaminant Level is 4.0 mg/L), and

sodium was detected at 2.1 mg/L. There is no MCL for sodium, and this is considered an extremely low concentration.

Other Potential Non-Point Sources of Contamination

Private Lands

Private lands within the watershed may contribute to non-point source pollution through runoff of fertilizers, pesticides and failing septic systems.

Implementation

Provide outreach and educational materials to local landowners regarding tips for septic systems. Coordinate with Carbon County Weed and Pest and Saratoga-Encampment-Rawlins Conservation District for assistance with education regarding riparian buffers, pesticide application and other watershed practices.

Quantity Source Water Protection

All natural waters of the state in Wyoming are owned by the state, as defined by the Wyoming Constitution. The Wyoming State Engineer's Office (SEO) is charged with the regulation and administration of this resource. The SEO is divided into divisions and districts. The North Platte Encampment River is in Division 1, District 7. Wyoming water law operates under the appropriation doctrine, of "First in Time, First in Right." Water rights can be issued to anyone who plans to make beneficial use of the water. Recognized beneficial uses include: irrigation, municipal, industrial, power generation, recreational, stock, domestic, pollution control, in-stream flows, and miscellaneous. Water rights holders are limited to withdrawals necessary for the purpose. For example, irrigators are allowed to divert up to 1 cfs (cubic foot per second) for each 70 acres under irrigation.

The North Fork Encampment River is within the North Platte Drainage and subject to the North Platte Supreme Court Decree, 1945. This decree allows Wyoming to irrigate 168,000 acres, and at the Wyoming/Nebraska state line, the flow is split 25% to Wyoming, 75% to Nebraska. Because the North Fork Encampment River is a tributary of the North Platte, it is heavily regulated, and extremely unlikely to have additional rights filed within the drainage.

The Town of Encampment's water right is P2741.0D, priority date 7/23/1900, and allows the town to divert 6.0 cubic feet per second for "municipal, mining and milling purposes within the corporate limits of the Town of Encampment. Permit record reflects source as North Fork Grand Encampment Creek. Applicant reflected above is the original applicant for various assignments of all rights, title and interest. See miscellaneous records book 7, pages 70, 72 and 75. Agreement between North Fork Water Works Company and Union Pacific Railroad Company recorded in miscellaneous records book 7, page 95. Verbal notice of completion from B. Mccoffrey received February 7, 1902. Date of completion for beneficial use taken from affidavit for proof from T. H. Healey. Adjudicated for municipal use only. This facility also irrigates 2185.8 acres under the Encampment Canal, p15209d (later reduced to 242.84 acres when adjudicated on c43/517a) received on cd2/133a. Petition filed in miscellaneous notices under p15209d. This petition also gives permission for conveyance through the Wolford Encampment Ditch, p119d, cb1/204a diverting water from same source one fourth mile downstream in the same quarter quarter, township and range. Later petition was granted by the Board of Control to change point of diversion of the Encampment Canal, p15209d, c43/517a and its enlargement, p4022e to the Wolford Ditch, p119d, as recorded in Order Record book 34, pages 225 through 230 and received on cd3/508a. This petition corrected the records to the actual situation on the ground. Water from this facility is to be used for municipal purposes for the Town of Encampment, Wyoming. The municipal point(s) of use shown below are taken from the permit record. These point(s) may vary from those point(s) on record in the State Engineer's office due to the growth of the Town of Encampment." Comment from ePermit website, http://seoweb.wyo.gov/e-Permit/Common/Home.aspx

The Town is under the Platte River Recovery Implementation Plan (PRRIP) of 2007. This plan was developed to allow for Wyoming to develop and maintain its water rights while protecting habitat for endangered species and maintaining compliance with the Endangered Species Act. Therefore, municipalities with hydrologic connection to the North Platte River must annually measure their water against thresholds quantified in the 1992-1996 period. Municipalities may sell water to Oil and Gas development, so long as the amount sold doesn't make the municipality or the state of Wyoming exceed its diversion threshold.

Encampment Source Water Protection Contacts List

Town of Encampment – Responsible for providing their customers with safe, affordable drinking water. Responsible for maintaining the Source Water Protection Plan

Encampment Mayor: Greg Salisbury

Encampment Clerk: Doreen Harvey
614 McCaffrey Avenue
P.O. Box 5
Encampment, WY 82325-0005
307-327-5501

Encampment Water and Wastewater Supervisor: Katrina Nuhn

United States Forest Service – Manages the majority of the watershed, has included the North Fork Encampment River as a municipal watershed in their Land and Resource Management Plan.
US Forest Service: Medicine Bow National Forest - Brush Creek/Hayden Ranger District,
Ranger Justin Armbruster jasonarmbruster@fs.fed.us, Hydrologist Dave Gloss dave.gloss@usda.gov
5556 Hwy 130 PO Box 249
Saratoga, WY 82331
307-326-5258, 307-326-5250 fax

Bureau of Land Management – Manages land within the watershed.
BLM Rawlins Field Office: Dennis Carpenter, Field Manager, Annette Treat, Project Coordinator, atreat@blm.gov
1300 North Third St
PO Box 247 Rawlins, WY 82301-2407
307-328-4200
307-328-4224 fax

United States Department of Agriculture – Assists private landowners with land management
Carbon County FSA: Sheryl Hunter 101 Cypress Ave. PO Box 607 Saratoga 82331 307-326-5657

Saratoga-Encampment-Rawlins Conservation District: Joe Parsons joe.sercd@gmail.com, District Manager, Leanne Correll, NEPA coordinator
101 Cypress Avenue PO Box 633 Saratoga, WY 82331 307-326-8156

State of Wyoming – Wyoming Department of Environmental Quality is responsible for water quality in the State of Wyoming. Wyoming Department of Transportation is responsible for the transportation corridors of Wyoming. They both have spills reported to them.

Wyoming Department of Transportation, District 1: Billy Zieger, Area Foreman, Marty Mayfield, Rawlins Foreman
301 Airport Road
Rawlins, WY 82301
307-324-4100

Wyoming Department of Environmental Quality Source Water Protection: Kim Parker, kim.parker@wyo.gov, 307-777-6128

Wyoming Department of Environmental Quality District Engineer: Paul Lohman
paul.lohman@wyo.gov, 307-777-7088

Wyoming State Engineer's Office Hydrographer/Commissioner: Robin Blake
Robin.blake@wyo.gov
215 N. 1st Street
PO Box 710
Saratoga, WY 82331
307-326-8130

Wyoming Game and Fish Department: Teal Cufaude
Teal.cufaude@wyo.gov
307-326-3020

Carbon County – Carbon County Planning and Development is responsible for permitting construction and subdivisions on private land. The Road and Bridge Department maintains travel corridors through the watershed. The Weed and Pest District assists with pesticide application, purchasing and application.

Carbon County Planning and Development, Sid Fox, Planning and Zoning
215 W. Buffalo
Suite 336
Rawlins, WY 82301

Carbon County Road and Bridge: Kandis Fritz, Interim Supervisor, Lester Thompson, Area Foreman
307-324-9555

Carbon County Weed and Pest: Reese Irving ccwpsupervisor@gmail.com
104 S. Third Street Riverside, WY 82325
307-320-8001

Steering Committee

Town of Encampment: Greg Salisbury, Mayor; Doreen Harvey, Clerk; Katrina Nuhn, Water Superintendent

United States Forest Service: Jason Armbruster, Ranger; Dave Gloss, Hydrologist

Saratoga-Encampment-Rawlins Conservation District: LeeAnne Correll, NEPA specialist

General Public: Bill Craig, Bob Herring

Contingency Plan

Emergency Water Connection

The Town of Encampment has an emergency water connection with Sierra Madre Joint Powers Board (SMJPB). SMJPB utilizes groundwater as it's drinking water source, so it is unlikely that it will be contaminated during the same event as the North Fork Encampment River.

In the event of a contamination event or water system upset, the Agreement Between Sierra Madre Water and Sewer Joint Powers Board and the Town of Encampment, Wyoming (the Agreement) should be utilized. It may be beneficial to routinely review the agreement between the parties and exercise the connection to ensure that it is ready when the need arises.

Alternate Sources

In the event that the emergency water connection is unavailable, Culligan, WalMart, etc. could be used to provide an alternate source of drinking water.

Surface Intake Information Sheet

PWS ID 5600060 - Encampment Water

Source ID	Source Name	Permit Number	In Use	Abandoned
5600060-101	GRAND ENCAMPMENT DITCH	P2741D	Y	

Township	Range	Section	Qtr	Qtr Qtr	Latitude	Longitude	Inspected Regularly
14	84	15	NE	NE	41.18670646	-106.82077291	YES

Risk of Conveyance Damage	Intake Restricted	Conveyance Length	Intake Screened
LOW	Unprotected	LONG	NO

Date Constructed	Conveyance Open/Closed
BETWEEN 1983 AND 1993	CLOSED

Water Bearing Formation	Confined or Unconfined
North Fork Encampment River	

WYOMING WATER ASSESSMENT AND PROTECTION PROGRAM (SWAP)

SOURCE WATER ASSESSMENT PROGRAM EXECUTIVE SUMMARY

Source Water Assessment Prepared For:
Encampment Water

Assessment Completed By:
Lidstone and Associates, Inc.
Engineering, Geology & Water Resource Consultants
4025 Automation Way, Building E
Fort Collins, CO 80525

June 30, 2004

SOURCE WATER ASSESSMENT SUMMARY
FOR Encampment Water

PWS Source Water Assessment Summary

The Encampment water treatment facility is classified as a community surface water supply, and is located approximately 18 miles south of Saratoga on Wyoming Highway 130. The facility has a capacity to serve a resident population of 490 through 295 connections year round. Encampment obtains its source water from the North Fork of the Encampment River and diverts this water to the treatment plant.

Encampment's water treatment facility is conventional. Inside the treatment plant, one low head pump is utilized to transfer the water from the presedimentation pond to the two parallel trains. Each train, rated at 175 gal/min and equipped with coagulation, flocculation, and sedimentation, is comprised of an upflow clarifier and a multi-media filter. A static mixer is placed ahead of the upflow clarifiers. Alum and soda ash are injected before the static mixer. Filtered water is stored in a 20,000 gallon clearwell and a 40,000 gallons contact tank. From the contact tank the water goes to an elevated 500,000-gallon steel storage tank and then to the distribution system. For disinfection, gas chlorine is injected at the clearwell.

In general, Encampment received high susceptibility scores for land use because most of Zone 2 is forested land. While forests are not an immediate threat, the resulting ash and debris that typically washes into the drainage following a forest fire can be problematic. The overall point source contaminant and transportation corridor susceptibility ratings are low due to the lack of contamination sources within the delineated zones.

Delineation Methods

The Town of Encampment maintains a community system that receives its entire supply from a surface water source. For this aspect of the project, Lidstone obtained and reviewed a previously completed source water area delineation. Weston Engineering completed this assessment in 1997 as part of the Encampment Level II Water Supply Project for the Wyoming Water Development Commission. Because the previous delineation had not identified contaminant inventory Zones 1 and 2, Lidstone amended the delineation for the Town using surface water methods in accordance with SWAP guidelines.

Surface Water Sources

Encampment obtains all of its municipal water from its intake on the North Fork of the Encampment River which is located approximately one mile southwest of Town along the river. The intake structure consists of a grated concrete diversion structure. Additional information on this source is included on the enclosed Surface Water Information Sheet.

As shown on the enclosed delineation maps, the source water area includes the North Fork of the Encampment River. Zone 2 extends 15 river miles upstream from the intake and includes a 1,000 foot buffer on both banks of the river and perennial tributaries. Zone 3 includes the remaining watershed upstream from the intake.

Integrity Summary

The Town of Encampment uses surface water from the North Fork of the Encampment River. The intake was constructed between 1983 and 1993, when more stringent construction standards were required by the State of Wyoming. Records also indicated that while the area around the intake is protected, the intake is not screened to protect against the infiltration of potential contaminants. As shown on the Integrity Summary Table, Encampment's intake received an integrity score of 8. This value was due to the fact that the available data indicate the intake is not screened, that the intake was completed between 1983 and 1993, that the conveyance structure length is over one mile, and that the area around the intake is unprotected.

Water Source Sensitivity Summary

Encampment maintains one surface water source, the North Fork of the Encampment River. As shown on the Source Sensitivity Summary Table, the Town's intake received a sensitivity score of 10.

The intake received the maximum sensitivity score for two reasons. The first reason is because it obtains water from a surface water source. The second reason is that laboratory analysis of water samples from the Town within the last five years detected several contaminants that are listed on EPA's primary and secondary drinking water standards. These include fluoride and sulfate among others. These contaminants were generally detected at concentrations below the EPA's maximum contaminant levels.

Water System Susceptibility Rating

Susceptibility is defined as the potential for a public water supply to draw water contaminated at concentrations that would pose a threat or concern to human health. In general, Encampment received high susceptibility scores for land use because most of Zone 2 is forested land. While forests are not an immediate threat, the resulting ash and debris that typically washes into the drainage following a forest fire can be problematic. The overall point source contaminant and transportation corridor susceptibility ratings are low due to the general lack of contamination sources within the delineated zones. Weston reported that the watershed was susceptible to potential contamination resulting from various ongoing or future activities including logging, livestock grazing, mining, and recreational land use. Susceptibility ratings for each type of potential contaminant source are summarized on the attached susceptibility tables.

A review of your PWS's routine water analysis results revealed that one or more chemicals that are considered contaminants in drinking water were detected at some time within the last five years. Chemical detections have a large impact on your PWS's sensitivity score because it may indicate that there is a pathway for contaminants to reach the water supply. However, it is likely that these chemicals are present only in small amounts and are not a danger to your health. Some

of these chemicals may also occur naturally in water.

For more information about which chemicals were detected, please contact the PWS for a copy of the most recent Consumer Confidence Report or water analysis results. Chemical detections at levels that are a concern to human health are reported on the EPA's website: <http://www.epa.gov/enviro/html/sdwis/sdwis_query.html>. To see if your PWS has exceeded the federal primary or secondary drinking water standards, just click on the State of Wyoming and then type in the name of your PWS. Consumer Confidence Reports are prepared by the PWS on a yearly basis. The reports should include information about any chemicals found in the water, even those found at very low levels. Please contact Kim Parker at DEQ, 307-777-7781, or WARWS for assistance. You may also contact EPA to find out what contaminants were detected. You may have to fill out a Freedom of Information Act request to obtain the water test results for your PWS. Please call EPA's Safe Drinking Water Hotline at 1-800-426-4791.

POINT SUSCEPTIBILITY SUMMARY TABLE
FOR Encampment Water

Point Source Susceptibility Summary

It may appear from the results of this point source susceptibility summary table that your system has too many PSOCs influencing the final ratings. In some cases, a specific PSOC falls within a specific contaminant inventory zone shared by multiple wells or intakes. When this is the case, that PSOC will be scored for each intake. For example, an underground storage tank may appear within a contaminant inventory zone shared by four different wells. This would cause that single storage tank to be entered into the table four times, or once for each well or intake.

