GWIC WELL LOGS

MONTANA WELL LOG REPORT

This well log reports the activities of a licensed Montana well driller, serves as the official record of work done within the borehole and casing, and describes the amount of water encountered. This report is compiled electronically from the contents of the Ground Water Information Center (GWIC) database for this site. Acquiring water rights is the well owner's responsibility and is NOT accomplished by the filing of this report.

Other Options

Return to menu
Plot this site in State Library Digital Atlas
Plot this site in Google Maps
View scanned well log (8/17/2006 10:23:00 AM)

Site Name: DAHLMAN ADAM
GWIC Id: 77390

Section 1: Well Owner(s)

1) DAHLMAN, ADAM (MAIL)
BOX 143
POWER MT 59468 [01/01/1946]

Section 2: Location

Township	Range	Section	Quarter Sections
23N	01W	25	SW¼

County
TETON

Geocode

Latitude	Longitude	Geomethod	Datum
47.715796	-111.683285	TRS-SEC	NAD83

Ground Surface Altitude	Ground Surface Method	Datum	Date

Addition	Block	Lot
TOWNSITE OF POWER		15-16

Section 3: Proposed Use of Water

DOMESTIC (1)
IRRIGATION (2)

Section 4: Type of Work

Drilling Method: UNKNOWN
Status: NEW WELL

Section 5: Well Completion Date

Date well completed: Tuesday, January 01, 1946

Section 6: Well Construction Details

There are no borehole dimensions assigned to this well.

Casing

From	To	Diameter	Wall Thickness	Pressure Rating	Joint	Type
0	0	6				CASING

There are no completion records assigned to this well.

Annular Space (Seal/Grout/Packer)

There are no annular space records assigned to this well.

Section 7: Well Test Data

Total Depth:
Static Water Level: 34
Water Temperature:

Unknown Test Method *

Yield 12 gpm.
Pumping water level _ feet.
Time of recovery _ hours.
Recovery water level _ feet.

** During the well test the discharge rate shall be as uniform as possible. This rate may or may not be the sustainable yield of the well. Sustainable yield does not include the reservoir of the well casing.*

Section 8: Remarks

Section 9: Well Log

Geologic Source

112ALVM - ALLUVIUM (PLEISTOCENE)

From	To	Description
0	16	CLAY
16	34	SAND

Driller Certification

All work performed and reported in this well log is in compliance with the Montana well construction standards. This report is true to the best of my knowledge.

Name:
Company: UNKNOWN
License No: -
Date Completed: 1/1/1946

MONTANA WELL LOG REPORT

This well log reports the activities of a licensed Montana well driller, serves as the official record of work done within the borehole and casing, and describes the amount of water encountered. This report is compiled electronically from the contents of the Ground Water Information Center (GWIC) database for this site. Acquiring water rights is the well owner's responsibility and is NOT accomplished by the filing of this report.

Other Options

Return to menu
Plot this site in State Library Digital Atlas
Plot this site in Google Maps
View scanned well log (8/17/2006 10:21:58 AM)

Site Name: DAHLMAN ADAM
GWIC Id: 77391

Section 1: Well Owner(s)

1) DALHMAN, ADAM (MAIL)
BOX 143
POWER MT 59468 [01/01/1963]

Section 2: Location

Township	Range	Section	Quarter Sections
23N	01W	25	SW¼

County
TETON

Geocode

Latitude	Longitude	Geomethod	Datum
47.715796	-111.683285	TRS-SEC	NAD83

Ground Surface Altitude	Ground Surface Method	Datum	Date

Addition	Block	Lot
TOWNSITE OF POWER		15-16

Section 3: Proposed Use of Water

DOMESTIC (1)
IRRIGATION (2)

Section 4: Type of Work

Drilling Method: UNKNOWN
Status: NEW WELL

Section 5: Well Completion Date

Date well completed: Tuesday, January 01, 1963

Section 6: Well Construction Details

There are no borehole dimensions assigned to this well.

Casing

From	To	Diameter	Wall Thickness	Pressure Rating	Joint	Type
0	0	8				CASING

There are no completion records assigned to this well.

Annular Space (Seal/Grout/Packer)

There are no annular space records assigned to this well.

Section 7: Well Test Data

Total Depth:
Static Water Level: 34
Water Temperature:

Unknown Test Method *

Yield 12 gpm.
Pumping water level _ feet.
Time of recovery _ hours.
Recovery water level _ feet.

** During the well test the discharge rate shall be as uniform as possible. This rate may or may not be the sustainable yield of the well. Sustainable yield does not include the reservoir of the well casing.*

Section 8: Remarks

Section 9: Well Log

Geologic Source

112ALVM - ALLUVIUM (PLEISTOCENE)

From	To	Description
0	16	CLAY
16	34	SAND

Driller Certification

All work performed and reported in this well log is in compliance with the Montana well construction standards. This report is true to the best of my knowledge.

Name:
Company: UNKNOWN
License No: -
Date Completed: 1/1/1963

MONTANA WELL LOG REPORT

This well log reports the activities of a licensed Montana well driller, serves as the official record of work done within the borehole and casing, and describes the amount of water encountered. This report is compiled electronically from the contents of the Ground Water Information Center (GWIC) database for this site. Acquiring water rights is the well owner's responsibility and is NOT accomplished by the filing of this report.

Other Options

Return to menu
Plot this site in State Library Digital Atlas
Plot this site in Google Maps
View field visits for this site
View scanned well log (8/17/2006 10:22:42 AM)

Site Name: BAKKE EMIL
GWIC Id: 77395
DNRC Water Right: C62759-00

Section 1: Well Owner(s)

1) BAKKE, EMIL (MAIL)
BOX 175
POWER MT 59468 [01/06/1987]

Section 2: Location

Township	Range	Section	Quarter Sections
23N	01W	26	SE¼ SE¼ SE¼ SE¼

County
TETON

Geocode

Latitude	Longitude	Geomethod	Datum
47.713	-111.6887	NAV-GPS	NAD83

Ground Surface Altitude	Ground Surface Method	Datum	Date
3695			9/28/2005

Addition **Block** **Lot**

Section 3: Proposed Use of Water

DOMESTIC (1)

Section 4: Type of Work

Drilling Method: CABLE
Status: NEW WELL

Section 5: Well Completion Date

Date well completed: Tuesday, January 06, 1987

Section 6: Well Construction Details

Borehole dimensions

From	To	Diameter
0	65	0

Casing

From	To	Diameter	Wall Thickness	Pressure Rating	Joint	Type
-1.5	43	6				STEEL

Completion (Perf/Screen)

From	To	Diameter	# of Openings	Size of Openings	Description
43	65	6			OPEN HOLE

Annular Space (Seal/Grout/Packer)

There are no annular space records assigned to this well.

Section 7: Well Test Data

Total Depth: 65
Static Water Level: 20
Water Temperature:

Pump Test *

Depth pump set for test _ feet.
_20_ gpm pump rate with _ feet of drawdown after _5_ hours of pumping.
Time of recovery _ hours.
Recovery water level _ feet.
Pumping water level _26_ feet.

** During the well test the discharge rate shall be as uniform as possible. This rate may or may not be the sustainable yield of the well. Sustainable yield does not include the reservoir of the well casing.*

Section 8: Remarks

9/28/05 - WELL STATUS UNUSED.

Section 9: Well Log

Geologic Source

112SNGR - SAND AND GRAVEL (PLEISTOCENE)

From	To	Description
0	2	TOP SOIL
2	19	CLAY
19	23	CLAY-SAND
23	44	SAND-GRAVEL
44	53	BLUE SHALE
53	58	BLACK LIMESTONE
58	65	BLUE COLORADO SHALE

Driller Certification

All work performed and reported in this well log is in compliance with the Montana well construction standards. This report is true to the best of my knowledge.

Name:
Company: POVERTY DRILLING
License No: WWC-302
Date Completed: 1/6/1987

MONTANA WELL LOG REPORT

This well log reports the activities of a licensed Montana well driller, serves as the official record of work done within the borehole and casing, and describes the amount of water encountered. This report is compiled electronically from the contents of the Ground Water Information Center (GWIC) database for this site. Acquiring water rights is the well owner's responsibility and is NOT accomplished by the filing of this report.

Other Options

Return to menu
Plot this site in State Library Digital Atlas
Plot this site in Google Maps
View scanned well log (8/17/2006 10:21:49 AM)

Site Name: BOYLE FRANK & LOUISE
GWIC Id: 157734
DNRC Water Right: C93631-00

Section 1: Well Owner(s)

1) BOYLE, FRANK (MAIL)
205 5TH ST
POWER MT 59468 [08/14/1996]

Section 2: Location

Township	Range	Section	Quarter Sections
23N	01W	25	SW¼ SW¼ SW¼

County	Geocode
TETON	

Latitude	Longitude	Geomethod	Datum
47.713048	-111.687382	TRS-SEC	NAD83

Ground Surface Altitude	Ground Surface Method	Datum	Date

Addition	Block	Lot
POWER ORIGINAL TOWNSITE	20	24

Section 3: Proposed Use of Water

IRRIGATION (1)

Section 4: Type of Work

Drilling Method:
Status: NEW WELL

Section 5: Well Completion Date

Date well completed: Wednesday, August 14, 1996

Section 6: Well Construction Details

Borehole dimensions

From	To	Diameter
0	54	6

Casing

From	To	Diameter	Wall Thickness	Pressure Rating	Joint	Type
-1.5	54	6				STEEL

Completion (Perf/Screen)

From	To	Diameter	# of Openings	Size of Openings	Description
54	54	6			OPEN BOTTOM

Annular Space (Seal/Grout/Packer)

From	To	Description	Cont. Fed?
0	0	BENTONITE	

Section 7: Well Test Data

Total Depth: 54
Static Water Level: 15
Water Temperature:

Pump Test *

Depth pump set for test _ feet.
_25_ gpm pump rate with _ feet of drawdown after _2_ hours of pumping.
Time of recovery _0.25_ hours.
Recovery water level _15_ feet.
Pumping water level _17_ feet.

** During the well test the discharge rate shall be as uniform as possible. This rate may or may not be the sustainable yield of the well. Sustainable yield does not include the reservoir of the well casing.*

Section 8: Remarks

Section 9: Well Log

Geologic Source

112SNGR - SAND AND GRAVEL (PLEISTOCENE)

From	To	Description
0	29	BROWN CLAY-GUMBO
29	46	GRAY SOFT SILT
46	52	SAND & WATER
52	54	HARD SHALE WORN LIKE GRAVEL BLACK W/ SAND & WATER DARK GRAY SANDSTONE/SHALE

Driller Certification

All work performed and reported in this well log is in compliance with the Montana well construction standards. This report is true to the best of my knowledge.

Name:
Company: BYRNE
License No: WWC-318
Date Completed: 8/14/1996

MONTANA WELL LOG REPORT

This well log reports the activities of a licensed Montana well driller, serves as the official record of work done within the borehole and casing, and describes the amount of water encountered. This report is compiled electronically from the contents of the Ground Water Information Center (GWIC) database for this site. Acquiring water rights is the well owner's responsibility and is NOT accomplished by the filing of this report.

Other Options

Return to menu
Plot this site in State Library Digital Atlas
Plot this site in Google Maps
View scanned well log (8/17/2006 10:21:29 AM)

Site Name: POWER SCHOOL DISTRICT
GWIC Id: 216978

Section 1: Well Owner(s)

1) POWER SCHOOL DISTRICT (MAIL)
P.O. BOX 155
POWER MT 59468 [12/01/2004]

Section 2: Location

Township	Range	Section	Quarter Sections
23N	01W	25	SW¼ SW¼

County
TETON

Geocode

Latitude	Longitude	Geomethod	Datum
47.713964	-111.686016	TRS-SEC	NAD83

Ground Surface Altitude **Ground Surface Method** **Datum** **Date**

Addition **Block** **Lot**

Section 3: Proposed Use of Water

IRRIGATION (1)

Section 4: Type of Work

Drilling Method:
Status: NEW WELL

Section 5: Well Completion Date

Date well completed: Wednesday, December 01, 2004

Section 6: Well Construction Details

Borehole dimensions

From	To	Diameter
0	18.5	12
18.5	65	10

Casing

From	To	Diameter	Wall Thickness	Pressure Rating	Joint	Type
-1.5	18.5	8	0.250		WELDED	STEEL
0	0	4			SOLVENT WELD	PVC-SCHED 40

Completion (Perf/Screen)

From	To	Diameter	# of Openings	Size of Openings	Description
25	60	4		0.25	SCREEN-CONTINUOUS-PVC

Annular Space (Seal/Grout/Packer)

From	To	Description	Cont. Fed?
0	23	CEMENT & BENTONITE	
23	65	3/8 GRAVEL	

Section 7: Well Test Data

Total Depth: 65
Static Water Level: 21
Water Temperature:

Air Test *

8 gpm with drill stem set at 60 feet for 1 hours.
Time of recovery 0.25 hours.
Recovery water level 21 feet.
Pumping water level _ feet.

** During the well test the discharge rate shall be as uniform as possible. This rate may or may not be the sustainable yield of the well. Sustainable yield does not include the reservoir of the well casing.*

Section 8: Remarks

Section 9: Well Log

Geologic Source

112SNGR - SAND AND GRAVEL (PLEISTOCENE)

From	To	Description
0	26	BROWN SILTY CLAY
26	37	FINE GRAIN BROWN SAND - WATER
37	65	GRAY SHALE

Driller Certification

All work performed and reported in this well log is in compliance with the Montana well construction standards. This report is true to the best of my knowledge.

Name:
Company: BOLAND DRILLING
License No: WWC-535
Date Completed: 12/1/2004

MONTANA WELL LOG REPORT

This well log reports the activities of a licensed Montana well driller, serves as the official record of work done within the borehole and casing, and describes the amount of water encountered. This report is compiled electronically from the contents of the Ground Water Information Center (GWIC) database for this site. Acquiring water rights is the well owner's responsibility and is NOT accomplished by the filing of this report.

Other Options

Return to menu
Plot this site in State Library Digital Atlas
Plot this site in Google Maps
View hydrograph for this site
View field visits for this site
View water quality for this site

Site Name: BAKKE, EMIL
GWIC Id: 222562

Section 1: Well Owner(s)

1) BAKKE, EMIL (MAIL)
BOX 175
POWER MT 59468 [09/28/2005]

Section 2: Location

Township	Range	Section	Quarter Sections
23N	01W	26	SE¼ SE¼ SE¼ SE¼

County
TETON

Geocode

Latitude	Longitude	Geomethod	Datum
47.713	-111.6887	NAV-GPS	NAD83

Ground Surface Altitude	Ground Surface Method	Datum	Date
3695			9/28/2005

Measuring Point Altitude	MP Method	Datum	Date Applies
3695.3			9/28/2005 2:49:00 PM

Addition **Block** **Lot**

Section 3: Proposed Use of Water

IRRIGATION (1)

Section 4: Type of Work

Drilling Method:
Status: NEW WELL

Section 5: Well Completion Date

Date well completed: N/A

Section 6: Well Construction Details

There are no borehole dimensions assigned to this well.
There are no casing strings assigned to this well.
There are no completion records assigned to this well.

Annular Space (Seal/Grout/Packer)

There are no annular space records assigned to this well.

Section 7: Well Test Data

Total Depth: 43
Static Water Level:
Water Temperature:

Unknown Test Method *

Yield _ gpm.
Pumping water level _ feet.
Time of recovery _ hours.
Recovery water level _ feet.

** During the well test the discharge rate shall be as uniform as possible. This rate may or may not be the sustainable yield of the well. Sustainable yield does not include the reservoir of the well casing.*

Section 8: Remarks

9/28/05 - TD REPORTED BY OWNER.

Section 9: Well Log

Geologic Source

112SNGR - SAND AND GRAVEL (PLEISTOCENE)

Lithology Data

There are no lithologic details assigned to this well.

Driller Certification

All work performed and reported in this well log is in compliance with the Montana well construction standards. This report is true to the best of my knowledge.

Name:
Company: BURNS
License No: -
Date Completed:

MONTANA WELL LOG REPORT

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Other Options

Return to menu
Plot this site in State Library Digital Atlas
Plot this site in Google Maps

Site Name: MSCA *POWER SPTE-11* 04
GWIC Id: 256609

Section 1: Well Owner(s)

Section 2: Location

Township	Range	Section	Quarter Sections
23N	01W	25	NE¼ SW¼

County TETON

Geocode

Latitude	Longitude	Geomethod	Datum
47.71826	-111.67896	MAP	NAD83

Ground Surface Altitude **Ground Surface Method** **Datum** **Date**

Addition **Block** **Lot**

Section 3: Proposed Use of Water

MONITORING (1)

Section 4: Type of Work

Drilling Method: SOLID STEM AUGER
Status: NEW WELL

Section 5: Well Completion Date

Date well completed: Tuesday, June 08, 2010

Section 6: Well Construction Details

Borehole dimensions

From	To	Diameter
0	28	4

Casing

From	To	Diameter	Wall Thickness	Pressure Rating	Joint	Type
-1	27	2				PVC-SCHED 40

Completion (Perf/Screen)

From	To	Diameter	# of Openings	Size of Openings	Description
17	27	2			SAW SLOTS

Annular Space (Seal/Grout/Packer)

From	To	Description	Cont. Fed?
0	5	BENTONITE	
5	27	GRAVEL PACK	

Section 7: Well Test Data

Total Depth: 27
Static Water Level: 7.4
Water Temperature:

** During the well test the discharge rate shall be as uniform as possible. This rate may or may not be the sustainable yield of the well. Sustainable yield does not include the reservoir of the well casing.*

Section 8: Remarks

Section 9: Well Log

Geologic Source

Unassigned

From	To	Description
0	5	SILTY CLAY
5	9	SANDY LOAM
9	24	SANDY CLAY LOAM
24	28	WEATHERED SHALE - COLORADO SHALE FORMATION

Driller Certification

All work performed and reported in this well log is in compliance with the Montana well construction standards. This report is true to the best of my knowledge.

Name: TERA RYAN
Company: MONTANA SALINITY CONTROL ASSOCIATION
License No: MWC-408
Date Completed: 6/8/2010

MONTANA WELL LOG REPORT

This well log reports the activities of a licensed Montana well driller, serves as the official record of work done within the borehole and casing, and describes the amount of water encountered. This report is compiled electronically from the contents of the Ground Water Information Center (GWIC) database for this site. Acquiring water rights is the well owner's responsibility and is NOT accomplished by the filing of this report.

Other Options

Return to menu
Plot this site in State Library Digital Atlas
Plot this site in Google Maps

Site Name: MSCA *POWER SPTE-11* 07
GWIC Id: 256627

Section 1: Well Owner(s)

Section 2: Location

Township	Range	Section	Quarter Sections
23N	01W	25	NE¼ SW¼

County TETON

Geocode

Latitude	Longitude	Geomethod	Datum
47.71653	-111.67965	MAP	NAD83

Ground Surface Altitude **Ground Surface Method** **Datum** **Date**

Addition **Block** **Lot**

Section 3: Proposed Use of Water

MONITORING (1)

Section 4: Type of Work

Drilling Method: SOLID STEM AUGER
Status: NEW WELL

Section 5: Well Completion Date

Date well completed: Tuesday, June 08, 2010

Section 6: Well Construction Details

Borehole dimensions

From	To	Diameter
0	29	4

Casing

From	To	Diameter	Wall Thickness	Pressure Rating	Joint	Type
-1	29	2				PVC-SCHED 40

Completion (Perf/Screen)

From	To	Diameter	# of Openings	Size of Openings	Description
19	29	2			SAW SLOTS

Annular Space (Seal/Grout/Packer)

From	To	Description	Cont. Fed?
0	5	BENTONITE	
5	29	GRAVEL PACK	

Section 7: Well Test Data

Total Depth: 29
Static Water Level: 14.2
Water Temperature:

** During the well test the discharge rate shall be as uniform as possible. This rate may or may not be the sustainable yield of the well. Sustainable yield does not include the reservoir of the well casing.*

Section 8: Remarks

Section 9: Well Log

Geologic Source

Unassigned

From	To	Description
0	26	SANDY CLAY LOAM
26	29	WEATHERED SHALE - COLORADO SHALE FORMATION

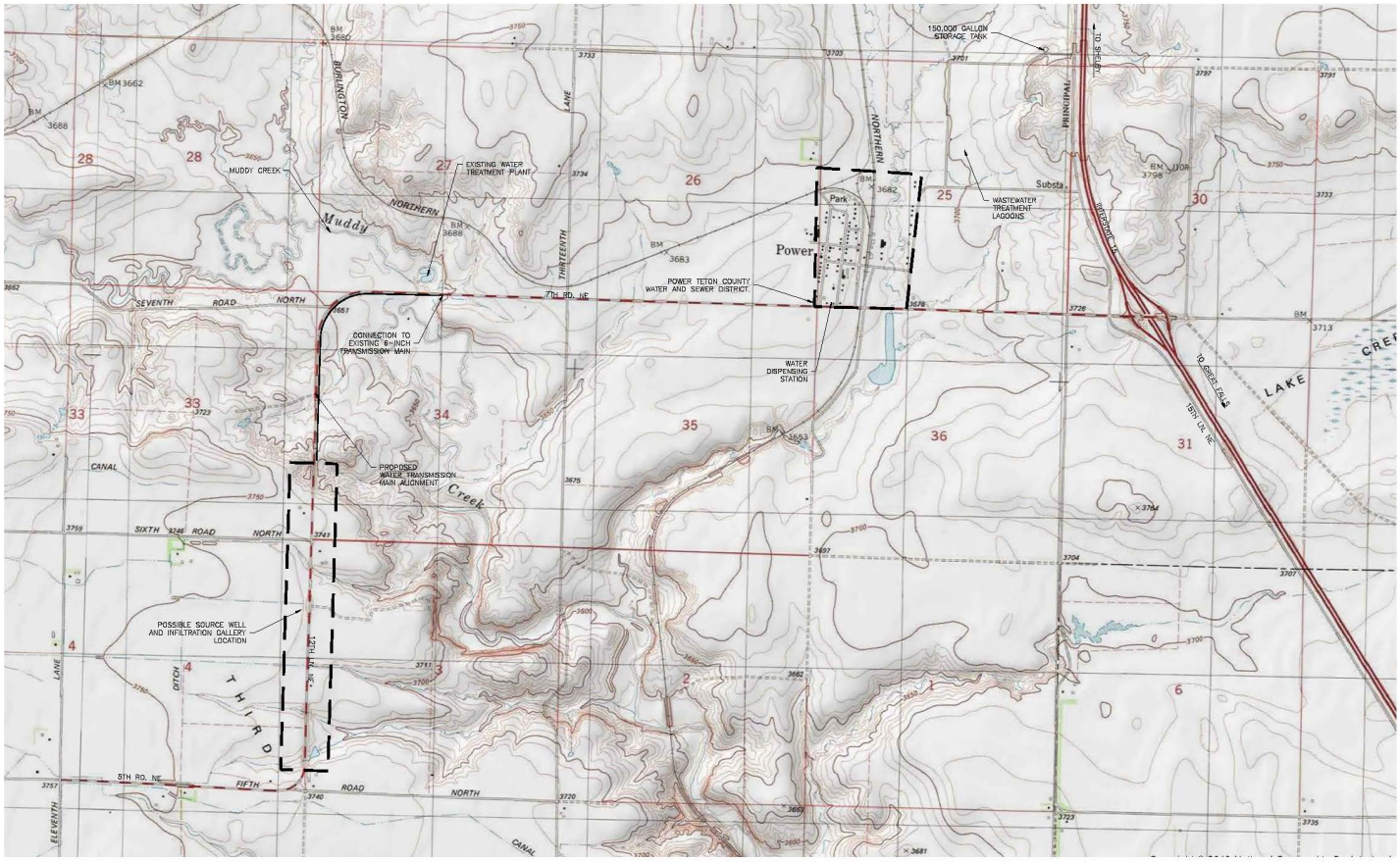
Driller Certification

All work performed and reported in this well log is in compliance with the Montana well construction standards. This report is true to the best of my knowledge.

Name: TERA RYAN
Company: MONTANA SALINITY CONTROL ASSOCIATION
License No: MWC-408
Date Completed: 6/8/2010

TOPOGRAPHIC MAP

J:\2017\17-258 Power-Teton County Water and Sewer District PER\CADD\CIVIL\17-258 FIGURE 2.2.dwg, 1/12/2018 9:56:53 AM, nmr



NOT FOR CONSTRUCTION

REV	DATE	REVISION

TD&H Engineering
406.761.1310 • tdheng@tdheng.com
1800 RIVER DR. NO., GREAT FALLS, MONTANA 59401

DRAWN BY: CDF
DESIGNED BY:
QUALITY CHECK:
DATE: 2018-01-10
JOB NO. 17-258
FIELDBOOK

POWER TETON COUNTY WATER AND SEWER DISTRICT
POWER, MONTANA

USGS MAP

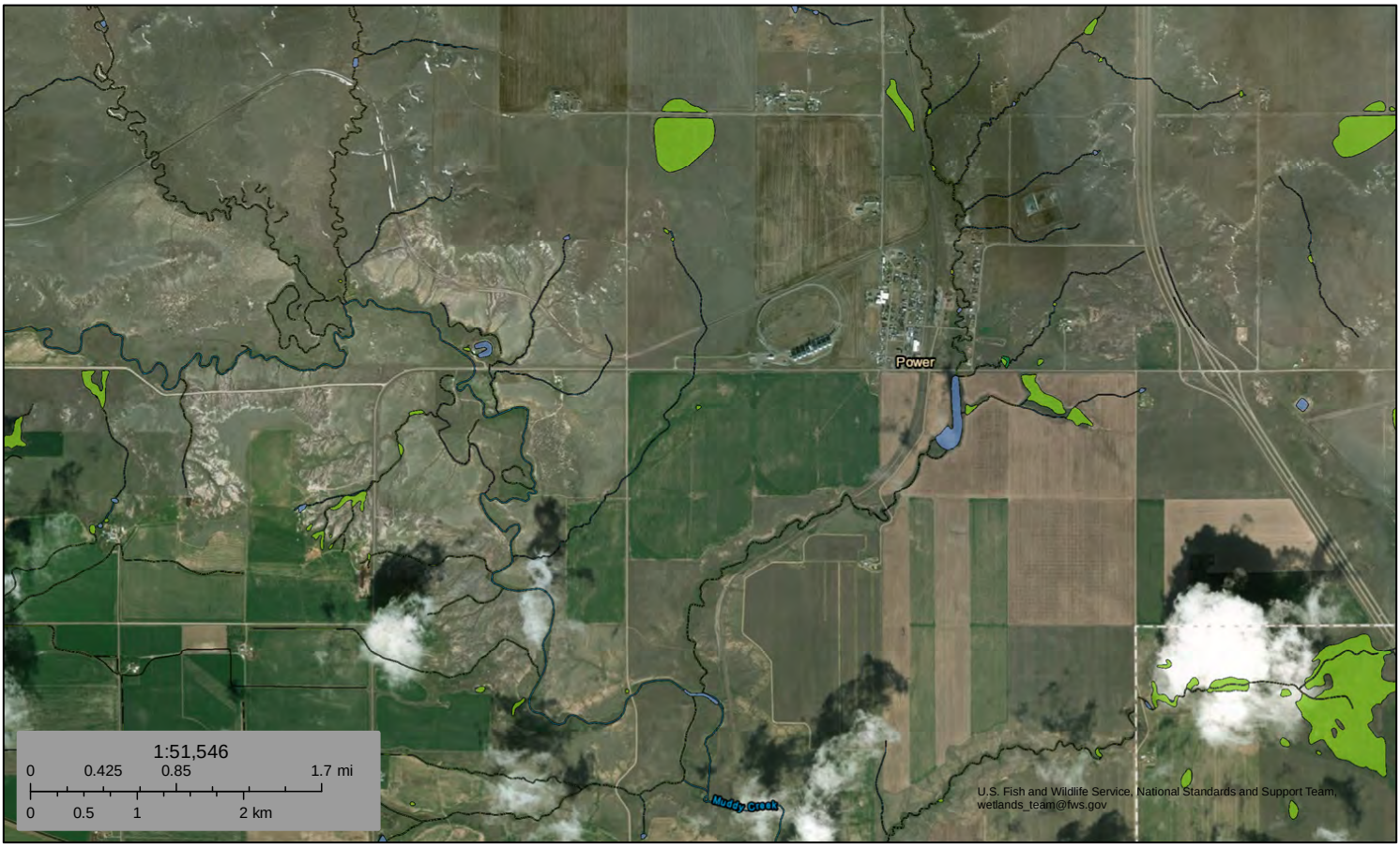
17-258 FIGURE 2.2.DWG

FIGURE **2-2**

NATIONAL WETLAND INVENTORY

U.S. Fish and Wildlife Service
National Wetlands Inventory

Power, MT Wetlands



February 9, 2018

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

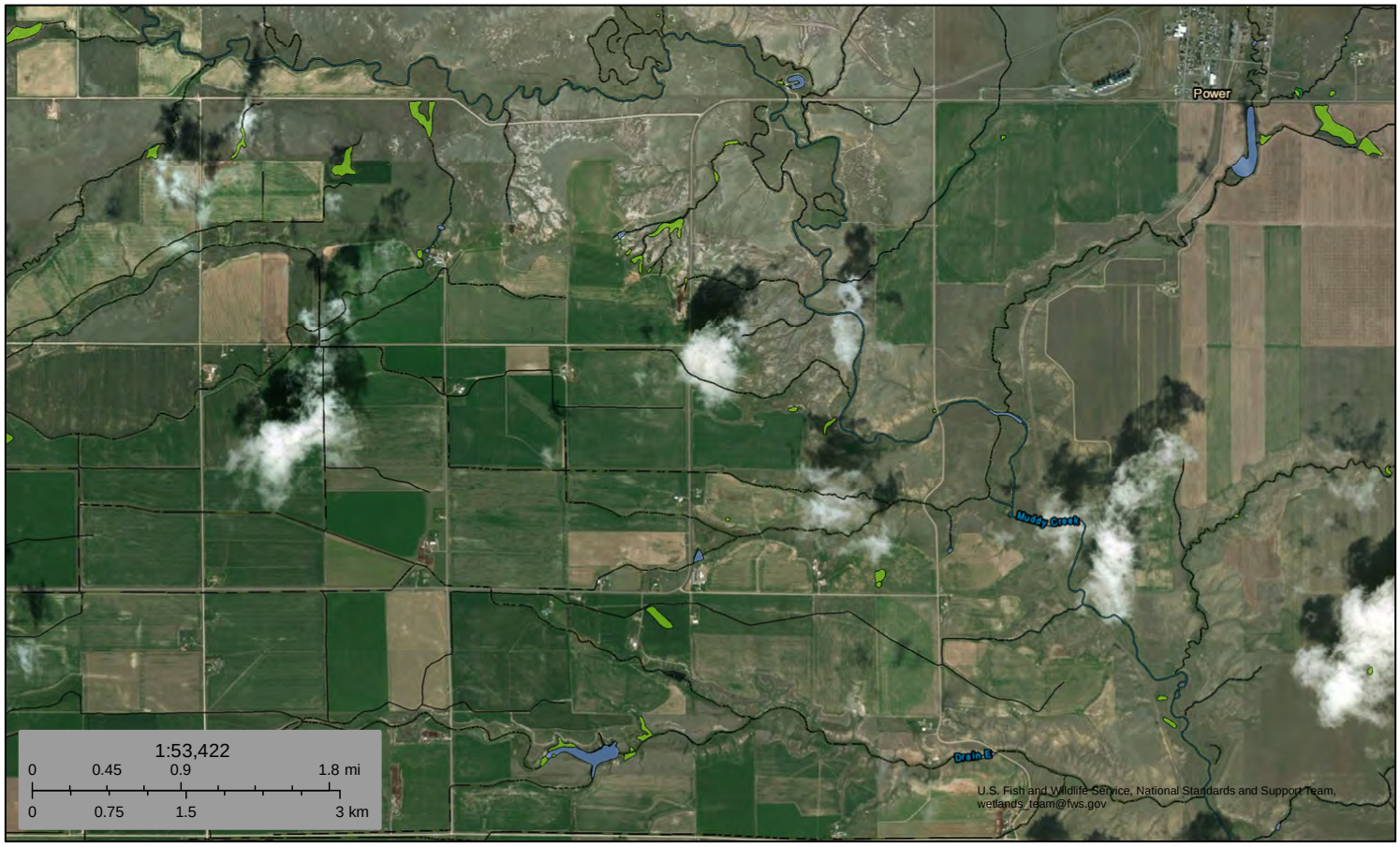
This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

WETLANDS MAP

U.S. Fish and Wildlife Service
National Wetlands Inventory

Power Wetlands Map 03-26-2018



March 26, 2018

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

US FISH AND WILDLIFE SERVICE
ENDANGERED SPECIES LIST

United States Department of the Interior

Fish and Wildlife Service

Ecological Services
Montana Field Office
585 Shepard Way, Suite 1
Helena, Montana 59601-6287
Phone: (406) 449-5225, Fax: (406) 449-5339

ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES
MONTANA COUNTIES*
Endangered Species Act

November 17, 2017

C = Candidate
LT = Listed Threatened
LE = Listed Endangered
P = Proposed

PCH = Proposed Critical Habitat
CH = Designated Critical Habitat
XN = Experimental non-essential population

*Note: Generally, this list identifies the counties where one would reasonably expect the species to occur, not necessarily every county where the species is listed

County/Scientific Name	Common Name	Status
BEAVERHEAD		
Spiranthes diluvialis	Ute Ladies' Tresses	LT
Ursus arctos horribilis	Grizzly Bear	LT
Lynx canadensis	Canada Lynx	LT
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
BIG HORN		
Mustela nigripes	Black-footed Ferret	LE
BLAINE		
Scaphirhynchus albus	Pallid Sturgeon	LE
Mustela nigripes	Black-footed Ferret	LE
Charadrius melodus	Piping Plover	LT, CH
BROADWATER		
Spiranthes diluvialis	Ute Ladies' Tresses	LT
Lynx canadensis	Canada Lynx	LT
Ursus arctos horribilis	Grizzly Bear	LT
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
CARBON		
Lynx canadensis	Canada Lynx	LT, CH
Gulo gulo luscus	Wolverine	P
Zapada glacier	Western Glacier Stonefly	P
Pinus albicaulis	Whitebark Pine	C

County/Scientific Name	Common Name	Status
CARTER		
Grus americana	Whooping Crane	LE
Myotis septentrionalis	Northern Long-eared Bat	LT
CASCADE		
Scaphirhynchus albus	Pallid Sturgeon	LE
Lynx canadensis	Canada Lynx	LT
Calidris canutus rufa	Red Knot	LT
Charadrius melodus	Piping Plover	LT, CH
Ursus arctos horribilis	Grizzly Bear	LT
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
CHOUTEAU		
Scaphirhynchus albus	Pallid Sturgeon	LE
Lynx canadensis	Canada Lynx	LT
Charadrius melodus	Piping Plover	LT, CH
Calidris canutus rufa	Red Knot	LT
Ursus arctos horribilis	Grizzly Bear	LT
CUSTER		
Scaphirhynchus albus	Pallid Sturgeon	LE
Sterna antillarum athalassos	Interior Least Tern	LE
Grus americana	Whooping Crane	LE
Myotis septentrionalis	Northern Long-eared Bat	LT
DANIELS		
Grus americana	Whooping Crane	LE
Charadrius melodus	Piping Plover	LT, CH
DAWSON		
Scaphirhynchus albus	Pallid Sturgeon	LE
Sterna antillarum athalassos	Interior Least Tern	LE
Grus americana	Whooping Crane	LE
Charadrius melodus	Piping Plover	LT
Myotis septentrionalis	Northern Long-eared Bat	LT
DEER LODGE		
Salvelinus confluentus	Bull Trout	LT, CH
Ursus arctos horribilis	Grizzly Bear	LT
Lynx canadensis	Canada Lynx	LT
Calidris canutus rufa	Red Knot	LT
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
FALLON		
Grus americana	Whooping Crane	LE
Myotis septentrionalis	Northern Long-eared Bat	LT
Charadrius melodus	Piping Plover	LT, CH
FERGUS		
Scaphirhynchus albus	Pallid Sturgeon	LE
Lynx canadensis	Canada Lynx	LT
Pinus albicaulis	Whitebark Pine	C

County/Scientific Name	Common Name	Status
FLATHEAD		
Salvelinus confluentus	Bull Trout	LT, CH
Ursus arctos horribilis	Grizzly Bear	LT
Silene spaldingii	Spalding's Campion	LT
Lynx canadensis	Canada Lynx	LT, CH
Coccyzus americanus	Yellow-billed cuckoo (western pop.)	LT
Gulo gulo luscus	Wolverine	P
Lednia tumana	Meltwater Lednian Stonefly	P
Pinus albicaulis	Whitebark Pine	C
GALLATIN		
Spiranthes diluvialis	Ute Ladies' Tresses	LT
Lynx canadensis	Canada Lynx	LT, CH
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
GARFIELD		
Scaphirhynchus albus	Pallid Sturgeon	LE
Grus americana	Whooping Crane	LE
Charadrius melodus	Piping Plover	LT, CH
Sterna antillarum athalassos	Interior Least Tern	LE
GLACIER		
Ursus arctos horribilis	Grizzly Bear	LT
Lynx canadensis	Canada Lynx	LT, CH
Salvelinus confluentus	Bull Trout	LT, CH
Gulo gulo luscus	Wolverine	P
Lednia tumana	Meltwater Lednian Stonefly	P
Zapada glacier	Western Glacier Stonefly	P
Pinus albicaulis	Whitebark Pine	C
GOLDEN VALLEY		
Lynx canadensis	Canada Lynx	LT
Calidris canutus rufa	Red Knot	LT
Pinus albicaulis	Whitebark Pine	C
GRANITE		
Lynx canadensis	Canada Lynx	LT, CH
Ursus arctos horribilis	Grizzly Bear	LT
Salvelinus confluentus	Bull Trout	LT, CH
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
HILL		
JEFFERSON		
Spiranthes diluvialis	Ute Ladies' Tresses	LT
Lynx canadensis	Canada Lynx	LT
Ursus arctos horribilis	Grizzly Bear	LT
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
JUDITH BASIN		
Lynx canadensis	Canada Lynx	LT
Ursus arctos horribilis	Grizzly Bear	LT
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C

County/Scientific Name	Common Name	Status
LAKE		
Ursus arctos horribilis	Grizzly Bear	LT
Howellia aquatilis	Water Howellia	LT
Silene spaldingii	Spalding's Campion	LT
Lynx canadensis	Canada Lynx	LT, CH
Salvelinus confluentus	Bull Trout	LT, CH
Coccyzus americanus	Yellow-billed cuckoo (western pop.)	LT
Gulo gulo luscus	Wolverine	P
Lednia tumana	Meltwater Lednian Stonefly	P
Pinus albicaulis	Whitebark Pine	C
LEWIS AND CLARK		
Ursus arctos horribilis	Grizzly Bear	LT
Lynx canadensis	Canada Lynx	LT, CH
Salvelinus confluentus	Bull Trout	LT, CH
Calidris canutus rufa	Red Knot	LT
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
LIBERTY		
Calidris canutus rufa	Red Knot	LT
Ursus arctos horribilis	Grizzly Bear	LT
Pinus albicaulis	Whitebark Pine	C
LINCOLN		
Acipenser transmontanus	White Sturgeon (Kootenai River Pop.)	LE
Ursus arctos horribilis	Grizzly Bear	LT
Silene spaldingii	Spalding's Campion	LT
Lynx canadensis	Canada Lynx	LT, CH
Salvelinus confluentus	Bull Trout	LT, CH
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
MADISON		
Spiranthes diluvialis	Ute Ladies' Tresses	LT
Lynx canadensis	Canada Lynx	LT
Calidris canutus rufa	Red Knot	LT
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
McCONE		
Scaphirhynchus albus	Pallid Sturgeon	LE
Charadrius melodus	Piping Plover	LT, CH
Sterna antillarum athalassos	Interior Least Tern	LE
Grus americana	Whooping Crane	LE
MEAGHER		
Lynx canadensis	Canada Lynx	LT
Ursus arctos horribilis	Grizzly Bear	LT
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
MINERAL		
Lynx canadensis	Canada Lynx	LT
Salvelinus confluentus	Bull Trout	LT, CH
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C

County/Scientific Name	Common Name	Status
MISSOULA		
Ursus arctos horribilis	Grizzly Bear	LT
Howellia aquatilis	Water Howellia	LT
Lynx canadensis	Canada Lynx	LT, CH
Salvelinus confluentus	Bull Trout	LT, CH
Coccyzus americanus	Yellow-billed cuckoo (western pop.)	LT
Calidris canutus rufa	Red Knot	LT
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
MUSSELSHELL		
PARK		
Lynx canadensis	Canada Lynx	LT, CH
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
PETROLEUM		
Scaphirhynchus albus	Pallid Sturgeon	LE
Calidris canutus rufa	Red Knot	LT
PHILLIPS		
Scaphirhynchus albus	Pallid Sturgeon	LE
Charadrius melodus	Piping Plover	LT, CH
Mustela nigripes	Black-footed Ferret	LE, XN
Grus americana	Whooping Crane	LE
Sterna antillarum athalassos	Interior Least Tern	LE
Calidris canutus rufa	Red Knot	LT
PONDERA		
Charadrius melodus	Piping Plover	LT
Ursus arctos horribilis	Grizzly Bear	LT
Lynx canadensis	Canada Lynx	LT, CH
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
POWDER RIVER		
Grus americana	Whooping Crane	LE
Scaphirhynchus albus	Pallid Sturgeon	LE
Myotis septentrionalis	Northern Long-eared Bat	LT
POWELL		
Ursus arctos horribilis	Grizzly Bear	LT
Lynx canadensis	Canada Lynx	LT, CH
Salvelinus confluentus	Bull Trout	LT, CH
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
PRAIRIE		
Scaphirhynchus albus	Pallid Sturgeon	LE
Sterna antillarum athalassos	Interior Least Tern	LE
Grus americana	Whooping Crane	LE
Myotis septentrionalis	Northern Long-eared Bat	LT
Charadrius melodus	Piping Plover	LT, CH

County/Scientific Name	Common Name	Status
RAVALLI		
Salvelinus confluentus	Bull Trout	LT, CH
Lynx canadensis	Canada Lynx	LT
Coccyzus americanus	Yellow-billed cuckoo (western pop.)	LT
Ursus arctos horribilis	Grizzly Bear	LT
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
RICHLAND		
Scaphirhynchus albus	Pallid Sturgeon	LE
Charadrius melodus	Piping Plover	LT, CH
Sterna antillarum athalassos	Interior Least Tern	LE
Grus americana	Whooping Crane	LE
Myotis septentrionalis	Northern Long-eared Bat	LT
ROOSEVELT		
Scaphirhynchus albus	Pallid Sturgeon	LE
Charadrius melodus	Piping Plover	LT, CH
Sterna antillarum athalassos	Interior Least Tern	LE
Grus americana	Whooping Crane	LE
Calidris canutus rufa	Red Knot	LT
Myotis septentrionalis	Northern Long-eared Bat	LT
ROSEBUD		
Sterna antillarum athalassos	Interior Least Tern	LE
Scaphirhynchus albus	Pallid Sturgeon	LE
Grus americana	Whooping Crane	LE
SANDERS		
Ursus arctos horribilis	Grizzly Bear	LT
Lynx canadensis	Canada Lynx	LT
Salvelinus confluentus	Bull Trout	LT, CH
Silene spaldingii	Spalding's Campion	LT
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
SHERIDAN		
Charadrius melodus	Piping Plover	LT, CH
Grus americana	Whooping Crane	LE
Sterna antillarum athalassos	Interior Least Tern	LE
Calidris canutus rufa	Red Knot	LT
SILVER BOW		
Salvelinus confluentus	Bull Trout	LT
Ursus arctos horribilis	Grizzly Bear	LT
Lynx canadensis	Canada Lynx	LT
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
STILLWATER		
Lynx canadensis	Canada Lynx	LT, CH
Charadrius melodus	Piping Plover	LT, CH
Calidris canutus rufa	Red Knot	LT
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C

County/Scientific Name	Common Name	Status
SWEET GRASS		
Lynx canadensis	Canada Lynx	LT, CH
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
TETON		
Ursus arctos horribilis	Grizzly Bear	LT
Lynx canadensis	Canada Lynx	LT, CH
Calidris canutus rufa	Red Knot	LT
Charadrius melodus	Piping Plover	LT, CH
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
TOOLE		
Calidris canutus rufa	Red Knot	LT
Ursus arctos horribilis	Grizzly Bear	LT
Pinus albicaulis	Whitebark Pine	C
TREASURE		
No listings at this time		
VALLEY		
Scaphirhynchus albus	Pallid Sturgeon	LE
Sterna antillarum athalassos	Interior Least Tern	LE
Grus americana	Whooping Crane	LE
Charadrius melodus	Piping Plover	LT, CH
Calidris canutus rufa	Red Knot	LT
WHEATLAND		
Lynx canadensis	Canada Lynx	LT
Ursus arctos horribilis	Grizzly Bear	LT
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
WIBAUX		
Scaphirhynchus albus	Pallid Sturgeon	LE
Sterna antillarum athalassos	Interior Least Tern	LE
Grus americana	Whooping Crane	LE
Myotis septentrionalis	Northern Long-eared Bat	LT
Charadrius melodus	Piping Plover	LT
YELLOWSTONE		
Grus americana	Whooping Crane	LE
Calidris canutus rufa	Red Knot	LT

MONTANA NATURAL HERITAGE
ANIMAL SPECIES OF CONCERN

Montana Natural Heritage - SOC Report

Species List Last Updated **05/03/2016**

Animal Species of Concern

1 Species of Concern
Filtered by the following criteria:
Township = 023N001W (based on mapped Species Occurrences)

MONTANA Natural Heritage Program

A program of the Montana State Library's Natural Resource Information System operated by the University of Montana.

