ROCKVILLE PIPELINE COMPANY

MUNICIPAL WATER SYSTEM
SOURCE PROTECTION PLAN

DECEMBER 1998

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Executive Summary

The purpose of this report is to discuss protection zones, potential contamination sources, and management of potential contamination sources for all sources of the Rockville Pipeline Company in Washington County.

The Rockville Pipeline Company is a public community culinary water system. The system, at present, consists of one storage tank, one spring source, five well sources, and appurtenant piping structures.

Rockville is located on state highway 9 in Washington County, several minutes south of the entrance to Zion National Park. The Town is situated southwest of Springdale and east of Virgin.

A Modular Semi-Analytical Model for the Delineation of Wellhead Protection Areas (WHPA), developed by the Environmental Protection Agency was used to delineate the source protection zones for all sources.

1.0 Introduction

This report is submitted to meet the Source Protection Plan Report requirements of Administrative Ruling R309-113-7. The owners, Rockville Pipeline Company, maintain a water system for municipal needs. *Figure 1, in Appendix A,* is a location map showing the location of Rockville in Washington County, and the State of Utah.

1.1 System Information

The Rockville Pipeline Company is a public community system. The system, at present, consists of one storage tank, one spring source, five well sources, and appurtenant piping structures. The address for Rockville Pipeline Company is P.O. Box 157, Rockville, Utah 84763. The water system number issued by the Utah Division of Drinking Water is 27014.

1.2 Source Information

The Rockville Pipeline Company's water supply is acquired from five wells and one spring. All sites to be discussed as part of this report are existing sources.

All Sources are located on Bureau of Land Management administered lands, southeast of Rockville. A Description of each source location by latitude and longitude along with the source name is given in *Table 1.1* below.

Table 1.1
Source Name and Location

Source #	Name	Latitude	Longitude	Elevation
01	Well #1	37° 09' 05"	113° 01' 27"	4,030
02	~~Well #2~~	37° 09' 14"	113° 01' 22"	4,070
03	Well #3	37° 09' 01"	113° 01' 28"	4,090
04	Well #4	37° 09' 00"	113° 01' 32"	4,110
05	Well #5	37° 08' 53"	113° 01' 32"	4,140
06	Rimrock Spring	37° 09' 06"	113° 01' 26"	4,070

The proof of Diversion and use of Water is located under *figure 2 in Appendix A*. The proof provides a legal description for each source. The map showing the location of the sources is in *Appendix D.*

1.3 Designated Person

The contact person for the Rockville Pipeline Company is Bill Regland. Mr. Regland is the President of the Rockville Pipeline Company. He can be reached by phone at 435-772-3326. Correspondence may be sent to him at Rockville Pipeline Co., P.O. Box 157, Rockville, UT 84763.

2.0 Delineation Report

This section was completed and delineations were done by Jack Rogers, Geologist, LASR Geo Consulting, P.O. Box 1103, Castle Dale, UT 84513.

The Preferred Delineation Procedure was used to delineate protection zones for all sources.

2.1 Geologic Data-R309-113-9(5)(a)(i)

Rockville is south of Zions National Park on the western flank of the Colorado Plateau-Basin and Range transitional zone. The bulk of exposed rock in the area consist of Jurassic and Triassic rock units followed by Quaternary Tertiary basalts. Minor deposits of Quaternary alluvial deposits are found in canyon bottoms. These rock units create spectacular scenery and have made Southern Utah famous for these formations.

Jurassic rocks consist of Navajo Sandstone, Kayenta Formation and Moenave Formation. The Navajo Sandstone is a massive eolian sand deposit. The rock is poorly to well cemented by calcite and readily weathers to yield loose sand. The sandstone is characterized by large-scale trough sets, commonly 6-18 ft thick, of high-angle crossbeds. The Kayenta Formation is mostly thick-bedded purplish red micaceous sandstone with minor siltstone, shale, and intraformational conglomerate. The Moenave Formation has been subdivided locally into three members: the Springdale Sandstone, a ledge forming sandstone unit; the Whitmore Point Member, a sandy siltstone; and the Dinosaur Canyon Member, a silty sandstone (Hintze, 1988).

Triassic rocks consist of the Chinle and Moenkopi Formations. The Chinle Formation has been divided into two members: the Petrified Forest Member and the Shinarump Conglomerate Member. The Petrified Forest Member is a variegated slope-forming mudstone, claystone, sandstone, siltstone, limestone, and intraformational conglomerate. Below this unit is the Shinarump Conglomerate Member which is the aquifer that supplies the wells for Rockville. It consists of a coarse grained,

conglomeratic, lenticular-bedded sandstone, approximately 60 ft thick. The porosity and permeability varies depending upon the amount of clay and degree of cementation and jointing present. The Moenkopi Formation is mostly brownish interbedded sandstone, siltstone, and mudstone. A basal limestone is present in some areas.

The structure of the area typical of the Coloradan Plateau-Basin and Range transitional zone. Rock units regionally dip gently to the northeast at approximately 10 degrees. Uplift along with stream erosion has exposed thousands of feet of rock that forms cliffs, ledges, and slopes. There are a few small local faults in the Rockville area (Montgomery, 1975 and 1992), which aids water movement through these tight formations. Montgomery (1975) suggests that there has been some distortion and breakage of the bedding as expressed in the form of prominent intersecting, vertical joints in the Shinarump Conglomerate; near vertical faulting trending N 25° E, as evidenced by the presence of an associated breccia zone, is found approximately a half mile southwest of the spring. This faulting does not noticeably displace the Shinarump bedding as observed about 1/4 mile northeast of Well No. 2 in the ravine. The geologic map is located in *Appendix A under figure 3.*

2.2 Well and Spring Construction Data-R309-113-9(5)(a)(ii) & (iii)

There are four wells that produce water from the Shinarump Conglomerate Member of the Chinle Formation for the city of Rockville. These wells are all found in section 7, Township 42 S., Range 10 W., Salt Lake Base Meridian and are all along the joint/fault trend mentioned above. The wells (No. 2 and 3) were drilled in the mid 1970's and (No. 4 and 5) early 1990's. Dynamite was used to increase the permeability of two to three of the wells after completion of the drilling. Construction data for each of the wells is in Table 2.1 on the following page. See well logs *in Appendix B.*

Table 2.1
Well construction data for Rockville wells.

	Well #2	Well #3	Well #4	Well #5
Construction Method	Cable Tool	Cable Tool	Cable Tool	Cable Tool
Well Elevation (ft)	4,070	4,090	4,110	4,140
Total Depth (ft)	90	100	111	119
Well Radius (in)	8.0	6.0	8.0	8.0
Type of Perforations	none	none	1/4 x 6.0	1/4 x 6.0
Perforated Interval	None	None	67	53
Casing type	?	?	Schedule 40	Scatole 40
Surface Seal	?	?	44 ft cement grout	45 ft cement grout
Maximum pumping rate	30 gpm	30 gpm	30 gpm	65 gpm

2.3 Aquifer Data-R309-113-9(5)(a)(iv)

The wells are drilled into the Shinarump Conglomerate Member of the Chinle Formation (described above) south of Rockville. Pump tests were preformed after drilling was completed; however, the data obtained from these was not usable. Tests preformed by the drillers were step drawdown tests not constant rate tests. Transmissivity (T) was calculated by estimating the hydraulic conductivity (K) of the Shinarump Conglomerate (1.34 ft/day, from a chart of hydraulic conductivities of unconsolidated and consolidated rocks; Driscoll, 1986) and multiplying by the saturated thickness (b) of the aquifer. The saturated thickness (b) is the amount of aquifer open to the well; therefore, the transmissivity of each well is similar but slightly different. The transmissivity (T) used for wells 2 and 3 was 70 ft^2/day, the suggested value for the aquifer (Table 2.2).

Table 2.2
Rockville City well parameters.

Aquifer Parameter	Well #2	Well #3	Well #4	Well # 5
Transmissivity (T)	70 ft^2/day	70 ft^2/day	84 ft^2/day	71 ft^2/day
Saturated thickness	10 ft	10 ft	63 ft	63 ft
Hydraulic Conductivity	1.34 ft/day	1.34 ft/day	1.34 ft/day	1.34 ft/day
Hydraulic Gradient	0.046	0.046	0.046	0.059
Flow Direction	N 30° E	N 30° E	N 30° E	N 30° E
Porosity	5%	5%	5%	5%

Saturated thicknesses of Wells #2 and #3 were given a value of 10 ft even though the casing is only open at the bottom. A minimal thickness is necessary so that the equation does not go to zero producing errors in the delineation zones. Hydraulic gradient was estimated from a map showing groundwater surface contours (Montgomery, 1975 and 1992). Porosity was estimated to be 5% because of the cemented nature of the conglomerate. Jointing does increase the groundwater flow but only locally. Values of (T) and (K) are comparable to values given by Heath (1988) for rock units associated with the Colorado Plateau. Groundwater flow is along the trend of the joints and fault where the wells are drilled. Permeability was increased in each well by fracturing the conglomerate using explosives to create secondary permeability. The success of fracturing is thought to be positive and improve flow.

2.4 Hydrogeologic Methods, Procedures, and Calculations-R309-113-9(5)(a)(vii)

Drinking Water Source Protection Zones (DWSP) were delineated for the Rockville City Well using the Multiple Well Capture Zone (MWCAP) module of WHPA. WHPA is a semi-analytical groundwater flow model published by the Environmental Protection Agency (EPA). The MWCPA is designed to delineate time-related capture zones for pumping wells in a homogeneous aquifer with uniform ambient groundwater flow (Blandford, Huyakorn, and Wu 1993). As stated above, calculations were made

using the best available data (*see Appendix C*). The velocity of the aquifer was calculated using the equation

$$v=Ki/n$$

where K is the hydraulic conductivity, i is the hydraulic gradient, and n is the effective porosity (Driscoll 1986, Fetter 1980, and Lohman 1972). Groundwater travel times calculated by WHPA were checked by hand calculations.

2.5 Map showing Boundaries of the DWSP Zones-R309-113-9(5)(a)(viii)

The map showing DWSP zone boundaries is located in *Appendix D*. Zones two through four are shown. Written descriptions for each zone are given below and in Table 3. The wells are close enough that there are overlapping zones and none of the well's zone four extend across Horse Valley Wash.

Well #2 NOT in use

Zone one is a 100 ft radius measured from the center of the source.

Zone two, a 250-day groundwater travel time, extends 900 ft up gradient and 400 ft down gradient from the source. The maximum width is 1,200 ft across the source.

Zone three, a 3-year groundwater travel time, extends 2,500 ft up gradient and 500 ft down gradient. The maximum width is 1,200 ft across.

Zone four, a 15-year groundwater travel time, extends 7,500 ft up gradient to Horse Valley Wash and 500 ft down gradient. The maximum width is 900 ft across.

Well # 3

Zone one is a 100 ft radius measured from the center of the source.