Point Source Type	Low	Medium	High
None Identified	N/A	N/A	N/A

* Illustrates the number of PSOCs in a particular rating class for all water sources
* N/A - Not Applicable

WYOMING WATER ASSESSMENT AND PROTECTION PROGRAM (SWAP)

SOURCE WATER ASSESSMENT PROGRAM

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Assessment Completed By:
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4025 Automation Way, Building E
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June 30, 2004

CRYSTAL - SourceWaterAssessment.rpt

Introduction

People who live in or visit the state of Wyoming enjoy pristine natural resources. One of the most important of these resources is drinking water. In 1973, the Wyoming legislature passed the Environmental Quality Act and directed the Wyoming Department of Environmental Quality (DEQ) to both preserve the surface and groundwater resources of the state, and to prevent, reduce, and eliminate water pollution.

In 1996, the United States Congress passed the Safe Drinking Water Act Amendments that required all states having the responsibility for administering the federal rules and regulations of this Act, or "primacy", to develop a Source Water Assessment and Protection (SWAP) Program. Although Wyoming is the only state that does not have primacy, DEQ recognized the value and benefit of SWAP to help protect public water systems (PWSs). During the 1998 legislative session, the Wyoming Legislature authorized DEQ to set aside 10%, or $1.2 million, of the 1997 federal Drinking Water State Revolving Fund monies to develop a SWAP program and to complete Source Water Assessments.

The SWAP Program is a two-part program consisting of source water assessments and source water protection plans. The completion of a source water assessment involves determining a source water area for each PWS, assessing the sources of contamination within this source water area that have the potential to affect the drinking water supply, evaluating the susceptibility of the water supply to contamination by each of these potential sources of contamination, and finally, writing an assessment report that contains a summary of all the information gathered during the assessment. Due to Wyoming's unique primacy status, the completion of source water assessments for all PWSs is voluntary. The DEQ has completed a source water assessment for each PWS that has requested one. Local governments, PWSs, and citizens can then use these assessment reports to develop a source water protection plan that outlines the measures that the community or PWS believes are appropriate to protect their drinking water supply. These measures may include management plans, clean up efforts, public education, or zoning changes.

DEQ Coordination

DEQ contracted and worked closely with the Trihydro Corporation (Trihydro) and Lidstone and Associates, Inc. (Lidstone) to complete the source water assessments. Trihydro and Lidstone were selected because of their geologic experience, Geographic Information System (GIS) expertise, and their knowledge of many PWSs in Wyoming. PWS delineations were completed by the firm most familiar with the geology/hydrology of the area.

The Wyoming Association of Rural Water Systems (WARWS) also provided a great deal of assistance. WARWS published newsletters, helped sign up PWSs for assessments, and helped operators understand and review draft assessments. They also provided valuable input throughout the development and implementation of the SWAP program.

Source Water Area Delineation

The first step in completing the Source Water Assessment was to delineate, or determine, the source water area, or the area that contributes water to the well or intake. In order to protect public water supplies, community leaders, planners, and PWS operators must have information regarding the land area that contributes water to the PWS's wells or intakes. Potential sources of contamination located upstream or upgradient from a water source could reach and possibly impact the water system and its customers. Trihydro and Lidstone delineated three contaminant inventory zones within each source water area for the purpose of inventorying possible sources of contaminants that could affect drinking water quality. The following listing of the three zones provides additional information on their intent:

- **Zone 1** is called the "Accident Prevention" or "Sanitary Protection Zone" and is located within a 100 foot radius of the well or intake. The potential for contaminants released within this zone to affect the quality of PWS water is highest.

- **Zone 2** lies immediately beyond Zone 1 and is called the "Attenuation Zone." Contaminants released within this zone are within close proximity of the well or intake and the chances of their reaching the well or intake is still high. Zone 2 for surface water systems included an area 1000 feet on either side of the perennial streams that extended upstream of the intake for a distance of 15 miles, or the distance from the intake to the headwaters of the drainage contributing water to that intake. Zone 2 for groundwater systems represented a 2-yr time of travel (TOT) that was determined using the best, and most conservative hydrogeologic data available.

- **Zone 3** is the area farthest from the well or intake. Contaminant sources within this zone are less likely to reach the well or intake in quantities that could affect water quality. Zone 3 for surface water sources includes the entire stream drainage basin from Zone 2 to the basin headwaters. Zone 3 for groundwater sources extends from the edge of Zone 2 and represented the estimated 5-yr TOT.

Trihydro and Lidstone used readily available information to determine the locations of each well, spring, infiltration gallery, or surface water intake. No fieldwork or site visits to individual PWSs were conducted to verify the accuracy of the location data. The location of each water source was initially obtained from DEQ or United States Environmental Protection Agency (EPA) databases. Information received from the respective PWS operators on their well information sheets, photographs of individual water sources, the Wyoming State Engineers (SEO) well information database, Wyoming Water Development Commission reports, and Trihydro/Lidstone company experience were also used to locate each water source as accurately as possible.

To determine the source water area(s) for each well or surface water intake, Trihydro and Lidstone reviewed a variety of geologic, hydrologic, and hydrogeologic sources, and incorporated that data into a Geographical Information System (GIS). For PWSs utilizing surface water sources, Hydrologic Unit Codes (HUC) and 7.5-minute U.S. Geological Survey (USGS) topographic maps were used to identify the basin perimeters that contribute water to the surface

water intake. For those systems utilizing groundwater sources, Trihydro and Lidstone reviewed information from the following sources to develop source water areas: the EPA's sanitary surveys, the EPA's early 1980s reports on the occurrence and characteristics of groundwater in each basin of the state, the Wyoming State Engineer's Office (SEO) water rights database, University of Wyoming Master's theses, USGS geologic and hydrogeologic reports, Driscoll's Groundwater and Wells book, Wyoming Water Development Commission reports, Wyoming Water Research Institute reports, and previous delineations completed by other consultants, the Wyoming Geologic Survey and WARWS.

The methods and techniques that were used to delineate the contaminant inventory zones within each source water area were consistent for all surface water systems. However, for groundwater systems, professional geologists for Trihydro and Lidstone considered aquifer type (confined, unconfined, alluvial, etc.), flow system type (porous, or conduit), and PWS type to determine which delineation method was appropriate for each well, as shown on **Figure 1**. For groundwater sources, Trihydro and Lidstone geologists used the most appropriate conservative methodology, which closely followed the EPA-approved Wyoming Wellhead Protection Program Guidance Document.

Contaminant Inventory

An inventory of contaminant sources that lie within the source water areas and have the potential to adversely impact the quality of the water supply was conducted within each contaminant inventory zone. Knowledge of potential contaminants may encourage communities to implement and manage a source water protection area, and enable a PWS to plan for necessary improvements in treatment capabilities, develop emergency response plans, or allow time to remediate the source of contamination. The principal contaminants of concern include those regulated under the Safe Drinking Water Act in addition to microorganisms such as *Cryptosporidium,* and exposure to nitrates.

Contaminant inventories for Potential Sources of Contamination (PSOCs) used information obtained from EPA, DEQ Water Quality Division, DEQ Solid and Hazardous Waste Division, DEQ Land Quality Division, DEQ Abandoned Mine Lands, Wyoming Oil and Gas Conservation Commission, the Wyoming State Geological Survey, the U.S. Department of Transportation, and the Wyoming Department of Agriculture Technical Services databases. Examples of regulated activities or facilities include wastewater treatment plants; confined animal feeding operations; underground injection wells; chemical or hazardous waste use, production, or storage sites; and landfills. These permitted contamination sources produce materials that are regulated by state or federal laws. These databases are also tabulated according to contaminant type in the susceptibility section. Information from citizens and PWS operators played a vital role in verifying land uses and locations of regulated PSOCs.

There are two basic types of contaminant sources, point and non-point, that were evaluated based on their proximity to the water source. Point sources are usually associated with a single location, like an underground storage tank, underground injection well, oil and gas well, coal bed

methane (CBM) well, a solid/hazardous waste facility or a National Pollutant Discharge Elimination System (NPDES) outfall. Point sources are usually regulated and are required to have permits.

In contrast, non-point source pollution results from land use patterns and transportation corridors. Urban land use was considered of greatest concern followed by irrigated agriculture, non-irrigated agriculture, and then forested areas. Forested areas were included to evaluate the potential risks of increased runoff and water quality problems following forest fires. Transportation corridors, including pipelines, railroads, and highways, are a high concern because of the nature of the materials being transported. All remaining land uses were considered low risk.

To evaluate the potential impact of these contaminants, an extensive inventory was conducted in Zones 1, 2, and 3 for both surface and groundwater sources. As part of the inventory, the assistance of local representatives and PWS operators was requested to verify the locations of regulated and non-regulated potential sources, land use boundaries, and to identify any historical sources of contamination.

The Susceptibility Analysis Process

The final step in developing the source water assessment for each PWS was to analyze the susceptibility of each water source with respect to the identified PSOCs. DEQ defines the susceptibility of a PWS as the potential for each well or surface water intake to draw water that has been contaminated by pollutants at concentrations that would pose concern. Susceptibility must be determined for each water supply well or intake used by the PWS. Contaminants may reach the intake or well by infiltration through geologic strata and overlying soil, direct discharge into surface or groundwater, overland flow, or contamination of upgradient groundwater. Contaminants may also enter the water source at the well, intake, or the conveyance. A conveyance is defined as the pipe, canal, or aqueduct between the well or intake and the first form of treatment, or where the water enters the distribution system if there is no treatment.

Water system susceptibility is related to three factors that were evaluated as part of this source water assessment. The first was the physical integrity of the well, intake, and conveyances. The second factor was the sensitivity of the land area through which potential contaminants may reach the well or intake. This included the geologic, hydrologic, and land cover characteristics of the watershed, well location, or aquifer source area. The third factor was the nature of the potential contaminants. Potential contaminants include specific point sources and any land uses that may contribute contaminants to the water supply. For point sources, the type of potential contaminants, the location of the contaminant sources relative to the well or intake, and confirmation of a contaminant release were also considered.

Data that were used to quantitatively evaluate the susceptibility of each water source to potential contaminants were acquired from sources of data readily available for all PWS in the state. The susceptibility of each PWS is based on delineated source water areas, DEQ contaminant

inventories, 1:500,000 scale land use maps compiled by the University of Wyoming, EPA sanitary surveys, EPA's Safe Drinking Water Information System database, and DEQ and Wyoming SEO well or intake permits.

Step 1: Well or Intake Integrity Score

The first step in the susceptibility analysis was to determine the integrity score for each well or intake. The well or intake was assigned a score after being evaluated for a series of factors. The factors and the points associated with them are described below. Each well or intake received a score between 1 and 13. If sanitary surveys, permits, or completion records were not available or did not contain the appropriate information, a maximum score was assigned for that particular factor as a default. Scores for each PWS water source are listed in the Well or Intake Integrity tables located at the back of this document.

If the well or intake was constructed prior to 1983, it was assigned 3 points, between 1983 and 1993, 2 points, and 1 point if constructed after 1993. The points assigned to completion dates reflect DEQ's confidence in the standards applied to the design, construction, and completion of wells and intakes at the time of construction. Conveyance structures were scored based on the length, the risk of damage, and the degree to which the transported water is exposed to contaminants. Short conveyances, less than 1 mile, received a score of 0 points, while conveyances greater than 1 mile received 1 point. Open conveyances and conveyances at risk to structural damage received 1 point.

Well integrity was also evaluated on the basis of four additional factors. The first and most critical of these was the presence of a surface seal that is in good condition. DEQ believes that the surface seal is a good indicator of the overall well condition. Wells that had a surface seal were assigned a score of 0 points and wells that did not have a surface seal were assigned a score of 5 points. The second factor was the presence of a good annular seal. However, this information is less easily obtained, so an assumption about the annular seal was made based on the presence of a surface seal. If a well had an annular seal it was assigned a score of 0 points, wells without an annular seal received 1 point. The third factor was the protection of the vicinity immediately around the wellhead from contaminant sources. This is usually accomplished by enclosing the wellhead in a well or pump house, or a fenced off area. If the wellhead was protected, the well received 0 points, but unprotected wells were assigned 1 point. The fourth factor is the protection of the wellhead from flooding. For instance, the ground around the wellhead should be sloped away from well to encourage water and any water-borne contaminants to move away from rather than towards the well. Wells that were considered protected from flooding were assigned 0 points, wells not protected were assigned 1 point.

The integrity of surface water systems was also evaluated based on three additional criteria. The first of these was the presence of a screen. A screen, or series of screens, will prevent debris from interfering with the water treatment process. The presence of a screen yielded 0 points, while intakes without a screen scored 3 points. Secondly, screens must be inspected and cleared of debris regularly to remain effective. Intakes that were not inspected regularly scored 2 points. Finally, access to the area immediately surrounding the screen location should be restricted. If the area around the intake was not protected, the intake scored an additional 2 points.

Step 2: Water Source Sensitivity

The second step in the susceptibility analysis was to determine the well or intake sensitivity score on the basis of aquifer or watershed conditions and the confirmed detection of chemical contaminants in raw or treated water. Wells were assigned a score between one and ten. Intakes were assigned a score of five or ten. Scores for each PWS water source are listed in the attached Water Source Sensitivity scoring tables located in the back of this document.

The inherent sensitivity of the aquifer or watershed was combined with indicators of contamination observed within the last five years. If no information was available, the maximum score was assigned as a default for that particular scoring criterion. Documented chemical detections at a well or intake within the last 5 years scored an additional 5 points. A chemical detection indicates that a pathway exists for contaminants to enter the system.

DEQ assumed that all surface water systems were highly sensitive to contamination (default score of 5 points) due to the fact that streams, rivers, and open conveyances directly and rapidly convey released contaminants. A maximum total of 10 points was possible for surface water intakes.

For groundwater systems, Trihydro and Lidstone determined the sensitivity of each groundwater source based on the type of aquifer in which the wells were completed. Porous flow confined aquifers were considered to be the least vulnerable type. Shallow alluvial, fractured, karst, and some unconfined aquifers are more vulnerable to contamination from surface contaminant sources. To evaluate the sensitivity of unconfined aquifers throughout the state, Trihydro and Lidstone used a statewide map of uppermost aquifer sensitivity that was developed using depth to water, recharge and overlying soil characteristics, land slope, vadose zone characteristics, and other hydrogeologic characteristics. Aquifer sensitivity, based on the map, ranged from 1-5 points. Wells that were completed in fractured rock or limestone aquifers received a score of 5 points. Shallow wells completed in alluvium (less than 65 feet deep), could be under the influence of surface water, and received a score of 5 points. Confined aquifers under normal porous flow conditions received a score of 1 point. Groundwater source sensitivity scores ranged from 1 to 10 points.

Step 3: Well or Intake Rating

A well or intake rating was developed from the integrity and sensitivity scores. A water source sensitivity score was determined by adding the well or intake integrity score to the water source sensitivity score. A well or intake rating of low, medium, or high was assigned based on the total number of points scored; low (2-8 points), medium (9-15 points), high (16-23 points). The rating for each well or intake was then combined with the contaminant ratings to determine the final susceptibility for each respective well or intake.

Step 4: Contaminant Ratings

The fourth step in the susceptibility analysis was to rate potential sources of contamination that were located within the contaminant inventory zones delineated for each well or intake. Three categories of contaminants were developed for this rating process: regulated point sources, non-point sources including land uses, and transportation corridor sources.