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Introduction

Species of Concern

Species of Concern
1 Species
Filtered by the following criteria:
Township = 023N001W (based on mapped **Species Occurrences**)

BIRDS (AVES)

TOWNSHIP = 023N001W (based on ma

SCIENTIFIC NAME COMMON NAME TAXA SORT	FAMILY (SCIENTIFIC) FAMILY (COMMON)	GLOBAL RANK	STATE RANK	USFWS	USFS	BLM	FWP SWAP	% OF GLOBAL BREEDING RANGE IN MT	% OF MT THAT IS BREEDING RANGE
Podiceps auritus Horned Grebe	Podicipedidae Grebes	G5	S3B	MBTA; BCC11; BCC17			SGCN3	3%	77%
		Species Occurrences verified in these Counties: Cascade, Chouteau, Flathead, Lake, Phillips, Powell, Sheridan, Teton							

Potential Species of Concern

Potential Species of Concern
0 Species
Filtered by the following criteria:
Township = 023N001W (based on mapped **Species Occurrences**)

Special Status Species

Special Status Species
0 Species
Filtered by the following criteria:
Township = 023N001W (based on mapped **Species Occurrences**)

Additions To Statewide List

Species Removed From Statewide List

Species of Greatest Inventory Need

Citation for data on this website:
Montana Animal Species of Concern Report. Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. Retrieved on 2/9/2018, from http://mtnhp.org/SpeciesOfConcern/?AorP=a

MONTANA NATURAL HERITAGE PLANT SPECIES OF CONCERN

Montana Natural Heritage - SOC Report

Species List Last Updated **05/03/2016**

Plant Species of Concern

0 Species
Filtered by the following criteria:
Township = 023N001W (based on mapped Species Occurrences)

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Introduction

Species of Concern

Species of Concern
0 Species
Filtered by the following criteria:
Township = 023N001W (based on mapped **Species Occurrences**)

Potential Species of Concern

Potential Species of Concern
0 Species
Filtered by the following criteria:
Township = 023N001W (based on mapped **Species Occurrences**)

Special Status Species

Special Status Species
0 Species
Filtered by the following criteria:
Township = 023N001W (based on mapped **Species Occurrences**)

Additions To Statewide List

Species Removed From Statewide List

Citation for data on this website:
Montana Plant Species of Concern Report. Montana Natural Heritage Program. Retrieved on 2/9/2018, from http://mtnhp.org/SpeciesOfConcern/?AorP=p

SHPO RESPONSE EMAIL

Laura Hart - RE: Power-Teton County Water and Sewer District SHPO request

From: "Murdo, Damon" <dmurdo@mt.gov>
To: Nicole Rediske <Nicole.Rediske@tdhengineering.com>
Date: 3/26/2018 11:34 AM
Subject: RE: Power-Teton County Water and Sewer District SHPO request
Cc: Laura Hart <Laura.Hart@tdhengineering.com>, Mike OBrien <Mike.OBrien@tdh...
Attachments: CRABS.xlsx; CRIS.xlsx; 2018032603.pdf

Big Sky. Big Land. Big History.
Montana
Historical Society

March 26, 2018

Laura Hart
TD&H Engineering
1800 River Drive North
Great Falls MT 59401

RE: POWER-TETON COUNTY WATER AND SEWER DISTRICT WATER PER. SHPO Project #: 2018032603

Dear Laura:

I have conducted a cultural resource file search for the above-cited project located in Sections 25,26,27,33,34, T23N R1W, and Sections 3, 4, T22N1W. According to our records there have been a few previously recorded sites within the designated search locale. In addition to the sites there have been a few previously conducted cultural resource inventories done in the area. I've attached a list of these sites and reports. If you would like any further information regarding these sites or reports you may contact me at the number listed below.

It is SHPO's position that any structure over fifty years of age is considered historic and is potentially eligible for listing on the National Register of Historic Places. If any structures are to be altered and are over fifty years old we would recommend that they be recorded and a determination of their eligibility be made.

As long as the project will be occurring within previously disturbed ground, and there will be no disturbance or alteration to structures over fifty years of age we feel that there is a low likelihood cultural properties will be impacted. We, therefore, feel that a recommendation for a cultural resource inventory is unwarranted at this time. However, should structures need to be altered or if cultural materials be inadvertently discovered during this project we would ask that our office be contacted and the site investigated.

If you have any further questions or comments you may contact me at (406) 444-7767 or by e-mail at. I have attached an invoice for the file search. Thank you for consulting with us.

Sincerely,

Damon Murdo
Cultural Records Manager
State Historic Preservation Office

File: DEQ/AIR WATER WASTE MNG/2018

CRIS

Site #	Twp	Rng	Sec	Qs	Site Type 1	Site Type 2	Time Period	Owner	NR Status
24TT0409	23N	1W	25	comb	Historic Railroad		Historic More Than One Decade	Combination	Eligible
24TT0409	23N	1W	26	comb	Historic Railroad		Historic More Than One Decade	Combination	Eligible
24TT0409	23N	1W	27	comb	Historic Railroad		Historic More Than One Decade	Combination	Eligible
24TT0494	23N	1W	33	SW	Historic Irrigation System		Historic More Than One Decade	BOR	Eligible

CRABS

Last Name	First Name	Report Date	Title	Report	TRS
WOOD	GARVEY C.	1/15/1989	MARVIN A. REHBEIN - BOWE GRAVEL SOURCE AREA, POWER NORTH AND SOUTH PROJECT	TT 4 9818	Township:22 N Range:1 W Section: 4
VINCENT	WILLIAM B.	4/1/2001	A CLASS IIII CULTURAL RESOURCE SURVEY OF A SHELL TRACT OF LAND NEAR POWER, MONTANA	TT 6 23562	Township:23 N Range:1 W Section: 27
NICKELS	ADAM M	7/1/2003	A CULTURAL RESOURCE INVENTORY OF PROPOSED LAND PURCHASE NEAR POWER, MONTANA IN TETON COUNTY	TT 6 26078	Township:23 N Range:1 W Section: 27
NICKELS	ADAM M	6/27/2003	NOTIFICATION OF UNDERTAKING -PROPOSED CONSTRUCTION OF A NEW WATER BUILDING FOR THE POWER, MONTANA, WATER DISTRICT IN TETON COUNTY MONTANA	TT 6 26079	Township:23 N Range:1 W Section: 27
BRUMLEY	JOHN	2/1/2011	A CLASS III CULTURAL RESOURCE INVENTORY OF BUREAU OF RECLAMATION LAND WITHIN 3 RIVERS COMMUNICATIONS PROPOSED POWER EXCHANGE UPGRADE	TT 6 32630	Township:23 N Range:1 W Section: 27
KELLER	MARVIN	10/1/1985	CULTURAL RESOURCES SURVEY OF GRAVEL PITS AND LANDS ADMINISTERED BY THE BUREAU OF RECLAMATION: SUN RIVER PROJECT.	TT 6 9833	Township:23 N Range:1 W Section: 33
VINCENT	WILLIAM B.	9/2/2002	A CLASS III CULTURAL RESOURCE SURVEY FOR PROPOSED PIVOT IRRIGATION SYSTEMS NEAR POWER MONTANA IN TETON COUNTY	TT 6 25159	Township:23 N Range:1 W Section: 33
PASSMANN	DORI, ET AL.	1/14/2004	CULTURAL RESOURCES 2003 STIPULATION D: EXCEPTIONS UNDER THE IRRIGATION PA IN MONTANA	ZZ 6 26478	Township:23 N Range:1 W Section: 33
AABERG	STEPHEN A.	6/1/1998	ANDREWS IRRIGATION PROJECT, TETON COUNTY, MONTANA, CLASS III CULTURAL RESOURCE SURVEY RESULTS	TT 6 20291	Township:23 N Range:1 W Section: 34
BRUMLEY	JOHN	2/1/2011	A CLASS III CULTURAL RESOURCE INVENTORY OF BUREAU OF RECLAMATION LAND WITHIN 3 RIVERS COMMUNICATIONS PROPOSED POWER EXCHANGE UPGRADE	TT 6 32630	Township:23 N Range:1 W Section: 34

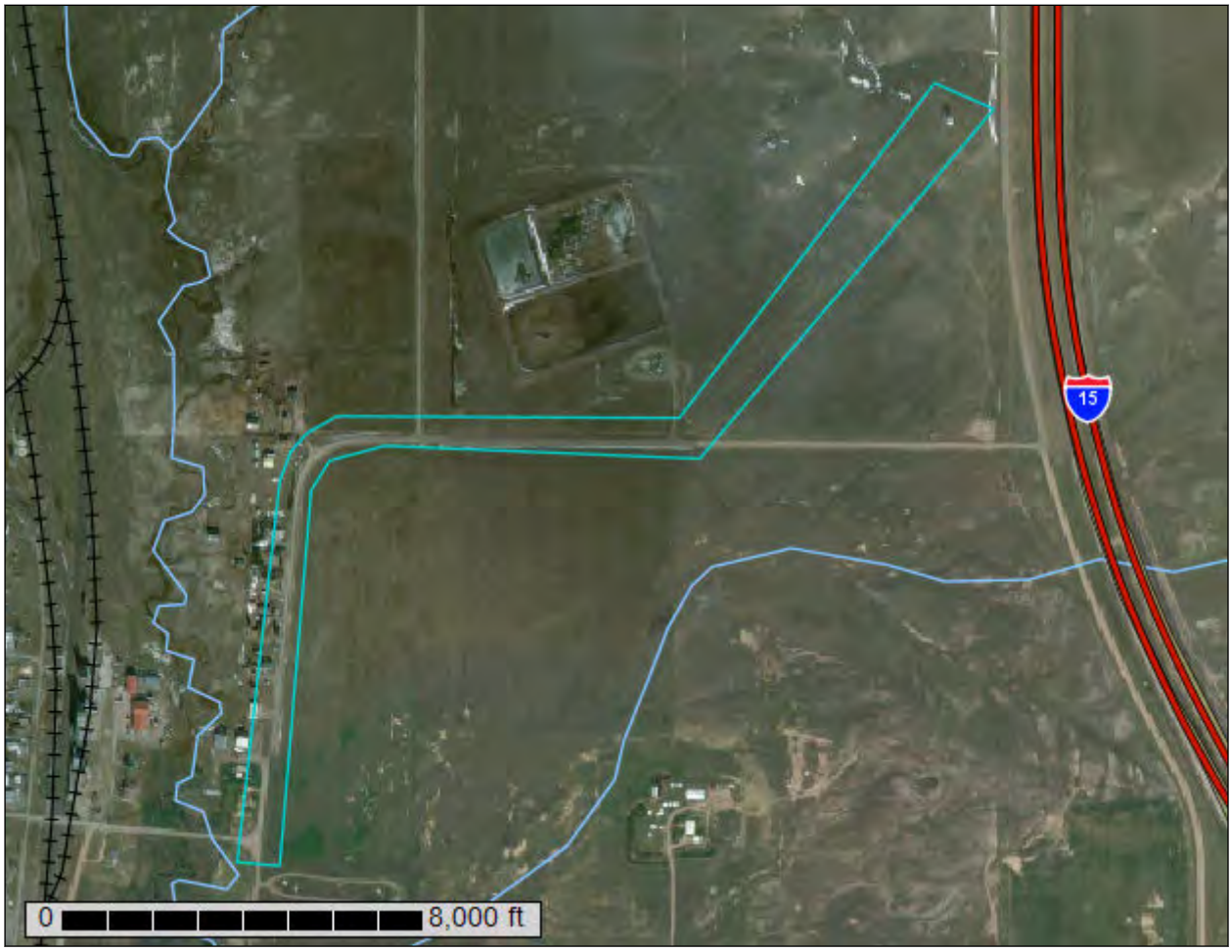
APPENDIX 1 - C
Environmental Resources

United States Department of Agriculture

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Choteau-Conrad Area; Parts of Teton and Pondera Counties, Montana



February 9, 2018

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:8,050 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 100 200 400 600

Feet: 0 350 700 1400 2100

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Choteau-Conrad Area; Parts of Teton and Pondera Counties, Montana
Survey Area Data: Version 15, Oct 3, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 4, 2013—Feb 15, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
39B	Ethridge silty clay loam, 0 to 4 percent slopes	3.1	12.8%
150B	Marias-Linnet silty clays, 0 to 4 percent slopes	6.5	26.8%
164B	Scobey-Kevin clay loams, 0 to 4 percent slopes	7.0	28.9%
169C	Bascovy-Neldore complex, 2 to 8 percent slopes	3.3	13.7%
286F	Neldore-Bascovy-Rock outcrop complex, 25 to 60 percent slopes	4.3	17.8%
400	Havre-Fairway loams, 0 to 4 percent slopes, rarely flooded	0.0	0.1%
Totals for Area of Interest		**24.1**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not

mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Choteau-Conrad Area; Parts of Teton and Pondera Counties, Montana

39B—Ethridge silty clay loam, 0 to 4 percent slopes

Map Unit Setting

National map unit symbol: cprx
Elevation: 3,200 to 4,000 feet
Mean annual precipitation: 11 to 14 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 105 to 125 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Ethridge and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ethridge

Setting

Landform: Stream terraces
Down-slope shape: Linear
Across-slope shape: Linear

Typical profile

Ap - 0 to 6 inches: silty clay loam
Bt - 6 to 19 inches: silty clay
Bk - 19 to 48 inches: silty clay loam
Bky - 48 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 4 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Gypsum, maximum in profile: 3 percent
Salinity, maximum in profile: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 5.0
Available water storage in profile: High (about 9.8 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: Clayey (Cy) 10-14" p.z. (R052XN162MT)
Hydric soil rating: No

Minor Components

Kobase

Percent of map unit: 6 percent

Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Clayey (Cy) 10-14" p.z. (R052XN162MT)
Hydric soil rating: No

Richey

Percent of map unit: 5 percent
Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Clayey (Cy) 10-14" p.z. (R052XN162MT)
Hydric soil rating: No

Marias

Percent of map unit: 4 percent
Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Clayey (Cy) 10-14" p.z. (R052XN162MT)
Hydric soil rating: No

150B—Marias-Linnet silty clays, 0 to 4 percent slopes

Map Unit Setting

National map unit symbol: cphc
Elevation: 3,300 to 4,000 feet
Mean annual precipitation: 11 to 14 inches
Mean annual air temperature: 34 to 45 degrees F
Frost-free period: 105 to 125 days
Farmland classification: Not prime farmland

Map Unit Composition

Marias and similar soils: 55 percent
Linnet and similar soils: 35 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Marias

Setting

Landform: Till plains
Down-slope shape: Linear
Across-slope shape: Linear

Typical profile

A - 0 to 5 inches: silty clay
Bw - 5 to 11 inches: silty clay
Bss - 11 to 29 inches: silty clay
Bssy - 29 to 60 inches: silty clay

Properties and qualities

Slope: 0 to 4 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Gypsum, maximum in profile: 6 percent
Salinity, maximum in profile: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 10.0
Available water storage in profile: Moderate (about 8.5 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: Clayey (Cy) 10-14" p.z. (R052XN162MT)
Hydric soil rating: No

Description of Linnet

Setting

Landform: Till plains
Down-slope shape: Linear
Across-slope shape: Linear

Typical profile

A - 0 to 5 inches: silty clay
Bt - 5 to 13 inches: silty clay
Bk - 13 to 48 inches: silty clay
BCy - 48 to 60 inches: clay

Properties and qualities

Slope: 0 to 4 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Gypsum, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 13.0
Available water storage in profile: High (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: Clayey (Cy) 10-14" p.z. (R052XN162MT)
Hydric soil rating: No

Minor Components

Ethridge

Percent of map unit: 6 percent
Landform: Till plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Clayey (Cy) 10-14" p.z. (R052XN162MT)
Hydric soil rating: No

Mckenzie

Percent of map unit: 2 percent
Landform: Depressions
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Overflow (Ov) 10-14" p.z. (R052XN166MT)
Hydric soil rating: Yes

Lothair

Percent of map unit: 2 percent
Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Clayey (Cy) 10-14" p.z. (R052XN162MT)
Hydric soil rating: No

164B—Scobey-Kevin clay loams, 0 to 4 percent slopes

Map Unit Setting

National map unit symbol: 2t3kb
Elevation: 2,490 to 3,800 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 105 to 125 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Scobey and similar soils: 50 percent
Kevin and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Scobey

Setting

Landform: Flats
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear

Parent material: Clayey till

Typical profile

Ap - 0 to 6 inches: clay loam
Bt - 6 to 15 inches: clay
Bk1 - 15 to 29 inches: clay loam
Bk2 - 29 to 43 inches: clay loam
BCyz - 43 to 61 inches: clay loam
Cz - 61 to 79 inches: clay loam

Properties and qualities

Slope: 0 to 4 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 14 percent
Gypsum, maximum in profile: 5 percent
Salinity, maximum in profile: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 12.0
Available water storage in profile: High (about 9.8 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: Loamy (Lo) Dry Grassland (R052XY032MT), Loamy (Lo) Dry Shrubland (R052XY712MT), Silty (Si) 10-14" p.z. (R052XN161MT)
Hydric soil rating: No

Description of Kevin

Setting

Landform: Flats
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Fine-loamy till

Typical profile

Ap - 0 to 6 inches: clay loam
Bt - 6 to 9 inches: clay loam
Bk1 - 9 to 23 inches: clay loam
Bk2 - 23 to 41 inches: clay loam
BCyz - 41 to 58 inches: clay loam
Cz - 58 to 79 inches: clay loam

Properties and qualities

Slope: 0 to 4 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 14 percent
Gypsum, maximum in profile: 5 percent
Salinity, maximum in profile: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 12.0
Available water storage in profile: High (about 10.0 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: Loamy (Lo) Dry Grassland (R052XY032MT), Loamy (Lo) Dry Shrubland (R052XY712MT), Silty (Si) 10-14" p.z. (R052XN161MT)
Hydric soil rating: No

Minor Components

Hillon

Percent of map unit: 8 percent
Landform: Rises
Landform position (two-dimensional): Summit, shoulder
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: Limy (Ly) Dry Grassland (R052XY030MT), Limy (Ly) Dry Shrubland (R052XY710MT), Silty (Si) 10-14" p.z. (R052XN161MT)
Hydric soil rating: No

Elloam

Percent of map unit: 3 percent
Landform: Flats
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Thin Claypan (Tcp) Dry Grassland (R052XY165MT), Thin Claypan (Tcp) Dry Shrubland (R052XY731MT), Claypan (Cp) 10-14" p.z. (R052XN086MT)
Hydric soil rating: No

Nishon

Percent of map unit: 2 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: Recharge Closed Depression (Cdr) (R052XY071MT), Overflow (Ov) 10-14" p.z. (R052XN166MT)
Hydric soil rating: Yes

Acel

Percent of map unit: 2 percent
Landform: Swales
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: Swale (Se) Dry Grassland (R052XY062MT), Swale (Se) Dry Shrubland (R052XY730MT), Clayey (Cy) 10-14" p.z. (R052XN162MT)

Hydric soil rating: No

169C—Bascovy-Neldore complex, 2 to 8 percent slopes

Map Unit Setting

National map unit symbol: cpj7
Elevation: 3,200 to 4,200 feet
Mean annual precipitation: 11 to 14 inches
Mean annual air temperature: 39 to 46 degrees F
Frost-free period: 105 to 125 days
Farmland classification: Not prime farmland

Map Unit Composition

Bascovy and similar soils: 50 percent
Neldore and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bascovy

Setting

Landform: Plains
Down-slope shape: Linear
Across-slope shape: Linear

Typical profile

A - 0 to 5 inches: silty clay
Bss - 5 to 11 inches: silty clay
Bssy - 11 to 25 inches: silty clay
Cr - 25 to 60 inches: unweathered bedrock

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Gypsum, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to moderately saline (0.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 13.0
Available water storage in profile: Low (about 3.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: D
Ecological site: Clayey (Cy) 10-14" p.z. (R052XN162MT)
Hydric soil rating: No

Description of Neldore

Setting

Landform: Plains
Down-slope shape: Linear
Across-slope shape: Linear

Typical profile

A - 0 to 4 inches: clay
C1 - 4 to 10 inches: clay
C2 - 10 to 18 inches: clay
Cr - 18 to 60 inches: unweathered bedrock

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water storage in profile: Very low (about 2.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: Shallow Clay (SwC) 10-14" p.z. (R052XN179MT)
Hydric soil rating: No

Minor Components

Tanna

Percent of map unit: 5 percent
Landform: Plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Clayey (Cy) 10-14" p.z. (R052XN162MT)
Hydric soil rating: No

Pylon

Percent of map unit: 4 percent
Landform: Plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Clayey (Cy) 10-14" p.z. (R052XN162MT)
Hydric soil rating: No

Marvan

Percent of map unit: 3 percent
Landform: Alluvial fans
Down-slope shape: Linear

Across-slope shape: Linear
Ecological site: Clayey (Cy) 10-14" p.z. (R052XN162MT)
Hydric soil rating: No

Abor

Percent of map unit: 3 percent
Landform: Plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Clayey (Cy) 10-14" p.z. (R052XN162MT)
Hydric soil rating: No

286F—Neldore-Bascovy-Rock outcrop complex, 25 to 60 percent slopes

Map Unit Setting

National map unit symbol: cpp4
Elevation: 3,200 to 4,000 feet
Mean annual precipitation: 11 to 14 inches
Mean annual air temperature: 39 to 46 degrees F
Frost-free period: 105 to 125 days
Farmland classification: Not prime farmland

Map Unit Composition

Neldore and similar soils: 45 percent
Rock outcrop: 20 percent
Bascovy and similar soils: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Neldore

Setting

Landform: Hills
Down-slope shape: Linear
Across-slope shape: Linear

Typical profile

A - 0 to 4 inches: clay
C1 - 4 to 10 inches: clay
C2 - 10 to 18 inches: clay
Cr - 18 to 60 inches: unweathered bedrock

Properties and qualities

Slope: 25 to 60 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None

Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water storage in profile: Very low (about 2.6 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: Shallow Clay (SwC) 10-14" p.z. (R052XN179MT)
Hydric soil rating: No

Description of Bascovy

Setting
Landform: Hills
Down-slope shape: Linear
Across-slope shape: Linear

Typical profile
A - 0 to 5 inches: silty clay
Bss - 5 to 11 inches: silty clay
Bssy - 11 to 25 inches: silty clay
Cr - 25 to 60 inches: unweathered bedrock

Properties and qualities
Slope: 25 to 45 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Gypsum, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to moderately saline (0.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 13.0
Available water storage in profile: Low (about 3.8 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: Clayey-Steep (CyStp) 10-14" p.z. (R052XN164MT)
Hydric soil rating: No

Minor Components

Yawdim
Percent of map unit: 12 percent
Landform: Hills
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Shallow Clay (SwC) 10-14" p.z. (R052XN179MT)
Hydric soil rating: No

Kobase

Percent of map unit: 3 percent
Landform: Hills
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Clayey (Cy) 10-14" p.z. (R052XN162MT)
Hydric soil rating: No

400—Havre-Fairway loams, 0 to 4 percent slopes, rarely flooded

Map Unit Setting

National map unit symbol: cps1
Elevation: 3,200 to 4,600 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 37 to 45 degrees F
Frost-free period: 105 to 125 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Havre and similar soils: 45 percent
Fairway and similar soils: 40 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Havre

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear

Typical profile

A - 0 to 8 inches: loam
C1 - 8 to 20 inches: stratified fine sandy loam to clay loam
C2 - 20 to 60 inches: stratified fine sandy loam to clay loam

Properties and qualities

Slope: 0 to 4 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 3.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 5.0

Available water storage in profile: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: Silty (Si) 10-14" p.z. (R052XN161MT)
Hydric soil rating: No

Description of Fairway

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear

Typical profile

A1 - 0 to 9 inches: loam
A2 - 9 to 15 inches: loam
Cg - 15 to 48 inches: silty clay loam
2C - 48 to 60 inches: very gravelly sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 36 to 60 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Available water storage in profile: Moderate (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: Subirrigated (Sb) 10-14" p.z. (R052XN169MT)
Hydric soil rating: No

Minor Components

Meadowcreek

Percent of map unit: 5 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Draft Subirrigated (Sb) RRU 46-N 13-19" p.z. (R046XN256MT)
Hydric soil rating: No

Ryell

Percent of map unit: 3 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Silty (Si) 10-14" p.z. (R052XN161MT)
Hydric soil rating: No

Tetonview

Percent of map unit: 3 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Draft Subirrigated (Sb) RRU 46-N 13-19" p.z. (R046XN256MT)
Hydric soil rating: Yes

Rivra

Percent of map unit: 2 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Shallow to Gravel (SwGr) 10-14" p.z. (R052XN176MT)
Hydric soil rating: No

Birchfield

Percent of map unit: 2 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Draft Wet Meadow (WM) RRU 46-N 15-19" p.z. (R046XN262MT)
Hydric soil rating: Yes

Soil Information for All Uses

Soil Reports

The Soil Reports section includes various formatted tabular and narrative reports (tables) containing data for each selected soil map unit and each component of each unit. No aggregation of data has occurred as is done in reports in the Soil Properties and Qualities and Suitabilities and Limitations sections.

The reports contain soil interpretive information as well as basic soil properties and qualities. A description of each report (table) is included.

Land Classifications

This folder contains a collection of tabular reports that present a variety of soil groupings. The reports (tables) include all selected map units and components for each map unit. Land classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.

Prime and other Important Farmlands

This table lists the map units in the survey area that are considered important farmlands. Important farmlands consist of prime farmland, unique farmland, and farmland of statewide or local importance. This list does not constitute a recommendation for a particular land use.

In an effort to identify the extent and location of important farmlands, the Natural Resources Conservation Service, in cooperation with other interested Federal, State, and local government organizations, has inventoried land that can be used for the production of the Nation's food supply.

Prime farmland is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil quality, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. The water supply is dependable and of adequate quality. Prime farmland is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

For some of the soils identified in the table as prime farmland, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures.

A recent trend in land use in some areas has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

Unique farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops, such as citrus, tree nuts, olives, cranberries, and other fruits and vegetables. It has the special combination of soil quality, growing season, moisture supply, temperature, humidity, air drainage, elevation, and aspect needed for the soil to economically produce sustainable high yields of these crops when properly managed. The water supply is dependable and of adequate quality. Nearness to markets is an additional consideration. Unique farmland is not based on national criteria. It commonly is in areas where there is a special microclimate, such as the wine country in California.

In some areas, land that does not meet the criteria for prime or unique farmland is considered to be *farmland of statewide importance* for the production of food, feed, fiber, forage, and oilseed crops. The criteria for defining and delineating farmland of statewide importance are determined by the appropriate State agencies. Generally, this land includes areas of soils that nearly meet the requirements for prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Some areas may produce as high a yield as prime farmland if conditions are favorable. Farmland of statewide importance may include tracts of land that have been designated for agriculture by State law.

In some areas that are not identified as having national or statewide importance, land is considered to be *farmland of local importance* for the production of food, feed, fiber, forage, and oilseed crops. This farmland is identified by the appropriate local agencies. Farmland of local importance may include tracts of land that have been designated for agriculture by local ordinance.

Report—Prime and other Important Farmlands

Prime and other Important Farmlands–Choteau-Conrad Area; Parts of Teton and Pondera Counties, Montana		
Map Symbol	**Map Unit Name**	**Farmland Classification**
40C	Kobase silty clay loam, 4 to 8 percent slopes	Farmland of statewide importance
114A	Gerdrum-Absher clay loams, 0 to 2 percent slopes	Not prime farmland
169C	Bascovy-Neldore complex, 2 to 8 percent slopes	Not prime farmland
540B	Marvan silty clay, wet, 0 to 4 percent slopes	Not prime farmland

Soil Physical Properties

This folder contains a collection of tabular reports that present soil physical properties. The reports (tables) include all selected map units and components for each map unit. Soil physical properties are measured or inferred from direct observations in the field or laboratory. Examples of soil physical properties include percent clay, organic matter, saturated hydraulic conductivity, available water capacity, and bulk density.

Engineering Properties

This table gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

Hydrologic soil group is a group of soils having similar runoff potential under similar storm and cover conditions. The criteria for determining Hydrologic soil group is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Listing HSGs by soil map unit component and not by soil series is a new concept for the engineers. Past engineering references contained lists of HSGs by soil series. Soil series are continually being defined and redefined, and the list of soil series names changes so frequently as to make the task of maintaining a single national list virtually impossible. Therefore, the criteria is now used to calculate the HSG using the component soil properties and no such national series lists will be maintained. All such references are obsolete and their use should be discontinued. Soil properties that influence runoff potential are those that influence the minimum rate of infiltration for a bare soil after prolonged wetting and when not frozen. These properties are depth to a seasonal high water table, saturated hydraulic conductivity after prolonged wetting, and depth to a layer with a very slow water transmission rate. Changes in soil properties caused by land management or climate changes also cause the hydrologic soil group to change. The influence of ground cover is treated independently. There are four hydrologic soil groups, A, B, C, and D, and three dual groups, A/D, B/D, and C/D. In the dual groups, the first letter is for drained areas and the second letter is for undrained areas.

The four hydrologic soil groups are described in the following paragraphs:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained

soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly."

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Percentage of rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests

of soils sampled in the survey area and in nearby areas and on estimates made in the field. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

References:

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash. The criteria for determining the hydrologic soil group for individual soil components is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Engineering Properties–Choteau-Conrad Area; Parts of Teton and Pondera Counties, Montana														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
39B—Ethridge silty clay loam, 0 to 4 percent slopes														
Ethridge	85	C	0-6	Silty clay loam	CL	A-6, A-7	0- 0- 0	0- 0- 0	100-100-100	95-98-100	90-95-100	85-90-95	25-35-45	10-15-20
			6-19	Silty clay, silty clay loam, clay	CL	A-7	0- 0- 0	0- 0- 0	100-100-100	95-98-100	95-98-100	90-93-95	40-45-50	20-25-30
			19-48	Silty clay loam	—	—	0- 0- 0	0- 0- 0	100-100-100	95-98-100	90-95-100	85-90-95	30-40-50	10-18-25
			48-60	Silty clay loam, clay loam, silt loam	CL	A-6, A-7	0- 0- 0	0- 0- 0	100-100-100	95-98-100	90-95-100	85-90-95	30-40-50	10-18-25

Engineering Properties–Choteau-Conrad Area; Parts of Teton and Pondera Counties, Montana														
Map unit symbol and soil name	**Pct. of map unit**	**Hydrologic group**	**Depth**	**USDA texture**	**Classification**		**Pct Fragments**		**Percentage passing sieve number—**				**Liquid limit**	**Plasticity index**
					Unified	**AASHTO**	**>10 inches**	**3-10 inches**	**4**	**10**	**40**	**200**		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
150B—Marias-Linnet silty clays, 0 to 4 percent slopes														
Marias	55	D	0-5	Silty clay	CH, CL	A-7	0- 0- 0	0- 0- 0	100-100-100	100-100-100	95-98-100	90-93-95	40-50-60	20-30-40
			5-11	Clay, silty clay	CH, CL	A-7	0- 0- 0	0- 0- 0	100-100-100	100-100-100	90-95-100	75-85-95	40-55-70	25-38-50
			11-29	Clay, silty clay	CH, CL	A-7	0- 0- 0	0- 0- 0	100-100-100	100-100-100	90-95-100	75-85-95	40-55-70	25-38-50
			29-60	Clay, silty clay	CH, CL	A-7	0- 0- 0	0- 0- 0	100-100-100	100-100-100	90-95-100	75-85-95	40-55-70	25-38-50
Linnet	35	C	0-5	Silty clay	CL	A-7	0- 0- 0	0- 0- 0	90-95-100	85-93-100	80-90-100	75-85-95	40-45-50	15-20-25
			5-13	Silty clay, clay	CH, CL	A-7	0- 0- 0	0- 0- 0	90-95-100	85-93-100	75-88-100	60-75-90	45-55-65	25-35-45
			13-48	Silty clay, clay, silty clay loam	CH, CL	A-6, A-7	0- 0- 0	0- 3- 5	85-93-100	80-90-100	70-85-100	55-73-90	35-45-55	15-25-35
			48-60	Silty clay, clay, silty clay loam	CH, CL	A-6, A-7	0- 0- 0	0- 3- 5	85-93-100	80-90-100	70-85-100	55-73-90	35-45-55	15-25-35

Engineering Properties–Choteau-Conrad Area; Parts of Teton and Pondera Counties, Montana														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
164B—Scobey-Kevin clay loams, 0 to 4 percent slopes														
Scobey	50	C	0-6	Clay loam	CL	A-6	0- 0- 0	0- 3- 7	82-89-100	81-88-100	74-84-99	54-64-79	40-40-50	20-20-25
			6-15	Clay, clay loam	CH	A-7-6	0- 0- 0	0- 3- 6	82-89-100	81-89-100	74-85-99	56-68-82	50-50-60	25-30-35
			15-29	Clay loam	CH	A-7-6	0- 0- 0	0- 3- 6	83-90-100	82-89-100	75-85-100	55-66-81	40-50-50	20-25-30
			29-43	Clay loam	CH	A-7-6	0- 0- 0	0- 3- 6	83-90-100	82-89-100	75-86-100	55-66-81	40-50-50	20-25-30
			43-61	Clay loam	CH	A-7-6	0- 0- 0	0- 3- 6	84-90-100	83-90-100	76-86-100	55-66-80	40-50-50	20-25-30
			61-79	Clay loam	CH	A-7-6	0- 0- 0	0- 3- 6	84-90-100	83-90-100	76-86-100	55-66-80	40-50-50	20-25-30
Kevin	35	C	0-6	Clay loam	CL	A-6	0- 0- 0	0- 3- 7	82-85-100	81-85-100	74-81-100	54-61-79	40-40-50	20-20-25
			6-9	Clay loam, clay	CH	A-7-6	0- 0- 0	0- 3- 6	82-89-100	81-89-100	75-85-100	56-67-82	50-50-60	25-30-30
			9-23	Clay loam	CL	A-6	0- 0- 0	0- 3- 6	83-90-100	82-89-100	75-85-99	54-64-78	40-40-50	15-20-25
			23-41	Clay loam	CL	A-6	0- 0- 0	0- 3- 6	83-90-100	82-89-100	75-85-99	54-64-78	40-40-50	15-20-25
			41-58	Clay loam	CL	A-6	0- 0- 0	0- 3- 6	84-90-100	83-90-100	76-86-99	54-64-78	40-40-50	20-20-25
			58-79	Clay loam	CL	A-6	0- 0- 0	0- 3- 6	84-90-100	83-90-100	76-86-99	54-64-78	40-40-50	20-25-25

Engineering Properties–Choteau-Conrad Area; Parts of Teton and Pondera Counties, Montana														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
169C—Bascovy-Neldore complex, 2 to 8 percent slopes														
Bascovy	50	D	0-5	Silty clay	CH, CL	A-7	0- 0- 0	0- 0- 0	90-95-100	75-88-100	70-83-95	60-78-95	40-50-60	20-28-35
			5-11	Clay, silty clay	CH	A-7	0- 0- 0	0- 0- 0	90-95-100	75-88-100	70-83-95	60-78-95	50-60-70	25-35-45
			11-25	Clay, silty clay	CH	A-7	0- 0- 0	0- 0- 0	90-95-100	75-88-100	70-83-95	60-78-95	50-60-70	25-35-45
			25-60	Unweathered bedrock	—	—	—	—	—	—	—	—	—	—
Neldore	35	D	0-4	Clay	CH, CL	A-7	0- 0- 0	0- 5- 10	95-98-100	90-95-100	75-88-100	70-83-95	40-48-55	20-25-30
			4-10	Clay, silty clay	CH, CL	A-7	0- 0- 0	0- 0- 0	90-95-100	85-93-100	70-83-95	65-78-90	40-50-60	20-30-40
			10-18	Clay, silty clay	CH, CL	A-7	0- 0- 0	0- 3- 5	85-93-100	80-90-100	65-80-95	60-75-90	40-50-60	20-30-40
			18-60	Unweathered bedrock	—	—	—	—	—	—	—	—	—	—

Engineering Properties–Choteau-Conrad Area; Parts of Teton and Pondera Counties, Montana														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
286F—Neldore-Bascovy-Rock outcrop complex, 25 to 60 percent slopes														
Neldore	45	D	0-4	Clay	CH, CL	A-7	0- 0- 0	0- 5- 10	95-98-100	90-95-100	75-88-100	70-83-95	40-48-55	20-25-30
			4-10	Clay, silty clay	CH, CL	A-7	0- 0- 0	0- 0- 0	90-95-100	85-93-100	70-83-95	65-78-90	40-50-60	20-30-40
			10-18	Clay, silty clay	CH, CL	A-7	0- 0- 0	0- 3- 5	85-93-100	80-90-100	65-80-95	60-75-90	40-50-60	20-30-40
			18-60	Unweathered bedrock	—	—	—	—	—	—	—	—	—	—
Bascovy	20	D	0-5	Silty clay	CH, CL	A-7	0- 0- 0	0- 0- 0	90-95-100	75-88-100	70-83-95	60-78-95	40-50-60	20-28-35
			5-11	Clay, silty clay	CH	A-7	0- 0- 0	0- 0- 0	90-95-100	75-88-100	70-83-95	60-78-95	50-60-70	25-35-45
			11-25	Clay, silty clay	CH	A-7	0- 0- 0	0- 0- 0	90-95-100	75-88-100	70-83-95	60-78-95	50-60-70	25-35-45
			25-60	Unweathered bedrock	—	—	—	—	—	—	—	—	—	—

Engineering Properties–Choteau-Conrad Area; Parts of Teton and Pondera Counties, Montana														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
400—Havre-Fairway loams, 0 to 4 percent slopes, rarely flooded														
Havre	45	B	0-8	Loam	CL-ML	A-4	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	80-88-95	60-75-90	20-25 -30	5-8 -10
			8-20	Stratified fine sandy loam to clay loam	—	—	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	80-88-95	60-70-80	20-28 -35	5-10-15
			20-60	Stratified fine sandy loam to clay loam	CL, CL-ML	A-4, A-6	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	80-88-95	60-70-80	20-28 -35	5-10-15
Fairway	40	B	0-9	Loam	CL-ML	A-4	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	90-95-100	70-80-90	20-25 -30	5-8 -10
			9-15	Silt loam, loam	CL, CL-ML	A-4, A-6	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	90-95-100	70-80-90	20-28 -35	5-10-15
			15-48	Silty clay loam, loam	CL, CL-ML	A-4, A-6	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	95-98-100	85-90-95	20-30 -40	5-10-15
			48-60	Sand, gravelly loamy sand, very gravelly sand	GP-GM, SM, SP, SP-SM	A-1, A-2	0- 0- 0	0- 5- 10	40-70-100	30-65-100	20-40-60	0- 8- 15	0-17 -23	NP

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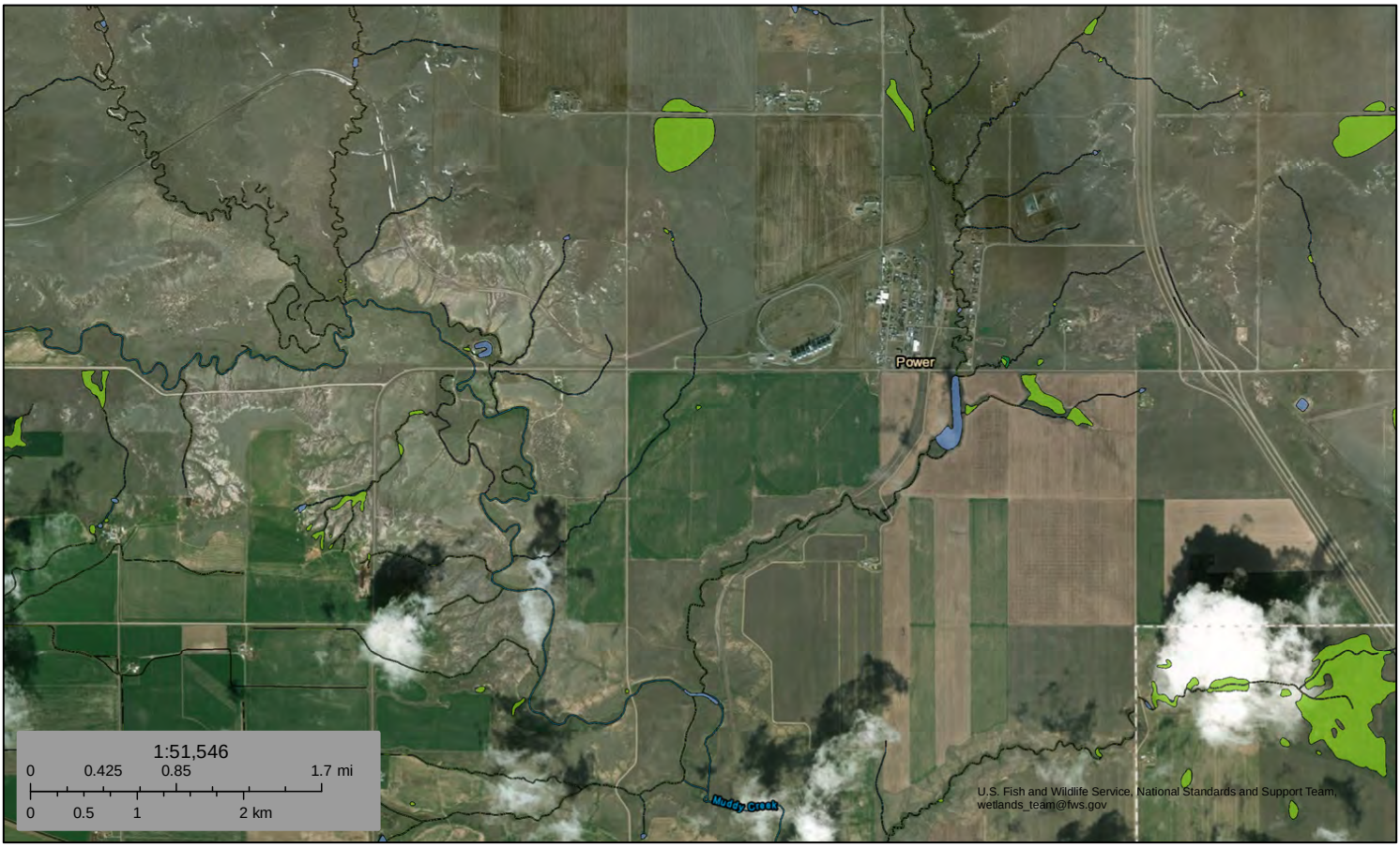
U.S. Fish and Wildlife Service
National Wetlands Inventory