Zone two, a 250-day groundwater travel time, extends 400 ft up gradient and 250 ft down gradient from the source. The maximum width is 300 ft across the source.

Zone three, a 3-year groundwater travel time, extends 1,700 ft up gradient and 250 ft down gradient. The maximum width is 300 ft across.

Zone four, a 15-year groundwater travel time, extends 5,800 ft up gradient to Horse Valley Wash and 250 ft down gradient. The maximum width is 200 ft across.

Well # 4

Zone one is a 100 ft radius measured from the center of the source.

Zone two, a 250-day groundwater travel time, extends 600 ft up gradient and 200 ft down gradient from the source. The maximum width is 700 ft across the source.

Zone three, a 3-year groundwater travel time, extends1,700 ft up gradient and 200 ft down gradient. The maximum width is 900 ft across.

Zone four, a 15-year groundwater travel time, extends 7,100 ft up gradient, short of Horse Valley Wash but within zone 4 of wells # 2 and 3, and 250 ft down gradient. The maximum width is 850 ft across.

Well # 5

Zone one is a 100 ft radius measured from the center of the source.

Zone two, a 250-day groundwater travel time, extends 800 ft up gradient and 100 ft down gradient from the source. The maximum width is 550 ft across the source.

Zone three, a 3-year groundwater travel time, extends 2,100 ft up gradient and 100 ft down gradient. The maximum width is 750 ft across.

Zone four, a 15-year groundwater travel time, extends 5,600 ft up gradient to Horse Valley Wash and 100 ft down gradient. The maximum width is 750 ft across.

2.6 Protected or Unprotected Aquifer Classification-R309-113-9(3) & (6)

This aquifer does not meet the criteria set forth by The State of Utah of a protected aquifer. There is not a protective clay layer thick enough to prevent contamination above it and the wells 2 and 3 were not sealed from the surface; although, wells 4 and 5 were sealed with a cement grout the thickness is less than 100 ft from the surface. This aquifer is unconfined and unprotected.

3.0 Inventory of Potential Contamination Sources

3.1 Possible Potential Contamination Source List

The Table below lists the sources, contact person, substance, and location of each source. The sources are listed in priority order.

Source No.	Source	Name/Address & Phone #	Substance	Location
1.	Wildlife	Jim Crisp, Area Manager Bureau of Land Management 345 E. Riverside Drive St. George, UT 84790 (435) 688-3200	Animal Waste	All Zones
2.	Humans	Jim Crisp, Area Manager Bureau of Land Management 345 E. Riverside Drive St. George, UT 84790 (435) 688-3200	Human Waste	All Zones

3.2 Hazard Identification

The following hazards are identified.

1. Wildlife: Animal waste (bacteria, virus, & protozoa).
2. Humans: Human waste (bacteria & virus).

3.3 Prioritized Inventory

The following list is arranged into a greatest to least risk priority order with the basis for the order.

1. Wildlife: occasionally present, rare chance for disease.
2. Humans: rare usage of land for human waste, rare chance for disease.

3.4 Potential Contamination Source Location

The sources listed can occur area wide within the protection zones. See source protection zone map in *Appendix D.*

3.5 Potential Contamination Source Map

See map in *Appendix D.*

4.0 Potential Contamination Source Hazard Assessment

All hazards are identified in Section 3.2 above may occur. Likelihood, however, is low and quantities are negligible. Adequate controls exist under Bureau of Land Management; both regulatory and operational. There are rules that recreationists are to abide by as they utilize Bureau of Land Management lands, and the B.L.M. has enforcement capabilities to deal with violators.

5.0 Existing Potential Contamination Source Management Plan

Bureau of Land Management policies are in effect throughout the source delineated management area. Current management practices serve as adequate control. B.L.M. policy

manages to protect watershed. This is sufficient under present conditions, and should remain as such indefinitely.

Risk from recreationists and wildlife in negligible. Wildlife, in particular rodents, often become vectors aiding in the spread of pathogenic microorganisms. Most likely, this type of occurrence will not contaminate groundwater. The classes of recreationist to use the area are hikers, or horseback riders. The former group is less impact, and the latter is moderate impact, and neither are risk groups for groundwater contamination. Again, B.L.M. policy is adequate management.

6.0 Future Potential Contamination Source Management Plan

6.1 Management Program

Bureau of Land Management: The area of potential source contamination is B.L.M. managed and is unlikely to allow potential contamination sources.

6.2 Land Ownership Map

See exhibit in *Appendix D.*

6.3 Land Use Agreements or Zoning Ordinances

A copy of the Land Use Agreement with the Bureau of Land Management is located under *Appendix E.* Statements, explaining their commitment to source protection for these sources, as far as their management policies permit, has been requested. See letter in *Appendix F.*

Land Use Agreements may be necessary in the future from private land owners in Zone 4 of northeast quarter, northeast quarter of Section 13, Township 42 south, Range 11 west, Salt Lake Base & Meridian.

7.0 Implementation Schedule

Implementation of this Source Protection Plan will occur within six months of approval of the plan by the Division of Environmental Quality. An annual review by Rockville Pipeline Company of potential contamination source status will be held prior to December 31st. The water company will focus on problem areas and determine if more stringent controls are needed.

8.0 Resource Evaluation

Rockville Pipeline Company is a municipally controlled utility.

Monies are generated through user rate and connection fees. Funds are limited and as a rule are earmarked for a particular use in any given fiscal year. The majority of the items identified in the plan will be implemented with minimal or no cost.

9.0 Record Keeping

The following records are to be kept on file by the Rockville Pipeline Company:

1. Implementation records specific to particular items in the management plan listing potential contaminants protected against; dates of implementation, and action taken including but not limited to minutes of meetings, training sessions, and public education programs.
2. Copies of land use agreements. Original agreements with private landowners must be on file in the Washington County Recorder's office. Statements from federal land management agencies do not need to be recorded with the County Recorder but must be kept on file in Water Company records.
3. Changes to the Source Protection Plan.

10.0 Contingency Plan

10.1 Emergency Response Plan

1. Hazardous Waste Spills
   - A. Contact essential health and safety officials, i.e. Washington County Sheriffs Department, Utah Highway Patrol, Bureau of Land Management, etc.
   - B. Contact the District Engineer with the Utah Department of Environmental Quality.
   - C. Work with authorities as necessary to expedite containing and cleaning up spill.
2. Earthquakes
   - A. Attempt to locate waterline breaks.
   - B. Mobilize forces to make repairs.
   - C. Evaluate extent of possible contamination; sample as necessary.
   - D. Institute a "boil order" if needed; notify public when "boil order" is removed.

10.2 Rationing Plan

Should water supplies become less than necessary for municipal use, for whatever reasons, the Rockville Pipeline Company may be required to ration water in order to sustain critical supplies. It is assumed that conditions requiring rationing will be short term. The main objective during periods of low water supplies is to maintain sufficient quantities for basic hygiene and culinary needs. Items 1 and 2 are planning items to prepare for possible rationing. Items 3 through 6 are actions the Water Company may be forced to take based upon the severity of the water shortage.

1. Evaluate source capacity and establish action level for implementation of rationing.

2. Develop multiple scenarios with estimates on duration of rationing, based on various low flow quantities and the number of active and future water connections.
3. Notify the public as to possible rationing.
4. Request voluntary reduction of outside watering.
5. Implement mandatory outside watering schedule.
6. Implement additional mandatory water use reduction measures.

10.3 Water Supply Decontamination Plan

The following items constitute a plan for dealing with water supply contamination within Rockville's water system. The plan will be administeredand implemented by the Rockville Pipeline Company, under the direction of the President.

1. Basically the Water Company will follow the State Drinking Water Rules concerning Monitoring, Reporting, and Public Notification as per Section R309-104.
2. If continued monitoring shows a contaminant to be persistent over time, methods for eliminating the contaminant will be reviewed. The review will include available options, relative effectiveness as well as ease and cost of implementation of options.
3. Should all available treatment alternatives prove ineffective or cost prohibitive, abandonment of the source may be the only responsible course of action.

10.4 Source Development Plan

1. Complete a population growth evaluation.
2. Determine the quantity of water required by future populations.
3. Evaluate existing water rights.
4. Work with Utah Division of Water Rights in resolving existing water right concerns if any.

5. Identify potential future sources.
6. File application(s) with the Utah Division of Water Rights to appropriate additional water rights, if able.
7. Acquire additional water rights from other users if opportunities are available.
8. Establish reserve account for source development.
9. Stay current on state and federal funding agency status and policy on source development loans or grants.
10. Stay current on state regulations pertaining to source development.

WAIVERS

Rockville Pipeline Company should not need any more testing of pesticides and VOCs because of the location of the well. The Company is requesting a Use Waiver for all water sources. To complete the use waiver, the Company has verified that none of the chemicals or pesticides in the parameter groups have been used. A statement indicating that none of the pesticides or VOCs within the respective parameter groups have been used, disposed, stored, transported or manufactured within the protection area was signed by the system's designated person. See the attached letter in *Appendix G* with such statement.

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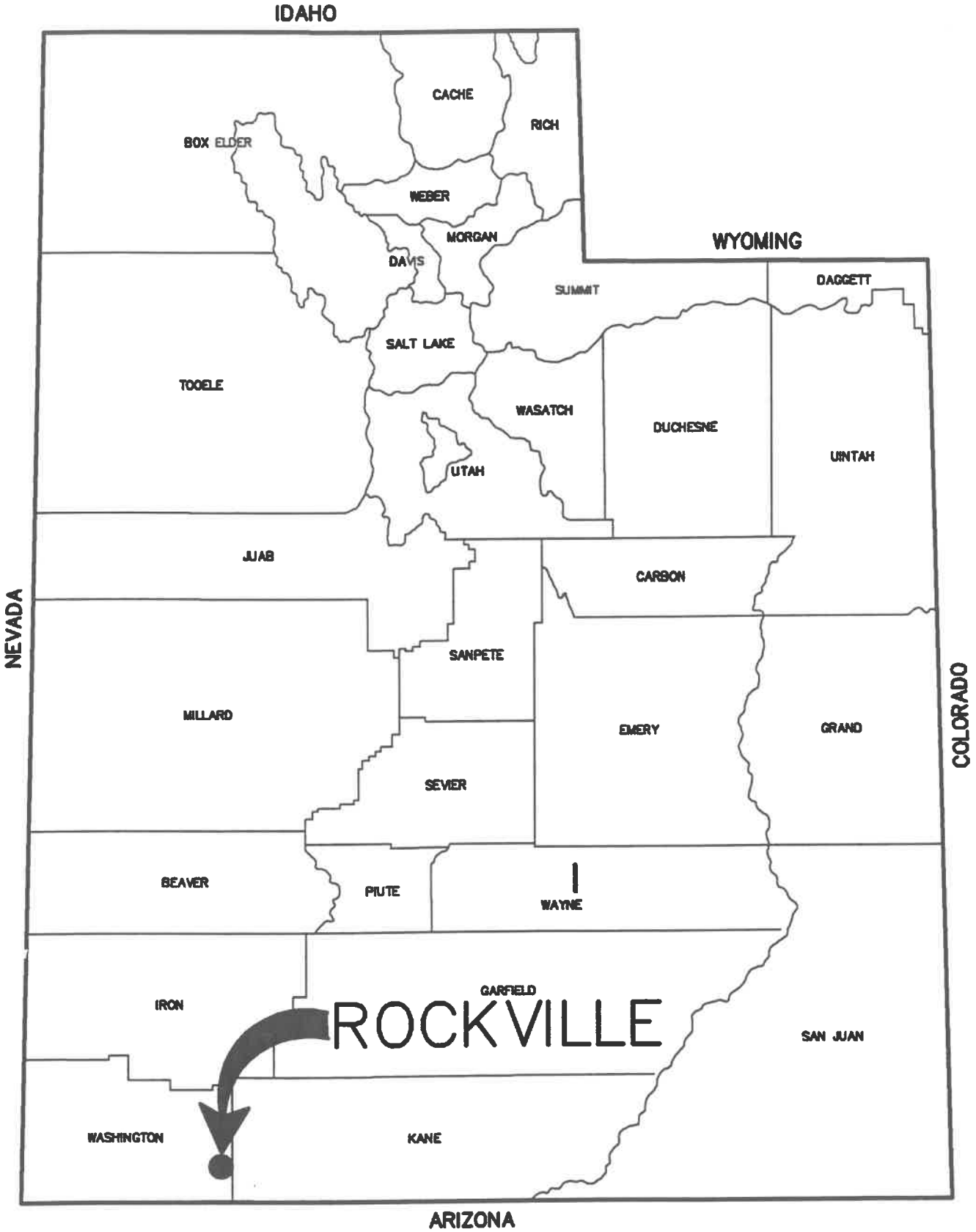
Appendix A