Point sources were evaluated using the following three critical pieces of information: the contaminant type; the location of the potential source of contamination in relation to the well or intake; and the contaminant release status. For the purposes of the susceptibility analysis, contaminants have been grouped into the following two types on the basis of their DEQ facility or contaminant codes: 'Serious Contaminants' and 'Other Contaminants.' Microorganisms, nitrates/nitrites and carcinogens are considered 'Serious Contaminants,' while 'Other Contaminants' includes the remainder of the contaminants listed in the federal drinking water standards. Point sources identified in the contaminant inventory will have one or both types of potential contaminants. The most serious contaminant type present was assigned a contaminant rating. This process was completed for each point source identified in the contaminant source inventory.

The point source contaminants were also rated on the location of the potential source of contamination in relation to the well or intake (Zone 1, 2, or 3). The last factor in determining a contaminant rating is the contaminant release status. This factor is an indication of whether a potential source of contamination has released contaminants into the environment. Documented releases are typically found with potential sources of contamination like facilities with permitted discharges, groundwater pollution control sites, and leaking storage tanks.

All Serious or Other contaminants that were identified within Zone 1 and Zone 2, regardless of whether a documented release of those contaminants had occurred, were considered a high risk to the well or intake. A known release of a contaminant identified in Zone 3 was considered a medium risk to the well or intake. Contaminants identified in Zone 3 that were classified as a no known release, were considered a low risk to the well or intake.

All point source PSOCs are shown on the source water area delineation map(s). The General Point Source Contaminant Rating Matrix located in the general tables section at the back of this document, shows how the point source PSOCs were rated. The point source PSOCs that are located within the contaminant inventory zones are tabulated in the Point Source Susceptibility Table along with these final contaminant ratings, also located at the back of this document. For further details on any of these sources of contamination, contact the appropriate agency listed in Appendix A

Non-point sources of contamination were evaluated on the basis of the percentage of land use in the source water area for various activities. The General Land Use Rating Matrix is located in the general tables section of this document. For groundwater systems with modeled, calculated fixed radius (CFR) delineations, and delineations that were hydrogeologically mapped, the percentage of land use in Zones 1, 2, and 3 was evaluated. For all other delineations, including surface water watersheds, groundwater under the influence of surface water, and area-wide aquifer delineations, only Zones 1 and 2 were evaluated. The percent land use, the land use

contaminant rating, and the land use susceptibility ratings for each well/intake are also shown in the Land Use Susceptibility Table, located at the back of this document..

The transportation corridor contaminant ratings were determined by counting the number of each transportation corridor contaminant type within each contaminant inventory zone. The General Transportation Corridor Contaminant Rating Matrix shows how the transportation corridor contaminants were rated and is located in the general tables section. The transportation corridor contaminant rating and the transportation corridor contaminant susceptibility ratings are shown in the Transportation Corridor Susceptibility Table located at the back of this document.

Susceptibility Rating Implications

The susceptibility ratings developed during this assessment project are intended to show the PWS areas where contaminants have the greatest potential to impact their water supply.

High susceptibility ratings should be used to assist the PWS in future planning efforts. A source water protection plan is recommended regardless of a PWS's susceptibility ratings. Please contact WARWS at 307-436-8636 or Kim Parker, DEQ, at 307-777-7781 for additional guidance. There are also consulting firms like Trihydro and Lidstone that are available to help you complete your source water protection plans.

In many cases, high susceptibility ratings were caused by lack of data. As mentioned in the scoring process, whenever well or intake data were unknown, the highest score possible was assigned. One way to reduce the susceptibility would be to replace the unknown conditions with the known conditions associated with the particular well or intake in question. Restricting access to wells and intakes, ensuring well or intake physical integrity, enclosing wells and intakes, and enclosing and protecting conveyances are also ways to reduce your systems well or intake rating and reduce susceptibility to potential sources of contamination. Another way to reduce susceptibility would be to remove or mitigate existing PSOCs and prevent new sources from locating within your source water area.

It is possible that regulated point sources appear within your source water area when they should not or appear in the wrong location. It is very important to have regulated point sources located correctly. Regulated point sources in close proximity to your water source greatly affect your susceptibility ratings. Likewise, please keep in mind that your source water area map may be missing regulated point sources that should appear. Your system is potentially susceptible to these sources and they should be included in any future assessments and protection plans. Please contact Kim Parker, DEQ, at 307-777-7781 for assistance in alerting the appropriate regulatory programs if any errors in point sources are discovered.

Lastly, non-regulated or historical potential sources of contamination should not be overlooked when doing assessment updates and protection plans. For example, septic systems and dry cleaners are not regulated and therefore were not included in this assessment, but can have substantial impacts on water quality. Thorough local contaminant inventories that include such

historical and non-regulated potential contaminant sources should be conducted in conjunction with regulatory database inventories.

Water sources with high percentages of forested land in their watershed can experience significant water qulaity impacts if a larger portion of the landscape is burned. Surface water systems can expect high sediment loads and elevated levels of nitrates, phosphorus, heavy metals, organic carbon, and other chemicals. Forest fires can also cause water to have a smokey flavor.

All surface water systems, groundwater under the influence of surface water, and groundwater systems that rely on alluvial aquifers are vulnerable to drought conditions. PWSs should develop contingency plans that include water storage, water rationing, etc. that are adequate to sustain the PWS through drought cycles.

Technical Assistance

Management of the source water protection area involves knowledge of the resources available for protection efforts. Local planning teams, WARWS, and consultants such as Trihydro and Lidstone can assist with identifying the methods and means available to the community to achieve the desired land use changes necessary to protect the drinking water source. The process of developing management strategies for regional aquifer watershed protection areas may require the collaboration of all municipalities, counties, and land management agencies affected by the protection area.

In addition, DEQ may be able to support protection plan activities by providing financial and technical assistance to PWSs. For instance, low-interest loans may be available through the State Revolving Fund program. These monies may be used for the acquisition of land critical to source water protection, the remediation of contaminant sources, or other protection plan development or implementation activities. For additional information on potential funding opportunities, contact Brian Mark of the DEQ at (307) 777-6371. Local planning teams may also request technical assistance from DEQ while developing protection plans. DEQ will provide assistance to local planning committees to the extent possible given personnel and budgetary constraints. For technical assistance, contact Kim Parker of the DEQ at (307) 777-7781.

DEQ is currently working with EPA to develop a waiver program for volatile and synthetic organic chemicals. The EPA will likely require the PWS to have a completed source water assessment in order to apply for this type of waiver. The EPA may also require the development of a protection plan to be eligible for these waivers. A developed protection plan may also aid the PWS by reducing costs associated with upcoming proposed regulations such as the Groundwater Rule.

Source Water Protection Plans

This Source Water Assessment is the necessary first step toward developing a Source Water Protection Plan. This assessment provides the technical basis for future protection measures. DEQ considers the protection of drinking water resources and the development of source water protection plans to be the long-term goal of the program.

In addition to the information provided in this assessment, DEQ requires three other components in a protection plan. A contingency plan, a section discussing management strategies for all potential sources of contamination inventoried within the source water area, and some method to update the protection plan on a regular basis are required components of a protection plan.

Contingency plans describe how a PWS would handle a contamination event or the loss or interruption of a water supply. Examples of components that local planning teams can include in a contingency plan are: options for replacing a water source; customer notification plans; emergency response plans; water storage plans; and measures to promote water conservation, if necessary.

The process of developing effective management strategies is the most important aspect of preventing drinking water contamination. Management strategies can also be the most difficult and time-consuming step when developing a source water protection plan. Each PWS must balance the responsibility of protecting the water supply with past, current and future land uses to determine what management strategies are appropriate and can be supported by the community.

DEQ also requires the regular review and update of the source water protection plans. Regular reviews will help the local planning team constructively deal with new trends, issues, and activities within the community.

This assessment is not the end product. Please use the information in this assessment as a tool to develop a protection plan for your PWS. Once a drinking water supply becomes contaminated, a community or PWS is faced with the difficult and costly task of upgrading treatment facilities or locating an alternative drinking water source. DEQ believes that preventing contamination is the key to keeping Wyoming's drinking water supplies safe.

SOURCE WATER ASSESSMENT SUMMARY
FOR Encampment Water

PWS Source Water Assessment Summary

The Encampment water treatment facility is classified as a community surface water supply, and is located approximately 18 miles south of Saratoga on Wyoming Highway 130. The facility has a capacity to serve a resident population of 490 through 295 connections year round. Encampment obtains its source water from the North Fork of the Encampment River and diverts this water to the treatment plant.

Encampment's water treatment facility is conventional. Inside the treatment plant, one low head pump is utilized to transfer the water from the presedimentation pond to the two parallel trains. Each train, rated at 175 gal/min and equipped with coagulation, flocculation, and sedimentation, is comprised of an upflow clarifier and a multi-media filter. A static mixer is placed ahead of the upflow clarifiers. Alum and soda ash are injected before the static mixer. Filtered water is stored in a 20,000 gallon clearwell and a 40,000 gallons contact tank. From the contact tank the water goes to an elevated 500,000-gallon steel storage tank and then to the distribution system. For disinfection, gas chlorine is injected at the clearwell.

In general, Encampment received high susceptibility scores for land use because most of Zone 2 is forested land. While forests are not an immediate threat, the resulting ash and debris that typically washes into the drainage following a forest fire can be problematic. The overall point source contaminant and transportation corridor susceptibility ratings are low due to the lack of contamination sources within the delineated zones.

Delineation Methods

The Town of Encampment maintains a community system that receives its entire supply from a surface water source. For this aspect of the project, Lidstone obtained and reviewed a previously completed source water area delineation. Weston Engineering completed this assessment in 1997 as part of the Encampment Level II Water Supply Project for the Wyoming Water Development Commission. Because the previous delineation had not identified contaminant inventory Zones 1 and 2, Lidstone amended the delineation for the Town using surface water methods in accordance with SWAP guidelines.

Surface Water Sources

Encampment obtains all of its municipal water from its intake on the North Fork of the Encampment River which is located approximately one mile southwest of Town along the river. The intake structure consists of a grated concrete diversion structure. Additional information on this source is included on the enclosed Surface Water Information Sheet.

As shown on the enclosed delineation maps, the source water area includes the North Fork of the Encampment River. Zone 2 extends 15 river miles upstream from the intake and includes a 1,000 foot buffer on both banks of the river and perennial tributaries. Zone 3 includes the remaining watershed upstream from the intake.

Integrity Summary

The Town of Encampment uses surface water from the North Fork of the Encampment River. The intake was constructed between 1983 and 1993, when more stringent construction standards were required by the State of Wyoming. Records also indicated that while the area around the intake is protected, the intake is not screened to protect against the infiltration of potential contaminants. As shown on the Integrity Summary Table, Encampment's intake received an integrity score of 8. This value was due to the fact that the available data indicate the intake is not screened, that the intake was completed between 1983 and 1993, that the conveyance structure length is over one mile, and that the area around the intake is unprotected.

Water Source Sensitivity Summary

Encampment maintains one surface water source, the North Fork of the Encampment River. As shown on the Source Sensitivity Summary Table, the Town's intake received a sensitivity score of 10.

The intake received the maximum sensitivity score for two reasons. The first reason is because it obtains water from a surface water source. The second reason is that laboratory analysis of water samples from the Town within the last five years detected several contaminants that are listed on EPA's primary and secondary drinking water standards. These include fluoride and sulfate among others. These contaminants were generally detected at concentrations below the EPA's maximum contaminant levels.

Water System Susceptibility Rating

Susceptibility is defined as the potential for a public water supply to draw water contaminated at concentrations that would pose a threat or concern to human health. In general, Encampment received high susceptibility scores for land use because most of Zone 2 is forested land. While forests are not an immediate threat, the resulting ash and debris that typically washes into the drainage following a forest fire can be problematic. The overall point source contaminant and transportation corridor susceptibility ratings are low due to the general lack of contamination sources within the delineated zones. Weston reported that the watershed was susceptible to potential contamination resulting from various ongoing or future activities including logging, livestock grazing, mining, and recreational land use. Susceptibility ratings for each type of potential contaminant source are summarized on the attached susceptibility tables.

A review of your PWS's routine water analysis results revealed that one or more chemicals that are considered contaminants in drinking water were detected at some time within the last five years. Chemical detections have a large impact on your PWS's sensitivity score because it may indicate that there is a pathway for contaminants to reach the water supply. However, it is likely that these chemicals are present only in small amounts and are not a danger to your health. Some

of these chemicals may also occur naturally in water.

For more information about which chemicals were detected, please contact the PWS for a copy of the most recent Consumer Confidence Report or water analysis results. Chemical detections at levels that are a concern to human health are reported on the EPA's website: <http://www.epa.gov/enviro/html/sdwis/sdwis_query.html>. To see if your PWS has exceeded the federal primary or secondary drinking water standards, just click on the State of Wyoming and then type in the name of your PWS. Consumer Confidence Reports are prepared by the PWS on a yearly basis. The reports should include information about any chemicals found in the water, even those found at very low levels. Please contact Kim Parker at DEQ, 307-777-7781, or WARWS for assistance. You may also contact EPA to find out what contaminants were detected. You may have to fill out a Freedom of Information Act request to obtain the water test results for your PWS. Please call EPA's Safe Drinking Water Hotline at 1-800-426-4791.

The table below illustrates the decision rules used to categorize each system's Integrity and Susceptibility scores described in Step 3.

Well or Intake Rating Scoring

	Low	Medium	High
Combined Integrity and Sensitivity Scores	2 - 8	9 - 15	16 - 23

The decision matrix below illustrates how each land use type receives a contaminant rating based on the percentage of land usage that corresponds to each contaminant inventory zone.

General Land Use Rating Matrix

		Land Use Contaminant Rating		
		Low	Medium	High
% Land Use	Urban	<5%	5-10%	>10%
	Irrigated Cropland	<20%	20-40%	>40%
	Non-Irrigated Cropland	<40%	40-80%	>80%
	Forested Land	<20%	20-40%	>40%

The point source contaminant susceptibility rating is determined for each well or intake using the decision matrix below. The well/intake rating is compared with the point source contaminant rating for each contaminant inventory zone to produce each susceptibility rating.

General Point Source - Contaminant Matrix

	Zone 1		Zone 2		Zone 3	
	Known Release	No Known Release	Known Release	No Known Release	Known Release	No Known Release
Serious Contaminants Microorganisms, nitrates/ nitrites, carcinogens	High	High	High	High	Medium	Low
Other Contaminants Remaining primary and secondary drinking water contaminants	High	High	High	Medium	Medium	Low

The transportation corridor susceptibility rating is determined for each well or intake using the decision matrix below. The well/intake rating is compared to the transportation corridor contaminant rating for each contaminant inventory zone to produce the final susceptibility ratings. The ratings for each zone were determined regardless of the length that each pipeline, railroad line, or highway intersected each contaminant inventory zone.

General Transportation Corridor - Contaminant Rating Matrix

		Contaminant Inventory Zone		
		Zone 1	**Zone 2**	**Zone 3**
Transportation Corridor	**Pipeline**	High	High	Low
	Railroads	High	High	Low
	State Highways	High	High	Low
	Interstate Highways	High	High	Low

A final susceptibility rating was determined for each type of contaminant by comparing the contaminant rating with the well or intake rating, using the decision matrix below. A final susceptibility rating was determined for each type of potential contaminant, land use, point source, and non-point source.