Power, MT Wetlands



February 9, 2018

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

United States Department of the Interior

Fish and Wildlife Service

Ecological Services
Montana Field Office
585 Shepard Way, Suite 1
Helena, Montana 59601-6287
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ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES
MONTANA COUNTIES*
Endangered Species Act

November 17, 2017

C = Candidate
LT = Listed Threatened
LE = Listed Endangered
P = Proposed

PCH = Proposed Critical Habitat
CH = Designated Critical Habitat
XN = Experimental non-essential population

*Note: Generally, this list identifies the counties where one would reasonably expect the species to occur, not necessarily every county where the species is listed

County/Scientific Name	Common Name	Status
BEAVERHEAD		
Spiranthes diluvialis	Ute Ladies' Tresses	LT
Ursus arctos horribilis	Grizzly Bear	LT
Lynx canadensis	Canada Lynx	LT
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
BIG HORN		
Mustela nigripes	Black-footed Ferret	LE
BLAINE		
Scaphirhynchus albus	Pallid Sturgeon	LE
Mustela nigripes	Black-footed Ferret	LE
Charadrius melodus	Piping Plover	LT, CH
BROADWATER		
Spiranthes diluvialis	Ute Ladies' Tresses	LT
Lynx canadensis	Canada Lynx	LT
Ursus arctos horribilis	Grizzly Bear	LT
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
CARBON		
Lynx canadensis	Canada Lynx	LT, CH
Gulo gulo luscus	Wolverine	P
Zapada glacier	Western Glacier Stonefly	P
Pinus albicaulis	Whitebark Pine	C

County/Scientific Name	Common Name	Status
CARTER		
Grus americana	Whooping Crane	LE
Myotis septentrionalis	Northern Long-eared Bat	LT
CASCADE		
Scaphirhynchus albus	Pallid Sturgeon	LE
Lynx canadensis	Canada Lynx	LT
Calidris canutus rufa	Red Knot	LT
Charadrius melodus	Piping Plover	LT, CH
Ursus arctos horribilis	Grizzly Bear	LT
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
CHOUTEAU		
Scaphirhynchus albus	Pallid Sturgeon	LE
Lynx canadensis	Canada Lynx	LT
Charadrius melodus	Piping Plover	LT, CH
Calidris canutus rufa	Red Knot	LT
Ursus arctos horribilis	Grizzly Bear	LT
CUSTER		
Scaphirhynchus albus	Pallid Sturgeon	LE
Sterna antillarum athalassos	Interior Least Tern	LE
Grus americana	Whooping Crane	LE
Myotis septentrionalis	Northern Long-eared Bat	LT
DANIELS		
Grus americana	Whooping Crane	LE
Charadrius melodus	Piping Plover	LT, CH
DAWSON		
Scaphirhynchus albus	Pallid Sturgeon	LE
Sterna antillarum athalassos	Interior Least Tern	LE
Grus americana	Whooping Crane	LE
Charadrius melodus	Piping Plover	LT
Myotis septentrionalis	Northern Long-eared Bat	LT
DEER LODGE		
Salvelinus confluentus	Bull Trout	LT, CH
Ursus arctos horribilis	Grizzly Bear	LT
Lynx canadensis	Canada Lynx	LT
Calidris canutus rufa	Red Knot	LT
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
FALLON		
Grus americana	Whooping Crane	LE
Myotis septentrionalis	Northern Long-eared Bat	LT
Charadrius melodus	Piping Plover	LT, CH
FERGUS		
Scaphirhynchus albus	Pallid Sturgeon	LE
Lynx canadensis	Canada Lynx	LT
Pinus albicaulis	Whitebark Pine	C

County/Scientific Name	Common Name	Status
FLATHEAD		
Salvelinus confluentus	Bull Trout	LT, CH
Ursus arctos horribilis	Grizzly Bear	LT
Silene spaldingii	Spalding's Campion	LT
Lynx canadensis	Canada Lynx	LT, CH
Coccyzus americanus	Yellow-billed cuckoo (western pop.)	LT
Gulo gulo luscus	Wolverine	P
Lednia tumana	Meltwater Lednian Stonefly	P
Pinus albicaulis	Whitebark Pine	C
GALLATIN		
Spiranthes diluvialis	Ute Ladies' Tresses	LT
Lynx canadensis	Canada Lynx	LT, CH
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
GARFIELD		
Scaphirhynchus albus	Pallid Sturgeon	LE
Grus americana	Whooping Crane	LE
Charadrius melodus	Piping Plover	LT, CH
Sterna antillarum athalassos	Interior Least Tern	LE
GLACIER		
Ursus arctos horribilis	Grizzly Bear	LT
Lynx canadensis	Canada Lynx	LT, CH
Salvelinus confluentus	Bull Trout	LT, CH
Gulo gulo luscus	Wolverine	P
Lednia tumana	Meltwater Lednian Stonefly	P
Zapada glacier	Western Glacier Stonefly	P
Pinus albicaulis	Whitebark Pine	C
GOLDEN VALLEY		
Lynx canadensis	Canada Lynx	LT
Calidris canutus rufa	Red Knot	LT
Pinus albicaulis	Whitebark Pine	C
GRANITE		
Lynx canadensis	Canada Lynx	LT, CH
Ursus arctos horribilis	Grizzly Bear	LT
Salvelinus confluentus	Bull Trout	LT, CH
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
HILL		
JEFFERSON		
Spiranthes diluvialis	Ute Ladies' Tresses	LT
Lynx canadensis	Canada Lynx	LT
Ursus arctos horribilis	Grizzly Bear	LT
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
JUDITH BASIN		
Lynx canadensis	Canada Lynx	LT
Ursus arctos horribilis	Grizzly Bear	LT
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C

County/Scientific Name	Common Name	Status
LAKE		
Ursus arctos horribilis	Grizzly Bear	LT
Howellia aquatilis	Water Howellia	LT
Silene spaldingii	Spalding's Campion	LT
Lynx canadensis	Canada Lynx	LT, CH
Salvelinus confluentus	Bull Trout	LT, CH
Coccyzus americanus	Yellow-billed cuckoo (western pop.)	LT
Gulo gulo luscus	Wolverine	P
Lednia tumana	Meltwater Lednian Stonefly	P
Pinus albicaulis	Whitebark Pine	C
LEWIS AND CLARK		
Ursus arctos horribilis	Grizzly Bear	LT
Lynx canadensis	Canada Lynx	LT, CH
Salvelinus confluentus	Bull Trout	LT, CH
Calidris canutus rufa	Red Knot	LT
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
LIBERTY		
Calidris canutus rufa	Red Knot	LT
Ursus arctos horribilis	Grizzly Bear	LT
Pinus albicaulis	Whitebark Pine	C
LINCOLN		
Acipenser transmontanus	White Sturgeon (Kootenai River Pop.)	LE
Ursus arctos horribilis	Grizzly Bear	LT
Silene spaldingii	Spalding's Campion	LT
Lynx canadensis	Canada Lynx	LT, CH
Salvelinus confluentus	Bull Trout	LT, CH
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
MADISON		
Spiranthes diluvialis	Ute Ladies' Tresses	LT
Lynx canadensis	Canada Lynx	LT
Calidris canutus rufa	Red Knot	LT
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
McCONE		
Scaphirhynchus albus	Pallid Sturgeon	LE
Charadrius melodus	Piping Plover	LT, CH
Sterna antillarum athalassos	Interior Least Tern	LE
Grus americana	Whooping Crane	LE
MEAGHER		
Lynx canadensis	Canada Lynx	LT
Ursus arctos horribilis	Grizzly Bear	LT
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
MINERAL		
Lynx canadensis	Canada Lynx	LT
Salvelinus confluentus	Bull Trout	LT, CH
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C

County/Scientific Name	Common Name	Status
MISSOULA		
Ursus arctos horribilis	Grizzly Bear	LT
Howellia aquatilis	Water Howellia	LT
Lynx canadensis	Canada Lynx	LT, CH
Salvelinus confluentus	Bull Trout	LT, CH
Coccyzus americanus	Yellow-billed cuckoo (western pop.)	LT
Calidris canutus rufa	Red Knot	LT
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
MUSSELSHELL		
PARK		
Lynx canadensis	Canada Lynx	LT, CH
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
PETROLEUM		
Scaphirhynchus albus	Pallid Sturgeon	LE
Calidris canutus rufa	Red Knot	LT
PHILLIPS		
Scaphirhynchus albus	Pallid Sturgeon	LE
Charadrius melodus	Piping Plover	LT, CH
Mustela nigripes	Black-footed Ferret	LE, XN
Grus americana	Whooping Crane	LE
Sterna antillarum athalassos	Interior Least Tern	LE
Calidris canutus rufa	Red Knot	LT
PONDERA		
Charadrius melodus	Piping Plover	LT
Ursus arctos horribilis	Grizzly Bear	LT
Lynx canadensis	Canada Lynx	LT, CH
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
POWDER RIVER		
Grus americana	Whooping Crane	LE
Scaphirhynchus albus	Pallid Sturgeon	LE
Myotis septentrionalis	Northern Long-eared Bat	LT
POWELL		
Ursus arctos horribilis	Grizzly Bear	LT
Lynx canadensis	Canada Lynx	LT, CH
Salvelinus confluentus	Bull Trout	LT, CH
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
PRAIRIE		
Scaphirhynchus albus	Pallid Sturgeon	LE
Sterna antillarum athalassos	Interior Least Tern	LE
Grus americana	Whooping Crane	LE
Myotis septentrionalis	Northern Long-eared Bat	LT
Charadrius melodus	Piping Plover	LT, CH

County/Scientific Name	Common Name	Status
RAVALLI		
Salvelinus confluentus	Bull Trout	LT, CH
Lynx canadensis	Canada Lynx	LT
Coccyzus americanus	Yellow-billed cuckoo (western pop.)	LT
Ursus arctos horribilis	Grizzly Bear	LT
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
RICHLAND		
Scaphirhynchus albus	Pallid Sturgeon	LE
Charadrius melodus	Piping Plover	LT, CH
Sterna antillarum athalassos	Interior Least Tern	LE
Grus americana	Whooping Crane	LE
Myotis septentrionalis	Northern Long-eared Bat	LT
ROOSEVELT		
Scaphirhynchus albus	Pallid Sturgeon	LE
Charadrius melodus	Piping Plover	LT, CH
Sterna antillarum athalassos	Interior Least Tern	LE
Grus americana	Whooping Crane	LE
Calidris canutus rufa	Red Knot	LT
Myotis septentrionalis	Northern Long-eared Bat	LT
ROSEBUD		
Sterna antillarum athalassos	Interior Least Tern	LE
Scaphirhynchus albus	Pallid Sturgeon	LE
Grus americana	Whooping Crane	LE
SANDERS		
Ursus arctos horribilis	Grizzly Bear	LT
Lynx canadensis	Canada Lynx	LT
Salvelinus confluentus	Bull Trout	LT, CH
Silene spaldingii	Spalding's Campion	LT
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
SHERIDAN		
Charadrius melodus	Piping Plover	LT, CH
Grus americana	Whooping Crane	LE
Sterna antillarum athalassos	Interior Least Tern	LE
Calidris canutus rufa	Red Knot	LT
SILVER BOW		
Salvelinus confluentus	Bull Trout	LT
Ursus arctos horribilis	Grizzly Bear	LT
Lynx canadensis	Canada Lynx	LT
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
STILLWATER		
Lynx canadensis	Canada Lynx	LT, CH
Charadrius melodus	Piping Plover	LT, CH
Calidris canutus rufa	Red Knot	LT
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C

County/Scientific Name	Common Name	Status
SWEET GRASS		
Lynx canadensis	Canada Lynx	LT, CH
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
TETON		
Ursus arctos horribilis	Grizzly Bear	LT
Lynx canadensis	Canada Lynx	LT, CH
Calidris canutus rufa	Red Knot	LT
Charadrius melodus	Piping Plover	LT, CH
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
TOOLE		
Calidris canutus rufa	Red Knot	LT
Ursus arctos horribilis	Grizzly Bear	LT
Pinus albicaulis	Whitebark Pine	C
TREASURE		
No listings at this time		
VALLEY		
Scaphirhynchus albus	Pallid Sturgeon	LE
Sterna antillarum athalassos	Interior Least Tern	LE
Grus americana	Whooping Crane	LE
Charadrius melodus	Piping Plover	LT, CH
Calidris canutus rufa	Red Knot	LT
WHEATLAND		
Lynx canadensis	Canada Lynx	LT
Ursus arctos horribilis	Grizzly Bear	LT
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
WIBAUX		
Scaphirhynchus albus	Pallid Sturgeon	LE
Sterna antillarum athalassos	Interior Least Tern	LE
Grus americana	Whooping Crane	LE
Myotis septentrionalis	Northern Long-eared Bat	LT
Charadrius melodus	Piping Plover	LT
YELLOWSTONE		
Grus americana	Whooping Crane	LE
Calidris canutus rufa	Red Knot	LT

Montana Natural Heritage - SOC Report

Species List Last Updated **05/03/2016**

Animal Species of Concern

1 Species of Concern
Filtered by the following criteria:
Township = 023N001W (based on mapped Species Occurrences)

MONTANA Natural Heritage Program

A program of the Montana State Library's Natural Resource Information System operated by the University of Montana.

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Introduction

Species of Concern

Species of Concern
1 Species
Filtered by the following criteria:
Township = 023N001W (based on mapped **Species Occurrences**)

BIRDS (AVES)

TOWNSHIP = 023N001W (based on ma

SCIENTIFIC NAME COMMON NAME TAXA SORT	FAMILY (SCIENTIFIC) FAMILY (COMMON)	GLOBAL RANK	STATE RANK	USFWS	USFS	BLM	FWP SWAP	% OF GLOBAL BREEDING RANGE IN MT	% OF MT THAT IS BREEDING RANGE
Podiceps auritus Horned Grebe	Podicipedidae Grebes	G5	S3B	MBTA; BCC11; BCC17			SGCN3	3%	77%
		Species Occurrences verified in these Counties: Cascade, Chouteau, Flathead, Lake, Phillips, Powell, Sheridan, Teton							

Potential Species of Concern

Potential Species of Concern
0 Species
Filtered by the following criteria:
Township = 023N001W (based on mapped **Species Occurrences**)

Special Status Species

Special Status Species
0 Species
Filtered by the following criteria:
Township = 023N001W (based on mapped **Species Occurrences**)

Additions To Statewide List

Species Removed From Statewide List

Species of Greatest Inventory Need

Citation for data on this website:
Montana Animal Species of Concern Report. Montana Natural Heritage Program and Montana Fish, Wildlife and Parks. Retrieved on 2/9/2018, from http://mtnhp.org/SpeciesOfConcern/?AorP=a

Montana Natural Heritage - SOC Report

Species List Last Updated **05/03/2016**

Plant Species of Concern

0 Species
Filtered by the following criteria:
Township = 023N001W (based on mapped Species Occurrences)

MONTANA Natural Heritage Program

A program of the Montana State Library's Natural Resource Information System operated by the University of Montana.

Expand All | Collapse All

Introduction

Species of Concern

Species of Concern
0 Species
Filtered by the following criteria:
Township = 023N001W (based on mapped **Species Occurrences**)

Potential Species of Concern

Potential Species of Concern
0 Species
Filtered by the following criteria:
Township = 023N001W (based on mapped **Species Occurrences**)

Special Status Species

Special Status Species
0 Species
Filtered by the following criteria:
Township = 023N001W (based on mapped **Species Occurrences**)

Additions To Statewide List

Species Removed From Statewide List

Citation for data on this website:
Montana Plant Species of Concern Report. Montana Natural Heritage Program. Retrieved on 2/9/2018, from http://mtnhp.org/SpeciesOfConcern/?AorP=p

COMMUNITY DEVELOPMENT DIVISION

Census & Target Rate Info

Search below for 2015 American Communities Survey data used to calculate target rates when applying to the **Treasure State Endowment Program** and **Community Development Block Group Grant Program.**

Select a Location:

City/Designated location Power CDP ▼ **or** County Choose County ▼

City	Power CDP
County	*Teton County*
Total Population	172
Total Households	74
Median Household Income	$59,286
Low & Moderate Income Percent	31.58%
Percent Poverty	15.5 %

Target Rates

Water & Waste Water	$113.63
Water Only	$69.17
WasteWater Only	$44.46
Solid Waste Only	$14.82

Amounts are computed using the 2015 census and target percentage rationale reviewed biennially by Commerce. The target percentages are:

2.3% combined (water and wastewater)
1.4% for water alone
0.9% for wastewater alone
0.3% for solid waste

For example: Community median household income is $25,000 and the residents pay both water and wastewater rates, the calculation would be: $25,000 times 2.3% divided by 12 equals monthly target rate of $47.92. (25,000 x 2.3%)/12 = $47.92)

Having trouble finding data for your community? Some communities may not be listed in the resources above because the American Community Survey (ACS) did not provide 2015 MHI data for those areas. Please contact us at (406) 841-2770 or email **TSEP** or **CDBG** if you have any questions about this information.

Mapping

To see maps of the City/Town/CDP or County in which you are interested, please go to **http://ceic.mt.gov/**. For more information about the maps or tools available, please contact the Census and Economic Information Bureau at (406) 841-2713 or email **ceic@mt.gov**.

Contacts

Treasure State Endowment Program (TSEP)	406 841-2770
Community Development Block Grant Program (CDBG)	406 841-2770
Census & Economic Information Center	406 841-2740

Definitions

Census Designated Place (CDP): Census designated places (CDPs) have been created for each decennial census as the statistical counterparts of incorporated places. CDPs are delineated to provide census data for concentrations of population, housing, and commercial structures that are identifiable by name but are not within an incorporated place. CDP boundaries usually are defined in cooperation with state, local, and tribal officials. These boundaries, which usually coincide with visible features or the boundary of an adjacent incorporated place or other legal entity boundary, have no legal status, nor do these places have officials elected to serve traditional municipal functions.

Household: A household includes all the people who occupy a housing unit as their usual place of residence.

Income of households: This includes the income of the householder and all other individuals 15 years old and over in the household, whether they are related to the householder or not.

Low and Moderate Income Percent: Low and Moderate Income Percent is calculated by U.S. Housing and Urban Development (HUD) using data from the U.S. Census Bureau's Decennial Census, specifically for the Community Development Block Grant Program (CDBG). LMI families are defined as those families whose income does not exceed 80% of the county median income for the previous year or 80% of the median income of the entire non-metropolitan area of the State of Montana, whichever is higher.

Median income: The median income divides the income distribution into two equal groups, one having incomes above the median, and other having incomes below the median.

Notes: Total Population and Total Households are from Summary File (SF) 1, 100% data. Poverty Rates and Median Household Income are from Summary File (SF) 3, Sample data. Low and Moderate Income Percentage was developed by HUD using Census 2010 data.

Sources: U.S. Census Bureau & HUD
Median Household Income
Census Bureau, American Community Survey 2011 - 2015 Estimates

Total Population & Households
U.S. Census Bureau, 2015 Census - Summary File 1 (SF1) 100% Data

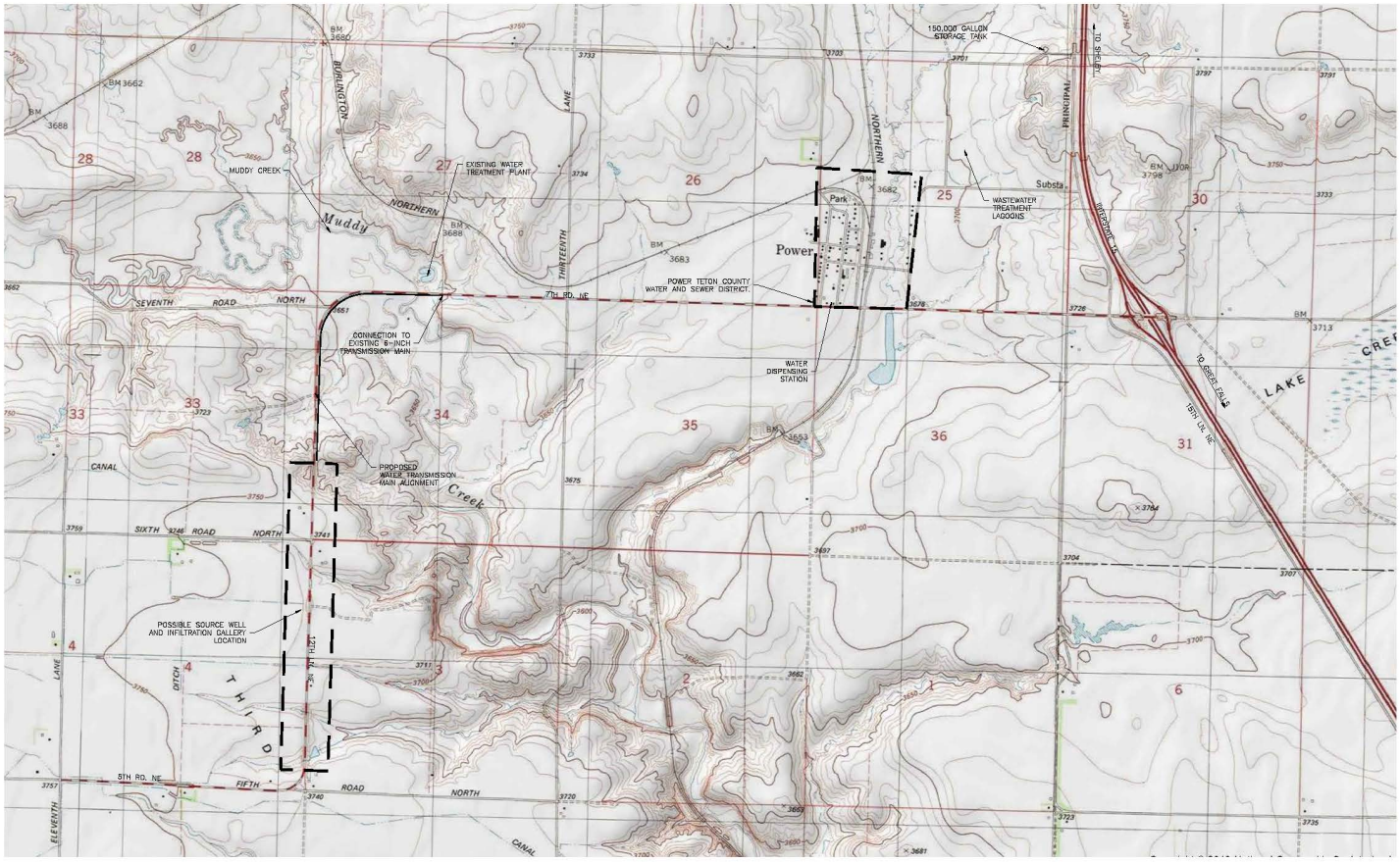
Low to Moderate Income Percent
HUD 2014 Low and Moderate Income Data

Target Rates for 2010 Census Data

APPENDIX 1 - D

Agency Correspondence

J:\2017\17-258 Power-Teton County Water and Sewer District PER\CADD\CIVIL\17-258 FIGURE 2.2.dwg, 1/12/2018 9:56:53 AM, nmr



NOT FOR CONSTRUCTION

REV	DATE	REVISION

TD&H Engineering
406.761.1310 • tdheng@tdheng.com
1800 RIVER DR. NO., GREAT FALLS, MONTANA 59401

DRAWN BY: CDF
DESIGNED BY:
QUALITY CHECK:
DATE: 2018-01-10
JOB NO. 17-258
FIELDBOOK

POWER TETON COUNTY WATER AND SEWER DISTRICT
POWER, MONTANA

USGS MAP

17-258 FIGURE 2.2.DWG

FIGURE **2-2**

1800 River Drive North
Great Falls, MT 59401

406.761.3010
tdhengineering.com

January 12, 2018

Bureau of Land Management
ATTN: Mr. Jon Rabby
5001 Southgate Drive
Billings, MT 59101

RE: POWER-TETON COUNTY WATER AND SEWER DISTRICT
TD&H ENGINEERING JOB NO. 17-258

TD&H Engineering is preparing a Preliminary Engineering Report for the Power-Teton County Water and Sewer District to address their inadequate water source and treatment plant. As part of the planning process, we are requesting comments from Bureau of Land Management regarding the proposed project. Power, Montana is an unincorporated community located in Township 23 North R and 1 East. The recommended alternative will include:

- Two (2) new infiltration galleries
- Two (2) new collector wells
- New Pump Station
- Approximately 2-miles of new transmission main

Attached to this letter is the USGS topographic map of the area, including possible locations for proposed source wells and infiltration gallery. Please contact me with any comments or questions regarding the proposed project at either nicole.rediske@tdhengineering.com or 406-761-3010. Your response will be included in the Preliminary Engineering Report.

Sincerely,

Nicole Rediske EI
Engineer
TD&H ENGINEERING

J:\2017\17-258 Power-Teton County Water and Sewer District
PER\DOCUMENTS\CORRESPONDENCE\ENVIRONMENTAL LETTERS\00_TEMPLATE.DOC

1800 River Drive North
Great Falls, MT 59401

406.761.3010
tdhengineering.com

January 12, 2018

Bureau of Land Management
ATTN: Mr. Mark Albers
920 Northeast Main
Lewistown, MT 59457

RE: POWER-TETON COUNTY WATER AND SEWER DISTRICT
TD&H ENGINEERING JOB NO. 17-258

TD&H Engineering is preparing a Preliminary Engineering Report for the Power-Teton County Water and Sewer District to address their inadequate water source and treatment plant. As part of the planning process, we are requesting comments from Bureau of Land Management regarding the proposed project. Power, Montana is an unincorporated community located in Township 23 North R and 1 East. The recommended alternative will include:

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Sincerely,

Nicole Rediske EI
Engineer
TD&H ENGINEERING

J:\2017\17-258 Power-Teton County Water and Sewer District
PER\DOCUMENTS\CORRESPONDENCE\ENVIRONMENTAL LETTERS\00_TEMPLATE.DOC

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Lewistown Field Office
920 North East Main Street
Lewistown, Montana 59457-4079
www.blm.gov/mt

In Reply Refer To:
2000

January 24, 2018

TD&H Engineering
Attention: Nicole Rediske
1800 River Drive North
Great Falls, Montana 59401

Dear Ms. Rediske:

We received your recent request for comment on your Preliminary Engineering Report regarding the Power-Teton County Water and Sewer District (TD&H Job #17-258).

The legal location on the letter was incorrect (Township 23 North R and 1 East). The correct legal location for this project as mapped is Township 23 North, Range 1 West.

A review of our files indicates that the parcels which could potentially be impacted by your proposal are administered by the Bureau of Reclamation. A possible contact for you would be Mr. Jeff Baumberger and his phone number is 406-247-7314.

Since the lands are not administered by the Bureau of Land Management, we have no further comment on the project. Thank you for the opportunity to comment.

Sincerely,

Brett A. Blumhardt
Acting Field Manager

1800 River Drive North
Great Falls, MT 59401

406.761.3010
tdhengineering.com

January 12, 2018

United States Army Corps of Engineers
10 West 15th Street, Suite 2200
Helena, MT 59626

RE: POWER-TETON COUNTY WATER AND SEWER DISTRICT
TD&H ENGINEERING JOB NO. 17-258

TD&H Engineering is preparing a Preliminary Engineering Report for the Power-Teton County Water and Sewer District to address their inadequate water source and treatment plant. As part of the planning process, we are requesting comments from the United States Army Corps of Engineers regarding the proposed project. Power, Montana is an unincorporated community located in Township 23 North R and 1 East. The recommended alternative will include:

- Two (2) new infiltration galleries
- Two (2) new collector wells
- New Pump Station
- Approximately 2-miles of new transmission main

Attached to this letter is the USGS topographic map of the area, including possible locations for proposed source wells and infiltration gallery. Please contact me with any comments or questions regarding the proposed project at either nicole.rediske@tdhengineering.com or 406-761-3010. Your response will be included in the Preliminary Engineering Report.

Sincerely,

Nicole Rediske EI
Engineer
TD&H ENGINEERING

J:\2017\17-258 Power-Teton County Water and Sewer District
PER\DOCUMENTS\CORRESPONDENCE\ENVIRONMENTAL LETTERS\00_TEMPLATE.DOC

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
HELENA REGULATORY OFFICE
10 WEST 15TH STREET, SUITE 2200
HELENA, MONTANA 59626

REPLY TO
ATTENTION OF

February 6, 2018

Regulatory Branch
Montana State Program
Corps No. **NWO-2018-00172**

Subject: Power-Teton County Water and Sewer District (TD&H Engineering) - Water System Improvements - Muddy Creek - (Teton County)

Nicole Rediske
TD&H Engineering
1800 River Drive North
Great Falls, Montana 59401

Dear Ms. Rediske:

We are responding to your request for Department of Army comment regarding the above-referenced project. Specifically, you are proposing improvements to the Power-Teton County Water and Sewer District to address inadequate water sources and treatment plant. The project is located near Section 33, Township 23 N, Range 1 W, Principal Meridian, Latitude 47.70319°, Longitude -111.731184°, Teton County, Montana.

The mission of the U.S. Army Corps of Engineers (Corps) Regulatory Program is to protect the Nation's aquatic resources while allowing reasonable development through fair, flexible and balanced permit decisions. In particular, under Section 404 of the Clean Water Act, we work to protect the biological, physical, and chemical integrity of the Nation's aquatic resources. Projects are evaluated on a case-by-case basis to determine the potential benefits and detriments that may occur as a result of the proposal. In all cases an applicant must avoid and minimize impacts to aquatic resources to the greatest extent practicable.

Under the authority of Section 404 of the Clean Water Act (CWA), DA permits are required for the discharge of fill material into waters of the U.S. Waters of the U.S. include the area below the ordinary high water mark of stream channels and lakes or ponds connected to the tributary system, and wetlands adjacent to these waters. Isolated waters and wetlands, as well as man-made channels, may be waters of the U.S. in certain circumstances, which must be determined on a case-by-case basis.

Based on the information provided in your submittal, it appears that regulated activities are proposed and jurisdictional waters of the U.S. are present within the project area. If your final design includes the placement of fill material in any jurisdictional area described above, or otherwise requires authorization by a DA permit, please submit a Montana Joint Permit Application to this office prior to starting any work. After a review of the materials submitted we will determine what type of permit, if any, will be required. You can obtain a Montana Joint Permit Application Form at the following address: http://www.dnrc.mt.gov/licenses-and-permits/stream-permitting. A list of requirements for a complete Nationwide Permit application can be obtained at the following address: http://www.nwo.usace.army.mil/Media/Fact-

Sheets/Fact-Sheet-Article-View/Article/487708/pre-construction-notification/ If you do not have internet access please contact our office at the address below to obtain more information.

Note that this letter is not a DA authorization to proceed. It only informs you of your need to obtain a DA permit if waters of the U.S. will be affected. If waters of the U.S. will not be affected by a jurisdictional activity a DA permit will not be required for the project.

Please refer to identification number NWO-2018-00172 in any correspondence concerning this project. If you have any questions, please contact Jade Clabaugh at 10 W 15th Street, Suite 2200, Helena, MT, 59626, by email at Jade.M.Clabaugh@usace.army.mil, or telephone at (406) 441-1365.

Sincerely,

Jade M. Clabaugh
Regulatory Project Manager

Printed on Recycled Paper

1800 River Drive North
Great Falls, MT 59401

406.761.3010
tdhengineering.com

January 12, 2018

Montana Department of Environmental Quality
Permitting and Compliance Division
ATTN: Mr. John DeArment
1520 E 6th Ave
PO Box 200901
Helena, MT 59620-0901

RE: POWER-TETON COUNTY WATER AND SEWER DISTRICT
TD&H ENGINEERING JOB NO. 17-258

TD&H Engineering is preparing a Preliminary Engineering Report for the Power-Teton County Water and Sewer District to address their inadequate water source and treatment plant. As part of the planning process, we are requesting comments from the Montana Department of Environmental Quality regarding the proposed project. Power, Montana is an unincorporated community located in Township 23 North R and 1 East. The recommended alternative will include:

- Two (2) new infiltration galleries
- Two (2) new collector wells
- New Pump Station
- Approximately 2-miles of new transmission main

Attached to this letter is the USGS topographic map of the area, including possible locations for proposed source wells and infiltration gallery. Please contact me with any comments or questions regarding the proposed project at either nicole.rediske@tdhengineering.com or 406-761-3010. Your response will be included in the Preliminary Engineering Report.

Sincerely,

Nicole Rediske EI
Engineer
TD&H ENGINEERING

J:\2017\17-258 Power-Teton County Water and Sewer District
PER\DOCUMENTS\CORRESPONDENCE\ENVIRONMENTAL LETTERS\00_TEMPLATE.DOC

February 9, 2018

Ms. Nicole Rediske, EI
TD&H Engineering
1800 River Drive North
Great Falls, MT 59401

Re: Request for Comments on Proposed Water System Project, Power – Teton Co. W&SD, MT

Dear Nicole:

Thank you for the information and request for comments regarding the Power W&SD and their proposed water system project. Below are comments submitted by a few different areas of DEQ.

Public Water Supply Program:

Since DEQ will be reviewing environmental documents, the preliminary engineering report, plans and specifications for the proposed project, those reviews will serve as the Department's comments. The reviews will be performed by either the Public Water Supply Program, or if DEQ funding is also proposed, in the Drinking Water State Revolving Fund Program. Please also keep in mind that other DEQ permits associated with construction of the project may be required.

If you have any questions regarding DEQ's participation, please contact Rachel Clark (406.444.6722 or rclark@mt.gov) or Mark Smith (406.444.5325 or marks@mt.gov) in the Public Water Supply Program.

Source Water Protection and Ground Water Pollution Control System Programs:

The Greenfields Bench is mostly agricultural land under cultivation of small grains, generally barley according to the USDA croplands layer. As such, the proposed water sources will have some susceptibility to potential contaminant sources associated with this land use, such as nitrate and agricultural chemicals. The degree of susceptibility will depend upon barriers to these contaminants. Available MBMG water quality data from this area shows nitrate concentrations ranging from 2 – 4 mg/L. While this is below half the MCL, other water supplies in similar settings have experienced issues with elevated nitrate. This may still be preferable to the surface water source on Muddy Creek, as the nitrate concentrations are similar.

We didn't identify any pipelines or hazardous material sites in a cursory screen of the area of the proposed sources and transmission main. However, a more thorough review will be required, and aerial photographs show electrical utilities may be present along 12th Lane NE.

The request for preliminary comment doesn't address plans for the existing surface water source and associated treatment. The existing backwash pond discharges under an administratively continued authorization for an outdated general permit. If future operation will continue to generate backwash water for disposal, we encourage the water system or their representatives to begin discussing plans with DEQ's Water Protection Bureau as soon as possible. They can be reached at 406-444-5546.

Waste Management and Remediation Division:

On water projects we are sometimes concerned if they are in proximity to contaminated sites, either from groundwater dewatering that may be needed and/or excavation of contaminated soil. Attached is a GIS map of Remediation sites and a spreadsheet listing them. If you have any questions, please contact Sue Fairchild (406-444-6423 or SFairchild@mt.gov) in the Petroleum Tank Clean-up Program.

Sincerely,

Lindsay Ford
Director's Office Support Coordinator
(406) 444-5270

REF# 2018-016

1800 River Drive North
Great Falls, MT 59401

406.761.3010
tdhengineering.com

January 12, 2018

Department of Natural Resources and Conservation
ATTN: Resource Development Bureau Engineer
1625 11th Ave
PO Box 201601
Helena, MT 59620-1601

RE: POWER-TETON COUNTY WATER AND SEWER DISTRICT
TD&H ENGINEERING JOB NO. 17-258

TD&H Engineering is preparing a Preliminary Engineering Report for the Power-Teton County Water and Sewer District to address their inadequate water source and treatment plant. As part of the planning process, we are requesting comments from the Department of Natural Resources and Conservation regarding the proposed project. Power, Montana is an unincorporated community located in Township 23 North R and 1 East. The recommended alternative will include:

- Two (2) new infiltration galleries
- Two (2) new collector wells
- New Pump Station
- Approximately 2-miles of new transmission main

Attached to this letter is the USGS topographic map of the area, including possible locations for proposed source wells and infiltration gallery. Please contact me with any comments or questions regarding the proposed project at either nicole.rediske@tdhengineering.com or 406-761-3010. Your response will be included in the Preliminary Engineering Report.

Sincerely,

Nicole Rediske EI
Engineer
TD&H ENGINEERING

J:\2017\17-258 Power-Teton County Water and Sewer District
PER\DOCUMENTS\CORRESPONDENCE\ENVIRONMENTAL LETTERS\00_TEMPLATE.DOC

DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION
Water Resources Division - Havre Regional Office
STEVE BULLOCK, GOVERNOR
210 6th AVENUE
STATE OF MONTANA
PHONE (406) 265-5516
FAX: (406) 265-2225
PO BOX 1828
HAVRE, MONTANA 59501

February 6, 2018

Nicole Rediske
TD&H Engineering
1800 River Drive North
Great Falls, MT 59401

SENT VIA ELECTRONIC MAIL to: nicole.rediske@tdhengineering.com

RE: Power – Teton County Water and Sewer District Improvement Planning

Dear Ms. Rediske:

Upon your request, this letter presents the Department's review of the planning process for the Power – Teton County Water and Sewer District which intends to address an inadequate water source and treatment plant. Comments are based solely on the information provided in your letter addressed to the Helena Central Office, dated January 12, 2018, and received in the Havre Regional Office on February 2, 2018. This review is limited to potential water right and floodplain management issues.

Potential Water Right Implications
Under Montana Code Annotated Title 85, there may be accompanying water right implications involving the proposed work to be done for the Power – Teton County Water and Sewer District. As such, a water right potential impact request should be made to Tyler Lystash, Water Resource Specialist at the DNRC Water Resources Havre Regional Office.

Potential Floodplain Implications
The Town of Power currently does not participate in the National Flood Insurance Program. At the proposed project area in Teton County, the Flood Insurance Rate Map (FIRM) covering the area is Panel Number 3001680625B, which is entirely designated as Zone D. According to FEMA, "The Zone D designation is used for areas where there are possible but undetermined flood hazards, as no analysis of flood hazards has been conducted." Typically, work proposed within Zone D areas do not require a floodplain permit. However, since floodplain permitting for this area is administered by Teton County, we suggest you confirm the permitting requirements with the Teton County Floodplain Administrator, Mr. Paul Wick (406.466.3130 or planning31@3rivers.net). In regards to future projects, if a floodplain restudy and subsequent FIRMs are made effective, or if the Town of Power joins the National Flood Insurance Program, any projects located within the designated 100-year floodplain will need an appropriate

Floodplain Permit. At the time the project was presented, the DNRC has no further comments regarding potential floodplain implications.

Please contact the DNRC Havre Regional Office if you have additional questions or concerns.

Sincerely,

Mike Mahowald
Civil Engineering Specialist
DNRC Havre Regional Office
(406) 265-5516
mmahowald@mt.gov

Cc: Tyler Lystash, Water Resource Specialist, MT DNRC Havre Regional Office
Traci Sears, Montana NFIP/CAP Coordinator, MT DNRC Water Resources Division
Paul Wick, Teton County Floodplain Administrator

1800 River Drive North
Great Falls, MT 59401

406.761.3010
tdhengineering.com

January 12, 2018

Department of Fish, Wildlife and Parks
ATTN: Mr. Gary Bertellotti
4600 Giant Springs Road
Great Falls, MT 59405

RE: POWER-TETON COUNTY WATER AND SEWER DISTRICT
TD&H ENGINEERING JOB NO. 17-258

TD&H Engineering is preparing a Preliminary Engineering Report for the Power-Teton County Water and Sewer District to address their inadequate water source and treatment plant. As part of the planning process, we are requesting comments from the Montana Fish, Wildlife and Parks regarding the proposed project. Power, Montana is an unincorporated community located in Township 23 North R and 1 East. The recommended alternative will include:

- Two (2) new infiltration galleries
- Two (2) new collector wells
- New Pump Station
- Approximately 2-miles of new transmission main

Attached to this letter is the USGS topographic map of the area, including possible locations for proposed source wells and infiltration gallery. Please contact me with any comments or questions regarding the proposed project at either nicole.rediske@tdhengineering.com or 406-761-3010. Your response will be included in the Preliminary Engineering Report.

Sincerely,

Nicole Rediske EI
Engineer
TD&H ENGINEERING

J:\2017\17-258 Power-Teton County Water and Sewer District
PER\DOCUMENTS\CORRESPONDENCE\ENVIRONMENTAL LETTERS\00_TEMPLATE.DOC

1800 River Drive North
Great Falls, MT 59401

406.761.3010
tdhengineering.com

January 12, 2018

Department of Fish, Wildlife and Parks
ATTN: Mr. Thomas Baumeister
1420 E 6th
Helena, MT 59620

RE: POWER-TETON COUNTY WATER AND SEWER DISTRICT
TD&H ENGINEERING JOB NO. 17-258

TD&H Engineering is preparing a Preliminary Engineering Report for the Power-Teton County Water and Sewer District to address their inadequate water source and treatment plant. As part of the planning process, we are requesting comments from the Montana Fish, Wildlife and Parks regarding the proposed project. Power, Montana is an unincorporated community located in Township 23 North R and 1 East. The recommended alternative will include:

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Sincerely,

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Engineer
TD&H ENGINEERING

J:\2017\17-258 Power-Teton County Water and Sewer District
PER\DOCUMENTS\CORRESPONDENCE\ENVIRONMENTAL LETTERS\00_TEMPLATE.DOC

Nicole Rediske - FWP comments to Power-Teton County Montana Water and Sewer district project

---

From: "Bertellotti, Gary" <GBertellotti@mt.gov>
To: "rediske@tdhengineering.com" <rediske@tdhengineering.com>
Date: 2/21/2018 8:32 AM
Subject: FWP comments to Power-Teton County Montana Water and Sewer district project
Bc: Nicole Rediske
Attachments: SKM_C284e18020617230 (003) Power MT.pdf; SKM_C284e18020617240 (002).pdf

---

Nicole,

I am putting comment from FWP staff into the body of this e-mail.

Gary Bertellotti
FWP R-4 Regional Supervisor
4600 Giant Springs Road
Great Falls, MT 59405
406-454-5846
406-788-1174
gbertellotti@mt.gov

FWP COMMENT:

This area has low probability for the presence of a threatened species : Grizzly Bear and would note this in you Environmental assessment.

They will either have to get a new water right or change their existing water right for Muddy Creek. In either case DNRC will likely make them get a contract from Canyon Ferry to make up water lost from the Missouri. As for Muddy Creek, I don't have any concern as FWP doesn't an instream water right and the issue is usually too much flow for the channel to handle.

As for the Sun River below Muddy Creek FWP's 130 cfs instream right is met nearly all of the time. Only during the winter months during the past 40 years has the monthly average flow in the Sun for January and February dropped just below 130 cfs in only one year in each month. Based on this information, I don't have any concern with impacts to the Sun.