Figures



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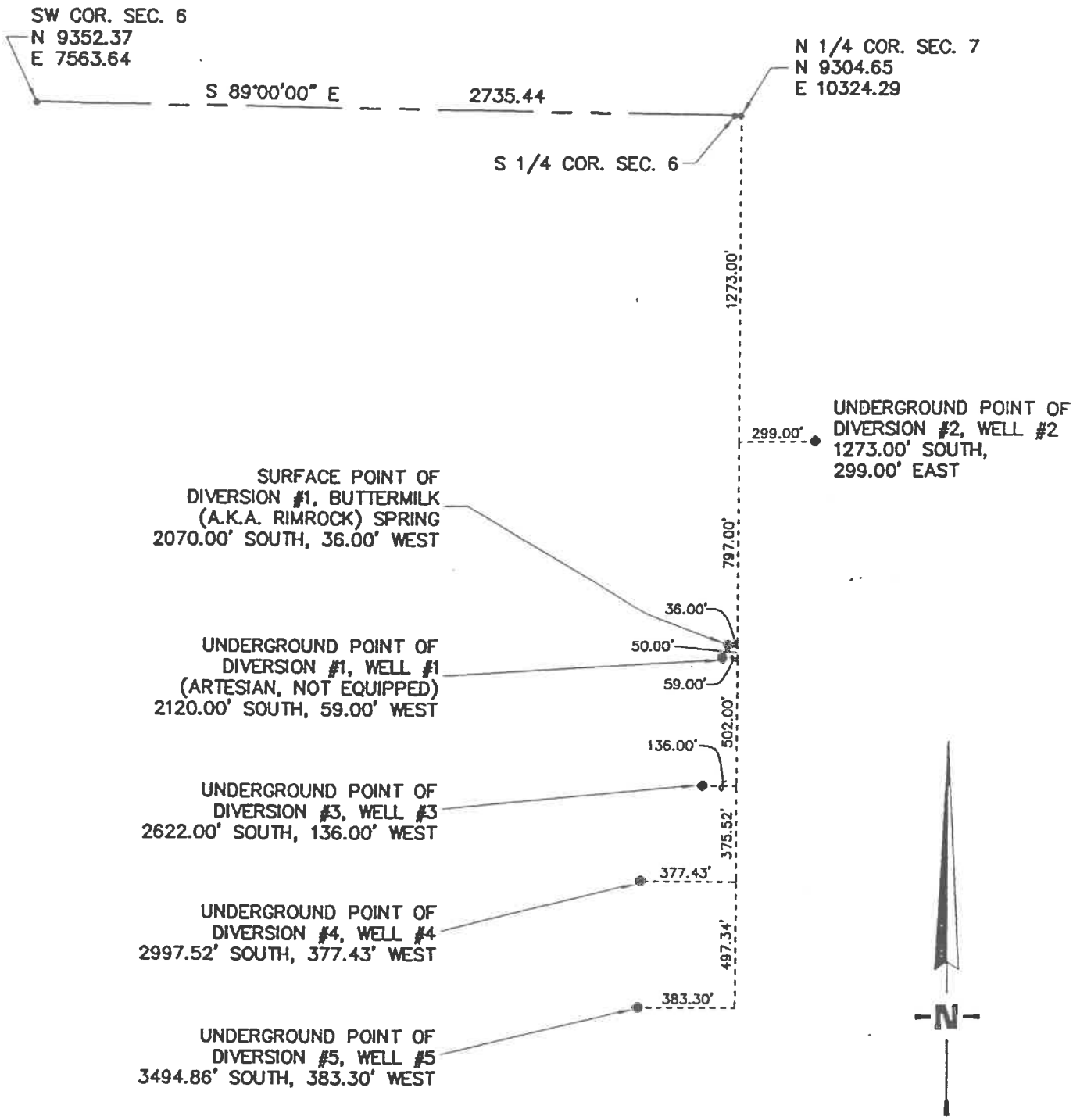
Rockville Location Map

Washington County

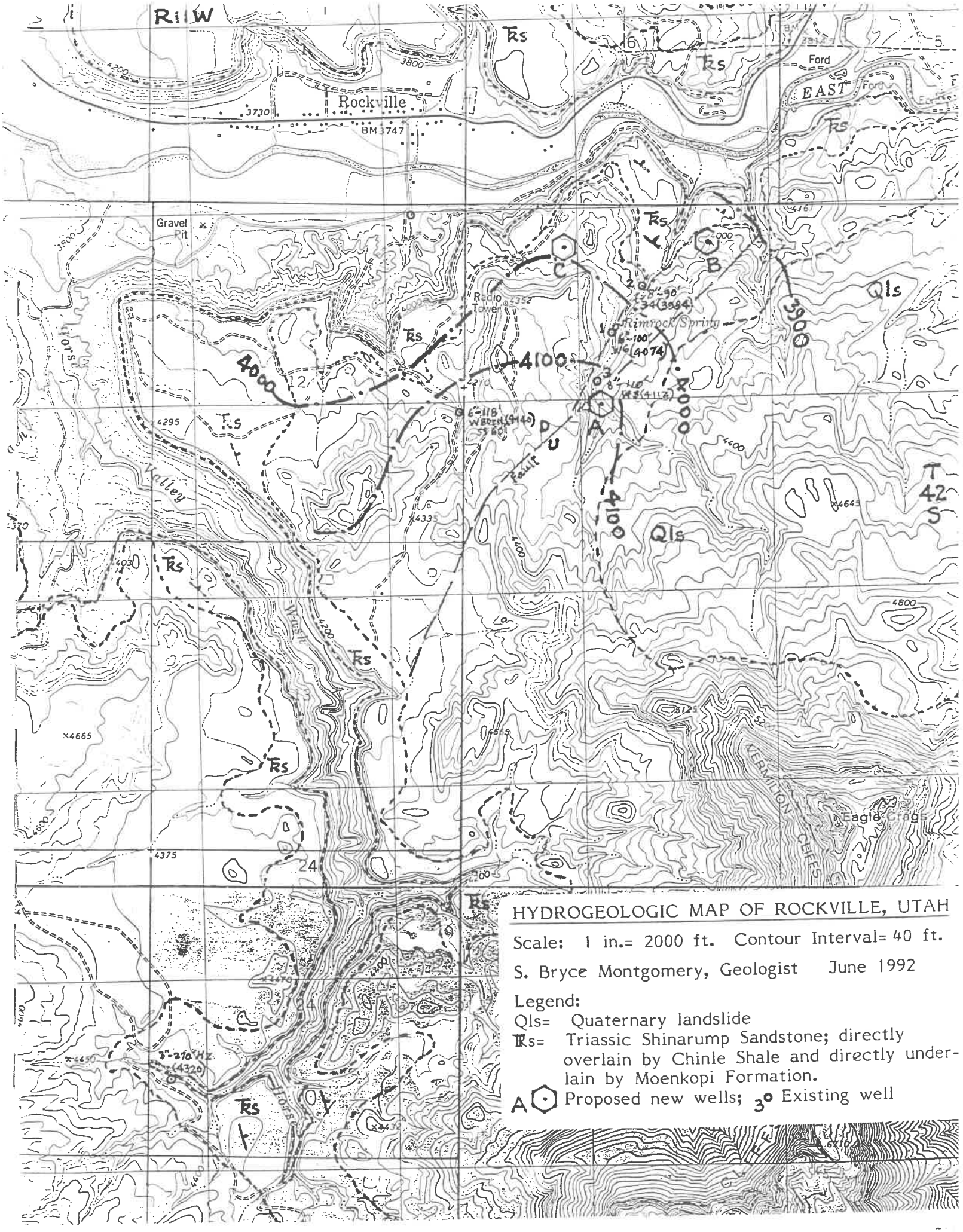
SCALE: NTS	ENG.: T.D.D.	PROJ.#: 9811-054
DATE: DEC. 1998	DWG.BY: T.E.J.	DWG.NAME: rocville_loc



STATE OF UTAH
TRISTAN D. DEMILLE
NO. 5621
REGISTERED PROFESSIONAL ENGINEER

PROOF OF DIVERSION AND USE OF WATER STATE OF UTAH

APPLICATION NO.	WATER RIGHT NO.	
(a16918)	81-106, 81-395, 81-450	
APPLICANT: ROCKVILLE TOWN		
DATE: SEPT. 1995	SCALE: 1" = 600'	
ENGINEER: JONES & DEMILLE ENGINEERING 45 East 500 South Richfield, Utah 84701		



HYDROGEOLOGIC MAP OF ROCKVILLE, UTAH

Scale: 1 in.= 2000 ft. Contour Interval= 40 ft.

S. Bryce Montgomery, Geologist June 1992

Legend:

Qls= Quaternary landslide

Trs= Triassic Shinarump Sandstone; directly overlain by Chinle Shale and directly underlain by Moenkopi Formation.