General Susceptibility Rating Matrix

		Contaminant Rating Matrix		
		High	**Medium**	**Low**
Well or Intake Integrity Rating	**High**	High	High	Medium
	Medium	High	Medium	Low
	Low	Medium	Low	Low

PWS-Specific Tables

The following tables, specific to each well or intake, summarize your system's susceptibility using the scoring matrices described above. A specific PSOC susceptibility table may be missing because that type of PSOC was not found within your source water delineation area.

Encampment Water Water Sources

Water Source Type*	PWS Well ID	Source Name
SW	5600060-101	GRAND ENCAMPMENT DITCH

* GW - Groundwater
* SW - Surface Water
* GU - Groundwater under the influnce of surface water

Well or Intake GRAND ENCAMPMENT DITCH (5600060-101)

Surface Water / Spring
Integrity & Sensitivity Scores for Encampment Water (5600060)

Step 1:

Score Type: Well or Intake Integrity

Water Source: North Fork Encampment River

Criterion	Condition	Score
Conveyance open or closed?	CLOSED	0
Risk of conveyance structure damage?	LOW	0
Conveyance structure length?	LONG	1
Area around intake restricted?	Unprotected	2
Intake inspected regularly?	YES	0
Intake screened?	NO	3
Intake completion date	BETWEEN 1983 AND 1993	2
	Total Integrity Score	**8**

Step 2:

Score Type: Water Source Sensitivity

Water Source: North Fork Encampment River

Criterion	Condition	Score
Confirmed chemical contaminant detection?	Yes	5
Sensitivity	Surface Water Intake	5
	Total Sensitivity Score	**10**

Step 3:

Final Well or Intake Rating: GRAND ENCAMPMENT DITCH (5600060-101)

Well or Intake Rating for GRAND ENCAMPMENT DITCH	**HIGH**	**18 (Integrity + Sensitivity)**

Well Or Intake GRAND ENCAMPMENT DITCH (5600060-101)

Step 4:

Score Type: Land Use Susceptibility

SWZone 1

Land Use Type	Land Use Percentage	Land Use Contaminant Rating	Land Use Susceptibility Rating
Urban Land	0	Low	Medium
Irrigated Cropland	0	Low	Medium
Non-Irrigated Cropland	0	Low	Medium
Forested Land	0	Low	Medium
Other Land Uses	100	Low	Low

SWZone 2

Land Use Type	Land Use Percentage	Land Use Contaminant Rating	Land Use Susceptibility Rating
Urban Land	0	Low	Medium
Irrigated Cropland	2	Low	Medium
Non-Irrigated Cropland	0	Low	Medium
Forested Land	79	High	High
Other Land Uses	19	Low	Low

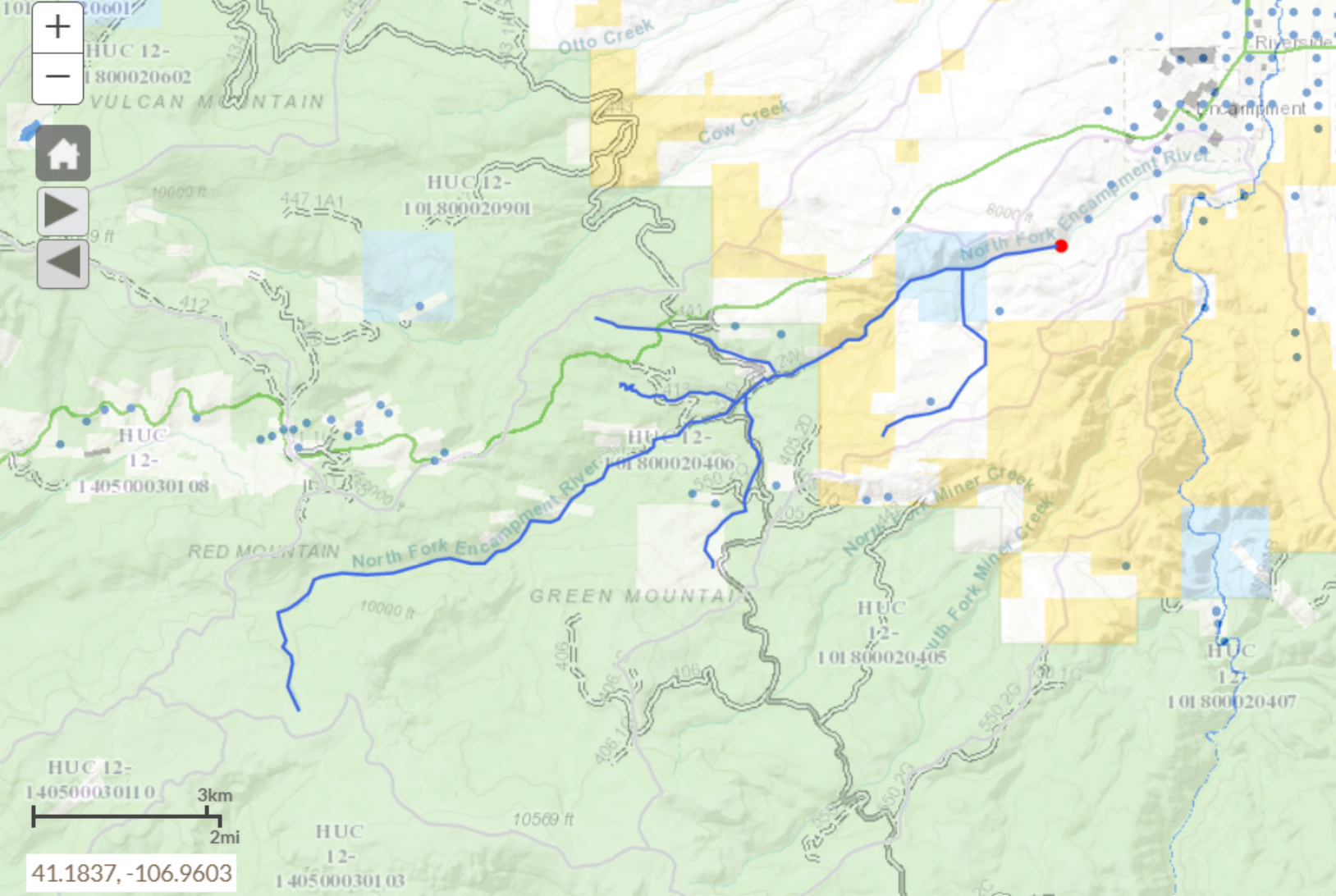
POINT SUSCEPTIBILITY SUMMARY TABLE
FOR Encampment Water

Point Source Susceptibility Summary

It may appear from the results of this point source susceptibility summary table that your system has too many PSOCs influencing the final ratings. In some cases, a specific PSOC falls within a specific contaminant inventory zone shared by multiple wells or intakes. When this is the case, that PSOC will be scored for each intake. For example, an underground storage tank may appear within a contaminant inventory zone shared by four different wells. This would cause that single storage tank to be entered into the table four times, or once for each well or intake.

Point Source Type	Low	Medium	High
None Identified	N/A	N/A	N/A

* Illustrates the number of PSOCs in a particular rating class for all water sources
* N/A - Not Applicable


Otto Creek
Cow Creek
North Fork Encampment River
North Fork Miner Creek
South Fork Miner Creek
Riverside
Encampment
VULCAN MOUNTAIN
RED MOUNTAIN
GREEN MOUNTAIN
HUC 12- 101800020602
HUC 12- 101800020901
HUC 12- 140500030108
HUC 12- 101800020406
HUC 12- 101800020405
HUC 12- 101800020407
HUC 12- 140500030110
HUC 12- 140500030103
10000 ft
10569 ft
3km
2mi
41.1837, -106.9603

Natural Resource & Energy Explorer

Legend:

pointLayer

- Override 1

SMA_SurfaceManagementAgency

- Bureau of Indian Affairs
- Bureau of Land Management
- Bureau of Reclamation
- Corps of Engineers
- Department of Defense
- Department of Energy
- Forest Service
- National Grasslands
- National Park Service
- Other
- Private
- State
- US Fish and Wildlife Service
- Water
- 12-digit HU (Subwatershed)
- Oil Gas Fields

Secondary Roads 289_144k scale

- Interstates and US Highways
- Other Roads
- Primary Roads
- Paved Road
- Gravel Road, Suitable for Passenger Car
- Dirt Road, Suitable for Passenger Car
- Road, Not Maintained for Passenger Car

WY Highways

- WY Highways
- Counties

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Encampment Town of
Client Sample ID: Water Treatment Plant-tap
PWS #: WY5600060 **Name:** ENCAMPMENT, TOWN OF
Facility ID: TP01
SamplingPoint/Location: SP01 / Water Treatment Plan
Project ID: WY5600060C
Collector's Name: Katrina Nuhn **Contact Phone #:** (307) 327-5501
Compliance Sample: YES **Sample Type:** RT

Lab ID: C17080086-001
Report Date: 08/18/17
Collection Date: 08/01/17 10:30
Date Received: 08/02/17
Matrix: Drinking Water
Federal ID#: WY00002

FRDS	Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS								
1052	Sodium	1.5	mg/L		0.5		E200.7	08/07/17 21:05 / eli-b
METALS, TOTAL								
1035	Mercury	ND	mg/L		0.0001	0.002	E245.1	08/08/17 12:26 / eli-b
INORGANIC COMPOUNDS								
1025	Fluoride	ND	mg/L		0.1	4	E300.0	08/04/17 03:49 / jcg
1074	Antimony	ND	mg/L		0.001	0.006	E200.8	08/07/17 20:43 / eli-b
1005	Arsenic	ND	mg/L		0.001	0.01	E200.8	08/07/17 20:43 / eli-b
1010	Barium	ND	mg/L		0.1	2	E200.8	08/07/17 20:43 / eli-b
1075	Beryllium	ND	mg/L		0.001	0.004	E200.8	08/07/17 20:43 / eli-b
1015	Cadmium	ND	mg/L		0.001	0.005	E200.8	08/07/17 20:43 / eli-b
1020	Chromium	ND	mg/L		0.05	0.1	E200.8	08/07/17 20:43 / eli-b
1036	Nickel	ND	mg/L		0.05	0.1	E200.8	08/07/17 20:43 / eli-b
1045	Selenium	ND	mg/L		0.001	0.05	E200.8	08/07/17 20:43 / eli-b
1085	Thallium	ND	mg/L		0.0004	0.002	E200.8	08/07/17 20:43 / eli-b
1024	Cyanide, Total	ND	mg/L		0.005	0.2	Kelada-01	08/07/17 11:16 / eli-b
VOLATILE ORGANIC COMPOUNDS								
2990	Benzene	ND	ug/L		0.50	5	E524.2	08/03/17 16:47 / dm
2993	Bromobenzene	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2430	Bromochloromethane	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2943	Bromodichloromethane	2.0	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2942	Bromoform	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2214	Bromomethane	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2422	n-Butylbenzene	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2428	sec-Butylbenzene	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2426	tert-Butylbenzene	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2982	Carbon tetrachloride	ND	ug/L		0.50	5	E524.2	08/03/17 16:47 / dm
2989	Chlorobenzene	ND	ug/L		0.50	100	E524.2	08/03/17 16:47 / dm
2944	Chlorodibromomethane	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2216	Chloroethane	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2941	Chloroform	21	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2210	Chloromethane	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2965	2-Chlorotoluene	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2966	4-Chlorotoluene	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level.
QCL - Quality control limit. ND - Not detected at the reporting limit.

Description of the Updated Water Treatment Plant

In 2009 the new microfiltration water treatment plant went online. The raw water is piped from the North Fork of the Encampment River. The water enters a sedimentation pond where the water is able to be stored and that is where the water enters through a screen and enters the water plant. There are 3 raw water pumps for redundancy these pumps running one at a time feed the 2 clarifiers within the treatment facility. T-Floc B- 135 is injected and rapid mixed prior to going into the clarifiers. Each clarifier holds approximately 15,000 gallons each clarifier. In the clarifiers there are slow mixers that create flocculation and the tube settlers inside the clarifiers help with sedimentation. The water is spilled over a weir that feeds the microfiltration skids, the membranes are a .1 micron. Only one skid is ran a day alternating days. The skids do a Maintenance wash every 24 hours of run time using sodium Hypochlorite. Before each skid starts up it performs a pressure decay test. Every 720 hours of run time a clean in place takes place with using Sodium Hypochlorite to clean the organic materials and another clean in place using Hydrochloric Acid to clean the inorganic materials. The skids are set at 200GPM, but is capable of running 450GPM if both skids were running at one time. The finished water is treated with chlorine gas before being dumped into the 10,000 gallon clear well. From the clear well there are 2 vertical turbine pumps, only one pump running at a time, that pump out of the clear well up to the water storage tanks having a max capacity of 629,000 gallons. From there it is gravity fed to town.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Encampment Town of
Client Sample ID: Water Treatment Plant-tap
PWS #: WY5600060 **Name:** ENCAMPMENT, TOWN OF
Facility ID: TP01
SamplingPoint/Location: SP01 / Water Treatment Plan
Project ID: WY5600060C
Collector's Name: Katrina Nuhn **Contact Phone #:** (307) 327-5501
Compliance Sample: YES **Sample Type:** RT

Lab ID: C17080086-001
Report Date: 08/18/17
Collection Date: 08/01/17 10:30
Date Received: 08/02/17
Matrix: Drinking Water
Federal ID#: WY00002