1800 River Drive North
Great Falls, MT 59401

406.761.3010
tdhengineering.com

January 12, 2018

Natural Resources Conservation Service
ATTN: Ms. Lea McGiboney
12 3rd Street NW, Suite 300
Great Falls, MT 59403

RE: POWER-TETON COUNTY WATER AND SEWER DISTRICT
TD&H ENGINEERING JOB NO. 17-258

TD&H Engineering is preparing a Preliminary Engineering Report for the Power-Teton County Water and Sewer District to address their inadequate water source and treatment plant. As part of the planning process, we are requesting comments from the Natural Resources Conservation Service regarding the proposed project. Power, Montana is an unincorporated community located in Township 23 North R and 1 East. The recommended alternative will include:

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Sincerely,

Nicole Rediske EI
Engineer
TD&H ENGINEERING

J:\2017\17-258 Power-Teton County Water and Sewer District
PER\DOCUMENTS\CORRESPONDENCE\ENVIRONMENTAL LETTERS\00_TEMPLATE.DOC

1800 River Drive North
Great Falls, MT 59401

406.761.3010
tdhengineering.com

January 12, 2018

United States Environmental Protection Agency
Federal Building
10 West 15th Street, Suite 3200
Helena, MT 59626

RE: POWER-TETON COUNTY WATER AND SEWER DISTRICT
TD&H ENGINEERING JOB NO. 17-258

TD&H Engineering is preparing a Preliminary Engineering Report for the Power-Teton County Water and Sewer District to address their inadequate water source and treatment plant. As part of the planning process, we are requesting comments from the United States EPA regarding the proposed project. Power, Montana is an unincorporated community located in Township 23 North R and 1 East. The recommended alternative will include:

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Sincerely,

Nicole Rediske EI
Engineer
TD&H ENGINEERING

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PER\DOCUMENTS\CORRESPONDENCE\ENVIRONMENTAL LETTERS\00_TEMPLATE.DOC

1800 River Drive North
Great Falls, MT 59401

406.761.3010
tdhengineering.com

January 12, 2018

US Fish, Wildlife and Parks
ATTN: Ms. Jodi Bush
585 Shepard Way, Suite 1
Helena, MT 59601

RE: POWER-TETON COUNTY WATER AND SEWER DISTRICT
TD&H ENGINEERING JOB NO. 17-258

TD&H Engineering is preparing a Preliminary Engineering Report for the Power-Teton County Water and Sewer District to address their inadequate water source and treatment plant. As part of the planning process, we are requesting comments from the United States Fish, Wildlife and Parks regarding the proposed project. Power, Montana is an unincorporated community located in Township 23 North R and 1 East. The recommended alternative will include:

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Sincerely,

Nicole Rediske EI
Engineer
TD&H ENGINEERING

J:\2017\17-258 Power-Teton County Water and Sewer District
PER\DOCUMENTS\CORRESPONDENCE\ENVIRONMENTAL LETTERS\00_TEMPLATE.DOC

1800 River Drive North
Great Falls, MT 59401

406.761.3010
tdhengineering.com

January 12, 2018

US Forest Service
ATTN: Mr. Dan Hager
PO Box 7669
Missoula, MT 59807

RE: POWER-TETON COUNTY WATER AND SEWER DISTRICT
TD&H ENGINEERING JOB NO. 17-258

TD&H Engineering is preparing a Preliminary Engineering Report for the Power-Teton County Water and Sewer District to address their inadequate water source and treatment plant. As part of the planning process, we are requesting comments from the United States Forest Service regarding the proposed project. Power, Montana is an unincorporated community located in Township 23 North R and 1 East. The recommended alternative will include:

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Engineer
TD&H ENGINEERING

J:\2017\17-258 Power-Teton County Water and Sewer District
PER\DOCUMENTS\CORRESPONDENCE\ENVIRONMENTAL LETTERS\00_TEMPLATE.DOC

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Montana Ecological Services Office
585 Shephard Way, Suite 1
Helena, Montana 59601-6287

In Reply Refer To:
M.29 Public
06E11000-2018-CPA-0043;
06E11000-2018-TA-0230

February 22, 2018

Nicole Rediske, Engineer
T D & H Engineering
1800 River Drive North
Great Falls, Montana 59401

Dear Ms. Rediske:

Thank you for your letter of January 12, 2018, received in this office on January 17, requesting U.S. Fish and Wildlife Service (Service) comment regarding the proposed Power-Teton County Water and Sewer District improvements. The proposed project would address the district's inadequate water source and treatment plant by creating two new infiltration galleries, two new collector wells, a new pump station, and approximately two miles of new water transmission main. The proposed project would serve Power, Montana, an unincorporated community located in Township 23 North, Range 1 East, Section 25.

Our comments are prepared under the authority of, and in accordance with, the provisions of the Migratory Bird Treaty Act (16 U.S.C. 703 et seq.), Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d, 54 Stat. 250), and the Endangered Species Act (16 U.S.C. 1531 et. seq.). Our comments do not address the overall environmental acceptability of the proposed action. We offer the following comments for your consideration.

Threatened and Endangered Species

The current list of candidate, proposed, threatened or endangered species, and designated critical habitat occurring in Teton County, Montana is as follows:

Scientific Name	***Common Name***	***Status****
Ursus arctos horribilis	Grizzly Bear	LT
Lynx canadensis	Canada Lynx	LT, CH
Calidris canutus rufa	Red Knot	LT
Charadrius melodus	Piping Plover	LT, CH
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C

*LE=Listed as Endangered, LT=Listed Threatened, C=Candidate species for listing, P=Proposed, CH=Designated Critical Habitat

Based on the proposed location of this proposed work in an existing agricultural setting, we do not anticipate its implementation would result in adverse effects to listed, proposed or candidate threatened or endangered species, or listed or proposed critical habitat.

The project occurs within what the Service considers potential grizzly bear range in Montana. Although the chance is low, transient grizzly bears could possibly occur in the general project area. To reduce the risk of human/grizzly bear conflicts related to this project, the Service advises implementation of the following (or similar) voluntary conservation measures:

1. Promptly clean up any project related spills, litter, garbage, debris, etc.
2. Allow no overnight camping within the project vicinity, except in designated campgrounds, by any crew member or other personnel associated with this project.
3. Store all food, food related items, petroleum products, antifreeze, garbage, personal hygiene items, and other attractants inside a closed, hard-sided vehicle or commercially manufactured bear resistant container.
4. Remove garbage from the project site daily and dispose of it in accordance with all applicable regulations.
5. Notify the Project Manager of any animal carcasses found in the area.
6. Notify the Project Manager of any grizzly bears observed in the vicinity of the project.

Eagles and other Migratory Birds

The Service is not aware of any known bald or golden eagle nests within several miles of the project. Given the generally converted nature of the immediate project area, we do not anticipate substantive negative project-related effects to bald or golden eagles. However, if active eagle nests are present within 0.5 mile of the project during construction, we recommend that the proponent comply with seasonal restrictions and construction / development distance buffers specified in the 2010 Montana Bald Eagle Management Guidelines: An Addendum to Montana Bald Eagle Management Plan (1994) in order to avoid/minimize the risk for eagle take.

Please be aware that the MBTA prohibits the taking, killing, possession, and transportation, (among other actions) of migratory birds, their eggs, parts, and nests, except when specifically permitted. To the extent practicable, necessary vegetation clearing, grubbing, and filling construction activities should be scheduled so as to avoid and minimize impacts to nesting birds, if present in the project area. If work is proposed to take place in migratory bird habitats that may result in take of migratory birds, their eggs, or active nests, the Service recommends that the project proponent take all practicable measures to avoid and minimize take, such as maintaining adequate buffers, to protect the birds until the young have fledged. Active nests may not be removed. The Service has developed, and continues to revise and develop, general and industry-specific conservation measures for avoiding and minimizing impacts to birds (https://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php). We recommend that the proposed project consider and incorporate these measures into project design, construction, and documentation as appropriate.

Additional Guidance

In addition to coordination with the Service, we recommend coordination with Montana Fish, Wildlife and Parks and the Montana Natural Heritage Program. These agencies may be able to

provide updated, site-specific information regarding fish, wildlife, and sensitive plant resources occurring in the proposed project area. Contact information for these two agencies is below:

Montana Fish, Wildlife and Parks
1420 East Sixth Avenue
P.O. Box 200701
Helena, Montana 59620-0701
Phone: (406) 444-2535

Montana Natural Heritage Program
1515 East 6th Avenue, Box 201800
Helena, Montana 59620-1800
Phone: (406) 444-5354

If wetlands are impacted by this proposed project, Corps of Engineers Section 404 permits may be required. The Service suggests any proposed or future project be designed to avoid and minimize impacts to wetland areas, stream channels and surrounding vegetation to the greatest extent possible. Direct, indirect and cumulative impacts, along with future activities required to maintain these improvements, should be analyzed.

Thank you for the opportunity to comment on the proposed Power-Teton Water and Sewer District improvement project near Power, Teton County, Montana. The Service appreciates your efforts to incorporate fish and wildlife resource concerns into your project planning. If you have further questions related to this issue, please do not hesitate to contact Karen Newlon at (406) 449-5225, extension 209.

Sincerely,

for Jodi L. Bush
Office Supervisor

Nicole Rediske - RE: Power-Teton County Water and Sewer District SHPO request

From: "Murdo, Damon" <dmurdo@mt.gov>
To: Nicole Rediske <Nicole.Rediske@tdhengineering.com>
Date: 3/26/2018 11:34 AM
Subject: RE: Power-Teton County Water and Sewer District SHPO request
Cc: Laura Hart <Laura.Hart@tdhengineering.com>, Mike OBrien <Mike.OBrien@tdh...
Attachments: CRABS.xlsx; CRIS.xlsx; 2018032603.pdf

Big Sky. Big Land. Big History.
Montana
Historical Society

March 26, 2018

Laura Hart
TD&H Engineering
1800 River Drive North
Great Falls MT 59401

RE: POWER-TETON COUNTY WATER AND SEWER DISTRICT WATER PER. SHPO Project #: 2018032603

Dear Laura:

I have conducted a cultural resource file search for the above-cited project located in Sections 25,26,27,33,34, T23N R1W, and Sections 3, 4, T22N1W. According to our records there have been a few previously recorded sites within the designated search locale. In addition to the sites there have been a few previously conducted cultural resource inventories done in the area. I've attached a list of these sites and reports. If you would like any further information regarding these sites or reports you may contact me at the number listed below.

It is SHPO's position that any structure over fifty years of age is considered historic and is potentially eligible for listing on the National Register of Historic Places. If any structures are to be altered and are over fifty years old we would recommend that they be recorded and a determination of their eligibility be made.

As long as the project will be occurring within previously disturbed ground, and there will be no disturbance or alteration to structures over fifty years of age we feel that there is a low likelihood cultural properties will be impacted. We, therefore, feel that a recommendation for a cultural resource inventory is unwarranted at this time. However, should structures need to be altered or if cultural materials be inadvertently discovered during this project we would ask that our office be contacted and the site investigated.

If you have any further questions or comments you may contact me at (406) 444-7767 or by e-mail at. I have attached an invoice for the file search. Thank you for consulting with us.

Sincerely,

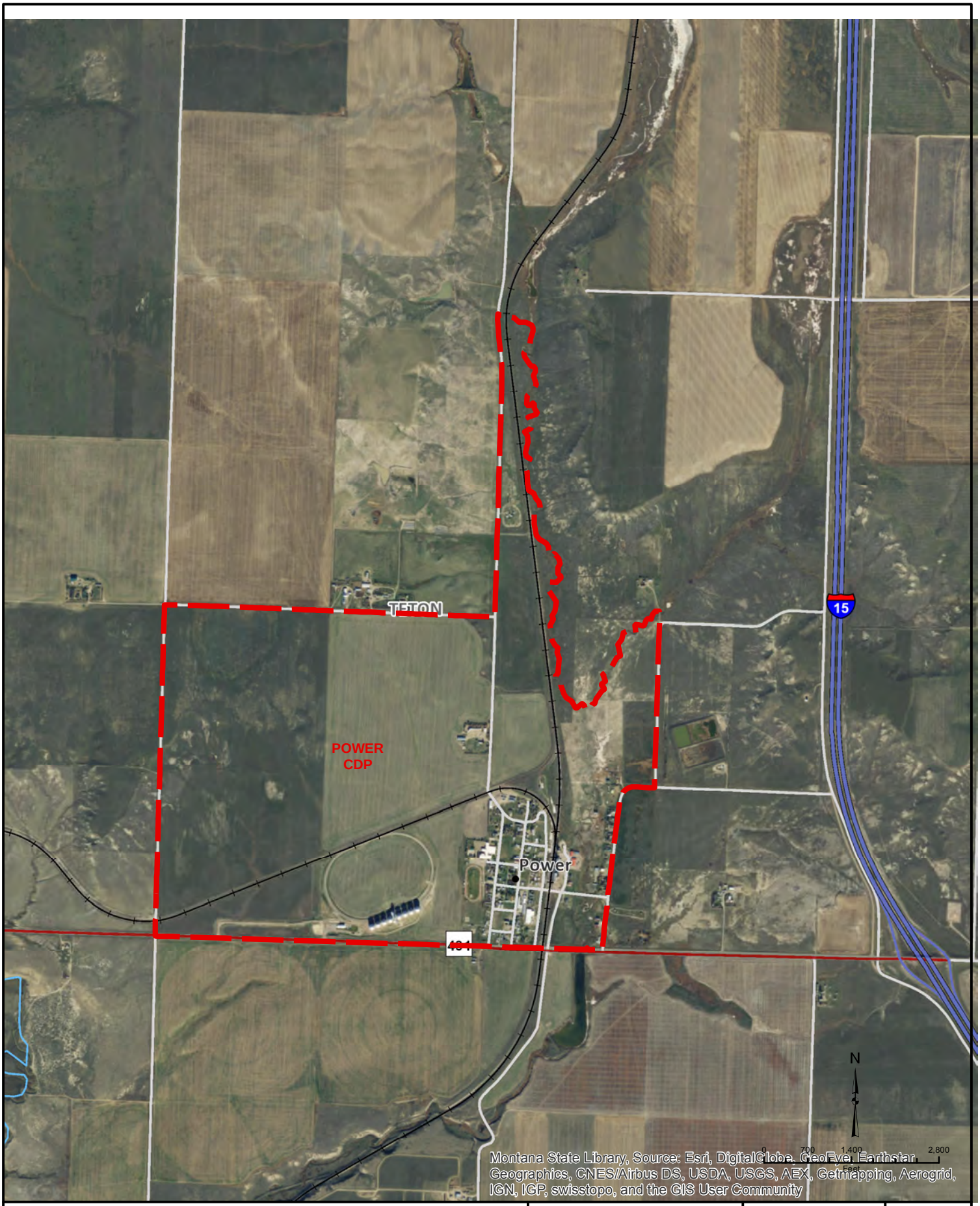
Damon Murdo
Cultural Records Manager
State Historic Preservation Office

File: DEQ/AIR WATER WASTE MNG/2018

Site #	Twp	Rng	Sec	Qs	Site Type 1	Site Type 2	Time Perio	Owner	NR Status
24TT0409	23N	1W	25	comb	Historic Railroad		Historic Mc	Combinatic	Eligible
24TT0409	23N	1W	26	comb	Historic Railroad		Historic Mc	Combinatic	Eligible
24TT0409	23N	1W	27	comb	Historic Railroad		Historic Mc	Combinatic	Eligible
24TT0494	23N	1W	33	SW	Historic Irrigation Syste		Historic Mc	BOR	Eligible

Last Name	First Name	Report Date	Title	Report	TRS
WOOD	GARVEY C.	1/15/1989	MARVIN A. REHBEIN - BOWE GRAVEL SOURCE AREA, POWER NORTH AND SOUTH PROJECT	TT 4 9818	Township:22 N Range:1 W Section: 4
VINCENT	WILLIAM B.	4/1/2001	A CLASS IIII CULTURAL RESOURCE SURVEY OF A SHELL TRACT OF LAND NEAR POWER, MONTANA	TT 6 23562	Township:23 N Range:1 W Section: 27
NICKELS	ADAM M	7/1/2003	A CULTURAL RESOURCE INVENTORY OF PROPOSED LAND PURCHASE NEAR POWER, MONTANA IN TETON COUNTY	TT 6 26078	Township:23 N Range:1 W Section: 27
NICKELS	ADAM M	6/27/2003	NOTIFICATION OF UNDERTAKING - PROPOSED CONSTRUCTION OF A NEW WATER BUILDING FOR THE POWER, MONTANA, WATER DISTRICT IN TETON COUNTY MONTANA	TT 6 26079	Township:23 N Range:1 W Section: 27
BRUMLEY	JOHN	2/1/2011	A CLASS III CULTURAL RESOURCE INVENTORY OF BUREAU OF RECLAMATION LAND WITHIN 3 RIVERS COMMUNICATIONS PROPOSED POWER EXCHANGE UPGRADE	TT 6 32630	Township:23 N Range:1 W Section: 27
KELLER	MARVIN	10/1/1985	CULTURAL RESOURCES SURVEY OF GRAVEL PITS AND LANDS ADMINISTERED BY THE BUREAU OF RECLAMATION: SUN RIVER PROJECT.	TT 6 9833	Township:23 N Range:1 W Section: 33
VINCENT	WILLIAM B.	9/2/2002	A CLASS III CULTURAL RESOURCE SURVEY FOR PROPOSED PIVOT IRRIGATION SYSTEMS NEAR POWER MONTANA IN TETON COUNTY	TT 6 25159	Township:23 N Range:1 W Section: 33
PASSMANN	DORI, ET AL.	1/14/2004	CULTURAL RESOURCES 2003 STIPULATION D: EXCEPTIONS UNDER THE IRRIGATION PA IN MONTANA	ZZ 6 26478	Township:23 N Range:1 W Section: 33
AABERG	STEPHEN A.	6/1/1998	ANDREWS IRRIGATION PROJECT, TETON COUNTY, MONTANA, CLASS III CULTURAL RESOURCE SURVEY RESULTS	TT 6 20291	Township:23 N Range:1 W Section: 34
BRUMLEY	JOHN	2/1/2011	A CLASS III CULTURAL RESOURCE INVENTORY OF BUREAU OF RECLAMATION LAND WITHIN 3 RIVERS COMMUNICATIONS PROPOSED POWER EXCHANGE UPGRADE	TT 6 32630	Township:23 N Range:1 W Section: 34

APPENDIX 1 - E
Population Data



G:\POWER CDP.mxd

POWER WATER AND SEWER DISTRICT

POWER, MONTANA

POWER CDP

TD&H Engineering

406.761.3010 • tdhengineering.com

1800 RIVER DR. NO. • GREAT FALLS, MONTANA 59401

DRAWN BY:	X
DESIGNED BY:	X
QUALITY CHECK:	X
DATE:	X
JOB NO.:	X
CADD NO.:	POWER CDP.MXD

FIGURE

1

Table 4.

Population and Housing Units: 1970 to 2010

[For information concerning historical counts and geographic change, see "User Notes." For information on confidentiality, nonsampling error, and definitions, see Appendixes]

State County/County Equivalent	Population					Housing units				
	2010	2000	1990	1980	1970	2010	2000	1990	1980	1970
Montana	**989,415**	**902,195**	**799,065**	**786,690**	**694,409**	**482,825**	**412,633**	**361,155**	**328,465**	**246,603**
Beaverhead County	9,246	9,202	8,424	8,186	8,187	5,273	4,571	4,128	3,741	3,210
Big Horn County	12,865	12,671	11,337	11,096	10,057	4,695	4,655	4,304	3,867	2,900
Blaine County	6,491	7,009	6,728	6,999	6,727	2,843	2,947	2,930	2,583	2,382
Broadwater County	5,612	4,385	3,318	3,267	2,526	2,695	2,002	1,593	1,449	925
Carbon County	10,078	9,552	8,080	8,099	7,080	6,441	5,494	4,828	4,360	3,369
Carter County	1,160	1,360	1,503	1,799	1,956	810	811	816	795	761
Cascade County	81,327	80,357	77,691	80,696	81,804	37,276	35,225	33,063	32,199	27,190
Chouteau County	5,813	5,970	5,452	6,092	6,473	2,879	2,776	2,668	2,689	2,625
Custer County	11,699	11,696	11,697	13,109	12,174	5,560	5,360	5,405	5,473	4,356
Daniels County	1,751	2,017	2,266	2,835	3,083	1,111	1,154	1,220	1,303	1,281
Dawson County	8,966	9,059	9,505	11,805	11,269	4,233	4,168	4,487	4,637	3,755
Deer Lodge County	9,298	9,417	10,356	12,518	15,652	5,122	4,958	4,830	5,199	5,150
Fallon County	2,890	2,837	3,103	3,763	4,050	1,470	1,410	1,525	1,519	1,357
Fergus County	11,586	11,893	12,083	13,076	12,611	5,836	5,558	5,732	5,392	4,738
Flathead County	90,928	74,471	59,218	51,966	39,460	46,963	34,773	26,979	22,485	14,098
Gallatin County	89,513	67,831	50,463	42,865	32,505	42,289	29,489	21,350	17,173	10,761
Garfield County	1,206	1,279	1,589	1,656	1,796	844	961	924	868	732
Glacier County	13,399	13,247	12,121	10,628	10,783	5,348	5,243	4,797	4,002	3,458
Golden Valley County	884	1,042	912	1,026	931	476	450	432	472	366
Granite County	3,079	2,830	2,548	2,700	2,737	2,822	2,074	1,924	1,635	1,345
Hill County	16,096	16,673	17,654	17,985	17,358	7,250	7,453	7,345	7,194	5,843
Jefferson County	11,406	10,049	7,939	7,029	5,238	5,055	4,199	3,302	2,867	1,566
Judith Basin County	2,072	2,329	2,282	2,646	2,667	1,336	1,325	1,346	1,360	1,115
Lake County	28,746	26,507	21,041	19,056	14,445	16,588	13,605	10,972	9,038	5,927
Lewis and Clark County	63,395	55,716	47,495	43,039	33,281	30,180	25,672	21,412	18,571	12,359
Liberty County	2,339	2,158	2,295	2,329	2,359	1,043	1,070	1,007	1,154	792
Lincoln County	19,687	18,837	17,481	17,752	18,063	11,413	9,319	8,002	7,018	5,907
McCone County	1,734	1,977	2,276	2,702	2,875	1,008	1,087	1,161	1,121	1,055
Madison County	7,691	6,851	5,989	5,448	5,014	6,940	4,671	3,902	2,741	2,141
Meagher County	1,891	1,932	1,819	2,154	2,122	1,432	1,363	1,259	1,201	1,043
Mineral County	4,223	3,884	3,315	3,675	2,958	2,446	1,961	1,635	1,646	1,083
Missoula County	109,299	95,802	78,687	76,016	58,263	50,106	41,319	33,466	30,534	18,891
Musselshell County	4,538	4,497	4,106	4,428	3,734	2,654	2,317	2,183	2,039	1,577
Park County	15,636	15,694	14,484	12,869	11,197	9,375	8,247	6,926	6,074	4,648
Petroleum County	494	493	519	655	675	324	292	293	306	269
Phillips County	4,253	4,601	5,163	5,367	5,386	2,335	2,502	2,765	2,514	2,153
Pondera County	6,153	6,424	6,433	6,731	6,611	2,659	2,834	2,618	2,702	2,267
Powder River County	1,743	1,858	2,090	2,520	2,862	1,022	1,007	1,096	1,123	962
Powell County	7,027	7,180	6,620	6,958	6,660	3,105	2,930	2,835	2,830	2,453
Prairie County	1,179	1,199	1,383	1,836	1,752	673	718	749	808	706
Ravalli County	40,212	36,070	25,010	22,493	14,409	19,583	15,946	11,099	9,133	5,333
Richland County	9,746	9,667	10,716	12,243	9,837	4,550	4,557	4,825	4,690	3,514
Roosevelt County	10,425	10,620	10,999	10,467	10,365	4,063	4,044	4,265	3,809	3,386
Rosebud County	9,233	9,383	10,505	9,899	6,032	4,057	3,912	4,251	3,787	2,055
Sanders County	11,413	10,227	8,669	8,675	7,093	6,678	5,271	4,335	3,843	2,833
Sheridan County	3,384	4,105	4,732	5,414	5,779	2,089	2,167	2,417	2,416	2,086
Silver Bow County	34,200	34,606	33,941	38,092	41,981	16,717	16,176	15,474	16,071	15,631
Stillwater County	9,117	8,195	6,536	5,598	4,632	4,803	3,947	3,291	2,681	1,959
Sweet Grass County	3,651	3,609	3,154	3,216	2,999	2,149	1,869	1,639	1,479	1,287
Teton County	6,073	6,445	6,271	6,491	6,116	2,892	2,910	2,725	2,747	2,265
Toole County	5,324	5,267	5,046	5,559	5,839	2,336	2,300	2,354	2,432	2,163
Treasure County	718	861	874	981	1,069	422	422	448	462	448
Valley County	7,369	7,675	8,239	10,250	11,471	4,879	4,847	5,304	5,611	5,289
Wheatland County	2,168	2,259	2,246	2,359	2,529	1,197	1,154	1,129	1,140	1,009
Wibaux County	1,017	1,068	1,191	1,476	1,465	538	587	563	680	536
Yellowstone County	147,972	129,352	113,419	108,035	87,367	63,943	54,563	48,781	42,756	29,169

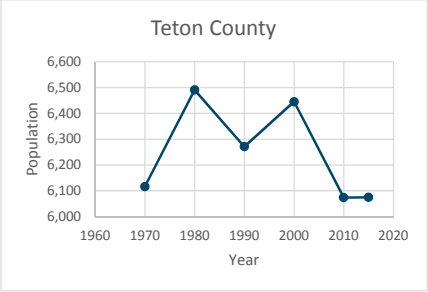
Table 8.

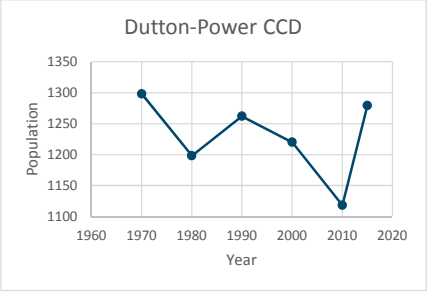
Population and Housing Units: 1990 to 2010; and Area Measurements and Density: 2010—Con.

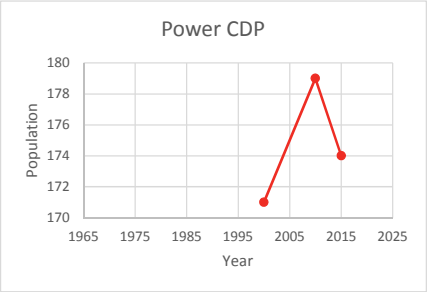
[For information concerning historical counts and geographic change, see "User Notes." For information on confidentiality, nonsampling error, and definitions, see Appendixes]

State County/County Equivalent County Subdivision Place	Population			Housing units			Area measurements in square miles		Average per square mile of land	
	2010	2000	1990	2010	2000	1990	Total area	Land area	Population density	Housing unit density
Montana—Con.										
Silver Bow County—Con.										
Butte-Silver Bow Northwest CCD	855	756	475	387	289	172	196.66	196.51	4.4	2.0
Butte-Silver Bow (balance) (part)	855	756	475	387	289	172	196.66	196.51	4.4	2.0
Butte-Silver Bow South CCD	349	343	340	242	210	223	350.34	350.03	1.0	0.7
Butte-Silver Bow (balance) (part)	349	343	340	242	210	223	350.34	350.03	1.0	0.7
Stillwater County	9,117	8,195	6,536	4,803	3,947	3,291	1,804.58	1,795.35	5.1	2.7
Absarokee CCD	2,222	2,318	1,914	1,598	1,399	1,210	595.31	592.82	3.7	2.7
Absarokee CDP	1,150	1,234	1,061	612	550	466	2.13	2.13	539.9	287.3
Columbus CCD	3,797	3,306	2,739	1,855	1,491	1,279	311.08	307.87	12.3	6.0
Columbus town	1,893	1,748	1,573	843	762	681	1.35	1.32	1,434.1	638.6
North Stillwater CCD	767	762	485	406	348	241	768.81	766.33	1.0	0.5
Reed Point CDP	193	185	(X)	99	92	(X)	0.56	0.56	344.6	176.8
Park City CCD	2,331	1,809	1,398	944	709	561	129.38	128.33	18.2	7.4
Park City CDP	983	870	(X)	395	343	(X)	0.96	0.96	1,024.0	411.5
Sweet Grass County	3,651	3,609	3,154	2,148	1,860	1,639	1,862.03	1,855.20	2.0	1.2
North of the Yellowstone CCD	811	803	768	464	411	341	1,087.22	1,082.75	0.7	0.4
South of the Yellowstone CCD	2,840	2,806	2,386	1,684	1,449	1,298	774.81	772.46	3.7	2.2
Big Timber city	1,641	1,650	1,557	933	812	771	0.95	0.92	1,783.7	1,014.1
Greycliff CDP	112	56	(X)	46	28	(X)	0.51	0.51	219.6	90.2
Teton County	6,073	6,445	6,271	2,892	2,910	2,725	2,292.52	2,272.37	2.7	1.3
Choteau CCD	3,143	3,366	3,213	1,504	1,504	1,473	1,503.33	1,543.23	2.0	1.0
Bynum CDP	31	(X)	(X)	22	(X)	(X)	1.63	1.63	19.0	13.5
Choteau city	1,684	1,781	1,741	888	897	858	1.83	1.83	920.2	485.2
Dutton-Power CCD	1,118	1,220	1,262	540	545	516	438.48	438.43	2.6	1.2
Dutton town	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Power CDP	179	171	(X)	71	71	(X)	1.51	1.50	119.3	47.3
Fairfield CCD	1,809	1,859	1,796	821	781	734	293.18	283.71	6.3	2.9
Fairfield town	708	659	660	339	311	320	0.31	0.31	2,283.9	1,093.5
Toole County	5,324	5,267	5,046	2,336	2,300	2,354	1,945.77	1,915.65	2.8	1.2
Shelby CCD	4,075	3,874	3,524	1,700	1,675	1,718	1,038.66	1,021.63	4.0	1.7
Shelby city	3,376	3,216	2,763	1,371	1,349	1,302	6.18	6.03	559.9	227.4
Sunburst CCD	1,249	1,393	1,522	636	625	636	907.10	894.01	1.4	0.7
Kevin town	154	178	185	90	91	105	0.37	0.34	452.9	264.7
Sunburst town	375	415	437	176	183	205	1.99	1.75	214.3	100.6
Sweet Grass CDP	58	(X)	(X)	53	(X)	(X)	0.48	0.48	120.8	110.4
Treasure County	718	861	874	422	422	448	984.02	977.40	0.7	0.4
North Treasure CCD	231	292	284	138	131	148	478.94	473.04	0.5	0.3
South Treasure CCD	487	569	590	284	291	300	505.08	504.36	1.0	0.6
Hysham town	312	330	361	175	172	180	0.21	0.21	1,485.7	833.3
Valley County	7,369	7,675	8,239	4,879	4,847	5,304	5,061.79	4,925.82	1.5	1.0
Fort Peck Reservation CCD	1,003	1,092	1,150	406	418	462	1,126.37	1,122.11	0.9	0.4
Frazer CDP	362	452	403	118	122	130	1.65	1.62	223.5	72.8
Glasgow CCD	4,853	4,908	5,192	3,415	3,323	3,675	538.81	538.38	9.0	6.3
Glasgow city	3,250	3,253	3,572	1,653	1,609	1,749	1.43	1.43	2,272.7	1,155.9
Nashua town	290	325	375	183	195	226	0.66	0.66	439.4	277.3
St. Marie CDP	264	183	(X)	1,084	1,035	(X)	22.90	22.87	11.5	47.4
Hinsdale CCD	583	609	704	320	328	346	1,343.34	1,340.40	0.4	0.2
Hinsdale CDP	217	(X)	(X)	130	(X)	(X)	6.66	6.47	33.5	20.1
Opheim CCD	276	382	479	223	249	289	591.90	591.63	0.5	0.4
Opheim town	85	111	145	69	83	96	0.21	0.21	404.8	328.6
South Valley CCD	654	684	714	515	529	532	1,461.37	1,333.29	0.5	0.4
Fort Peck town	233	240	226	110	99	98	0.86	0.86	270.9	127.9
Wheatland County	2,168	2,259	2,246	1,197	1,154	1,129	1,428.24	1,423.19	1.5	0.8
Harlowton CCD	1,586	1,669	1,694	874	834	832	811.51	809.70	2.0	1.1
Harlowton city	997	1,062	1,049	585	599	589	0.58	0.58	1,719.0	1,008.6
Judith Gap-Shawmut CCD	582	590	552	323	320	297	616.73	613.49	0.9	0.5
Judith Gap city	126	164	133	83	94	69	0.38	0.38	331.6	218.4
Shawmut CDP	42	(X)	(X)	34	(X)	(X)	2.15	2.15	19.5	15.8

Historical Population Data Power-Teton County Water and Sewer District PER						
Year	Teton County		Dutton-Power CCD		Power CDP	
	Population	% Annual Growth	Population	% Annual Growth	Population	% Annual Growth
1970	6,116		1298			
1980	6,491	0.60%	1198	-0.80%		
1990	6,271	-0.34%	1,262	0.52%		
2000	6,445	0.27%	1,220	-0.34%	171	
2010	6,073	-0.59%	1,118	-0.87%	179	0.46%
2015	6,074	0.00%	1,279	1.35%	174	-0.28%







Population Projections Power-Teton County Water and Sewer PER TD&H Job No 17-258		
Year	Annual Growth Rate	Population Estimates
2015	2.88%	174
2020	2.88%	201
2030	2.88%	266
2040	2.88%	354

APPENDIX 1 - F
Community Involvement

POWER-TETON COUNTY WATER &
SEWER DISTRICT

PUBLIC MEETING

POWER SENIOR CENTER

5:30 PM

MARCH 13, 2018

Power Teton County Water & Sewer District Public Meeting

Reason for the project

- Water Source Problems
    - Water Rights on Muddy Creek
        - Limitations on Diversions
            - Water Right Maximum Diversion: 50-Acre ft
            - 2015 Diversion: 48.8-Acre ft
            - 3-Year Water Production Rate 219 gpcd (237 gpcd in 2015)
            - In 2015, 2016, & 2017 Days Water Right would Suspends Diversion – 26, 27, and 37.
        - Must Purchase Water from the BLM out of Canyon Ferry Reservoir
- Treatment Plant Problems
    - Creek Sediment Clogging Wet Well
        - Problems Cleaning Out
            - High Pump Maintenance Cost
        - Sedimentation Pond Maintenance
        - Corrosion of Intake Pipe from Muddy Creek
        - Worn-out Pipes, Valves, Equipment in Plant
        - Treatment Trains are Temperamental and Prone to Shutdown
        - Maximum Possible Treatment Limit – 92 gpm
        - Design Maximum Treatment Limit - 46 gpm
        - Operator Workload
- Distribution System
    - Unaccounted for Water
        - Lost Water Average for the Last 3-years – 61%
            - Galvanized Service Line Connections District/Private
    - Dead End Main on Rainbow Ave
    - No Distribution Redundancy Under Tracks (Currently one 10" main)
    - Model Results show that the system can supply 1740 gpm from 2 hydrants at School
- Storage Tanks Undersized
    - Average Day Demand plus Fire Flow
        - Average Day Flow – 40,500 gpd
        - School Fire Flow 2000 gpm for 2 hours
-

20-Year Service Plan

- Service Area
- Population Growth
    - 2040 Population – 359
    - Water Production 2040 Current Rates – 88 Acre ft

Alternatives Under Consideration

- Water Source

- No Action – Not Viable
- Upgrade Water Treatment Plant
  - Cost Estimate – Included in Final Draft
- Connect to North Central Regional Water Authority's System at Dutton
  - NCRWA's main currently constructed to Brady
  - Line to Dutton at some future unknow date
  - Power not member of the Authority
  - Problems with Conrad's Water System that Needs to be Addressed Before Additional Water can be Committed.
  - Conrad to Brady Main can Handle Additional Power Flow
  - Expensive
- Connect to the City of Great Falls
  - Similar Issues as Connecting to the NCRWA Alternative
- Connection to the Tri-County Water District
  - Tri-County is Reaching their Water Right Maximum Flow Volume and Maximum Volume
  - No Longer Considered
- Shallow Ground Water Source
  - Close-by
  - Good Volume
  - Good Quality
  - Low Construction Costs
  - Low O&M
  - Can have susceptibility to Drought and Contamination
  - Fairfield/Greenfield's Aquafer has best quality and volume
  - Ground Water east of Muddy Creek has poor quality and low volume
- Deep Ground Water Source
  - Wells can be Located Close to Town
  - Less Vulnerability to Drought than Shallow Aquifers
  - Potential Poor Water Quality

- Storage
  - No Action
    - Not Considered a Viable Option
  - New 50,000 Gallon Tank
    - Can Serve Projected Water Demands
    - Can be Constructed Next to the Current Tank
  - New 200,000 Gallon Tank
    - Current Tank in Good Condition
    - Option No Longer Considered
- Distribution
  - No-Action
  - Looping Water Main Under Track
  - Repair Service Line Connections

Operations and Maintenance

Summary of Recommendations

Funding Options

POWER-TETON COUNTY WATER & SEWER DISTRICT
PO BOX 176
POWER, MT 59468

PUBLIC MEETING

MARCH 13, 2018

Present: Ross Fitzgerald, Pam Raba, Mindi Grassman, James Rehm, Gene Walker, Karol Walker, Mike O'Brien)TE&H), Nicole Rudisky(TD&H), Sara Converse(Sweet Grass Development), Chuck Tessman, Chris Stoddard, Danny Perino, Eva Perino, Joe Widhalm, Dale Bauman and Carla Pfeifle.

Ross introduced Mike, Nicole and Sara. He talked about the planning for different water sources – either well water or Tiber Water project. Two funding grants TSEP and RRGL are paying for this study. Power's water rights are limited to 50 acre' of water. The problems with the existing water treatment plant are sediment, high pump maintenance, ponds that don't work well, holes in the lining of the pond, copper pipes leaking and the design is maxed out. In the distribution system, there is an average of 61% water loss possibly caused by numerous small leaks. There is 1 dead-end in Power, 1 crossing of the railroad tracks and not enough storage for fire suppression – need 2,000 gpm for 2 hours. The population growth could increase being close to Great Falls and I-15.

Options: No action. Upgrade existing treatment plant with the same water source. Connect to Tiber(Power is not a member yet – Conrad would have to upgrade to provide water to Dutton and Power). Line from Great Falls. Connect to Tri-County – their system is maxed out – not sized for Power to join. Ground water – shallow galleries. North of Muddy Creek is poor and limited quality. South of Muddy – lots of water good quality, shallow 30-5-' little maintenance and at this time no chlorine. Deep ground water wells in Power are not good quality. Shallow wells on the FF bench are now ½ of mgl for nitrates.

Storage: No actions. A 50,000 gallon tank added would give us a total of 200,000 gallons – enough for growth. A new 200,000 gallon tank is another option.

Distribution: No actions. Loop under tracks so there is no dead end line. Repair service line connections.

Operation & maintenance costs – Silt
Plant: Operation and maintenance costly – wells should be cheaper.

Gound water: Water rights would be needed.

Funding options: Tiber project: Can get Federal funding for now. TSEP $750,000 matching grant. Out target reates are high. CDBG: Federal – Low to medium income - $500,000 needs match that can match with other grants. An income survey would be done. RRG DNRC looking for projects that are ecologically sound ; $125,000 grant – no match. RD loan – grant likes to help small community, SRF state will loan monies, WRDA – congressional funding. We could refinance loans that we currently have now and extend their length

Apply for grants in June which will be sent to legislature, Spring of 2019 notify of funding, out for bid 2020.

EPA– We are testing for LT2 now.

Questions from the public: Where would we cross the tracks? – By Hill Avenue and Hwy 431. That crossing would loop in Schmidts' and Perinos'.

.

Property Easement: It would be best if the district owned the land.

Sara Converse can help with funding grants, work with engineer to get things done properly. She can do an income survey. We need 51% of low to moderate income.

POWER-TETON COUNTY WATER & SEWER
DISTRICT
PO BOX 176
POWER, MT 59468

PUBLIC MEETING WITH TD&H ENGINEERS

APRIL 10, 2018

5:30 PM

POWER SENIOR CITIZENS CENTER

AFFIDAVIT OF PUBLICATION

IN THE

CHOTEAU ACANTHA

Weekly Newspaper, Choteau, Montana

STATE OF MONTANA }
County of Teton } ss.

Jeff O. Martinsen, being duly Sworn, upon oath deposes and says:

(1) That he is the publisher of THE CHOTEAU ACANTHA, a newspaper of general circulation published weekly at Choteau, Teton County, Montana.

(2) That the notice hereunto attached was published in the said CHOTEAU ACANTHA once each week for TWO (2) successive weeks.

(3) That the first publication of said notice was on the 28TH day of MARCH, 18, and that the last publication was on the 4TH day of APRIL, 18.

(4) That the said notice was published in the regular and entire issue of every number of the said CHOTEAU ACANTHA during the period and time of said publication, and in the newspaper, proper, and not in supplement thereof.

Jeff O. Martinsen

State of Montana
County of Teton

Signed and sworn to before me this 4th day of April, 2018, by Jeff O. Martinsen.

Melody Martinsen

MELODY MARTINSEN NOTARIAL SEAL STATE OF MONTANA

MELODY MARTINSEN
NOTARY PUBLIC for the
State of Montana
Residing at Choteau, Montana
My Commission Expires
October 15, 2020

PUBLIC NOTICE

The Power-Teton County Water and Sewer District is accepting public comment regarding the environmental impacts of the proposed improvements to the public water source and treatment plant. The public comments will be used in preparation of grant and loan applications for the proposed improvements. A Uniform Environmental Checklist has been prepared and is available from the District for public review upon request.

A public hearing will be held at the next District Board meeting on April 10, 2018, 5:30 p.m. at the Power Senior Citizens Center. Persons or their agents may contact the Water and Sewer District at 1-406-463-2351 or by e-mail at powerwaterandsewer@gmail.com to review the environmental documentation.

2 Pubs.: March 28 and April 4, 2018
MNAXLP

POWER-TETON COUNTY WATER & SEWER DISTRICT
PO BOX 176
POWER, MT 59468

SPECIAL MEETING

APRIL 10, 2017

The meeting was called to order at 5:37 pm.

Present: No quorum. Board: Ross Fitzgerald and James Rehm. Also present were Gene and Karol Walker, Mark Lehnerz, Neal and Meghan Lehnerz, Reese Lehnerz, Ryan Calbick, Dale Bauman, Dick Snellman, Sara Converse, Joe Widhalm and Danny Perino.

Mike O'Brien opened the meeting stating that this meeting is to address the environmental impact of the upcoming project.

Ross Fitzgerald explained that the water department is looking for a new source of water which would be wells. The district would like to forgo using Muddy Creek for their water source.

Public Comment: No public comment was made concerning the environmental impact. No comments were received to the district prior to the meeting.

Funding sources were discussed.

No business was conducted since there was no quorum.

Karol Walker, sec

APPENDIX 1 - G
Public Support

MONTANA STATE SENATE

SENATOR LLEW JONES
SENATE DISTRICT 9

HELENA ADDRESS:
STATE CAPITOL
PO BOX 200500
HELENA MT 59620-0500
PHONE: (406) 444-4800

COMMITTEES:
EDUCATION AND CULTURAL RESOURCES
FINANCE AND CLAIMS - CHAIR
RULES

HOME ADDRESS:
1102 4TH AVE SW
CONRAD MT 59425
PHONE: (406) 271-3104
MOBILE: (406) 289-0345

I write you today in support of the proposed improvements to the Power-Teton County Water and Sewer District's water system. It is my understanding that the District is currently in the process of preparing and submitting a Preliminary Engineering Report that will accompany applications for various grant and low-interest loan applications to fund the proposed improvements.

The District's current water source, Muddy Creek, has shown to have a high concentration of silts and sediments that is cause significant issues within the existing water treatment plant. Additionally, the District's Provisional Water Rights to Muddy Creek place strict restriction on when the District is allowed to divert water. As a result, there were more than 25 days in each 2015, 2016 and 2017 that the District was unable to take in raw water.