A ⊙ Proposed new wells; ⊙ Existing well

Appendix B

Well Logs

Utah Division of Water Rights

Water Well Log

LOCATION: Well #4

S 1320 ft E 4300 ft ~~from NW CORNER~~ of SECTION 7 T 42S R 10W BASE SL
WELL LOG SHOWS: S3580 E2420 - PER DRILLER 06/28/93

DRILLER ACTIVITIES:

ACTIVITY # 1 NEW WELL
DRILLER: Fletcher Drilling Company LICENCE #
START DATE: 05/19/1993 COMPLETION DATE: 06/08/1993

BOREHOLE INFORMATION:

Depth(ft) From	To	Diameter(in)	Drilling Method	Drilling Fluid
0	111	12.0	CABLE TOOL	WATER

LITHOLOGY:

Depth(ft) From	To	Lithologic Description
0	22	SAND,GRAVEL
		ALLUNIAL
22	26	CLAY
26	38	CLAY
38	54	OTHER
54	78	OTHER
		COARSE PARTICLES
78	100	OTHER
		HARDER-CLEAN
100	107	OTHER
		FINE
107	111	OTHER
		ENTERING RED SHALE LAYER

CONSTRUCTION - CASING:

Depth(ft) From	To	Material	Gage(in)	Diameter(in)
0	111	STEEL	.322	8.00

CONSTRUCTION - SCREENS/PERFORATIONS:

Depth(ft) From	To	Screen(S) or Perforation(P)	Slot/Perf. siz	Screen Diam/Le
48	111	PERFORATION	.250	6.00

CONSTRUCTION - FILTER PACK/ANNULAR SEALS

Depth(ft) From	To	Material	Amount	Density(pcf)
0	44	CEMENT GROUT	3.5	12
44	111	GRAVEL PACK		

WELL TESTS:

Date	Test Method	Yield (CFS)	Drawdown (ft)	Time Pumped (hr
05/28/1993	BLASTING	.000		

Utah Division of Water Rights

Water Well Log

well A

Well #5

LOCATION:
S 2950 ft E 2400 ft from NW CORNER of SECTION 7 T 42S R 10W BASE SL

DRILLER ACTIVITIES:
ACTIVITY # 1 NEW WELL
DRILLER: Fletcher Drilling Company LICENCE #
START DATE: 03/04/1993 COMPLETION DATE: 06/09/1993

BOREHOLE INFORMATION:

Depth(ft) From	To	Diameter(in)	Drilling Method	Drilling Fluid
0	119	12.0	CABLE TOOL	WATER

LITHOLOGY:

Depth(ft) From	To	Lithologic Description
0	33	SAND ALLUVIAL-SAND & SOFT SANDSTONE ROCKS
33	50	OTHER COARSE
50	75	OTHER LARGER PARTICLES
75	100	OTHER FINER
100	106	OTHER FINE-ENCOUNTERED SMALL SEAM OF COAL
106	110	OTHER
110	119	OTHER

WATER LEVEL DATA:

Date	Time	Water Level (feet) (-)above ground	Status
03/31/1993		29.00	

CONSTRUCTION - CASING:

Depth(ft) From	To	Material	Gage(in)	Diameter(in)
0	98	STEEL	.322	

CONSTRUCTION - SCREENS/PERFORATIONS:

Depth(ft) From	To	Screen(S) or Perforation(P)	Slot/Perf. siz	Screen Diam/Le
45	98	PERFORATION	.250	6.00

CONSTRUCTION - FILTER PACK/ANNULAR SEALS

Depth(ft) From	To	Material	Amount	Density(pcf)
0	45	CEMENT GROUT	3.5	6.5
9	119	FILLED IN WITH GROUT		
45	98	GRAVEL PACK		

Form 113–114–1140

Examined 6-30-71 [illegible]
Recorded: [illegible] 6-30-71 [illegible]
Inspection Sheet 6-30-71 [illegible]
Copied 6-30-71 [illegible]

REPORT OF WELL DRILLER
STATE OF UTAH

[illegible] Application No. [illegible]
Claim No. ____
Coordinate No. (C-42-10) 7 [illegible]

GENERAL STATEMENT: Report of well driller is hereby made and filed with the State Engineer, in accordance with the laws of U[tah] (This report shall be filed with the State Engineer within 30 days after the completion or abandonment of the well. Failure to file [such] reports constitutes a misdemeanor.)

(1) WELL OWNER:
Name Rockville Pipeline Co. % C.C. [illegible]
Address Rockville, Utah 84763

(2) LOCATION OF WELL:
County Wash[ington] Ground Water Basin ____ (leave blank)

North 1350 feet, East 2950 feet from NW Corner of Section 7, T. 42 S, R. 10 W SLBM (strike out words not needed)

(3) NATURE OF WORK (check):
New Well ☒ Replacement Well ☐ Deepening ☐ Repair ☐ Abandon ☐
If abandonment, describe material and procedure: ____

(4) NATURE OF USE (check):
Domestic ☐ Industrial ☐ Municipal ☒ Stockwater ☐
Irrigation ☐ Mining ☐ Other ☐ Test Well ☐

(5) TYPE OF CONSTRUCTION (check):
Rotary ☐ Dug ☐ Jetted ☐
Cable ☒ Driven ☐ Bored ☐

(6) CASING SCHEDULE: Threaded ☐ Welded ☒
8" Diam. from 0 feet to 7 feet Gage .250
____" Diam. from ____ feet to ____ feet Gage ____
____" Diam. from ____ feet to ____ feet Gage ____
New ☐ Reject ☒ Used ☐

(7) PERFORATIONS: Perforated? Yes ☐ No ☒
Type of perforator used ____
Size of perforations ____ inches by ____ inches
____ perforations from ____ feet to ____ feet
____ perforations from ____ feet to ____ feet
____ perforations from ____ feet to ____ feet
____ perforations from ____ feet to ____ feet
____ perforations from ____ feet to ____ feet

(8) SCREENS: Well screen installed? Yes ☐ No ☒
Manufacturer's Name ____
Type ____ Model No. ____
Diam. ____ Slot size ____ Set from ____ ft. to ____
Diam. ____ Slot size ____ Set from ____ ft. to ____

(9) CONSTRUCTION:
Was well gravel packed? Yes ☐ No ☒ Size of gravel: ____
Gravel placed from ____ feet to ____ feet
Was a surface seal provided? Yes ☐ No ☒
To what depth? ____ feet
Material used in seal: ____
Did any strata contain unusable water? Yes ☐ No ☒
Type of water: ____ Depth of strata ____
Method of sealing strata off: ____

Was surface casing used? Yes ☐ No ☒
Was it cemented in place? Yes ☐ No ☒

(10) WATER LEVELS:
Static level -34 feet below land surface Date June 10, 1971
Artesian pressure ____ feet above land surface Date ____

LOG RECEIVED: [illegible stamp]

(11) FLOWING WELL:
Controlled by (check) Valve ☐
Cap ☐ Plug ☐ No Control ☐
Does well leak around casing? Yes ☐ No ☐

(12) WELL TESTS:
Drawdown is the distance in feet the water level is lowered below static level.
Was a pump test made? Yes ☐ No ☒ If so, by whom? ____
Yield: ____ gal./min. with ____ feet drawdown after ____
" ____ " ____ " ____
" ____ " ____ " ____
Bailer test ____ gal./min. with ____ feet drawdown after ____
Artesian flow ____ g.p.m. Date ____
Temperature of water ____ Was a chemical analysis made? No ☐ Ye[s] ☐

(13) WELL LOG:
Diameter of well 8
Depth drilled 90 feet. Depth of completed well 90

NOTE: Place an "X" in the space or combination of spaces needed to designate the ma[terial] or combination of materials encountered in each depth interval. Under REMARKS ma[ke] desirable notes as to occurrence of water and the color, size, nature, etc., of materia[ls en]countered in each depth interval. Use additional sheet if needed.

From	To	Clay	Silt	Sand	Gravel	Cobbles	Boulders	Hardpan	Conglomerate	Bedrock	Other	REMARKS
0	1			X	X							
1	25									X		[illegible]
25	37									X		[illegible]
37	65									X		[illegible]
65	73									X		[illegible]
73	85									X		[illegible]
85	90									X		[illegible]

Work started June 3, 1971 Completed June 10, 19[71]

(14) PUMP:
Manufacturer's Name ____
Type: ____ H. P. ____
Depth to pump or bowls ____ feet

Well Driller's Statement:
This well was drilled under my supervision, and this report is tru[e to] the best of my knowledge and belief.

Name [illegible] Well Drilling (Person, firm, or corporation) (Type or print)
Address [illegible], Utah 84737
(Signed) [illegible signature] (Well Driller)
License No. [illegible] Date June 27, 19[71]

USE OTHER SIDE FOR ADDITIONAL REMARKS

Form 113–3M–1160

Examined ... Recorded ... Inspection Sheet ... Predistilled ...

REPORT OF WELL DRILLER
STATE OF UTAH

Application No. 32732
Claim No.
Coordinate No.

GENERAL STATEMENT: Report of well driller is hereby made and filed with the State Engineer, in accordance with the laws of Utah. (This report shall be filed with the State Engineer within 30 days after the completion or abandonment of the well. Failure to file such reports constitutes a misdemeanor.)

(1) WELL OWNER:
Name: Rockville Fire Line Co.
Address: Rockville Utah

(2) LOCATION OF WELL:
County: Wash. Ground Water Basin (leave blank)
North 923 feet West ... of Section 7, T. 42 S., R. 10 W. S.L.B.M. (strike out words not needed)

(3) NATURE OF WORK (check): New Well ☑ Replacement Well ☐ Deepening ☐ Repair ☐ Abandon ☐
If abandonment, describe material and procedure:

(4) NATURE OF USE (check): Domestic ☐ Industrial ☐ Municipal ☑ Stockwater ☐ Irrigation ☐ Mining ☐ Other ☐ Test Well ☐

(5) TYPE OF CONSTRUCTION (check): Rotary ☐ Dug ☐ Jetted ☐ Cable ☒ Driven ☐ Bored ☐

(6) CASING SCHEDULE: Threaded ☐ Welded ☒
6" Diam. from 0 feet to 36 feet Gage
" Diam. from feet to feet Gage
" Diam. from feet to feet Gage
New ☐ Rejected ☐ Used ☐

(7) PERFORATIONS: Perforated? Yes ☐ No ☐
Type of perforator used
Size of perforations inches by inches
perforations from feet to feet (×5)

(8) SCREENS: Well screen installed? Yes ☐ No ☐
Manufacturer's Name
Type Model No.
Diam. Slot size Set from ft. to ft.
Diam. Slot size Set from ft. to ft.