FRDS	Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS								
2218	Trichlorofluoromethane	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2414	1,2,3-Trichloropropane	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2950	Trihalomethanes, Total	23	ug/L		0.50	80	E524.2	08/03/17 16:47 / dm
2418	1,2,4-Trimethylbenzene	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2424	1,3,5-Trimethylbenzene	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2976	Vinyl chloride	ND	ug/L		0.50	2	E524.2	08/03/17 16:47 / dm
2963	m+p-Xylenes	0.96	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2997	o-Xylene	0.83	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2955	Xylenes, Total	1.8	ug/L		0.50	10000	E524.2	08/03/17 16:47 / dm
	Surr: p-Bromofluorobenzene	118	%REC			70-130	E524.2	08/03/17 16:47 / dm
	Surr: 1,2-Dichloroethane-d4	106	%REC			70-130	E524.2	08/03/17 16:47 / dm
	Surr: Toluene-d8	109	%REC			70-130	E524.2	08/03/17 16:47 / dm
SEMI-VOLATILE ORGANIC COMPOUNDS								
2051	Alachlor	ND	ug/L		0.10	2	E525.2	08/11/17 15:45 / eli-b
2356	Aldrin	ND	ug/L		0.10		E525.2	08/11/17 15:45 / eli-b
2388	Aroclor 1016	ND	ug/L		0.080		E525.2	08/11/17 15:45 / eli-b
2390	Aroclor 1221	ND	ug/L		2.0		E525.2	08/11/17 15:45 / eli-b
2392	Aroclor 1232	ND	ug/L		0.50		E525.2	08/11/17 15:45 / eli-b
2394	Aroclor 1242	ND	ug/L		0.30		E525.2	08/11/17 15:45 / eli-b
2396	Aroclor 1248	ND	ug/L		0.10		E525.2	08/11/17 15:45 / eli-b
2398	Aroclor 1254	ND	ug/L		0.10		E525.2	08/11/17 15:45 / eli-b
2400	Aroclor 1260	ND	ug/L		0.20		E525.2	08/11/17 15:45 / eli-b
2050	Atrazine	ND	ug/L		0.10	3	E525.2	08/11/17 15:45 / eli-b
2306	Benzo(a)pyrene	ND	ug/L		0.10	0.2	E525.2	08/11/17 15:45 / eli-b
2035	bis(2-ethylhexyl)Adipate	ND	ug/L		0.50	400	E525.2	08/11/17 15:45 / eli-b
2039	bis(2-ethylhexyl)Phthalate	ND	ug/L		2.0	6	E525.2	08/11/17 15:45 / eli-b
2076	Butachlor	ND	ug/L		0.10		E525.2	08/11/17 15:45 / eli-b
2959	Chlordane	ND	ug/L		1.0	2	E525.2	08/11/17 15:45 / eli-b
2070	Dieldrin	ND	ug/L		0.10		E525.2	08/11/17 15:45 / eli-b
2005	Endrin	ND	ug/L		0.10	2	E525.2	08/11/17 15:45 / eli-b
2010	gamma-BHC (Lindane)	ND	ug/L		0.10	0.2	E525.2	08/11/17 15:45 / eli-b
2065	Heptachlor	ND	ug/L		0.10	0.4	E525.2	08/11/17 15:45 / eli-b
2067	Heptachlor epoxide	ND	ug/L		0.10	0.2	E525.2	08/11/17 15:45 / eli-b
2274	Hexachlorobenzene	ND	ug/L		0.10	1	E525.2	08/11/17 15:45 / eli-b
2042	Hexachlorocyclopentadiene	ND	ug/L		0.10	50	E525.2	08/11/17 15:45 / 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

Prepared by Casper, WY Branch

Client: Encampment Town of
Client Sample ID: Water Treatment Plant-tap
PWS #: WY5600060 **Name:** ENCAMPMENT, TOWN OF
Facility ID: TP01
SamplingPoint/Location: SP01 / Water Treatment Plan
Project ID: WY5600060C
Collector's Name: Katrina Nuhn **Contact Phone #:** (307) 327-5501
Compliance Sample: YES **Sample Type:** RT

Lab ID: C17080086-001
Report Date: 08/18/17
Collection Date: 08/01/17 10:30
Date Received: 08/02/17
Matrix: Drinking Water
Federal ID#: WY00002

FRDS	Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS								
2015	Methoxychlor	ND	ug/L		0.10	40	E525.2	08/11/17 15:45 / eli-b
2045	Metolachlor	ND	ug/L		0.10		E525.2	08/11/17 15:45 / eli-b
2595	Metribuzin	ND	ug/L		0.10		E525.2	08/11/17 15:45 / eli-b
2077	Propachlor	ND	ug/L		0.10		E525.2	08/11/17 15:45 / eli-b
2037	Simazine	ND	ug/L		0.10	4	E525.2	08/11/17 15:45 / eli-b
2020	Toxaphene	ND	ug/L		2.0	3	E525.2	08/12/17 02:22 / eli-b
2383	PCBs, Total	ND	ug/L		0.50	0.5	E525.2	08/11/17 15:45 / eli-b
	Surr: 1,3-Dimethyl-2-nitrobenzene	87.0	%REC			70-130	E525.2	08/11/17 15:45 / eli-b
	Surr: Perylene-d12	95.0	%REC			70-130	E525.2	08/11/17 15:45 / eli-b
	Surr: Pyrene-d10	109	%REC			70-130	E525.2	08/11/17 15:45 / eli-b
	Surr: Triphenylphosphate	105	%REC			70-130	E525.2	08/11/17 15:45 / 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.

SEMI-VOLATILE ORGANIC COMPOUNDS								
2033	Endothall	ND	ug/L		8.0	100	E548.1	08/10/17 15:38 / eli-b
	Surr: 2,4-Dichlorophenylacetic acid	106	%REC			70-130	E548.1	08/10/17 15:38 / eli-b
PESTICIDES, BY HPLC								
2047	Aldicarb	ND	ug/L		0.40	3	E531.1	08/08/17 19:06 / blb
2044	Aldicarb sulfone	ND	ug/L		0.40	2	E531.1	08/08/17 19:06 / blb
2043	Aldicarb sulfoxide	ND	ug/L		0.40	4	E531.1	08/08/17 19:06 / blb
2021	Carbaryl	ND	ug/L		0.40		E531.1	08/08/17 19:06 / blb
2066	3-Hydroxycarbofuran	ND	ug/L		0.40		E531.1	08/08/17 19:06 / blb
2046	Carbofuran	ND	ug/L		0.40	40	E531.1	08/08/17 19:06 / blb
2024	Methiocarb	ND	ug/L		0.40		E531.1	08/08/17 19:06 / blb
2022	Methomyl	ND	ug/L		0.40		E531.1	08/08/17 19:06 / blb
2036	Oxamyl	ND	ug/L		0.40	200	E531.1	08/08/17 19:06 / blb
	Baygon	ND	ug/L		0.40		E531.1	08/08/17 19:06 / blb
	Surr: BDMC	86.0	%REC			70-130	E531.1	08/08/17 19:06 / blb
VOCS BY MICROEXTRACTION-ECD								
2414	1,2,3-Trichloropropane	ND	ug/L		0.050		E504.1	08/08/17 17:07 / eli-b
2931	1,2-Dibromo-3-chloropropane	ND	ug/L		0.020	0.2	E504.1	08/08/17 17:07 / eli-b
2946	1,2-Dibromoethane	ND	ug/L		0.010	0.05	E504.1	08/08/17 17:07 / eli-b
	Surr: 1,1,1,2-Tetrachloroethane	107	%REC			70-130	E504.1	08/08/17 17:07 / eli-b

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level.
QCL - Quality control limit. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Encampment Town of
Client Sample ID: Water Treatment Plant-tap
PWS #: WY5600060 **Name:** ENCAMPMENT, TOWN OF
Facility ID: TP01
SamplingPoint/Location: SP01 / Water Treatment Plan
Project ID: WY5600060C
Collector's Name: Katrina Nuhn **Contact Phone #:** (307) 327-5501
Compliance Sample: YES **Sample Type:** RT

Lab ID: C17080086-001
Report Date: 08/18/17
Collection Date: 08/01/17 10:30
Date Received: 08/02/17
Matrix: Drinking Water
Federal ID#: WY00002

FRDS	Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
HERBICIDES, BY HPLC								
2034	Glyphosate	ND	ug/L		5.0	700	E547	08/08/17 17:07 / blb
PESTICIDES								
2032	Diquat	ND	ug/L		0.40	20	E549.2	08/03/17 15:31 / blb
HERBICIDES								
2110	2,4,5-TP (Silvex)	ND	ug/L		0.25	50	E515.4	08/09/17 02:09 / eli-b
2105	2,4-D	ND	ug/L		1.0	70	E515.4	08/09/17 02:09 / eli-b
2106	2,4-DB	ND	ug/L		1.0		E515.4	08/09/17 02:09 / eli-b
2031	Dalapon	ND	ug/L		2.5	200	E515.4	08/09/17 02:09 / eli-b
2440	Dicamba	ND	ug/L		1.0		E515.4	08/09/17 02:09 / eli-b
2206	Dichlorprop	ND	ug/L		1.0		E515.4	08/09/17 02:09 / eli-b
2041	Dinoseb	ND	ug/L		1.0	7	E515.4	08/09/17 02:09 / eli-b
2326	Pentachlorophenol	ND	ug/L		0.10	1	E515.4	08/09/17 02:09 / eli-b
2040	Picloram	ND	ug/L		0.50	500	E515.4	08/09/17 02:09 / eli-b
	Surr: 2,4-Dichlorophenylacetic acid	103	%REC			70-130	E515.4	08/09/17 02:09 / 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

Prepared by Casper, WY Branch

Client: Encampment Town of
Client Sample ID: POE
PWS #: WY5600060 **Name:** ENCAMPMENT, TOWN OF
Facility ID: TP01
SamplingPoint/Location: SP01 / POE
Project ID: WY5600060C
Collector's Name: Katrina **Contact Phone #:** (307) 327-5501
Compliance Sample: YES **Sample Type:** RT

Lab ID: C18080219-002
Report Date: 08/16/18
Collection Date: 08/06/18 10:00
Date Received: 08/07/18
Matrix: Drinking Water
Federal ID#: WY00002

FRDS	Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS								
1052	Sodium	2.1	mg/L		0.5		E200.7	08/10/18 14:52 / eli-b
INORGANIC COMPOUNDS								
1025	Fluoride	0.1	mg/L		0.1	4	E300.0	08/10/18 00:01 / ljl
1074	Antimony	ND	mg/L		0.001	0.006	E200.8	08/10/18 17:15 / eli-b
1005	Arsenic	ND	mg/L		0.001	0.01	E200.8	08/10/18 17:15 / eli-b
1010	Barium	ND	mg/L		0.1	2	E200.8	08/10/18 17:15 / eli-b
1075	Beryllium	ND	mg/L		0.001	0.004	E200.7	08/10/18 14:52 / eli-b
1015	Cadmium	ND	mg/L		0.001	0.005	E200.8	08/10/18 17:15 / eli-b
1020	Chromium	ND	mg/L		0.05	0.1	E200.7	08/10/18 14:52 / eli-b
1035	Mercury	ND	mg/L		0.0001	0.002	E245.1	08/09/18 15:55 / eli-b
1036	Nickel	ND	mg/L		0.05	0.1	E200.7	08/10/18 14:52 / eli-b
1045	Selenium	ND	mg/L		0.001	0.05	E200.8	08/10/18 17:15 / eli-b
1085	Thallium	ND	mg/L		0.0004	0.002	E200.8	08/13/18 18:22 / eli-b
1024	Cyanide, Total	ND	mg/L		0.005	0.2	Kelada-01	08/09/18 11:55 / eli-b
VOLATILE ORGANIC COMPOUNDS								
2990	Benzene	ND	ug/L		0.50	5	E524.2	08/10/18 22:30 / dm
2993	Bromobenzene	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2430	Bromochloromethane	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2943	Bromodichloromethane	2.3	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2942	Bromoform	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2214	Bromomethane	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2422	n-Butylbenzene	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2428	sec-Butylbenzene	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2426	tert-Butylbenzene	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2982	Carbon tetrachloride	ND	ug/L		0.50	5	E524.2	08/10/18 22:30 / dm
2989	Chlorobenzene	ND	ug/L		0.50	100	E524.2	08/10/18 22:30 / dm
2944	Chlorodibromomethane	0.21	ug/L	J	0.50		E524.2	08/10/18 22:30 / dm
2216	Chloroethane	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2941	Chloroform	18	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2210	Chloromethane	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2965	2-Chlorotoluene	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2966	4-Chlorotoluene	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2931	1,2-Dibromo-3-chloropropane	ND	ug/L		1.0	0.2	E524.2	08/10/18 22:30 / dm
2408	Dibromomethane	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client: Encampment Town of
Client Sample ID: Water Treatment Plant-tap
PWS #: WY5600060 **Name:** ENCAMPMENT, TOWN OF
Facility ID: TP01
SamplingPoint/Location: SP01 / Water Treatment Plan
Project ID: WY5600060C
Collector's Name: Katrina Nuhn **Contact Phone #:** (307) 327-5501
Compliance Sample: YES **Sample Type:** RT

Lab ID: C17080086-001
Report Date: 08/18/17
Collection Date: 08/01/17 10:30
Date Received: 08/02/17
Matrix: Drinking Water
Federal ID#: WY00002

FRDS	Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS								
1052	Sodium	1.5	mg/L		0.5		E200.7	08/07/17 21:05 / eli-b
METALS, TOTAL								
1035	Mercury	ND	mg/L		0.0001	0.002	E245.1	08/08/17 12:26 / eli-b
INORGANIC COMPOUNDS								
1025	Fluoride	ND	mg/L		0.1	4	E300.0	08/04/17 03:49 / jcg
1074	Antimony	ND	mg/L		0.001	0.006	E200.8	08/07/17 20:43 / eli-b
1005	Arsenic	ND	mg/L		0.001	0.01	E200.8	08/07/17 20:43 / eli-b
1010	Barium	ND	mg/L		0.1	2	E200.8	08/07/17 20:43 / eli-b
1075	Beryllium	ND	mg/L		0.001	0.004	E200.8	08/07/17 20:43 / eli-b
1015	Cadmium	ND	mg/L		0.001	0.005	E200.8	08/07/17 20:43 / eli-b
1020	Chromium	ND	mg/L		0.05	0.1	E200.8	08/07/17 20:43 / eli-b
1036	Nickel	ND	mg/L		0.05	0.1	E200.8	08/07/17 20:43 / eli-b
1045	Selenium	ND	mg/L		0.001	0.05	E200.8	08/07/17 20:43 / eli-b
1085	Thallium	ND	mg/L		0.0004	0.002	E200.8	08/07/17 20:43 / eli-b
1024	Cyanide, Total	ND	mg/L		0.005	0.2	Kelada-01	08/07/17 11:16 / eli-b
VOLATILE ORGANIC COMPOUNDS								
2990	Benzene	ND	ug/L		0.50	5	E524.2	08/03/17 16:47 / dm
2993	Bromobenzene	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2430	Bromochloromethane	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2943	Bromodichloromethane	2.0	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2942	Bromoform	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2214	Bromomethane	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2422	n-Butylbenzene	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2428	sec-Butylbenzene	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2426	tert-Butylbenzene	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2982	Carbon tetrachloride	ND	ug/L		0.50	5	E524.2	08/03/17 16:47 / dm
2989	Chlorobenzene	ND	ug/L		0.50	100	E524.2	08/03/17 16:47 / dm
2944	Chlorodibromomethane	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2216	Chloroethane	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2941	Chloroform	21	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2210	Chloromethane	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2965	2-Chlorotoluene	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2966	4-Chlorotoluene	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm

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: Encampment Town of
Client Sample ID: Water Treatment Plant-tap
PWS #: WY5600060 **Name:** ENCAMPMENT, TOWN OF
Facility ID: TP01
SamplingPoint/Location: SP01 / Water Treatment Plan
Project ID: WY5600060C
Collector's Name: Katrina Nuhn **Contact Phone #:** (307) 327-5501
Compliance Sample: YES **Sample Type:** RT

Lab ID: C17080086-001
Report Date: 08/18/17
Collection Date: 08/01/17 10:30
Date Received: 08/02/17
Matrix: Drinking Water
Federal ID#: WY00002