As I understand, the proposed improvements include demolition of the corroded and inefficient treatment system. Two new shallow municipal wells are to be drilled in the Fairfield Bench. Potable water will be pumped to the existing distribution system to provide a reliable water supply and fire protection.

A dependable water source is of the utmost importance to any community. The Power-Teton County Water and Sewer District is a small district with limited resources and man-power. These grants and low interest loans would go a long way in providing potable water and fire protection to the community of Power, Montana.

In short, the Power-Teton County Water and Sewer District water system has a significant and serious need for a new water source. I am supportive of the efforts to provide this necessary service to community.

Sincerely;

Senator Llew Jones,

Chairman Senate Finance and Claims

The Big Sky Country

MONTANA HOUSE OF REPRESENTATIVES

REPRESENTATIVE ROSS H. FITZGERALD
HOUSE DISTRICT 17

HELENA ADDRESS:
CAPITOL BUILDING
PO BOX 200400
HELENA MT 59620-0400
PHONE: (406) 444-4800

HOME ADDRESS:
451 1ST ROAD NE
FAIRFIELD MT 59436
PHONE: (406) 467-2032
MOBILE: (406) 788-1443
EMAIL: rep.ross.fitzgerald@mt.gov

30 April 2018

Nicole Rediske, EI | Engineer
TD&H Engineering
1800 River Drive N. | Great Falls, MT 59401
t:406.761.3010
www.tdhengineering.com

Dear Nicole,

Be advised I am in total support for the proposed improvements to the Power-Teton County Water and Sewer District water supply and treatment plant. A reliable water source is highly crucial to ensure the community of Power has access to potable water and critical fire protection is provided.

The District's current water source is Muddy Creek west of the unincorporated town of Power. The increasingly poor water quality in the creek and the restrictive nature of the District's Provisional Water Right are causing significant strains and undue stress on the small District ability to supply a potable water supply at an affordable cost.

Proposed improvements include demolishing the existing treatment plant and diversion dam. Two new shallow groundwater wells will be drilled on the east end of the Greenfield Irrigation Bench. The newly located wells are expected to produce a more reliable water source with higher water quality and, in turn, decrease the operational tasks/costs to the District.

The Power-Teton County Water and Sewer District is a small District with limited resources and man-power. Their current system requires a high level of effort from the staff, who work tirelessly to maintain the failing system. Additionally, the leaking pipes and valves and failing pumps are causing the system to be inefficient and consequently waste limited time, money and resources.

A new water source and treatment system is vital for the District to continue to provide clean, reliable water to the community. I am in full and unequivocal support of this PER and application for grant and low interest loans.

Respectfully,

Ross H. Fitzgerald

Ross H. Fitzgerald
Representative,
House District 17
451 – 1st Road N.E.
Fairfield, MT 59436
406-788-1443
rhfitz@3rivers.net

cc: Power-Teton County Water & Sewer District

To whom it may concern,

I, Dan Smead, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

To whom it may concern,

I, Mark Jensen, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

Mark Jensen

To whom it may concern,

I, Jeremy James, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

To whom it may concern,

I, Melissa James, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

To whom it may concern,

I, Mark Lehnerz, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

Mark Lehnerz

To whom it may concern,

I, Kathlene Anderson, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

Kathlene Anderson

To whom it may concern,

I, ERIK SOMERFELD, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

To whom it may concern,

I, Pat Bryan, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

Pat Bryan

To whom it may concern,

I, Russell A Boyer, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

Russell A Boyer

To whom it may concern,

I, Vincent Somerfeld, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

To whom it may concern,

I, Neal Lehnerz, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

To whom it may concern,

I, Marjorie Simonson, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

Marjorie Simonson

To whom it may concern,

I, Jerome, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

Jerome Simmons

To whom it may concern,

I, Joe Widhalm, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

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Sincerely,

Joseph Widhalm

To whom it may concern,

I, Lynne G. Timm, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

Lynne G. Timm

David G. Timm

To whom it may concern,

I, _____, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

David G. Timm

To whom it may concern,

I, Shirley Tacker, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

Shirley Tacker

To whom it may concern,

I, DAN PERINO, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

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Sincerely,

Dan Perino

To whom it may concern,

I, Christina L. Borst, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

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Sincerely,

To whom it may concern,

I, Jerry Badgett Jr, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

To whom it may concern,

I, Byron Grossnan, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

B. N

To whom it may concern,

I, Jared Linne, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

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Sincerely,

To whom it may concern,

I, Carla Pfeifle, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

To whom it may concern,

I, Philip Pfeifle, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

Philip Pfeifle

To whom it may concern,

I, Patricia D. Payton, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

Patricia D. Payton

To whom it may concern,

I, Ken May, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

Ken May

To whom it may concern,

I, ELAINE SEYMOUR, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

Elaine M. Seymour

To whom it may concern,

I, Sue Davis, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

Sue Davis

To whom it may concern,

I, Russ Davis, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

To whom it may concern,

I, MARK Lehman, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

Mark Lehman

To whom it may concern,

I, ERLING A. JUEL, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

To whom it may concern,

I, Reese Lehnerz, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

To whom it may concern,

I, Dani Lehnerz, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

D. Lehnerz

To whom it may concern,

I, Arthur L Taylor Sr, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

To whom it may concern,

I, Dale Bauman, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely, Dale E Bauman

_____

To whom it may concern,

I, EVA M PERINO, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

Eva M. Perino

To whom it may concern,

I, Don Smoot, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

Donald J. Smoot

To whom it may concern,

I, Gene Walker, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

To whom it may concern,

I, Karol Walker, am writing to express my support for the proposed improvements to the Power-Teton County Water and Sewer District existing water supply and treatment system. The selected improvements include new shallow wells for water supply. These wells will collect groundwater from the Fairfield Bench, which will be pumped to the existing distribution system.

The existing water treatment plant and surface water source, Muddy Creek, will be abandoned. The high solids concentration in Muddy Creek is causing significant maintenance issues in the WTP and decreased reliability of the water system. Additionally, the District's current water right includes restrictions on when the District is allowed to divert water from Muddy Creek based on creek flow rates. Flow rates have dipped below the allowable level numerous time in the past 3 years. By changing the water supply to a groundwater source, the water system is expected to become more reliable with less manpower required to operate and maintain.

Sincerely,

Karol A Walker

APPENDIX 2 - A

Photographs

CERTIFIED BY SOUTH GATE ENGINEERING, LLC.
M.A.W.P. (INTERNAL)
PSI AT
°F
M.A.W.P. (EXTERNAL)
PSI AT
°F
M.D.M.T.
°F AT
PSI
SH. TK.
HD. TK.
HYDROTEST PRES.
PSI
MFG. SERIAL NO.
CRN. NO.
TAG:
YR. BUILT
CHINO, CALIFORNIA 91710
(909) 628-2779
SIEMENS
11711 Reading Road
Red Bluff, CA 96080
(530) 527-2664
Model No.
Design Pressure
Tare Weight
Manufacturer's Date
Serial No.
75 PSIG MAX

CERTIFIED BY SOUTH GATE ENGINEERING, LLC.
M.A.W.P. (INTERNAL)
PSI AT
°F
M.A.W.P. (EXTERNAL)
PSI AT
°F
M.D.M.T.
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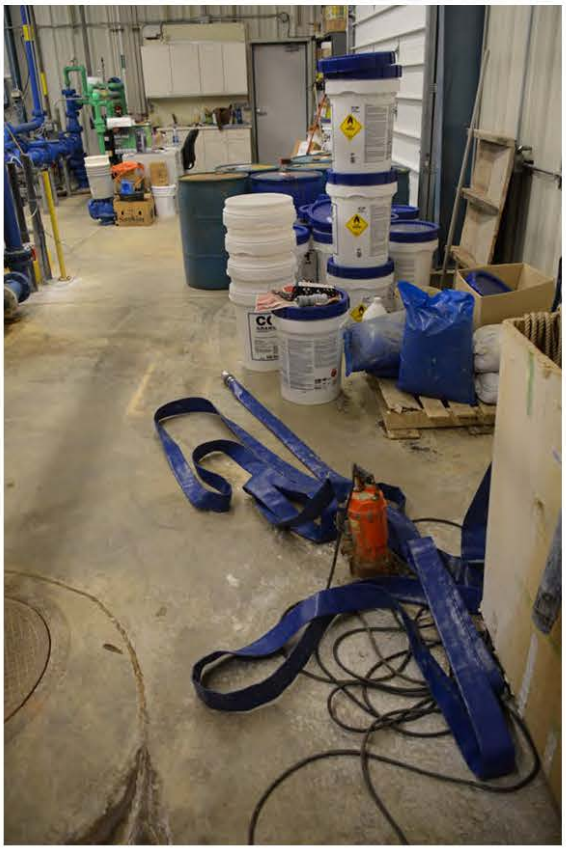
Model No.
Design Pressure
Tare Weight
Manufacturer's Date
Serial No.
75 PSIG MAX



APPENDIX 2 - B

DEQ Sanitary Survey

DEQ
Montana Department
of Environmental Quality

September 21, 2015

Power Teton County Water District
Gene Walker
Box 176
Power, MT 59468

Re: Sanitary Survey Inspection of Power Teton County Water District (PWSID: MT0000311).

Dear Mr. Walker,

I would like to thank Karol Walker for assisting my colleague Lisa Kaufman and me during the sanitary survey inspection of Power Teton County Water District. Having a resident population of 167, the Power Teton County Water District is classified as a community public water supply. As a community water supply system, your facility is required to have a sanitary survey inspection every three years. These regular inspections offer us an opportunity to look for sanitary deficiencies that have the potential to cause contamination in the water system, as well as pointing out operation and maintenance concerns. Below are a few comments relating to the sanitary survey conducted on August 12, 2015.

SOURCE(s): CC002- Consecutive Connection city of Great Falls (MT0000525)

Intake for Muddy Creek (IN002) and raw water surface impoundment (SI001)
The district's source water is muddy creek and it is treated by a conventional type Tonka package plant constructed in 2004. The intake structure is a concrete dam in the creek just west of the plant. Water flows into a perforated pipe in the creek bed on the upstream side of the concrete dam. Water then gravity flows into two wet well sumps in the treatment plant building. The south sump provides water to the plant directly from Muddy Creek and the north sump provides water to the plant from the raw water surface impoundment (SI001) just east of the plant. The facility is locked for security and inspected routinely. Management and operators of the system progressively maintain the water mains, site security and general housekeeping. The management and operational staff are commended for proactively identifying source quantity and quality of the public water supply.

TREATMENT: TP002 – Treatment Plant for Muddy Creek

A conventional type Tonka package plant was constructed in 2004. It consists of two filter trains; each providing flocculation, sedimentation (through the use of tube settlers), and filtration. Disinfection of the water is provided by the addition of sodium hypochlorite immediately following filtration. The 30,000 gallon clearwell (CW001), located next to the old water treatment plant, is used for CT calculations. Because the clearwell is an insulated standpipe, the roof of the clearwell was not accessed for fear of damaging the insulation. The district experiences an average daily flow of 20,000 gallons in the winter and up to 60,000

gallons during high demand of the summer. Chlorine residuals are recorded daily at the point of entry and throughout the distribution system. The overall management of the treatment facility is well documented and maintained.

DISTRIBUTION: DS001 - Distribution System for Power Teton County Water District

All the distribution system piping has been replaced with 6" PVC pipe including the fill station. The distribution system is flushed 2-3 times a year by the fire department and the operators. The fill station RP identified in the last sanitary survey as possibly having a problem is in good operable condition. Karol indicated that there is only one dead end line in the distribution system. Operating procedures are consistent and conform to industry standards. Construction standards are used for all system improvements. Water quality data is recorded and used for future reference.

STORAGE: ST00I - Storage facility 150,000 gallons

The storage tank is located east of town near the interstate and is a 150,000 gallon welded steel tank. The storage tank is secure and fenced. It was constructed in 2005 and is in good condition. The storage tanks have approved hatch accesses with gasket seals, screened venting, and overflow piping. The facility has set rotational cleaning schedules to maintain proper maintenance checks, tank integrity, and operational readiness. The elevated storage tanks are inspected on a regular schedule. Site security is in place with routine site maintenance visits to identify potential sanitary risks.

PUMPS, PUMP FACILITIES and CONTROLS:

PF001 - Pump Facility Raw Water
This pump facility actually encompasses 5 individual pumps. Two 50 gpm pumps located in wet wells in plant that take water from a raw water sump that receives water directly from muddy creek and boosts through the plant. There are two 50 gpm pumps that take water from a wet well that receive water from the raw water surface impoundment adjacent to the water treatment plant and boosts through the plant. The remaining raw water pump is in the wet well and supplies muddy creek water to either the surface impoundment or can be used for fire protection to supply the fire fill line.

PF002 - Pump Facility High Service Pump
This pump facility is used to draw water from the clearwell and pump to town. It consists of two 7.5 hp booster pumps that alternate and take suction from the clearwell and boost to the town of Power. The peak hourly flow is 50 gpm. The transmission line to town is also used for CT calculations and has a volume of 5154 gallons.

MONITORING, REPORTING and DATA VERIFICATION:

Monitoring and reporting requirements are met every month by the timely submittal of the reports. The system is in compliance with site sampling and monitoring plans, data, and record keeping requirements. Monthly reports are reported to DEQ in a timely fashion. Analytical results, monitoring data and daily logs are analyzed for further system optimization.

MAINTENANCE, MANAGEMENT, SAFETY and OPERATION:

The Power Teton County Water District is well operated and maintained. The dedication of the operator is to be commended. There is always a need to plan for the future. An emergency response plan and emergency power should be a priority for the system. The overall facility is very well managed and maintained. The management is very proactively maintaining the technical sustainability for the system. The safety and operation procedures are documented and very well maintained.

OPERATOR COMPLIANCE WITH STATE REQUIREMENTS:

There have been NO violations for more than 5 years. All operators are certified and current with all regulations.

No Significant Deficiencies were determined during this survey.

If you have any questions about this report or public water supply regulations, please give me a call at 406-444-5881.

Sincerely,

Gerard Gernand
Surface Water Treatment Inspector
Permitting and Compliance
Public Water and Subdivision Bureau
Phone: 406-444-5881
Email: ggernand@mt.gov

CC: Helena PWS file
Teton Sanitarian files

SANITARY SURVEY FORM - INVENTORY

1/2011

PWSID **MT0000311** | SYSTEM NAME **POWER TETON COUNTY WATER DISTRICT**

DATE OF SURVEY **8/12/2015** | COUNTY **TETON** | SURVEYOR NAME **GERARD GERNAND AND LISA KAUFMAN**

(SYSTEM REPRESENTATIVE) **KAROL WALKER** | (OTHER REPRESENTATIVE)

SYSTEM ADDRESS – ADMINISTRATIVE CONTACT

Addressee KAROL WALKER

Primary Address

Street PO BOX 176

City POWER State MT Zip 59468

System Phone (406)463-2351 Fax ( )

SYSTEM OWNER

Addressee POWER TETON CO WATER AND SEWER DISTRICT

Owners Address

Street PO BOX 176

City POWER State MT Zip 59468

Owner Phone (406)463-2351 Fax ( )

LOCATION OF SYSTEM

Nearest City POWER Description or Physical Address 22 MILES NORTHWEST OF GREAT FALLS, Township 23 North, Range 1 West, Section 27 (WTP), 25 (CITY).

☐ seasonal operation dates:_____to_____

☒ year round operation

OPERATOR OF SYSTEM

Name KAROL WALKER

Certified Operator? ☒ Yes ☐ No ☐ Not required

Copy of Certificate? ☒ Yes ☐ No Certification # 5942

Phone # (406)463-2351 Cell Phone # ( )

Fax # ( )

ALTERNATE OPERATOR OF SYSTEM

Name GENE WALKER

Certified Operator? ☒ Yes ☐ No ☐ Not required

Copy of Certificate? ☒ Yes ☐ No Certification # 3472

Phone # (406)463-2351 Cell Phone # ( )

SYSTEM STATUS

☒ A = Active ☐ P = Pending *(Add New System)*

☐ I = Inactive

SYSTEM CLASS

☒ C = Community

☐ NTNC = Non-Transient Non-Community

☐ TNC = Transient Non-Community

Total Service Connections: Residential / Non-Transient: 80

Transient:

Total Active Connections: Residential / Non-Transient: 78

Transient:

Service Connections Metered? ☒ Yes ☐ No

Percent Metered RESIDENTIAL 100 %

Resident Population 167

(Number of permanent residents utilizing PWS daily)

Non-Transient Population _____

(Maximum number of non-transient persons utilizing PWS daily)

Transient Population _____

(Maximum number of transient persons served by PWS daily)

OWNER TYPE

☐ 1 Federal Government

☐ 2 Private Subdivision, Investor, Trust, Cooperative, Water Association, etc.

☐ 3 State Government

☒ 4 Local Government Authority, Commission, District, Municipality, City, etc.

☐ 5 Mixed Public/Private

☐ 6 Native American

SERVICE AREA CHARACTERISTICS LIST

☐ BR Bar

☐ DC Day Care Center

☐ DI Dispenser

☐ HS Head Start

☐ HA Homeowners Assoc.

☐ HM Hotel/Motel

☐ HR Highway Rest Area

☐ IA Industrial/Agricultural

☐ IC Interstate Carrier

☐ IN Institution

☐ MF Medical Facility

☐ MH Mobile Home Park

☒ MU Municipality

☐ OA Other Area

☐ ON Other Non-Transient Area (_____Average Daily Visitors TNC)

☐ OR Other Residential Area

☐ OT Other Transient Area

☐ PA Recreation Areas

☐ RA Residential Area

☐ RE Retail Employees

☐ RS Restaurant

☐ RV RV Park

☐ SC School

☐ SI Sanitary Improvement District

☐ SK Summer Camp

☐ SR Secondary Residences

☐ SS Service Station

☐ SU Subdivision

☐ WBWater Bottler

☐ WH Wholesaler (Sells Water)

Service Category Description

Comments: POWER TETON COUNTY WATER DISTRICT IS LOCATED IN THE TOWN OF POWER, MONTANA, APPROXIMATELY 22 MILES NORTHWEST OF THE CITY OF GREAT FALLS. POWER, NAMED FOR T.C POWER, A HOMESTEADER IN THE EARLY 1900'S, BECAME A TOWN IN 1910. WITH A RESIDENT POPULATION OF 167, THE POWER TETON COUNTY WATER DISTRICT IS CLASSIFIED AS A COMMUNITY PUBLIC WATER SUPPLY. THE DISTRICT'S SOURCE WATER IS MUDDY CREEK AND IT IS TREATED BY A CONVENTIONAL TYPE TONKA PACKAGE PLANT CONSTRUCTED IN 2004. THE DISTRICT EXPERIENCES AN AVERAGE DAILY FLOW OF 20,000 GALLONS TO SERVE ITS RESIDENT POPULATION.

SANITARY SURVEY FORM – WATER SYSTEM FACILITIES

PWSID **MT0000311** | SYSTEM NAME **POWER TETON COUNTY WATER DISTRICT**

Water System Facilities (WSF) numbers are WSF Type Codes plus an assigned number. (i.e. source facility numbering starts with 002 and all non-source facilities start with 001). See instruction sheet for a list of WSF Type Codes. When a source is operational it is considered Active, this includes systems that are seasonal. Inactive sources are those which are shut down but can return to active status, such as a system out of business. Proposed sources are those that have been identified through the Plan Review process, but are not connected to the water system.

*A **water source facility** is a well, spring, intake, infiltration gallery or consecutive connections from which a system draws or purchases water:* | Total Number of Source Facilities 1

WATER SYSTEM FACILITIES SUMMARY (WSF)

WSF ID	Facility Name	Water Type Code	Purchased	Seller PWSID	Activity Status*
DS 001	Distribution System				
IN002	INTAKE FOR MUDDY CREEK	SW	☐ Yes ☒ No		A
SI001	500,000 GALLON RAW WATER STORAGE	SW	☐ Yes ☒ No		A
CW001	CLEARWELL 30,000 GALLON STANDPIPE		☐ Yes ☒ No		A
PF001	PUMP FACILITY RAW WATER		☐ Yes ☒ No		A
PF002	PUMP FACILITY HIGH SERVICE		☐ Yes ☒ No		A
ST001	STORAGE FACILITY 150,000 GALLON		☐ Yes ☒ No		
TM001	TRANSMISSION MAIN FROM PLANT TO TOWN		☐ Yes ☒ No		
TP002	TP FOR MUDDY CREEK		☐ Yes ☒ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
ST002	STORAGE FACILITY 40,000 CONCRETE		☐ Yes ☐ No		I
PF003	PUMP FACILITY BOOSTER PUMP STATION		☐ Yes ☐ No		I
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		

Description of Water System Facility flow: IN002 to PF001 to SI001 or TP002 to CW001 to PF002 to TM001 to DS001 to ST001 to DS001

Example: Well 1 (WL002) to common header (CH001), Well 2 (WL003) to common header (CH001) to treatment plant (TP001) to pressure control assembly (PC001) to distribution system (DS001) to storage tank (ST001) to distribution system (DS001).

*(A)Active, (I)Inactive, (P)Proposed

EMERGENCY POWER

Does the system have emergency power? ☐ Yes ☒ No

If yes, what type: Frequency of testing: _____

Record of primary power failures: _____ in last year Switchover: ☐ Automatic ☐ Manual

Comments: POWER TETON COUNTY WATER DISTRICT DOES HAVE A GENERATOR

SANITARY SURVEY FORM - SURFACE WATER, SPRINGS & INFILTRATION GALLERIES

PWSID **MT0000311** | SYSTEM NAME **POWER TETON COUNTY WATER DISTRICT**

SOURCES MUDDY CREEK | **STATUS OF SOURCE** ☒ (A)active ☐ (I)inactive ☐ (P)proposed

WSF ID IN002 *Entry Point ID* EP502
These are State assigned identification numbers

Source Name INTAKE MUDDY CREEK
Name of Source - Example: Well 1 or South well, etc.

Location of Water Source (TRS or street address) Township 23 North, Range 1 West, Section 27 (WTP), 25 (CITY), -APPROX. 1.75 MILES WEST OF POWER, MUDDY CREEK ADJACENT TO WTP

Entry Point Name EP FOR IN TP
Name of EP - Example: Entry point for North Well 1 & South Well 2

Location of Entry Point TP002

Available ☒ Perm ☐ Emerg ☐ Interim ☐ Seasonal ☐ Other
If seasonal: _____ to _____

GWUDISW PA Completed? ☐ Yes ☐ No ☐ Unk ☒ N/A

Average Production 20,000 GPD

Maximum Production 100 GPM

Latitude 47.71299
Longitude -111.72307

SURFACE SOURCES

What is the nature of watershed?

☒ Agricultural Name _____
☐ Industrial
☐ Forest
☐ Residential
☐ Other _____

What is the size of the owned/protected area of the watershed?

How is watershed controlled?
☒ Ownership
☐ Ordinances
☐ Zoning
☐ Other

	Yes	No	Unk	N/A
Has a source water protection plan been developed?	☐	☒	☐	☐
Has management had a watershed survey performed?	☐	☒	☐	☐
Is there an emergency spill response plan?	☐	☒	☐	☐
Is the source adequate in quantity?	☒	☐	☐	☐
Is the source adequate in quality?	☒	☐	☐	☐
Is the intake protected from sources of contamination?	☐	☒	☐	☐
Are multiple intakes, located at different levels, utilized?	☐	☒	☐	☐
Is the highest quality water being drawn?	☒	☐	☐	☐
Can the raw water transmission line bypass treatment?	☐	☒	☐	☐

How often are intakes inspected? DAILY

What conditions cause fluctuations in quality? RUNOFF/SNOWMELT AND AG PRACTICES THAT RESULT IN CATTLE ALONG THE CREEK

Comment: INTAKE PIPE IS RUNS ALONG THE CONCRETE ABUTMENT FOR THE DAM ON THE UPSTREAM SIDE OF THE DAM.

SPRINGS & INFILTRATION GALLERIES

	Yes	No	Unk	N/A
Is recharge area protected?	☐	☐	☐	☐

If Yes, how? _____
☐ Ownership
☐ Fencing
☐ Ordinances
☐ Other _____

What is the nature of recharge zones? ☐ ☐
☐ Agricultural
☐ Industrial
☐ Forest
☐ Residential
☐ Other _____

Is site protected from flooding?	☐	☐	☐	☐
Is there diversion of surface drainage from site?	☐	☐	☐	☐
Is collection chamber properly constructed?	☐	☐	☐	☐
Does hatch cover overlap?	☐	☐	☐	☐
Is the overflow outlet screened?	☐	☐	☐	☐
Vented and screened?	☐	☐	☐	☐
Is supply intake adequate?	☐	☐	☐	☐
Is site properly protected (from livestock, vandalism, tampering, etc)?	☐	☐	☐	☐

What conditions cause changes to quality of the water? _____

Comment: _____

SANITARY SURVEY FORM - TREATMENT

PWSID MT0000311

SYSTEM NAME POWER TETON COUNTY WATER DISTRICT

Treatment Objective

- B = Disinfection Byproduct Control
- C = Corrosion Control
- D = Disinfection
- E = Dechlorination
- F = Iron Removal
- I = Inorganics Removal
- M = Manganese Removal
- N = *No Treatment at Source*
- O = Organics Removal
- P = Particulate Removal
- R = Radionuclides Removal
- S = Softening (Hardness Removal)
- T = Taste / Odor Control
- Z = Other _____

WATER TREATMENT FACILITIES

WSF ID	Treatment Plant Name	Treatment Objectives and Code
TP002	TREATMENT PLANT FOR MUDDY CREEK	P240 P360 P345 P660 D421 P742

WSF ID	Location	
TP002	Latitude 47.71305	Longitude -111.72285
	Latitude ___° ___' ___"	Longitude ___° ___' ___"
	Latitude ___° ___' ___"	Longitude ___° ___' ___"
	Latitude ___° ___' ___"	Longitude ___° ___' ___"
	Latitude ___° ___' ___"	Longitude ___° ___' ___"

Treatment plant description: WTP CONSISTS OF 2 PARALELL TREATMENT TRAINS OF CONVENTIONAL FILTRATION UTILIZING TUBE SETTLERS. FERRIC CHLORIDE IS THE COAGULANT OF CHOICE, HOWEVER THERE IS THE ABILITY TO ADD POLYMER, HYDROCHLORIC ACID, AND CAUSTIC. DISINFECTION OF THE FILTERED WATER IS ACCOMPLISHED BY THE USE OF CALCIUM HYPOCHLORITE. THE CLEARWELL AND TRANSMISSION MAIN TO TOWN ARE USED TO CALCULATE CT TIME.

FOR SYSTEMS EMPLOYING FULL-TIME DISINFECTION

	Yes	No	Unk	N/A
What disinfectant is used? CALCIUM HYPOCHLORITE				
Is the disinfectant used NSF approved?	☒	☐	☐	☐
Is the amount of disinfectant used recorded? If Yes, amount used: 1-1.4 lbs/	☒	☐	☐	☐
Is the amount of disinfectant used compared to water pumped to verify concentration?	☒	☐	☐	☐
Is chemical storage adequate and safe? If No, explain _____	☒	☐	☐	☐
Is disinfectant residual being monitored daily?	☒	☐	☐	☐
Are residual reports submitted monthly?	☒	☐	☐	☐
Is the disinfection equipment being operated and maintained properly?	☒	☐	☐	☐
Is operational standby equipment provided?	☒	☐	☐	☐
If not, are critical spare parts on hand?	☒	☐	☐	☐
Has disinfection system been free from failure during the past year – no interruption?	☒	☐	☐	☐

If No, give dates of interruptions _____

Describe provisions for providing contact time between disinfection point and the first point of use: CONTACT TIME IS ACHIEVED THROUGH USE OF THE CLEARWELL. CALCULATED WITH A MINIMUM VOLUME OF 12,000 GALLONS, A BAFFLING FACTOR OF 0.3, AN EFFECTIVE VOLUME OF 7200 GALLONS AND A PEAK FLOW OF 50GPM. ADDITIONAL CONTACT TIME IS PROVIDED FOR IN THE TRANSMISSION MAIN FROM THE TP TO TOWN. TM001 HAS A VOLUME OF 5154 GALLONS AND A PEAK FLOW OF 50 GPM. CT IS ADEQUATE UNDER ALL CIRCUMSTANCES.

IF USING GAS CHLORINATION

	Yes	No	Unk	N/A
Is a manifold provided to allow feeding gas from more than one cylinder?	☐	☐	☐	☐
Is there automatic switchover from cylinder to cylinder?	☐	☐	☐	☐
Are scales provided for weighing of containers?	☐	☐	☐	☐
Are chlorine storage and use areas isolated from other work areas?	☐	☐	☐	☐
Are stored cylinders capped and labeled?	☐	☐	☐	☐
Is room vented to the outdoors with suction located no more than 6 inches above the floor level?	☐	☐	☐	☐
Is vent inlet near the ceiling?	☐	☐	☐	☐
Is room containing chlorination treatment labeled sufficiently (DANGER signs, etc.)?	☐	☐	☐	☐
Is a view port provided into the room storing chlorine?	☐	☐	☐	☐
Is a means of leak detection provided? Type? _____	☐	☐	☐	☐
Is a self-contained breathing apparatus available for use during repair of leaks? Where?_____	☐	☐	☐	☐
Are personnel trained to use apparatus?	☐	☐	☐	☐
Are all doors hinged outward and equipped with panic bars?	☐	☐	☐	☐
Are all gas cylinders restrained near the top and about half way down by chaining to wall or by other means?	☐	☐	☐	☐

Comment: AN EYEWASH STATION and SHOWER HAS BEEN INSTALLED AND OPERATION IS VERIFIED 2 TIMES A MONTH.

SANITARY SURVEY FORM - SURFACE WATER TREATMENT PLANTS
(Direct and Conventional and other)

PWSID MT0000311 | SYSTEM NAME POWER TETON COUNTY WATER DISTRICT
Latitude 47.71305 Longitude -111.72285

Type: ☐Direct ☐In-Line ☒Conventional ☐CAC ☐Other (describe) _____

Peak instantaneous flow experienced: 100 gpm

	Chemicals Added	Points of Application	Purpose	Feed Rate (range)
1)	FERRIC CHLORIDE	RAW	PRIMARY COAGULANT	
2)	SODIUM HYPOCHLORITE	POST FILTER	DISINFECTION	
3)				
4)	POLYMER	RAW		NOT IN USE
5)	HYDROCHLOROUS ACID	RAW		NOT IN USE
6)	CAUSTIC	RAW		NOT IN USE

How are process control decisions made? RAW WATER QUALITY, JAR TESTING AND HISTORICAL DATA IS REVIEWED.

Describe the following unit processes:

Rapid Mix: INLINE STATIC MIXER

Flocculation:

Theoretical hydraulic detention time

Tapered? ☒ Yes ☐ No

Description: 2 STAGE, VARIABLE SPEED

Sedimentation:

Surface overflow rate: 2.0 gpm/ft^2

Description: TUBE SETTLERS

Filters:

Type: ☐Rapid Sand ☒Dual Media ☐Multi-media ☐Other (describe)

Depth of Media: 37" OF ANTHRACITE AND GARNET SAND WITH 16" OF SUPPORT GRAVEL

Surface wash? ☒ Yes ☐ No If Yes, type: ROTARY

Air scour? ☐ Yes ☒ No

Disinfection

Log inactivation credit granted: 2.5Log

Inactivation required: 0.5Log

Total reduction: 3.0Log

Is CT adequate under all conditions of flow, temperature and pH? ☒ Yes ☐ No ☐ Unk

Explain: ADEQUATE CHLORINE RESIDUAL IS MAINTAINED UNDER ALL CIRCUMSTANCES TO MEET INACTIVATION RATIOS WHEN BOTH THE CLEARWELL AND TRANSMISSION MAIN ARE USED FOR CALCULATING CT.

Comments on process control and finished water quality: MONTHLY SWTR REPORTS SHOW COMPLIANCE WITH THE RULES AND TOC REMOVAL IS ADEQUATE TO MEET THE REQUIREMENTS HOWEVER TOC CONCENTRATIONS HAVE BEEN ON AN UPWARD TREND FOR THE LAST COUPLE OF YEARS AND ALL PREDICTIONS LEAD TO THE CONTINUED INCREASE IN THE ORGANIC CONTENT OF SOURCE WATERS. THIS PACKAGE TYPE CONVENTIONAL PLANT MAY NOT BE ABLE TO OPERATE IN AN ENHANCED COAGULATION MODE.

If a CPE is needed, please comment:_____

SANITARY SURVEY FORM - SURFACE WATER TREATMENT PLANTS
(Direct and Conventional and other)

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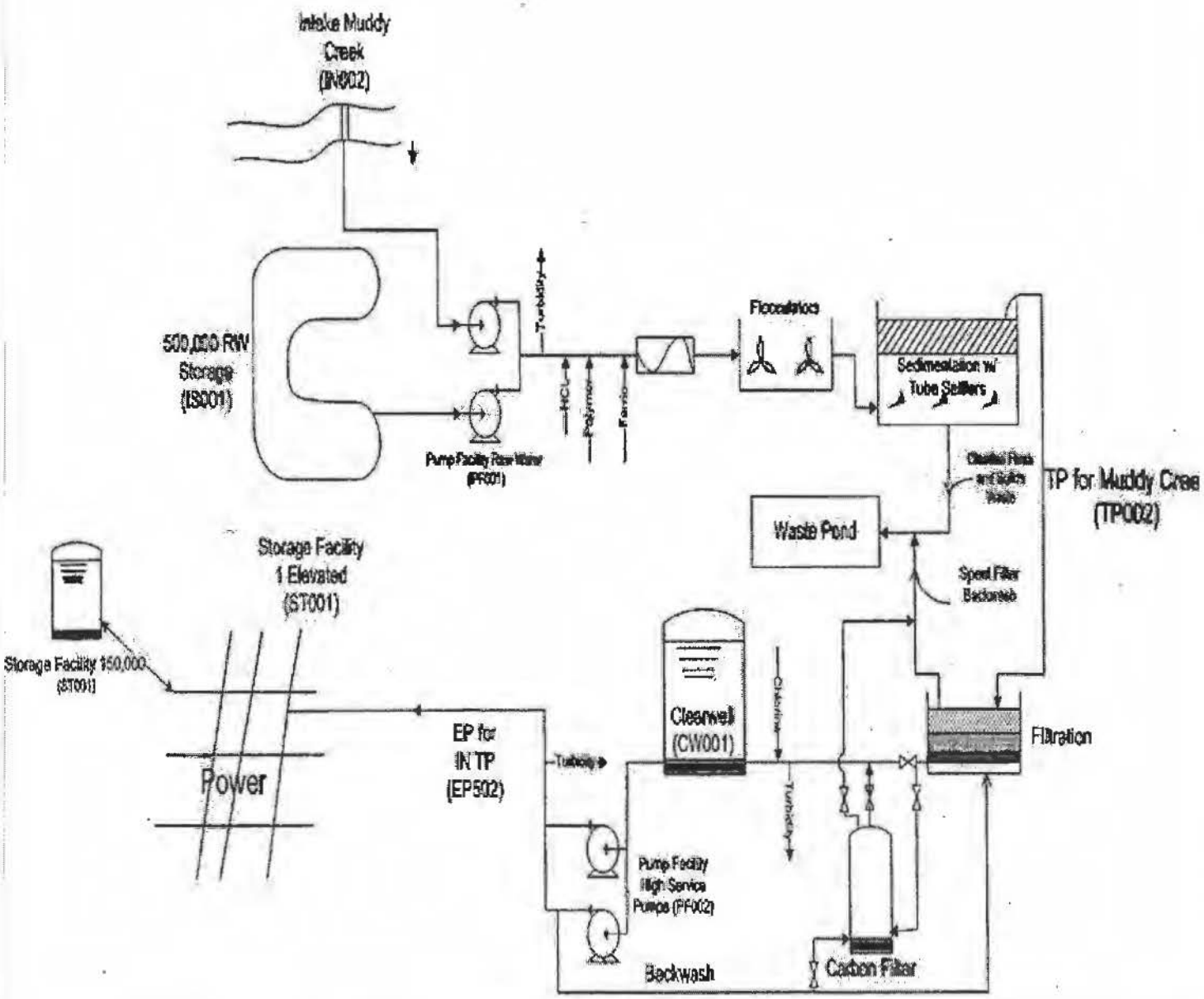
SYSTEM NAME Error! Reference source not found.

Provide a schematic. Show all chemical application points.



SANITARY SURVEY FORM - PUMPING FACILITIES

PWSID MT0000311 | SYSTEM NAME POWER TETON COUNTY WATER DISTRICT

WSF ID PF001 Location, Description PUMP FACILITY RAW WATER – THERE ARE A TOTAL OF 5 SUBMERSIBLE PUMPS IN THIS FACILITY. TWO 50 GPM PUMPS LOCATED IN WET WELLS IN PLANT THAT TAKE WATER FROM A RAW WATER SUMP THAT RECEIVES WATER DIRECTLY FROM MUDDY CREEK AND BOOSTS THROUGH THE PLANT. THERE ARE TWO 50 GPM PUMPS THAT TAKE WATER FROM A WET WELL THAT RECEIVES WATER FROM THE RAW WATER SURFACE IMPOUNDMENT ADJACENT TO THE WTP AND BOOSTS THROUGH THE PLANT. THE REMAINING RAW WATER PUMP IS IN THE WET WELL AND SUPPLIES MUDDY CREEK WATER TO EITHER THE SURFACE IMPOUNDMENT OR CAN BE USED FOR FIRE PROTECTION TO SUPPLY THE FIRE FILL LINE.

Latitude 47.71305

Longitude -111.72285

Type SUBMERSIBLE PUMP
(example: 30 hp line shaft turbine)

Rated Capacity 50 gpm EACH

How frequently are pump(s) replaced? 1-2 pumps every year as needed

	Yes	No	Unk	N/A
Is redundancy provided?	☒	☐	☐	☐
Are backup pumps/motors provided?	☒	☐	☐	☐
Is there a pressure relief valve?	☐	☐	☐	☒
Does each pump have compound gauge on suction side?	☐	☐	☐	☒
Is there automatic cutoff for low suction pressure?	☒	☐	☐	☐
Does each pump have standard pressure gauge on discharge side?	☐	☐	☐	☒
Does low pressure level provide adequate pressure?	☒	☐	☐	☐
Are controls functioning properly and adequately protected?	☒	☐	☐	☐
Do underground compartments have a drain?	☐	☐	☐	☒
Is facility properly protected against trespassing and vandalism?	☒	☐	☐	☐
Are pump records maintained (amp, discharge, pressure, maintenance schedule, manuals, etc.)?	☒	☐	☐	☐
Is the plumbing adequately painted to prevent excessive corrosion?	☒	☐	☐	☐
Are adequate heating, lighting, and ventilation provided?	☒	☐	☐	☐
Is a preventive maintenance program in operation?	☒	☐	☐	☐
Are recommended spare parts on hand?	☒	☐	☐	☐

Controlled by CONTROLLED BY CLEARWELL LEVELS, WHICH OPERATE THE PLANT

Comments: THE OPERATOR CAN MANUALLY CHANGE TO DRAW FROM WHATEVER WET WELL SUMP WILL SUPPLY THE BEST WATER FOR TREATMENT. THESE PUMPS ARE REPLACED AT A RATE OF 1-2 EACH YEAR DUE TO ISSUES WITH SEDIMENT BUILDING UP AND BURNING OUT THE MOTORS &/OR THE IMPELLARS.

WSF ID PF002 Location, Description PUMP FACILITY HIGH SERVICE PUMPS

Latitude 47.71305

Longitude -111.72285

Type: TWO 7.5 hp BOOSTER PUMPS TAKE SUCTION FROM THE CLEARWELL AND BOOST TO TOWN OF POWER. PUMPS ALTERNATE.

Rated Capacity 50 GPM

How frequently are pump(s) replaced?

	Yes	No	Unk	N/A
Is redundancy provided?	☒	☐	☐	☐
Are backup pumps/motors provided?	☒	☐	☐	☐
Is there a pressure relief valve?	☐	☐	☐	☒
Does each pump have compound gauge on suction side?	☒	☐	☐	☐
Is there automatic cutoff for low suction pressure?	☒	☐	☐	☐
Does each pump have standard pressure gauge on discharge side?	☒	☐	☐	☐
Does low pressure level provide adequate pressure?	☒	☐	☐	☐
Are controls functioning properly and adequately protected?	☒	☐	☐	☐
Do underground compartments have a drain?	☐	☐	☐	☒
Is facility properly protected against trespassing and vandalism?	☒	☐	☐	☐
Are pump records maintained (amp, discharge, pressure, maintenance schedule, manuals, etc.)?	☒	☐	☐	☐
Is the plumbing adequately painted to prevent excessive corrosion?	☒	☐	☐	☐
Are adequate heating, lighting, and ventilation provided?	☒	☐	☐	☐
Is a preventive maintenance program in operation?	☒	☐	☐	☐
Are recommended spare parts on hand?	☒	☐	☐	☐

Controlled by CONTROLLED BY LEVELS IN ST001

Comments: 50 GPM FLOW IS USED FOR CT CALCULATIONS FOR THE TRANSMISSION MAIN FROM WTP TO TOWN..

SANITARY SURVEY FORM - STORAGE

PWSID MT0000311 | SYSTEM NAME POWER TETON COUNTY WATER DISTRICT

COMPLETE ONE SECTION FOR EACH STORAGE FACILITY

Total storage provided? 180,000 gal | How much treated storage is provided 180,000 gal | Storage provides - 9 days of water --winter - 3 days of water - summer

STORAGE FACILITY

WSF ID CW001 CLEARWELL 30,000 GALLON STANDPIPE

Location: ADJACENT TO THE OLD WTP BUILDING. THE STANDPIPE IS SPRAY INSULATED TO PROTECT AGAINST FREEZING.
Latitude: 47.712972 Longitude: -111.72272

Storage Volume? 30,000 gallons
Year constructed: 2004
Condition: ☒Good ☐Fair ☐Poor

	Yes	No	Unk	N/A
Does surface runoff and underground drainage drain away?	☒	☐	☐	☐
Is the site protected against flooding?	☒	☐	☐	☐
Is the site protected against trespass/vandalism?	☒	☐	☐	☐
Ladders caged and locked?	☒	☐	☐	☐
Are overflow lines, air vents, drainage lines or clean out pipes turned downward or covered, screened and terminated a minimum of 3 diameters above the ground or storage tank surface?	☒	☐	☐	☐
Overflow pad?	☒	☐	☐	☐
Is access hatch sealed properly and locked?	☒	☐	☐	☐
Are surface coatings in contact with water ANSI / NSF approved?	☒	☐	☐	☐
Is tank protected against icing and corrosion?	☒	☐	☐	☐
Can tank be isolated from system?	☒	☐	☐	☐
Is all treated water storage covered?	☒	☐	☐	☐
Are tanks disinfected after repairs are made?	☒	☐	☐	☐
What is cleaning frequency for tanks? 1 TIME SINCE INSTALLATION				
Is tank inspected every 5 years by a structural engineer for structural integrity?	☐	☒	☐	☐

Date of last inspection ____ By whom ____

Comments: THE ACCESS HATCH FOR THIS CLEARWELL DOES NOT MEET DEQ-1 DESIGN STANDARDS (NOT A SHOEBOX TYPE LID). IT DOES HOWEVER FIT TIGHTLY AND THERE ARE NO GAPS. THE VENT WAS NOT ABLE TO BE INSPECTED DUE TO THE SPRAY ON INSULATION, SO UNABLE TO TELL IF THE VENT IS SCREENED APPROPRIATELY. THIS DESIGN WAS REVIEWED AND APPROVED BY DEQ

STORAGE FACILITY

WSF ID ST001 STORAGE FACILITY 150,000 GALLON

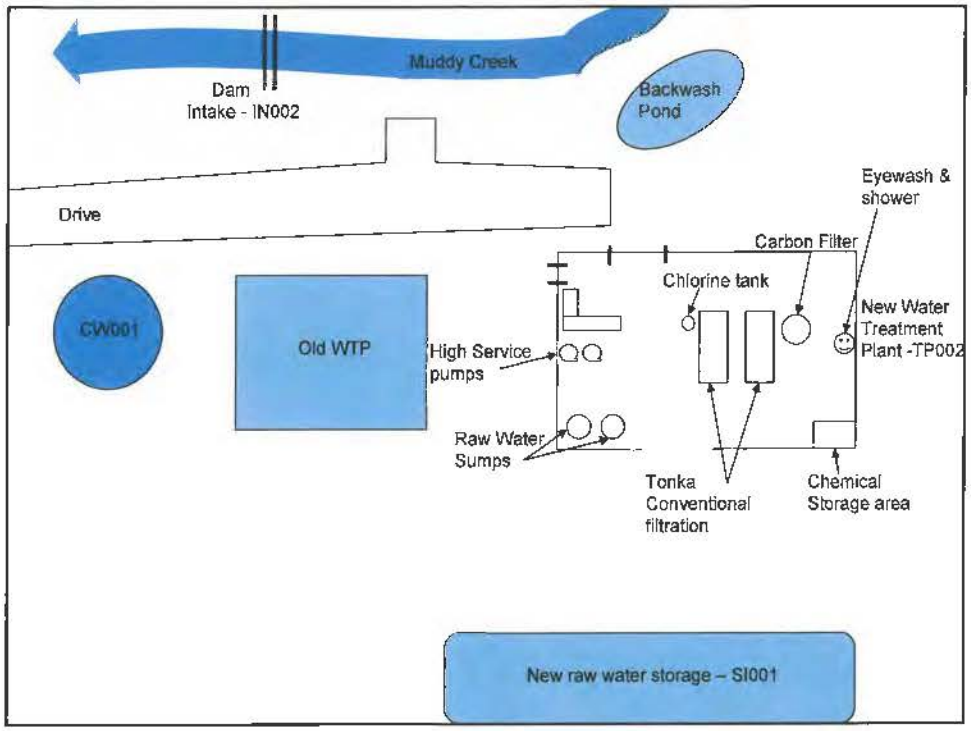
Location: 150,000 GALLON WELDED STEEL STORAGE TANK LOCATED NORTHEAST OF POWER NEAR THE INTERSTATE.
Latitude: 47.72411 Longitude: -111.66736

Storage Volume? 150,000 gallons
Year constructed: 2005
Condition: ☒Good ☐Fair ☐Poor

	Yes	No	Unk	N/A
Does surface runoff and underground drainage drain away?	☒	☐	☐	☐
Is the site protected against flooding?	☒	☐	☐	☐
Is the site protected against trespass/vandalism?	☒	☐	☐	☐
Ladders caged and locked?	☒	☐	☐	☐
Are overflow lines, air vents, drainage lines or clean out pipes turned downward or covered, screened and terminated a minimum of 3 diameters above the ground or storage tank surface?	☒	☐	☐	☐
Overflow pad?	☒	☐	☐	☐
Is access hatch sealed properly and locked?	☒	☐	☐	☐
Are surface coatings in contact with water ANSI / NSF approved?	☒	☐	☐	☐
Is tank protected against icing and corrosion?	☒	☐	☐	☐
Can tank be isolated from system?	☒	☐	☐	☐
Is all treated water storage covered?	☒	☐	☐	☐
Are tanks disinfected after repairs are made?	☒	☐	☐	☐
What is cleaning frequency for tanks? NEVER				
Is tank inspected every 5 years by a structural engineer for structural integrity?	☐	☒	☐	☐

Date of last inspection ____ By whom ____

Comments: THE ACCESS HATCH DOES NOT HAVE A GASKET BUT FITS TIGHTLY AND DOES NOT HAVE ANY GAPS. THIS STORAGE TANK IS LOCATED NEAR THE INTERSTATE. THIS DESIGN WAS REVIEWED AND APPROVED BY DEQ


Muddy Creek
Dam
Intake - IN002
Backwash
Pond
Drive
Eyewash &
shower
Carbon Filter
Chlorine tank
New Water
Treatment
Plant -TP002
CW001
Old WTP
High Service
pumps
Raw Water
Sumps
Tonka
Conventional
filtration
Chemical
Storage area
New raw water storage – SI001

The State, or an authorized agent, must conduct sanitary surveys for all public water supply systems in Montana. DEQ believes that periodic sanitary surveys, along with appropriate corrective actions, are indispensable for assuring the long-term quality and safety of drinking water. When properly conducted, sanitary surveys can provide important information on a water system's design and operations and can identify minor and significant deficiencies for correction before they become major problems.

Minor deficiencies do not pose serious health threats. However, corrective action of minor deficiencies can be critical in the long-term operation and safety of a public water system. Minor deficiencies are generally described as suggested or recommended corrections in the letter to system owner(s).

Significant deficiencies can be defined as a defective water supply component(s) having or likely to have an adverse influence on public health. Significant deficiencies require immediate corrective action in efforts to protect consumers.

EPA and ASDWA guidance identifies eight broad components that should be covered in a sanitary survey. Using these eight broad components as a guide, minor and significant deficiencies should be described in the letter to system owner(s).

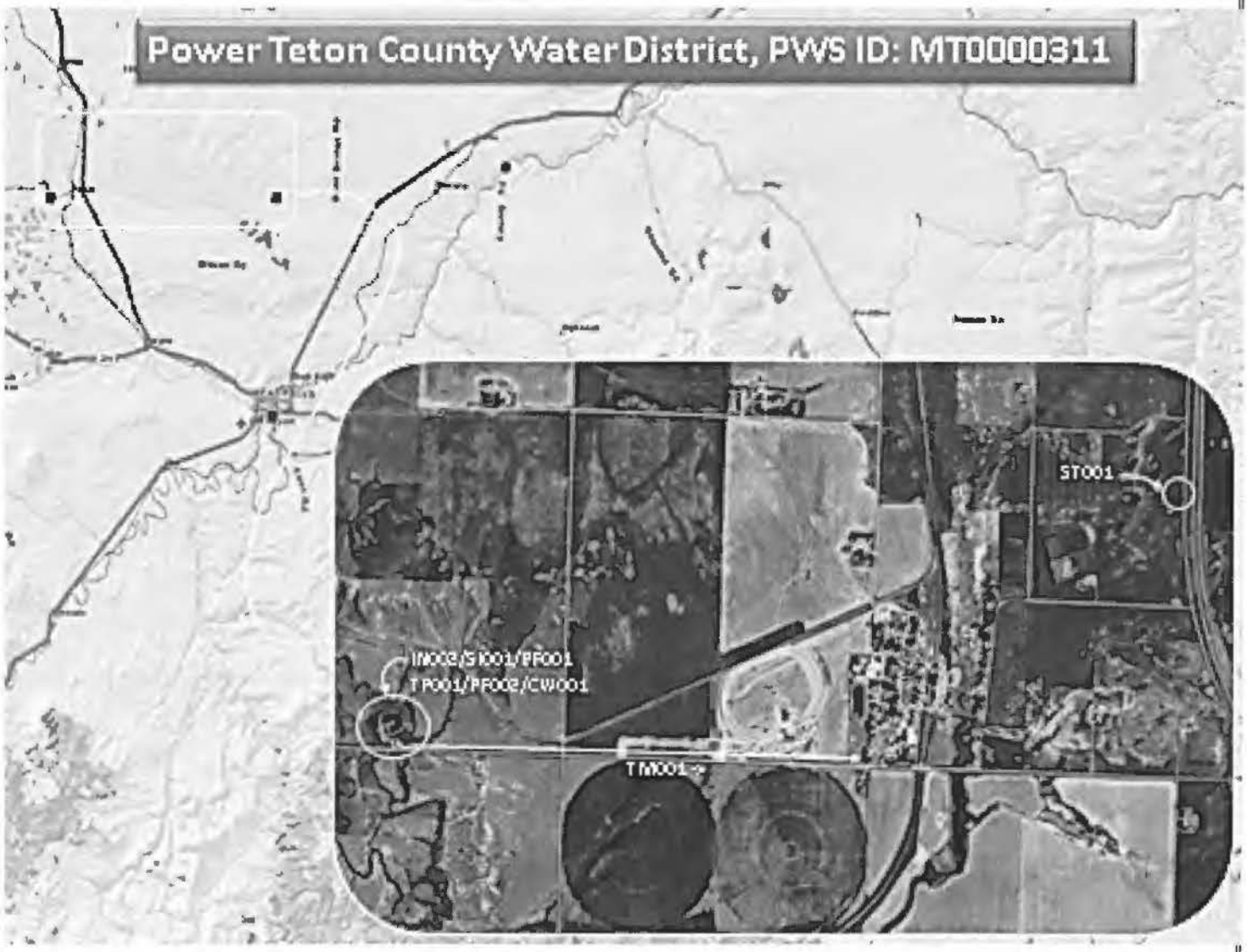
1) Source
2) Treatment
3) Distribution system
4) Finished water storage
5) Pumps, pump facilities, and controls
6) Monitoring and reporting, and data verification
7) System management and operation
8) Operator compliance with State requirements

With consideration that significant deficiencies may influence regulatory decisions and monitoring requirements, please list all significant deficiencies observed and corrective action(s) taken below.

Comments: **No significant deficiencies where found at the time of the inspection.**

PWSID Error! Reference source not found.	SYSTEM NAME Error! Reference source not found.

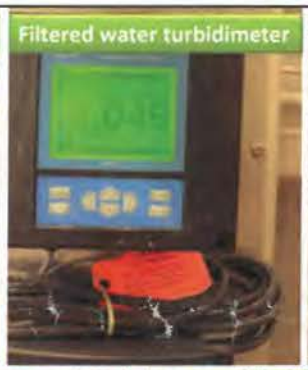
Please insert schematics, diagrams and maps as needed. Additional sheets may be added.

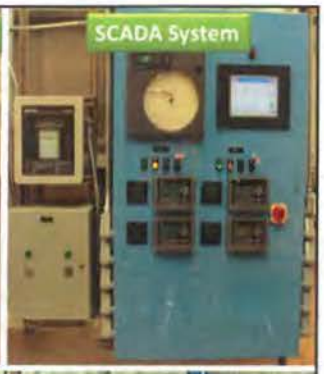


PF002-High Service Pumps

CW001- Insulated Clearwell Providing CT For System

Carbon filter for taste and odor


Filtered water turbidimeter

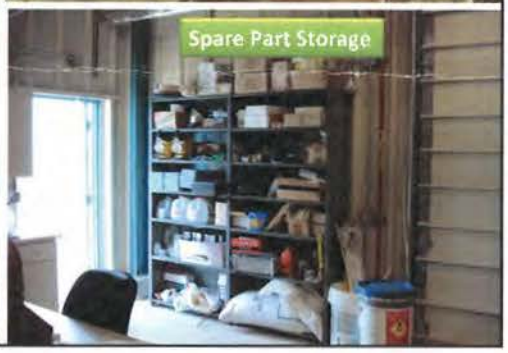

SCADA System

PF002- High Service Pump

Chlorine Analyzer Prior To Distribution

Chemical Injection Prior to Treatment

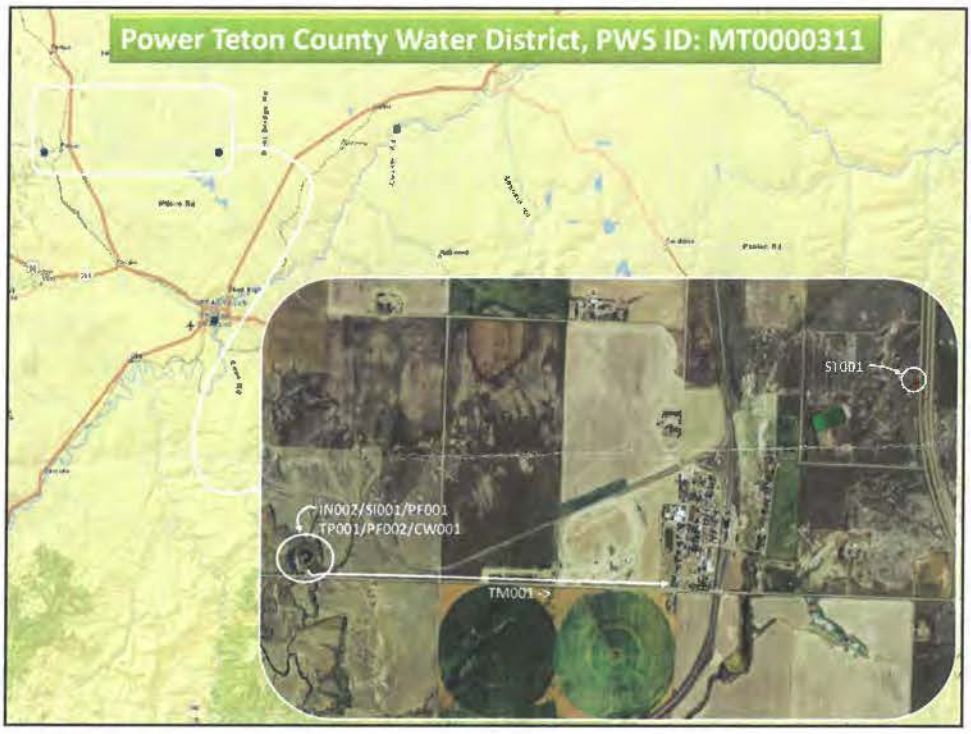
Treatment Discharge


Spare Part Storage

Storage Tank ST001 – 150,000 Gallons

Backwash Pond

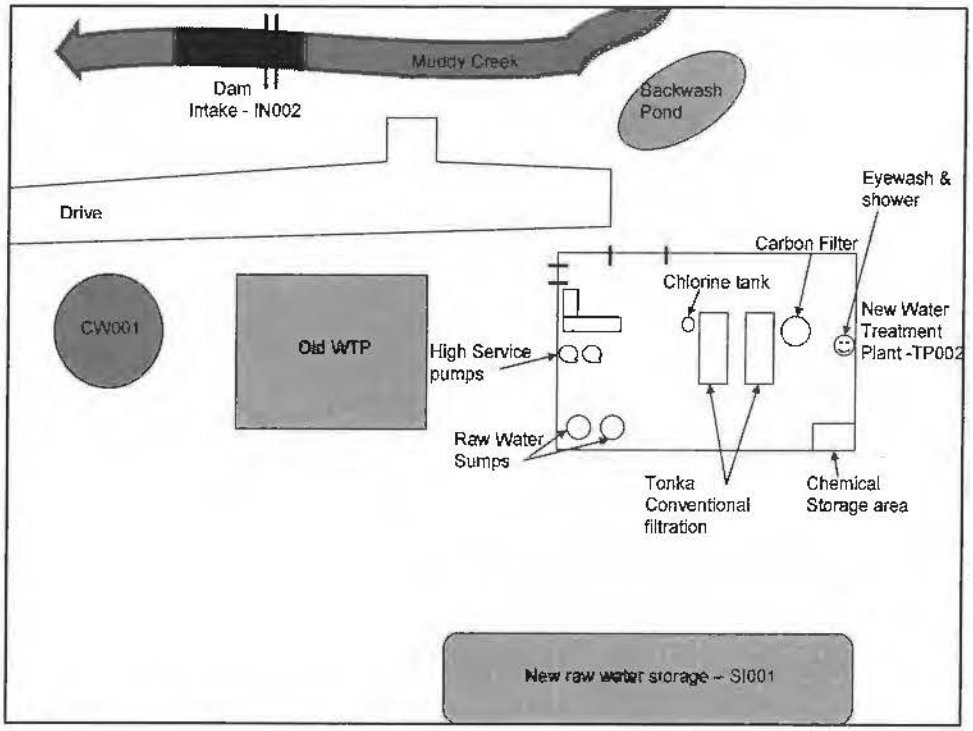
Treatment Plant Building


Power Teton County Water District, PWS ID: MT0000311
SI001
IN002/SI001/PF001
TP001/PF002/CW001
TM001

Water Treatment Plant Site
IN002
PF001/PF002/TP002
SI001
CW001
TM001
Intake Dam On Muddy Creek
Intake pipe runs along upstream side of the dam.
Wet Well Sump Filled By Gravity From Intake
Rarely Used Wet well sump for settled water from the surface impoundment
SI001 – 500K Raw Water Storage (Unused)

Coagulation/Ferric Chloride
Ferric Chloride Injection
Flocculation
Sedimentation (Tube Settlers)
Filtration
TONKA

Polymer Feed System
POLYMER
Ferric Chloride Feed System
Emergency Shower
Hydrochloric Acid Feed System
SCADA Clearwell Level Control

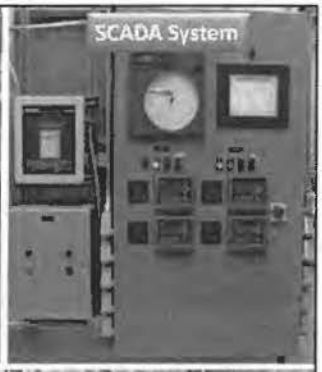

Muddy Creek
Dam
Intake - IN002
Backwash Pond
Drive
Eyewash & shower
Carbon Filter
Chlorine tank
CW001
Old WTP
High Service pumps
New Water Treatment Plant -TP002
Raw Water Sumps
Tonka Conventional filtration
Chemical Storage area
New raw water storage – SI001

PF002-High Service Pumps

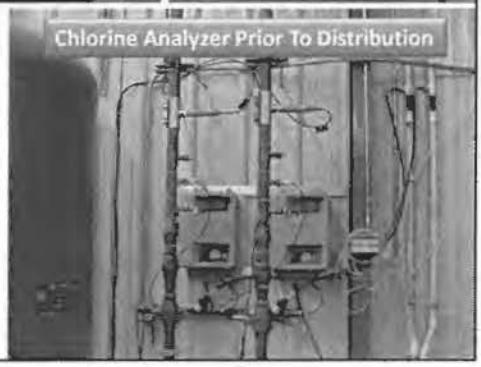
CW001- Insulated Clearwell Providing CT For System

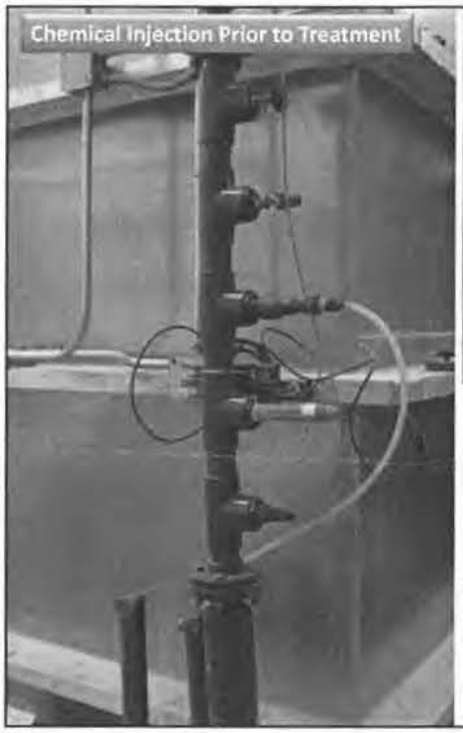
Carbon filter for taste and odor

Filtered water turbidimeter
0.049


SCADA System

PF002- High Service Pump


Chlorine Analyzer Prior To Distribution


Chemical Injection Prior to Treatment

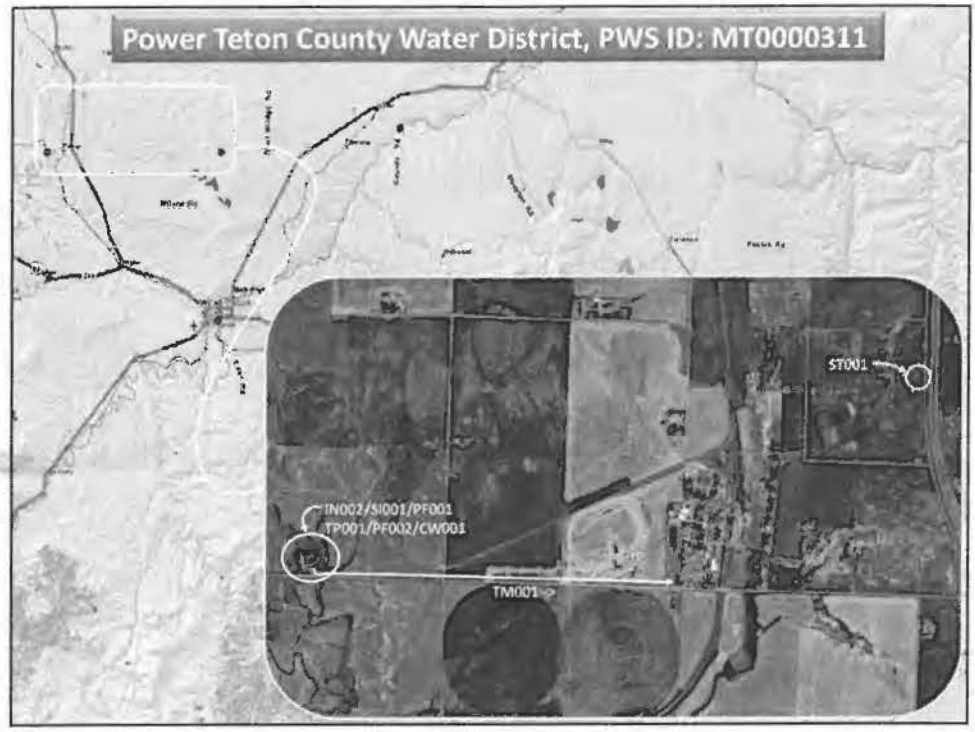
Treatment Discharge

Spare Part Storage

Storage Tank ST001 – 150,000 Gallons

Backwash Pond

Treatment Plant Building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IN002/SI001/PF001
TP001/PF002/CW001
TM001

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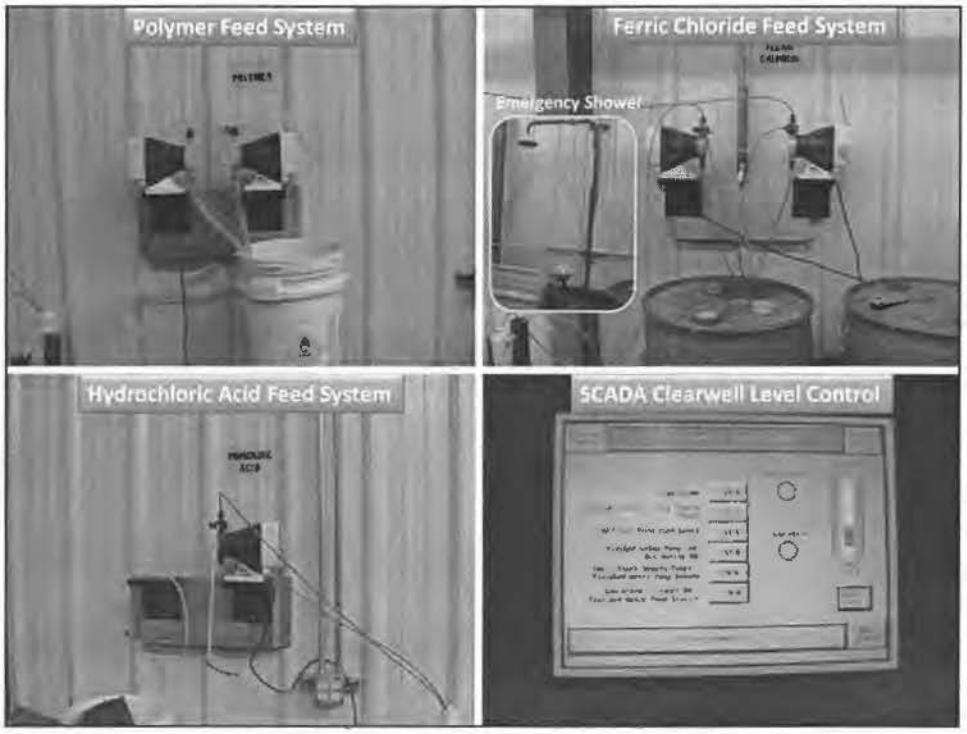
Polymer Feed System
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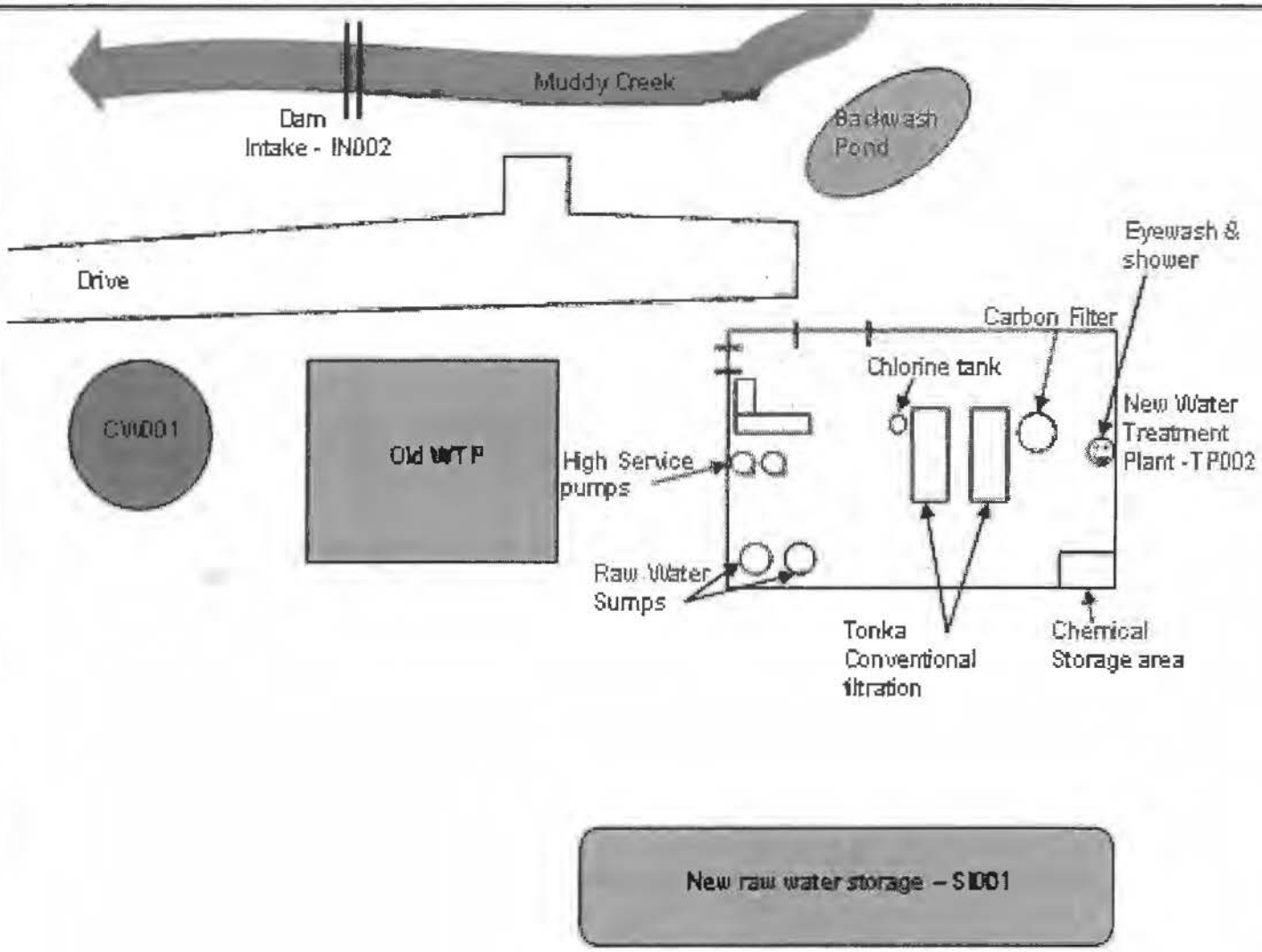
Hydrochloric Acid Feed System
SCADA Clearwell Level Control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New Water Treatment Plant - TP002
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Old WTP
High Service pumps
Raw Water Sumps
Tonka Conventional filtration
Chemical Storage area
New raw water storage – SI001

SANITARY SURVEY FORM - MISCELLANEOUS

PWSID MT0000311 | SYSTEM NAME POWER TETON COUNTY WATER DISTRICT

DISTRIBUTION SYSTEM EVALUATION

Distribution description ALL OF THE DS MAINS IN TOWN WERE REPLACED WITH 6" PVC PIPE WITHIN THE LAST 5 YEARS. THE FILL STATION SUPPLY MAIN HAS ALSO BEEN REPLACED WITH 6" PVC.

	Yes	No	Unk	N/A
System drawings available?	☒	☐	☐	☐
Accurate As-Built drawing(s) on-site?	☒	☐	☐	☐
Lines adequately sized?	☒	☐	☐	☐
Adequate pressure maintained?	☒	☐	☐	☐
Mains protected from freezing?	☒	☐	☐	☐
Distribution system free of leaks?	☒	☐	☐	☐
Asbestos concrete pipe used?	☒	☐	☐	☐
Fire hydrants?	☒	☐	☐	☐
Dead end lines minimized by looping mains?	☒	☐	☐	☐
Flushing program?	☒	☐	☐	☐
Pressure reducing stations? Number 0	☐	☒	☐	☐
Booster stations? Number 0	☐	☒	☐	☐
Are individual booster pumps on any service lines? (see DEQ-1 8.9.2)	☐	☒	☐	☐
Were cross connections observed?	☐	☒		

Comments: THE REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER AT THE FILL STATION IN TOWN IS OPERATING PROPERLY.

SAFETY

	Yes	No	Unk	N/A
Were confined spaces observed?	☒	☐	☐	☐
Describe any confined spaces observed: RAW WATER WET WELLS Confined space safety adequate?	☒	☐	☐	☐
Fall risks adequately mitigated?	☒	☐	☐	☐

Note all safety deficiencies (consider items such as ladders, tank supports, guards on rotating electrical equipment, lightning protection for pumps, etc.) WET WELL SUMPS ARE CONSIDERED CONFINED SPACES ALTHOUGH THEY AREN'T ROUTINELY ENTERED.

MONITORING AND RECORDKEEPING EVALUATION

	Yes	No	Unk	N/A
Does the system have a current Monitoring Schedule?	☒	☐	☐	☐
Bacti monitoring records maintained? (5 years)	☒	☐	☐	☐
Bacti Sample Site Plan submitted?	☒	☐	☐	☐
Familiar with repeat sampling?	☒	☐	☐	☐
Chemical monitoring records maintained? (10 years)	☒	☐	☐	☐
System specific records / plans maintained? (DBP, PB/CU, treatments, waivers, violations, etc.)	☒	☐	☐	☐
Familiar with Public Notice requirements?	☒	☐	☐	☐
Did Surveyor take a bacteriological sample?	☐	☒		

If Yes, date of Sample: _____ Time of Sample: _____

Comments: THIS PWS IS VERY WELL TAKEN CARE OF AS DEMONSTRATED BY THE DEDICATION OF THE OPERATORS. THERE HAVE BEEN NO VIOLATIONS FOR AT LEAST 7 YEARS. MONITORING AND REPORTING IS COMPLETED IN A TIMELY MANNER.

MANAGEMENT

	Yes	No	Unk	N/A
Are there sufficient personnel?	☒	☐	☐	☐
Are operators properly certified?	☒	☐	☐	☐
Are personnel adequately trained?	☒	☐	☐	☐
Is there a current O&M manual on-site?	☒	☐	☐	☐
Is an emergency plan on-site and workable?	☐	☒	☐	☐
Has system addressed concerns from previous sanitary survey(s) or technical visit(s)?	☒	☐	☐	☐
Budget exists?	☒	☐	☐	☐
Does system maintain an emergency fund?	☒	☐	☐	☐
Does system contribute to facility replacement fund?	☒	☐	☐	☐
Are abandoned wells present?	☐	☒	☐	☐
Do abandoned wells appear to be properly abandoned? (see ARM 36.21 670)	☐	☐	☐	☒

Comments: MANAGEMENT IS DOING A GOOD JOB. FUNDING IS ALWAYS AN ISSUE. EMERGENCY POWER AND AN EMERGENCY PLAN SHOULD BE A PRIORITY.

PWSID MT0000311	SYSTEM NAME POWER TETON COUNTY WATER DISTRICT

Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

May 18, 2012

POWER TETON COUNTY WATER DISTRICT
MACK LELENERZ
BOX 176
POWER, MT 59468

Re: Sanitary Survey Inspection of POWER TETON COUNTY WATER DISTRICT
PWSID: MT0000311

Dear Mr. Lelenerz,

I would like to thank Karol Walker for assisting my colleague Gerard Gernand and me during the sanitary survey inspection of Power Teton County Water District. Having a resident population of 167, the Power Teton County Water District is classified as a community public water supply. As a community water supply system, your facility is required to have a sanitary survey inspection every three years. These regular inspections offer us an opportunity to look for sanitary deficiencies that have the potential to cause contamination in the water system, as well as pointing out operation and maintenance concerns. Below are a few comments relating to the sanitary survey conducted on May 3, 2012.

SOURCES:

Intake for Muddy Creek (IN002) and raw water surface impoundment (SI001)
The district's source water is muddy creek and it is treated by a conventional type Tonka package plant constructed in 2004. The intake structure is a concrete dam in the creek just west of the plant. Water flows into a perforated pipe in the creek bed on the upstream side of the concrete dam. Water then gravity flows into two wet well sumps in the treatment plant building. The south sump provides water to the plant directly from Muddy Creek and the north sump provides water to the plant from the raw water surface impoundment (SI001) just east of the plant.

TREATMENT:

Treatment Plant for Muddy Creek (TP002)
A conventional type Tonka package plant was constructed in 2004. It consists of two filter trains; each providing flocculation, sedimentation (through the use of tube settlers), and filtration. Disinfection of the water is provided by the addition of sodium hypochlorite immediately following filtration. The 30,000 gallon clearwell (CW001), located next to the old water treatment plant, is used for CT calculations. Because the clearwell is an

insulated standpipe, the roof of the clearwell was not accessed for fear of damaging the insulation. The district experiences an average daily flow of 20,000 gallons in the winter and up to 60,000 gallons during high demand of the summer.

DISTRIBUTION:

Distribution System for Power Teton County Water District (DS001)

All the distribution system piping has been replaced with 6" PVC pipe including the fill station. The distribution system is flushed 2-3 times a year by the fire department and the operators. The fill station RP identified in the last sanitary survey as possibly having a problem is in good operable condition. Karol indicated that there is only one deadend line in the distribution system.

STORAGE:

Storage facility 150,000 gallons (ST001)

The storage tank is located east of town near the interstate and is a 150,000 gallon welded steel tank. The storage tank is secure and fenced. It was constructed in 2005 and is in good condition.

PUMPS, PUMP FACILITIES and CONTROLS:

Pump facility High Service Pump (PF001)

This pump facility actually encompasses 5 individual pumps. Two 50 gpm pumps located in wet wells in plant that take water from a raw water sump that receives water directly from muddy creek and boosts through the plant. There are two 50 gpm pumps that take water from a wet well that receives water from the raw water surface impoundment adjacent to the water treatment plant and boosts through the plant. The remaining raw water pump is in the wet well and supplies muddy creek water to either the surface impoundment or can be used for fire protection to supply the fire fill line.

Pump Facility High Service Pump (PF002)

This pump facility is used to draw water from the clearwell and pump to town. It consists of two 7.5 hp booster pumps that alternate and take suction from the clearwell and boost to the town of Power. The peak hourly flow is 50 gpm. The transmission line to town is also used for CT calculations and has a volume of 5154 gallons.

MONITORING, REPORTING and DATA VERIFICATION:

Monitoring and reporting requirements are met every month by the timely submittal of the reports. LT2 compliance is completed until the second round of sampling is required in October 2017 and the Power Teton County Water District has a Bin 1 classification which requires no additional treatment of the water.

MAINTENANCE, MANAGEMENT, SAFETY and OPERATION:

The Power Teton County Water District is well operated and maintained. The dedication of the operator is to be commended. There is always a need to plan for the future. An emergency response plan and emergency power should be a priority for the system.

OPERATOR COMPLIANCE WITH STATE REQUIREMENTS:

There have been NO violations for more than 5 years. All operators are certified and current with all regulations.

RECOMMENDATIONS/MINOR DEFICIENCIES:

1. Properly dispose of old chemicals that are not in use. (John Collins, of DEQ's Waste and Underground Tank Program, can be contacted for specific information regarding disposal of the chemicals. He can be reached at 444-5852 or jcollins3@mt.gov)
2. Store the bulk calcium hypochlorite in the old WTP once it has been cleaned out.
3. The storage tank and clearwell should be inspected and cleaned every 3-5 years.
4. Develop an Emergency Response plan.

If you have any questions about this report or public water supply regulations please give me a call at 406-444-5313 or email lkaufman@mt.gov. Again please thank Karol for her time and hospitality during this inspection.

Sincerely,

Lisa M Kaufman

Lisa M. Kaufman
Surface Water Treatment Rule Manager
Department of Environmental Quality
Public Water Supply Section

CC: Helena PWS file
Teton County Sanitarian

SANITARY SURVEY FORM - INVENTORY

1/2009

PWSID **MT0000311** | SYSTEM NAME **POWER TETON COUNTY WATER DISTRICT**

DATE OF SURVEY **5/3/2012** | COUNTY **TETON** | SURVEYOR NAME **LISA KAUFMAN & GERARD GERNAND**

(SYSTEM REPRESENTATIVE) **KAROL WALKER** | (OTHER REPRESENTATIVE)

SYSTEM ADDRESS - ADMINISTRATIVE CONTACT

Addressee KAROL WALKER
Primary Address
Street PO BOX 176
City POWER State MT Zip 59468
System Phone (406)463-2351 Fax ( )

SYSTEM OWNER

Addressee MACK LELENERZ
Owners Address
Street PO BOX 176
City POWER State MT Zip 59468
Owner Phone (406)463-2219 Fax ( )

LOCATION OF SYSTEM

Nearest City POWER Description or Physical Address 22 MILES NORTHWEST OF GREAT FALLS

☐ seasonal operation dates:____to____
☒ year round operation

OPERATOR OF SYSTEM

Name KAROL WALKER
Certified Operator? ☒ Yes ☐ No ☐ Not required
Copy of Certificate? ☒ Yes ☐ No Certification # 5942
Phone # (406)463-2351 Cell Phone # ( )
Fax # ( )

ALTERNATE OPERATOR OF SYSTEM

Name GENE WALKER
Certified Operator? ☒ Yes ☐ No ☐ Not required
Copy of Certificate? ☒ Yes ☐ No Certification # 3472
Phone # (406)463-2351 Cell Phone # ( )

SYSTEM STATUS

☒ A = Active ☐ P = Pending *(Add New System)*
☐ I = Inactive

SYSTEM CLASS

☒ **C** = Community
☐ **NTNC** = Non-Transient Non-Community
☐ **TNC** = Transient Non-Community

Total Service Connections: Residential / Non-Transient: 80
Transient:

Total Active Connections: Residential / Non-Transient: 78
Transient:

Service Connections Metered? ☒ Yes ☐ No
Percent Metered RESIDENTIAL 100 %

Resident Population 167
(Number of permanent residents utilizing PWS daily)

Non-Transient Population ____
(Maximum number of non-transient persons utilizing PWS daily)

Transient Population ____
(Maximum number of transient persons served by PWS daily)

OWNER TYPE

☐ 1 Federal Government
☐ 2 Private Subdivision, Investor, Trust, Cooperative, Water Association, etc.
☐ 3 State Government
☒ 4 Local Government Authority, Commission, District, Municipality, City, etc.
☐ 5 Mixed Public/Private
☐ 6 Native American

SERVICE AREA CHARACTERISTICS LIST

☐ BR Bar
☐ DC Day Care Center
☐ DI Dispenser
☐ HS Head Start
☐ HA Homeowners Assoc.
☐ HM Hotel/Motel
☐ HR Highway Rest Area
☐ IA Industrial/Agricultural
☐ IC Interstate Carrier
☐ IN Institution
☐ MF Medical Facility
☐ MH Mobile Home Park
☒ MU Municipality
☐ OA Other Area
☐ ON Other Non-Transient Area (____Average Daily Visitors TNC)
☐ OR Other Residential Area
☐ OT Other Transient Area
☐ PA Recreation Areas
☐ RA Residential Area
☐ RE Retail Employees
☐ RS Restaurant
☐ RV RV Park
☐ SC School
☐ SI Sanitary Improvement District
☐ SK Summer Camp
☐ SR Secondary Residences
☐ SS Service Station
☐ SU Subdivision
☐ WB Water Bottler
☐ WH Wholesaler (Sells Water)

Service Category Description

Comments: POWER TETON COUNTY WATER DISTRICT IS LOCATED IN THE TOWN OF POWER, MONTANA, APPROXIMATELY 22 MILES NORTHWEST OF THE CITY OF GREAT FALLS. POWER, NAMED FOR T.C POWER, A HOMESTEADER IN THE EARLY 1900'S, BECAME A TOWN IN 1910. WITH A RESIDENT POPULATION OF 167, THE POWER TETON COUNTY WATER DISTRICT IS CLASSIFIED AS A COMMUNITY PUBLIC WATER SUPPLY. THE DISTRICT'S SOURCE WATER IS MUDDY CREEK AND IT IS TREATED BY A CONVENTIONAL TYPE TONKA PACKAGE PLANT CONSTRUCTED IN 2004. THE DISTRICT EXPERIENCES AN AVERAGE DAILY FLOW OF 20,000 GALLONS TO SERVE ITS RESIDENT POPULATION.

SANITARY SURVEY FORM – WATER SYSTEM FACILITIES

PWSID **MT0000311** | SYSTEM NAME **POWER TETON COUNTY WATER DISTRICT**

Water System Facilities (WSF) numbers are WSF Type Codes plus an assigned number. (i.e. source facility numbering starts with 002 and all non-source facilities start with 001). See instruction sheet for a list of WSF Type Codes. When a source is operational it is considered **A**ctive, this includes systems that are seasonal. **I**nactive sources are those which are shut down but can return to active status, such as a system out of business. **P**roposed sources are those that have been identified through the Plan Review process, but are not connected to the water system.

*A **water source facility** is a well, spring, intake, infiltration gallery or consecutive connections from which a system draws or purchases water:*

Total Number of Source Facilities 1

WATER SYSTEM FACILITIES SUMMARY (WSF)

WSF ID	Facility Name	Water Type Code	Purchased	Seller PWSID	Activity Status*
DS 001	Distribution System				
IN002	INTAKE FOR MUDDY CREEK	SW	☐ Yes ☒ No		A
SI001	500,000 GALLON RAW WATER STORAGE	SW	☐ Yes ☒ No		A
CW001	CLEARWELL 30,000 GALLON STANDPIPE		☐ Yes ☒ No		A
PF001	PUMP FACILITY RAW WATER		☐ Yes ☒ No		A
PF002	PUMP FACILITY HIGH SERVICE		☐ Yes ☒ No		A
ST001	STORAGE FACILITY 150,000 GALLON		☐ Yes ☒ No		
TM001	TRANSMISSION MAIN FROM PLANT TO TOWN		☐ Yes ☒ No		
TP002	TP FOR MUDDY CREEK		☐ Yes ☒ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
ST002	STORAGE FACILITY 40,000 CONCRETE		☐ Yes ☐ No		I
PF003	PUMP FACILITY BOOSTER PUMP STATION		☐ Yes ☐ No		I
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		

Description of Water System Facility flow: IN002 to TP002 to DS001, ST001, & ST002 and ST001 & ST002 to DS001

Example: Well 1 (WL002) to common header (CH001), Well 2 (WL003) to common header (CH001) to treatment plant (TP001) to pressure control assembly (PC001) to distribution system (DS001) to storage tank (ST001) to distribution system (DS001).