(9) CONSTRUCTION:
Was well gravel packed? Yes ☐ No ☐ Size of gravel:
Gravel placed from feet to feet
Was a surface seal provided? Yes ☐ No ☐
To what depth? feet
Material used in seal
Did any strata contain unusable water? Yes ☐ No ☐
Type of water: Depth of strata
Method of sealing strata off:
Was surface casing used? Yes ☑ No ☐
Was it cemented in place? Yes ☐ No ☐

(10) WATER LEVELS:
Static level 6 feet below land surface Date
Artesian pressure feet above land surface Date

DATE RECEIVED: [stamp: STATE ENGINEER ... RECEIVED]

(11) FLOWING WELL:
Controlled by (check) Valve ☐ Cap ☐ Plug ☐ No Control ☐
Does well leak around casing? Yes ☐ No ☐

(12) WELL TESTS: Drawdown is the distance in feet the water level is lowered below static level.
Was a pump test made? Yes ☐ No ☐ If so, by whom?
Yield gal./min. with feet drawdown after hours
Bailer test gal./min. with feet drawdown after hours
Was a chemical analysis made? Yes ☐ No ☐

(13) WELL LOG: Diameter of well 6 inches
Depth drilled 100 feet. Depth of completed well 100 feet

NOTE: Place an "X" in the space or combination of spaces needed to designate the material or combination of materials encountered in each depth interval. Under REMARKS make an elaboration... of water and the color, size, nature, etc., of material encountered in each depth interval. Use additional sheet if needed.

From	To	Clay	Silt	Sand	Gravel	Cobbles	Boulders	Hardpan	Conglomerate	Bedrock	Other	REMARKS
0	36			X								sandy loam
36	94											sand gravel
94	100											red shale

Work started MAR. 24, 1961 Completed MAR. 25, 19..

(14) PUMP:
Manufacturer's Name
Type: H. P.
Depth to pump or bowls feet

Well Driller's Statement:
This well was drilled under my supervision, and this report is true to the best of my knowledge and belief.

Name (Person, firm, or corporation) (Type or print)
Address
(Signed) Preston C. Broadbent (Well Driller)
License No. 111 Date 19..

Form 113 ... 4-60
Examined 7-11-60 NCT.
Recorded: ... 7-11-60 ... 7-11-...
Inspection Sheet ... 7-18-60
Coded

REPORT OF WELL DRILLER
STATE OF UTAH

Application No. 32861 #1 of ...
Claim No.
Coordinate No. (C-42-11)12 ...

GENERAL STATEMENT: Report of well driller is hereby made and filed with the State Engineer, in accordance with the laws of U... (This report shall be filed with the State Engineer within 30 days after the completion or abandonment of the well. Failure to file ... reports constitutes a misdemeanor.)

(1) WELL OWNER:
Name Emmaline Terry
Address Rockville, Utah

(2) LOCATION OF WELL:
County Washington Ground Water Basin (leave blank)
North 438 feet, West 75 ... ... E ...
of Section 12, T. 42 S., R. 11 W. USM (strike out words not needed)

(3) NATURE OF WORK (check): New Well X
Replacement Well ☐ Deepening ☐ Repair ☐ Abandon ☐
If abandonment, describe material and procedure:

(4) NATURE OF USE (check):
Domestic X Industrial ☐ Municipal ☐ Stockwater ☐
Irrigation ☐ Mining ☐ Other ☐ Test Well ☐

(5) TYPE OF CONSTRUCTION (check):
Rotary ☐ Dug ☐ Jetted ☐
Cable X Driven ☐ Bored ☐

(6) CASING SCHEDULE: Threaded ☐ Welded X
6 5/8 OD" Diam. from 0 feet to 61 feet Gage 3/16
" Diam. from ... feet to ... feet Gage
" Diam. from ... feet to ... feet Gage
New X Reject ☐ Used

(7) PERFORATIONS: Perforated? Yes ☐ No X
Type of perforator used
Size of perforations ... inches by ... inches
... perforations from ... feet to ... feet
... perforations from ... feet to ... feet
... perforations from ... feet to ... feet
... perforations from ... feet to ... feet
... perforations from ... feet to ... feet

(8) SCREENS: Well screen installed? Yes ☐ No ☐
Manufacturer's Name
Type ... Model No.
Diam. ... Slot size ... Set from ... ft. to ...
Diam. ... Slot size ... Set from ... ft. to ...

(9) CONSTRUCTION:
Was well gravel packed? Yes ☐ No ☐ Size of gravel:
Gravel placed from ... feet to ... feet
Was a surface seal provided? Yes ☐ No ☐
To what depth? ... feet
Material used in seal:
Did any strata contain unusable water? Yes ☐ No ☐
Type of water: ... Depth of strata ...
Method of sealing strata off:

Was surface casing used? Yes X No ☐
Was it cemented in place? Yes ☐ No ☐

(10) WATER LEVELS:
Static level ... feet below land surface Date
Artesian pressure ... feet above land surface Date

DATE RECEIVED: ... (stamp)

(11) FLOWING WELL:
Controlled by (check) Valve ☐
Cap ☐ Plug ☐ No Control ☐

(12) WELL TESTS: Drawdown is the distance in feet the water level is lowered below static level.
Was a pump test made? Yes ☐ No ☐ If so, by whom?
Yield: ... gal./min. with ... feet drawdown after
Bailer test 30 ... gal./min. with ... feet drawdown after
Artesian flow ... Date
Temperature ... Was a chemical analysis made? No ☐ Yes

(13) WELL LOG: Diameter of well 6 5/8
Depth drilled 118 feet. Depth of completed well

NOTE: Place an "X" in the space or combination of spaces needed to designate the material or combination of materials encountered in each depth interval. Under REMARKS make desirable notes as to occurrence of water and the color, size, nature, etc. of materials encountered in each depth interval. Use additional sheet if needed.

DEPTH From	DEPTH To	Clay	Silt	Sand	Gravel	Cobbles	Boulders	Hardpan	Conglomerate	Bedrock	Other	REMARKS
0	8										X	top soil
8	40	X										red
40	60	X										blue
60	118										X	white sandstone

58'

Work started 6-60, 19 60 Completed 6-60

(14) PUMP:
Manufacturer's Name
Type: ... H. P.
Depth to pump or bowles ... feet

Well driller's statement:
This well was drilled under my supervision, and this report is true to the best of my knowledge and belief.

Name ... (Person, firm, or corporation) (Type or print)
Address
(Signed) Preston ... Pendleton ...

Appendix C

Calculations of Aquifer Parameters

$K = (10\ gpd/ft^2)\left(\frac{1\ cf}{7.48\ gal}\right) = 1.337\ ft/day \Rightarrow$

$T = well_4 = Kb = (1.34\ ft/day)(63\ ft) = 84.42\ ft^2/day$

$T well 5 = Kb = (1.34\ ft/day)(53\ ft) = 71.02\ ft^2/day$

$i\ well_4 = 0.046$ $i\ well_5 = 0.059$

$i\ well_3 = 0.046$ $i\ well_2 = 0.045$

Barrier distances 500'
200'
100'
750'

flow dir = 45°

η = 5%

η = 10% for wells closer to the fault.

$T =$

$Q =$

$$K = (10\ gpd/ft^2)\left(\frac{1\ cf}{7.48\ gal}\right) = 1{,}337\ ft/day \Rightarrow$$

Well 4 $T = Kb = (1.34\ ft/day)(63\ ft) = 84.42\ ft^2/day \Rightarrow$

Well 5 $T = Kb = (1.34\ ft/day)(53\ ft) = 71.02\ ft^2/day \Rightarrow$

$i_{well4} = 2200'/100 = 0.046$

$i_{well5} = 1{,}700'/100 = 0.059$

$Barrier_4 = 500'$

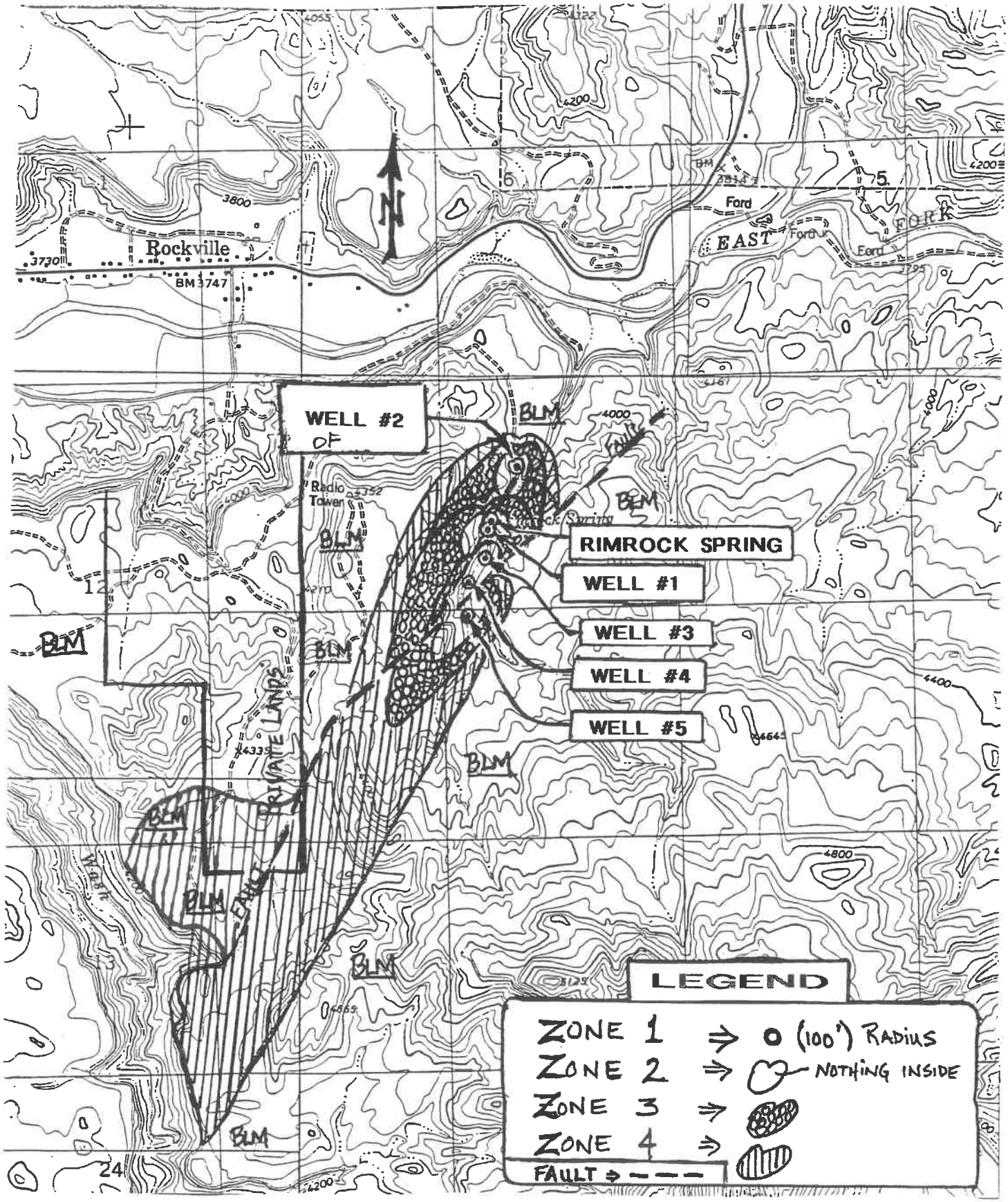
$Barrier_5 = 200'$

flow dir = 225°

$\eta = 5\% - 10\%$

Appendix D

Rockville Source Protection Zones



Jones & DeMille Engineering
225 N. Bluff Suite #12 St. George, Utah 84770
(435) 656-0257 Voice
(435) 656-3849 Fax

ROCKVILLE

SOURCE PROTECTION ZONES

Appendix E

Bureau of Land Management Right-of-Way Grant

FORM 2800-14
(August 1985)

Issuing Office:
Cedar City District Office

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
RIGHT-OF-WAY GRANT

SERIAL NUMBER UTU-69516

1. A right-of-way is hereby granted pursuant to Title V of the Federal Land Policy and Management Act of October 21, 1976 (90 Stat. 2776; 43 U.S.C. 1761).

