3.0 INVENTORY OF POTENTIAL CONTAMINATION SOURCES

This section identifies the potential contamination sources (PCSs) that exist within the protection zones defined in the previous section. Included in this section are the following:

- Survey methods used to identify PCSs
- Location of each PCS relative to the protection zone
- Identification of the hazards associated with each PCS
- Rank of each PCS relative to the risk posed

Survey Methods and PCS List

The potential groundwater contamination sources for the Deepwater Well #1 were identified by mapping the protection areas onto a base map and an aerial photograph, and through site reconnaissance of the protection areas. Deepwater personnel were interviewed for possible PCS locations. A search was performed on the Automated Geographic Reference Center database, which is administered by the Utah State Department of Administrative Services, Division of Information Technology Services. This database contains information on contamination sources known to various state agencies.

Only two PCS were identified, Septic Tank and Residential Property belonging to Robert and Tanya Powell, was identified within the protection zones in this investigation.

The contact for Septic tank is:

Robert and Tanya Powel
PO Box 680481.
Park City, UT 84068

3.1 Hazard Identification

Identified activities and hazards associated with the PCSs found in the protection zones for Well #1:

Name of Possible PCS	Identified Activity	PCS No. in DDW Guidance for Activity	Identified Hazards
Household Septic Systems	Septic System	41	Bacteriological hazardous substances if system is not working property
Residential Properties	Residential pesticide , herbicide, and fertilizer storage, use, filling and mixing areas	36	Pesticides, herbicides, fertilizers

3.2 Priority and Location of PCSs

Using the semi-quantitative approach of assigning a numerical risk to each PCS or using professional judgment both systems have about equal risk as both are owned by the same individual and are about equal distance from the source.
Given the distance of the residence is closer a higher risk would have to be assigned to the residence than the septic tank.
Both PCSs are in Zone 3 of Deepwater Well 1. Refer to Figure 5 for the locations of each PCS.

4.0 IDENTIFICATION AND ASSESSMENT OF POTENTIAL CONTAMINATION SOURCE HAZARD CONTROLS

Below is the identified control for each PCS hazard assessed to Well #1.

4.1 Residential Properties

Residential properties use fertilizers, pesticides, herbicides and other household chemicals. There are regulatory controls for use and storage of these materials. However they are not thought to be adequately controlled.

4.2 Residential Septic Systems

Residential Septic Systems are regulated through UAC R317-501 through R317-513 and R317-501 through R317-514 Code for Wasatch County. This PCS is not thought to be adequately controlled, due to the human factor in this PCS.

5.0 MANAGEMENT FOR EXISTING PCS'S

5.1 Residential Chemical Use

This PCS is also considered adequately controlled, but to be conservative, a mailing to each home in the local developments will include a fact sheet prepared by the Utah Department of Environmental Quality (UDEQ). The fact sheet (included in Appendix B) will cover best management practices for Household Hazardous Wastes, Fertilizers, and Pesticides. The mailing will include a cover letter notifying the residents they live in the protection zone of a culinary well.

5.2 Septic Tank

Regulatory controls exist for this PCS. The Wasatch County Health Department regulates sewer pipelines Septic systems under its Wastewater Disposal Code. This rule gives Brighton Estates the authority to ensure that Septic are constructed and maintained properly. The status of this PCS will be reviewed on a six-year basis.

6.0 MANAGEMENT PROGRAM FOR FUTURE POTENTIAL CONTAMINATION SOURCES, LAND OWNERSHIP MAP AND LIST, AND LAND USE AGREEMENTS

Land protection is via Zoning Ordinances is in place via Wasatch County Code 16.28.06. A copy of this code is included in Appendix B.

All of the land in Zones 1 through 4 is controlled by County ordinances Since Brighton Estates monitors the land and is also responsible for the sources, Brighton Estates has a vested interest in keeping sources of contamination out of the aquifer as per R309-600-13(2)(C).

7.0 IMPLEMENTATION SCHEDULE

All management strategies will be implemented after approval of this DWSP by the Department of Drinking Water.

The annual review of this plan includes open communication with property owners and Deepwater employees. Communication will include the identification of any potential contamination sources, changes or construction on any of the roads, or any changes in land ownership. Zoning ordinances and/or land use agreements will be encouraged prior to further development of the land.

8.0 RESOURCE EVALUATION

Deepwater is committed to use financial resources and personnel required for the successful implementation and maintenance of the DWSP plan. If required, Deepwater will hire contractors for repair or replacement of the wells and for professional consultants to evaluate any newly suspected contamination or new PCS.

9.0 RECORD KEEPING

This Drinking Water Source Protection plan is a working document. Changes to the plan will be documented. Review of this plan includes but is not limited to:

- An updated DWSP plan must be submitted to the DDW by December 31, 2014 and every six years thereafter.
- This plan will be reviewed in January of each year or more often if necessary for any changes in personnel, well modifications, land ownership, plans to locate new PCSs in the protection zones and other necessary items.
- The adequate control of the existing PCS must be re-evaluated during the annual review of this plan. The designated person should contact landowners to determine if land use or land status has changed, and review development progress in the protection zones. Any changes within the protection zones that could increase the risk of contamination to the groundwater will be documented.

- When the designated person communicates with landowners and contact persons for existing or new PCSs he/she should ensure that these persons understand the importance of groundwater protection in the source areas. An offer to provide a copy of pertinent portions of this DWSP plan is advised.
- If new sources are located in the protection zones, the designated person is responsible for updating this DWSP to include the new source, assess the hazards it poses, and assess the control of the source.
- Records of correspondence with landowners or PCS contact persons will be documented and kept with this plan.
- Any land use agreements, zoning ordinances or other associated materials will be documented and be kept within this plan.

10.0 CONTINGENCY PLAN

This section addresses the plans established to provide a safe supply of drinking water in the event that the Drinking Water Source Protection plan fails and/or in the event that water shortages or contamination impact the water supply.

10.1 Emergency Response Plan

Mechanical or electrical failures can give rise to emergency conditions within the system. In the case of a well being shut down due to mechanical problems, the system will be repaired as soon as possible. A spare pump will be available as a replacement if necessary. Zimmerman Pump Service is also on call to make emergency repairs. If mechanical or electrical problems require extended time to repair, waters users will be immediately notified and asked to ration water or discontinue use as necessary. If this well is becomes unusable due to natural disaster damaging the well or the pipeline(s), long term water needs may be met by purchasing water from a supplier.