FRDS	Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS								
2931	1,2-Dibromo-3-chloropropane	ND	ug/L		1.0	0.2	E524.2	08/03/17 16:47 / dm
2408	Dibromomethane	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2968	1,2-Dichlorobenzene	ND	ug/L		0.50	600	E524.2	08/03/17 16:47 / dm
2967	1,3-Dichlorobenzene	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2969	1,4-Dichlorobenzene	ND	ug/L		0.50	75	E524.2	08/03/17 16:47 / dm
2212	Dichlorodifluoromethane	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2978	1,1-Dichloroethane	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2980	1,2-Dichloroethane	ND	ug/L		0.50	5	E524.2	08/03/17 16:47 / dm
2946	1,2-Dibromoethane	ND	ug/L		0.50	0.05	E524.2	08/03/17 16:47 / dm
2977	1,1-Dichloroethene	ND	ug/L		0.50	7	E524.2	08/03/17 16:47 / dm
2380	cis-1,2-Dichloroethene	ND	ug/L		0.50	70	E524.2	08/03/17 16:47 / dm
2979	trans-1,2-Dichloroethene	ND	ug/L		0.50	100	E524.2	08/03/17 16:47 / dm
2983	1,2-Dichloropropane	ND	ug/L		0.50	5	E524.2	08/03/17 16:47 / dm
2412	1,3-Dichloropropane	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2416	2,2-Dichloropropane	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2410	1,1-Dichloropropene	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2413	cis-1,3-Dichloropropene	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2224	trans-1,3-Dichloropropene	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2992	Ethylbenzene	ND	ug/L		0.50	700	E524.2	08/03/17 16:47 / dm
2246	Hexachlorobutadiene	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2994	Isopropylbenzene	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2030	p-Isopropyltoluene	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2251	Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2964	Methylene chloride	ND	ug/L		0.50	5	E524.2	08/03/17 16:47 / dm
2248	Naphthalene	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2998	n-Propylbenzene	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2996	Styrene	ND	ug/L		0.50	100	E524.2	08/03/17 16:47 / dm
2986	1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2988	1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2987	Tetrachloroethene	ND	ug/L		0.50	5	E524.2	08/03/17 16:47 / dm
2991	Toluene	ND	ug/L		0.50	1000	E524.2	08/03/17 16:47 / dm
2420	1,2,3-Trichlorobenzene	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2378	1,2,4-Trichlorobenzene	ND	ug/L		0.50	70	E524.2	08/03/17 16:47 / dm
2981	1,1,1-Trichloroethane	ND	ug/L		0.50	200	E524.2	08/03/17 16:47 / dm
2985	1,1,2-Trichloroethane	ND	ug/L		0.50	5	E524.2	08/03/17 16:47 / dm
2984	Trichloroethene	ND	ug/L		0.50	5	E524.2	08/03/17 16:47 / dm

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level.
QCL - Quality control limit. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT
Prepared by Casper, WY Branch

Client: Encampment Town of
Client Sample ID: Water Treatment Plant-tap
PWS #: WY5600060 **Name:** ENCAMPMENT, TOWN OF
Facility ID: TP01
SamplingPoint/Location: SP01 / Water Treatment Plan
Project ID: WY5600060C
Collector's Name: Katrina Nuhn **Contact Phone #:** (307) 327-5501
Compliance Sample: YES **Sample Type:** RT

Lab ID: C17080086-001
Report Date: 08/18/17
Collection Date: 08/01/17 10:30
Date Received: 08/02/17
Matrix: Drinking Water
Federal ID#: WY00002

FRDS	Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS								
2218	Trichlorofluoromethane	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2414	1,2,3-Trichloropropane	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2950	Trihalomethanes, Total	23	ug/L		0.50	80	E524.2	08/03/17 16:47 / dm
2418	1,2,4-Trimethylbenzene	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2424	1,3,5-Trimethylbenzene	ND	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2976	Vinyl chloride	ND	ug/L		0.50	2	E524.2	08/03/17 16:47 / dm
2963	m+p-Xylenes	0.96	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2997	o-Xylene	0.83	ug/L		0.50		E524.2	08/03/17 16:47 / dm
2955	Xylenes, Total	1.8	ug/L		0.50	10000	E524.2	08/03/17 16:47 / dm
	Surr: p-Bromofluorobenzene	118	%REC			70-130	E524.2	08/03/17 16:47 / dm
	Surr: 1,2-Dichloroethane-d4	106	%REC			70-130	E524.2	08/03/17 16:47 / dm
	Surr: Toluene-d8	109	%REC			70-130	E524.2	08/03/17 16:47 / dm
SEMI-VOLATILE ORGANIC COMPOUNDS								
2051	Alachlor	ND	ug/L		0.10	2	E525.2	08/11/17 15:45 / eli-b
2356	Aldrin	ND	ug/L		0.10		E525.2	08/11/17 15:45 / eli-b
2388	Aroclor 1016	ND	ug/L		0.080		E525.2	08/11/17 15:45 / eli-b
2390	Aroclor 1221	ND	ug/L		2.0		E525.2	08/11/17 15:45 / eli-b
2392	Aroclor 1232	ND	ug/L		0.50		E525.2	08/11/17 15:45 / eli-b
2394	Aroclor 1242	ND	ug/L		0.30		E525.2	08/11/17 15:45 / eli-b
2396	Aroclor 1248	ND	ug/L		0.10		E525.2	08/11/17 15:45 / eli-b
2398	Aroclor 1254	ND	ug/L		0.10		E525.2	08/11/17 15:45 / eli-b
2400	Aroclor 1260	ND	ug/L		0.20		E525.2	08/11/17 15:45 / eli-b
2050	Atrazine	ND	ug/L		0.10	3	E525.2	08/11/17 15:45 / eli-b
2306	Benzo(a)pyrene	ND	ug/L		0.10	0.2	E525.2	08/11/17 15:45 / eli-b
2035	bis(2-ethylhexyl)Adipate	ND	ug/L		0.50	400	E525.2	08/11/17 15:45 / eli-b
2039	bis(2-ethylhexyl)Phthalate	ND	ug/L		2.0	6	E525.2	08/11/17 15:45 / eli-b
2076	Butachlor	ND	ug/L		0.10		E525.2	08/11/17 15:45 / eli-b
2959	Chlordane	ND	ug/L		1.0	2	E525.2	08/11/17 15:45 / eli-b
2070	Dieldrin	ND	ug/L		0.10		E525.2	08/11/17 15:45 / eli-b
2005	Endrin	ND	ug/L		0.10	2	E525.2	08/11/17 15:45 / eli-b
2010	gamma-BHC (Lindane)	ND	ug/L		0.10	0.2	E525.2	08/11/17 15:45 / eli-b
2065	Heptachlor	ND	ug/L		0.10	0.4	E525.2	08/11/17 15:45 / eli-b
2067	Heptachlor epoxide	ND	ug/L		0.10	0.2	E525.2	08/11/17 15:45 / eli-b
2274	Hexachlorobenzene	ND	ug/L		0.10	1	E525.2	08/11/17 15:45 / eli-b
2042	Hexachlorocyclopentadiene	ND	ug/L		0.10	50	E525.2	08/11/17 15:45 / 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
Prepared by Casper, WY Branch

Client: Encampment Town of
Client Sample ID: POE
PWS #: WY5600060 **Name:** ENCAMPMENT, TOWN OF
Facility ID: TP01
SamplingPoint/Location: SP01 / POE
Project ID: WY5600060C
Collector's Name: Katrina **Contact Phone #:** (307) 327-5501
Compliance Sample: YES **Sample Type:** RT

Lab ID: C18080219-002
Report Date: 08/16/18
Collection Date: 08/06/18 10:00
Date Received: 08/07/18
Matrix: Drinking Water
Federal ID#: WY00002

FRDS	Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
MAJOR IONS								
1052	Sodium	2.1	mg/L		0.5		E200.7	08/10/18 14:52 / eli-b
INORGANIC COMPOUNDS								
1025	Fluoride	0.1	mg/L		0.1	4	E300.0	08/10/18 00:01 / ljl
1074	Antimony	ND	mg/L		0.001	0.006	E200.8	08/10/18 17:15 / eli-b
1005	Arsenic	ND	mg/L		0.001	0.01	E200.8	08/10/18 17:15 / eli-b
1010	Barium	ND	mg/L		0.1	2	E200.8	08/10/18 17:15 / eli-b
1075	Beryllium	ND	mg/L		0.001	0.004	E200.7	08/10/18 14:52 / eli-b
1015	Cadmium	ND	mg/L		0.001	0.005	E200.8	08/10/18 17:15 / eli-b
1020	Chromium	ND	mg/L		0.05	0.1	E200.7	08/10/18 14:52 / eli-b
1035	Mercury	ND	mg/L		0.0001	0.002	E245.1	08/09/18 15:55 / eli-b
1036	Nickel	ND	mg/L		0.05	0.1	E200.7	08/10/18 14:52 / eli-b
1045	Selenium	ND	mg/L		0.001	0.05	E200.8	08/10/18 17:15 / eli-b
1085	Thallium	ND	mg/L		0.0004	0.002	E200.8	08/13/18 18:22 / eli-b
1024	Cyanide, Total	ND	mg/L		0.005	0.2	Kelada-01	08/09/18 11:55 / eli-b
VOLATILE ORGANIC COMPOUNDS								
2990	Benzene	ND	ug/L		0.50	5	E524.2	08/10/18 22:30 / dm
2993	Bromobenzene	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2430	Bromochloromethane	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2943	Bromodichloromethane	2.3	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2942	Bromoform	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2214	Bromomethane	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2422	n-Butylbenzene	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2428	sec-Butylbenzene	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2426	tert-Butylbenzene	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2982	Carbon tetrachloride	ND	ug/L		0.50	5	E524.2	08/10/18 22:30 / dm
2989	Chlorobenzene	ND	ug/L		0.50	100	E524.2	08/10/18 22:30 / dm
2944	Chlorodibromomethane	0.21	ug/L	J	0.50		E524.2	08/10/18 22:30 / dm
2216	Chloroethane	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2941	Chloroform	18	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2210	Chloromethane	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2965	2-Chlorotoluene	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2966	4-Chlorotoluene	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2931	1,2-Dibromo-3-chloropropane	ND	ug/L		1.0	0.2	E524.2	08/10/18 22:30 / dm
2408	Dibromomethane	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT
Prepared by Casper, WY Branch

Client: Encampment Town of
Client Sample ID: POE
PWS #: WY5600060 **Name:** ENCAMPMENT, TOWN OF
Facility ID: TP01
SamplingPoint/Location: SP01 / POE
Project ID: WY5600060C
Collector's Name: Katrina **Contact Phone #:** (307) 327-5501
Compliance Sample: YES **Sample Type:** RT

Lab ID: C18080219-002
Report Date: 08/16/18
Collection Date: 08/06/18 10:00
Date Received: 08/07/18
Matrix: Drinking Water
Federal ID#: WY00002

FRDS	Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
	VOLATILE ORGANIC COMPOUNDS							
2968	1,2-Dichlorobenzene	ND	ug/L		0.50	600	E524.2	08/10/18 22:30 / dm
2967	1,3-Dichlorobenzene	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2969	1,4-Dichlorobenzene	ND	ug/L		0.50	75	E524.2	08/10/18 22:30 / dm
2212	Dichlorodifluoromethane	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2978	1,1-Dichloroethane	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2980	1,2-Dichloroethane	ND	ug/L		0.50	5	E524.2	08/10/18 22:30 / dm
2946	1,2-Dibromoethane	ND	ug/L		0.50	0.05	E524.2	08/10/18 22:30 / dm
2977	1,1-Dichloroethene	ND	ug/L		0.50	7	E524.2	08/10/18 22:30 / dm
2380	cis-1,2-Dichloroethene	ND	ug/L		0.50	70	E524.2	08/10/18 22:30 / dm
2979	trans-1,2-Dichloroethene	ND	ug/L		0.50	100	E524.2	08/10/18 22:30 / dm
2983	1,2-Dichloropropane	ND	ug/L		0.50	5	E524.2	08/10/18 22:30 / dm
2412	1,3-Dichloropropane	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2416	2,2-Dichloropropane	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2410	1,1-Dichloropropene	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2413	cis-1,3-Dichloropropene	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2224	trans-1,3-Dichloropropene	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2992	Ethylbenzene	0.16	ug/L	J	0.50	700	E524.2	08/10/18 22:30 / dm
2246	Hexachlorobutadiene	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2994	Isopropylbenzene	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2030	p-Isopropyltoluene	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2251	Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2964	Methylene chloride	ND	ug/L		0.50	5	E524.2	08/10/18 22:30 / dm
2248	Naphthalene	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2998	n-Propylbenzene	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2996	Styrene	ND	ug/L		0.50	100	E524.2	08/10/18 22:30 / dm
2986	1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2988	1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2987	Tetrachloroethene	ND	ug/L		0.50	5	E524.2	08/10/18 22:30 / dm
2991	Toluene	0.16	ug/L	J	0.50	1000	E524.2	08/10/18 22:30 / dm
2420	1,2,3-Trichlorobenzene	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2378	1,2,4-Trichlorobenzene	ND	ug/L		0.50	70	E524.2	08/10/18 22:30 / dm
2981	1,1,1-Trichloroethane	ND	ug/L		0.50	200	E524.2	08/10/18 22:30 / dm
2985	1,1,2-Trichloroethane	ND	ug/L		0.50	5	E524.2	08/10/18 22:30 / dm
2984	Trichloroethene	ND	ug/L		0.50	5	E524.2	08/10/18 22:30 / dm
2218	Trichlorofluoromethane	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2414	1,2,3-Trichloropropane	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT
Prepared by Casper, WY Branch

Client: Encampment Town of
Client Sample ID: POE
PWS #: WY5600060 **Name:** ENCAMPMENT, TOWN OF
Facility ID: TP01
SamplingPoint/Location: SP01 / POE
Project ID: WY5600060C
Collector's Name: Katrina **Contact Phone #:** (307) 327-5501
Compliance Sample: YES **Sample Type:** RT

Lab ID: C18080219-002
Report Date: 08/16/18
Collection Date: 08/06/18 10:00
Date Received: 08/07/18
Matrix: Drinking Water
Federal ID#: WY00002

FRDS	Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS								
2950	Trihalomethanes, Total	20	ug/L		0.50	80	E524.2	08/10/18 22:30 / dm
2418	1,2,4-Trimethylbenzene	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2424	1,3,5-Trimethylbenzene	ND	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2976	Vinyl chloride	ND	ug/L		0.50	2	E524.2	08/10/18 22:30 / dm
2963	m+p-Xylenes	0.78	ug/L		0.50		E524.2	08/10/18 22:30 / dm
2997	o-Xylene	0.37	ug/L	J	0.50		E524.2	08/10/18 22:30 / dm
2955	Xylenes, Total	1.2	ug/L		0.50	10000	E524.2	08/10/18 22:30 / dm
	Surr: p-Bromofluorobenzene	106	%REC			70-130	E524.2	08/10/18 22:30 / dm
	Surr: 1,2-Dichloroethane-d4	94.0	%REC			70-130	E524.2	08/10/18 22:30 / dm
	Surr: Toluene-d8	99.0	%REC			70-130	E524.2	08/10/18 22:30 / dm

Report Definitions:
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MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

AGREEMENT BETWEEN THE
SIERRA MADRE WATER AND SEWER JOINT POWERS BOARD
AND THE TOWN OF ENCAMPMENT, WYOMING

This Agreement is authorized under the Wyoming Homeland Securities Act, Wyoming Statute §19-13-109 which requires that local coordinators in collaboration with other public and private agencies within this state develop mutual aid arrangements for aid and assistance in case of disaster of extreme nature or that which is too great to be dealt with unassisted.