2. Nature of Interest:

   a. By this instrument, the holder:

   Rockville Pipeline Company
   P.O. Box 157
   Rockville, UT 84763

   receives a right to construct, operate, maintain, and terminate three water wells (wells 4, 5, & 6) with access roads, buried pipelines and powerlines to the wells, on public lands described as follows:

   Salt Lake Meridian:
   T. 42 S., R. 10 W., sec. 7, NE¼, NE¼NW¼, NE¼SW¼

   b. The right-of-way or permit area granted herein is 30' wide and 3825' long for road and utilities and 100' X 100' each for three wells and contains 3.32 acres, more or less. The permitted area for construction is 50' wide, 3825' long for road and utilities, and 100' X 100' each for three wells, and contains 5.08 acres more or less.

   c. This instrument shall terminate on 11/24/2022, 30 years from the effective date of this grant unless, prior thereto, it is relinquished, abandoned, terminated, or modified pursuant to the terms and conditions of this instrument or of any applicable Federal law or regulation.

   d. This instrument may be renewed. If renewed, the right-of-way or permit shall be subject to the regulations existing at the time of renewal and any other terms and conditions that the authorized officer deems necessary to protect the public interest.

   e. Notwithstanding the expiration of this instrument or any renewal thereof, early relinquishment, abandonment, or termination, the provisions of this instrument, to the extent applicable, shall continue in effect and shall be binding on the holder, its successors, or assigns, until they have fully satisfied the obligations and/or liabilities accruing herein before or on account of the expiration, or prior termination, of the grant.

3. Rental:

   For and in consideration of the rights granted, the holder agrees to pay the Bureau of Land Management fair market value rental as determined by the authorized officer unless specifically exempted from such payment by regulation. Provided, however, that the rental may be adjusted by the authorized officer, whenever necessary, to reflect changes in the fair market rental value as determined by the application of sound business management principles, and so far as

practicable and fea ., in accordance with comparable comm al practices.

4. Terms and Conditions:

a. This grant or permit is issued subject to the holder's compliance with all applicable regulations contained in Title 43 Code of Federal Regulations part 2800.

b. Upon grant termination by the authorized officer, all improvements shall be removed from the public lands within 90 days, or otherwise disposed of as provided in paragraph (4)(d) or as directed by the authorized officer.

c. Each grant issued for a term of 20 years or more shall, at a minimum, be reviewed by the authorized officer at the end of the 20th year and at regular intervals thereafter not to exceed 10 years. Provided, however, that a right-of-way or permit granted herein may be reviewed at any time deemed necessary by the authorized officer.

d. The stipulations, plans, maps, or designs set forth in Exhibit A, dated 11/19/92, attached hereto, are incorporated into and made a part of this grant instrument as fully and effectively as if they were set forth herein in their entirety.

e. Failure of the holder to comply with applicable law or any provision of this right-of-way grant or permit shall constitute grounds for suspension or termination thereof.

f. The holder shall perform all operations in a good and workmanlike manner so as to ensure protection of the environment and the health and safety of the public.

g. The holder of Right-of-Way UTU-69516 agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601 et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

h. Holder shall remove only the minimum amount of vegetation necessary for the construction of the facilities. Tree removal will be avoided whenever practicable. The holder shall trim trees in preference to cutting trees.

i. Waterbars shall be constructed according to the following table unless otherwise approved in writing by the authorized officer:

Slope	Spacing (feet)
2-5%	100
6-10%	75
10% or Greater	50

Waterbars shall be constructed within three days following refilling of the pipeline trench.

j. The holder shall conduct all activities associated with the construction, operation, and termination of the right-of-way within the authorized limits of the right-of-way.

k. The holder shall seed all disturbed areas with the seed mix listed below, using an agreed upon method suitable for the location. Seeding shall be repeated if a

satisfactory stand i. obtained as determined by the author officer upon evaluation after the second growing season.

Seed Mixture

Species of Seed	Pounds/Acre PLS
Indian ricegrass	2.00
Sand dropseed	0.50
Desert almond	2.00

l. Construction sites shall be maintained in a sanitary condition at all times; waste materials at those sites shall be disposed of promptly at an appropriate waste disposal site. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, oil drums, petroleum products, ashes, and equipment.

m. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the authorized officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discovery will be made by the authorized officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the authorized officer after consulting with the holder.

IN WITNESS WHEREOF, The undersigned agrees to the terms and conditions of this right-of-way grant or permit.

(Signature of Holder)	Dale Rowe (Signature of Authorized Officer)
PRES Rockville Pipeline CO. (Title)	acting Area Manager (Title)
11-23-92 (Date)	11-24-92 (Effective Date of Grant)

RIGHT-OF-WAY
PLAN OF DEVELOPMENT

EXHIBIT A 11/19/92

Applicant Name _____

I. Purpose and Need for the Facility

A. What is to be built? 3 culinary water wells and appurtenances including access roads, 2" to 3" water line, and power lines to provide power for the pumps.

1. Major facilities? The wells will be equipped with submersible pumps so there will be no need for a building to house the pump equipment. The power can go underground if need be or overhead. The wells will be piped to an existing transmi line that flows to the culinary water storage tank.

2. Ancillary facilities? _____

B. What will it be used for? culinary water for Rockville Town.

C. What is the size of the facility? The wells will be 8" to 12" and the culinary water pipelines from the wells will be 2" to 3" depending on well flow.

D. Are there any alternative routes or locations for the proposed right-of-way? None

Via telephone call to Tristan Demille 10-14-92 D. Ross

II. Facility Design Factors

A. What is the permanent width of the right-of-way? A 100' ~~Radius~~ X 100' R/W around the well head and 30 feet for the water, power lines, and road.

B. Are extra width and/or temporary work areas needed? Road R/W during construction will vary, will be 50' to 100' depending on the terrain.

III. Right-of-Way Location

A. Legal description of the right-of-way. See attached map and descriptions of well locatio and proposed road and utility right of ways.

B. Maps of adequate detail to locate the right-of-way and related facilities on the ground and those needed for notation on the Bureau records (attach to the back of plan).

C. Acreage calculation of the right-of-way by land status.
100' radius well head protection zone 0.54 acres±
Access roads and utilities approximately 5.5 acres.

5.4 ac.

IV. Resource Values and Environmental Concerns

Will the proposed right-of-way conflict with any other Federal agency, State or local government, land use plan, or zoning restrictions? No

V. Construction of the Facility

A. Describe any flagging and staking planned for the right-of-way. R/W can be walked with the BLM representatives.

B. Shall the entire right-of-way be cleared and graded? The 100 foot radius point around the well heads will not require clearing or grading. The other right of ways will only be cleared as needed for construction of the utilities road.

C. Will topsoil be saved and respread? In the engineers opinion there is very little if any topsoil present in the rocky sand and in some areas mancos shale and sandstone. Very little vegetation exists, and in most areas none.

D. Access to and along the right-of-way during construction. During construction the existing R/W road will be used.

E. Safety requirements. Standard construction practices will be used in constructing the accesses and utilities.

F. Waste disposal (including toxic and hazardous). None.

G. Fire plans (preventive measures, suppression actions, etc.). There is little vegetation in the area. Guidelines established by the BLM will be observed during construction.

VI. Stabilization and Rehabilitation

A. Soil replacement and stabilization (recontouring, waterbars, etc). Water bars will be placed at locations and at intervals required to stop erosion. Roads cut into hillsides will be sloped into the hill and drainage will be provided in such a way as to limit er

B. Disposal of trees, stumps, and brush cut on the right-of-way. Trees and brush will be buried the road fills when ever possible. Those that cannot be buried will be stock pile in a location acceptable to the BLM.

C. Is reseeding of the right-of-way required? If BLM requires seeding this will be done.

2. Location of electrical transmission lines which may interfere with the cathodic protection of the pipelines. The electrical lines will be located in a separate trench from the pipeline.

III. Additional Components of the Right-of-Way

A. Connection to an existing right-of-way. The proposed rights of way are all connected to existing roads and pipelines.

B. Location of pumping and/or compression stations. See the attaches map. Pumping will be submersible motor and pump.

C. The need for sand and gravel supplies from public lands during construction and operation of the facility. None Needed.

IV. Governmental Agency Involvement. The Bureau will not use the plan of development as a clearinghouse for all required Federal, State and local permits. The permits the Bureau can reasonably expect to be aware of include, but are not limited to:

A. Corps of Engineers Section 404 Permits.

B. State, Water Engineers permits for water pipelines.

V. Operation and Maintenance of the Facility

A. Will new or expanded access to and along the right-of-way be needed? No the roads constructe will be maintained and will provide access to the well heads.

B. Will removal and/or addition of pipe and/or pumps be required as part of routine pipeline maintenance? The pipeline will not by modified unless a break should occur. The pumps will require a removal for maintenance purposes. The interval will vary on the average every 10 years.

C. Will all maintenance activities be confined to the right-of-way? Yes.

D. Will there be hydrostatic testing and subsequent releases of water? Yes the pipeline will re a pressure test and cleaning. The release of water will be into natural drainage because of the size of the pipeline releases will be much less than natural runoff in the drainages.

PIPELINE RIGHTS-OF-WAY

I. Purpose and Need for the Right-of-Way Facility

A. State what commodity is to be transported and for what purposes. The pipeline will transpo culinary water.

B. State if the pipeline is for a gathering system, trunkline, or distribution system. The pipeline will be collecting water from the wells and transporting it to an existing pipeline.

C. State the pipe size and if it is a surface or subsurface pipeline. The pipeline will be buried 30" to 48" deep and will be sized for the flow of water developed from the well. It will range in size from 2 inch to 4 inch.

II. Facility Design Factors

A. Design features that could influence location:

1. Pipeline pressure standards. There will not be high pressure in the lines.

2. Toxicity of the pipeline product. The pipeline material will be composed of PVC plastic or ductile iron. The water transported is of culinary quality.

3. Stability of the soils and geology of the proposed right-of-way. The soils in the area sandy with sandstone fragments or clayey. The soils are stable enough to accomodate the proposed pipelines.