*(A)Active, (I)Inactive, (P)Proposed

EMERGENCY POWER

Does the system have emergency power? ☐ Yes ☒ No

If yes, what type: Frequency of testing: _____

Record of primary power failures: _____ in last year Switchover: ☐ Automatic ☐ Manual

Comments: POWER TETON COUNTY WATER DISTRICT DOES HAVE A GENERATOR, HOWEVER THE DISTRICT LACKS THE FUNDS TO HAVE IT SET UP FOR EMERGENCY USE.

SANITARY SURVEY FORM - SURFACE WATER, SPRINGS & INFILTRATION GALLERIES

PWSID **MT0000311** | SYSTEM NAME **POWER TETON COUNTY WATER DISTRICT**

SOURCES MUDDY CREEK | **STATUS OF SOURCE** ☒ (A)active ☐ (I)inactive ☐ (P)proposed

WSF ID IN002 *Entry Point ID* EP502
These are State assigned identification numbers

Source Name INTAKE MUDDY CREEK
Name of Source - Example: Well 1 or South well, etc.

Location of Water Source (TRS or street address) APPROX. 1.75 MILES WEST OF POWER, MUDDY CREEK ADJACENT TO WTP

Entry Point Name EP FOR IN TP
Name of EP - Example: Entry point for North Well 1 & South Well 2

Location of Entry Point TP002

Available ☒ Perm ☐ Emerg ☐ Interim ☐ Seasonal ☐ Other
If seasonal: _____ to _____

GWUDISW PA Completed?
☐ Yes ☐ No ☐ Unk ☒ N/A

Average Production
20,000 GPD

Maximum Production
100 GPM

Latitude 47.71299
Longitude -111.72307

SURFACE SOURCES

What is the nature of watershed?

☒ Agricultural Name _____
☐ Industrial
☐ Forest
☐ Residential
☐ Other _____

What is the size of the owned/protected area of the watershed?

How is watershed controlled?
☒ Ownership
☐ Ordinances
☐ Zoning
☐ Other

	Yes	No	Unk	N/A
Has a source water protection plan been developed?	☐	☒	☐	☐
Has management had a watershed survey performed?	☐	☒	☐	☐
Is there an emergency spill response plan?	☐	☒	☐	☐
Is the source adequate in quantity?	☒	☐	☐	☐
Is the source adequate in quality?	☒	☐	☐	☐
Is the intake protected from sources of contamination?	☐	☒	☐	☐
Are multiple intakes, located at different levels, utilized?	☐	☒	☐	☐
Is the highest quality water being drawn?	☒	☐	☐	☐
Can the raw water transmission line bypass treatment?	☐	☒	☐	☐

How often are intakes inspected? DAILY

What conditions cause fluctuations in quality? RUNOFF/SNOWMELT AND AG PRACTICES THAT RESULT IN CATTLE ALONG THE CREEK

Comment: INTAKE PIPE IS RUNS ALONG THE CONCRETE ABUTMENT FOR THE DAM ON THE UPSTREAM SIDE OF THE DAM.

SANITARY SURVEY FORM - TREATMENT

PWSID **MT0000311**

SYSTEM NAME **POWER TETON COUNTY WATER DISTRICT**

Treatment Objective

- **B** = Disinfection Byproduct Control
- **C** = Corrosion Control
- **D** = Disinfection
- **E** = Dechlorination
- **F** = Iron Removal
- **I** = Inorganics Removal
- **M** = Manganese Removal
- **N** = *No Treatment at Source*
- **O** = Organics Removal
- **P** = Particulate Removal
- **R** = Radionuclides Removal
- **S** = Softening (Hardness Removal)
- **T** = Taste / Odor Control
- **Z** = Other _____

WATER TREATMENT FACILITIES

WSF ID	Treatment Plant Name	Treatment Objectives and Code
TP002	TREATMENT PLANT FOR MUDDY CREEK	P240 P360 P345 P660 D421 P742 T121 C741

WSF ID	Location	
TP002	Latitude 47.71305	Longitude -111.72285
	Latitude ___° ___' ___"	Longitude ___° ___' ___"
	Latitude ___° ___' ___"	Longitude ___° ___' ___"
	Latitude ___° ___' ___"	Longitude ___° ___' ___"
	Latitude ___° ___' ___"	Longitude ___° ___' ___"

Treatment plant description: WTP CONSISTS OF 2 PARALELL TREATMENT TRAINS OF CONVENTIONAL FILTRATION UTILIZING TUBE SETTLERS. FERRIC CHLORIDE IS THE COAGULANT OF CHOICE, HOWEVER THERE IS THE ABILITY TO ADD POLYMER, HYDROCHLORIC ACID, AND CAUSTIC. DISINFECTION OF THE FILTERED WATER IS ACCOMPLISHED BY THE USE OF CALCIUM HYPOCHLORITE. THE CLEARWELL AND TRANSMISSION MAIN TO TOWN ARE USED TO CALCULATE CT TIME.

FOR SYSTEMS EMPLOYING FULL-TIME DISINFECTION

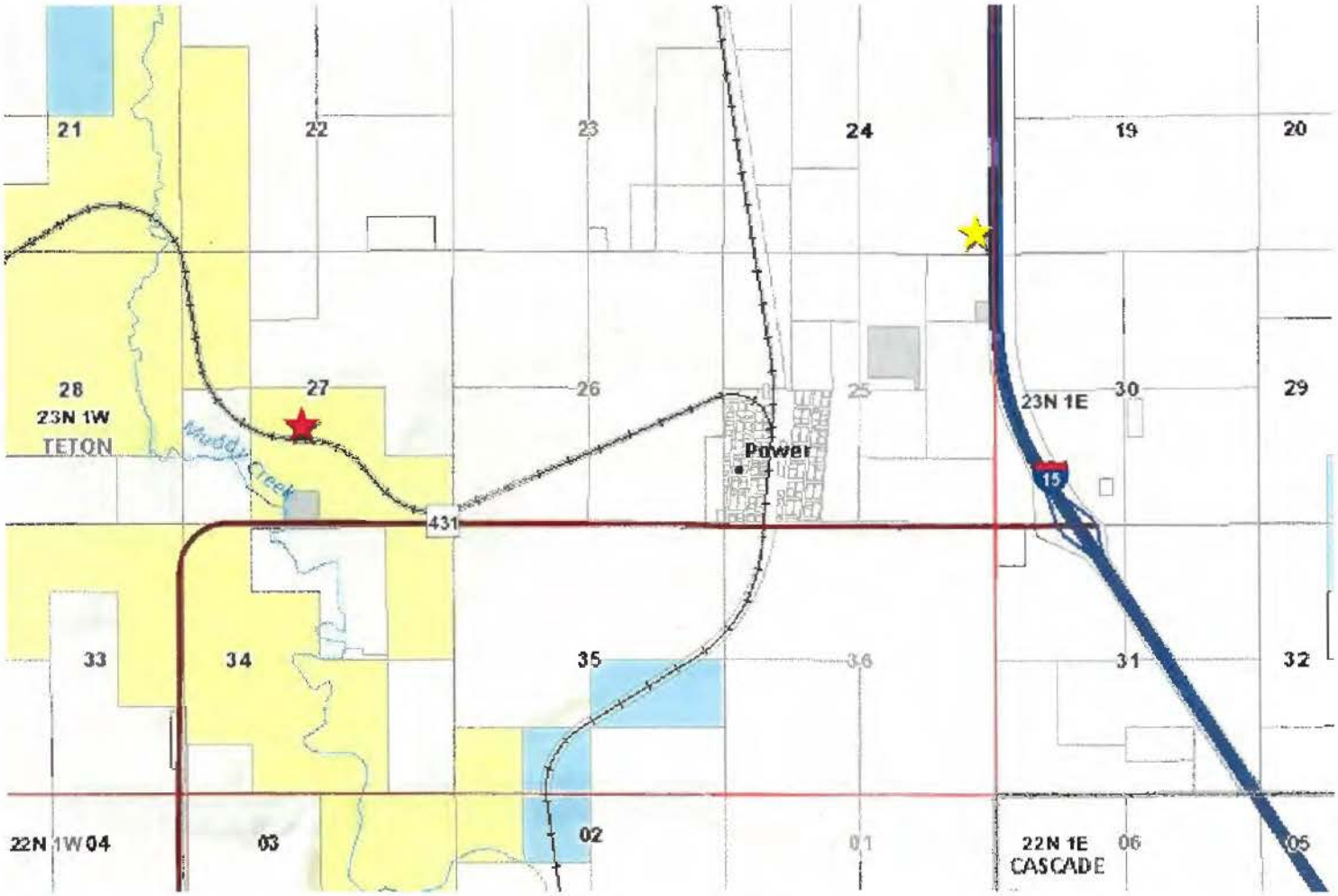
What disinfectant is used? CALCIUM HYPOCHLORITE

	Yes	No	Unk	N/A
Is the disinfectant used NSF approved?	☒	☐	☐	☐
Is the amount of disinfectant used recorded? If Yes, amount used: 1-1.4 lbs/	☒	☐	☐	☐
Is the amount of disinfectant used compared to water pumped to verify concentration?	☒	☐	☐	☐
Is chemical storage adequate and safe? If No, explain _____	☒	☐	☐	☐
Is disinfectant residual being monitored daily?	☒	☐	☐	☐
Are residual reperts submitted monthly?	☒	☐	☐	☐
Is the disinfection equipment being operated and maintained properly?	☒	☐	☐	☐
Is operational standby equipment provided?	☒	☐	☐	☐
If not, are critical spare parts on hand?	☒	☐	☐	☐
Has disinfection system been free from failure during the past year – no interruption?	☒	☐	☐	☐

If No, give dates of interruptions _____

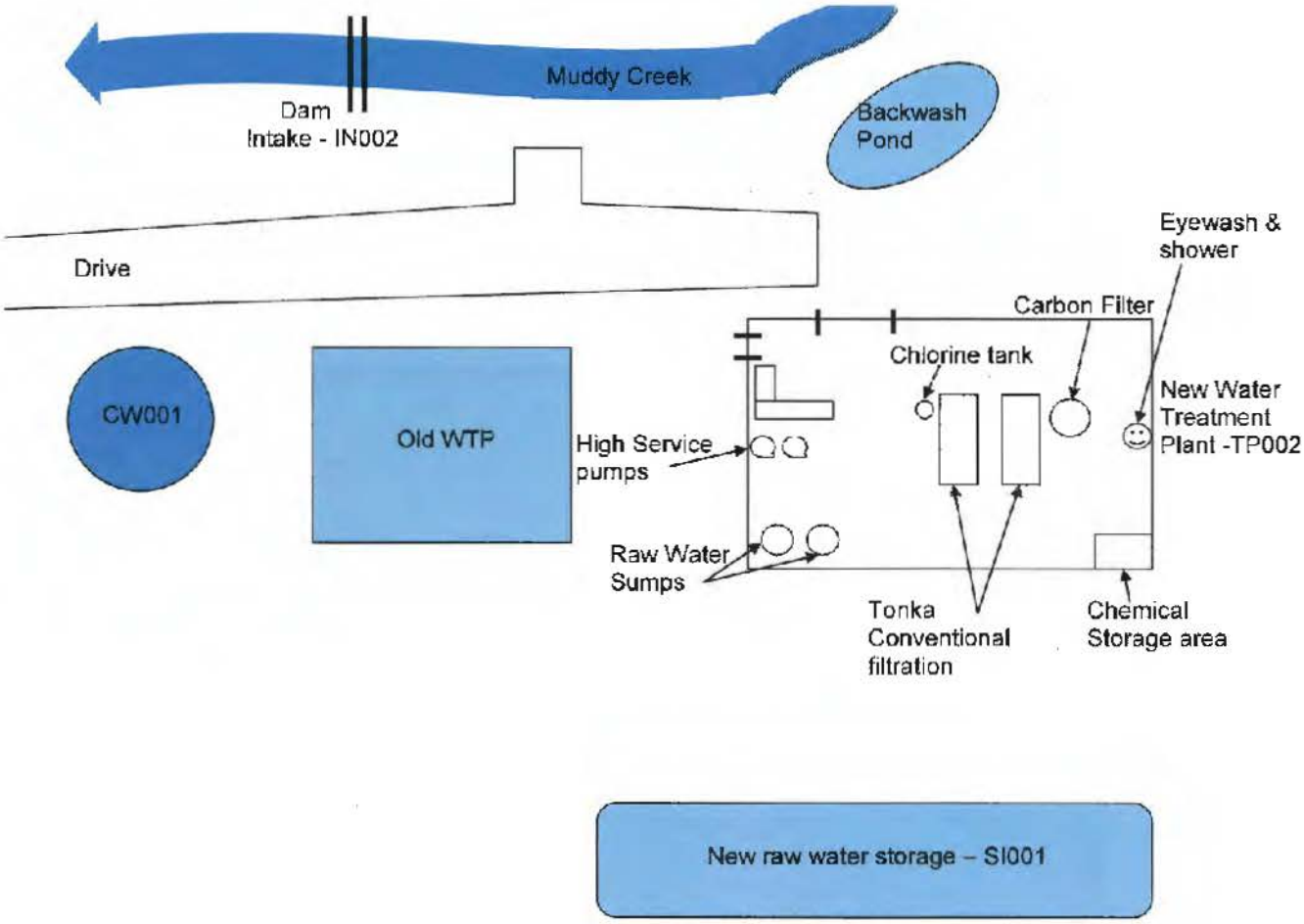
Describe provisions for providing contact time between disinfection point and the first point of use: CONTACT TIME IS ACHIEVED THROUGH USE OF THE CLEARWELL, CALCULATED WITH A MINIMUM VOLUME OF 12,000 GALLONS, A BAFFLING FACTOR OF 0.3, AN EFFECTIVE VOLUME OF 7200 GALLONS AND A PEAK FLOW OF 50GPM. ADDITIONAL CONTACT TIME IS PROVIDED FOR IN THE TRANSMISSION MAIN FROM THE TP TO TOWN. TM001 HAS A VOLUME OF 5154 GALLONS AND A PEAK FLOW OF 50 GPM. CT IS ADEQUATE UNDER ALL CIRCUMSTANCES.

Comment: AN EYEWASH STATION and SHOWER HAS BEEN INSTALLED AND OPERATION IS VERIFIED 2 TIMES A MONTH.



= Power Teton County Water District Water Treatment Plant (TP001)

= Power Teton County Water District Storage Tank (ST001)


Muddy Creek
Dam
Intake - IN002
Backwash
Pond
Drive
Eyewash &
shower
Carbon Filter
Chlorine tank
CW001
Old WTP
High Service
pumps
New Water
Treatment
Plant -TP002
Raw Water
Sumps
Tonka
Conventional
filtration
Chemical
Storage area
New raw water storage – SI001

SANITARY SURVEY FORM - SURFACE WATER TREATMENT PLANTS
(Direct and Conventional and other)

PWSID **MT0000311**

SYSTEM NAME **POWER TETON COUNTY WATER DISTRICT**
Latitude 47.71305 Longitude -111.72285

Type: ☐Direct ☐In-Line ☒Conventional ☐CAC ☐Other (describe) _____

Peak instantaneous flow experienced: 100 gpm

	Chemicals Added	Points of Application	Purpose	Feed Rate (range)
1)	FERRIC CHLORIDE	RAW	PRIMARY COAGULANT	
2)	CALCIUM HYPOCHLORITE	POST FILTER	DISINFECTION	
3)				
4)	POLYMER	RAW		NOT IN USE
5)	HYDROCHLOROUS ACID	RAW		NOT IN USE
6)	CAUSTIC	RAW		NOT IN USE

How are process control decisions made? RAW WATER QUALITY, JAR TESTING AND HISTORICAL DATA IS REVIEWED.

Describe the following unit processes:

Rapid Mix: INLINE STATIC MIXER

Flocculation:

Theoretical hydraulic detention time

Tapered? ☒ Yes ☐ No

Description: 2 STAGE, VARIABLE SPEED

Sedimentation:

Surface overflow rate: 2.0 gpm/ft^2

Description: TUBE SETTLERS

Filters:

Type: ☐Rapid Sand ☒Dual Media ☐Multi-media ☐Other (describe)

Depth of Media: 37" OF ANTHRACITE AND GARNET SAND WITH 16" OF SUPPORT GRAVEL

Surface wash? ☒ Yes ☐ No If Yes, type: ROTARY

Air scour? ☐ Yes ☒ No

Disinfection

Log inactivation credit granted: 2.5Log

Inactivation required: 0.5Log

Total reduction: 3.0Log

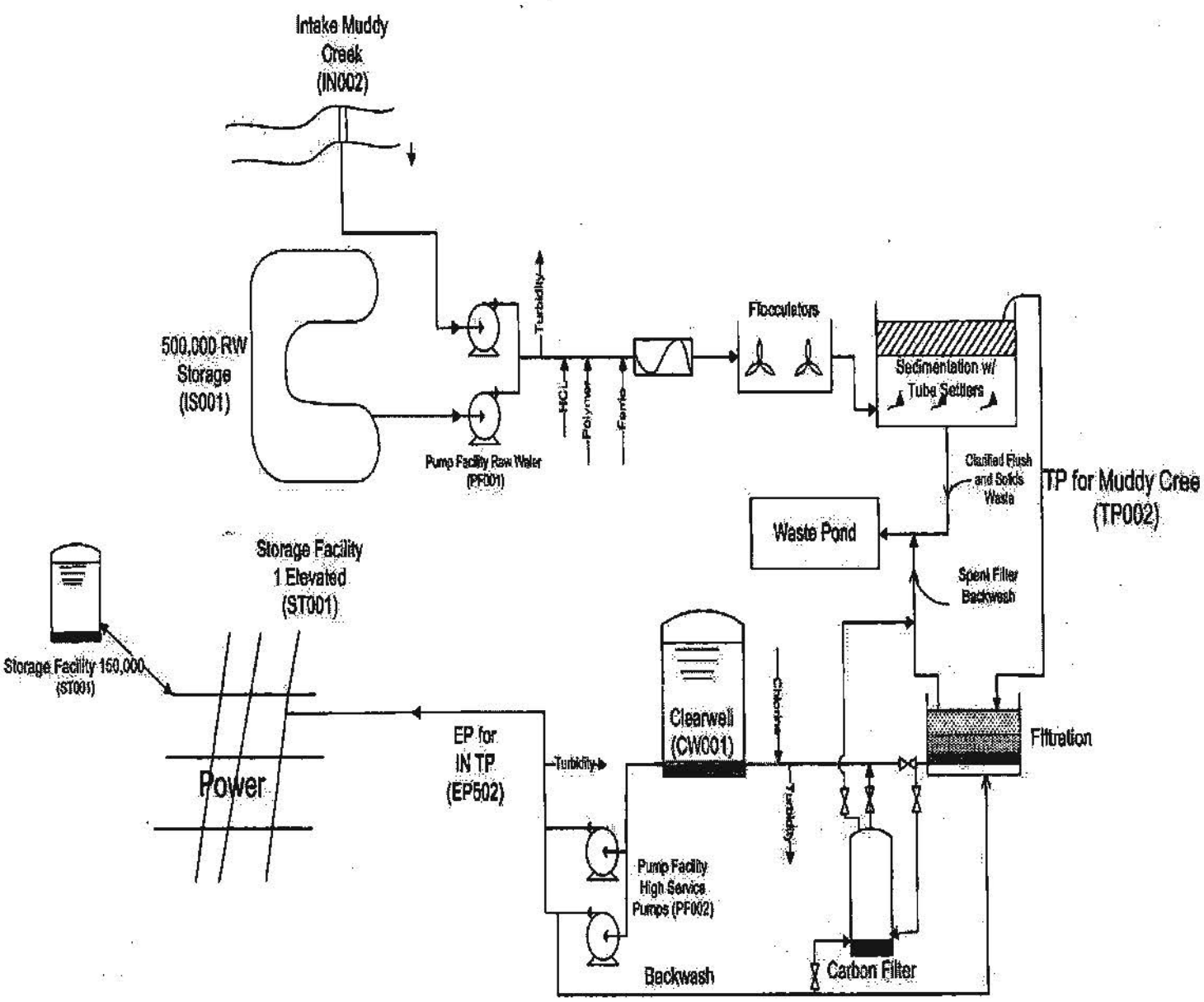
Is CT adequate under all conditions of flow, temperature and pH? ☒ Yes ☐ No ☐ Unk

Explain: ADEQUATE CHLORINE RESIDUAL IS MAINTAINED UNDER ALL CIRCUMSTANCES TO MEET INACTIVATION RATIOS WHEN BOTH THE CLEARWELL AND TRANSMISSION MAIN ARE USED FOR CALCULATING CT.

Comments on process control and finished water quality: MONTHLY SWTR REPORTS SHOW COMPLIANCE WITH THE RULES AND TOC REMOVAL IS ADEQUATE TO MEET THE REQUIREMENTS HOWEVER TOC CONCENTRATIONS HAVE BEEN ON AN UPWARD TREND FOR THE LAST COUPLE OF YEARS AND ALL PREDICTIONS LEAD TO THE CONTINUED INCREASE IN THE ORGANIC CONTENT OF SOURCE WATERS. THIS PACKAGE TYPE CONVENTIONAL PLANT MAY NOT BE ABLE TO OPERATE IN AN ENHANCED COAGULATION MODE.

If a CPE is needed, please comment:_____

Treatment Schematic – Chemical application points. Not all chemicals are in use.



SANITARY SURVEY FORM - PUMPING FACILITIES

PWSID **MT0000311** | SYSTEM NAME **POWER TETON COUNTY WATER DISTRICT**

WSF ID PF001 Location, Description PUMP FACILITY RAW WATER – THERE ARE A TOTAL OF 5 SUBMERSIBLE PUMPS IN THIS FACILITY. TWO 50 GPM PUMPS LOCATED IN WET WELLS IN PLANT THAT TAKE WATER FROM A RAW WATER SUMP THAT RECEIVES WATER DIRECTLY FROM MUDDY CREEK AND BOOSTS THROUGH THE PLANT. THERE ARE TWO 50 GPM PUMPS THAT TAKE WATER FROM A WET WELL THAT RECEIVES WATER FROM THE RAW WATER SURFACE IMPOUNDMENT ADJACENT TO THE WTP AND BOOSTS THROUGH THE PLANT. THE REMAINING RAW WATER PUMP IS IN THE WET WELL AND SUPPLIES MUDDY CREEK WATER TO EITHER THE SURFACE IMPOUNDMENT OR CAN BE USED FOR FIRE PROTECTION TO SUPPLY THE FIRE FILL LINE.

Latitude 47.71305

Longitude -111.72285

Type SUBMERSIBLE PUMP
(example: 30 hp line shaft turbine)

Rated Capacity 50 gpm EACH

How frequently are pump(s) replaced? 1-2 pumps every year as needed

	Yes	No	Unk	N/A
Is redundancy provided?	☒	☐	☐	☐
Are backup pumps/motors provided?	☒	☐	☐	☐
Is there a pressure relief valve?	☐	☐	☐	☒
Does each pump have compound gauge on suction side?	☐	☐	☐	☒
Is there automatic cutoff for low suction pressure?	☒	☐	☐	☐
Does each pump have standard pressure gauge on discharge side?	☐	☐	☐	☒
Does low pressure level provide adequate pressure?	☒	☐	☐	☐
Are controls functioning properly and adequately protected?	☒	☐	☐	☐
Do underground compartments have a drain?	☐	☐	☐	☒
Is facility properly protected against trespassing and vandalism?	☒	☐	☐	☐
Are pump records maintained (amp, discharge, pressure, maintenance schedule, manuals, etc.)?	☒	☐	☐	☐
Is the plumbing adequately painted to prevent excessive corrosion?	☒	☐	☐	☐
Are adequate heating, lighting, and ventilation provided?	☒	☐	☐	☐
Is a preventive maintenance program in operation?	☒	☐	☐	☐
Are recommended spare parts on hand?	☒	☐	☐	☐

Controlled by CONTROLLED BY CLEARWELL LEVELS, WHICH OPERATE THE PLANT

Comments: THE OPERATOR CAN MANUALLY CHANGE TO DRAW FROM WHATEVER WET WELL SUMP WILL SUPPLY THE BEST WATER FOR TREATMENT. THESE PUMPS ARE REPLACED AT A RATE OF 1-2 EACH YEAR DUE TO ISSUES WITH SEDIMENT BUILDING UP AND BURNING OUT THE MOTORS &/OR THE IMPELLARS.

WSF ID PF002 Location, Description PUMP FACILITY HIGH SERVICE PUMPS

Latitude 47.71305

Longitude -111.72285

Type: TWO 7.5 hp BOOSTER PUMPS TAKE SUCTION FROM THE CLEARWELL AND BOOST TO TOWN OF POWER. PUMPS ALTERNATE.

Rated Capacity 50 GPM

How frequently are pump(s) replaced?

	Yes	No	Unk	N/A
Is redundancy provided?	☒	☐	☐	☐
Are backup pumps/motors provided?	☒	☐	☐	☐
Is there a pressure relief valve?	☐	☐	☐	☒
Does each pump have compound gauge on suction side?	☒	☐	☐	☐
Is there automatic cutoff for low suction pressure?	☒	☐	☐	☐
Does each pump have standard pressure gauge on discharge side?	☒	☐	☐	☐
Does low pressure level provide adequate pressure?	☒	☐	☐	☐
Are controls functioning properly and adequately protected?	☒	☐	☐	☐
Do underground compartments have a drain?	☐	☐	☐	☒
Is facility properly protected against trespassing and vandalism?	☒	☐	☐	☐
Are pump records maintained (amp, discharge, pressure, maintenance schedule, manuals, etc.)?	☒	☐	☐	☐
Is the plumbing adequately painted to prevent excessive corrosion?	☒	☐	☐	☐
Are adequate heating, lighting, and ventilation provided?	☒	☐	☐	☐
Is a preventive maintenance program in operation?	☒	☐	☐	☐
Are recommended spare parts on hand?	☒	☐	☐	☐

Controlled by CONTROLLED BY LEVELS IN ST001

Comments: 50 GPM FLOW IS USED FOR CT CALCULATIONS FOR THE TRANSMISSION MAIN FROM WTP TO TOWN..

SANITARY SURVEY FORM - STORAGE

PWSID **MT0000311** | SYSTEM NAME **POWER TETON COUNTY WATER DISTRICT**

COMPLETE ONE SECTION FOR EACH STORAGE FACILITY

Total storage provided? 180,000 gal	How much treated storage is provided 180,000 gal	Storage provides - 9 days of water –winter - 3 days of water - summer

STORAGE FACILITY

WSF ID CW001 CLEARWELL 30,000 GALLON STANDPIPE

Location: ADJACENT TO THE OLD WTP BUILDING. THE STANDPIPE IS SPRAY INSULATED TO PROTECT AGAINST FREEZING.
Latitude: 47.712972 Longitude: -111.72272

Storage Volume? 30,000 gallons
Year constructed: 2004
Condition: ☒Good ☐Fair ☐Poor

	Yes	No	Unk	N/A
Does surface runoff and underground drainage drain away?	☒	☐	☐	☐
Is the site protected against flooding?	☒	☐	☐	☐
Is the site protected against trespass/vandalism?	☒	☐	☐	☐
Ladders caged and locked?	☒	☐	☐	☐
Are overflow lines, air vents, drainage lines or clean out pipes turned downward or covered, screened and terminated a minimum of 3 diameters above the ground or storage tank surface?	☒	☐	☐	☐
Overflow pad?	☒	☐	☐	☐
Is access hatch sealed properly and locked?	☒	☐	☐	☐
Are surface coatings in contact with water ANSI / NSF approved?	☒	☐	☐	☐
Is tank protected against icing and corrosion?	☒	☐	☐	☐
Can tank be isolated from system?	☒	☐	☐	☐
Is all treated water storage covered?	☒	☐	☐	☐
Are tanks disinfected after repairs are made?	☒	☐	☐	☐
What is cleaning frequency for tanks? 1 TIME SINCE INSTALLATION				
Is tank inspected every 5 years by a structural engineer for structural integrity?	☐	☒	☐	☐

Date of last inspection _____ By whom _____

Comments: THE ACCESS HATCH FOR THIS CLEARWELL DOES NOT MEET DEQ-1 DESIGN STANDARDS (NOT A SHOEBOX TYPE LID). IT DOES HOWEVER FIT TIGHTLY AND THERE ARE NO GAPS. THE VENT WAS NOT ABLE TO BE INSPECTED DUE TO THE SPRAY ON INSULATION, SO UNABLE TO TELL IF THE VENT IS SCREENED APPROPRIATELY. THIS DESIGN WAS REVIEWED AND APPROVED BY DEQ

STORAGE FACILITY

WSF ID ST001 STORAGE FACILITY 150,000 GALLON

Location: 150,000 GALLON WELDED STEEL STORAGE TANK LOCATED NORTHEAST OF POWER NEAR THE INTERSTATE.
Latitude: 47.72411 Longitude: -111.66736

Storage Volume? 150,000 gallons
Year constructed: 2005
Condition: ☒Good ☐Fair ☐Poor

	Yes	No	Unk	N/A
Does surface runoff and underground drainage drain away?	☒	☐	☐	☐
Is the site protected against flooding?	☒	☐	☐	☐
Is the site protected against trespass/vandalism?	☒	☐	☐	☐
Ladders caged and locked?	☒	☐	☐	☐
Are overflow lines, air vents, drainage lines or clean out pipes turned downward or covered, screened and terminated a minimum of 3 diameters above the ground or storage tank surface?	☒	☐	☐	☐
Overflow pad?	☒	☐	☐	☐
Is access hatch sealed properly and locked?	☒	☐	☐	☐
Are surface coatings in contact with water ANSI / NSF approved?	☒	☐	☐	☐
Is tank protected against icing and corrosion?	☒	☐	☐	☐
Can tank be isolated from system?	☒	☐	☐	☐
Is all treated water storage covered?	☒	☐	☐	☐
Are tanks disinfected after repairs are made?	☒	☐	☐	☐
What is cleaning frequency for tanks? NEVER				
Is tank inspected every 5 years by a structural engineer for structural integrity?	☐	☒	☐	☐

Date of last inspection _____ By whom _____

Comments: THE ACCESS HATCH DOES NOT HAVE A GASKET BUT FITS TIGHTLY AND DOES NOT HAVE ANY GAPS. THIS STORAGE TANK IS LOCATED NEAR THE INTERSTATE. THIS DESIGN WAS REVIEWED AND APPROVED BY DEQ

SANITARY SURVEY FORM - MISCELLANEOUS

PWSID **MT0000311** | SYSTEM NAME **POWER TETON COUNTY WATER DISTRICT**

DISTRIBUTION SYSTEM EVALUATION

Distribution description ALL OF THE DS MAINS IN TOWN WERE REPLACED WITH 6" PVC PIPE WITHIN THE LAST 5 YEARS. THE FILL STATION SUPPLY MAIN HAS ALSO BEEN REPLACED WITH 6" PVC.

	Yes	No	Unk	N/A
System drawings available?	☒	☐	☐	☐
Accurate As-Built drawing(s) on-site?	☒	☐	☐	☐
Lines adequately sized?	☒	☐	☐	☐
Adequate pressure maintained?	☒	☐	☐	☐
Mains protected from freezing?	☒	☐	☐	☐
Distribution system free of leaks?	☒	☐	☐	☐
Asbestos concrete pipe used?	☒	☐	☐	☐
Fire hydrants?	☒	☐	☐	☐
Dead end lines minimized by looping mains?	☒	☐	☐	☐
Flushing program?	☒	☐	☐	☐
Pressure reducing stations? Number 0	☐	☒	☐	☐
Booster stations? Number 0	☐	☒	☐	☐
Are individual booster pumps on any service lines? (see DEQ-1 8.9.2)	☐	☒	☐	☐
Were cross connections observed?	☐	☒		

Comments: THE REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER AT THE FILL STATION IN TOWN IS OPERATING PROPERLY.

SAFETY

	Yes	No	Unk	N/A
Were confined spaces observed?	☒	☐	☐	☐
Describe any confined spaces observed: RAW WATER WET WELLS Confined space safety adequate?	☒	☐	☐	☐
Fall risks adequately mitigated?	☒	☐	☐	☐

Note all safety deficiencies (consider items such as ladders, tank supports, guards on rotating electrical equipment, lightning protection for pumps, etc.) WET WELL SUMPS ARE CONSIDERED CONFINED SPACES ALTHOUGH THEY AREN'T ROUTINELY ENTERED.

MONITORING AND RECORDKEEPING EVALUATION

	Yes	No	Unk	N/A
Does the system have a current Monitoring Schedule?	☒	☐	☐	☐
Bacti monitoring records maintained? (5 years)	☒	☐	☐	☐
Bacti Sample Site Plan submitted?	☒	☐	☐	☐
Familiar with repeat sampling?	☒	☐	☐	☐
Chemical monitoring records maintained? (10 years)	☒	☐	☐	☐
System specific records / plans maintained? (D8P, PB/CU, treatments, waivers, violations, etc.)	☒	☐	☐	☐
Familiar with Public Notice requirements?	☒	☐	☐	☐
Did Surveyor take a bacteriological sample?	☐	☒		

If Yes, date of Sample: _____ Time of Sample: _____

Comments: THIS PWS IS VERY WELL TAKEN CARE OF AS DEMONSTRATED BY THE DEDICATION OF THE OPERATORS. THERE HAVE BEEN NO VIOLATIONS FOR AT LEAST 7 YEARS. MONITORING AND REPORTING IS COMPLETED IN A TIMELY MANNER.

MANAGEMENT

	Yes	No	Unk	N/A
Are there sufficient personnel?	☒	☐	☐	☐
Are operators properly certified?	☒	☐	☐	☐
Are personnel adequately trained?	☒	☐	☐	☐
Is there a current O&M manual on-site?	☒	☐	☐	☐
Is an emergency plan on-site and workable?	☐	☒	☐	☐
Has system addressed concerns from previous sanitary survey(s) or technical visit(s)?	☒	☐	☐	☐
Budget exists?	☒	☐	☐	☐
Does system maintain an emergency fund?	☒	☐	☐	☐
Does system contribute to facility replacement fund?	☒	☐	☐	☐
Are abandoned wells present?	☐	☒	☐	☐
Do abandoned wells appear to be properly abandoned? (see ARM 36.21.670)	☐	☐	☐	☒

Comments: MANAGEMENT IS DOING A GOOD JOB. FUNDING IS ALWAYS AN ISSUE. EMERGENCY POWER AND AN EMERGENCY PLAN SHOULD BE A PRIORITY.

PWSID **MT0000311** | SYSTEM NAME **POWER TETON COUNTY WATER DISTRICT**

The State, or an authorized agent, must conduct sanitary surveys for all public water supply systems in Montana. DEQ believes that periodic sanitary surveys, along with appropriate corrective actions, are indispensable for assuring the long-term quality and safety of drinking water. When properly conducted, sanitary surveys can provide important information on a water system's design and operations and can identify minor and significant deficiencies for correction before they become major problems.

Minor deficiencies do not pose serious health threats. However, corrective action of minor deficiencies can be critical in the long-term operation and safety of a public water system. Minor deficiencies are generally described as suggested or recommended corrections in the letter to system owner(s).

Significant deficiencies can be defined as a defective water supply component(s) having or likely to have an adverse influence on public health. Significant deficiencies require immediate corrective action in efforts to protect consumers.

EPA and ASDWA guidance identifies eight broad components that should be covered in a sanitary survey. Using these eight broad components as a guide, minor and significant deficiencies should be described in the letter to system owner(s).

1) Source
2) Treatment
3) Distribution system
4) Finished water storage
5) Pumps, pump facilities, and controls
6) Monitoring and reporting, and data verification
7) System management and operation
8) Operator compliance with State requirements

With consideration that significant deficiencies may influence regulatory decisions and monitoring requirements, please list all significant deficiencies observed and corrective action(s) taken below.

Comments: **No significant deficiencies where found at the time of the inspection.**

POWER TETON COUNTY WATER DISTRICT

Sanitary Survey May 3, 2012

Lisa Kaufman

Gerard Gernand

Intake dam on Muddy Creek. Intake pipe runs along side this concrete structure on the upstream side of the dam.

Wet well sump (inside WTP). Approximately 20' deep fills by gravity from the intake.

Wet well sump for settled water from the surface impoundment (rarely used as water from the creek is usually better quality water).

Backwash Pond

New and old WTP

Clearwell (CW001)
- next to old WTP

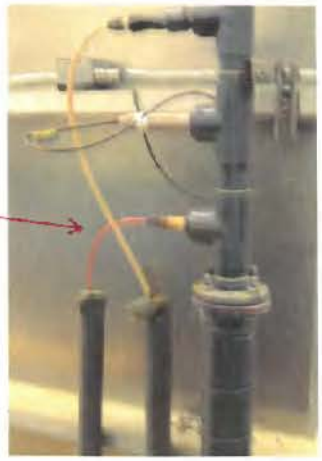
Storage Tank (ST001)
- 150,000 gal

Raw Water Storage
(SI001)

Coagulation

Ferric Chloride

Ferric Chloride injection

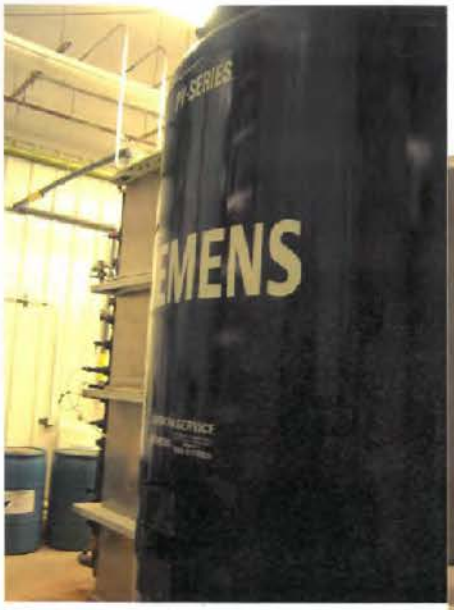


Flocculation

Sedimentation (Tube Settlers)

Filtered water

Filtration



Carbon filter for taste and odor

Filtered water turbidimeter

SCADA System

High Service pumps

Spare part storage

Emergency eyewash and shower

Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

May 18, 2012

POWER TETON COUNTY WATER DISTRICT
MACK LELENERZ
BOX 176
POWER, MT 59468

Re: Sanitary Survey Inspection of POWER TETON COUNTY WATER DISTRICT
PWSID: MT0000311

Dear Mr. Lelenerz,

I would like to thank Karol Walker for assisting my colleague Gerard Gernand and me during the sanitary survey inspection of Power Teton County Water District. Having a resident population of 167, the Power Teton County Water District is classified as a community public water supply. As a community water supply system, your facility is required to have a sanitary survey inspection every three years. These regular inspections offer us an opportunity to look for sanitary deficiencies that have the potential to cause contamination in the water system, as well as pointing out operation and maintenance concerns. Below are a few comments relating to the sanitary survey conducted on May 3, 2012.

SOURCES:

Intake for Muddy Creek (IN002) and raw water surface impoundment (SI001)
The district's source water is muddy creek and it is treated by a conventional type Tonka package plant constructed in 2004. The intake structure is a concrete dam in the creek just west of the plant. Water flows into a perforated pipe in the creek bed on the upstream side of the concrete dam. Water then gravity flows into two wet well sumps in the treatment plant building. The south sump provides water to the plant directly from Muddy Creek and the north sump provides water to the plant from the raw water surface impoundment (SI001) just east of the plant.

TREATMENT:

Treatment Plant for Muddy Creek (TP002) Calcium
A conventional type Tonka package plant was constructed in 2004. It consists of two filter trains; each providing flocculation, sedimentation (through the use of tube settlers), and filtration. Disinfection of the water is provided by the addition of sodium hypochlorite immediately following filtration. The 30,000 gallon clearwell (CW001), located next to the old water treatment plant, is used for CT calculations. Because the clearwell is an

insulated standpipe, the roof of the clearwell was not accessed for fear of damaging the insulation. The district experiences an average daily flow of 20,000 gallons in the winter and up to 60,000 gallons during high demand of the summer.

DISTRIBUTION:

Distribution System for Power Teton County Water District (DS001)

All the distribution system piping has been replaced with 6" PVC pipe including the fill station. The distribution system is flushed 2-3 times a year by the fire department and the operators. The fill station RP identified in the last sanitary survey as possibly having a problem is in good operable condition. Karol indicated that there is only one deadend line in the distribution system.

STORAGE:

Storage facility 150,000 gallons (ST001)

The storage tank is located east of town near the interstate and is a 150,000 gallon welded steel tank. The storage tank is secure and fenced. It was constructed in 2005 and is in good condition.

PUMPS, PUMP FACILITIES and CONTROLS:

Pump facility High Service Pump (PF001)

This pump facility actually encompasses 5 individual pumps. Two 50 gpm pumps located in wet wells in plant that take water from a raw water sump that receives water directly from muddy creek and boosts through the plant. There are two 50 gpm pumps that take water from a wet well that receives water from the raw water surface impoundment adjacent to the water treatment plant and boosts through the plant. The remaining raw water pump is in the wet well and supplies muddy creek water to either the surface impoundment or can be used for fire protection to supply the fire fill line.

Pump Facility High Service Pump (PF002)

This pump facility is used to draw water from the clearwell and pump to town. It consists of two 7.5 hp booster pumps that alternate and take suction from the clearwell and boost to the town of Power. The peak hourly flow is 50 gpm. The transmission line to town is also used for CT calculations and has a volume of 5154 gallons.

MONITORING, REPORTING and DATA VERIFICATION:

Monitoring and reporting requirements are met every month by the timely submittal of the reports. LT2 compliance is completed until the second round of sampling is required in October 2017 and the Power Teton County Water District has a Bin 1 classification which requires no additional treatment of the water.

MAINTENANCE, MANAGEMENT, SAFETY and OPERATION:

The Power Teton County Water District is well operated and maintained. The dedication of the operator is to be commended. There is always a need to plan for the future. An emergency response plan and emergency power should be a priority for the system.

OPERATOR COMPLIANCE WITH STATE REQUIREMENTS:

There have been NO violations for more than 5 years. All operators are certified and current with all regulations.

RECOMMENDATIONS/MINOR DEFICIENCIES:

1. Properly dispose of old chemicals that are not in use. (John Collins, of DEQ's Waste and Underground Tank Program, can be contacted for specific information regarding disposal of the chemicals. He can be reached at 444-5852 or jcollins3@mt.gov)
2. Store the bulk calcium hypochlorite in the old WTP once it has been cleaned out.
3. The storage tank and clearwell should be inspected and cleaned every 3-5 years.
4. Develop an Emergency Response plan.

If you have any questions about this report or public water supply regulations please give me a call at 406-444-5313 or email lkaufman@mt.gov. Again please thank Karol for her time and hospitality during this inspection.

Sincerely,

Lisa M Kaufman

Lisa M. Kaufman
Surface Water Treatment Rule Manager
Department of Environmental Quality
Public Water Supply Section

CC: Helena PWS file
Teton County Sanitarian

SANITARY SURVEY FORM - INVENTORY

1/2009

PWSID **MT0000311** | SYSTEM NAME **POWER TETON COUNTY WATER DISTRICT**

DATE OF SURVEY **5/3/2012** | COUNTY **TETON** | SURVEYOR NAME **LISA KAUFMAN & GERARD GERNAND**

(SYSTEM REPRESENTATIVE) **KAROL WALKER** | (OTHER REPRESENTATIVE)

SYSTEM ADDRESS – ADMINISTRATIVE CONTACT

Addressee KAROL WALKER

Primary Address

Street PO BOX 176

City POWER State MT Zip 59468

System Phone (406)463-2351 Fax ( )

SYSTEM OWNER

Addressee MACK LELENERZ

Owners Address

Street PO BOX 176

City POWER State MT Zip 59468

Owner Phone (406)463-2219 Fax ( )

LOCATION OF SYSTEM

Nearest City POWER Description or Physical Address 22 MILES NORTHWEST OF GREAT FALLS

☐ seasonal operation dates:____to____

☒ year round operation

OPERATOR OF SYSTEM

Name KAROL WALKER

Certified Operator? ☒ Yes ☐ No ☐ Not required

Copy of Certificate? ☒ Yes ☐ No Certification # 5942

Phone # (406)463-2351 Cell Phone # ( )

Fax # ( )

ALTERNATE OPERATOR OF SYSTEM

Name GENE WALKER

Certified Operator? ☒ Yes ☐ No ☐ Not required

Copy of Certificate? ☒ Yes ☐ No Certification # 3472

Phone # (406)463-2351 Cell Phone # ( )

SYSTEM STATUS

☒ **A** = Active ☐ **P** = Pending *(Add New System)*

☐ **I** = Inactive

SYSTEM CLASS

☒ **C** = Community

☐ **NTNC** = Non-Transient Non-Community

☐ **TNC** = Transient Non-Community

Total Service Connections: Residential / Non-Transient: 80

Transient:

Total Active Connections: Residential / Non-Transient: 78

Transient:

Service Connections Metered? ☒ Yes ☐ No

Percent Metered RESIDENTIAL 100 %

Resident Population 167

(Number of permanent residents utilizing PWS daily)

Non-Transient Population ____

(Maximum number of non-transient persons utilizing PWS daily)

Transient Population ____

(Maximum number of transient persons served by PWS daily)

OWNER TYPE

☐ 1 Federal Government

☐ 2 Private Subdivision, Investor, Trust, Cooperative, Water Association, etc.

☐ 3 State Government

☒ 4 Local Government Authority, Commission, District, Municipality, City, etc.

☐ 5 Mixed Public/Private

☐ 6 Native American

SERVICE AREA CHARACTERISTICS LIST

☐ BR Bar
☐ DC Day Care Center
☐ DI Dispenser
☐ HS Head Start
☐ HA Homeowners Assoc.
☐ HM Hotel/Motel
☐ HR Highway Rest Area
☐ IA Industrial/Agricultural
☐ IC Interstate Carrier
☐ IN Institution
☐ MF Medical Facility
☐ MH Mobile Home Park
☒ MU Municipality
☐ OA Other Area
☐ ON Other Non-Transient Area (____Average Daily Visitors TNC)
☐ OR Other Residential Area
☐ OT Other Transient Area

☐ PA Recreation Areas
☐ RA Residential Area
☐ RE Retail Employees
☐ RS Restaurant
☐ RV RV Park
☐ SC School
☐ SI Sanitary Improvement District
☐ SK Summer Camp
☐ SR Secondary Residences
☐ SS Service Station
☐ SU Subdivision
☐ WBWater Bottler
☐ WH Wholesaler (Sells Water)

Service Category Description

Comments: POWER TETON COUNTY WATER DISTRICT IS LOCATED IN THE TOWN OF POWER, MONTANA, APPROXIMATELY 22 MILES NORTHWEST OF THE CITY OF GREAT FALLS. POWER, NAMED FOR T.C POWER, A HOMESTEADER IN THE EARLY 1900'S, BECAME A TOWN IN 1910. WITH A RESIDENT POPULATION OF 167, THE POWER TETON COUNTY WATER DISTRICT IS CLASSIFIED AS A COMMUNITY PUBLIC WATER SUPPLY. THE DISTRICT'S SOURCE WATER IS MUDDY CREEK AND IT IS TREATED BY A CONVENTIONAL TYPE TONKA PACKAGE PLANT CONSTRUCTED IN 2004. THE DISTRICT EXPERIENCES AN AVERAGE DAILY FLOW OF 20,000 GALLONS TO SERVE ITS RESIDENT POPULATION.

SANITARY SURVEY FORM – WATER SYSTEM FACILITIES

PWSID **MT0000311** | SYSTEM NAME **POWER TETON COUNTY WATER DISTRICT**

Water System Facilities (WSF) numbers are WSF Type Codes plus an assigned number. (i.e. source facility numbering starts with 002 and all non-source facilities start with 001). See instruction sheet for a list of WSF Type Codes. When a source is operational it is considered ***A***ctive, this includes systems that are seasonal. *I*nactive sources are those which are shut down but can return to active status, such as a system out of business. ***P***roposed sources are those that have been identified through the Plan Review process, but are not connected to the water system.

*A **water source facility** is a well, spring, intake, infiltration gallery or consecutive connections from which a system draws or purchases water:* | Total Number of Source Facilities 1

WATER SYSTEM FACILITIES SUMMARY (WSF)

WSF ID	Facility Name	Water Type Code	Purchased	Seller PWSID	Activity Status*
DS 001	Distribution System				
IN002	INTAKE FOR MUDDY CREEK	SW	☐ Yes ☒ No		A
SI001	500,000 GALLON RAW WATER STORAGE	SW	☐ Yes ☒ No		A
CW001	CLEARWELL 30,000 GALLON STANDPIPE		☐ Yes ☒ No		A
PF001	PUMP FACILITY RAW WATER		☐ Yes ☒ No		A
PF002	PUMP FACILITY HIGH SERVICE		☐ Yes ☒ No		A
ST001	STORAGE FACILITY 150,000 GALLON		☐ Yes ☒ No		
TM001	TRANSMISSION MAIN FROM PLANT TO TOWN		☐ Yes ☒ No		
TP002	TP FOR MUDDY CREEK		☐ Yes ☒ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
ST002	STORAGE FACILITY 40,000 CONCRETE		☐ Yes ☐ No		I
PF003	PUMP FACILITY BOOSTER PUMP STATION		☐ Yes ☐ No		I
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		
			☐ Yes ☐ No		

Description of Water System Facility flow: IN002 to TP002 to DS001, ST001, & ST002 and ST001 & ST002 to DS001

Example: Well 1 (WL002) to common header (CH001), Well 2 (WL003) to common header (CH001) to treatment plant (TP001) to pressure control assembly (PC001) to distribution system (DS001) to storage tank (ST001) to distribution system (DS001).

*(A)Active, (I)Inactive, (P)Proposed

EMERGENCY POWER

Does the system have emergency power? ☐ Yes ☒ No

If yes, what type: Frequency of testing: _____

Record of primary power failures: _____ in last year Switchover: ☐ Automatic ☐ Manual

Comments: POWER TETON COUNTY WATER DISTRICT DOES HAVE A GENERATOR, HOWEVER THE DISTRICT LACKS THE FUNDS TO HAVE IT SET UP FOR EMERGENCY USE.

SANITARY SURVEY FORM - SURFACE WATER, SPRINGS & INFILTRATION GALLERIES

PWSID **MT0000311** | SYSTEM NAME **POWER TETON COUNTY WATER DISTRICT**

SOURCES MUDDY CREEK | **STATUS OF SOURCE** ☒ (A)active ☐ (I)inactive ☐ (P)proposed

WSF ID IN002 *Entry Point ID* EP502
These are State assigned identification numbers

Source Name INTAKE MUDDY CREEK
Name of Source - Example: Well 1 or South well, etc.

Location of Water Source (TRS or street address) APPROX. 1.75 MILES WEST OF POWER, MUDDY CREEK ADJACENT TO WTP

Entry Point Name EP FOR IN TP
Name of EP - Example: Entry point for North Well 1 & South Well 2

Location of Entry Point TP002

Available ☒ Perm ☐ Emerg ☐ Interim ☐ Seasonal ☐ Other
If seasonal: _____ to _____

GWUDISW PA Completed? ☐ Yes ☐ No ☐ Unk ☒ N/A

Average Production 20,000 GPD

Maximum Production 100 GPM

Latitude 47.71299
Longitude -111.72307

SURFACE SOURCES

What is the nature of watershed?

☒ Agricultural Name _____
☐ Industrial
☐ Forest
☐ Residential
☐ Other _____

What is the size of the owned/protected area of the watershed?

How is watershed controlled?
☒ Ownership
☐ Ordinances
☐ Zoning
☐ Other

	Yes	No	Unk	N/A
Has a source water protection plan been developed?	☐	☒	☐	☐
Has management had a watershed survey performed?	☐	☒	☐	☐
Is there an emergency spill response plan?	☐	☒	☐	☐
Is the source adequate in quantity?	☒	☐	☐	☐
Is the source adequate in quality?	☒	☐	☐	☐
Is the intake protected from sources of contamination?	☐	☒	☐	☐
Are multiple intakes, located at different levels, utilized?	☐	☒	☐	☐
Is the highest quality water being drawn?	☒	☐	☐	☐
Can the raw water transmission line bypass treatment?	☐	☒	☐	☐

How often are intakes inspected? DAILY

What conditions cause fluctuations in quality? RUNOFF/SNOWMELT AND AG PRACTICES THAT RESULT IN CATTLE ALONG THE CREEK

Comment: INTAKE PIPE IS RUNS ALONG THE CONCRETE ABUTMENT FOR THE DAM ON THE UPSTREAM SIDE OF THE DAM.

SANITARY SURVEY FORM - TREATMENT

PWSID **MT0000311**

SYSTEM NAME **POWER TETON COUNTY WATER DISTRICT**

Treatment Objective

- **B** = Disinfection Byproduct Control
- **C** = Corrosion Control
- **D** = Disinfection
- **E** = Dechlorination
- **F** = Iron Removal
- **I** = Inorganics Removal
- **M** = Manganese Removal
- **N** = *No Treatment at Source*
- **O** = Organics Removal
- **P** = Particulate Removal
- **R** = Radionuclides Removal
- **S** = Softening (Hardness Removal)
- **T** = Taste / Odor Control
- **Z** = Other _____

WATER TREATMENT FACILITIES

WSF ID	Treatment Plant Name	Treatment Objectives and Code
TP002	TREATMENT PLANT FOR MUDDY CREEK	P240 P360 P345 P660 D421 P742 T121 C741

WSF ID	Location	
TP002	Latitude 47.71305	Longitude -111.72285
	Latitude ___° ___' ___"	Longitude ___° ___' ___"
	Latitude ___° ___' ___"	Longitude ___° ___' ___"
	Latitude ___° ___' ___"	Longitude ___° ___' ___"
	Latitude ___° ___' ___"	Longitude ___° ___' ___"

Treatment plant description: WTP CONSISTS OF 2 PARALELL TREATMENT TRAINS OF CONVENTIONAL FILTRATION UTILIZING TUBE SETTLERS. FERRIC CHLORIDE IS THE COAGULANT OF CHOICE, HOWEVER THERE IS THE ABILITY TO ADD POLYMER, HYDROCHLORIC ACID, AND CAUSTIC. DISINFECTION OF THE FILTERED WATER IS ACCOMPLISHED BY THE USE OF CALCIUM HYPOCHLORITE. THE CLEARWELL AND TRANSMISSION MAIN TO TOWN ARE USED TO CALCULATE CT TIME.

FOR SYSTEMS EMPLOYING FULL-TIME DISINFECTION

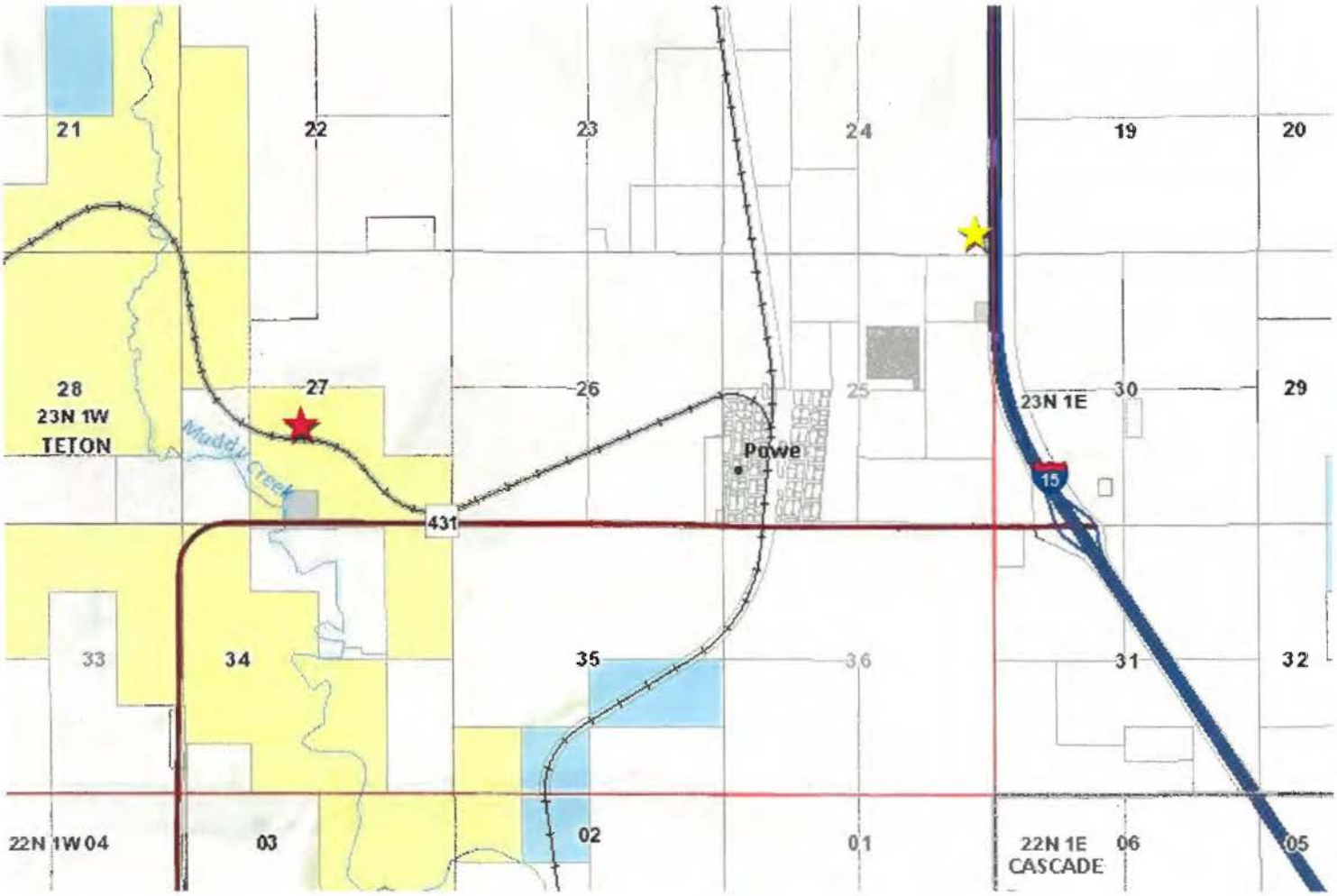
What disinfectant is used? CALCIUM HYPOCHLORITE

	Yes	No	Unk	N/A
Is the disinfectant used NSF approved?	☒	☐	☐	☐
Is the amount of disinfectant used recorded? If Yes, amount used: 1-1.4 lbs/	☒	☐	☐	☐
Is the amount of disinfectant used compared to water pumped to verify concentration?	☒	☐	☐	☐
Is chemical storage adequate and safe? If No, explain _____	☒	☐	☐	☐
Is disinfectant residual being monitored daily?	☒	☐	☐	☐
Are residual reports submitted monthly?	☒	☐	☐	☐
Is the disinfection equipment being operated and maintained properly?	☒	☐	☐	☐
Is operational standby equipment provided?	☒	☐	☐	☐
If not, are critical spare parts on hand?	☒	☐	☐	☐
Has disinfection system been free from failure during the past year – no interruption?	☒	☐	☐	☐

If No, give dates of interruptions _____

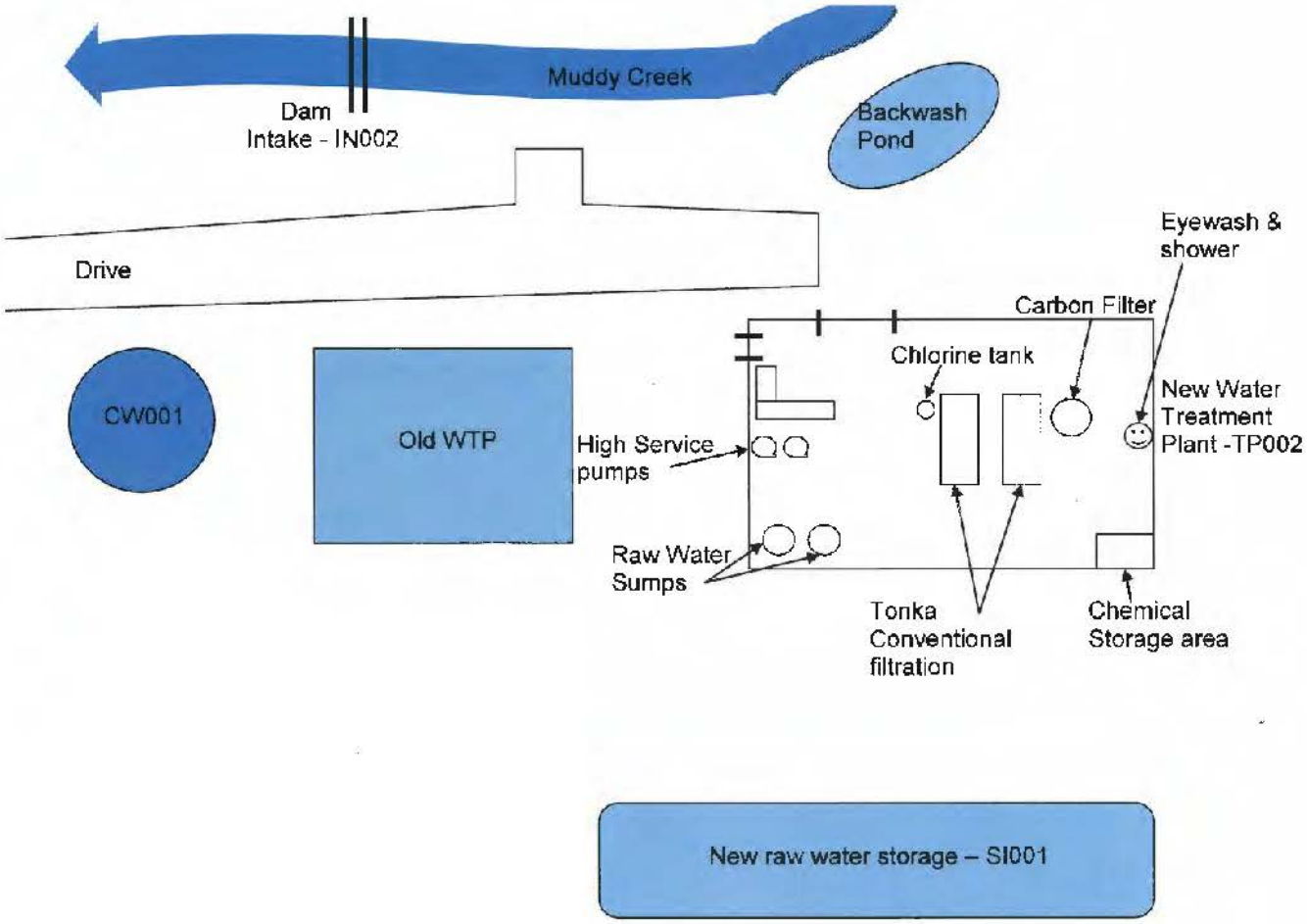
Describe provisions for providing contact time between disinfection point and the first point of use: CONTACT TIME IS ACHIEVED THROUGH USE OF THE CLEARWELL, CALCULATED WITH A MINIMUM VOLUME OF 12,000 GALLONS, A BAFFLING FACTOR OF 0.3, AN EFFECTIVE VOLUME OF 7200 GALLONS AND A PEAK FLOW OF 50GPM. ADDITIONAL CONTACT TIME IS PROVIDED FOR IN THE TRANSMISSION MAIN FROM THE TP TO TOWN. TM001 HAS A VOLUME OF 5154 GALLONS AND A PEAK FLOW OF 50 GPM. CT IS ADEQUATE UNDER ALL CIRCUMSTANCES.

Comment: AN EYEWASH STATION and SHOWER HAS BEEN INSTALLED AND OPERATION IS VERIFIED 2 TIMES A MONTH.



★ = Power Teton County Water District Water Treatment Plant (TP001)

★ = Power Teton County Water District Storage Tank (ST001)


Muddy Creek
Dam
Intake - IN002
Backwash
Pond
Drive
Eyewash &
shower
Carbon Filter
Chlorine tank
CW001
Old WTP
High Service
pumps
New Water
Treatment
Plant -TP002
Raw Water
Sumps
Tonka
Conventional
filtration
Chemical
Storage area
New raw water storage – SI001

SANITARY SURVEY FORM - SURFACE WATER TREATMENT PLANTS
(Direct and Conventional and other)

PWSID **MT0000311**

SYSTEM NAME **POWER TETON COUNTY WATER DISTRICT**
Latitude 47.71305 Longitude -111.72285

Type: ☐Direct ☐In-Line ☒Conventional ☐CAC ☐Other (describe)_____

Peak instantaneous flow experienced: 100 gpm

	Chemicals Added	Points of Application	Purpose	Feed Rate (range)
1)	FERRIC CHLORIDE	RAW	PRIMARY COAGULANT	
2)	CALCIUM HYPOCHLORITE	POST FILTER	DISINFECTION	
3)				
4)	POLYMER	RAW		NOT IN USE
5)	HYDROCHLOROUS ACID	RAW		NOT IN USE
6)	CAUSTIC	RAW		NOT IN USE

How are process control decisions made? RAW WATER QUALITY, JAR TESTING AND HISTORICAL DATA IS REVIEWED.

Describe the following unit processes:

Rapid Mix: INLINE STATIC MIXER

Flocculation:

Theoretical hydraulic detention time

Tapered? ☒ Yes ☐ No

Description: 2 STAGE, VARIABLE SPEED

Sedimentation:

Surface overflow rate: 2.0 gpm/ft^2

Description: TUBE SETTLERS

Filters:

Type: ☐Rapid Sand ☒Dual Media ☐Multi-media ☐Other (describe)

Depth of Media: 37" OF ANTHRACITE AND GARNET SAND WITH 16" OF SUPPORT GRAVEL

Surface wash? ☒ Yes ☐ No If Yes, type: ROTARY

Air scour? ☐ Yes ☒ No

Disinfection

Log inactivation credit granted: 2.5Log

Inactivation required: 0.5Log

Total reduction: 3.0Log

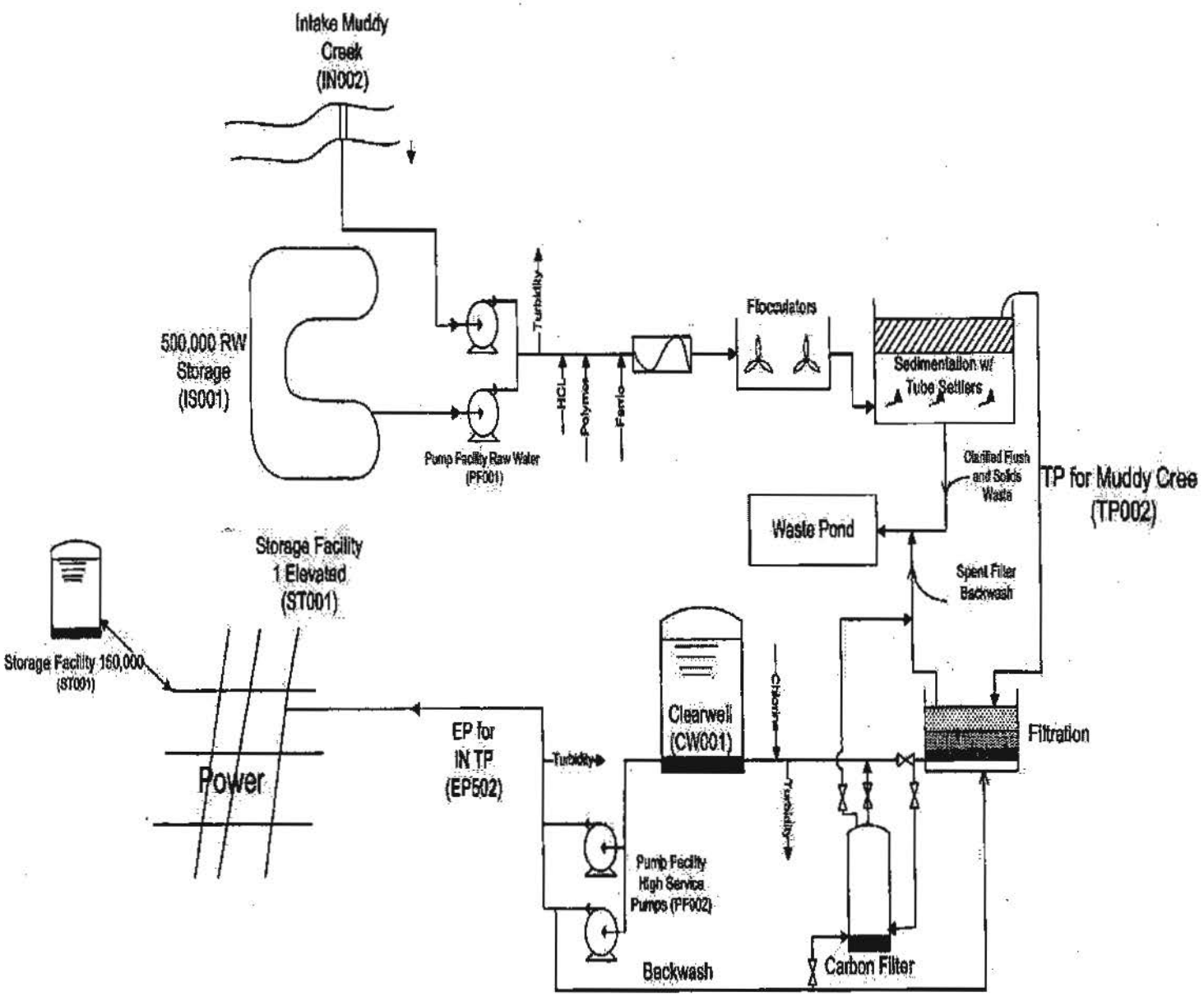
Is CT adequate under all conditions of flow, temperature and pH? ☒ Yes ☐ No ☐ Unk

Explain: ADEQUATE CHLORINE RESIDUAL IS MAINTAINED UNDER ALL CIRCUMSTANCES TO MEET INACTIVATION RATIOS WHEN BOTH THE CLEARWELL AND TRANSMISSION MAIN ARE USED FOR CALCULATING CT.

Comments on process control and finished water quality: MONTHLY SWTR REPORTS SHOW COMPLIANCE WITH THE RULES AND TOC REMOVAL IS ADEQUATE TO MEET THE REQUIREMENTS HOWEVER TOC CONCENTRATIONS HAVE BEEN ON AN UPWARD TREND FOR THE LAST COUPLE OF YEARS AND ALL PREDICTIONS LEAD TO THE CONTINUED INCREASE IN THE ORGANIC CONTENT OF SOURCE WATERS. THIS PACKAGE TYPE CONVENTIONAL PLANT MAY NOT BE ABLE TO OPERATE IN AN ENHANCED COAGULATION MODE.

If a CPE is needed, please comment:_____

Treatment Schematic – Chemical application points. Not all chemicals are in use.



SANITARY SURVEY FORM - PUMPING FACILITIES

PWSID **MT0000311** | SYSTEM NAME **POWER TETON COUNTY WATER DISTRICT**

WSF ID PF001 Location, Description PUMP FACILITY RAW WATER – THERE ARE A TOTAL OF 5 SUBMERSIBLE PUMPS IN THIS FACILITY. TWO 50 GPM PUMPS LOCATED IN WET WELLS IN PLANT THAT TAKE WATER FROM A RAW WATER SUMP THAT RECEIVES WATER DIRECTLY FROM MUDDY CREEK AND BOOSTS THROUGH THE PLANT. THERE ARE TWO 50 GPM PUMPS THAT TAKE WATER FROM A WET WELL THAT RECEIVES WATER FROM THE RAW WATER SURFACE IMPOUNDMENT ADJACENT TO THE WTP AND BOOSTS THROUGH THE PLANT. THE REMAINING RAW WATER PUMP IS IN THE WET WELL AND SUPPLIES MUDDY CREEK WATER TO EITHER THE SURFACE IMPOUNDMENT OR CAN BE USED FOR FIRE PROTECTION TO SUPPLY THE FIRE FILL LINE.

Latitude 47.71305

Longitude -111.72285

Type SUBMERSIBLE PUMP
(example: 30 hp line shaft turbine)

Rated Capacity 50 gpm EACH

How frequently are pump(s) replaced? 1-2 pumps every year as needed

	Yes	No	Unk	N/A
Is redundancy provided?	☒	☐	☐	☐
Are backup pumps/motors provided?	☒	☐	☐	☐
Is there a pressure relief valve?	☐	☐	☐	☒
Does each pump have compound gauge on suction side?	☐	☐	☐	☒
Is there automatic cutoff for low suction pressure?	☒	☐	☐	☐
Does each pump have standard pressure gauge on discharge side?	☐	☐	☐	☒
Does low pressure level provide adequate pressure?	☒	☐	☐	☐
Are controls functioning properly and adequately protected?	☒	☐	☐	☐
Do underground compartments have a drain?	☐	☐	☐	☒
Is facility properly protected against trespassing and vandalism?	☒	☐	☐	☐
Are pump records maintained (amp, discharge, pressure, maintenance schedule, manuals, etc.)?	☒	☐	☐	☐
Is the plumbing adequately painted to prevent excessive corrosion?	☒	☐	☐	☐
Are adequate heating, lighting, and ventilation provided?	☒	☐	☐	☐
Is a preventive maintenance program in operation?	☒	☐	☐	☐
Are recommended spare parts on hand?	☒	☐	☐	☐

Controlled by CONTROLLED BY CLEARWELL LEVELS, WHICH OPERATE THE PLANT

Comments: THE OPERATOR CAN MANUALLY CHANGE TO DRAW FROM WHATEVER WET WELL SUMP WILL SUPPLY THE BEST WATER FOR TREATMENT. THESE PUMPS ARE REPLACED AT A RATE OF 1-2 EACH YEAR DUE TO ISSUES WITH SEDIMENT BUILDING UP AND BURNING OUT THE MOTORS &/OR THE IMPELLARS.

WSF ID PF002 Location, Description PUMP FACILITY HIGH SERVICE PUMPS

Latitude 47.71305

Longitude -111.72285

Type: TWO 7.5 hp BOOSTER PUMPS TAKE SUCTION FROM THE CLEARWELL AND BOOST TO TOWN OF POWER. PUMPS ALTERNATE.

Rated Capacity 50 GPM

How frequently are pump(s) replaced?

	Yes	No	Unk	N/A
Is redundancy provided?	☒	☐	☐	☐
Are backup pumps/motors provided?	☒	☐	☐	☐
Is there a pressure relief valve?	☐	☐	☐	☒
Does each pump have compound gauge on suction side?	☒	☐	☐	☐
Is there automatic cutoff for low suction pressure?	☒	☐	☐	☐
Does each pump have standard pressure gauge on discharge side?	☒	☐	☐	☐
Does low pressure level provide adequate pressure?	☒	☐	☐	☐
Are controls functioning properly and adequately protected?	☒	☐	☐	☐
Do underground compartments have a drain?	☐	☐	☐	☒
Is facility properly protected against trespassing and vandalism?	☒	☐	☐	☐
Are pump records maintained (amp, discharge, pressure, maintenance schedule, manuals, etc.)?	☒	☐	☐	☐
Is the plumbing adequately painted to prevent excessive corrosion?	☒	☐	☐	☐
Are adequate heating, lighting, and ventilation provided?	☒	☐	☐	☐
Is a preventive maintenance program in operation?	☒	☐	☐	☐
Are recommended spare parts on hand?	☒	☐	☐	☐

Controlled by CONTROLLED BY LEVELS IN ST001

Comments: 50 GPM FLOW IS USED FOR CT CALCULATIONS FOR THE TRANSMISSION MAIN FROM WTP TO TOWN..

SANITARY SURVEY FORM - STORAGE

PWSID **MT0000311** | SYSTEM NAME **POWER TETON COUNTY WATER DISTRICT**

COMPLETE ONE SECTION FOR EACH STORAGE FACILITY

Total storage provided? 180,000 gal	How much treated storage is provided 180,000 gal	Storage provides - 9 days of water –winter - 3 days of water - summer

STORAGE FACILITY

WSF ID CW001 CLEARWELL 30,000 GALLON STANDPIPE

Location: ADJACENT TO THE OLD WTP BUILDING. THE STANDPIPE IS SPRAY INSULATED TO PROTECT AGAINST FREEZING.
Latitude: 47.712972 Longitude: -111.72272

Storage Volume? 30,000 gallons
Year constructed: 2004
Condition: ☒Good ☐Fair ☐Poor

	Yes	No	Unk	N/A
Does surface runoff and underground drainage drain away?	☒	☐	☐	☐
Is the site protected against flooding?	☒	☐	☐	☐
Is the site protected against trespass/vandalism?	☒	☐	☐	☐
Ladders caged and locked?	☒	☐	☐	☐
Are overflow lines, air vents, drainage lines or clean out pipes turned downward or covered, screened and terminated a minimum of 3 diameters above the ground or storage tank surface?	☒	☐	☐	☐
Overflow pad?	☒	☐	☐	☐
Is access hatch sealed properly and locked?	☒	☐	☐	☐
Are surface coatings in contact with water ANSI / NSF approved?	☒	☐	☐	☐
Is tank protected against icing and corrosion?	☒	☐	☐	☐
Can tank be isolated from system?	☒	☐	☐	☐
Is all treated water storage covered?	☒	☐	☐	☐
Are tanks disinfected after repairs are made?	☒	☐	☐	☐
What is cleaning frequency for tanks? 1 TIME SINCE INSTALLATION				
Is tank inspected every 5 years by a structural engineer for structural integrity?	☐	☒	☐	☐

Date of last inspection _____ By whom _____

Comments: THE ACCESS HATCH FOR THIS CLEARWELL DOES NOT MEET DEQ-1 DESIGN STANDARDS (NOT A SHOEBOX TYPE LID). IT DOES HOWEVER FIT TIGHTLY AND THERE ARE NO GAPS. THE VENT WAS NOT ABLE TO BE INSPECTED DUE TO THE SPRAY ON INSULATION, SO UNABLE TO TELL IF THE VENT IS SCREENED APPROPRIATELY. THIS DESIGN WAS REVIEWED AND APPROVED BY DEQ

STORAGE FACILITY

WSF ID ST001 STORAGE FACILITY 150,000 GALLON

Location: 150,000 GALLON WELDED STEEL STORAGE TANK LOCATED NORTHEAST OF POWER NEAR THE INTERSTATE.
Latitude: 47.72411 Longitude: -111.66736

Storage Volume? 150,000 gallons
Year constructed: 2005
Condition: ☒Good ☐Fair ☐Poor

	Yes	No	Unk	N/A
Does surface runoff and underground drainage drain away?	☒	☐	☐	☐
Is the site protected against flooding?	☒	☐	☐	☐
Is the site protected against trespass/vandalism?	☒	☐	☐	☐
Ladders caged and locked?	☒	☐	☐	☐
Are overflow lines, air vents, drainage lines or clean out pipes turned downward or covered, screened and terminated a minimum of 3 diameters above the ground or storage tank surface?	☒	☐	☐	☐
Overflow pad?	☒	☐	☐	☐
Is access hatch sealed properly and locked?	☒	☐	☐	☐
Are surface coatings in contact with water ANSI / NSF approved?	☒	☐	☐	☐
Is tank protected against icing and corrosion?	☒	☐	☐	☐
Can tank be isolated from system?	☒	☐	☐	☐
Is all treated water storage covered?	☒	☐	☐	☐
Are tanks disinfected after repairs are made?	☒	☐	☐	☐
What is cleaning frequency for tanks? NEVER				
Is tank inspected every 5 years by a structural engineer for structural integrity?	☐	☒	☐	☐

Date of last inspection _____ By whom _____

Comments: THE ACCESS HATCH DOES NOT HAVE A GASKET BUT FITS TIGHTLY AND DOES NOT HAVE ANY GAPS. THIS STORAGE TANK IS LOCATED NEAR THE INTERSTATE. THIS DESIGN WAS REVIEWED AND APPROVED BY DEQ

SANITARY SURVEY FORM - MISCELLANEOUS

PWSID **MT0000311** | SYSTEM NAME **POWER TETON COUNTY WATER DISTRICT**

DISTRIBUTION SYSTEM EVALUATION

Distribution description ALL OF THE DS MAINS IN TOWN WERE REPLACED WITH 6" PVC PIPE WITHIN THE LAST 5 YEARS. THE FILL STATION SUPPLY MAIN HAS ALSO BEEN REPLACED WITH 6" PVC.

	Yes	No	Unk	N/A
System drawings available?	☒	☐	☐	☐
Accurate As-Built drawing(s) on-site?	☒	☐	☐	☐
Lines adequately sized?	☒	☐	☐	☐
Adequate pressure maintained?	☒	☐	☐	☐
Mains protected from freezing?	☒	☐	☐	☐
Distribution system free of leaks?	☒	☐	☐	☐
Asbestos concrete pipe used?	☒	☐	☐	☐
Fire hydrants?	☒	☐	☐	☐
Dead end lines minimized by looping mains?	☒	☐	☐	☐
Flushing program?	☒	☐	☐	☐
Pressure reducing stations? Number 0	☐	☒	☐	☐
Booster stations? Number 0	☐	☒	☐	☐
Are individual booster pumps on any service lines? (see DEQ-1 8.9.2)	☐	☒	☐	☐
Were cross connections observed?	☐	☒		

Comments: THE REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER AT THE FILL STATION IN TOWN IS OPERATING PROPERLY.

SAFETY

	Yes	No	Unk	N/A
Were confined spaces observed?	☒	☐	☐	☐
Describe any confined spaces observed: RAW WATER WET WELLS Confined space safety adequate?	☒	☐	☐	☐
Fall risks adequately mitigated?	☒	☐	☐	☐

Note all safety deficiencies (consider items such as ladders, tank supports, guards on rotating electrical equipment, lightning protection for pumps, etc.) WET WELL SUMPS ARE CONSIDERED CONFINED SPACES ALTHOUGH THEY AREN'T ROUTINELY ENTERED.

MONITORING AND RECOROKEEPING EVALUATION

	Yes	No	Unk	N/A
Does the system have a current Monitoring Schedule?	☒	☐	☐	☐
Bacti monitoring records maintained? (5 years)	☒	☐	☐	☐
Bacti Sample Site Plan submitted?	☒	☐	☐	☐
Familiar with repeat sampling?	☒	☐	☐	☐
Chemical monitoring records maintained? (10 years)	☒	☐	☐	☐
System specific records / plans maintained? (DBP, PB/CU, treatments, waivers, violations, etc.)	☒	☐	☐	☐
Familiar with Public Notice requirements?	☒	☐	☐	☐
Did Surveyor take a bacteriological sample?	☐	☒		

If Yes, date of Sample: _____ Time of Sample: _____

Comments: THIS PWS IS VERY WELL TAKEN CARE OF AS DEMONSTRATED BY THE DEDICATION OF THE OPERATORS. THERE HAVE BEEN NO VIOLATIONS FOR AT LEAST 7 YEARS. MONITORING AND REPORTING IS COMPLETED IN A TIMELY MANNER.

MANAGEMENT

	Yes	No	Unk	N/A
Are there sufficient personnel?	☒	☐	☐	☐
Are operators properly certified?	☒	☐	☐	☐
Are personnel adequately trained?	☒	☐	☐	☐
Is there a current O&M manual on-site?	☒	☐	☐	☐
Is an emergency plan on-site and workable?	☐	☒	☐	☐
Has system addressed concerns from previous sanitary survey(s) or technical visit(s)?	☒	☐	☐	☐
Budget exists?	☒	☐	☐	☐
Does system maintain an emergency fund?	☒	☐	☐	☐
Does system contribute to facility replacement fund?	☒	☐	☐	☐
Are abandoned wells present?	☐	☒	☐	☐
Do abandoned wells appear to be properly abandoned? (see ARM 36.21.670)	☐	☐	☐	☒

Comments: MANAGEMENT IS DOING A GOOD JOB. FUNDING IS ALWAYS AN ISSUE. EMERGENCY POWER AND AN EMERGENCY PLAN SHOULD BE A PRIORITY.

PWSID **MT0000311** | SYSTEM NAME **POWER TETON COUNTY WATER DISTRICT**

The State, or an authorized agent, must conduct sanitary surveys for all public water supply systems in Montana. DEQ believes that periodic sanitary surveys, along with appropriate corrective actions, are indispensable for assuring the long-term quality and safety of drinking water. When properly conducted, sanitary surveys can provide important information on a water system's design and operations and can identify minor and significant deficiencies for correction before they become major problems.

Minor deficiencies do not pose serious health threats. However, corrective action of minor deficiencies can be critical in the long-term operation and safety of a public water system. Minor deficiencies are generally described as suggested or recommended corrections in the letter to system owner(s).

Significant deficiencies can be defined as a defective water supply component(s) having or likely to have an adverse influence on public health. Significant deficiencies require immediate corrective action in efforts to protect consumers.

EPA and ASDWA guidance identifies eight broad components that should be covered in a sanitary survey. Using these eight broad components as a guide, minor and significant deficiencies should be described in the letter to system owner(s).

1) Source
2) Treatment
3) Distribution system
4) Finished water storage
5) Pumps, pump facilities, and controls
6) Monitoring and reporting, and data verification
7) System management and operation
8) Operator compliance with State requirements

With consideration that significant deficiencies may influence regulatory decisions and monitoring requirements, please list all significant deficiencies observed and corrective action(s) taken below.

Comments: **No significant deficiencies where found at the time of the inspection.**

POWER TETON COUNTY WATER DISTRICT

Sanitary Survey May 3, 2012

Lisa Kaufman

Gerard Gernand

Intake dam on Muddy Creek. Intake pipe runs along side this concrete structure on the upstream side of the dam.

Wet well sump (inside WTP). Approximately 20' deep fills by gravity from the intake.

Wet well sump for settled water from the surface impoundment (rarely used as water from the creek is usually better quality water).

Backwash Pond

New and old WTP

Clearwell (CW001)
- next to old WTP

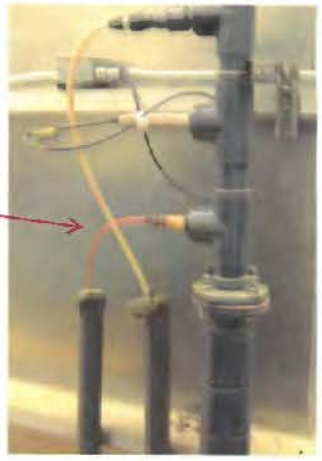
Storage Tank (ST001)
- 150,000 gal

Raw Water Storage
(SI001)

Coagulation

Ferric Chloride

Ferric Chloride injection



Flocculation

Sedimentation (Tube Settlers)

Filtered water

Filtration

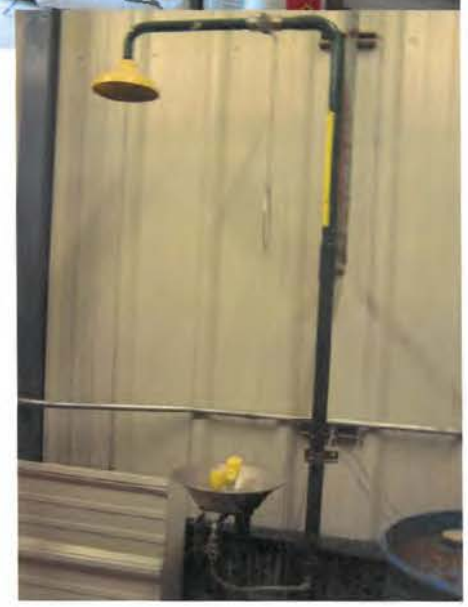
Carbon filter for taste and odor

Filtered water turbidimeter

SCADA System

High Service pumps

Spare part storage



Emergency eyewash and shower