1. **Parties.** This Agreement (hereinafter referred to as "Agreement") is made and entered into by and between the Sierra Madre Water and Sewer Joint Powers Board (hereinafter referred to as "SMWSJBP"), whose address is, P.O. Box 263, Riverside, Wyoming 82325 and the Town of Encampment (hereinafter referred to as "Encampment"), whose address is P.O. Box 5, Encampment, Wyoming 82325.

2. **Purpose.** The purpose of this Agreement is to establish the terms and conditions under which either party may activate and utilize an Emergency Water Service Connection established between the participating parties.

3. **Definitions.**

A. Authorized Official: An employee(s) or official of a participating member that is authorized by the governing board or board of directors to
a. Request Assistance;
b. Offer assistance;
c. Refuse to offer assistance; or
d. withdraw assistance.

B. Emergency: A natural or manmade event that is, or is likely to be, too great to deal with by the services, personnel, equipment and facilities of a Water Utility without assistance.

C. Member: Either party as identified in item 1 of this Agreement.

D. Period of Assistance: A specified period of time when a Responding Member assists a Requesting Member. This period commences when personnel and/or equipment are activated for use by the Responding Member's facilities and ends when personnel or equipment are deactivated. The specified Period of Assistance may occur during response to or recovery from an Emergency.

E. Requesting Member: The Member who requests assistance under this Agreement.

F. Responding Member: The Member that responds to a request for assistance under this agreement.

4. **Term of Agreement**. This Agreement is effective upon the day and date last signed and executed by the duly authorized representatives of the parties to this Agreement and shall remain in full force and effect until termination.

5. **Cost.** Unless otherwise mutually agreed upon in whole or in part the Requesting Member will reimburse the Responding Member for any costs related to personnel and equipment not ordinarily incurred for the operation of their water utility at the rate established at the time of the incident. Terms of payment shall be mutually agreed upon and fairly and equitably reflect a direct relationship to actual costs incurred for production of water at the time of the Emergency. The Responding Member must provide the Requesting Member an itemized bill not later than sixty (60) days following the period of assistance and the Requesting Member must pay the bill in full before the forty-fifth (45^{th}) day following the billing date. Once delinquent the Responding Member may charge interest in accordance with applicable Wyoming law.

6. **Responsibilities of the Sierra Madre Water and Sewer Joint Powers Board.** The SMWSJPB shall be responsible for care and maintenance of the infrastructure within their water utility distribution system.

7. **Responsibilities of the Town of Encampment.** The Town of Encampment shall be responsible for the care and maintenance of the infrastructure within their water utility system.

8. **General Provisions.**

A. Amendments. Either party to this Agreement may request changes to this Agreement. Any changes, modifications, revisions or amendments to this Agreement which are mutually agreed upon by and between the parties to this Agreement shall be incorporated by written instrument, and effective when executed and signed by all parties to this Agreement.

B. Applicable Law. The construction, interpretation and enforcement of this Agreement shall be governed by the laws of the State of Wyoming. The courts of the State of Wyoming shall have jurisdiction over any action arising out of this Agreement and over the parties, and the venue shall be the Second Judicial District, Carbon County, Wyoming.

C. Authority to Activate Emergency Water Service Connection. The Authority to activate the Emergency Water Service Connection rests with the highest elected or appointed official on each respective board by mutual consent. Terms of use must be mutually agreed upon prior to activation unless the need is so immediate as to warrant loss of life due to fire or other catastrophic event affected by the Requesting Members water system.

D. Entirety of Agreement. This Agreement, consisting of four (4) pages, represents the entire and integrated agreement between the parties and supersedes all prior negotiations, representations and agreements, whether written or oral.

E. Liability. A Member who receives and provides assistance will assume the risk of any liability arising from its own gross negligence or willful misconduct. A Member who receives and/or provides assistance does not agree to insure, defend or indemnify any other Members. Governmental entities do not waive defenses available to it under the Governmental Claims Act. Participation in the Agreement shall not in any way be deemed to enlarge the liability of any Member.

F. Personnel. Responding and Requesting Member personnel will remain under the direction and control of their respective governing body or board.

G. Requests for Assistance. A request for assistance may be made orally or in writing. When made orally, the request will be prepared in writing as soon as practicable. The Requesting Member will provide the following information when making a request for assistance:

1. A general statement of purpose for the need.
2. The part of the system or portion of population that will be served by the need.
3. A reasonable estimate of the length of time the service will be needed.
4. A general description of each party's role during the event.
5. Beginning meter reading for meter check valve prior to activation.

H. Response to Request for Assistance. A response to a request for assistance will be prepared in writing as soon as practicable. The Responding Member will provide the following information:

1. Disclosure of any service limitations, special constraints or conservation requirements during term of use.
2. Cost per 1,000 gallons of water used based on system costs at time of event.
3. Agreement or requested modification to general description of each party's role as Requesting Member has noted in the Request for Assistance.

I. Operation and Maintenance. The Operation and Maintenance of the meter and valve system housed in Encampment will be the sole responsibility of the Town of Encampment per procedures outlined in the Operations Manual. SMWSJPB will be granted access to the facility as needed for meter reading and any necessary operational functions during operation of the system.

J. Right to Withdraw. The Responding Members Authorized Official retains the right to withdraw in part or in its entirety, the provided resource at any time. Notice of intention to withdraw must be communicated to the Requesting Members Authorized Official as soon as possible.

K. Severability. The Member agrees that if any term or provision in this Agreement is declared by a court of competent jurisdiction to be illegal or in conflict

with any law, the validity of the remaining terms and provisions will not be affected, and the rights and obligations on the Members will be construed and enforced as if the Agreement did not contain the particular term or provision held to be invalid.

L. Sovereign Immunity. A Member does not waive its governmental or sovereign immunity as provided by applicable law, including Wyoming Statute §1-39-101. A Member retains all immunities and defenses as provided by law with regard to any action, whether in tort, or by contract or any theory of law based in this Agreement.

M. Third Party Beneficiary Rights. This Agreement is for the sole benefit of the Members. No person or entity will have any rights under this Agreement as a third-party beneficiary.

N. Notification of Applicable Agencies. Upon activation of the system the Requesting Member shall notify the Wyoming State Engineers Office and other applicable agencies.

9. This Agreement is intended to provide an emergency short term solution for potable water for human consumption only until a long-term solution can be put in place. All parties shall enter into this Agreement with the understanding that the capabilities and performance of each water utility system must be kept in mind and that agreed upon solutions are not to exceed beyond the temporary provisions of this agreement. This temporary solution may be extended as needed until a long term solution is viable and at that time.

IN WITNESS WHEREOF, the parties to this Agreement through their duly authorized representatives have executed this Agreement on the days and dates set out below, and certify that they have read, understood, and agreed to the terms and conditions of this Agreement as set forth herein.

Dated this 31st Day of Dec, 2012.

Dan Jago, Chair
Sierra Madre Water and Sewer
Joint Powers Board

Greg Salisbury, Mayor
Town of Encampment

Attest: Alyson Sneddon
Alyson Sneddon, Clerk

Attest: Doreen Harvey
Doreen Harvey, CMC
Clerk/Treasurer

68

2/7/1

Completed

Cert. Record 42 P. 493 Ac. 6 c.f.s.

Application for a Permit to Divert and

Proof submitted.

APR 1922

Water Division No. 1 District No.

I, F. J. Cramer, of Encampment, County of Carbon, State of Wyoming, being duly sworn according to law, upon my oath say:

1. The name of the applicant is The Grand Encampment Town Co, a corporation by W. G Emerson, the Pres. and W. C. Henry, the Secty.

2. The post-office address of the applicant is Encampment, Wyo.

3. The use to which the water is to be applied is Townsite purposes for town of Grand Encampment and for mining and milling purposes.

4. The name of the ditch or canal is "The Grand Encampment Ditch"

5. The source of the proposed appropriation is the North Fork of Grand Encampment Creek

6. The headgate of the proposed ditch or canal is located on the left bank of the N. Fork of Grand Encampment Creek at a point which bears S 48° 57' W 1665 ft. from the N. E. Corner Section 15, Township 14 N, Range 84 W

7. The said ditch or canal is to be 2.49/100 miles long and to pass through the following lands (give route by courses and distances, or by naming legal subdivisions crossed):

NE¼ NE¼ sec 15: SE¼ SE¼ SE¼ sec 10: W½ and NE¼ sec 11: SE¼ sec 2 twp 14. N. R 84 W. Thence by pipe line 5400 ft. in length passing through the S½ of sec 2. twp 14 N. R. 84 W. to a point whence the SE cor. of sec 11 twp 14. N Range 84 W bears S 6° 32' W 2138 ft.

8. The dimensions of said works are: (a) [At headgate] width on top (at water-line) 5 feet; width on bottom 2 feet; depth of water 3 feet; grade 21½ feet per mile.

(b) Give dimensions at each point where reduced in size, stating miles from head-gate:

[At] width on top (at water-line) ft.; width on bottom ft.; depth of water ft.; grade ft. per mile.

[At] width on top (at water-line) ft.; width on bottom ft.; depth of water ft.; grade ft. per mile.

[At] width on top (at water-line) ft.; width on bottom ft.; depth of water ft.; grade ft. per mile.

9. Describe the character of proposed works, stating: 1st. The nature of material to be moved. 2nd. Number and length of tunnels, if any. 3rd. Amount of fluming, if any.

10,000 cu. yds. Earth and solid rock
140 ft Fluming
5400 Allen Patent Wooden Pipe

10. The estimated cost of said ditch is 22.700 dollars.

11. The land to be irrigated has a total area of acres, described as follows:

(Give estimated acreage in fractions of subdivisions:)

Townsite purposes for the town of Grand Encampment and for mining and milling purposes.

12. Construction will begin on proposed works on or before Sept 1st, 1900

13. The time required for the completion of ditches and other distributing works is 1 year from Sept 1st, 1900

14. The time required to complete the application of water to the beneficial use stated in this application is 1 year from Sept. 1st, 1900

15. A map of the proposed ditch or canal, prepared in accordance with Chapter 45, Session Laws of 1895, accompanies this application.

Signed: F. J. Cramer.

NOTE.—The statements in the foregoing application must comply with the requirements of Chap. 45, Session Laws of 1895.

Appropriate the Water of the State of Wyoming.

THE STATE OF WYOMING,
COUNTY OF Laramie } ss.

I hereby certify that the foregoing application was signed in my presence and sworn to before me by J. J. Cramer this 23rd day of July, 1900

Fred Bond
Prest Board of Control

For assignment to Frambach Water Works Co. See Book 7, Misc. Records, pages 70 etal

For assignment to Edmund T. Richardson. See Book 7, Misc. Records. pages 72 etal.

For assignment to Encampment Water Works Co. See Book 7, Misc. Records, page 75 etal.

For agreement between North Fork Water Works Co. and Union Pacific Railroad Co. See Book 7, Misc. Records, page 95.

Verbal notice of completion of ditch recd from B W McCaffrey Feb 1 - 1902

Fred Bond
State Engineer

THE STATE OF WYOMING,
STATE ENGINEER'S OFFICE. } ss.

This is to certify that I have examined the foregoing application and have returned the same without my approval for the following reasons: .....

Witness my hand this ..... day of ....., A. D. 1.....

State Engineer.

THE STATE OF WYOMING,
STATE ENGINEER'S OFFICE. } ss.

This is to certify that I have examined the foregoing application and do hereby grant the same subject to the following limitations and conditions:

Construction of proposed work shall begin within one year from date of approval.

The time for completing the work shall terminate on ~~December 31~~, Sept. 1st - 1901

The time for completing the appropriation of water for beneficial use shall terminate on December 31, 1901

The amount of the appropriation shall be limited to ~~one cubic foot per second of time for each seventy acres of land reclaimed on or before December 31, 1~~, ~~and the additional~~ volume used for townsite, mining & milling purposes on or before said date.

Witness my hand this 27th day of July, A. D. 1900

Fred Bond.
State Engineer.

THE STATE OF WYOMING,
STATE ENGINEER'S OFFICE. } ss.

This instrument was received and filed for record on the 28th day of July, A. D. 1900, at 1:30 o'clock P. M., and duly recorded in Book 12 of Applications on Page 68

Fred Bond.
State Engineer.

Town of Encampment Source Water Protection Plan Meeting
Tuesday, September 17th
6:00-8:00 pm, Encampment Town Hall

I. **Welcome**
   a. **Introductions**
   b. **Purpose**
      i. Protect Source Water
      ii. Form Steering Committee

II. **Present Current Source Water Data**

III. **Definition of Recharge Zones**
   a. **Zone Definition**
   b. **Zone 3**
   c. **Zone 2**
   d. **Zone 1**

IV. **Risks**
   a. **Fire**
   b. **Logging**
   c. **Pesticides**
   d. **Transportation**
   e. **Other**

V. **Mitigation**
   a. **What are methods and practices that stakeholders can do to ensure high quality water?**

VI. **Discussion and Comments**

Town of Encampment Source Water Protection Workshop
Tuesday, September 17, 2019 6:00-8:00 PM
Encampment Town Hall

Name	Representing	Contact information	Comments/Steering
Maggie Reilly			
Jay Stull		jgstull@union-tel.com	
Kim Loftice		kimberlyloftice@yahoo.com	
STACY CRIMMINS	S/PV CHAMBER	director@saratogachamber.info	
STAS BANACH		stanbanach99@hotmail.com	
LARRY SALISBURY	ENCAMPMENT		
Vicki Loftice	self		
Jeb Steward	self	jebsteward@union-tel.com	
Shannon Cosgrove	Encampment	sfagan05@gmail.com	
Alyson Sheddon	Encampment	alysonsheddon@msn.com	
Katrina Nuhn	Encampment	encpw@union-tel.com	307-710-0106
Bob Rossheering	self	Jrobrossheering@gmail	steering (Bob)
Jason Armbruster	USFS	jason.m.armbruster@usda.gov	yes
Dave Gloss	USFS	dave.gloss@usda.gov	
SID FOX	CARBON CO	sidneyfox@CARBONWY.com	

Jack H

Town of Encampment Source Water Protection Workshop
Tuesday, September 17, 2019 6:00-8:00 PM
Encampment Town Hall

Name	Representing	Contact information	Comments/Steering
MARK HELWICK	SELF/Resident	markhelwick@HOTMAIL.NET Riverside	
Leanne Correll	SER Conservation District	leannecorrell@gmail.com	Willing to be on steering committee if you wish
RALPH TARANGO	WYDOT	ralph.tarango@wyo.gov	
Billy Zeiger	WyDot	Billy.Zeiger@wyo.gov	
Robert E. Kelly	?	REKelly@cowboypower.NET	X
John Christopher	Carbon County Roadbridge		

Wyoming Rural Water

PO Box 1750 - Glenrock, WY 82637
Web Site: www.warws.com & Email: warws@warws.com
"An equal opportunity provider"
307-436-8636
TDD 1-800-877-9965

Annette Treat
Project Coordinator
BLM Rawlins Field Office
PO Box 2407
Rawlins, WY 82301

RE: Source Water Protection Workshop September 17, at 7:00 pm at the Encampment Town Hall

Annette, the Town of Encampment has contacted me to assist with a Source Water Protection Plan. They would like to proactively address maintaining the quality of their watershed through planning and coordination with multiple agencies as well as address potential landowner issues before problems arise. Often, starting these conversations early, coupled with good stewardship can help avoid costly remediation and potential regulations in the future.