4. Operating temperatures of the pipeline. Operating temperature will be the same as the temperature of the water 50°-60°F.

B. Special consideration often include:

1. The maximum grade for slurry lines. N/A

ROCKVILLE CULINARY WELL
R/W DESCRIPTIONS

WELL NO. 4

Well No. 4 located 2950 feet South and 2400 feet East of the NW Corner of Section 7, T. 42 S., R. 10 W., S.L.B. & M.

The access road, pipeline, and powerline Right-of-Way begins at Well No. 3 at a point which is 2400 feet South and 2650 feet East of the NW Corner of Section 7, T. 42 S., R. 10 W., S.L. B. & M., and is 25 feet left and right of a centerline that runs South Westerly, approximately 425 feet to the proposed site of Well No. 4, which is 2950 feet South and 2400 feet East of the NE Corner of Section 7, T. 42 S., R. 10 W., S.L.B. & M..

ROCKVILLE CULINARY WELL
R/W DESCRIPTIONS

WELL NO. 5

Well No. 5 is located 800 feet South and 1900 feet East of the NW Corner of Section 7, T. 42 S., R. 10 W., S.L.B. & M..

ROAD R/W

The proposed access road Right-of-Way will be 25 feet each side of a centerline that begins on the existing city road at a point which is 600 feet South and 1300 feet East of the NW Corner of Section 7 and runs South Easterly 600 feet to Well No. 5, located 800 feet South and 1900 feet East of the NW Corner of Section 7, all in T. 42 S., R. 10 W., S.L.B. & M..

PIPELINE AND POWERLINE RIGHT-OF-WAY

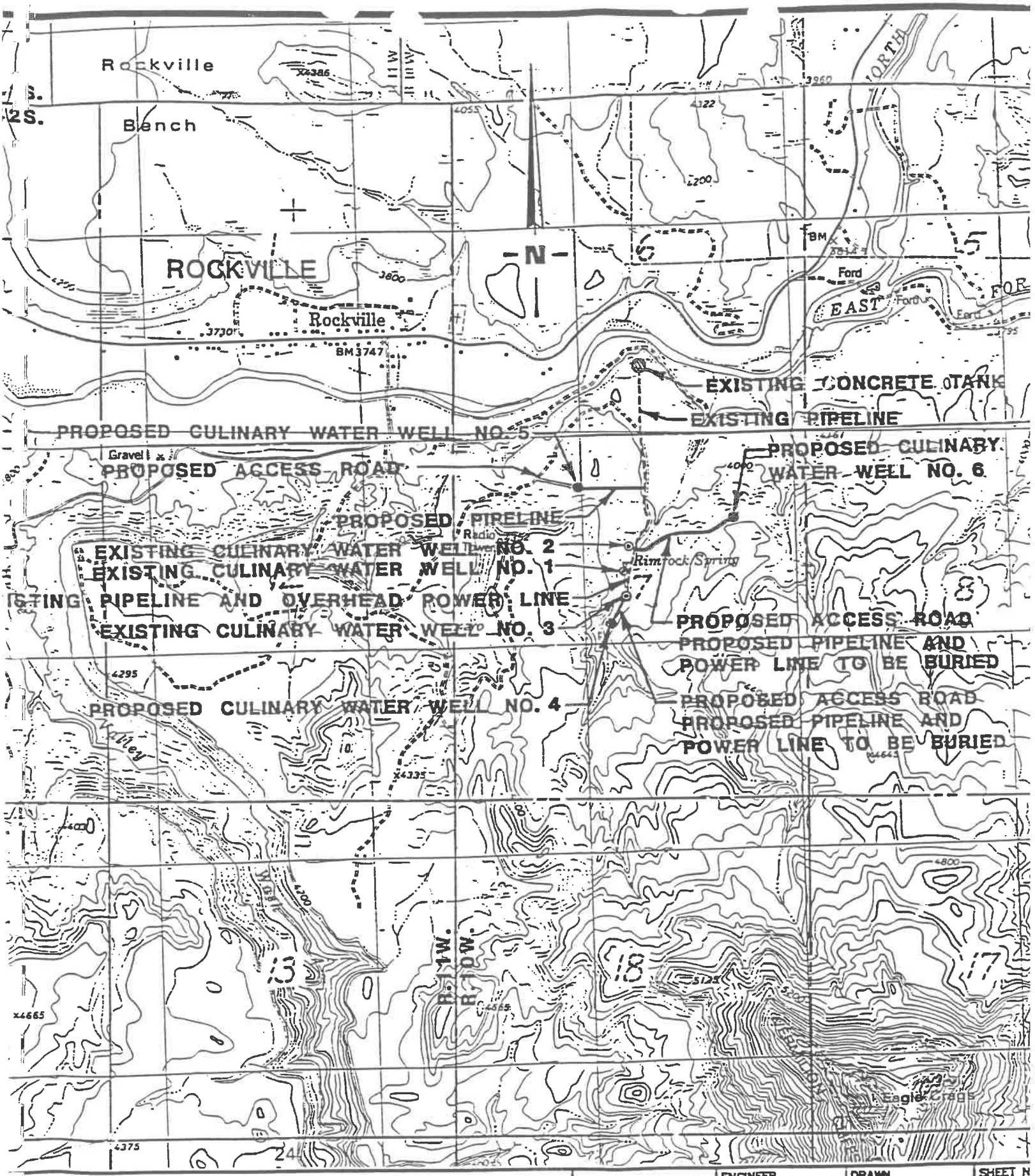
The proposed pipeline and powerline Right-of-Way will be 20 feet each side of a centerline that begins at Well No. 5 which is approximately 800 feet South and 1900 feet East of the NW Corner of Section 7 and runs Easterly approximately 1000 feet to the existing road and pipeline.

ROCKVILLE CULINARY WELL
R/W DESCRIPTIONS

WELL NO. 6

Well No. 6 is located 1320 feet South and 4300 feet East of the NW Corner of Section 7, T. 42 S., R. 10 W., S.L.B. & M..

The access road, pipeline and powerline Right-of-Way is 40 feet each side of a centerline that begins at the existing road at the location of the Rim Rock Spring, which is approximately 1800 feet South and 2750 feet East of the NW Corner of Section 7, T. 42 S., R. 10 W., S.L.B. & M., and runs North Easterly 1800 feet to Well No. 6 which is approximately 1320 feet South and 4300 feet East of the NW Corner of Section 7, T. 42 S., R. 10 W., S.L.B. & M..



CKVILLE TOWN

WATER SYSTEM IMPROVEMENTS

ENGINEER T.D.D.	DRAWN C.D.S.	SHEET N	
CHECKED T.D.D.	PROJECT NO. 9204-094	1 o	
SCALE 1" = 2000'	DATE JUL. 1992		

JONES & DEMILLE ENGINEERING

April 16, 1993

Bureau of Land Management
Dixie Resource Area
225 North Bluff Street
St. George, Utah 84770

RE: Rockville Culinary Water System Improvements Amended Application UTU-69516 for Facilities on Federal Lands.

ATTN: Dale Ross

Dear Dale,

Please find enclosed an application amendment to permit UTU-69516. This application is for the Rockville Pipeline Company, a non-profit company for the operation and maintenance of the Rockville Town Culinary Water System.

You have already received the Articles of Incorporation and Bylaws of the Pipeline Company. I have also attached a map and copy of the engineer's estimate for the improvements.

Please process the application as soon as possible so that the community can retain their drilling contractor. If you need additional information or need assistance with the environmental paperwork, please let me know. Please have the archeologist call Eldon Walker at 772-3473 so the gate can be unlocked for his site visit.

If you have any questions, please call me

Sincerely,

JONES & DEMILLE ENGINEERING

Tristan DeMille, P.E.

cc: Eldon Walker
9204-094
chrono

45 East 500 North Richfield, Utah 84701 Telephone (801) 896-8266 FAX (801) 896-8268

STANDARD FORM 299 (9/92)
Prescribed by DOI/USDA/DOT
P.L. 96–487 and Federal
Register Notice 6–3–81

APPLICATION FOR TRANSPORTATION AND UTILITY SYSTEMS AND FACILITIES ON FEDERAL LANDS

FORM APPROVED
OMB NO. 1004-0060
Expires: June 30, 1995

NOTE: Before completing and filing the application, the applicant should completely review this package and schedule a preapplication meeting with representatives of the agency responsible for processing the application. Each agency may have specific and unique requirements to be met in preparing and processing the application. Many times, with the help of the agency representative, the application can be completed at the preapplication meeting.

FOR AGENCY USE ONLY
Application Number
Date filed

1. Name and address of applicant *(include zip code)*

Rockvile Town Pipeline Co.
Rockfille, Utah 84763

2. Name, title, and address of authorized agent if different from Item 1 *(include zip code)*

Eldon Walker, President
P. O. Box 157
Rockville, Utah 84763

3. TELEPHONE *(area code)*
Applicant
Authorized Agent

4. As applicant are you? *(check one)*

a. ☐ Individual
b. ☒ Corporation *
c. ☐ Partnership/Association *
d. ☐ State Government/State Agency
e. ☐ Local Government
f. ☐ Federal Agency

* *If checked, complete supplemental page*

5. Specify what application is for: *(check one)*

a. ☐ New authorization
b. ☐ Renew existing authorization No. _____.
c. ☒ Amend existing authorization No. UTU -69516.
d. ☐ Assign existing authorization No. _____.
e. ☐ Existing use for which no authorization has been received *
f. ☐ Other *

* *If checked, provide details under Item 7*

6. If an individual, or partnership are you a citizen(s) of the United States? ☐ Yes ☐ No

7. Project description *(describe in detail)*: (a) Type of system or facility, *(e.g., canal, pipeline, road)*; (b) related structures and facilities; (c) physical specifications *(length, width, grading, etc.)*; (d) term of years needed; (e) time of year of use or operation; (f) volume or amount of product to be transported; (g) duration and timing of construction; and (h) temporary work areas needed for construction. *(Attach additional sheets, if additional space is needed.)*

a,b) The project will be the construction of an additional culinary water well, including 2" - 4" pipeline well, buried powerline, and access to the well.
c) The width of access road will be just sufficient (15'±) for construction and maintenance. The length and location are as marked on the attached map.
d,e) 100 year or more, operation of the well will be year round.
f) The well will produce about 20 - 30 gpm
g) Construction will be completed by June 1993.
h) A pad will be required at the well head sufficient for the well rig and euipment.

8. Attach map covering area and show location of project proposal

9. State or local government approval: ☐ Attached ☐ Applied for ☒ Not required

10. Nonreturnable application fee: ☐ Attached ☒ Not required

11. Does project cross international boundary or affect international waterways? ☐ Yes ☒ No *(If "yes," indicate on map)*

12. Give statement of your technical and financial capability to construct, operate, maintain, and terminate system for which authorization is being requested.

Rockville Town Pipeline company was successful in securing a drought relief grant from Farmer's Home Administration for the development of a potable source of water for the culinary water system. The grant is sufficient to provide engineering for the proposed improvements and construction of two to three wells and appurtenances.

(Continued on reverse)

13a. Describe other reasonable alternati[illegible]tes and modes considered.

The proposed well locat[illegible] is based on the existing well[illegible]cations and professional geological investigations. There are no other sources of potable water economically available to the community.

b. Why were these alternatives not selected?

The only other sources of potable water is the Navaho Sandstone formation cliffs west and south of Rockville. The cost to develop this source is prohibitive and would also result in environmental concerns.

c. Give explanation as to why it is necessary to cross Federal lands.

The acuifer that yields the potable water is not very thick and is exposed at the rim of the canyon. The water comes from the South and West and must be intercepted before it reaches the rim. All the land where wells could be developed is on federal lands.

14. List authorizations and pending applications filed for similar projects which may provide information to the authorizing agency. *(Specify number, date, code, or name.)*

N/A

15. Provide statement of need for project, including the economic feasibility and items such as: (a) cost of proposal *(construction, operation, and maintenance)*; (b) estimated cost of next best alternative; and (c) expected public benefits.

See attached cost estimate. The Town of Rockville needs additional water to meet the needs of the community. The existing wells have decreased in flow by about 1/2 in recent years.

16. Describe probable effects on the population in the area, including the social and economic aspects, and the rural lifestyles.

Additional water will allow Rockville Town to stop rationing water during the summer months.

17. Describe likely environmental effects that the proposed project will have on: (a) air quality; (b) visual impact; (c) surface and ground water quality and quantity; (d) the control or structural change on any stream or other body of water; (e) existing noise levels; and (f) the surface of the land, including vegetation, permafrost, soil, and soil stability.

There will be no affect on air quality, no increase in noise levels, or structural change on any stream or other body of water. There will be no affect on the quality of water. The quantity of water in the well and springs has already decreased due to the drought. The additional well will allow Rockville to obtain their water right.(Cont. on attachment

18. Describe the probable effects that the proposed project will have on (a) populations of fish, plant, wildlife, and marine life, including threatened and endangered species; and (b) marine mammals, including hunting, capturing, collecting, or killing these animals.

There would be no effect on the wildlife in the area.

19. State whether any hazardous substance, as defined in the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C 9601 (14), or any hazardous or solid waste, as defined in the Resource Conservation and Recovery Act of 1976, as amended, 42 U.S.C. 6903 (5), (27), will be used in the construction of, or at any time transported within, the right-of-way.

BLM office in St. George

20. Name all the Department(s)/Agency(ies) where this application is being filed.

I HEREBY CERTIFY. That I am of legal age and authorized to do business in the State and that I have personally examined the information contained in the application and believe that the information submitted is correct to the best of my knowledge.

Signature of Applicant	Date

Title 18, U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious, or fraudulent statements or representations as to any matter within its jurisdiction.

(Cont. of 17)

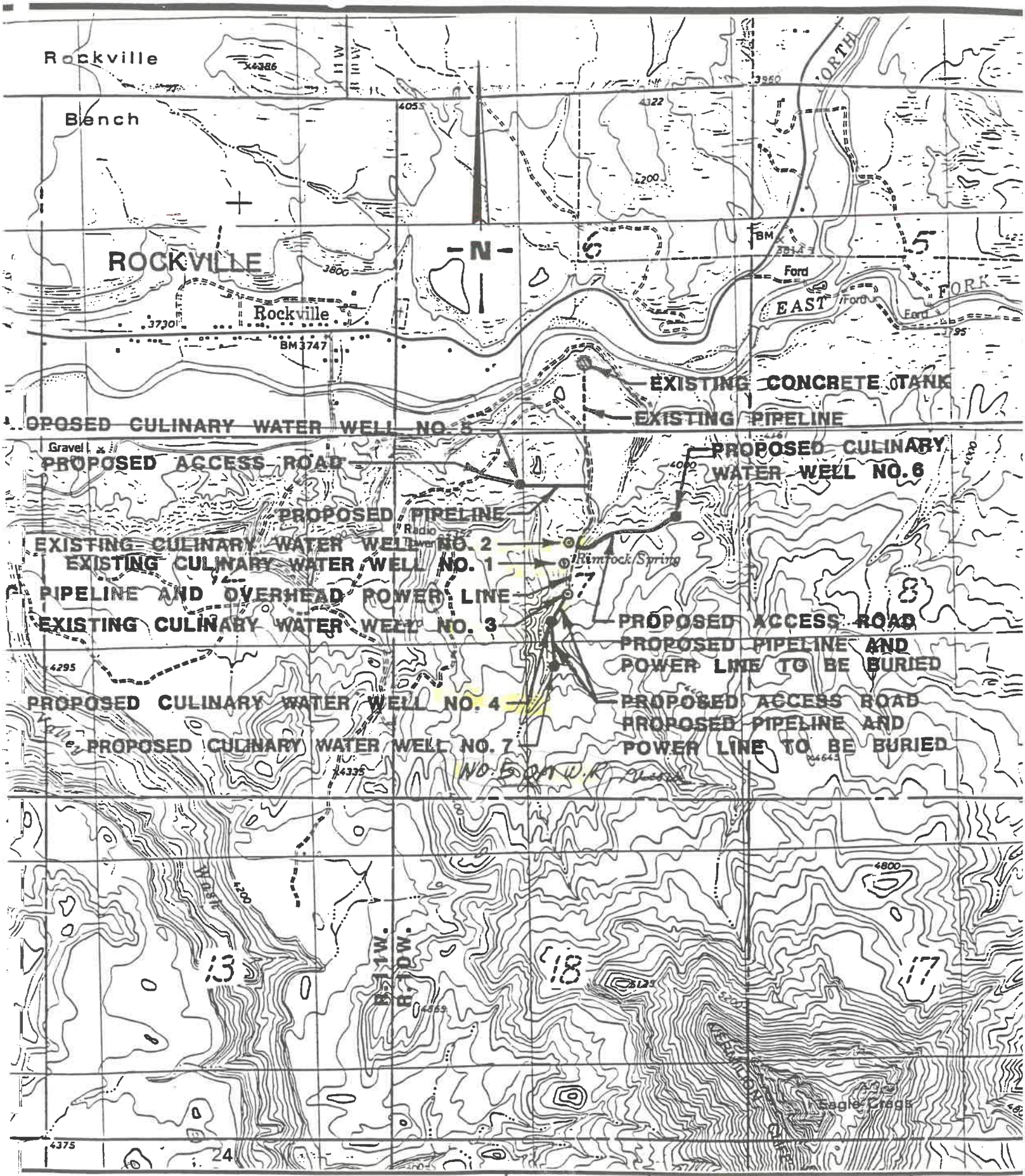
The access to the well will be visible. There is very little vegitation in the area. Efforts will be made to avoid removal of trees where ever possible.

ROCKVILLE CULINARY WELL
R/W DESCRIPTIONS

WELL NO. ~~7~~ 5 Now called Well # 5 on (12/12/2
state engineers proof records T.D.

Well No. 7 located 3650 feet South and 2500 feet East of the NW Corner of Section 7, T. 42 S., R. 10 W., S.L.B. & M.

The access road, pipeline and powerline right-of-way begins at Well No. 4 at the point which is 2950 feet South and 2400 feet East of the NW Corner of Section 7, T. 42 S., R. 10 W., S.L.B. & M., and is 25 feet left and right of a centerline that runs South approximately 700 feet to the proposed site of Well No. 7, which is 3650 feet South and 2500 feet East of the NW Corner of Section 7, T. 42 S., R. 20 W., S.L.B. & M.



ILLE TOWN
ATER SYSTEM IMPROVEMENTS

ENGINEER T.D.D.	DRAWN C.D.S.	SHEET NO. 1 of 1
CHECKED T.D.D.	PROJECT NO. 9204-094	
SCALE 1" = 2000'	DATE APR. 1993	

Appendix F

Letter to Bureau of Land Management

— JONES & DEMILLE ENGINEERING

December 31, 1998

Jim Crisp
Area Manager Dixie Resource Area
Bureau of Land Management
345 E. Riverside Drive
St. George, Utah 84790

RE: Source protection of the Rockville spring and wells

Dear Jim:

We are preparing a Source Protection Plan for the spring and wells in Rockville Town for the Rockville Pipeline Co. The Rockville Pipeline Company owns and operates the culinary water system in Rockville Town. The Department of Environmental Quality requires that all sources of public water supply complete a source protection plan for their sources of water. The Rockville springs and wells are located on BLM lands on the bench south of Rockville. We have attached a map which indicates zones of delineation wherein the water shed has to be protected from possible contamination sources and or activities. Management of these areas requires there be restrictions on the use of the land prohibiting potential contamination sources. The land within these zones is all on the BLM and is as shown on the attached exhibit. The zones are identified as:

Zone 1	100 foot radius around the springs and wells
Zone 2	250 day ground water time of travel from the surface to the source
Zone 3	3 year ground water time of travel form the surface to the source
Zone 4	15 year ground water time of travel from the surface to the source

A timely response is requested from BLM regarding protective measures that may be in force on the public lands in these zones. The special use permit, serial number UTU-69516, and amendment is attached.

We have been working with the Forest Service on some other projects in central Utah. I have attached a copy of the response that we have received from this agency regarding culinary water shed source protection. I thought that this might be helpful in completing a response on the Rockville project. We are aware that the land above the wells is not accessible by motorized vehicle and much of the land to the south is in a wilderness study area.

Please forward your letter of comments to the St. George office.

Sincerely yours,

Karl B. Rasmussen

Karl B. Rasmussen, P.E.

Cc: 9811-054

Richfield, Utah 84701
45 East 500 North
PH: 435-896-8266 FX: 435-896-8268

St. George, Utah 84770
225 North Bluff, Suite 12
PH: 435-656-0257 FX: 435-656-3849

Appendix G

Request for Use Waivers

December 16, 1998

Department of Environmental Quality
Division of Drinking Water
150 North 1950 West
P.O. Box 144830
Salt Lake City, Utah 84114-4830

RE: Rockville Pipeline Company Source Protection Plan

To Whom it may concern:

The spring and wells on the attached map are located on BLM lands. All of the land up gradient from the water sources is not accessible by vehicle. To the south of the water producing area is the Navaho sandstone formation known as the Eagle Crags rising over 2,000 feet above the valley floor. The plateau on top is in a wilderness study area and is not accessible by vehicle.

Based on the historical and present use of the land in zones 1, 2, and 3, it is the opinion of the Rockville Pipeline Company that there is not now nor has there been in the past 5 years any use of pesticides within the parameter groups set by DEQ, VOC's, or any other hazardous material that would pose a health threat.

We are confident that this sensitive land will be protected by BLM from any use that would allow the use or transportation of hazardous material in these zones.

Sincerely yours,

Bill Regland Mgr.

Bill Regland, President of the Rockville Pipeline Co.