In the event of biological fouling of the water, the PWS shall issue a boil order until sampling confirms contaminant levels are within drinking water standards. News of the boil order will be posted at the post office and several other locations in town which may include the town park, churches, and/or businesses. Telephone calls will also be made to 'spread the word'. Local television and radio news stations and newspapers will be used to distribute information as well. Resources will be allocated to determine and remediate, if necessary, the source of biological fouling.

In the event of non-biological groundwater contamination in the well, the short term needs of the community will be met with purchased water. Resources will be allocated to determine the cause of and remedy for the contamination. If remediation is not possible, new sources will be developed (Section 10.3)

10.2 Rationing and Remediation Plan

Rationing conditions will be implemented when the system's water tank is unable to maintain at least half capacity for a period of two days. The designated person will initiate the rationing plan when the action level criterion is met. News of rationing guidelines will be distributed to residents by the

manners listed above for boil orders (Section 10.1). In the summer season during drought conditions, outdoor watering will be restricted or prohibited as needed until the shortage dissipates.

10.3 Source Development Plan

If Well 1 is permanently fouled or otherwise compromised an additional well could be developed.

11.0 PUBLIC NOTIFICATION

Public Notification process will take place via a notice in the Park Record legal classifieds as well as word of mouth and door to door communication..
The following statements will be provided to the public and any new land owner located within the protection zones.

> "The Drinking Water Source Protection Plan for Brighton Estates Well 1is available for your review. It contains information about source protection zones, potential contamination sources, and management strategies to protect our drinking water. The greatest potential contamination source includes residential chemicals and septic tanks. Additionally, our well has low susceptibility to potential contamination. We have also developed management strategies to further protect our sources from contamination. Please contact us at **435-640-7111**, if you have questions or concerns about our source protection plan. A copy of the DWSP plan will be made available for your review upon request."

12.0 REFERENCES

Boutwell, J.M., 1907, Stratigraphy and Structure of the Park City Mining District, Utah: Journal of Geology, vol. 15.

Driscoll, Fletcher G., 1986, Groundwater and Wells 2nd. Ed., Johnson Filtration Systems Inc., St. Paul, 1089 pp.

Kennecott Utah Copper Corporation (KUCC), 2002, Drinking Water Source Protection Plan for Upper Dry Fork Production Well COG1172; submitted to Utah Division of Drinking Water.

Utah Department of Environmental Quality, Division of Drinking Water, 2002, Guide to preparation of a Preliminary Evaluation Report.

Utah Department of Environmental Quality, Division of Drinking Water, 2000, State of Utah Drinking Water Source Protection Rule, UAC R309-600. Revised June 12, 2000.

Weston Engineering, 1999, Preliminary Evaluation Report for Brighton Estates Well No. 3, Public Water System No. 26024,

APPENDIX A:

Drillers Log for Deepwater Well #1
Permanent Pump Information
Pump Test Data
AQTESOLV plots

WELL DRILLER'S REPORT

State of Utah
Division of Water Rights
For additional space, use "Additional Well Data Form" and attach

Well Identification CHANGE APPLICATION: a21033(55-4292)

Owner *Name on change:*
Pinecreek Consulting Company
P.O. Box 1322
Park City, UT 84060
Contact Person/Engineer: Rob Powell

Well Location *Note any changes*
COUNTY: Wasatch
NORTH 1000 feet WEST 600 feet from the SE Corner of
SECTION 32, TOWNSHIP 2S, RANGE 4E, SLB&M.

Location Description: (address, proximity to buildings, landmarks, ground elevation, local well #)

Drillers Activity Start Date: 9/20/01 Completion Date: 10/31/01
Check all that apply: [X] New [ ] Repair [ ] Deepen [ ] Clean [ ] Replace [ ] Public Nature of Use:
If a replacement well, describe the location of the new well, ____ feet north/south and ____ feet east/west of the existing well.

DEPTH (feet) FROM	TO	BOREHOLE DIAMETER (in)	DRILLING METHOD	DRILLING FLUID
0	80	14.75	air-foam Roller-Bit	air foam
80	586	10"	DHH	air-foam
586	890	7.5	DHH	air-foam

Well Log

DEPTH (feet) FROM	TO	WATER BEARING	UNCONSOLIDATED CLAY	UNCONSOLIDATED SAND	UNCONSOLIDATED GRAVEL	UNCONSOLIDATED BOULDERS	CONSOLIDATED COBBLES	CONSOLIDATED BEDROCK	ROCK TYPE	COLOR	DESCRIPTIONS AND REMARKS (e.g., relative %, grain size, sorting, angularity, bedding, grain composition, density, plasticity, shape, cementation, consistency, water bearing, odor, fracturing, mineralogy, texture, degree of weathering, hardness, water quality, etc.)
0	38			✓	✓	✓				Brown	Sandy Silty, Cobles, Boulders
38	45					✓				Blk & Wh	Boulder
45	47		✓	✓	✓					Red-Brn	Gravel, Cobles
47	49		✓							Red	Clay
49	67				✓						Gravels Cobles
67	70								Quartzite	Brown	Weathered
70	77								Quartzite	White	
77	85								Quartzite	Yellow	
85	96								" "	White	
96	105								" "	Gray	

Static Water Level
Date 10/31/01 Water Level 730 feet Flowing? [ ] Yes [X] No
Method of Water Level Measurement tape If Flowing, Capped Pressure ____ PSI
Point to Which Water Level Measurement was Referenced ____ Ground Elevation (If known) 8960
Height of Water Level reference point above ground surface 0 feet Temperature 58 [ ] °C [X] °F

Construction Information

DEPTH (feet) FROM	TO	CASING: CASING TYPE AND MATERIAL/GRADE	WALL THICK (in)	NOMINAL DIAM (in)	DEPTH (feet) FROM	TO	☐ SCREEN ☑ PERFORATIONS ☐ OPEN BOTTOM: SCREEN/SLOT SIZE OR PERF SIZE (in)	SCREEN DIAM OR PERF DIMETER (in)	SCREEN TYPE OR SCRUBBER PLUG (per round/interval)
0	80	steel	.250	10	790	890	1/8	5 3	500
7	586	steel	.250	8					
7	790	Steel	.250	5					
710	890	steel Perf	.250	5					

10" from 5½ well Cap, pitless

Well Head Configuration: 6" Pipe with Bell to 5½ plain welded to Access Port Provided? ☐ Yes ☐ No

Casing Joint Type: welded Perforator Used:

Was a Surface Seal installed? ☑ Yes ☐ No Depth of Surface Seal: 80 feet Drive Shoe? ☑ Yes ☐ No

Surface Seal Material Placement Method: free fall

Provide Seal Material description below:

SURFACE SEAL / INTERVAL SEAL / FILTER PACK / PACKER INFORMATION

DEPTH (feet) FROM	TO	SEAL MATERIAL, FILTER PACK and PACKER TYPE and DESCRIPTION	Quantity of Material Used (if applicable)	GROUT DENSITY (lbs./gal., # bag mix, gal./sack etc.)
0	80	Bentonite Chips	15# Bags	
710	890	¼" SAT Gravel	64 * 50#	

Well Development and Well Yield Test Information

Date	Method	Yield	Units Check One GPM	CFS	DRAWDOWN (ft)	TIME PUMPED (hrs & min)
10/31/01	air Lift	16	X			1 hr

Pump (Permanent)

Pump Description: Sterling L10P4J11-04 Horsepower: 5 Pump Intake Depth: 840 feet

Approximate maximum pumping rate: 10 Gpm Well disinfected upon completion? ☑ Yes ☐ No

Comments Description of construction activity, additional materials used, problems encountered, extraordinary circumstances, abandonment procedures. *Use additional well data form for more space.*

Void at 546, had to Set 8" Pipe in to void and Broken Rock and Clean out then Drive to 586 with DHH

Well Driller Statement

This well was drilled and constructed under my supervision, according to applicable rules and regulations, and this report is complete and correct to the best of my knowledge and belief.

Name: Mike Zimmerman Well Works, LLC License No. 747

(Person, Firm, or Corporation - Print or Type)

Signature: Mike Zimmerman Date 11/14/01

ADDITIONAL WELL DATA FORM

Water Right #_____ _____ Page____of_____

OWNER NAME

DEPTH (feet) FROM	TO	Well Log	UNCONSOLIDATED CLASTIC MATERIALS	CONSOLIDATED ROCK TYPE	COLOR	DESCRIPTIONS AND REMARKS (e.g. relative %, grain size, sorting, angularity, bedding, grain composition, density, plasticity, shape, cementation, consistency, water bearing, odor, fracturing, mineralogy, texture, degree of weathering, hardness, water quality, etc.)
105	137			Quartzite	Pinkish	
137	168			"	Light Pink	Softer
168	192			"	Yellow Light Brown	harder zone
192	214			"	Yellow w/ Brown	
214	232			"	Gray	
232	249			"	Light Gray	
249	254			"	Pink to yellow	
254	275			"	Gray Yellow to Brown	
275	278			"		
278	281			"	Gray/ Brown to Yellow	
281	300			"	Light Gray to Brown	mud bands
300	380			"	Gray/Brown	mud hard
380	451			"	Reddish	
451	452			"	White + Gray	Softer
452	457			"	Light + Brown	harder
457	548			Void	—	hit void
548	555					Lost circulation, Broken Rock
555	556			Quartzite	white, Brown Rust color	fractured
556	600			Quartzite	white	harder
600	649			"	Brown + white/gray	mud hard water at 730'
649	764			"	Light Gray	mud hard water
764	789			"	Light Gray white +	
789	804			"	Gray	Softer water
804	807			"	white and Gray	mud hard
807	811			"	light Gray	Softer
811	890					

STA-RITE

4" submersible pumps – 10, 15, 20, and 30 gpm

Precision-engineered, corrosion-resistant Signature 2000® Composite Pumps in 10, 15, 20 and 30 GPM deliver efficient, dependable performance even in rough, aggressive water. Heads to over 650 feet and capacities to 45 GPM. Built to deliver long-term, trouble-free service.

These pumps feature the patented SignaSeal™ staging system. Floating impeller design resists sand and reduces sand locking.

APPLICATIONS

- **Water systems...** for residential, industrial, commercial, multiple housing and farm use.

SPECIFICATIONS

Shell – Stainless steel
Diameter – 3-7/8"
Discharge – Fiberglass-reinforced thermoplastic
Discharge Bearing – Nylatron®
Intermediate Bearing – (On larger units) Polycarbonate, nitrile rubber and stainless steel.
Impellers – Acetal
Diffusers – Polycarbonate
Suction Caps – Polycarbonate with stainless steel insert
Thrust Pads – Proprietary spec.
Shaft and Coupling – Stainless steel
Intake – Fiberglass-reinforced thermoplastic
Intake Screen – Polypropylene
CableGuard – Stainless steel
Check Valve – Acetal
Agency Listings – UL and CSA

UL Classified to ANSI/NSF Standard 61, Drinking Water Systems Components – Health Effects

Signature 2000

COMPOSITE

FEATURES

Patented Staging System – Our proven SignaSeal™ staging system incorporates a harder-than-sand ceramic wear surface that when incorporated with our floating impeller design, greatly reduces problems with abrasives, sand lock-up and running dry.

Discharge – Corrosion-resistant fiberglass reinforced thermoplastic for durability in aggressive water. Large octagon wrench area for ease of installation.

Discharge Bearing – Exclusive self-lubricating Nylatron® bearing resists wear from sand.

Intake – Corrosion-resistant fiberglass reinforced thermoplastic for durability in aggressive water.

Shaft – Positive drive from 7/16" hexagonal heavy-duty 300 grade stainless steel.

Coupling – Stainless steel press fit to pump shaft. Couples to all standard NEMA motors.

Shell – Heavy-walled corrosion-resistant stainless steel. Threaded for easy servicing.

Hardware – All screws, washers and nuts are corrosion-resistant 300 grade stainless steel.

Check Valve – Durable internal poppitt type check valve.

Cable Guard – Corrosion-resistant stainless steel guard protects motor leads. Tapered ends prevent pump from catching on well.

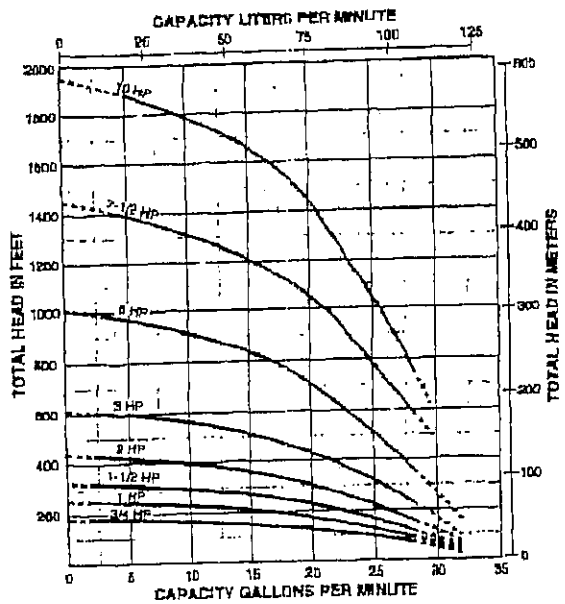
Intake Screen – Corrosion-proof polypropylene.

Franklin Electric Motor – 2 and 3 wire NEMA standard super stainless series water-filled motors.

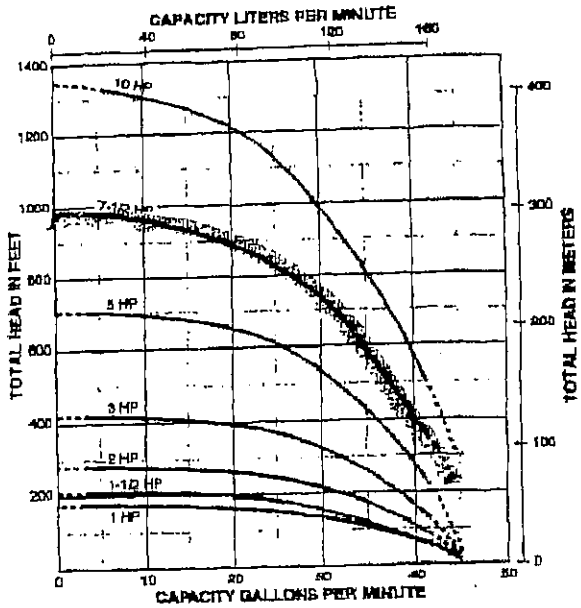
STA-RITE

4" submersible pumps – 10, 15, 20, 30, and 50 gpm

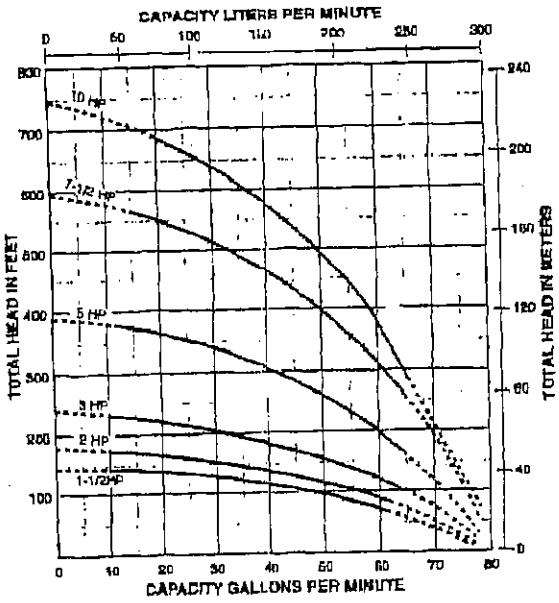
PUMP PERFORMANCE 20 GPM



PUMP PERFORMANCE 30 GPM

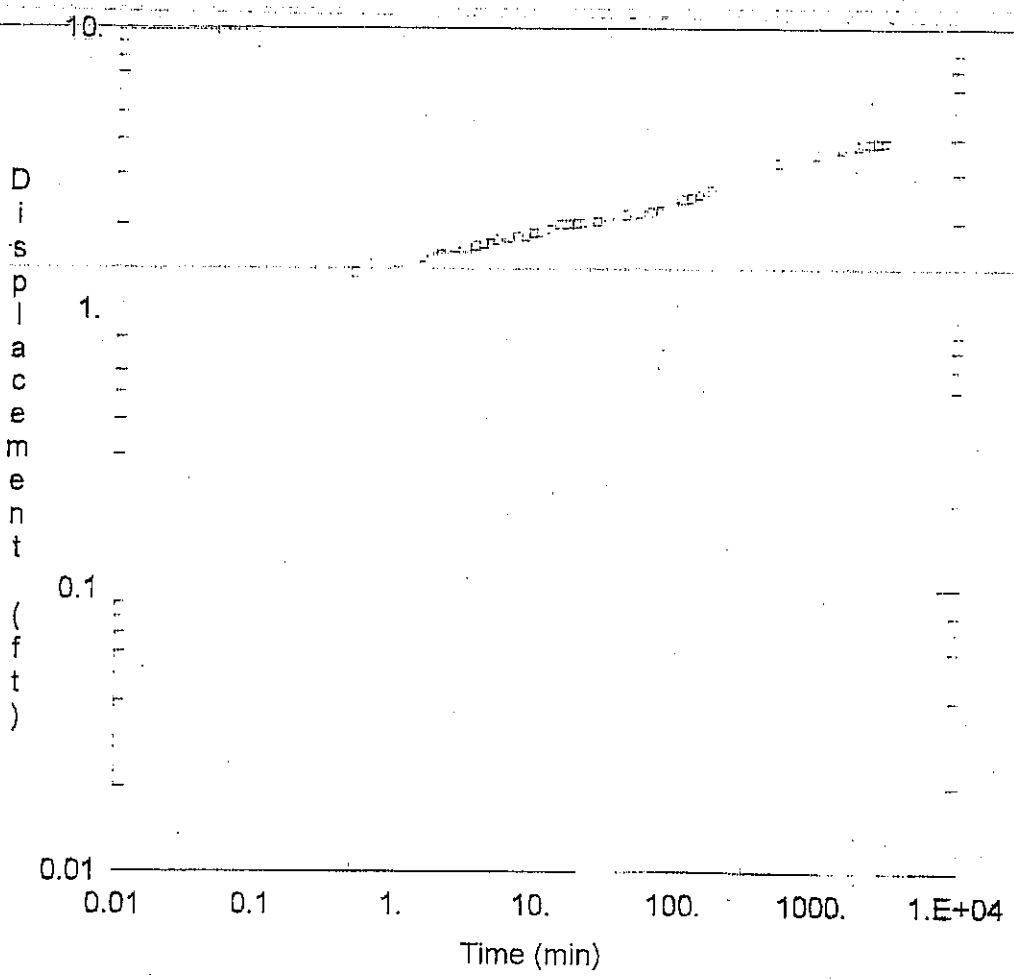


PUMP PERFORMANCE – 50 GPM



Date/Time	Depth to W	Elapsed time (min)	Drawdown
9/24/2008 16:50:00	689.05	0	0
9/24/2008 16:50:30	690.4	0.5	1.35
9/24/2008 16:51:00	690.51	1.0	1.46
9/24/2008 16:51:30	690.57	1.5	1.52
9/24/2008 16:52:00	690.61	2.0	1.56
9/24/2008 16:52:30	690.69	2.5	1.64
9/24/2008 16:53:00	690.69	3.0	1.64
9/24/2008 16:53:30	690.71	3.5	1.66
9/24/2008 16:54:00	690.74	4.0	1.69
9/24/2008 16:54:30	690.75	4.5	1.7
9/24/2008 16:55:00	690.8	5.0	1.75
9/24/2008 16:56	690.83	6.0	1.78
9/24/2008 16:57:00	690.84	7.0	1.79
9/24/2008 16:58	690.85	8.0	1.8
9/24/2008 16:59:00	690.9	9.0	1.85
9/24/2008 17:00	690.91	10.0	1.86
9/24/2008 17:02	690.96	12.0	1.91
9/24/2008 17:04	691.04	14.0	1.99
9/24/2008 17:06	691.04	16.0	1.99
9/24/2008 17:08	691.05	18.0	2
9/24/2008 17:10	691.06	20.0	2.01
9/24/2008 17:15	691.08	25.0	2.03
9/24/2008 17:20	691.14	30.0	2.09
9/24/2008 17:30	691.19	40.0	2.14
9/24/2008 17:40	691.21	50.0	2.16
9/24/2008 17:50	691.24	60.0	2.19
9/24/2008 18:00	691.28	70.0	2.23
9/24/2008 18:15	691.4	85.0	2.35
9/24/2008 18:30	691.48	100.0	2.43
9/24/2008 18:45	691.5	115.0	2.45
9/24/2008 19:00	691.55	130.0	2.5
9/24/2008 19:30	691.65	160.0	2.6
9/25/2008 1:00	692.31	490.0	3.26
9/25/08 8:30	692.55	940.0	3.5
9/25/2008 16:30	692.7	1420.0	3.65
9/26/2008 0:00	692.82	1870.0	3.77
9/26/2008 6:00	692.87	2230.0	3.82
9/26/2008 12:00	692.9	2590.0	3.85
9/26/2008 17:15:00	692.92	2905.0	3.87
9/26/2008 17:15:15	691.14	2905.2	2.09
9/26/2008 17:15:30	691.05	2905.5	2
9/26/2008 17:15:45	691	2905.7	1.95
9/26/2008 17:16:00	690.91	2906.0	1.86
9/26/2008 17:16:30	690.91	2906.5	1.86
9/26/2008 17:17:00	690.9	2907.0	1.85
9/26/2008 17:17:30	690.85	2907.5	1.8
9/26/2008 17:18:00	690.84	2908.0	1.79
9/26/2008 17:18:30	690.81	2908.5	1.76
9/26/2008 17:19:00	690.81	2909.0	1.76
9/26/2008 17:19:30	690.83	2909.5	1.78
9/26/2008 17:20:00	690.75	2910.0	1.7

9/26/2008 17:21:00	690.72	2911.0	1.67
9/26/2008 17:22:00	690.7	2912.0	1.65
9/26/2008 17:23:00	690.71	2913.0	1.66
9/26/2008 17:24:00	690.69	2914.0	1.64
9/26/2008 17:25:00	690.7	2915.0	1.65
9/26/2008 17:27:00	690.65	2917.0	1.6
9/26/2008 17:30:00	690.62	2920.0	1.57
9/26/2008 17:35:00	690.6	2925.0	1.55
9/26/2008 17:40:00	690.51	2930.0	1.46
9/26/2008 17:45:00	690.49	2935.0	1.44
9/26/2008 18:00:00	690.38	2950.0	1.33
9/26/2008 18:15:00	690.28	2965.0	1.23
9/26/2008 18:30:00	690.23	2980.0	1.18
9/26/2008 18:45:00	690.19	2995.0	1.14
9/26/2008 19:00:00	690.1	3010.0	1.05
9/26/2008 19:30:00	690.04	3040.0	0.99
9/26/2008 20:00	689.96	3070.0	0.91
9/26/2008 21:00	689.63	3130.0	0.58
9/26/2008 22:00	689.6	3190.0	0.55
9/26/2008 23:00	689.6	3250.0	0.55
9/27/2008 0:00	689.56	3310.0	0.51
9/27/2008 1:00	689.5	3370.0	0.45
9/27/2008 2:00	689.46	3430.0	0.41
9/27/2008 3:00	689.41	3490.0	0.36
9/27/2008 4:00	689.41	3550.0	0.36
9/27/2008 5:00	689.39	3610.0	0.34
9/27/2008 8:00	689.25	3790.0	0.2
9/27/2008 12:30	689.15	4060.0	0.1
9/27/2008 18:45	689.1	4435.0	0.05
9/27/2008 21:25	689.05	4595.0	0
9/28/2008 2:00	689.05	4870.0	0
9/28/2008 13:00	689.08	5530.0	0.03
9/28/2008 17:00	689.09	5770.0	0.04



WELL TEST ANALYSIS

Data Set: C:\...\Drawdown.aqt
Date: 11/03/08 Time: 09:07:05

PROJECT INFORMATION

Company: Cascade Water Resources
Client: Deepwater Distribution
Test Location: Brighton Estates
Test Well: Deepwater Well 1
Test Date: September 2008

AQUIFER DATA

Saturated Thickness: 130. ft Slab Block Thickness: 0.5 ft

WELL DATA

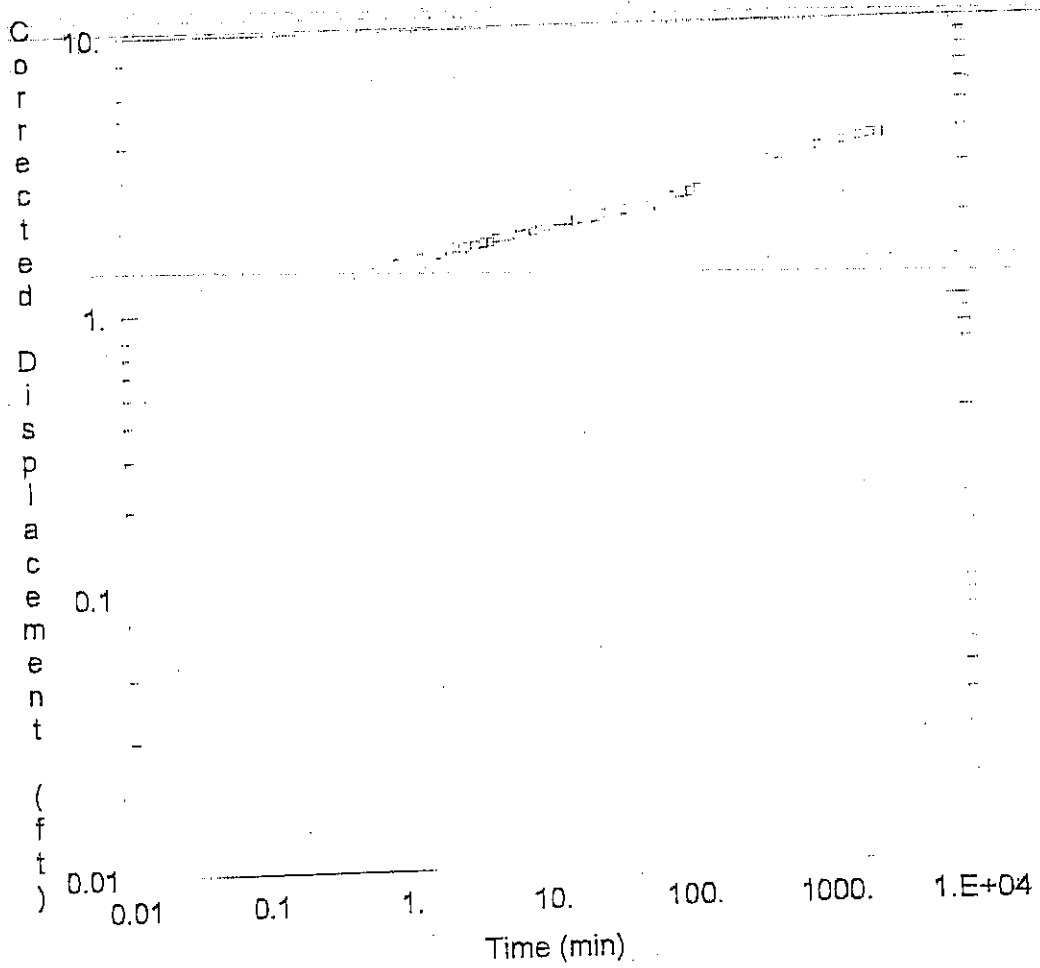
Pumping Wells			Observation Wells		
Well Name	X (ft)	Y (ft)	Well Name	X (ft)	Y (ft)
DW Well 1	0	0	Well 1	0.5	0.5

SOLUTION

Aquifer Model: Fractured Solution Method: Moench w/slab blocks

K = 8.49 ft/day x 160 Sat. Thickness = 1358 ft²/day Ss = 9.318E-09 ft^{-1}

K' = 0.01796 ft/day Ss' = 0.01765 ft^{-1}



WELL TEST ANALYSIS

Data Set: C:\...\Drawdown.aqt
Time: 09:12:27
Date: 11/03/08

PROJECT INFORMATION

Company: Cascade Water Resources
Client: Deepwater Distribution
Test Location: Brighton Estates
Test Well: Deepwater Well 1
Test Date: September 2008

AQUIFER DATA

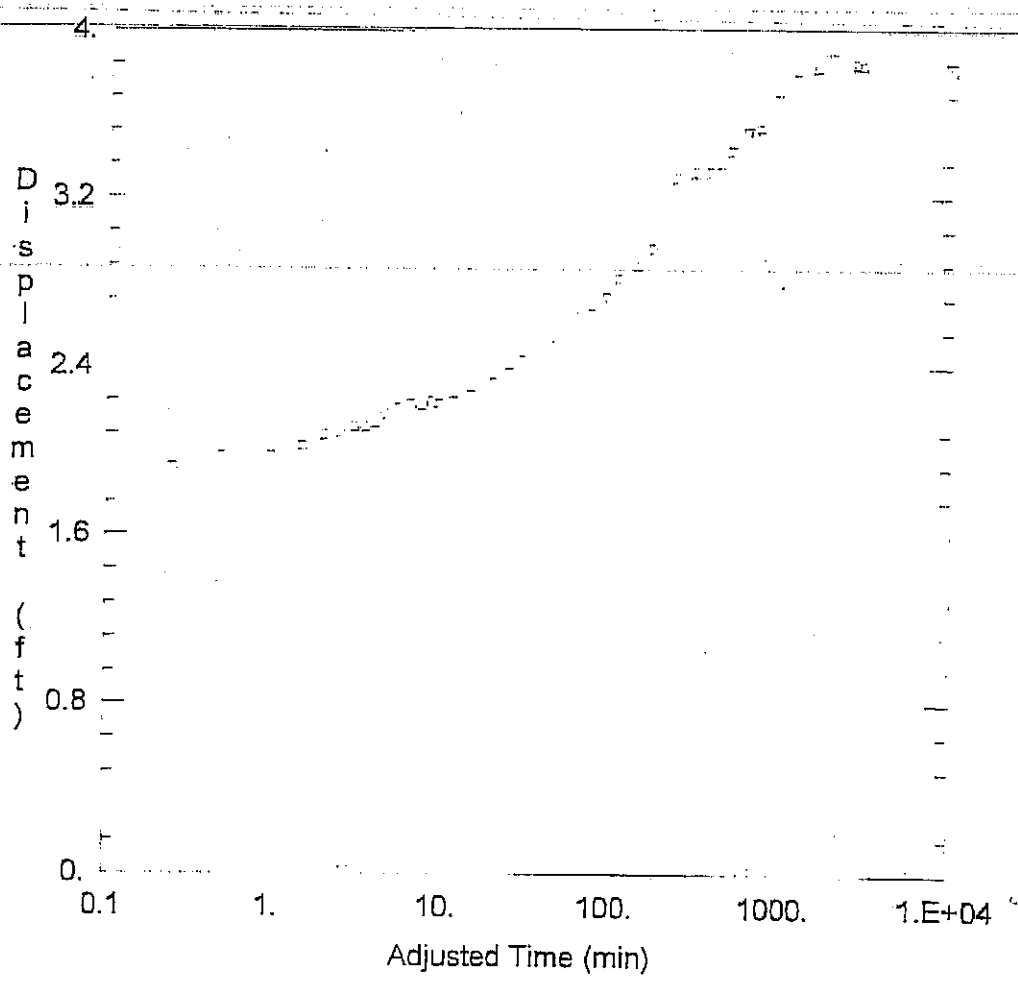
Saturated Thickness: 130. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Pumping Wells			Observation Wells		
Well Name	X (ft)	Y (ft)	Well Name	X (ft)	Y (ft)
DW Well 1	0	0	Well 1	0.5	0.5

SOLUTION

Aquifer Model: Unconfined
Solution Method: Theis
T = 3510.5 ft^2/day
S = 3.938E-05



WELL TEST ANALYSIS

Data Set: C:\...\Recovery.aqt
Date: 11/03/08 Time: 09:09:42

PROJECT INFORMATION

Company: Cascade Water Resouces
Client: Deepwater Distribution
Test Location: Brighton Estates
Test Well: DW Well 1
Test Date: September 2008

AQUIFER DATA

Saturated Thickness: 150. ft Anisotropy Ratio (Kz/Kr): 1.

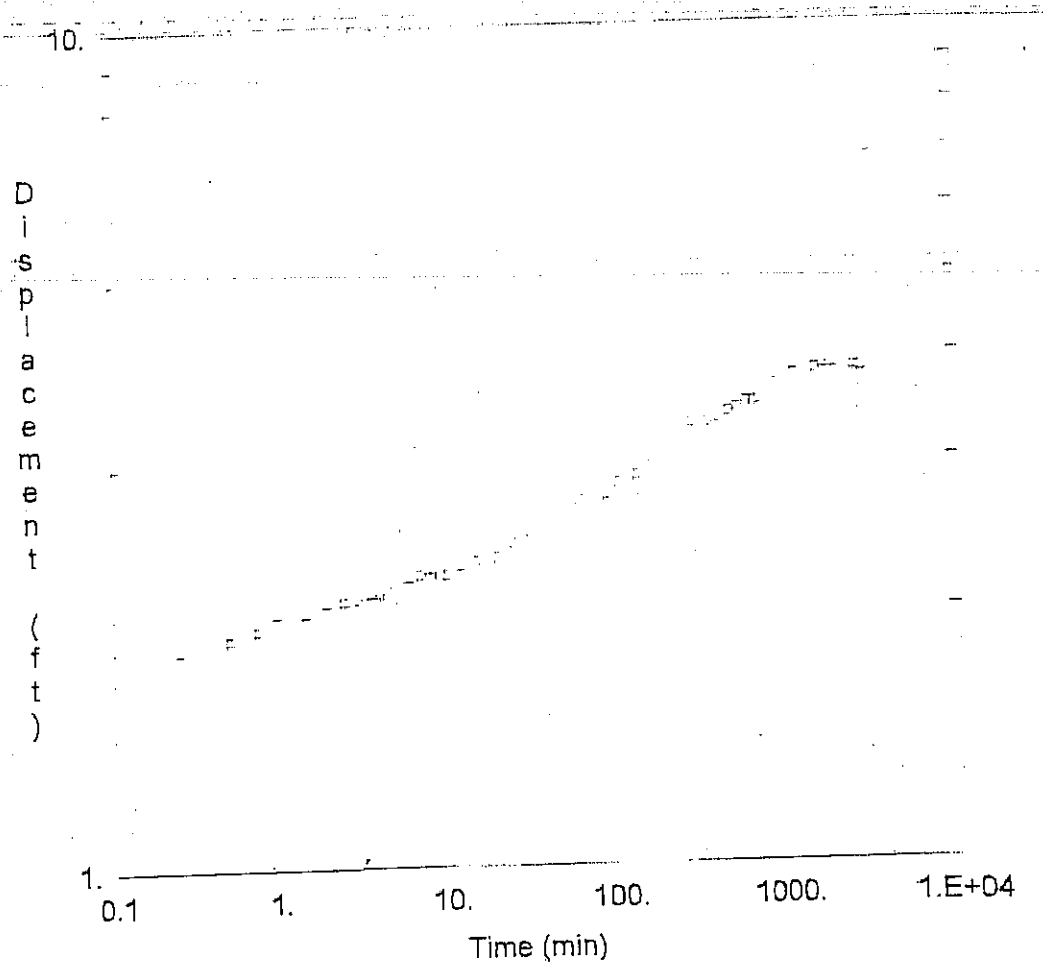
WELL DATA

Pumping Wells			Observation Wells		
Well Name	X (ft)	Y (ft)	Well Name	X (ft)	Y (ft)
DW Well 1	0	0	DW Well 1	0.9	0.9

SOLUTION

Aquifer Model: Confined Solution Method: Cooper-Jacob

T = 2065.5 ft^2/day S = 0.001534



WELL TEST ANALYSIS

Data Set: C:\...\Recovery.aqt
Date: 11/03/08
Time: 09:10:36

PROJECT INFORMATION

Company: Cascade Water Resouces
Client: Deepwater Distribution
Test Location: Brighton Estates
Test Well: DW Well 1
Test Date: September 2008

AQUIFER DATA

Saturated Thickness: 150. ft
Slab Block Thickness: 0.05 ft

WELL DATA

Pumping Wells			Observation Wells		
Well Name	X (ft)	Y (ft)	Well Name	X (ft)	Y (ft)
DW Well 1	0	0	DW Well 1	0.9	0.9

SOLUTION

Aquifer Model: Fractured
Solution Method: Moench w/slab blocks

K = 14.24 ft/day X 160 Sat. Thickness = 2,278 ft²/day
Ss = 3.395E-06 ft^{-1}
Ss' = 3.463E-06 ft^{-1}

APPENDIX B:

Geologic Legend
Wasatch County Source Protection Code

af Artificial fill (Holocene)—Boulder to pebble gravel, sand, and silt used as fill beneath highways and industrial and airport sites as well as in dams and mine dumps

Qt Talus (Holocene)—Angular pebble- to boulder-sized rocks; as mapped, may include some colluvium. Maximum thickness about 10 m

Qal Alluvium (Holocene)—Boulder to pebble gravel, sand, silt, and clay deposited in channels and flood plains of streams. Thickness as much as 3 m

Tdi Intermediate dikes (Oligocene and Eocene?)—Generally contain hornblende and biotite phenocrysts in a very fine-grained matrix. Intrudes rocks older than unit Tam

Tm Monzonite (Oligocene or Eocene?)—Dark-gray, fine- to medium-grained, hypersthene-bearing, augite-hornblende-biotite monzonite forms Clayton Peak stock. On the basis of biotite K-Ar ages, unit is about 35.6 Ma old; zircon fission-track ages are about 40 Ma (Bromfield and others, 1977; Crittenden and others, 1973)

Qtc Till of Pinedale age (Pleistocene)—Poorly sorted bouldery till that forms prominent moraines. As mapped, may include some colluvium, talus, and landslide debris. A few meters thick except in moraines where maximum thickness is 180 m

Tam Mahogany Member (Lower Triassic)—Purplish-gray and pale-red sandstone, mudstone, and a few thin limestone beds. Thickness ranges from 200 m in Wasatch Range to 225 m on northwest flank of Uinta Mountains

Trt Thaynes Limestone (Lower Triassic)—Light-gray, thin- to thick-bedded limestone and brownish-gray siltstone containing beds of light-gray sandstone, pale-red silty limestone, light-gray shaly limestone, and dark greenish-gray siltstone and shale. Locally contains pelecypods, gastropods, and ammonites. Thickness ranges from 600 m north of Red Butte Creek to 915 m on northwest flank of Uinta Mountains

Trw Woodside Formation (Lower Triassic)—Grayish-red, grayish-purple, reddish-brown, and moderate-red shale, siltstone, and fine-grained sandstone; thin white limestone beds; and grayish-red siltstone. Locally a few tens of meters of green or greenish-gray shale and siltstone at the base. Thickness ranges from 120 m north of Red Butte Creek east of Salt Lake City to 300 m near Park City

Ppc Park City Formation and related rocks (Permian)—Fossiliferous and cherty, gray to grayish-gray limestone, calcareous siltstone, and cherty sandstone; near middle of unit is a dark-gray, phosphatic shale about 30 m thick (Meade Peak Phosphatic Shale Member of Phosphoria Formation). Thickness ranges from 200 m at Mill Creek southeast of Salt Lake City to 600 m at South Fork Dry Creek northeast of Salt Lake City

MDd Deseret Limestone (Upper and Lower Mississippian)—Thick-bedded dolomite and limestone; locally containing abundant lenses and pods of dark-gray chert. A 10–12-m-thick zone of black phosphatic shale and thin-bedded limestone at base. Occurs only in Wasatch Range. Thickness 140–295 m

Mg Gardison Limestone (Lower Mississippian)—Medium- to dark-gray, thin- to thick-bedded, fossiliferous limestone. Occurs only in Wasatch Range. Thickness about 200 m

DMu Hitchcock Formation (Lower Mississippian and Upper Devonian)—Upper part is dark-gray, massive dolomite containing a 1-m-thick bed of buff-weathering gray dolomitic marl at top; lower part consists of pale-gray, massive dolomite and a 0.2–1.3-m-thick bed of limy pebble sandstone at base. Occurs in Wasatch Range. Thickness about 55 m

Cu Tintic Quartzite (Middle and Lower Cambrian)—Medium- to thick-bedded, fine- to coarse-grained, white, pale-yellowish-gray, and pale-reddish-brown quartzite; conglomeratic beds in lower 100 m. Thickness 250–610 m in Wasatch Range. Discontinuous lenses of marl as much as 100 m thick locally are preserved in low-relief Devonian unconformity around Dry Mountains

Contact—Dashed where approximate or inferred, dotted where concealed. Many fault traces are compound features; only the name of most recent movement shown on map. Relative movement shown on cross section by arrow symbols (solid arrow indicates opposite movement sense at different areas). A, away from observer; T, toward observer

High-angle fault—Bar and ball on downthrown side

Thrust—Sawtooth on upper plate

Folds—Arrow shows direction of plunge where known. Dashed where approximately or inferred; dotted where concealed

Anticline

Overturned anticline

Syncline

Overturned syncline

Strike and dip of bedding

Inclined

Overturned

Vertical

Horizontal

Strike and dip of foliation and compositional layering where parallel

Inclined

Strike and dip of foliation

Inclined

Strike and dip of cataclastic foliation

Inclined

Bearing and plunge of mineral lineation. May be combined with plunet symbols

Polymorph locality—Showing U.S. Geological Survey Denver fossil-locality number. See sheet 2

NOTE: ALL GEOLOGY FROM
UTAH GEOLOGICAL SURVEY
SALT LAKE 30X60
GEOLOGY MAP

CASCADE

DEEPWATER DISTRIBUTION WELL 1 P.E.R	
Drawn By: JI	Scale: No Scale
Project Mgr: JF	Date: 9/18/0/8

APPENDIX

GEOLOGY LEGEND

Section 16.28.06 Culinary Water Source Protection.

No pollution sources or contamination sources as defined in the Utah Administrative Code for Drinking Water Source Protection shall be allowed in any "Source Protection Zone One" identified on maps maintained by the Wasatch County GIS Department and no potential contamination sources shall be allowed in any "Source Protection Zone Two" area identified on maps maintained by the Wasatch County GIS Department unless design standards are implemented to prevent contamination discharge and approved by the Utah State Division of Drinking Water.