The purpose of the workshop on September 17, 2019 is to gather stakeholders within the watershed to review the both the Source Water Assessment that was completed by Lidstone and Associates in June 2004 as well as the Source Water Protection Plan that the Town had completed in 2006. Because Encampment is a surface water system, the major focus will be Zone 2 which is a 1000' buffer on both sides of the upstream river for 15 miles. Topics we will discuss will include a review of Zones 2&3, potential sources of contaminations within the zones and those stakeholders who might have oversight, ideas and voluntary measures that may be implemented to mitigate contamination of the watershed. Also, we will discuss methods of educating the public about the importance of protecting the watershed through multiple educational venues.

Because of the water supply amendment to the Rawlins Field Office Resource Management Plan, it would be beneficial to have a representative from the BLM to provide possible implementation strategies to combat potential contamination sources. I believe the focus in general will be Best Management Practices, coupled with those from the USFS Land and Resource Management Plan for the Medicine Bow Forest.

If you have any questions, or ideas that you would like included, please contact me at 307-259-8239 or mchristopher@warws.com. I look forward to seeing you there!

Respectfully,

Michelle Christopher
Source Water Protection Specialist

Wyoming Rural Water

PO Box 1750 - Glenrock, WY 82637
Web Site: www.warws.com & Email: warws@warws.com
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TDD 1-800-877-9965

Kandis Fritz
Road and Bridge Supervisor
Carbon County
PO Box 487
Rawlins, WY 82301

RE: Source Water Protection Workshop September 17, at 7:00 pm at the Encampment Town Hall

Kandis, the Town of Encampment has contacted me to assist with a Source Water Protection Plan. They would like to proactively address maintaining the quality of their watershed through planning and coordination with multiple agencies as well as address potential landowner issues before problems arise. Often, starting these conversations early, coupled with good stewardship can help avoid costly remediation and potential regulations in the future.

The purpose of the workshop on September 17, 2019 is to gather stakeholders within the watershed to review the both the Source Water Assessment that was completed by Lidstone and Associates in June 2004 as well as the Source Water Protection Plan that the Town had completed in 2006. Because Encampment is a surface water system, the major focus will be Zone 2 which is a 1000' buffer on both sides of the upstream river for 15 miles. Topics we will discuss will include a review of Zones 2&3, potential sources of contaminations within the zones and those stakeholders who might have oversight, ideas and voluntary measures that may be implemented to mitigate contamination of the watershed. Also, we will discuss methods of educating the public about the importance of protecting the watershed through multiple educational venues.

Because the transportation corridors through the recharge area, Carbon County Road and Bridge is a key stakeholder in helping identify probable risks and coordinating any spill remediation or other activities that could compromise the Encampment source water.

If you have any questions, or ideas that you would like included, please contact me at 307-259-8239 or mchristopher@warws.com. I look forward to seeing you there!

Respectfully,

Michelle Christopher
Source Water Protection Specialist

Wyoming Rural Water

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Web Site: www.warws.com & Email: warws@warws.com
"An equal opportunity provider"
307-436-8636
TDD 1-800-877-9965

Reese Irving
Carbon County Weed and Pest
1301 Bonanza St
Rawlins, WY 82301

RE: Source Water Protection Workshop September 17, at 7:00 pm at the Encampment Town Hall

Reese, the Town of Encampment has contacted me to assist with a Source Water Protection Plan. They would like to proactively address maintaining the quality of their watershed through planning and coordination with multiple agencies as well as address potential landowner issues before problems arise. Often, starting these conversations early, coupled with good stewardship can help avoid costly remediation and potential regulations in the future.

The purpose of the workshop on September 17, 2019 is to gather stakeholders within the watershed to review the both the Source Water Assessment that was completed by Lidstone and Associates in June 2004 as well as the Source Water Protection Plan that the Town had completed in 2006. Because Encampment is a surface water system, the major focus will be Zone 2 which is a 1000' buffer on both sides of the upstream river for 15 miles. Topics we will discuss will include a review of Zones 2&3, potential sources of contaminations within the zones and those stakeholders who might have oversight, ideas and voluntary measures that may be implemented to mitigate contamination of the watershed. Also, we will discuss methods of educating the public about the importance of protecting the watershed through multiple educational venues.

Because of your extensive work in coordinating activities with local landowners and land management agencies, it would be highly beneficial if you could attend. I believe the focus will be Best Management Practices in agriculture, but development, fire mitigation and pesticide applications may also be considered.

If you have any questions, or ideas that you would like included, please contact me at 307-259-8239 or mchristopher@warws.com. I look forward to seeing you there!

Respectfully,

Michelle Christopher
Source Water Protection Specialist

PO Box 1750 - Glenrock, WY 82637
Web Site: www.warws.com & Email: warws@warws.com
"An equal opportunity provider"
307-436-8636
TDD 1-800-877-9965

Sheryl Hunter
Carbon County FSA
PO Box 607
Saratoga, WY 82331

RE: Source Water Protection Workshop September 17, at 7:00 pm at the Encampment Town Hall

Sheryl, the Town of Encampment has contacted me to assist with a Source Water Protection Plan. They would like to proactively address maintaining the quality of their watershed through planning and coordination with multiple agencies as well as address potential landowner issues before problems arise. Often, starting these conversations early, coupled with good stewardship can help avoid costly remediation and potential regulations in the future.

The purpose of the workshop on September 17, 2019 is to gather stakeholders within the watershed to review the both the Source Water Assessment that was completed by Lidstone and Associates in June 2004 as well as the Source Water Protection Plan that the Town had completed in 2006. Because Encampment is a surface water system, the major focus will be Zone 2 which is a 1000' buffer on both sides of the upstream river for 15 miles. Topics we will discuss will include a review of Zones 2&3, potential sources of contaminations within the zones and those stakeholders who might have oversight, ideas and voluntary measures that may be implemented to mitigate contamination of the watershed. Also, we will discuss methods of educating the public about the importance of protecting the watershed through multiple educational venues.

I hope that there will be positive public participation as well as good interaction from the land management agencies so that we can sort through the most probable risks to Encampment's source water and develop strategies to protect its most valuable asset.

If you have any questions, or ideas that you would like included, please contact me at 307-259-8239 or mchristopher@warws.com. I look forward to seeing you there!

Respectfully,

Michelle Christopher
Source Water Protection Specialist

Wyoming Rural Water

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307-436-8636
TDD 1-800-877-9965

Kim Parker
Source Water Protection
Wyoming Department of Environmental Quality
Cheyenne, WY 82001

RE: Source Water Protection Workshop September 17, at 7:00 pm at the Encampment Town Hall

Kim, the Town of Encampment has contacted me to assist with a Source Water Protection Plan. They would like to proactively address maintaining the quality of their watershed through planning and coordination with multiple agencies as well as address potential landowner issues before problems arise. Often, starting these conversations early, coupled with good stewardship can help avoid costly remediation and potential regulations in the future.

The purpose of the workshop on September 17, 2019 is to gather stakeholders within the watershed to review the both the Source Water Assessment that was completed by Lidstone and Associates in June 2004 as well as the Source Water Protection Plan that the Town had completed in 2006. Because Encampment is a surface water system, the major focus will be Zone 2 which is a 1000' buffer on both sides of the upstream river for 15 miles. Topics we will discuss will include a review of Zones 2&3, potential sources of contaminations within the zones and those stakeholders who might have oversight, ideas and voluntary measures that may be implemented to mitigate contamination of the watershed. Also, we will discuss methods of educating the public about the importance of protecting the watershed through multiple educational venues.

If you have any questions, or ideas that you would like included, please contact me at 307-259-8239 or mchristopher@warws.com. I look forward to seeing you there!

Respectfully,

Michelle Christopher
Source Water Protection Specialist

Wyoming Rural Water

PO Box 1750 - Glenrock, WY 82637
Web Site: www.warws.com & Email: warws@warws.com
"An equal opportunity provider"
307-436-8636
TDD 1-800-877-9965

Honorable Mayor Greg Salisbury
Town of Encampment
PO Box 5
Encampment, WY 82325

RE: Source Water Protection Workshop September 17, at 7:00 pm at the Encampment Town Hall

Greg, I would like to cordially invite you to our Source Water Protection Workshop September 17. I know you are wanting to be proactive in the protection of the North Fork Encampment River watershed that provides the Town of Encampment with drinking water. A robust Source Water Protection Plan can not only help protect Wyoming's water both now and, in the future, it can help avoid the potential of serious remediation and health costs in the future as well as avoid additional regulation.

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I hope that there will be positive public participation as well as good interaction from the land management agencies so that we can sort through the most probable risks to Encampment's source water and develop strategies to protect its most valuable asset.

If you have any questions, or ideas that you would like included, please contact me at 307-259-8239 or mchristopher@warws.com. I look forward to seeing you there!

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Paul Lohman
South East District Engineer
Wyoming Department of Environmental Quality
Cheyenne, WY 82001

RE: Source Water Protection Workshop September 17, at 7:00 pm at the Encampment Town Hall

Paul, the Town of Encampment has contacted me to assist with a Source Water Protection Plan. They would like to proactively address maintaining the quality of their watershed through planning and coordination with multiple agencies as well as address potential landowner issues before problems arise. Often, starting these conversations early, coupled with good stewardship can help avoid costly remediation and potential regulations in the future.

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Joe Parsons
District Manager
SER Conservation District
PO Box 633
Saratoga, WY 82331

RE: Source Water Protection Workshop September 17, at 7:00 pm at the Encampment Town Hall

Joe, the Town of Encampment has contacted me to assist with a Source Water Protection Plan. They would like to proactively address maintaining the quality of their watershed through planning and coordination with multiple agencies as well as address potential landowner issues before problems arise. Often, starting these conversations early, coupled with good stewardship can help avoid costly remediation and potential regulations in the future.

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Because of your extensive work in coordinating activities with local landowners and land management agencies, it would be highly beneficial if you could attend. I believe the focus will be Best Management Practices in agriculture, but development, fire mitigation and pesticide applications may also be considered.

If you have any questions, or ideas that you would like included, please contact me at 307-259-8239 or mchristopher@warws.com. I look forward to seeing you there!

Respectfully,

Michelle Christopher
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Sid Fox
Carbon County Planning and Development
215 West Buffalo
Suite 336
Rawlins, WY 82301

RE: Source Water Protection Workshop September 17, at 7:00 pm at the Encampment Town Hall

Sid, the Town of Encampment has contacted me to assist with a Source Water Protection Plan. They would like to proactively address maintaining the quality of their watershed through planning and coordination with multiple agencies as well as address potential landowner issues before problems arise. Often, starting these conversations early, coupled with good stewardship can help avoid costly remediation and potential regulations in the future.

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Because of your interaction with the local landowners, development projects and the Carbon County Commissioners, it would be highly beneficial for you to attend. I believe the focus will be Best Management Practices in agriculture, but development, fire mitigation and pesticide applications may also be considered.

If you have any questions, or ideas that you would like included, please contact me at 307-259-8239 or mchristopher@warws.com. I look forward to seeing you there!

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Dave Gloss
Hydrologist
Medicine Bow National Forest
PO Box 249
Saratoga, WY 82331

RE: Source Water Protection Workshop September 17, at 7:00 pm at the Encampment Town Hall

Dave, the Town of Encampment has contacted me to assist with a Source Water Protection Plan. They would like to proactively address maintaining the quality of their watershed through planning and coordination with multiple agencies as well as address potential landowner issues before problems arise. Often, starting these conversations early, coupled with good stewardship can help avoid costly remediation and potential regulations in the future.

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Because the majority of the watershed is on Forest Service land, your input as the forest hydrologist would be highly beneficial if you could attend. Your involvement would be a great resource in helping understand the hydrogeology and explaining the Medicine Bow Land and Resource Management plan, and the specifics for the North Fork Encampment River watershed.

If you have any questions, or ideas that you would like included, please contact me at 307-259-8239 or mchristopher@warws.com. I look forward to seeing you there!

Respectfully,

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Source Water Protection Specialist

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Jason Armbruster
District Ranger
Medicine Bow National Forest
PO Box 249
Saratoga, WY 82331

RE: Source Water Protection Workshop September 17, at 7:00 pm at the Encampment Town Hall

Jason, the Town of Encampment has contacted me to assist with a Source Water Protection Plan. They would like to proactively address maintaining the quality of their watershed through planning and coordination with multiple agencies as well as address potential landowner issues before problems arise. Often, starting these conversations early, coupled with good stewardship can help avoid costly remediation and potential regulations in the future.

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Because the majority of the watershed is on Forest Service land, your input as the District Ranger would be highly beneficial if you could attend. Your involvement would be a great resource in helping understand the hydrogeology and explaining the Medicine Bow Land and Resource Management plan, and the specifics for the North Fork Encampment River watershed.

If you have any questions, or ideas that you would like included, please contact me at 307-259-8239 or mchristopher@warws.com. I look forward to seeing you there!

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Billy Zieger
Maintenance Foreman, Saratoga
WYDOT
PO Box 1189
Saratoga, WY 82331

RE: Source Water Protection Workshop September 17, at 7:00 pm at the Encampment Town Hall

Billy, the Town of Encampment has contacted me to assist with a Source Water Protection Plan. They would like to proactively address maintaining the quality of their watershed through planning and coordination with multiple agencies as well as address potential landowner issues before problems arise. Often, starting these conversations early, coupled with good stewardship can help avoid costly remediation and potential regulations in the future.

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Because of the transportation corridor through the watershed, WYDOT is a key stakeholder in helping identifying probable risks and coordinating any spill remediation that would compromise Encampment's water source along HWY 70.

If you have any questions, or ideas that you would like included, please contact me at 307-259-8239 or mchristopher@warws.com. I look forward to seeing you there!

Respectfully,

Michelle Christopher
Source Water Protection Specialist

Resolution # 02-12-01

WHEREAS, the Encampment Town Council deems it appropriate and in the interest of the public health, safety, and welfare of the citizens of Encampment to implement plans to prevent or minimize contamination of the North Fork of the Encampment River watershed, the sole source of potable water for the citizens of Encampment.

NOW, THEREFORE, BE IT RESOLVED BY THE ENCAMPMENT TOWN COUNCIL:

1. The Encampment Town Council recognizes that the residents of the Town of Encampment rely on the surface water from the North Fork of the Encampment River watershed as the Town's only source for drinking water and that certain land use can contaminate the waters and aquifer of the watershed.

2. It is the intent of the Town to accomplish water shed protection, as much as possible, by developing and implementing a Source Water Protection Plan (SWPP)

3. The plan shall be as described within documents prepared by the Wyoming Department of Environmental Quality "Wyoming's Source Water Assessment and Protection Program and Wellhead Protection (WHP); Guidance Documents", and shall meet or exceed the requirements of the Wyoming's Source Water Protection Program.

4. The Town Council hereby authorizes and approves the development of a Source Water Protection Plan (SWPP) for the Town of Encampment and authorizes it's employees to cooperate with other agencies in the development of this plan.

ADOPTED this 11th day of December, 2002

Mayor

attest: