BKUYLEN001

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN001
Well ID: 13909821CCD1
Stark County, North Dakota

LOCATION DATA

Owner/Operator Name: Robert and Brenda Kuylen

Owner/Operator Address and Contact Information: PO Box 273 South Heart, ND 58655 701-677-4115

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 21 Quarter Section SW Quarter Section SW Quarter Section SE

Coordinates of well/spring location and projection (from GPS):

Northing 436186 Easting 1359979 Projection State Plane

Relative location to landmarks and/or buildings: South of house in field. Approximately one quarter mile southeast of the power station.

Ground elevation 2557 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Stock

Owner/Operator comments: Well used to water cows in the pasture. Drilled when Bob Kuylen's dad owned the land.

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photos #1-3

WELL/SPRING CONSTRUCTION

Depth of well: 90 feet

Screened Interval: Not known to Not known feet

Diameter/Finish (metal casing, PVC, etc.): Metal, stick-up about 1-foot above ground surface, 4.5-inch diameter.

Date drilled/developed: Not known

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN001

Well ID: 13909821CCD1

Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Good condition. Well protected by wood fence.

Comments:

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photos #4-8

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Submersible

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Electric

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump plugs into 20 amp circuit. Used to be a windmill until 20 years ago when the submersible pump was installed. Old pump was hit by lightning and burnt out. Six gallon per minute fitting on outlet pipe.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN001

Well ID: 13909821CCD1

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Well Not Accessible

MP height above ground level: Well Not Accessible feet

Static water level in feet below MP: Not able to measure feet

Test Date: 5/7/08 Time: 10:16am to 10:46am

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): (in-place) temporary (circle one) Description Used the pump in-place

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Not able to take water level readings without removing cap that holds up entire pump system. Vent hole of approximately one quarter inch is too small for water level meter.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN001

Well ID: 13909821CCD1

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	5/7/08	0:38	NA	5	7.937	All measurements taken using a 5-gal bucket.
On	5/7/08	1:19	NA	10	7.317	
On	5/7/08	2:26	NA	15	4.478	
On	5/7/08	3:31	NA	20	4.615	
On	5/7/08	4:40	NA	25	4.348	
On	5/7/08	5:48	NA	30	4.412	
Off	5/7/08	12:00	NA	--	--	
On	5/7/08	13:15	NA	35	4.000	
Off	5/7/08	17:00	NA	--	--	
On	5/7/08	18:11	NA	40	4.225	
Off	5/7/08	21:30	NA	--	--	
On	5/7/08	22:40	NA	45	4.286	
Off	5/7/08	28:00	NA	--	--	
On	5/7/08	29:12	NA	50	4.167	
Off	5/7/08	30:00	NA	--	--	

Note:
1) NA means that well was Not Accessible (NA) to take water level measurements

WATER QUALITY DATA

Sample Date: 5/7/08 Time: 10:46am (usually at end of pump testing)

Sample point: End of outlet pipe.

Total Volume Purged: 50 gallons

pH (field measurement): 6.17 Conductivity (field measurement): 1.76 m S/cm

Temperature (field measurement): 10.2 ^{o}C

Appearance (clarity, odor, sediment, etc.): Slightly brown turning clear, slight sulfuric odor, slight black/coal sediment

Comments: _____

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photo #9

Laboratory analysis: Northern Analytical

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN001

State Well ID: 13909821CCD1/US71-303

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (1 of 6 wells) is accurate to the best of my knowledge and represents the true condition of this well on

Robert Kuylen

PRINT NAME

Robert Kuylen 10-11-08

SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 5/7/08 .This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi

PRINT NAME Jill Parisi

Jill Parisi

SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN001

Well ID: 13909821CCD1

Stark County, North Dakota

Additional Notes (if necessary):

BKuylen003 (US71-303) may be the same well as BKuylen001(13909821CCD1). However, the owner believes the depth of this well is 90 feet and the North Dakota State Water Commision database recorded this well depth as 140 feet. Due to this discrepancy BKuylen003 (US71-303) and BKuylen001 (13909821CCD1) were assumed to be two different wells.

PHOTO LOG

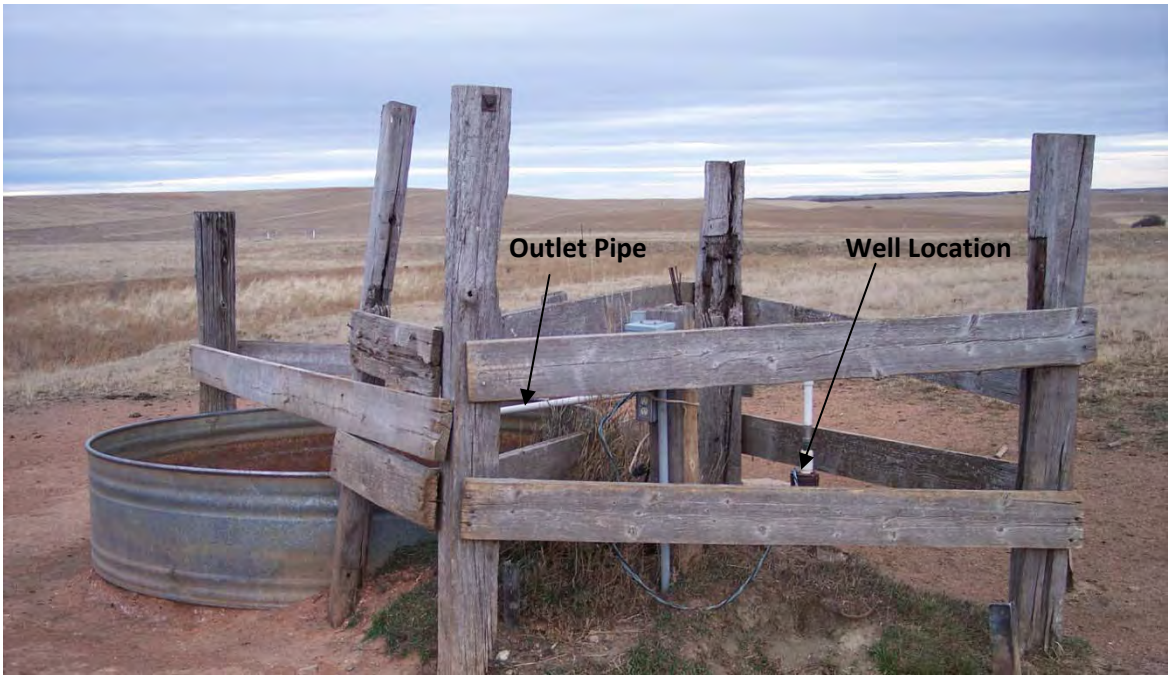

Photo #1: Well location for BKUYLEN001 in the field south of the house.

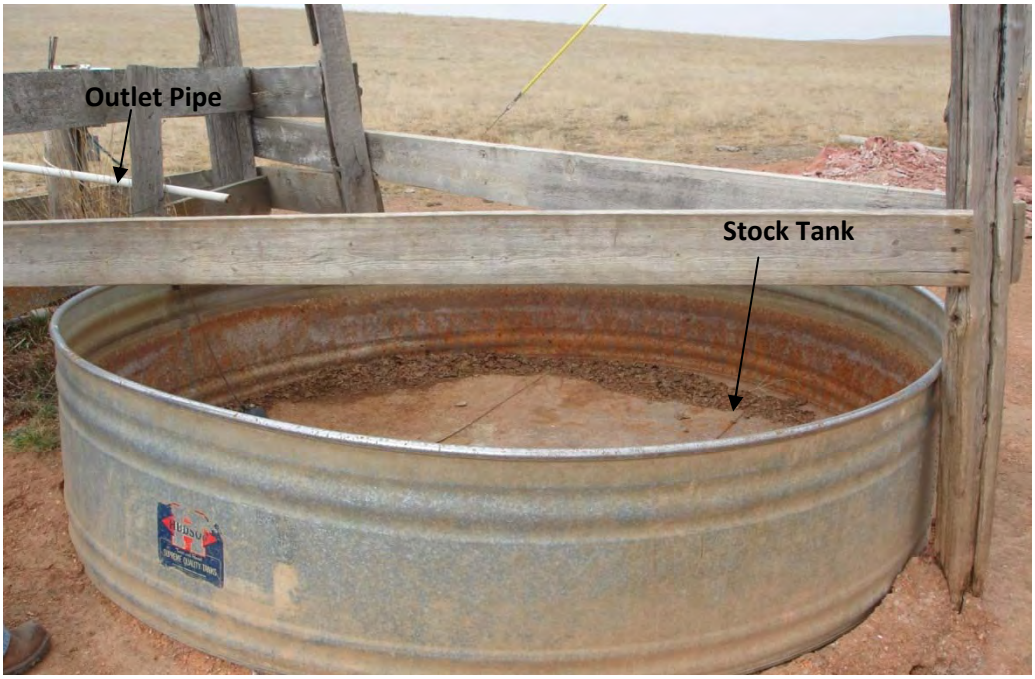

Photo #2: Well location for BKUYLEN001 showing stock tank and well outlet pipe.



Photo #3: Well location for BKUYLEN001 showing outlet pipe.

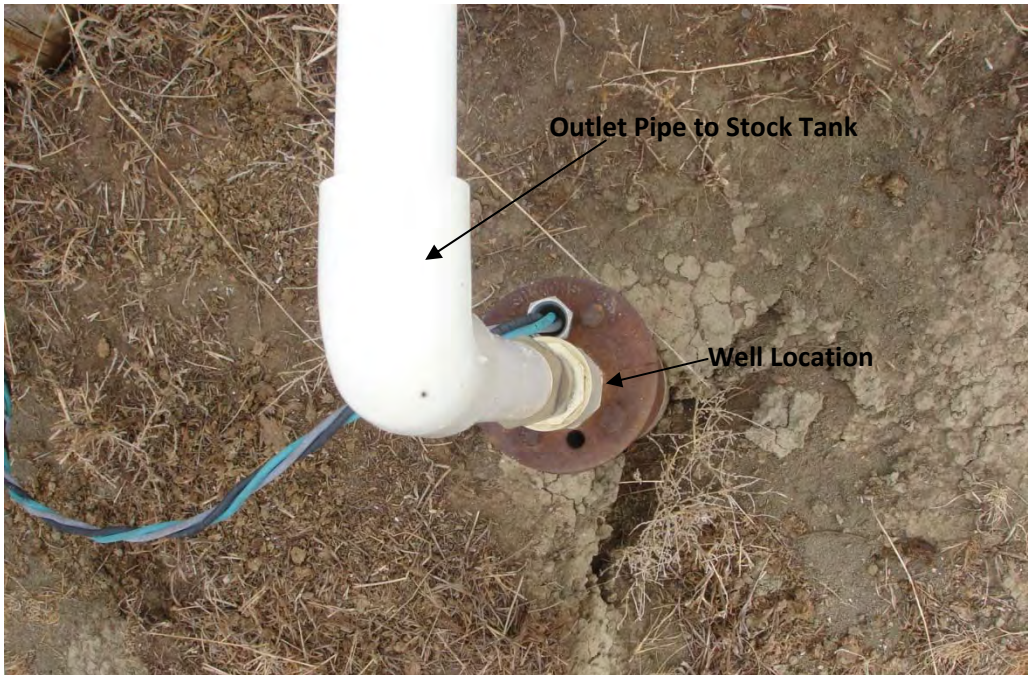

Photo #4: Well setup for BKUYLEN001 showing plumbing.



Photo #5: Well setup for BKUYLEN001 showing ¼-inch vent hole at well (too small for water level meter).



Photo #6: Well setup for BKUYLEN001 showing 6 gal/min fitting on well outlet pipe.



Photo #7: Well setup for BKUYLEN001 showing plumbing and electrical box.



Photo #8: Well setup for BKUYLEN001 showing electrical box.



Photo #9: Well water quality for BKUYLEN001 with outlet to stock tank.

Client: GOLDER ASSOCIATES, INC.
Project Name: SOUTH HEART WELL CERTIFICATION
Project No.: 0632174
Laboratory No.: 2008050051-1
Sample Name: BKUYLEN001
Sample Date/Time: 05/07/2008 14:22:
Collected by: J. PARISI
Sample Type: WATER

PARAMETER	MEASURED VALUE	UNITS	ANALYST	REPORTING LIMIT	METHOD NUMBER	DATE/TIME ANALYZED
SOUTH HEART WELL CERTIFICATION						
Turbidity	6.1	NTU	ES	0.2	180.1	05/08/2008 04:30:00 PM
Tannins & Lignins	0.41	mg/l	ES	0.05	5550B	06/02/2008 11:00:00 AM
pH	7.8	S.U.	CC	0.1-13.5	4500-H+-B	05/08/2008 04:56:34 PM
Alkalinity Bicarbonate as HCO3	1020	mg/l	BH	1	2320B	05/20/2008 09:20:00 AM
Alkalinity Carbonate as CO3	0	mg/l	BH	0	2320B	05/20/2008 09:20:00 AM
Alkalinity Total as CaCO3	840	mg/l	BH	1	2320B	05/20/2008 09:20:00 AM
Chloride as Cl	3	mg/l	ES	1	300.0	05/08/2008 04:43:00 PM
Sulfate as SO4	331	mg/l	ES	5	300.0	05/08/2008 05:44:00 PM
Hardness as CaCO3	55	mg/l	BH	7	2340B	05/20/2008 04:31:00 PM
Total Coliform Bacteria	Absent	cly/100ml	BD	0	AMATEC	05/08/2008 12:30:00 PM
Electrical Conductivity	2140	umhos/cm	CC	10	2510B	05/14/2008 02:30:00 PM
Total Dissolved Solids	1360	mg/l	RM	20	2540C	05/12/2008 09:17:00 AM
Total Suspended Solids	11	mg/l	RM	2	2540D	05/12/2008 09:18:00 AM
Calcium as Ca (Total)	9	mg/l	KC	1	200.7	05/20/2008 04:31:00 PM
Iron as Fe (Total)	3.23	mg/l	KC	0.01	200.7	05/20/2008 04:31:00 PM
Magnesium as Mg (Total)	8	mg/l	KC	1	200.7	05/20/2008 04:31:00 PM
Potassium as K (Total)	4	mg/l	KC	1	200.7	05/20/2008 04:31:00 PM
Sodium as Na (Total)	543	mg/l	KC	1	200.7	05/20/2008 04:31:00 PM
Nitrate as N	0.05	mg/l	ES	0.01	300.0	05/08/2008 04:43:00 PM
Sodium Adsorption Ratio	31.7	-----	BH	0.2	20b	05/20/2008 04:31:00 PM
Cations	24.73	meq/l	---	0.30	1030F	
Anions	23.77	meq/l	---	0.38	1030F	
Cation/Anion Balance	1.98	% [max 5%]	---	-----	AWWA/APHA	
Metals Batch#/Digestion Date	1530	-----	BH	-----	200.2	05/14/2008 01:00:00 PM

AMATEC™
Services, Inc.
1537 Avenue D
P.O. Box 20873
Billings, MT 59104-0873
(406) 248-2159
1-800-999-0976
(406) 248-5243 FAX
amatec@bresnan.net

REPORT OF BACTERIOLOGICAL EXAMINATION OF WATER SAMPLES

Office Use Only
1999-1195
R22532

Received Date 5/8/2008
Received Time 1130
Received By B. Wilcox
Test Date/Time 5/8/08 1230
Report Date 5/9/2008
Amount Due
P.O. # / Invoice #
PAID CASH
CHECK #
CrCd #
PAYMENT REQUIRED TO OBTAIN RESULTS

Northern Analytical
Attn: Kathy Smit
602 South 24th St
PO Box 30315
BILLINGS, MT 59107-0315

PERSON OR BUSINESS TO RECEIVE REPORT
(Please Indicate Changes)

Name Northern Analytical
Address 602 South 24th St
City Billings State MT Zip 59107-0315
County Yellowstone LOC: Private
Phone 406-254-7226 FAX Number 254-1389
E-Mail

SAMPLE COLLECTION INFORMATION
(Please Print)

Collected On Date 5/7/2008 Hour 1422
SYSTEM (Check One) ☐ Public ☒ Private
Collected By J. Parisi
Certified Operator
Certificate #

Sample Type	PWSID Number	Sample Site No. or Repeat location **	Cl RES P.P.M.	Sample No.	RESULTS–LAB USE ONLY Analytical Method: Colilert		
					TOTAL COLIFORM	FECAL	HPC
Water	NonPub	BKUYLEN 001		802232	**Coliforms Absent**		

PLEASE READ AND FOLLOW THESE DIRECTIONS.

1) Select Fixed Faucet. Remove Faucet Screen. Run cold water 3 minutes
2) Do Not Rinse bottle or remove pill. Fill to Line.
3) Complete Blank Form Info Request, Incompletes delay reporting.
   • Return to lab no later than 30 hours after collection.
   • EPA regs require the lab to commence testing within 30 hours after sampling.
   • When samples are mailed, a) collect after 9AM the same day your mail,
   • and b) mail priority before 12 Noon. Do not mail on Fridays.
4) Do not mail or deliver samples the day before any holiday. Samples must be tested or repeated, if tested extra charges will apply.
5) Routine testing is Monday,Tuesday, Wednesday, Thursday, and until Noon Friday.
6) Samples received by 3 PM on these days are set up the same day; otherwise they are heldover.
7) Samples received after Friday noon, and week-ends will result in extra charges.
8) The laboratory at its option determines the routine testing method(s), other methods used will result in extra charges.

Results of the examination of samples at the time received indicated that the water was:

☒ Satisfactory
☐ Unsatisfactory
☐ Send Repeat samples immediatly
☐ Repeat non-coliform interference

Date Notified: 5/9/2008 Notified by: Fax

Certified Microbiologist:
B. A. Microbiology
B. Davidson
Montana Lab # 0051

BKUYLEN002

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN002
State Well ID: US71-294
Stark County, North Dakota

LOCATION DATA

Owner/Operator Name: Robert and Brenda Kuylen

Owner/Operator Address and Contact Information: PO Box 273 South Heart, ND 58655 701-677-4115

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 16 Quarter Section SW Quarter Section SE Quarter Section SW

Coordinates of well/spring location and projection (from GPS):

Northing 441207 Easting 1360719 Projection State Plane

Relative location to landmarks and/or buildings: North of house, near stock pens

Ground elevation 2556 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Stock

Owner/Operator comments: Plumbed to stock tank where the float and discharge are located within the insulated tank (not readily accessible).

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photos #1-2

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 128* feet

Screened Interval: Not known* to Not known* feet

Diameter/Finish (metal casing, PVC, etc.): Not known

Date drilled/developed: Not known

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN002
State Well ID: US71-294
Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Not known

Comments:

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photos #3

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Submersible

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Electric

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner.

Information could not be obtained directly because the well is inaccessible.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN002
State Well ID: US71-294
Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Tested

MP height above ground level: Not Tested feet

Static water level in feet below MP: Not able to measure feet

Test Date: Not Tested Time: to

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place temporary (circle one) Description

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Not Tested

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN002

State Well ID: US71-294

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
Well and Pump not tested due to accessibility issues.						

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN002
State Well ID: US71-294
Stark County, North Dakota

WATER QUALITY DATA

Sample Date: Not Sampled Time: Not Sampled (usually at end of pump testing)

Sample point: Not Sampled

Total Volume Purged: Not Sampled gallons

pH (field measurement): Not Sampled Conductivity (field measurement): Not Sampled µ S/cm

Temperature (field measurement): Not Sampled °C

Appearance (clarity, odor, sediment, etc.): Not Sampled

Comments: Well not sampled because the well discharge was not accessible

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Not Sampled

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN002

State Well ID: US71-294

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (2 of 6 wells) is accurate to the best of my knowledge and represents the true condition of this well on

Robert Kuylen
PRINT NAME

Robert Kuyl 11-11-08
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 5/7/08 .This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi
PRINT NAME Jill Parisi

Jill Parisi
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN002

State Well ID: US71-294

Stark County, North Dakota

Additional Notes (if necessary):

PHOTO LOG



Photo #1: Well location for BKUYLEN002 showing stock tank.



Photo #2: Well location for BKUYLEN002 showing the stock tank.



Photo #3: Well setup for BKUYLEN002 showing plumbing and pressure tank.

BKUYLEN003

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN003
State Well ID: US71-303
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: Robert and Brenda Kuylen

Owner/Operator Address and Contact Information: PO Box 273 South Heart, ND 58655 701-677-4115

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N* Range 98W*

Section 21* Quarter Section SW* Quarter Section SW Quarter Section SE

Coordinates of well/spring location and projection (from GPS):

Northing 435939* Easting 1359884* Projection State Plane*

Relative location to landmarks and/or buildings: Owner cannot locate this well. The owners believe the well does not currently exist.

Ground elevation 2579.3 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Unknown*

Owner/Operator comments: Owner cannot locate this well. The owners believe the well does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s):

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 140* feet

Screened Interval: Not known* to Not known* feet

Diameter/Finish (metal casing, PVC, etc.): Not Known

Date drilled/developed: Not known

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN003
State Well ID: US71-303
Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Not known

Comments: Owner cannot locate this well. The owners believe this well does not exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s):

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Not Available

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Not Available

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner.

Information could not be obtained directly because the owners believe the well does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s):

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN003
State Well ID: US71-303
Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Tested

MP height above ground level: Not able to measure feet

Static water level in feet below MP: Not Tested feet

Test Date: Not Tested Time: to

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place temporary (circle one) Description Not Tested

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Not tested, the owners believe the well does not currently exist

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN003

State Well ID: US71-303

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN003
State Well ID: US71-303
Stark County, North Dakota

WATER QUALITY DATA

Sample Date: Not Sampled Time: Not Sampled (usually at end of pump testing)

Sample point: Not Sampled

Total Volume Purged: Not Sampled gallons

pH (field measurement): Not Sampled Conductivity (field measurement): Not Sampled m S/cm

Temperature (field measurement): Not Sampled ^{o}C

Appearance (clarity, odor, sediment, etc.): Not Sampled

Comments: Well not sampled because the owners believe the well does not currently exist

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s):

Laboratory analysis: Not Sampled

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN003

State Well ID: US71-303

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (3 of 6 wells) is accurate to the best of my knowledge and represents the true condition of this well on

Robert Kuylen
PRINT NAME

Robert Kuylen 10-11-08
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 5/7/08 .This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi
PRINT NAME Jill Parisi

Jill Parisi
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN003
State Well ID: US71-303
Stark County, North Dakota

Additional Notes (if necessary):

BKuylen003 (US71-303) may be the same well as BKuylen001 (13909821CCD1). However, the owner believes the depth of this well is 90 feet and the North Dakota State Water Commission database recorded this well depth as 140 feet. Due to this discrepancy BKuylen003 (US71-303) and BKuylen001 (13909821CCD1) were assumed to be two different wells.

BKUYLEN004

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN004
State Well ID: US71-300
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: Robert and Brenda Kuylen

Owner/Operator Address and Contact Information: PO Box 273 South Heart, ND 58655 701-677-4115

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N* Range 98W*

Section 21* Quarter Section NE* Quarter Section NE Quarter Section SE

Coordinates of well/spring location and projection (from GPS):

Northing 439899* Easting 1363844* Projection State Plane*

Relative location to landmarks and/or buildings: Owner cannot locate this well. The owners believe the well does not currently exist.

Ground elevation 2549.6 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Not known*

Owner/Operator comments: The owners believe the well does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 24* feet

Screened Interval: Not known* to Not known* feet

Diameter/Finish (metal casing, PVC, etc.): Not known

Date drilled/developed: Not known

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

Is Driller/Contractor's log available: Yes (No) (circle one)

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN004
State Well ID: US71-300
Stark County, North Dakota

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Not known

Comments: Owner can't locate this well and believes that it does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Not Available

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Not Available

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner.

Information could not be obtained directly because the well is inaccessible.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN004
State Well ID: US71-300
Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Tested

MP height above ground level: Not Tested feet

Static water level in feet below MP: Not able to measure feet

Test Date: Not Tested Time: to

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place temporary (circle one) Description Not Tested

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Not tested, the owners believe the well does not currently exist

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN004

State Well ID: US71-300

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN004
State Well ID: US71-300
Stark County, North Dakota

WATER QUALITY DATA

Sample Date: Not Sampled Time: Not Sampled (usually at end of pump testing)

Sample point: Not Sampled

Total Volume Purged: Not Sampled gallons

pH (field measurement): Not Sampled Conductivity (field measurement): Not Sampled µ S/cm

Temperature (field measurement): Not Sampled °C

Appearance (clarity, odor, sediment, etc.): Not Sampled

Comments: Well not sampled because the owners believe the well does not currently exist

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Not Sampled

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN004

State Well ID: US71-300

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (4 of 6 wells) is accurate to the best of my knowledge and represents the true condition of this well on

Robert Kuylen
PRINT NAME

Robert Kuylen
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 5/7/08. This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi
PRINT NAME Jill Parisi

Jill Parisi
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN004

State Well ID: US71-300

Stark County, North Dakota

Additional Notes (if necessary):

This well appears in the North Dakota State Water Commission database but does not exist according to the owner. Information from the North Dakota State Water Commission database was provided where applicable.

BKUYLEN005

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN005
State Well ID: US71-301
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: Robert and Brenda Kuylen

Owner/Operator Address and Contact Information: PO Box 273 South Heart, ND 58655 701-677-4115

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N* Range 98W*

Section 21* Quarter Section NE* Quarter Section SE Quarter Section SE

Coordinates of well/spring location and projection (from GPS):

Northing 438579* Easting 1363844* Projection State Plane*

Relative location to landmarks and/or buildings: Owner cannot locate this well. The owners believe the well does not currently exist.

Ground elevation 2560.2 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Not known*

Owner/Operator comments: The owners believe the well does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 160* feet

Screened Interval: Not known* to Not known* feet

Diameter/Finish (metal casing, PVC, etc.): Not known

Date drilled/developed: Not known

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

Is Driller/Contractor's log available: Yes (No) (circle one)

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN005
State Well ID: US71-301
Stark County, North Dakota

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Not known

Comments: Owner can't locate this well and believes that it does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Not Available

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Not Available

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner.

Information could not be obtained directly because the owners believe the well does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN005
State Well ID: US71-301
Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Tested

MP height above ground level: Not Tested feet

Static water level in feet below MP: Not able to measure feet

Test Date: Not Tested Time: to

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place temporary (circle one) Description Not Tested

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Not tested, the owners believe the well does not currently exist

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN005

State Well ID: US71-301

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN005
State Well ID: US71-301
Stark County, North Dakota

WATER QUALITY DATA

Sample Date: Not Sampled Time: Not Sampled (usually at end of pump testing)

Sample point: Not Sampled

Total Volume Purged: Not Sampled gallons

pH (field measurement): Not Sampled Conductivity (field measurement): Not Sampled µ S/cm

Temperature (field measurement): Not Sampled °C

Appearance (clarity, odor, sediment, etc.): Not Sampled

Comments: Well not sampled because the owners believe the well does not currently exist

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Not Sampled

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN005

State Well ID: US71-301

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (5 of 6 wells) is accurate to the best of my knowledge and represents the true condition of this well on

Robert Kuylen
PRINT NAME

Robert Kuylen 10-11-08
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 5/7/08 .This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi
PRINT NAME Jill Parisi

Jill Parisi
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN005
State Well ID: US71-301
Stark County, North Dakota

Additional Notes (if necessary):

This well appears in the North Dakota State Water Commission database but does not exist according to the owner. Information from the North Dakota State Water Commission database was provided where applicable.

BKUYLEN006

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN006
State Well ID: US71-302
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: Robert and Brenda Kuylen

Owner/Operator Address and Contact Information: PO Box 273 South Heart, ND 58655 701-677-4115

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N* Range 98W*

Section 21* Quarter Section NW* Quarter Section NE Quarter Section NW

Coordinates of well/spring location and projection (from GPS):

Northing 440559* Easting 1360544* Projection State Plane*

Relative location to landmarks and/or buildings: Located east of house in a concrete pit.

Ground elevation 2569 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Not known*

Owner/Operator comments: The owners have chosen to remove this well from the program. This well is not in use currently and Robert Kuylen believes it is not operational.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 96* feet

Screened Interval: Not known* to Not known* feet

Diameter/Finish (metal casing, PVC, etc.): Not known

Date drilled/developed: Not known

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN006
State Well ID: US71-302
Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Not known

Comments: The owners have chosen to remove this well from the program. This well is not in use currently and Robert Kuylen believes it is not operational.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Not Available

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Not Available

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN006
State Well ID: US71-302
Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Tested

MP height above ground level: Not Tested feet

Static water level in feet below MP: Not able to measure feet

Test Date: Not Tested Time: to

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place temporary (circle one) Description Not Tested

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Not tested because the owners have chosen to remove this well from the program. This well is not in use currently and Robert Kuylen believes it is not operational.

Photograph(s) Taken: Yes No (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN006

State Well ID: US71-302

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN006
State Well ID: US71-302
Stark County, North Dakota

WATER QUALITY DATA

Sample Date: Not Sampled Time: Not Sampled (usually at end of pump testing)

Sample point: Not Sampled

Total Volume Purged: Not Sampled gallons

pH (field measurement): Not Sampled Conductivity (field measurement): Not Sampled µ S/cm

Temperature (field measurement): Not Sampled °C

Appearance (clarity, odor, sediment, etc.): Not Sampled

Comments: Well not sampled because the owners have chosen to remove this well from the program. This well is not in use currently and Robert Kuylen believes it is not operational.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Not Sampled

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN006

State Well ID: US71-302

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (6 of 6 wells) is accurate to the best of my knowledge and represents the true condition of this well on

Robert Kuylen
PRINT NAME

Robert Kuylen 10-11-08
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 5/7/08. This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi
PRINT NAME Jill Parisi

Jill Parisi
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: BKUYLEN006
State Well ID: US71-302
Stark County, North Dakota

Additional Notes (if necessary):

The owners have chosen to remove this well from the program. This well is not in use currently and Robert Kuylen believes it is not operational. Information from the North Dakota State Water Commission database was provided where applicable.

CZARAK001

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: CZARAK001___
State Well ID: _____
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: Darlene and Christopher Zarak

Owner/Operator Address and Contact Information: 3711 124th Ave SW South Heart, ND 58655 (701) 575-4766

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 8 Quarter Section NE Quarter Section NE Quarter Section NE

Coordinates of well/spring location and projection (from GPS):

Northing 451066.8 Easting 1359025.9 Projection State Plane

Relative location to landmarks and/or buildings: 51 feet from southwest corner of well owners home.

Ground elevation 2522 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Stock

Owner/Operator comments: Well owner stated that well waters their feedlot, barn, and sheep pens. Owner's father knew more information on the well but he passed away 2 years ago. Well owner stated that the well was hooked up to the house until Southwest water was installed.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):1

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: CZARAK001___
State Well ID: _____
Stark County, North Dakota

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: Not Available feet

Screened Interval: Not Available to Not Available feet

Diameter/Finish (metal casing, PVC, etc.): 5-inch diameter metal casing.

Date drilled/developed: 1963

Driller/Contractor's Name: Not Available

Driller/Contractor's address and contact information: Not Available

Is Driller/Contractor's log available: Yes ☐ No ☒

Probable stratigraphic unit of well completion: Not Available

Condition of Well and Sanitary Protection: Good condition. Area around well head is tidy.

Comments: 5-inch diameter metal casing with a sealed well head.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):1

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: CZARAK001___
State Well ID: _____
Stark County, North Dakota

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Submersible.

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Electric

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Electrical power source comes from main power pole 60-feet west of well head.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):2

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: CZARAK001___

State Well ID: _____

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Available

MP height above ground level: Not Available feet

Static water level in feet below MP: Not able to measure feet

Test Date: 9/16/09 Time: 11:33 am to 12:03 pm

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place ☒ temporary ☐ Description In-Place pump.

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Pumped for 30 minutes continuously, measuring flow rate in 5 gallon pails with a stopwatch. Unable to take water level readings without removing well head cap and possibly damaging the well and well accessories. Ran water through 50-foot garden hose for flow test. Ran well pump for 5 minutes before starting flow test.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):3-4

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: CZARAK001
State Well ID: _____
Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	9/16/2009	0:32	NA	5	9.375	Pump on at 11:33 am
On	9/16/2009	1:02	NA	10	10.000	
On	9/16/2009	1:32	NA	15	10.000	
On	9/16/2009	2:03	NA	20	9.677	
On	9/16/2009	2:37	NA	25	8.824	
On	9/16/2009	3:06	NA	30	10.345	
On	9/16/2009	4:02	NA	35	5.357	
On	9/16/2009	4:33	NA	40	9.677	
On	9/16/2009	4:59	NA	45	11.538	
On	9/16/2009	5:30	NA	50	9.677	
On	9/16/2009	6:00	NA	55	10.000	
On	9/16/2009	6:29	NA	60	10.345	
On	9/16/2009	6:59	NA	65	10.000	
On	9/16/2009	7:27	NA	70	10.714	
On	9/16/2009	7:57	NA	75	10.000	
On	9/16/2009	8:28	NA	80	9.677	
On	9/16/2009	8:55	NA	85	11.111	
On	9/16/2009	9:23	NA	90	10.714	
On	9/16/2009	9:53	NA	95	10.000	
On	9/16/2009	10:23	NA	100	10.000	
On	9/16/2009	10:51	NA	105	10.714	
On	9/16/2009	11:21	NA	110	10.000	
On	9/16/2009	11:51	NA	115	10.000	
On	9/16/2009	12:20	NA	120	10.345	
On	9/16/2009	12:49	NA	125	10.345	
On	9/16/2009	13:18	NA	130	10.345	
On	9/16/2009	13:47	NA	135	10.345	
On	9/16/2009	14:17	NA	140	10.000	
On	9/16/2009	14:45	NA	145	10.714	
On	9/16/2009	15:14	NA	150	10.345	
On	9/16/2009	15:44	NA	155	10.000	
On	9/16/2009	16:12	NA	160	10.714	
On	9/16/2009	16:41	NA	165	10.345	
On	9/16/2009	17:10	NA	170	10.345	
On	9/16/2009	17:39	NA	175	10.345	
On	9/16/2009	18:07	NA	180	10.714	
On	9/16/2009	18:36	NA	185	10.345	
On	9/16/2009	19:04	NA	190	10.714	
On	9/16/2009	19:33	NA	195	10.345	
On	9/16/2009	20:02	NA	200	10.345	
On	9/16/2009	20:30	NA	205	10.714	
On	9/16/2009	20:58	NA	210	10.714	
On	9/16/2009	21:27	NA	215	10.345	
On	9/16/2009	21:56	NA	220	10.345	
On	9/16/2009	22:25	NA	225	10.345	
On	9/16/2009	22:53	NA	230	10.714	
On	9/16/2009	23:22	NA	235	10.345	
On	9/16/2009	23:51	NA	240	10.345	
On	9/16/2009	24:20	NA	245	10.345	
On	9/16/2009	24:49	NA	250	10.345	
On	9/16/2009	25:18	NA	255	10.345	
On	9/16/2009	25:48	NA	260	10.000	
On	9/16/2009	26:17	NA	265	10.345	
On	9/16/2009	26:50	NA	270	9.091	
On	9/16/2009	27:44	NA	280	11.111	
On	9/16/2009	28:16	NA	285	9.375	
On	9/16/2009	28:51	NA	290	8.571	
On	9/16/2009	29:15	NA	295	12.500	
On	9/16/2009	29:46	NA	300	9.677	
On	9/16/2009	30:13	NA	305	11.111	Pump off at 12:03 pm

Note:
1) NA means that well was Not Accessible (NA) to take water level measurements

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: CZARAK001___
State Well ID: _____
Stark County, North Dakota

WATER QUALITY DATA

Sample Date: 9/16/09 Time:12:05 pm (usually at end of pump testing)

Sample point: At end of 50-foot garden hose hooked to hydrant 50-feet northeast of well head.

Total Volume Purged: 305 gallons

pH (field measurement): 8.47 Conductivity (field measurement): 2003 µ S/cm

Temperature (field measurement): 14.02 ^{o}C

Appearance (clarity, odor, sediment, etc.): Brown with no apparent sediment and slight sulfur odor.

Comments: Well owner noted that the well water could not be used for lawn watering because it would kill the lawn.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):3-4

Laboratory analysis: Pace Analytical and Southwestern District Health Unit.

In general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

GOLDER Received JAN 11 2010 DENVER

Well/Spring ID: CZarak 001

State Well ID: _____

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (1 of 3 wells) is accurate to the best of my knowledge and represents the true condition of this well on

PRINT NAME

Owner Did not want to sign

SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 9/16/09. This WATER WELL CERTIFICATION is signed and certified as true and accurate

JAY BERG

PRINT NAME

SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: CZARAK001___

State Well ID: _____

Stark County, North Dakota

Additional Notes (if necessary):

_____

PHOTO LOG

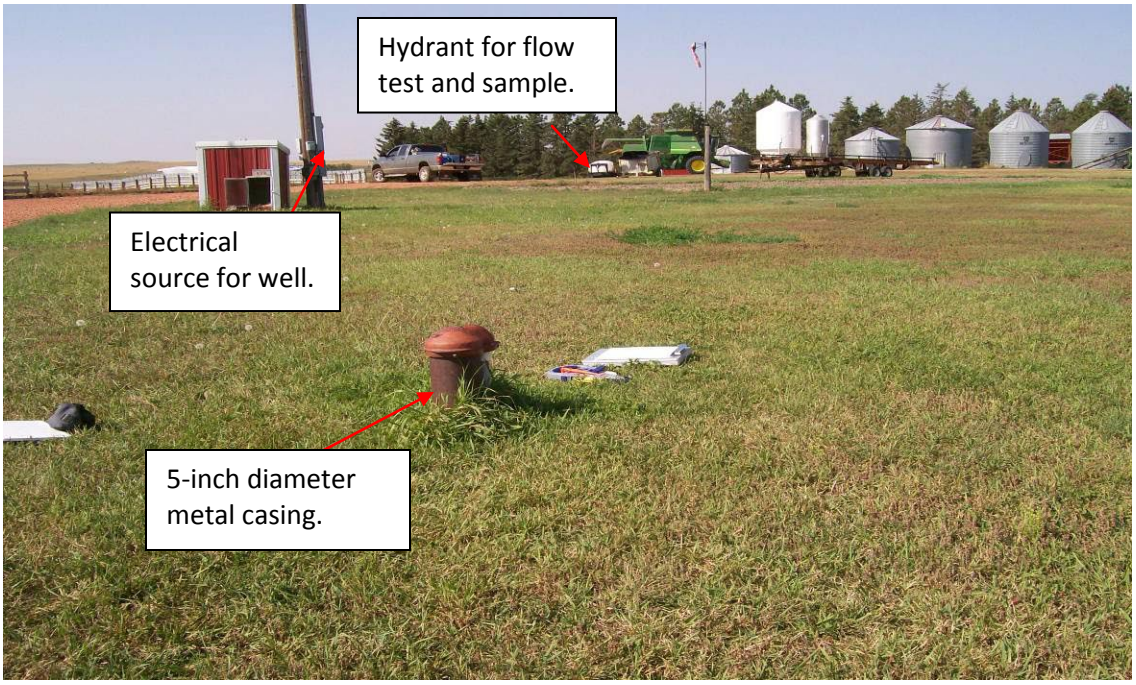

Photo #1: Well location.



Photo #2: Electrical source for well.

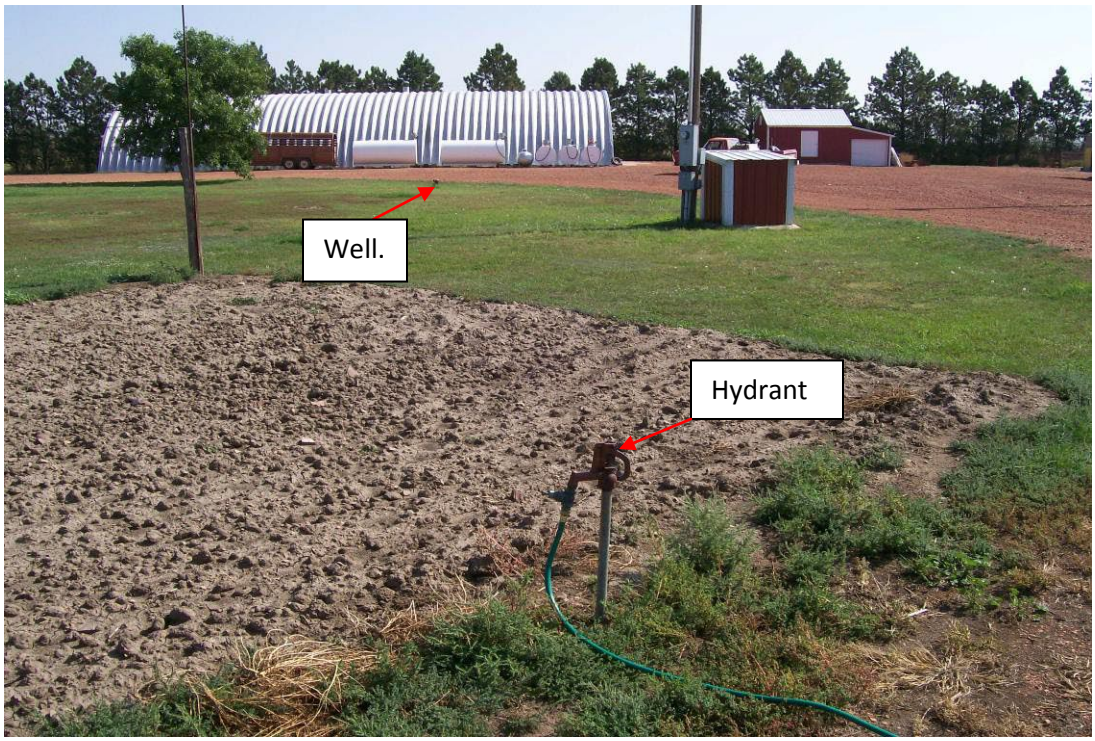

Photo #3: Hydrant for flow test and sample.



Photo #4: Water quality sample.

Pace Analytical Services, Inc.
602 S 25th Street
Billings, MT 591014549
(406)254-7226

ANALYTICAL RESULTS

Project: South Heart Well Cert 063-2174
Pace Project No.: 10112627

Sample: CZARAK001 **Lab ID: 10112627001** Collected: 09/16/09 12:05 Received: 09/17/09 08:08 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium	**2.1**	mg/L	0.50	0.25	1	09/23/09 13:04	09/24/09 16:54	7440-70-2	
Magnesium	**1.4**	mg/L	0.50	0.25	1	09/23/09 13:04	09/24/09 16:54	7439-95-4	
Sodium	**438**	mg/L	5.0	2.5	5	09/23/09 13:04	09/25/09 11:09	7440-23-5	
Total Hardness by 2340B	**11.1**	mg/L	3.3	1.6	1	09/23/09 13:04	09/24/09 16:54		
Sodium Adsorption Ratio, SAR	Analytical Method: Calculated								
Sodium Adsorption Ratio	**57.2**		0.24		1		09/30/09 13:33		
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Iron	**0.095**	mg/L	0.010	0.0050	1	09/22/09 08:06	09/24/09 20:50	7439-89-6	
2130B Turbidity	Analytical Method: SM 2130B								
Turbidity	**1.4**	NTU	0.20	0.050	1		09/18/09 09:30		
2510B Specific Conductance	Analytical Method: SM 2510B								
Specific Conductance	**1820**	umhos/cm	10.0	5.0	1		09/18/09 12:40		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	ND	mg/L	1.0	0.50	1		09/17/09 16:28		
300.0 IC Anions	Analytical Method: EPA 300.0								
Chloride	**5.7**	mg/L	3.0	0.084	3		09/23/09 00:10	16887-00-6	
Sulfate	**9.3**	mg/L	5.0	0.16	1		09/22/09 08:00	14808-79-8	
353.2 Nitrate + Nitrite pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**0.040**	mg/L	0.010	0.0050	1		09/22/09 13:05		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**8.6**	Std. Units	0.10	0.050	1		09/17/09 10:30		H6
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**894**	mg/L	10.0	0.52	2		09/24/09 16:16		
Alkalinity, Carbonate (CaCO3)	**52.9**	mg/L	10.0	0.52	2		09/24/09 16:16		
Alkalinity, Total as CaCO3	**946**	mg/L	10.0	0.52	2		09/24/09 16:16		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1150**	mg/L	20.0	5.0	1		09/21/09 13:44		
Cation/Anion Balance	Analytical Method: SM 1030F								
Cation/Anion Balance	**0.0**	%			1		09/28/09 18:36		1M

Date: 09/30/2009 05:24 PM

REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
602 S 25th Street
Billings, MT 591014549
(406)254-7226

QUALIFIERS

Project: South Heart Well Cert 063-2174
Pace Project No.: 10112627

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

U - Indicates the compound was analyzed for, but not detected.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis
PASI-MT	Pace Analytical Services - Montana

ANALYTE QUALIFIERS

1M	Percent difference is less than the allowable difference of 5%.
D6	The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.
D8	The sample and duplicate results for this parameter are less than 5 times the reporting limit, the RPD may not be statistically valid.
H6	Analysis initiated more than 15 minutes after sample collection.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
P6	Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

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without the written consent of Pace Analytical Services, Inc..

Data Qualifiers

Inorganic Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
E	The result is an estimated amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
Z	Too many colonies were present (TNTC). The numeric value represents the filtration volume.
i	The MRL/MDL has been elevated due to matrix interference.
X	See case narrative.

Metals Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The reported value is estimated because of the presence of matrix interference.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The result was determined by Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL has been elevated due to matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.

Organic Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
A	The tentatively identified compound is a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria were exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides)
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
i	The MRL/MDL has been elevated due to a chromatographic interference.
X	See case narrative.

Petroleum Hydrocarbon Specific

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Pace Analytical Services
Project Name : South Heart Well Cert 063-2174
Project Number : 10112627
Sample Matrix : WATER

Service Request : J0904639
Date Collected : 09/16/09
Date Received : 09/18/09

Tannin and Lignin

Analysis Method : SM 5550B
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date/Time Analyzed	Result	Result Notes
CZARAK001	J0904639-001	0.5	0.048	1	09/21/09 16:11	6.0	
Method Blank	J0904639-MB	0.5	0.048	1	09/21/09 16:11	U	

Report By: Palimi

WATER SYSTEM BACTERIOLOGICAL WATER ANALYSIS

SOUTHWESTERN DISTRICT HEALTH UNIT
2869 3rd Avenue West, Dickinson, ND 58601 • 701-483-0171 or 1-800-697-3145

GLDE Received SEP 21 2009 DENVER

LEFT SIDE OF FORM MUST BE COMPLETED BY COLLECTOR

Name of Collector	Telephone Number
JAY BERG	701-260-6118

Date Collected	Time Collected
9/16/09	12:05

Collection Point/Remarks
C Zarak (001)

Sample Source (Check One):
- ☐ Domestic Well
- ☐ Swimming Pool
- ☐ Surface Water
- ☐ Spa
- ☒ Stock Well
- ☐ Public Water System _____
- ☐ Other _____

Reason for Sample (Check One):
- ☐ Routine
- ☐ Retest
- ☐ Mortgage Requirement
- ☐ USDA Required
- ☐ Required by other state or federal regulations
- ☐ Water treatment check (raw or treated)
- ☐ ND Dairy Dept.
- ☒ Special purpose (explain) Well Certification

SWIMMING POOL/SPA INFORMATION

POOL/SPA NAME		
Free Chlorine	Total Chlorine	pH

WATER SUPPLY INFORMATION FOR PRIVATE SYSTEMS

County: Stark

Township Number	Range Number	Section Number

Well Depth _____ ft. Well Diameter _____ in.

Owner: Christopher Zarak

Address:

City	State	Zip Code

Send Results To (if other than owner): Ed Potterff, Golder Assoc.

Address: 44 Union Blvd. Suite 300

City	State	Zip Code
Lakewood	CO	80228

STOP! RIGHT SIDE OF FORM IS FOR LABORATORY USE ONLY.

Paid - Amount	☐ CHECK # _____ ☐ CASH

PLEASE READ THE ENCLOSED INSTRUCTIONS BEFORE SAMPLING

Do NOT Submit Samples on FRIDAYS

(*NOTE - Pool/Spa, Retest, and Fermentation Tube samples must be **received** by Wednesday of the week)

Lab Number	
1283	
Date of Receipt: 9-16-09	Time of Receipt: 1555
Date of Analysis: 9-16-09	Time of Analysis: 1555
Date Completed: 9-18-09	Analyst: KP

Remarks

ANALYSIS METHOD
- ☒ Fermentation Tube
- ☐ Membrane Filter
- ☐ Presence-Absence
- ☐ Other _____

COLIFORM ANALYSIS
- ☒ SATISFACTORY - No Coliforms Found
- ☐ UNSATISFACTORY - Coliforms Present - SEND REPEAT SAMPLES
  - ☐ No Fecal Coliforms Found
  - ☐ Fecal Coliforms Present
  - ☐ No *E coli* Found
  - ☐ *E coli* Present

Coliforms per 100 ml	Fecal Coliforms per 100 ml
0	

SAMPLE VOIDED - SEND REPLACEMENT
- ☐ Turbid Without Gas Production
- ☐ Too Numerous to Count
- ☐ Confluent Growth
- ☐ Turbid Without Acid Reaction
- ☐ Sample Too Old
- ☐ Other _____

STANDARD PLATE COUNT PER ML _____
R2A PLATE COUNT PER ML _____
- ☐ Satisfactory
- ☐ Unsatisfactory

NITRATE SCREEN <2 mg/l
- ☒ Satisfactory
- ☐ Unsatisfactory
- ☐ Result to Follow

(< is less than > is more than)

White - lab (top copy) will be returned with the results

Canary - retained by lab

CZARAK002

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: CZARAK002___
State Well ID: _____
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: Darlene and Christopher Zarak

Owner/Operator Address and Contact Information: 3711 124th Ave SW South Heart, ND 58655 (701) 575-4766

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 8 Quarter Section NE Quarter Section SE Quarter Section SW

Coordinates of well/spring location and projection (from GPS):

Northing 449075.5 Easting 1358619.2 Projection State Plane

Relative location to landmarks and/or buildings: North side of cement water fountain 200 feet northeast of polebarn.

Ground elevation 2518 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Stock

Owner/Operator comments: Well owner stated that well waters cattle. Owner's father knew more information on the well but he passed away 2 years ago.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):1

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: CZARAK002___
State Well ID: _____
Stark County, North Dakota

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: Not Available feet

Screened Interval: Not Available to Not Available feet

Diameter/Finish (metal casing, PVC, etc.): 4-inch diameter PVC casing.

Date drilled/developed: Redrilled in 1994

Driller/Contractor's Name: Not Available

Driller/Contractor's address and contact information: Not Available

Is Driller/Contractor's log available: Yes ☐ No ☒

Probable stratigraphic unit of well completion: Not Available

Condition of Well and Sanitary Protection: Good condition. Area around well head is tidy.

Comments: 4-inch diameter PVC casing, sealed well head with 17-inch stick-up.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):2-3

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: CZARAK002___
State Well ID: _____
Stark County, North Dakota

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Submersible.

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Electric

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments:

Photograph(s) Taken: Yes ☐ No ☒ Photo ID(s):

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: CZARAK002___

State Well ID: _____

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Available

MP height above ground level: Not Available feet

Static water level in feet below MP: Not able to measure feet

Test Date: 9/16/09 Time: 2:01 pm to 2:32 pm

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place ☒ temporary ☐ Description In-Place pump.

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Pumped for 30 minutes continuously, measuring flow rate in 5 gallon pails with a stopwatch. Unable to take water level readings without removing well head cap and possibly damaging the well and well accessories. Ran water through 50-foot garden hose for flow test. Ran well pump for 5 minutes before starting flow test.

Photograph(s) Taken: Yes ☐ No ☒ Photo ID(s):

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: CZARAK002
State Well ID: _____
Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	9/16/2009	0:46	NA	5	6.522	Pump on at 2:01 pm
On	9/16/2009	1:33	NA	10	6.383	
On	9/16/2009	2:21	NA	15	6.250	
On	9/16/2009	3:09	NA	20	6.250	
On	9/16/2009	3:58	NA	25	6.122	
On	9/16/2009	4:46	NA	30	6.250	
On	9/16/2009	5:35	NA	35	6.122	
On	9/16/2009	6:23	NA	40	6.250	
On	9/16/2009	7:11	NA	45	6.250	
On	9/16/2009	7:59	NA	50	6.250	
On	9/16/2009	8:49	NA	55	6.000	
On	9/16/2009	9:38	NA	60	6.122	
On	9/16/2009	10:28	NA	65	6.000	
On	9/16/2009	11:17	NA	70	6.122	
On	9/16/2009	12:06	NA	75	6.122	
On	9/16/2009	12:54	NA	80	6.250	
On	9/16/2009	13:43	NA	85	6.122	
On	9/16/2009	14:32	NA	90	6.122	
On	9/16/2009	15:21	NA	95	6.122	
On	9/16/2009	16:10	NA	100	6.122	
On	9/16/2009	17:45	NA	105	3.158	
On	9/16/2009	18:34	NA	110	6.122	
On	9/16/2009	19:24	NA	115	6.000	
On	9/16/2009	20:11	NA	120	6.383	
On	9/16/2009	21:00	NA	125	6.122	
On	9/16/2009	21:49	NA	130	6.122	
On	9/16/2009	22:38	NA	135	6.122	
On	9/16/2009	23:23	NA	140	6.667	
On	9/16/2009	24:13	NA	145	6.000	
On	9/16/2009	25:02	NA	150	6.122	
On	9/16/2009	25:50	NA	155	6.250	
On	9/16/2009	26:40	NA	160	6.000	
On	9/16/2009	27:29	NA	165	6.122	
On	9/16/2009	28:17	NA	170	6.250	
On	9/16/2009	29:05	NA	175	6.250	
On	9/16/2009	29:54	NA	180	6.122	
Off	9/16/2009	30:35	NA	185	7.317	Pump off at 2:32 pm

Note:
1) NA means that well was Not Accessible (NA) to take water level measurements

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: CZARAK002___
State Well ID: _____
Stark County, North Dakota

WATER QUALITY DATA

Sample Date: 9/16/09 Time: 2:32 pm (usually at end of pump testing)

Sample point: At end of 50-foot garden hose hooked to pipe coming from well head.

Total Volume Purged: 185 gallons

pH (field measurement): 8.01 Conductivity (field measurement): 2161 µ S/cm

Temperature (field measurement): 10.65 ^{o}C

Appearance (clarity, odor, sediment, etc.): Brown tint with no apparent sediment and slight sulfur odor.

Comments:

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):4

Laboratory analysis: Pace Analytical and Southwestern District Health Unit.

In general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

GOLDER Received JAN 11 2010 DENVER

Well/Spring ID: CZARAK 602

State Well ID: _____

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (2 of 3 wells) is accurate to the best of my knowledge and represents the true condition of this well on

_____
PRINT NAME

Owner did not want to sign.
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 9/16/09. This WATER WELL CERTIFICATION is signed and certified as true and accurate

JAY BERG
PRINT NAME

SIGNED 9/16/09
DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: CZARAK002___

State Well ID: _____

Stark County, North Dakota

Additional Notes (if necessary):

_____

PHOTO LOG

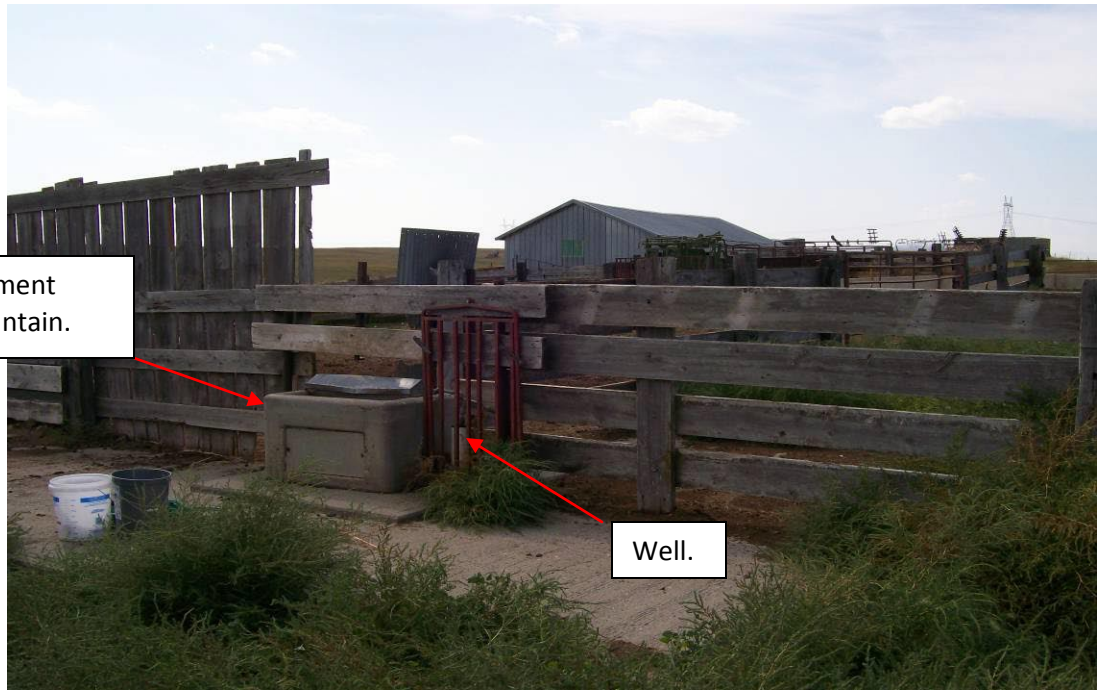

Photo #1: Well location.



Photo #2: Well construction.

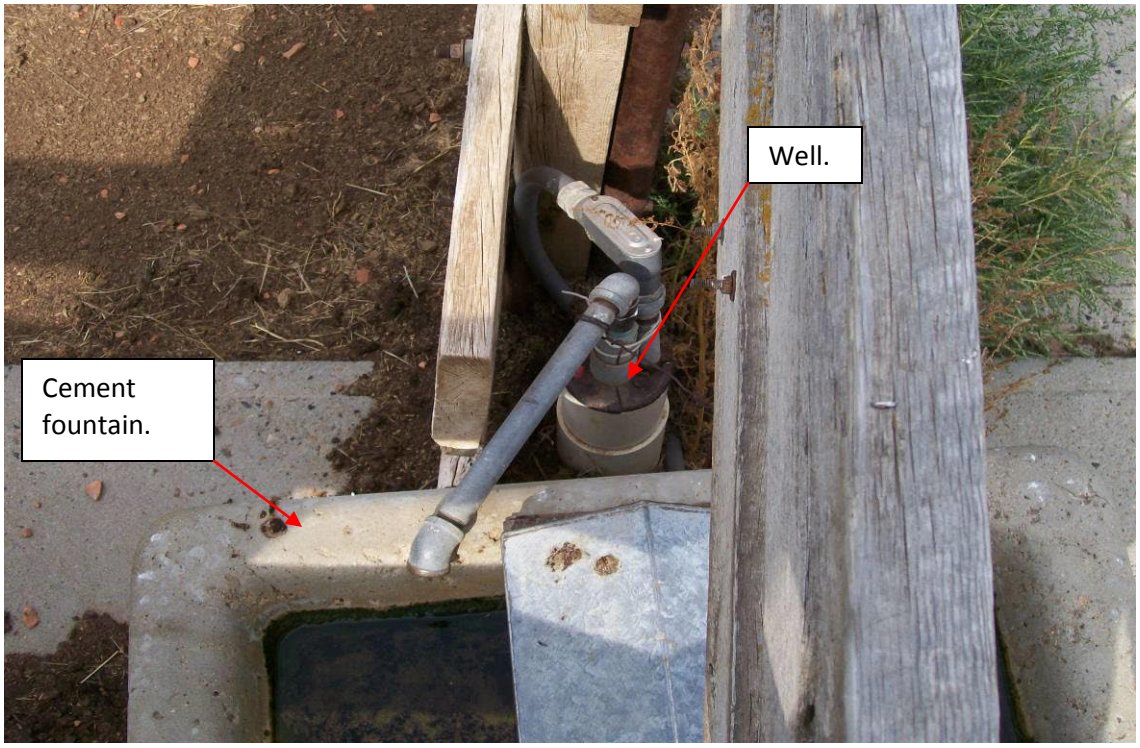

Photo #3: Well Construction.



Photo #4: Water quality sample.

Pace Analytical Services, Inc.
602 S 25th Street
Billings, MT 591014549
(406)254-7226

ANALYTICAL RESULTS

Project: South Heart Well Cert 063-2174
Pace Project No.: 10112627

Sample: CZARAK002 **Lab ID: 10112627002** Collected: 09/16/09 14:32 Received: 09/17/09 08:08 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium	**2.0**	mg/L	0.50	0.25	1	09/23/09 13:04	09/24/09 17:01	7440-70-2	
Magnesium	**1.6**	mg/L	0.50	0.25	1	09/23/09 13:04	09/24/09 17:01	7439-95-4	
Sodium	**453**	mg/L	5.0	2.5	5	09/23/09 13:04	09/25/09 11:14	7440-23-5	
Total Hardness by 2340B	**11.4**	mg/L	3.3	1.6	1	09/23/09 13:04	09/24/09 17:01		
Sodium Adsorption Ratio, SAR	Analytical Method: Calculated								
Sodium Adsorption Ratio	**58.2**		0.24		1		09/30/09 13:34		
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Iron	**0.098**	mg/L	0.010	0.0050	1	09/22/09 08:06	09/24/09 20:55	7439-89-6	
2130B Turbidity	Analytical Method: SM 2130B								
Turbidity	**0.42**	NTU	0.20	0.050	1		09/18/09 09:30		
2510B Specific Conductance	Analytical Method: SM 2510B								
Specific Conductance	**1920**	umhos/cm	10.0	5.0	1		09/18/09 12:40		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**5.1**	mg/L	1.1	0.53	1		09/17/09 16:28		
300.0 IC Anions	Analytical Method: EPA 300.0								
Chloride	**4.5**	mg/L	3.0	0.084	3		09/23/09 01:11	16887-00-6	
Sulfate	**15.3**	mg/L	5.0	0.16	1		09/22/09 09:01	14808-79-8	
353.2 Nitrate + Nitrite pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**0.030**	mg/L	0.010	0.0050	1		09/22/09 13:08		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**8.7**	Std. Units	0.10	0.050	1		09/17/09 10:30		H6
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**865**	mg/L	10.0	0.52	2		09/24/09 16:16		
Alkalinity, Carbonate (CaCO3)	**49.1**	mg/L	10.0	0.52	2		09/24/09 16:16		
Alkalinity, Total as CaCO3	**914**	mg/L	10.0	0.52	2		09/24/09 16:16		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1220**	mg/L	20.0	5.0	1		09/21/09 13:45		
Cation/Anion Balance	Analytical Method: SM 1030F								
Cation/Anion Balance	**3.1**	%			1		09/28/09 18:37		1M

Date: 09/30/2009 05:24 PM

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
602 S 25th Street
Billings, MT 591014549
(406)254-7226

QUALIFIERS

Project: South Heart Well Cert 063-2174
Pace Project No.: 10112627

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

U - Indicates the compound was analyzed for, but not detected.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis
PASI-MT	Pace Analytical Services - Montana

ANALYTE QUALIFIERS

1M	Percent difference is less than the allowable difference of 5%.
D6	The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.
D8	The sample and duplicate results for this parameter are less than 5 times the reporting limit, the RPD may not be statistically valid.
H6	Analysis initiated more than 15 minutes after sample collection.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
P6	Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

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Data Qualifiers

Inorganic Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
E	The result is an estimated amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
Z	Too many colonies were present (TNTC). The numeric value represents the filtration volume.
i	The MRL/MDL has been elevated due to matrix interference.
X	See case narrative.

Metals Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The reported value is estimated because of the presence of matrix interference.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The result was determined by Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL has been elevated due to matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.

Organic Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
A	The tentatively identified compound is a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria were exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides)
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
i	The MRL/MDL has been elevated due to a chromatographic interference.
X	See case narrative.

Petroleum Hydrocarbon Specific

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Pace Analytical Services
Project Name : South Heart Well Cert 063-2174
Project Number : 10112627
Sample Matrix : WATER

Service Request : J0904639
Date Collected : 09/16/09
Date Received : 09/18/09

Tannin and Lignin

Analysis Method : SM 5550B
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date/Time Analyzed	Result	Result Notes
CZARAK002	J0904639-002	0.5	0.048	1	09/21/09 16:11	3.7	
Method Blank	J0904639-MB	0.5	0.048	1	09/21/09 16:11	U	

Report By: Palimi

WATER SYSTEM BACTERIOLOGICAL WATER ANALYSIS

SOUTHWESTERN DISTRICT HEALTH UNIT
2869 3rd Avenue West, Dickinson, ND 58601 • 701-483-0171 or 1-800-697-3145

Received
SEP 21 2009
DENVER

LEFT SIDE OF FORM MUST BE COMPLETED BY COLLECTOR

Name of Collector	Telephone Number
JAY BERG	701-260-6118

Date Collected	Time Collected
9/16/09	14:32

Collection Point/Remarks: CZARAK ØØ2

Sample Source (Check One):
- ☐ Domestic Well
- ☐ Swimming Pool
- ☐ Surface Water
- ☐ Spa
- ☒ Stock Well
- ☐ Public Water System
- ☐ Other ~~Well Certification~~

Reason for Sample (Check One):
- ☐ Routine
- ☐ Retest
- ☐ Mortgage Requirement
- ☐ USDA Required
- ☐ Required by other state or federal regulations
- ☐ Water treatment check (raw or treated)
- ☐ ND Dairy Dept.
- ☒ Special purpose (explain) well Certificatron

SWIMMING POOL/SPA INFORMATION

POOL/SPA NAME		
Free Chlorine	Total Chlorine	pH

WATER SUPPLY INFORMATION FOR PRIVATE SYSTEMS

County: STARK

Township Number	Range Number	Section Number

Well Depth _____ ft. Well Diameter _____ in.

Owner: Christopher Zorak

Address:

City	State	Zip Code

Send Results To (if other than owner): Ed Pottorff, Baldi Assoc.

Address: 44 Union Blvd Suite 300

City	State	Zip Code
Lakewood	CO	80228

STOP! RIGHT SIDE OF FORM IS FOR LABORATORY USE ONLY.

Paid - Amount

☐ CHECK # _____
☐ CASH

PLEASE READ THE ENCLOSED INSTRUCTIONS BEFORE SAMPLING

Do NOT Submit Samples on FRIDAYS

(***NOTE** - Pool/Spa, Retest, and Fermentation Tube samples must be **received** by Wednesday of the week)

Lab Number	
1282	
Date of Receipt: 9-16-09	Time of Receipt: 1555
Date of Analysis: 9-16-09	Time of Analysis: 1555
Date Completed: 9-15-09	Analyst: KP

Remarks:

ANALYSIS METHOD
- ☒ Fermentation Tube
- ☐ Membrane Filter
- ☐ Presence-Absence
- ☐ Other

COLIFORM ANALYSIS
- ☒ SATISFACTORY - No Coliforms Found
- ☐ UNSATISFACTORY - Coliforms Present - SEND REPEAT SAMPLES
  - ☐ No Fecal Coliforms Found
  - ☐ Fecal Coliforms Present
  - ☐ No *E coli* Found
  - ☐ *E coli* Present

Coliforms per 100 ml	Fecal Coliforms per 100 ml
0	

SAMPLE VOIDED - SEND REPLACEMENT
- ☐ Turbid Without Gas Production
- ☐ Too Numerous to Count
- ☐ Confluent Growth
- ☐ Turbid Without Acid Reaction
- ☐ Sample Too Old
- ☐ Other

STANDARD PLATE COUNT PER ML _____
R2A PLATE COUNT PER ML _____
- ☐ Satisfactory
- ☐ Unsatisfactory

NITRATE SCREEN 22 mg/l
- ☒ Satisfactory
- ☐ Unsatisfactory
- ☐ Result to Follow

(< is less than > is more than)

SWDHU 05/2004

White - lab (top copy) will be returned with the results

Canary - retained by lab

DKUDRNA001

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DKUDRNA001

State Well ID: _____

Stark County, North Dakota

LOCATION DATA

Owner/Operator Name: Donald and Mildred Kudrna

Owner/Operator Address and Contact Information: PO Box 313 South Heart, ND 58655 701-677-5548

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 13 Quarter Section NW Quarter Section NW Quarter Section NE

Coordinates of well/spring location and projection (from GPS):

Northing 445124 Easting 1375907 Projection State Plane

Relative location to landmarks and/or buildings: Approximately 15 feet south of the house below decorative windmill

Ground elevation 2484 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Domestic (includes lawn watering)

Owner/Operator comments: Used for underground sprinkler system or as a faucet that can bypass system.

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photo #1

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 55 feet

Screened Interval: Not known to Not known feet

Diameter/Finish (metal casing, PVC, etc.): 5-inch diameter metal casing

Date drilled/developed: Approximately between 1982 and 1988

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

Is Driller/Contractor's log available: Yes (No) (circle one)

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DKUDRNA001

State Well ID: _____

Stark County, North Dakota

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Good condition

Comments: Well installed prior to Don Kudrna moving into the house in 1988.

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photo #2

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Submersible

Make: Sears Model # 390 28101 Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Electric

Horsepower (e.g., ½, ¾, 1, etc.): ½ horsepower

Comments:

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photo #3

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DKUDRNA001

State Well ID: _____

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: End of 50-foot hose connected to faucet

MP height above ground level: approximately 4 feet

Static water level in feet below MP: Not able to measure feet

Test Date: 11/4/08 Time: 10:33am to 11:03am

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): (in-place) temporary (circle one) Description Used the pump in-place

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: There was no readily available access into the well for water level measurements.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DKUDRNA001____

State Well ID: _____

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	11/4/2008	0:26	NA	5	11.538	Pump on at 10:33 am
On	11/4/2008	0:52	NA	10	11.538	
On	11/4/2008	1:18	NA	15	11.538	
On	11/4/2008	1:47	NA	20	10.345	
On	11/4/2008	2:13	NA	25	11.538	
On	11/4/2008	2:39	NA	30	11.538	
On	11/4/2008	3:05	NA	35	11.538	
On	11/4/2008	3:31	NA	40	11.538	
On	11/4/2008	3:58	NA	45	11.111	
On	11/4/2008	4:23	NA	50	12.000	
On	11/4/2008	4:50	NA	55	11.111	
On	11/4/2008	5:16	NA	60	11.538	
On	11/4/2008	5:43	NA	65	11.111	
On	11/4/2008	6:09	NA	70	11.538	
On	11/4/2008	6:37	NA	75	10.714	
On	11/4/2008	7:04	NA	80	11.111	
On	11/4/2008	7:31	NA	85	11.111	
On	11/4/2008	7:58	NA	90	11.111	
On	11/4/2008	8:25	NA	95	11.111	
On	11/4/2008	8:52	NA	100	11.111	
On	11/4/2008	9:18	NA	105	11.538	
On	11/4/2008	9:44	NA	110	11.538	
On	11/4/2008	10:12	NA	115	10.714	
On	11/4/2008	10:39	NA	120	11.111	
On	11/4/2008	11:06	NA	125	11.111	
On	11/4/2008	11:32	NA	130	11.538	
On	11/4/2008	11:59	NA	135	11.111	
On	11/4/2008	12:25	NA	140	11.538	
On	11/4/2008	12:50	NA	145	12.000	
On	11/4/2008	13:16	NA	150	11.538	
On	11/4/2008	13:42	NA	155	11.538	
On	11/4/2008	14:08	NA	160	11.538	
On	11/4/2008	14:34	NA	165	11.538	
On	11/4/2008	15:00	NA	170	11.538	
On	11/4/2008	15:27	NA	175	11.111	
On	11/4/2008	15:53	NA	180	11.538	
On	11/4/2008	16:20	NA	185	11.111	
On	11/4/2008	16:47	NA	190	11.111	
On	11/4/2008	17:12	NA	195	12.000	
On	11/4/2008	17:40	NA	200	10.714	
On	11/4/2008	18:05	NA	205	12.000	
On	11/4/2008	18:33	NA	210	10.714	
On	11/4/2008	18:59	NA	215	11.538	
On	11/4/2008	19:28	NA	220	10.345	
On	11/4/2008	19:54	NA	225	11.538	
On	11/4/2008	20:21	NA	230	11.111	
On	11/4/2008	20:47	NA	235	11.538	

On	11/4/2008	21:12	NA	240	12.000	
On	11/4/2008	21:39	NA	245	11.111	
On	11/4/2008	22:06	NA	250	11.111	
On	11/4/2008	22:32	NA	255	11.538	
On	11/4/2008	22:58	NA	260	11.538	
On	11/4/2008	23:23	NA	265	12.000	
On	11/4/2008	23:51	NA	270	10.714	
On	11/4/2008	24:16	NA	275	12.000	
On	11/4/2008	24:44	NA	280	10.714	
On	11/4/2008	25:10	NA	285	11.538	
On	11/4/2008	25:37	NA	290	11.111	
On	11/4/2008	26:04	NA	295	11.111	
On	11/4/2008	26:31	NA	300	11.111	
On	11/4/2008	26:57	NA	305	11.538	
On	11/4/2008	27:24	NA	310	11.111	
On	11/4/2008	27:51	NA	315	11.111	
On	11/4/2008	28:18	NA	320	11.111	
On	11/4/2008	28:45	NA	325	11.111	
On	11/4/2008	29:11	NA	330	11.538	
On	11/4/2008	29:37	NA	335	11.538	
Off	11/4/2008	30:03	NA	340	11.538	Pump off at 11:03 am

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DKUDRNA001

State Well ID: _____

Stark County, North Dakota

WATER QUALITY DATA

Sample Date: 11/4/08 Time: 11:03am (usually at end of pump testing)

Sample point: End of 50-foot hose connected to faucet

Total Volume Purged: 340 gallons

pH (field measurement): 7.42 Conductivity (field measurement): 5.438 m S/cm

Temperature (field measurement): 10.58 ^{o}C

Appearance (clarity, odor, sediment, etc.): Brown tint, no apparent odor or sediment

Comments: _____

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Northern Analytical and Southwestern District Health Unit

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DKUDRNA001

State Well ID: _____

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (1 of 1 wells) is accurate to the best of my knowledge and represents the true condition of this well on

DONALD KUDRNA
PRINT NAME

Donald Kudrna 11-4-08
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 11/4/08 .This WATER WELL CERTIFICATION is signed and certified as true and accurate

Ryan Tolene
PRINT NAME Ryan Tolene

Ryan Tolene 11.4.2008
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DKUDRNA001____

State Well ID: _____

Stark County, North Dakota

Additional Notes (if necessary):

PHOTO LOG

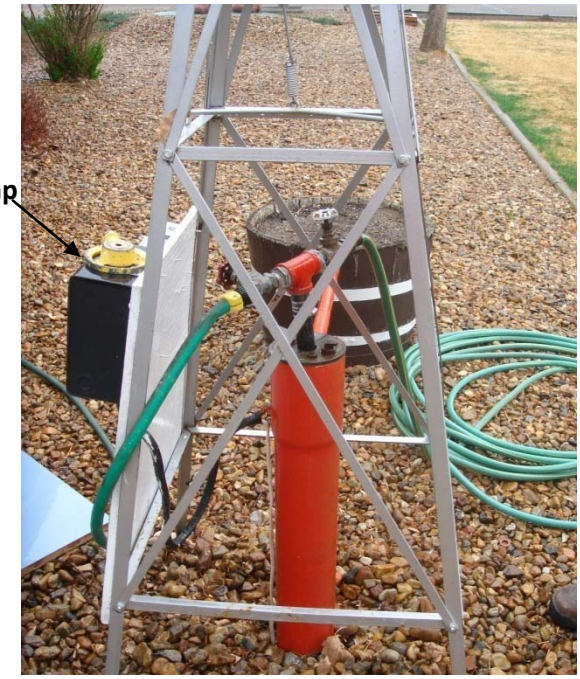

Photo #1: Well location for DKUDRNA001 below the decorative windmill.

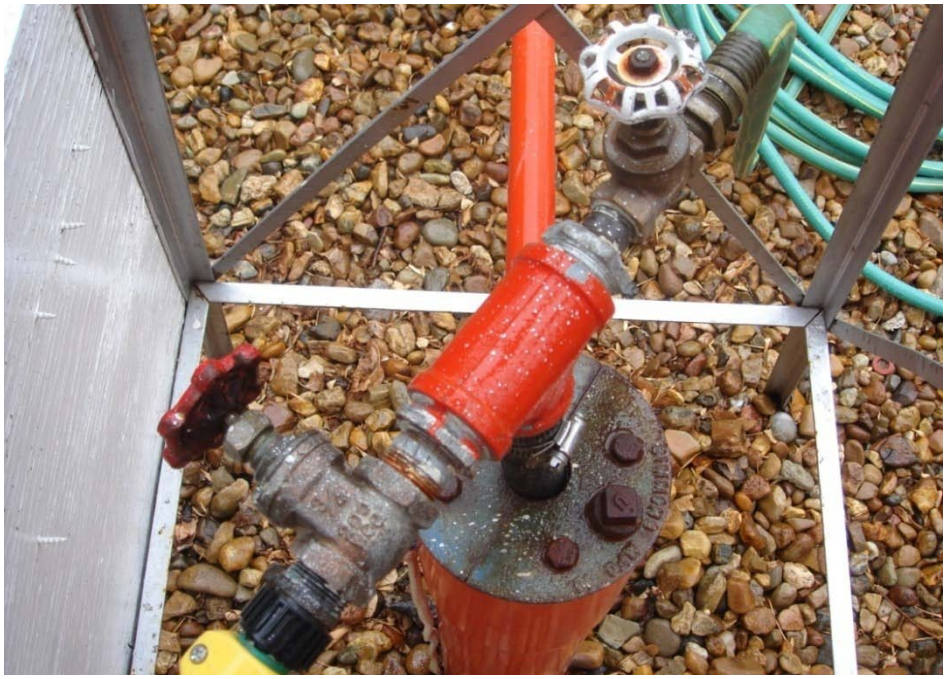

Photo #2: Well setup for DKUDRNA001.

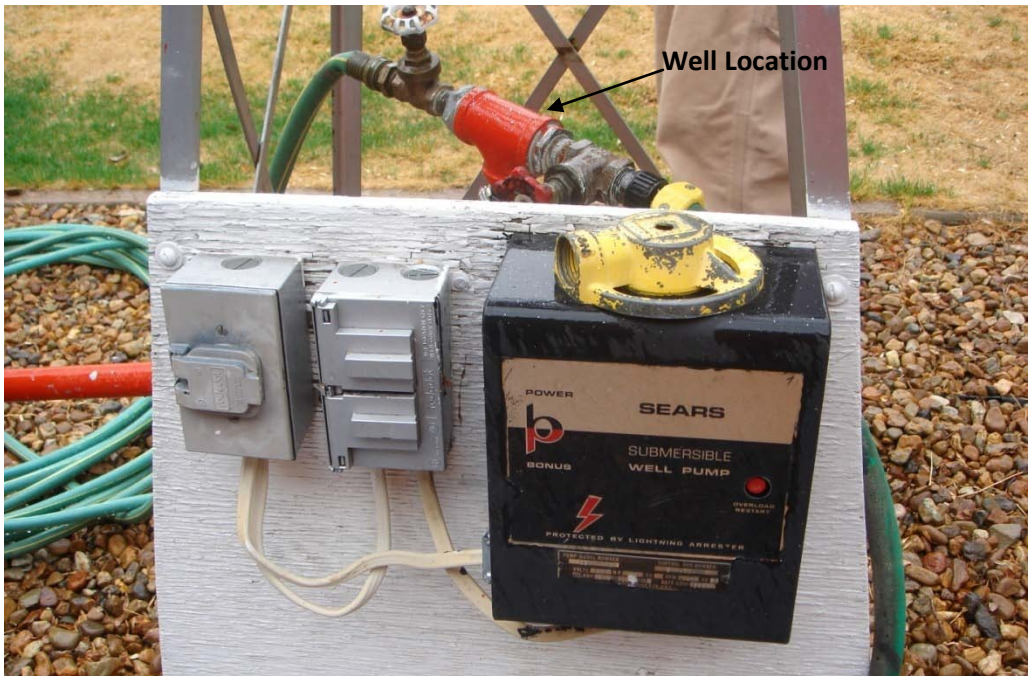

Photo #3: Pump setup for DKUDRNA001.

Client: GOLDER ASSOCIATES, INC.
Project Name: SOUTH HEART WELL CERTIFICATION
Project No.: 063-2174
Laboratory No.: 2008110032-2
Sample Name: DKUDRNA001
Sample Date/Time: 11/04/2008 11:10:00
Collected by: NATHAN MONNIG
Sample Type: WATER

PARAMETER	MEASURED VALUE	UNITS	ANALYST	REPORTING LIMIT	METHOD NUMBER	DATE/TIME ANALYZED
SOUTH HEART WELL CERTIFICATION						
Turbidity	0.75	NTU	ES	0.2	180.1	11/05/2008 02:45:00 PM
Tannins & Lignins	1.91	mg/l	ES	0.1	SM	11/24/2008 02:00:00 PM
pH	7.9	S.U.	ES	0.1-13.5	4500-H+-B	11/05/2008 05:30:00 PM
Alkalinity Bicarbonate as HCO3	725	mg/l	ES	1	2320B	11/14/2008 11:00:00 AM
Alkalinity Carbonate as CO3	0	mg/l	ES	0	2320B	11/14/2008 11:00:00 AM
Alkalinity Total as CaCO3	594	mg/l	ES	1	2320B	11/14/2008 11:00:00 AM
Chloride as Cl	5	mg/l	MRK	1	300.0	11/07/2008 02:50:00 AM
Sulfate as SO4	812	mg/l	MRK	50	300.0	11/07/2008 03:51:00 AM
Hardness as CaCO3	105	mg/l	BH	7	2340B	11/06/2008 04:38:00 PM
Electrical Conductivity	2520	umhos/cm	MRK	10	2510B	11/14/2008 02:20:00 PM
Total Dissolved Solids	1730	mg/l	ES	20	2540C	11/10/2008 04:00:00 PM
Total Suspended Solids	<2	mg/l	ES	1	2540D	11/10/2008 04:00:00 PM
Calcium as Ca (Total)	19	mg/l	BH	1	200.7	11/06/2008 04:38:00 PM
Iron as Fe (Total)	0.17	mg/l	BH	0.05	200.7	11/06/2008 04:29:00 PM
Magnesium as Mg (Total)	14	mg/l	BH	1	200.7	11/06/2008 04:38:00 PM
Sodium as Na (Total)	588	mg/l	BH	1	200.7	11/06/2008 04:38:00 PM
Nitrate as N	<0.01 HT	mg/l	CC	0.01	353.2	11/21/2008 05:13:00 PM
Nitrite as N	<0.01 HT	mg/l	MRK	0.01	300.0	11/07/2008 02:50:00 AM
Nitrate + Nitrite as N	<0.01	mg/l	CC	0.01	353.2	11/21/2008 05:15:00 PM
Sodium Adsorption Ratio	25.0	-----	BH	0.2	20b	11/06/2008 04:38:00 PM
Cations	27.68	meq/l	---	0.30	1030F	
Anions	28.92	meq/l	---	0.38	1030F	
Cation/Anion Balance	2.19	% [max 5%]	---	-----	AWWA/APHA	
Metals Batch#/Digestion Date	1917	-----	BH	-----	200.2	11/06/2008 09:45:00 AM

WATER SYSTEM BACTERIOLOGICAL WATER ANALYSIS

SOUTHWESTERN DISTRICT HEALTH UNIT
2869 3rd Avenue West, Dickinson, ND 58601 • 701-483-0171 or 1-800-697-3145

LEFT SIDE OF FORM MUST BE COMPLETED BY COLLECTOR

Name of Collector	Telephone Number
Nate Monnig	303 980 0540
Date Collected	**Time Collected**
11/4/08	11:10 am

Collection Point/Remarks: D Kudrna #01

Sample Source (Check One):
- ☒ Domestic Well
- ☐ Swimming Pool
- ☐ Surface Water
- ☐ Spa
- ☐ Stock Well
- ☐ Public Water System _____
- ☐ Other _____

Reason for Sample (Check One):
- ☐ Routine
- ☐ Retest
- ☐ Mortgage Requirement
- ☐ USDA Required
- ☐ Required by other state or federal regulations
- ☐ Water treatment check (raw or treated)
- ☐ ND Dairy Dept.
- ☒ Special purpose (explain) Well Certification

SWIMMING POOL/SPA INFORMATION

POOL/SPA NAME		
Free Chlorine	Total Chlorine	pH

WATER SUPPLY INFORMATION FOR PRIVATE SYSTEMS

County: Stark

Township Number	Range Number	Section Number

Well Depth _____ ft. Well Diameter _____ in.

Owner: Don Kudrna

Address:

City	State	Zip Code

Send Results To (if other than owner): Ed Pottorff, Golder Assoc.

Address: 44 Union Blvd, Suite 300

City	State	Zip Code
Lakewood	CO	80228

STOP! RIGHT SIDE OF FORM IS FOR LABORATORY USE ONLY.

Paid - Amount	☐ CHECK # _____ ☐ CASH

PLEASE READ THE ENCLOSED INSTRUCTIONS BEFORE SAMPLING

Do NOT Submit Samples on FRIDAYS

(***NOTE*** - Pool/Spa, Retest, and Fermentation Tube samples must be **received** by Wednesday of the week)

Lab Number	
1570	
Date of Receipt	**Time of Receipt**
11-4-08	1530
Date of Analysis	**Time of Analysis**
11-4-08	1535
Date Completed	**Analyst**
11-6-08	KP

Remarks:

ANALYSIS METHOD
- ☒ Fermentation Tube
- ☐ Membrane Filter
- ☐ Presence-Absence
- ☐ Other _____

COLIFORM ANALYSIS
- ☒ SATISFACTORY - No Coliforms Found
- ☐ UNSATISFACTORY - Coliforms Present - SEND REPEAT SAMPLES
  - ☐ No Fecal Coliforms Found
  - ☐ Fecal Coliforms Present
  - ☐ No *E coli* Found
  - ☐ *E coli* Present

Coliforms per 100 ml	Fecal Coliforms per 100 ml
0	

SAMPLE VOIDED - SEND REPLACEMENT
- ☐ Turbid Without Gas Production
- ☐ Too Numerous to Count
- ☐ Confluent Growth
- ☐ Turbid Without Acid Reaction
- ☐ Sample Too Old
- ☐ Other _____

STANDARD PLATE COUNT PER ML _____
R2A PLATE COUNT PER ML _____
- ☐ Satisfactory
- ☐ Unsatisfactory

NITRATE SCREEN < 2 mg/l
- ☒ Satisfactory
- ☐ Unsatisfactory
- ☐ Result to Follow

(< is less than > is more than)

SWDHU 05/2004

White - lab (top copy) will be returned with the results

Canary - retained by lab

DMETZ001

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DMETZ001___
State Well ID: _____
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: David Metz

Owner/Operator Address and Contact Information: PO Box 343 South Heart, ND 58655

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 12 Quarter Section NW Quarter Section SW Quarter Section NE

Coordinates of well/spring location and projection (from GPS):

Northing 449330.2 Easting 1376121.3 Projection State Plane

Relative location to landmarks and/or buildings: 24 feet from northeast corner of well owner home.

Ground elevation 2480 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Domestic (includes lawn watering)

Owner/Operator comments: Well owner uses to water lawn. It is a new well.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):1

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DMETZ001 ___

State Well ID: _____

Stark County, North Dakota

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 100 feet

Screened Interval: 80 to 100 feet

Diameter/Finish (metal casing, PVC, etc.): 4-inch diameter PVC casing, 7 7/8-inch diameter borehole

Date drilled/developed: 8/15/2008

Driller/Contractor's Name: Smiley Drilling

Driller/Contractor's address and contact information: Dickinson, ND

Is Driller/Contractor's log available: Yes ☒ No ☐ Certificate No. 40 9/1/2008

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Excellent

Comments: Bentonite grout from ground surface to 80 feet. Casing has closed end. PVC perforated pipe installed. Forward rotary drilled. Pipe weight=200 lb/ft. PVC welded (not threaded)

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):2-3

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DMETZ001 ___
State Well ID: _____
Stark County, North Dakota

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Submersible

Make: Goulds Pump Model 105B05422C Serial # C0827011

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Electric

Horsepower (e.g., ½, ¾, 1, etc.): ½ hp

Comments: Installed on 8/21/08. 220 volt. Thermally protected. PH/H2 1/60. Installed by Smileys Well Service.

Photograph(s) Taken: Yes ☐ No ☒ Photo ID(s):_____

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DMETZ001 ___

State Well ID: _____

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Available

MP height above ground level: Not Available feet

Static water level in feet below MP: 40 feet (from drillers log when drilled)

Test Date: 9/3/09 Time: 12:09 pm to 12:39 pm

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place ☒ temporary ☐ Description In-Place pump

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Pumped continuously for 30 minutes, measuring flow rate in 5 gallon pails with stopwatch. Unable to take water level readings without removing well head cap and possibly damaging well and well accessories. Ran water through 50-foot garden hose for pump test.

Photograph(s) Taken: Yes ☐ No ☒ Photo ID(s):_____

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DMETZ001
State Well ID: _____
Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	9/3/2009	0:22	NA	5	13.636	Pump on at 12:09 pm
On	9/3/2009	0:44	NA	10	13.636	
On	9/3/2009	1:06	NA	15	13.636	
On	9/3/2009	1:28	NA	20	13.636	
On	9/3/2009	1:52	NA	25	12.500	
On	9/3/2009	2:15	NA	30	13.043	
On	9/3/2009	2:39	NA	35	12.500	
On	9/3/2009	3:02	NA	40	13.043	
On	9/3/2009	3:27	NA	45	12.000	
On	9/3/2009	3:50	NA	50	13.043	
On	9/3/2009	4:15	NA	55	12.000	
On	9/3/2009	4:36	NA	60	14.286	
On	9/3/2009	4:59	NA	65	13.043	
On	9/3/2009	5:23	NA	70	12.500	
On	9/3/2009	5:47	NA	75	12.500	
On	9/3/2009	6:10	NA	80	13.043	
On	9/3/2009	6:34	NA	85	12.500	
On	9/3/2009	6:58	NA	90	12.500	
On	9/3/2009	7:22	NA	95	12.500	
On	9/3/2009	7:46	NA	100	12.500	
On	9/3/2009	8:11	NA	105	12.000	
On	9/3/2009	8:34	NA	110	13.043	
On	9/3/2009	8:58	NA	115	12.500	
On	9/3/2009	9:20	NA	120	13.636	
On	9/3/2009	9:46	NA	125	11.538	
On	9/3/2009	10:08	NA	130	13.636	
On	9/3/2009	10:32	NA	135	12.500	
On	9/3/2009	10:56	NA	140	12.500	
On	9/3/2009	11:19	NA	145	13.043	
On	9/3/2009	11:41	NA	150	13.636	
On	9/3/2009	12:06	NA	155	12.000	
On	9/3/2009	12:30	NA	160	12.500	
On	9/3/2009	12:56	NA	165	11.538	
On	9/3/2009	13:18	NA	170	13.636	
On	9/3/2009	13:43	NA	175	12.000	
On	9/3/2009	14:06	NA	180	13.043	
On	9/3/2009	14:32	NA	185	11.538	
On	9/3/2009	14:56	NA	190	12.500	
On	9/3/2009	15:21	NA	195	12.000	
On	9/3/2009	15:45	NA	200	12.500	
On	9/3/2009	16:10	NA	205	12.000	
On	9/3/2009	16:34	NA	210	12.500	
On	9/3/2009	16:59	NA	215	12.000	
On	9/3/2009	17:23	NA	220	12.500	
On	9/3/2009	17:49	NA	225	11.538	
On	9/3/2009	18:13	NA	230	12.500	
On	9/3/2009	18:39	NA	235	11.538	
On	9/3/2009	19:03	NA	240	12.500	
On	9/3/2009	19:30	NA	245	11.111	
On	9/3/2009	19:53	NA	250	13.043	
On	9/3/2009	20:20	NA	255	11.111	
On	9/3/2009	20:45	NA	260	12.000	
On	9/3/2009	21:11	NA	265	11.538	
On	9/3/2009	21:34	NA	270	13.043	
On	9/3/2009	22:01	NA	275	11.111	
On	9/3/2009	22:25	NA	280	12.500	
On	9/3/2009	22:49	NA	285	12.500	
On	9/3/2009	23:14	NA	290	12.000	
On	9/3/2009	23:38	NA	295	12.500	
On	9/3/2009	24:04	NA	300	11.538	
On	9/3/2009	24:28	NA	305	12.500	
On	9/3/2009	24:53	NA	310	12.000	
On	9/3/2009	25:18	NA	315	12.000	
On	9/3/2009	25:44	NA	320	11.538	
On	9/3/2009	26:05	NA	325	14.286	
On	9/3/2009	26:30	NA	330	12.000	
On	9/3/2009	26:54	NA	335	12.500	
On	9/3/2009	27:18	NA	340	12.500	
On	9/3/2009	27:43	NA	345	12.000	
On	9/3/2009	28:07	NA	350	12.500	
On	9/3/2009	28:32	NA	355	12.000	
On	9/3/2009	28:56	NA	360	12.500	
On	9/3/2009	29:21	NA	365	12.000	
On	9/3/2009	29:45	NA	370	12.500	
Off	9/3/2009	30:09	NA	375	12.500	Pump off at 12:39 pm

Note:
1) NA means that well was Not Accessible (NA) to take water level measurements

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DMETZ001 ___

State Well ID: _____

Stark County, North Dakota

WATER QUALITY DATA

Sample Date: 9/3/09 Time:12:39 pm (usually at end of pump testing)

Sample point: End of 60-foot hose attached to well faucet

Total Volume Purged: 375 gallons

pH (field measurement): 7.46 Conductivity (field measurement): 2563 µ S/cm

Temperature (field measurement): 11.55 ^{o}C

Appearance (clarity, odor, sediment, etc.): Clear, no apparent odor.

Comments: _____

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):4

Laboratory analysis: Pace Analytical and Southwestern District Health Unit.

In general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

GOLDER Received JAN 11 2010 DENVER

Well/Spring ID: DMetz001

State Well ID: _____

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (of wells) is accurate to the best of my knowledge and represents the true condition of this well on

David Metz
PRINT NAME

David Metz 09-03-09
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 9/3/09. This WATER WELL CERTIFICATION is signed and certified as true and accurate

JAY BERG
PRINT NAME

9-3-09
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DMETZ001 ___

State Well ID: _____

Stark County, North Dakota

Additional Notes :

	Depth (ft)	
Well Log	**from**	**to**
Sand, clay, gravel	0	10
Clay	10	22
Coal,clay	22	30
Clay	30	50
Coal	50	65
Clay	65	85
Blue clay, clay	85	95
Rock	95	95.5
Blue sand, clay	95.5	100

Well test data: after 1 hour pumping at 10 gpm, water level was 60 feet below land surface.

PHOTO LOG

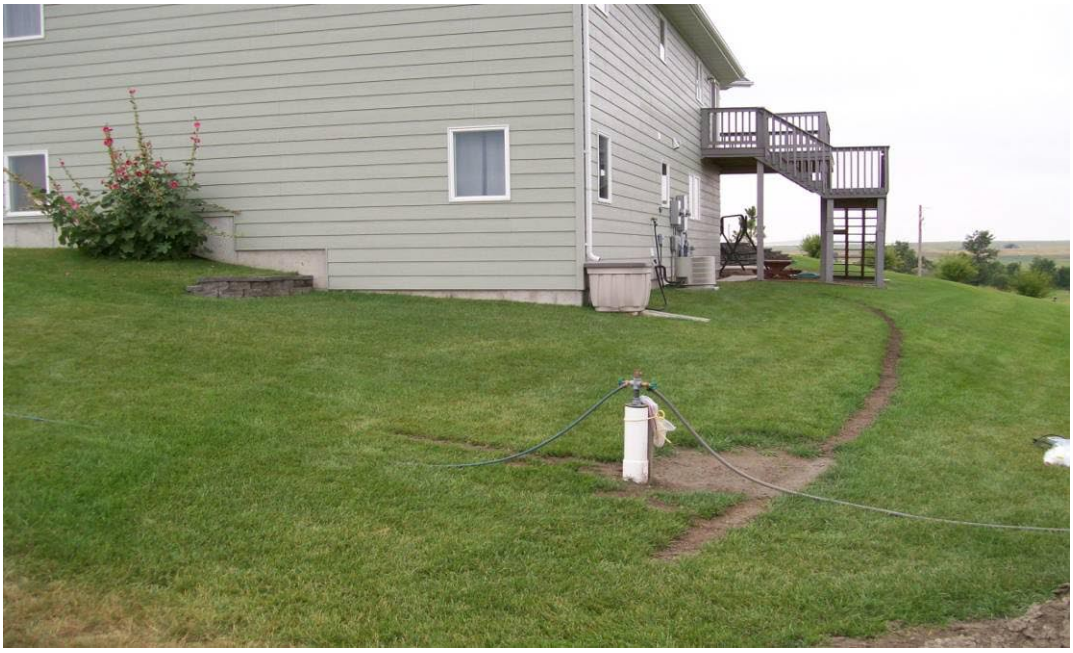

Photo #1: Well location.

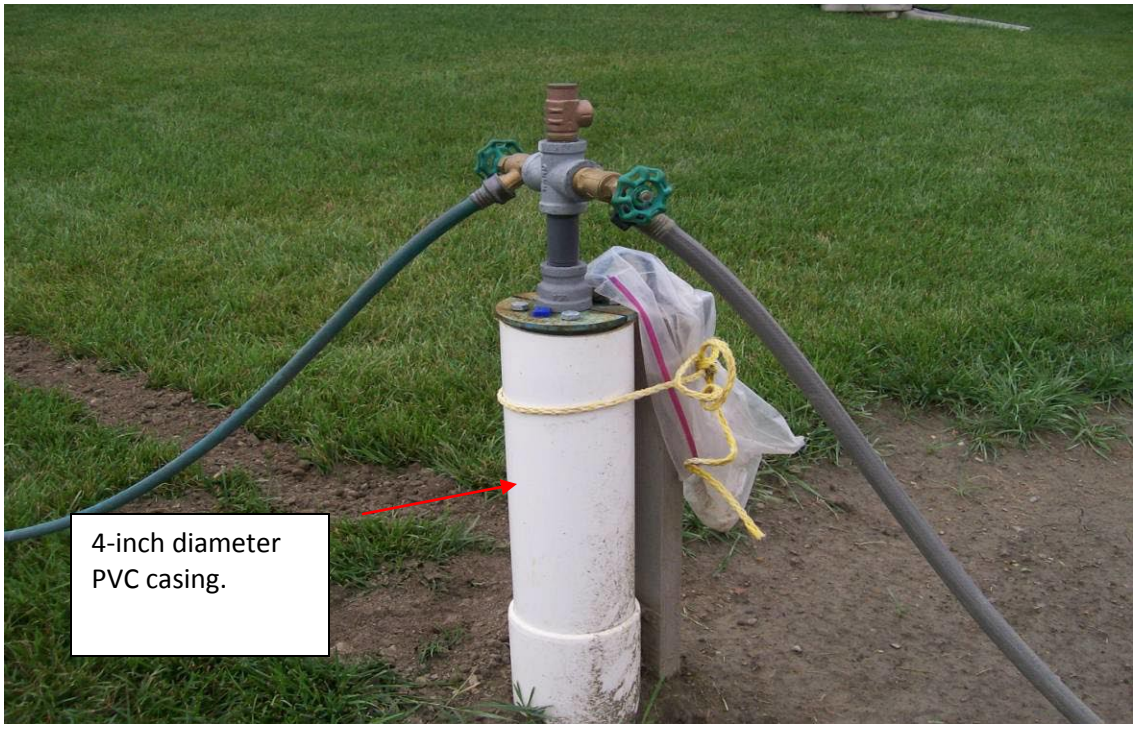

Photo #2: Well Construction.



Photo #3: Electrical source for well.

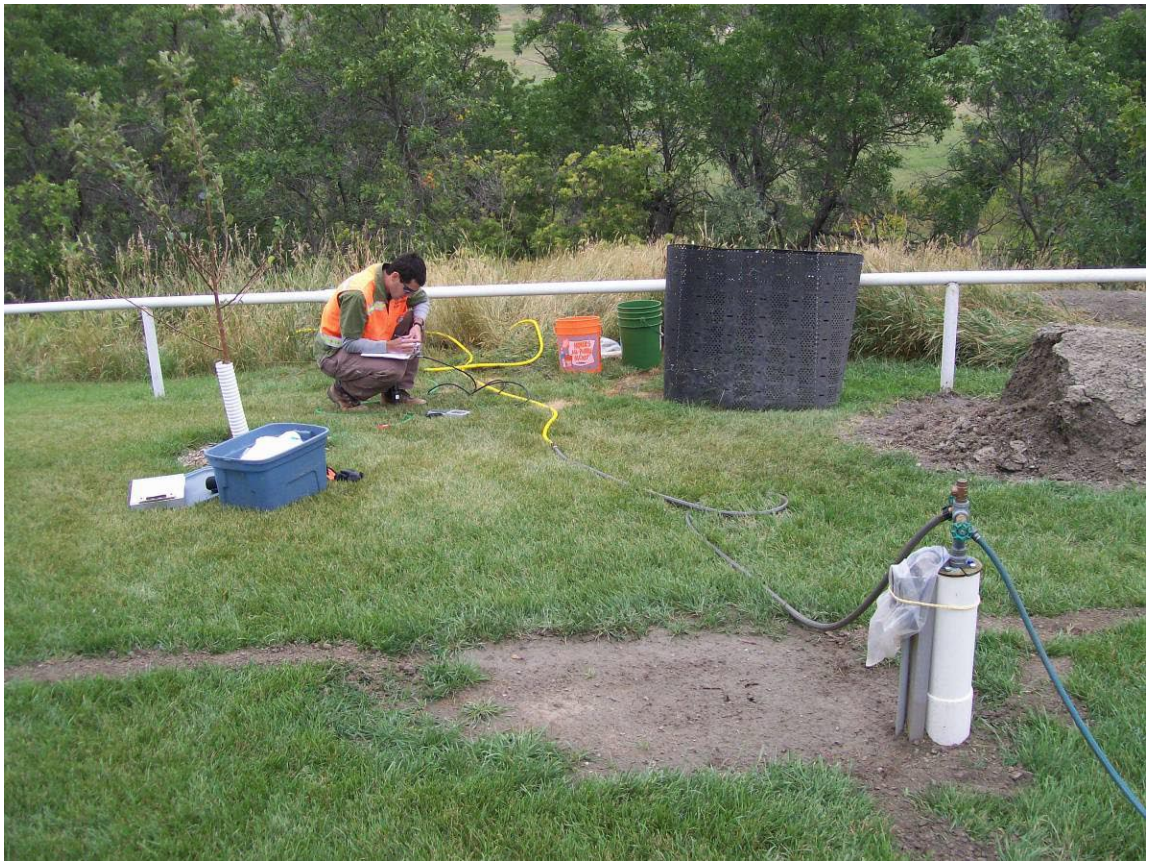

Photo #4: Water quality sampling.

Pace Analytical Services, Inc.
602 S 25th Street
Billings, MT 591014549
(406)254-7226

ANALYTICAL RESULTS

Project: South Heart Well Cert 063-2174
Pace Project No.: 10111876

Sample: DMETZ 001 **Lab ID: 10111876002** Collected: 09/03/09 12:39 Received: 09/04/09 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium	**36.2**	mg/L	0.50	0.25	1	09/15/09 15:32	09/15/09 16:41	7440-70-2	
Magnesium	**36.2**	mg/L	0.50	0.25	1	09/15/09 15:32	09/15/09 16:41	7439-95-4	
Sodium	**447**	mg/L	1.0	0.50	1	09/15/09 15:32	09/15/09 16:41	7440-23-5	
Total Hardness by 2340B	**239**	mg/L	3.3	1.6	1	09/15/09 15:32	09/15/09 16:41		
Sodium Adsorption Ratio, SAR	Analytical Method: Calculated								
Sodium Adsorption Ratio	**12.6**		0.24		1		09/16/09 14:11		
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Iron	**0.35**	mg/L	0.010	0.0050	1	09/09/09 15:04	09/11/09 06:10	7439-89-6	
2130B Turbidity	Analytical Method: SM 2130B								
Turbidity	**1.2**	NTU	0.20	0.050	1		09/04/09 11:32		
2510B Specific Conductance	Analytical Method: SM 2510B								
Specific Conductance	**2370**	umhos/cm	10.0	5.0	1		09/11/09 13:59		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**4.7**	mg/L	1.0	0.50	1		09/04/09 09:23		
300.0 IC Anions	Analytical Method: EPA 300.0								
Chloride	**6.4**	mg/L	2.0	1.0	2		09/05/09 14:34	16887-00-6	
Sulfate	**706**	mg/L	50.0	1.6	10		09/05/09 13:33	14808-79-8	
353.2 Nitrate + Nitrite pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**0.040**	mg/L	0.010	0.0050	1		09/14/09 16:56		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.2**	Std. Units	0.10	0.050	1		09/04/09 15:15		H6
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**542**	mg/L	10.0	0.52	2		09/17/09 16:56		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	10.0	0.52	2		09/17/09 16:56		
Alkalinity, Total as CaCO3	**542**	mg/L	10.0	0.52	2		09/17/09 16:56		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1520**	mg/L	20.0	5.0	1		09/08/09 14:26		
Cation/Anion Balance	Analytical Method: SM 1030F								
Cation/Anion Balance	**2.9**	%			1		09/21/09 16:45		1M

Date: 09/29/2009 04:26 PM

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
602 S 25th Street
Billings, MT 591014549
(406)254-7226

QUALIFIERS

Project: South Heart Well Cert 063-2174
Pace Project No.: 10111876

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

U - Indicates the compound was analyzed for, but not detected.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis
PASI-MT	Pace Analytical Services - Montana

ANALYTE QUALIFIERS

1M	Percent difference is less than the allowable difference of 5%.
H6	Analysis initiated more than 15 minutes after sample collection.
R1	RPD value was outside control limits.

REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, Inc..

Data Qualifiers

Inorganic Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
E	The result is an estimated amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
Z	Too many colonies were present (TNTC). The numeric value represents the filtration volume.
i	The MRL/MDL has been elevated due to matrix interference.
X	See case narrative.

Metals Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The reported value is estimated because of the presence of matrix interference.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The result was determined by Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL has been elevated due to matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.

Organic Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
A	The tentatively identified compound is a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria were exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides)
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
i	The MRL/MDL has been elevated due to a chromatographic interference.
X	See case narrative.

Petroleum Hydrocarbon Specific

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Pace Analytical Services
Project Name : South Heart Well Cert 063-2174
Project Number : 10111876
Sample Matrix : WATER

Service Request : J0904468
Date Collected : 09/03/09
Date Received : 09/09/09

Tannin and Lignin

Analysis Method : SM 5550B
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date/Time Analyzed	Result	Result Notes
DMETZ 001	J0904468-002	0.5	0.048	1	09/21/09 16:11	0.39	J
Method Blank	J0904468-MB	0.5	0.048	1	09/21/09 16:11	U	

Report By: Palimi

WATER SYSTEM BACTERIOLOGICAL WATER ANALYSIS

SOUTHWESTERN DISTRICT HEALTH UNIT
2869 3rd Avenue West, Dickinson, ND 58601 • 701-483-0171 or 1-800-697-3145

LEFT SIDE OF FORM MUST BE COMPLETED BY COLLECTOR

Name of Collector	Telephone Number
JAY BERG	701-391-3126

Date Collected	Time Collected
9/3/09	12:39

Collection Point/Remarks: DMetz #01

Sample Source (Check One):
- [x] Domestic Well
- [ ] Swimming Pool
- [ ] Surface Water
- [ ] Spa
- [ ] Stock Well
- [ ] Public Water System
- [ ] Other

Reason for Sample (Check One):
- [ ] Routine
- [ ] Retest
- [ ] Mortgage Requirement
- [ ] USDA Required
- [ ] Required by other state or federal regulations
- [ ] Water treatment check (raw or treated)
- [ ] ND Dairy Dept.
- [x] Special purpose (explain) well Certification

SWIMMING POOL/SPA INFORMATION

POOL/SPA NAME		
Free Chlorine	Total Chlorine	pH

WATER SUPPLY INFORMATION FOR PRIVATE SYSTEMS

County: Stark

Township Number	Range Number	Section Number

Well Depth _____ ft. Well Diameter _____ in.

Owner: Dave Metz

Address:

City	State	Zip Code

Send Results To (if other than owner): Ed Pottorff, Golder Assoc.

Address: 44 Union Blvd, Suite 300

City	State	Zip Code
Lakewood	CO	80228

STOP! RIGHT SIDE OF FORM IS FOR LABORATORY USE ONLY.

Paid - Amount

- [ ] CHECK # _____
- [ ] CASH

PLEASE READ THE ENCLOSED INSTRUCTIONS BEFORE SAMPLING

Do NOT Submit Samples on FRIDAYS

(***NOTE*** - Pool/Spa, Retest, and Fermentation Tube samples must be **received** by Wednesday of the week)

Lab Number: 1205

Date of Receipt	Time of Receipt
9-3-09	1450
Date of Analysis	**Time of Analysis**
9-3-09	1455
Date Completed	**Analyst**
9-5-09	KP

Remarks:

ANALYSIS METHOD
- [x] Fermentation Tube
- [ ] Membrane Filter
- [ ] Presence-Absence
- [ ] Other

COLIFORM ANALYSIS
- [x] SATISFACTORY - No Coliforms Found
- [ ] UNSATISFACTORY - Coliforms Present - SEND REPEAT SAMPLES
  - [ ] No Fecal Coliforms Found
  - [ ] Fecal Coliforms Present
  - [ ] No *E coli* Found
  - [ ] *E coli* Present

Coliforms per 100 ml	Fecal Coliforms per 100 ml
0	

SAMPLE VOIDED - SEND REPLACEMENT
- [ ] Turbid Without Gas Production
- [ ] Too Numerous to Count
- [ ] Confluent Growth
- [ ] Turbid Without Acid Reaction
- [ ] Sample Too Old
- [ ] Other

STANDARD PLATE COUNT PER ML _____
R2A PLATE COUNT PER ML _____
- [ ] Satisfactory
- [ ] Unsatisfactory

NITRATE SCREEN <2 mg/l
- [x] Satisfactory
- [ ] Unsatisfactory
- [ ] Result to Follow

(< is less than > is more than)

SWDHU 05/2004

White - lab (top copy) will be returned with the results

Canary - retained by lab

DOBRIEN001

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DOBRIEN001
State Well ID: 56803
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: Darby and Renita O'Brien

Owner/Operator Address and Contact Information: 3881 – 121st Ave. S.W. South Heart, ND 58655

701-677-5896

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N* Range 98W*

Section 13* Quarter Section SW* Quarter Section SW* Quarter Section SW

Coordinates of well/spring location and projection (from GPS):

Northing 441109* Easting 1375502* Projection State Plane*

Relative location to landmarks and/or buildings: Located near shop

Ground elevation 2512 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Domestic*

Owner/Operator comments: Well not in use. No pump installed.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CONSTRUCTION (*indicates obtained from North Dakota State Water Commission database)

Depth of well: 84* feet

Screened Interval: 64* to 84* feet

Diameter/Finish (metal casing, PVC, etc.): Not known

Date drilled/developed: Not known

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DOBRIEN001
State Well ID: 56803
Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Not known

Comments:

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Not Available

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Not Available

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner.

Information could not be obtained directly because the well is inaccessible.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DOBRIEN001
State Well ID: 56803
Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Tested

MP height above ground level: Not Tested feet

Static water level in feet below MP: Not able to measure feet

Test Date: Not Tested Time: to

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place temporary (circle one) Description Not Tested

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Well not tested because well is not in use. No pump installed.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DOBRIEN001

State Well ID: 56803

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DOBRIEN001_
State Well ID: 56803
Stark County, North Dakota

WATER QUALITY DATA

Sample Date: Not Sampled Time: Not Sampled (usually at end of pump testing)

Sample point: Not Sampled

Total Volume Purged: Not Sampled gallons

pH (field measurement): Not Sampled Conductivity (field measurement): Not Sampled µ S/cm

Temperature (field measurement): Not Sampled °C

Appearance (clarity, odor, sediment, etc.): Not Sampled

Comments: Well not sampled because well is not in use. No pump installed

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Not Sampled

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DOBRIEN001
State Well ID: 56803
Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (1 of 2 wells) is accurate to the best of my knowledge and represents the true condition of this well on

PRINT NAME

SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded ~~and a water sample was collected~~ by me on 10-1-08 .This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi

PRINT NAME Jill Parisi

Jill Parisi 10-1-08

SIGNED DATE

Certification Field Information Form was sent on 9/17/08 and owner signature is pending.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DOBRIEN001

State Well ID: 56803

Stark County, North Dakota

Additional Notes (if necessary):

DOBRIEN002

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DOBRIEN002
State Well ID: 56807
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: Darby and Renita O'Brien

Owner/Operator Address and Contact Information: 3881 – 121st Ave. S.W. South Heart, ND 58655

701-677-5896

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N* Range 98W*

Section 13* Quarter Section SW* Quarter Section SW* Quarter Section SW

Coordinates of well/spring location and projection (from GPS):

Northing 441109* Easting 1375502* Projection State Plane*

Relative location to landmarks and/or buildings: Well located by house.

Ground elevation 2512 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Domestic

Owner/Operator comments: Well not in use. No pump installed.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 60* feet

Screened Interval: 44* to 57* feet

Diameter/Finish (metal casing, PVC, etc.): Not known

Date drilled/developed: Not known

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DOBRIEN002
State Well ID: 56807
Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Not known

Comments:

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Not Available

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Not Available

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner.

Information could not be obtained directly because the well is inaccessible.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DOBRIEN002

State Well ID: 56807

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Tested

MP height above ground level: Not Tested feet

Static water level in feet below MP: Not able to measure feet

Test Date: Not Tested Time: to

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place temporary (circle one) Description Not Tested

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Well not tested because well not in use. No pump installed.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DOBRIEN002_

State Well ID: _56807_____

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DOBRIEN002
State Well ID: 56807
Stark County, North Dakota

WATER QUALITY DATA

Sample Date: Not Sampled Time: Not Sampled (usually at end of pump testing)

Sample point: Not Sampled

Total Volume Purged: Not Sampled gallons

pH (field measurement): Not Sampled Conductivity (field measurement): Not Sampled µ S/cm

Temperature (field measurement): Not Sampled °C

Appearance (clarity, odor, sediment, etc.): Not Sampled

Comments: Well not sampled because well not in use. No pump installed.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Not Sampled

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DOBRIEN002
State Well ID: 56807
Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (2 of 2 wells) is accurate to the best of my knowledge and represents the true condition of this well on

PRINT NAME

SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded ~~and a water sample was collected~~ by me on 10-1-08 .This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi
PRINT NAME Jill Parisi

Jill Parisi 10-1-08
SIGNED DATE

Certification Field Information Form sent on 9/17/08 and owner signature is pending.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DOBRIEN002_

State Well ID: _56807_____

Stark County, North Dakota

Additional Notes (if necessary):

DZARAK001

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DZARAK001

State Well ID: _____

Stark County, North Dakota

LOCATION DATA

Owner/Operator Name: Daryl and Laurie Zarak

Owner/Operator Address and Contact Information: 12548 Highway 10 South Heart, ND 58655 701-575-8116

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 6 Quarter Section NE Quarter Section SW Quarter Section SW

Coordinates of well/spring location and projection (from GPS):

Northing 454826 Easting 1351541 Projection State Plane

Relative location to landmarks and/or buildings: 85 feet SW of Quonset hut

Ground elevation 2530 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Stock

Owner/Operator comments: Plumbed to faucet. Acts as backup well for automatic watering tank with DZarak002.

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photo #1

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: Not known feet

Screened Interval: Not known to Not known feet

Diameter/Finish (metal casing, PVC, etc.): Not known

Date drilled/developed: Not known

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DZARAK001

State Well ID: _____

Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Fair condition

Comments: _____

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photos #2-5

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Submersible

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Not Available

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DZARAK001

State Well ID: _____

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: End of 25-foot hose connected to faucet

MP height above ground level: ~2 feet

Static water level in feet below MP: Not able to measure feet

Test Date: 11/5/08 Time: 12:22 pm to 12:52 pm

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place temporary (circle one) Description Used the pump in-place

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: There was no readily available access into the well for water level measurements.

Photograph(s) Taken: Yes No (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: __DZARAK001___

State Well ID: _____

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	11/5/2008	0:36	NA	5	8.333	Pump on at 12:22 pm
On	11/5/2008	1:09	NA	10	9.091	
On	11/5/2008	1:41	NA	15	9.375	
On	11/5/2008	2:06	NA	20	12.000	
On	11/5/2008	2:31	NA	25	12.000	
On	11/5/2008	2:56	NA	30	12.000	
On	11/5/2008	3:22	NA	35	11.538	
On	11/5/2008	3:48	NA	40	11.538	
On	11/5/2008	4:12	NA	45	12.500	
On	11/5/2008	4:38	NA	50	11.538	
On	11/5/2008	5:02	NA	55	12.500	
On	11/5/2008	5:28	NA	60	11.538	
On	11/5/2008	5:56	NA	65	10.714	
On	11/5/2008	6:20	NA	70	12.500	
On	11/5/2008	6:44	NA	75	12.500	
On	11/5/2008	7:09	NA	80	12.000	
On	11/5/2008	7:34	NA	85	12.000	
On	11/5/2008	8:00	NA	90	11.538	
On	11/5/2008	8:24	NA	95	12.500	
On	11/5/2008	8:50	NA	100	11.538	
On	11/5/2008	9:15	NA	105	12.000	
On	11/5/2008	9:40	NA	110	12.000	
On	11/5/2008	10:06	NA	115	11.538	
On	11/5/2008	10:31	NA	120	12.000	
On	11/5/2008	10:56	NA	125	12.000	
On	11/5/2008	11:22	NA	130	11.538	
On	11/5/2008	11:48	NA	135	11.538	
On	11/5/2008	12:13	NA	140	12.000	
On	11/5/2008	12:38	NA	145	12.000	
On	11/5/2008	13:03	NA	150	12.000	
On	11/5/2008	13:30	NA	155	11.111	
On	11/5/2008	13:55	NA	160	12.000	
On	11/5/2008	14:21	NA	165	11.538	
On	11/5/2008	14:46	NA	170	12.000	
On	11/5/2008	15:12	NA	175	11.538	
On	11/5/2008	15:38	NA	180	11.538	
On	11/5/2008	16:03	NA	185	12.000	
On	11/5/2008	16:29	NA	190	11.538	
On	11/5/2008	16:54	NA	195	12.000	
On	11/5/2008	17:26	NA	200	9.375	
On	11/5/2008	17:55	NA	205	10.345	
On	11/5/2008	18:19	NA	210	12.500	
On	11/5/2008	18:43	NA	215	12.500	

On	11/5/2008	19:09	NA	220	11.538	
On	11/5/2008	19:33	NA	225	12.500	
On	11/5/2008	19:57	NA	230	12.500	
On	11/5/2008	20:21	NA	235	12.500	
On	11/5/2008	20:47	NA	240	11.538	
On	11/5/2008	21:13	NA	245	11.538	
On	11/5/2008	21:39	NA	250	11.538	
On	11/5/2008	22:05	NA	255	11.538	
On	11/5/2008	22:31	NA	260	11.538	
On	11/5/2008	22:57	NA	265	11.538	
On	11/5/2008	23:23	NA	270	11.538	
On	11/5/2008	23:49	NA	275	11.538	
On	11/5/2008	24:16	NA	280	11.111	
On	11/5/2008	24:41	NA	285	12.000	
On	11/5/2008	25:06	NA	290	12.000	
On	11/5/2008	25:33	NA	295	11.111	
On	11/5/2008	25:58	NA	300	12.000	
On	11/5/2008	26:23	NA	305	12.000	
On	11/5/2008	26:50	NA	310	11.111	
On	11/5/2008	27:15	NA	315	12.000	
On	11/5/2008	27:41	NA	320	11.538	
On	11/5/2008	28:07	NA	325	11.538	
On	11/5/2008	28:34	NA	330	11.111	
On	11/5/2008	28:59	NA	335	12.000	
On	11/5/2008	29:24	NA	340	12.000	
On	11/5/2008	29:50	NA	345	11.538	
On	11/5/2008	30:17	NA	350	11.111	Pump off at 12:52 pm
Note:						
1) NA means that well was Not Accessible (NA) to take water level measurements						

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DZARAK001

State Well ID: _____

Stark County, North Dakota

WATER QUALITY DATA

Sample Date: 11/5/08 Time: 12:52 pm (usually at end of pump testing)

Sample point: End of 25-foot hose connected to faucet

Total Volume Purged: 350 gallons

pH (field measurement): 8.12 Conductivity (field measurement): 6.748 m S/cm

Temperature (field measurement): 9.70 °C

Appearance (clarity, odor, sediment, etc.): Clear with slight yellowish tint, no odor or sediment

Comments: _____

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Northern Analytical and Southwestern District Health Unit

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DZARAK001

State Well ID: _____

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (1 of 2 wells) is accurate to the best of my knowledge and represents the true condition of this well on

PRINT NAME

SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 11/5/08 .This WATER WELL CERTIFICATION is signed and certified as true and accurate

Ryan Tolene

PRINT NAME Ryan Tolene

Ryan Tolene 11.5.2008

SIGNED DATE

Certification Field Information Form sent and owner signature is pending.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: DZARAK001

State Well ID: _____

Stark County, North Dakota

Additional Notes (if necessary):

PHOTO LOG



Photo #1: Photo showing location of well DZarak001 with respect to old house.



Photo #2: Close-up photo of well DZarak001.



Photo #3: Photo showing location of well DZarak001 with respect to Quonset hut.



Photo #4: Photo showing location of faucet plumbed to well DZarak001 with respect to Quonset hut.



Photo #5: Close-up photo of faucet plumbed to well DZarak001.

Client: GOLDER ASSOCIATES, INC.
Project Name: SOUTH HEART WELL CERTIFICATION
Project No.: 063-2174
Laboratory No.: 2008110051-3
Sample Name: DZARAK001
Sample Date/Time: 11/05/2008 12:52:00
Collected by: NATHAN MONNIG
Sample Type: WATER

PARAMETER	MEASURED VALUE	UNITS	ANALYST	REPORTING LIMIT	METHOD NUMBER	DATE/TIME ANALYZED
SOUTH HEART WELL CERTIFICATION						
Turbidity	<0.2	NTU	ES	0.2	180.1	11/10/2008 05:15:00 PM
Tannins & Lignins	1.08	mg/l	CC	0.05	5550B	12/04/2008 05:25:00 PM
pH	8.5	S.U.	ES	0.1-13.5	4500-H+-B	11/08/2008 03:00:00 PM
Alkalinity Bicarbonate as HCO3	1550	mg/l	ES	1	2320B	11/19/2008 02:00:00 AM
Alkalinity Carbonate as CO3	28	mg/l	ES	0	2320B	11/19/2008 02:00:00 AM
Alkalinity Total as CaCO3	1320	mg/l	ES	1	2320B	11/19/2008 02:00:00 AM
Chloride as Cl	8	mg/l	MRK	1	300.0	11/26/2008 11:54:00 PM
Sulfate as SO4	713	mg/l	MRK	50	300.0	11/25/2008 07:54:00 PM
Hardness as CaCO3	29	mg/l	BH	7	2340B	11/13/2008 01:51:00 PM
Electrical Conductivity	3240	umhos/cm	MRK	10	2510B	11/14/2008 02:20:00 PM
Total Dissolved Solids	2110	mg/l	ES	20	2540C	11/10/2008 04:00:00 PM
Total Suspended Solids	<1	mg/l	ES	1	2540D	11/10/2008 04:00:00 PM
Calcium as Ca (Total)	5	mg/l	BH	1	200.7	11/13/2008 01:51:00 PM
Iron as Fe (Total)	0.12	mg/l	BH	0.01	200.7	11/13/2008 01:51:00 PM
Magnesium as Mg (Total)	4	mg/l	BH	1	200.7	11/13/2008 01:51:00 PM
Sodium as Na (Total)	921	mg/l	BH	1	200.7	11/17/2008 05:01:00 PM
Nitrate as N	0.02	mg/l	CC	0.01	353.2	11/26/2008 04:41:00 PM
Nitrite as N	<0.01 HT	mg/l	MRK	0.01	300.0	11/26/2008 11:54:00 PM
Nitrate + Nitrite as N	0.02	mg/l	CC	0.01	353.2	11/26/2008 03:54:00 PM
Sodium Adsorption Ratio	74.5	-----	BH	0.2	20b	11/17/2008 05:01:00 PM
Cations	40.64	meq/l	---	0.30	1030F	
Anions	41.46	meq/l	---	0.38	1030F	
Cation/Anion Balance	1.00	% [max 5%]	---	-----	AWWA/APHA	
Metals Batch#/Digestion Date	1928	-----	BH	-----	200.2	11/12/2008 09:30:00 AM

WATER SYSTEM BACTERIOLOGICAL WATER ANALYSIS

SOUTHWESTERN DISTRICT HEALTH UNIT
2869 3rd Avenue West, Dickinson, ND 58601 • 701-483-0171 or 1-800-697-3145

LEFT SIDE OF FORM MUST BE COMPLETED BY COLLECTOR

Name of Collector	Telephone Number
Nathan Monnig	303 980 0540
Date Collected	**Time Collected**
11/5/08	12:52

Collection Point/Remarks: DZarak ØØ1

Sample Source (Check One):
- ☐ Domestic Well
- ☐ Swimming Pool
- ☐ Surface Water
- ☐ Spa
- ☒ Stock Well
- ☐ Public Water System _____
- ☐ Other _____

Reason for Sample (Check One):
- ☐ Routine
- ☐ Retest
- ☐ Mortgage Requirement
- ☐ USDA Required
- ☐ Required by other state or federal regulations
- ☐ Water treatment check (raw or treated)
- ☐ ND Dairy Dept.
- ☒ Special purpose (explain) Well Certification

SWIMMING POOL/SPA INFORMATION

POOL/SPA NAME		
Free Chlorine	Total Chlorine	pH

WATER SUPPLY INFORMATION FOR PRIVATE SYSTEMS

County: Stark

Township Number	Range Number	Section Number

Well Depth _____ ft. Well Diameter _____ in.

Owner: Daryl Zarak

Address:

City	State	Zip Code

Send Results To (if other than owner): Ed Pottorff, Golder Assoc.

Address: 44 Union Blvd, Suite 300

City	State	Zip Code
Lakewood	CO	80228

STOP! RIGHT SIDE OF FORM IS FOR LABORATORY USE ONLY.

Paid - Amount	☐ CHECK # _____ ☐ CASH

PLEASE READ THE ENCLOSED INSTRUCTIONS BEFORE SAMPLING

Do NOT Submit Samples on FRIDAYS

(***NOTE*** - Pool/Spa, Retest, and Fermentation Tube samples must be **received** by Wednesday of the week)

Lab Number	
1605	
Date of Receipt	**Time of Receipt**
11-5-08	1645
Date of Analysis	**Time of Analysis**
11-5-08	1645
Date Completed	**Analyst**
11-7-08	KA

Remarks:

ANALYSIS METHOD
- ☒ Fermentation Tube
- ☐ Membrane Filter
- ☐ Presence-Absence
- ☐ Other _____

COLIFORM ANALYSIS
- ☒ SATISFACTORY - No Coliforms Found
- ☐ UNSATISFACTORY - Coliforms Present - SEND REPEAT SAMPLES
  - ☐ No Fecal Coliforms Found
  - ☐ Fecal Coliforms Present
  - ☐ No *E coli* Found
  - ☐ *E coli* Present

Coliforms per 100 ml	Fecal Coliforms per 100 ml
0	

SAMPLE VOIDED - SEND REPLACEMENT
- ☐ Turbid Without Gas Production
- ☐ Too Numerous to Count
- ☐ Confluent Growth
- ☐ Turbid Without Acid Reaction
- ☐ Sample Too Old
- ☐ Other _____

STANDARD PLATE COUNT PER ML _____
R2A PLATE COUNT PER ML _____
- ☐ Satisfactory
- ☐ Unsatisfactory

NITRATE SCREEN < 2 mg/l
- ☒ Satisfactory
- ☐ Unsatisfactory
- ☐ Result to Follow

(< is less than > is more than)

SWDHU 05/2004

White - lab (top copy) will be returned with the results

Canary - retained by lab

EPERZINSKI001

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: EPERZINSKI001
State Well ID: 56804
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: Eugenia Perzinski

Owner/Operator Address and Contact Information: 11933 – 39th St. SW South Heart, ND 58655 701-677-5581

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N* Range 98W*

Section 13* Quarter Section SW* Quarter Section SW* Quarter Section SW*

Coordinates of well/spring location and projection (from GPS):

Northing 440777* Easting 1375171* Projection State Plane*

Relative location to landmarks and/or buildings:

Ground elevation 2489 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Domestic*

Owner/Operator comments:

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 71* feet

Screened Interval: 61* to 71* feet

Diameter/Finish (metal casing, PVC, etc.): Not known

Date drilled/developed: Not known

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: EPERZINSKI001

State Well ID: 56804

Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection:

Comments:

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Not Available

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Not Available

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner.

Information could not be obtained directly because the owners believe the well does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: EPERZINSKI001
State Well ID: 56804
Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not tested

MP height above ground level: Not tested feet

Static water level in feet below MP: Not able to measure feet

Test Date: Not Tested Time: to

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place temporary (circle one) Description: Not Tested

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Not tested because well owner requested not to be in program.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: EPERZINSKI001

State Well ID: 56804

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: EPERZINSKI001
State Well ID: 56804
Stark County, North Dakota

WATER QUALITY DATA

Sample Date: Not sampled Time: Not sampled (usually at end of pump testing)

Sample point: Not sampled

Total Volume Purged: Not sampled gallons

pH (field measurement): Not sampled Conductivity (field measurement): Not sampled µ S/cm

Temperature (field measurement): Not sampled ^{o}C

Appearance (clarity, odor, sediment, etc.): Not sampled

Comments: Well not sampled because well owner requested not to be in program.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Not Sampled

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: EPERZINSKI001
State Well ID: 56804
Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (1 of 2 wells) is accurate to the best of my knowledge and represents the true condition of this well on

PRINT NAME

SIGNED DATE

Certification Field Information Form sent on 9/17/08 and owner signature is pending

Inspector/Certifier

I do hereby certify that the preceding data was recorded ~~and a water sample was collected~~ by me on 10-1-08. This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi

PRINT NAME Jill Parisi

Jill Parisi 10-1-08

SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: EPERZINSKI001

State Well ID: 56804

Stark County, North Dakota

Additional Notes (if necessary):

EPERZINSKI002

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: EPERZINSKI002
State Well ID: 56805
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: Eugenia Perzinski

Owner/Operator Address and Contact Information: 11933 – 39th St. SW South Heart, ND 58655 701-677-5581

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N* Range 98W*

Section 13* Quarter Section SW* Quarter Section SW* Quarter Section SW*

Coordinates of well/spring location and projection (from GPS):

Northing 440777* Easting 1375171* Projection State Plane*

Relative location to landmarks and/or buildings:

Ground elevation 2489 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Domestic*

Owner/Operator comments:

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 62* feet

Screened Interval: 52* to 62* feet

Diameter/Finish (metal casing, PVC, etc.): Not known

Date drilled/developed: Not known

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: EPERZINSKI002
State Well ID: 56805
Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Not known

Comments:

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Not Available

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Not Available

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner.

Information could not be obtained directly because the owners believe the well does not currently exist

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: EPERZINSKI002
State Well ID: 56805
Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not tested

MP height above ground level: Not tested feet

Static water level in feet below MP: Not able to measure feet

Test Date: Not Tested Time: to

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place temporary (circle one) Description: Not Tested

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Not tested because well owner requested not to be in program

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: EPERZINSKI002

State Well ID: 56805

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: EPERZINSKI002
State Well ID: 56805
Stark County, North Dakota

WATER QUALITY DATA

Sample Date: Not Sampled Time: Not Sampled (usually at end of pump testing)

Sample point: Not Sampled

Total Volume Purged: Not Sampled gallons

pH (field measurement): Not Sampled Conductivity (field measurement): Not Sampled µ S/cm

Temperature (field measurement): Not Sampled °C

Appearance (clarity, odor, sediment, etc.): Not Sampled

Comments: Not Sampled because well owner requested not to be in program

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Not Sampled

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: EPERZINSKI002

State Well ID: 56805

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (2 of 2 wells) is accurate to the best of my knowledge and represents the true condition of this well on

PRINT NAME

SIGNED DATE

Certification Field Information Form sent on 9/17/08 and owner signature is pending

Inspector/Certifier

I do hereby certify that the preceding data was of recorded ~~and a water sample was collected~~ by me on 10-1-08. This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi

PRINT NAME Jill Parisi

Jill Parisi 10-1-08

SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: EPERZINSKI002

State Well ID: 56805

Stark County, North Dakota

Additional Notes (if necessary):

ESPLICHAL001

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: ESPLICHAL001
State Well ID: _____
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: Elaine Splichal

Owner/Operator Address and Contact Information: 405 Violet Ave South Heart, ND 58655 (701) 677-5314

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 12 Quarter Section SW Quarter Section SE Quarter Section NW

Coordinates of well/spring location and projection (from GPS):

Northing 446901.8 Easting 1376517.7 Projection State Plane

Relative location to landmarks and/or buildings: In the cellar of brick pump house located on the north side of the lot about 200 feet north of the main house.

Ground elevation 2478 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Domestic (includes lawn watering)

Owner/Operator comments: Used to water the lawn. Well was hooked up to the house before connected to Southwest water.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):1-2

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: ESPLICHAL001

State Well ID: _____

Stark County, North Dakota

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 48 feet

Screened Interval: Not Known to Not Known feet

Diameter/Finish (metal casing, PVC, etc.): 4-inch diameter metal. Stick-up 10.5 inches.

Date drilled/developed: Approximately 1958.

Driller/Contractor's Name: Not Known

Driller/Contractor's address and contact information: Not known

Is Driller/Contractor's log available: Yes ☐ No ☒

Probable stratigraphic unit of well completion: Not Known

Condition of Well and Sanitary Protection: Good Condition. Very well kept and tidy area around well. Well vault is heated in cold months.

Comments: _____

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):3-5

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: ESPLICHAL001

State Well ID: _____

Stark County, North Dakota

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Jet

Make: Wayne Model Convertible Deep Well Serial # 0064

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Electric

Horsepower (e.g., ½, ¾, 1, etc.): ¾ hp

Comments: Plugs into 120 volt circuit box inside pumphouse. Pump is setup and used in spring, summer, and fall months and removed and put away in the cold months.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):6-7

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: ESPLICHAL001___

State Well ID: _____

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Unable to measure.

MP height above ground level: Not Available feet

Static water level in feet below MP: Not able to measure feet

Test Date: 9/29/09 Time: 10:01 am to 10:32 am

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place ☒ temporary ☐ Description In-place pump

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate.

Comments: Pumped continuously for 30 minutes, measuring flow rate in 5 gallon pails with a stopwatch. Unable to take water level readings without removing and possibly damaging pipe system installed for the pump.

Photograph(s) Taken: Yes ☐ No ☒ Photo ID(s):_____

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: ESPLICHAL001
State Well ID: _____
Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	9/29/2009	0:46	NA	5	6.522	Pump on at 10:01 am
On	9/29/2009	1:33	NA	10	6.383	
On	9/29/2009	2:19	NA	15	6.522	
On	9/29/2009	3:06	NA	20	6.383	
On	9/29/2009	3:53	NA	25	6.383	
On	9/29/2009	4:40	NA	30	6.383	
On	9/29/2009	5:26	NA	35	6.522	
On	9/29/2009	6:15	NA	40	6.122	
On	9/29/2009	7:01	NA	45	6.522	
On	9/29/2009	7:48	NA	50	6.383	
On	9/29/2009	8:36	NA	55	6.250	
On	9/29/2009	9:22	NA	60	6.522	
On	9/29/2009	10:06	NA	65	6.818	
On	9/29/2009	10:53	NA	70	6.383	
On	9/29/2009	11:39	NA	75	6.522	
On	9/29/2009	12:30	NA	80	5.882	
On	9/29/2009	13:19	NA	85	6.122	
On	9/29/2009	14:06	NA	90	6.383	
On	9/29/2009	14:52	NA	95	6.522	
On	9/29/2009	15:39	NA	100	6.383	
On	9/29/2009	16:27	NA	105	6.250	
On	9/29/2009	17:14	NA	110	6.383	
On	9/29/2009	18:01	NA	115	6.383	
On	9/29/2009	18:48	NA	120	6.383	
On	9/29/2009	19:35	NA	125	6.383	
On	9/29/2009	20:22	NA	130	6.383	
On	9/29/2009	21:10	NA	135	6.250	
On	9/29/2009	21:58	NA	140	6.250	
On	9/29/2009	22:48	NA	145	6.000	
On	9/29/2009	23:35	NA	150	6.383	
On	9/29/2009	24:23	NA	155	6.250	
On	9/29/2009	25:09	NA	160	6.522	
On	9/29/2009	25:57	NA	165	6.250	
On	9/29/2009	26:45	NA	170	6.250	
On	9/29/2009	27:33	NA	175	6.250	
On	9/29/2009	28:20	NA	180	6.383	
On	9/29/2009	29:08	NA	185	6.250	
On	9/29/2009	29:53	NA	190	6.667	
Off	9/29/2009	30:42	NA	195	6.122	Pump off at 10:32 am

Note:
1) NA means that well was Not Accessible (NA) to take water level measurements

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: ESPLICHAL001

State Well ID: _____

Stark County, North Dakota

WATER QUALITY DATA

Sample Date: 9/29/09 Time: 10:32 am (usually at end of pump testing)

Sample point: At end of 180 ft garden hose.

Total Volume Purged: 195 gallons

pH (field measurement): 7.19 Conductivity (field measurement): 3112 µ S/cm

Temperature (field measurement): 12.13 ^{o}C

Appearance (clarity, odor, sediment, etc.): Clear with slight yellow tint. Slight sulfur smell with black and brown sediment particles during pump flow test.

Comments: Took a second sample for Southwestern District Health direct from pump tap (at 2:30 pm). Cleaned tap with clorox wipe before sampling. This sampling technique was recommended by the lab. Both lab test analyses are included.

Photograph(s) Taken: Yes ☐ No ☒ Photo ID(s):_____

Laboratory analysis: Pace Analytical and Southwestern District Health Unit.

In general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

GOLDER Received DENVER
JAN 11 2010

Well/Spring ID: Esplichal 001
State Well ID: _____
Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (1 of 1 wells) is accurate to the best of my knowledge and represents the true condition of this well on

Elaine Splichal
PRINT NAME

Elaine Splichal 9-29-09
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 9/29/09. This WATER WELL CERTIFICATION is signed and certified as true and accurate

JAY BERG
PRINT NAME

SIGNED 9/29/09
DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: ESPLICHAL001

State Well ID: _____

Stark County, North Dakota

Additional Notes (if necessary):

Well is located in cellar inside pump house building. Pump casing in the cellar is 4-inch diameter metal extending 4- inches above the cement floor. A 2-inch diameter black PVC pipe extends up 6.5 ft above the floor to where it enters a 6-inch diameter metal casing pipe that extends 10.5 inches above the ground. The 2-inch diameter PVC pipe then connects to the pump.

PHOTO LOG



Photo #1: Well location and pump house.



Photo #2: Cellar for well location.



Photo #3: Well in cellar of pump house.

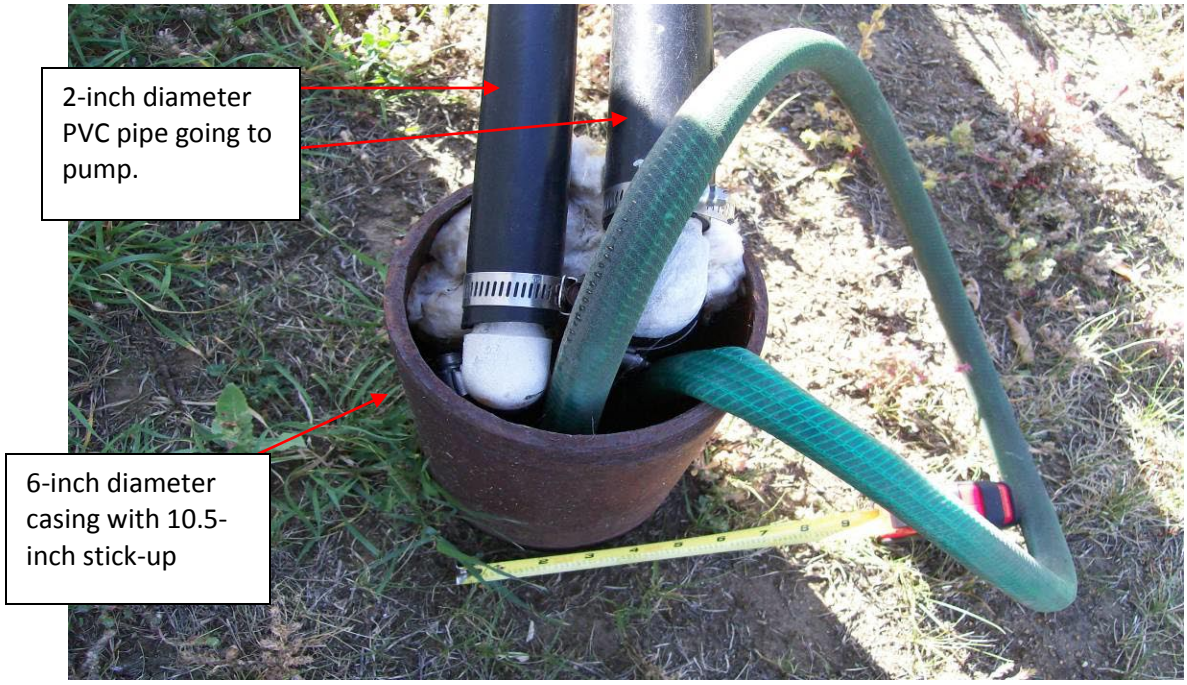

Photo #4: Well casing above ground with PVC pipe connecting to pump.



Photo #5: Well pump.



Photo #6: Jet pump and information tag.



Photo #7: Electrical system for well pump inside pump house.

Pace Analytical Services, Inc.
602 S 25th Street
Billings, MT 591014549
(406)254-7226

ANALYTICAL RESULTS

Project: SH Well Cert. 063-2174
Pace Project No.: 10113665

Sample: ESPLICHAL 001 **Lab ID: 10113665001** Collected: 09/29/09 10:32 Received: 09/30/09 09:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium	**20.9**	mg/L	0.50	0.25	1	10/06/09 22:34	10/07/09 15:25	7440-70-2	
Magnesium	**19.0**	mg/L	0.50	0.25	1	10/06/09 22:34	10/07/09 15:25	7439-95-4	
Potassium	**6.3**	mg/L	2.5	0.085	1	10/06/09 22:34	10/07/09 15:25	7440-09-7	
Sodium	**405**	mg/L	1.0	0.50	1	10/06/09 22:34	10/07/09 15:25	7440-23-5	
Total Hardness by 2340B	**130**	mg/L	3.3	1.6	1	10/06/09 22:34	10/07/09 15:25		
Sodium Adsorption Ratio, SAR	Analytical Method: Calculated								
Sodium Adsorption Ratio	**15.4**		0.24		1		10/12/09 15:13		
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Iron	**0.041**	mg/L	0.010	0.0050	1	10/07/09 16:47	10/10/09 01:15	7439-89-6	
2130B Turbidity	Analytical Method: SM 2130B								
Turbidity	**1.2**	NTU	0.20	0.050	1		10/01/09 08:34		
2510B Specific Conductance	Analytical Method: SM 2510B								
Specific Conductance	**2190**	umhos/cm	10.0	5.0	1		10/08/09 13:56		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**4.4**	mg/L	1.1	0.53	1		10/02/09 12:35		
353.2 Nitrate + Nitrite pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	ND	mg/L	0.010	0.0050	1		10/13/09 14:08		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.1**	Std. Units	0.10	0.050	1		09/30/09 12:15		H6
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**555**	mg/L	10.0	0.52	2		10/06/09 16:13		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	10.0	0.52	2		10/06/09 16:13		
Alkalinity, Total as CaCO3	**555**	mg/L	10.0	0.52	2		10/06/09 16:13		M0
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1380**	mg/L	20.0	5.0	1		10/05/09 13:20		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**6.1**	mg/L	1.0	0.054	1		10/08/09 23:06	16887-00-6	
Sulfate	**533**	mg/L	50.0	3.8	50		10/09/09 19:25	14808-79-8	
Cation/Anion Balance	Analytical Method: SM 1030F								
Cation/Anion Balance	**4.6**	%			1		10/13/09 18:53		1M

Date: 10/14/2009 07:03 PM

REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
602 S 25th Street
Billings, MT 591014549
(406)254-7226

QUALIFIERS

Project: SH Well Cert. 063-2174
Pace Project No.: 10113665

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

U - Indicates the compound was analyzed for, but not detected.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City
PASI-M	Pace Analytical Services - Minneapolis
PASI-MT	Pace Analytical Services - Montana

ANALYTE QUALIFIERS

1M	Percent difference is less than the allowable difference of 5%.
D8	The sample and duplicate results for this parameter are less than 5 times the reporting limit, the RPD may not be statistically valid.
H6	Analysis initiated more than 15 minutes after sample collection.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
P6	Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

REPORT OF LABORATORY ANALYSIS

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Data Qualifiers

Inorganic Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
E	The result is an estimated amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
Z	Too many colonies were present (TNTC). The numeric value represents the filtration volume.
i	The MRL/MDL has been elevated due to matrix interference.
X	See case narrative.

Metals Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The reported value is estimated because of the presence of matrix interference.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The result was determined by Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL has been elevated due to matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.

Organic Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
A	The tentatively identified compound is a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria were exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides)
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
i	The MRL/MDL has been elevated due to a chromatographic interference.
X	See case narrative.

Petroleum Hydrocarbon Specific

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Pace Analytical Services
Project Name : SH Well Cert. 063-2174
Project Number : 10113665
Sample Matrix : WATER

Service Request : J0904858
Date Collected : 09/29/09
Date Received : 10/01/09

Tannin and Lignin

Analysis Method : SM 5550B
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date/Time Analyzed	Result	Result Notes
ESPLICHAL 001	J0904858-001	0.5	0.048	1	10/12/09 10:36	0.47	J
Method Blank	J0904858-MB	0.5	0.048	1	10/12/09 10:36	U	

Report By:TYeremyants

GOLDER Received OCT 05 2009 DENVER

WATER SYSTEM BACTERIOLOGICAL WATER ANALYSIS

SOUTHWESTERN DISTRICT HEALTH UNIT
2869 3rd Avenue West, Dickinson, ND 58601 • 701-483-0171 or 1-800-697-3145

LEFT SIDE OF FORM MUST BE COMPLETED BY COLLECTOR

Name of Collector	Telephone Number
JAY BERG	701-260-6118

Date Collected	Time Collected
9/29/09	10:32

Collection Point/Remarks: ESPLichal 001

Sample Source (Check One):
- [x] Domestic Well
- [ ] Surface Water
- [ ] Stock Well
- [ ] Public Water System
- [ ] Other
- [ ] Swimming Pool
- [ ] Spa

Reason for Sample (Check One):
- [ ] Routine
- [ ] Retest
- [ ] Mortgage Requirement
- [ ] USDA Required
- [ ] Required by other state or federal regulations
- [ ] Water treatment check (raw or treated)
- [ ] ND Dairy Dept.
- [x] Special purpose (explain) Well Certification

SWIMMING POOL/SPA INFORMATION

POOL/SPA NAME		
Free Chlorine	Total Chlorine	pH

WATER SUPPLY INFORMATION FOR PRIVATE SYSTEMS

County: Stark

Township Number	Range Number	Section Number

Well Depth _____ ft. Well Diameter _____ in.

Owner: Elaine Splichal

Address:

City	State	Zip Code

Send Results To (if other than owner): Ed Pothorff, Golder Assoc.

Address: 44 Union Blvd Suite 300

City	State	Zip Code
Lakewood	CO	80228

STOP! RIGHT SIDE OF FORM IS FOR LABORATORY USE ONLY.

Paid - Amount
- [ ] CHECK # _____
- [ ] CASH

PLEASE READ THE ENCLOSED INSTRUCTIONS BEFORE SAMPLING

Do NOT Submit Samples on FRIDAYS

(***NOTE*** - Pool/Spa, Retest, and Fermentation Tube samples must be **received** by Wednesday of the week)

Lab Number	
- 1313	
Date of Receipt: 9-29-09	Time of Receipt: 12:00
Date of Analysis: 9-29-09	Time of Analysis: 1210
Date Completed: 10-1-09	Analyst: KP
Remarks:	

ANALYSIS METHOD
- [x] Fermentation Tube
- [ ] Membrane Filter
- [ ] Presence-Absence
- [ ] Other

COLIFORM ANALYSIS
- [x] SATISFACTORY - No Coliforms Found
- [ ] UNSATISFACTORY - Coliforms Present - SEND REPEAT SAMPLES
  - [ ] No Fecal Coliforms Found
  - [ ] Fecal Coliforms Present
  - [ ] No *E coli* Found
  - [ ] *E coli* Present

Copy for Jay

Coliforms per 100 ml: 0 | Fec _____ per 100 ml

SAMPLE VOIDED - SEND REPLACEMENT
- [ ] Turbid Without Gas Production
- [ ] Too Numerous to Count
- [ ] Confluent Growth
- [ ] Turbid Without Acid Reaction
- [ ] Sample Too Old
- [ ] Other

STANDARD PLATE COUNT PER ML _____
R2A PLATE COUNT PER ML _____
- [ ] Satisfactory
- [ ] Unsatisfactory

NITRATE SCREEN <2 mg/l
- [x] Satisfactory
- [ ] Unsatisfactory
- [ ] Result to Follow

(< is less than > is more than)

WATER SYSTEM BACTERIOLOGICAL WATER ANALYSIS

SOUTHWESTERN DISTRICT HEALTH UNIT
2869 3rd Avenue West, Dickinson, ND 58601 • 701-483-0171 or 1-800-697-3145

GOLDER Received OCT 08 2009 DENVER

LEFT SIDE OF FORM MUST BE COMPLETED BY COLLECTOR

Name of Collector	Telephone Number
JAY BERG	701-260-6118
Date Collected	**Time Collected**
9/29/09	14:30

Collection Point/Remarks: Esplichal #1

Sample Source (Check One):
- [X] Domestic Well
- [ ] Surface Water
- [ ] Stock Well
- [ ] Public Water System
- [ ] Other
- [ ] Swimming Pool
- [ ] Spa

Reason for Sample (Check One):
- [ ] Routine
- [ ] Retest
- [ ] Mortgage Requirement
- [ ] USDA Required
- [ ] Required by other state or federal regulations
- [ ] Water treatment check (raw or treated)
- [ ] ND Dairy Dept.
- [X] Special purpose (explain) Well Cert

SWIMMING POOL/SPA INFORMATION

POOL/SPA NAME		
Free Chlorine	Total Chlorine	pH

WATER SUPPLY INFORMATION FOR PRIVATE SYSTEMS

County: Stark

Township Number	Range Number	Section Number

Well Depth _____ ft. Well Diameter _____ in.

Owner: Elaire Splichal

Address:

City	State	Zip Code

Send Results To (if other than owner): Ed Pothorf, Golder Associates.

Address: 44 Union Blvd Suite 300

City	State	Zip Code
Lakewood	CO	80228

STOP! RIGHT SIDE OF FORM IS FOR LABORATORY USE ONLY.

Paid - Amount

- [ ] CHECK #
- [ ] CASH

PLEASE READ THE ENCLOSED INSTRUCTIONS BEFORE SAMPLING

Do NOT Submit Samples on FRIDAYS

(***NOTE*** - Pool/Spa, Retest, and Fermentation Tube samples must be **received** by Wednesday of the week)

Lab Number	
~~1319~~ 1320	
Date of Receipt	**Time of Receipt**
9-29-09	1540
Date of Analysis	**Time of Analysis**
9-29-09	1545
Date Completed	**Analyst**
10-4-09	KM

Remarks:

ANALYSIS METHOD
- [X] Fermentation Tube
- [ ] Membrane Filter
- [ ] Presence-Absence
- [ ] Other

COLIFORM ANALYSIS
- [X] SATISFACTORY - No Coliforms Found
- [ ] UNSATISFACTORY - Coliforms Present - SEND REPEAT SAMPLES
  - [ ] No Fecal Coliforms Found
  - [ ] Fecal Coliforms Present
  - [ ] No *E coli* Found
  - [ ] *E coli* Present

Coliforms per 100 ml	Fecal Coliforms per 100 ml
0	

SAMPLE VOIDED - SEND REPLACEMENT
- [ ] Turbid Without Gas Production
- [ ] Too Numerous to Count
- [ ] Confluent Growth
- [ ] Turbid Without Acid Reaction
- [ ] Sample Too Old
- [ ] Other

STANDARD PLATE COUNT PER ML _____
R2A PLATE COUNT PER ML _____
- [ ] Satisfactory
- [ ] Unsatisfactory

NITRATE SCREEN <2 mg/l
- [X] Satisfactory
- [ ] Unsatisfactory
- [ ] Result to Follow

(< is less than > is more than)

SWDHU 05/2004 White - lab (top copy) will be returned with the results Canary - retained by lab

FLHURT001

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: FLHURT001__
State Well ID: _____
Stark County, North Dakota

LOCATION DATA

Owner/Operator Name: Floyd and Muriel Hurt

Owner/Operator Address and Contact Information: PO Box 333 South Heart, ND 58655 701-677-4176

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 13 Quarter Section NW Quarter Section NW Quarter Section SE

Coordinates of well/spring location and projection (from GPS): Has not been GPS'd. Northing and Easting estimated from Aerial Map from 6/19/2006

Northing 444980 Easting 1376308 Projection State Plane

Relative location to landmarks and/or buildings: Located ten feet south of shed in backyard

Ground elevation _____ feet estimated from _____

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Domestic (includes lawn watering)

Owner/Operator comments: _____

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photo #1

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 62 feet

Screened Interval: Not known to Not known feet

Diameter/Finish (metal casing, PVC, etc.): 4-inch diameter PVC

Date drilled/developed: 10/21/1991

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: FLHURT001__

State Well ID: _____

Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: __Not known_____

Condition of Well and Sanitary Protection: Good condition

_____

Comments: _____

_____

_____

_____

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Submersible

Make: Not Accessible Model Not Accessible Serial # Not Accessible

Pump intake depth: Not Accessible feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Electric

Horsepower (e.g., ½, ¾, 1, etc.): Not Accessible

Comments: Power switch to pump located in the shed.

_____

_____

_____

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: FLHURT001__

State Well ID: _____

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Directly out of faucet with 50-foot hose connected.

MP height above ground level: ~4 feet

Static water level in feet below MP: Not able to measure feet

Test Date: 6/5/08 Time: 2:02pm to 2:32pm

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): (in-place) temporary (circle one) Description Used the pump in-place

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Used 50-foot hose. Pump has high pressure output.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: FLHURT001__

State Well ID: _____

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	6/5/08	0:19	NA	5	15.699	All measurements taken using a 5-gal bucket. Pump on at 2:02 pm
On	6/5/08	0:42	NA	10	12.870	
On	6/5/08	1:05	NA	15	13.222	
On	6/5/08	1:26	NA	20	14.178	
On	6/5/08	1:49	NA	25	13.411	
On	6/5/08	2:14	NA	30	11.719	
On	6/5/08	2:34	NA	35	15.291	
On	6/5/08	2:54	NA	40	15.190	
On	6/5/08	3:14	NA	45	14.978	
On	6/5/08	3:38	NA	50	12.275	
On	6/5/08	3:59	NA	55	14.265	
On	6/5/08	4:19	NA	60	15.456	
On	6/5/08	4:39	NA	65	14.354	
On	6/5/08	5:03	NA	70	12.953	
On	6/5/08	5:24	NA	75	13.812	
On	6/5/08	5:47	NA	80	13.169	
On	6/5/08	6:07	NA	85	15.291	
On	6/5/08	6:34	NA	90	11.082	
On	6/5/08	6:54	NA	95	14.837	
On	6/5/08	7:16	NA	100	13.526	
On	6/5/08	7:38	NA	105	14.052	
On	6/5/08	8:01	NA	110	12.717	
On	6/5/08	8:22	NA	115	14.138	
On	6/5/08	8:46	NA	120	12.750	
On	6/5/08	9:05	NA	125	15.536	
On	6/5/08	9:27	NA	130	13.556	
On	6/5/08	9:47	NA	135	15.167	
On	6/5/08	10:11	NA	140	12.799	
On	6/5/08	10:32	NA	145	13.680	
On	6/5/08	10:54	NA	150	13.908	
On	6/5/08	11:16	NA	155	13.812	
On	6/5/08	11:37	NA	160	14.205	
On	6/5/08	11:59	NA	165	13.387	
On	6/5/08	12:21	NA	170	14.058	
On	6/5/08	12:41	NA	175	15.000	
On	6/5/08	13:04	NA	180	12.853	
On	6/5/08	13:25	NA	185	14.118	
On	6/5/08	13:49	NA	190	12.500	
On	6/5/08	14:09	NA	195	15.000	
On	6/5/08	14:34	NA	200	12.029	
On	6/5/08	14:55	NA	205	14.218	
On	6/5/08	15:20	NA	210	11.986	
On	6/5/08	15:41	NA	215	14.528	
On	6/5/08	16:02	NA	220	14.118	
On	6/5/08	16:28	NA	225	11.806	
On	6/5/08	16:49	NA	230	14.416	
On	6/5/08	17:09	NA	235	15.023	

On	6/5/08	17:32	NA	240	13.010	
On	6/5/08	17:52	NA	245	14.677	
On	6/5/08	18:14	NA	250	13.711	
On	6/5/08	18:34	NA	255	14.570	
On	6/5/08	18:58	NA	260	12.993	
On	6/5/08	19:17	NA	265	15.213	
On	6/5/08	19:37	NA	270	15.144	
On	6/5/08	19:59	NA	275	13.928	
On	6/5/08	20:22	NA	280	13.083	
On	6/5/08	20:44	NA	285	13.501	
On	6/5/08	21:08	NA	290	12.547	
On	6/5/08	21:28	NA	295	14.771	
On	6/5/08	21:51	NA	300	13.280	
On	6/5/08	22:11	NA	305	14.606	
On	6/5/08	22:34	NA	310	12.903	
On	6/5/08	22:54	NA	315	15.385	
On	6/5/08	23:16	NA	320	13.375	
On	6/5/08	23:37	NA	325	14.613	
On	6/5/08	23:59	NA	330	13.369	
On	6/5/08	24:21	NA	335	14.012	
On	6/5/08	24:45	NA	340	12.469	
On	6/5/08	25:05	NA	345	14.699	
On	6/5/08	25:28	NA	350	12.903	
On	6/5/08	25:49	NA	355	14.437	
On	6/5/08	26:11	NA	360	13.831	
On	6/5/08	26:32	NA	365	13.934	
On	6/5/08	26:57	NA	370	12.371	
On	6/5/08	27:15	NA	375	16.278	
On	6/5/08	27:39	NA	380	12.371	
On	6/5/08	28:01	NA	385	13.928	
On	6/5/08	28:23	NA	390	13.699	
On	6/5/08	28:42	NA	395	15.361	
On	6/5/08	29:04	NA	400	13.692	
On	6/5/08	29:25	NA	405	14.479	
On	6/5/08	29:46	NA	410	14.570	
Off	6/5/08	30:06	NA	415	14.556	Pump off at 2:32 pm

Note:
1) NA means that well was Not Accessible (NA) to take water level measurements

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: FLHURT001__

State Well ID: _____

Stark County, North Dakota

WATER QUALITY DATA

Sample Date: 6/5/08 Time: 2:32pm (usually at end of pump testing)

Sample point: End of the faucet with 50-foot hose connected for sampling and pump test.

Total Volume Purged: 415 gallons

pH (field measurement): 7.7 Conductivity (field measurement): 1839 µ S/cm

Temperature (field measurement): 10.2 °C

Appearance (clarity, odor, sediment, etc.): Brown tint, relatively clear, slight sulfur odor

Comments:

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Northern Analytical

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: FLHURT001
State Well ID: _____
Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (1 of 2 wells) is accurate to the best of my knowledge and represents the true condition of this well on

PRINT NAME

SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 6/5/08 .This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi
PRINT NAME Jill Parisi

Jill Parisi 6/5/08
SIGNED DATE

Certification Field Information Form sent and owner signature is pending.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: FLHURT001__

State Well ID: _____

Stark County, North Dakota

Additional Notes (if necessary):

PHOTO LOG



Photo #1: Well location for FLHURT001 near shed in backyard.

Client: GOLDER ASSOCIATES, INC.
Project Name: SOUTH HEART
Project No.: 0632174
Laboratory No.: 2008060067-4
Sample Name: FL HURT 001
Sample Date/Time: 06/05/2008 14:32:00
Collected by: JILL PARISI
Sample Type: WATER

PARAMETER	MEASURED VALUE	UNITS	ANALYST	REPORTING LIMIT	METHOD NUMBER	DATE/TIME ANALYZED
SOUTH HEART						
Turbidity	0.50 HT	NTU	ES	0.2	180.1	06/09/2008 12:00:00 PM
Tannins & Lignins	2.05	mg/l	ES	0.05	5550B	06/30/2008 06:00:00 PM
pH	7.7	S.U.	ES	0.1-13.5	4500-H+-B	06/09/2008 07:00:00 PM
Alkalinity Bicarbonate as HCO3	648	mg/l	CC	1	2320B	06/16/2008 11:59:00 AM
Alkalinity Carbonate as CO3	0	mg/l	CC	0	2320B	06/16/2008 11:59:00 AM
Alkalinity Total as CaCO3	531	mg/l	CC	1	2320B	06/16/2008 11:59:00 AM
Chloride as Cl	4	mg/l	ES	1	300.0	06/20/2008 06:38:00 PM
Sulfate as SO4	756	mg/l	ES	5	300.0	06/18/2008 04:54:00 AM
Calcium as Ca	31	mg/l	KC	1	200.7	06/19/2008 07:36:00 PM
Hardness as CaCO3	184	mg/l	BH	7	2340B	06/19/2008 07:36:00 PM
Magnesium as Mg	26	mg/l	KC	1	200.7	06/19/2008 07:36:00 PM
Potassium as K	5	mg/l	KC	1	200.7	06/19/2008 07:36:00 PM
Sodium as Na	499	mg/l	KC	1	200.7	06/19/2008 07:36:00 PM
Electrical Conductivity	2360	umhos/cm	MRK	10	2510B	06/12/2008 01:13:00 PM
Total Dissolved Solids	1600	mg/l	RM	20	2540C	06/12/2008 11:35:00 AM
Total Suspended Solids	<2	mg/l	RM	2	2540D	06/12/2008 11:38:00 AM
Iron as Fe (Total)	0.11	mg/l	KC	0.01	200.7	06/20/2008 05:46:00 PM
Nitrate as N	<0.01	mg/l	CC	0.01	353.2	06/25/2008 02:28:00 PM
Nitrite as N	<0.01 HT	mg/l	RM	0.01	4500-NO2-B	06/09/2008 11:03:00 AM
Nitrate + Nitrite as N	<0.01	mg/l	CC	0.01	353.2	06/25/2008 02:33:00 PM
Sodium Adsorption Ratio	16.0	-----	BH	0.2	20b	06/19/2008 07:36:00 PM
Cations	25.52	meq/l	---	0.30	1030F	
Anions	26.47	meq/l	---	0.38	1030F	
Cation/Anion Balance	1.83	% [max 5%]	---	-----	AWWA/APHA	
Metals Batch#/Digestion Date	1570	-----	SH	-----	200.2	06/11/2008 03:30:00 PM

Northern Analytical Laboratories, Inc.

FLHURT002

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: FLHURT002
State Well ID: _____
Stark County, North Dakota

LOCATION DATA

Owner/Operator Name: Floyd and Muriel Hurt

Owner/Operator Address and Contact Information: PO Box 333 South Heart, ND 58655 701-677-4176

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 13 Quarter Section NW Quarter Section NE Quarter Section SW

Coordinates of well/spring location and projection (from GPS):

Northing 444953 Easting 1376500 Projection State Plane

Relative location to landmarks and/or buildings: 45 feet east of shop building which is east across the street from Floyd's house

Ground elevation 2480 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Domestic (includes lawn watering)

Owner/Operator comments: _____

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photo #1

WELL/SPRING CONSTRUCTION

Depth of well: ~65 feet

Screened Interval: Not known to Not known feet

Diameter/Finish (metal casing, PVC, etc.): 4-inch diameter PVC

Date drilled/developed: Approximately between 1998 and 2000

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: FLHURT002___
State Well ID: _____
Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Fair condition. Well protected by steel bollards.

Comments: _____

_____

_____

_____

Photograph(s) Taken (Yes) No (circle one) Photo ID(s): Photo #2

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Submersible

Make: Red Jacket Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Electric

Horsepower (e.g., ½, ¾, 1, etc.): ½ horsepower

Comments: Power switch to pump located on phone pole east of shop building.

_____

_____

_____

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photo #3

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: FLHURT002___
State Well ID: _____
Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: End of 50-foot hose connected to faucet.

MP height above ground level: 2 feet

Static water level in feet below MP: Not able to measure feet

Test Date: 11/4/08 Time: 1:56pm to 2:26pm

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): (in-place) temporary (circle one) Description Used the pump in-place

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: There was no readily available access into the well for water level measurements.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: FLHURT002___

State Well ID: _____

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	11/4/2008	0:27	NA	5	11.111	Pump on at 1:56 pm
On	11/4/2008	0:52	NA	10	12.000	
On	11/4/2008	1:18	NA	15	11.538	
On	11/4/2008	1:45	NA	20	11.111	
On	11/4/2008	2:11	NA	25	11.538	
On	11/4/2008	2:38	NA	30	11.111	
On	11/4/2008	3:04	NA	35	11.538	
On	11/4/2008	3:30	NA	40	11.538	
On	11/4/2008	3:58	NA	45	10.714	
On	11/4/2008	4:29	NA	50	9.677	
On	11/4/2008	4:55	NA	55	11.538	
On	11/4/2008	5:22	NA	60	11.111	
On	11/4/2008	5:49	NA	65	11.111	
On	11/4/2008	6:15	NA	70	11.538	
On	11/4/2008	6:41	NA	75	11.538	
On	11/4/2008	7:08	NA	80	11.111	
On	11/4/2008	7:36	NA	85	10.714	
On	11/4/2008	8:02	NA	90	11.538	
On	11/4/2008	8:28	NA	95	11.538	
On	11/4/2008	8:56	NA	100	10.714	
On	11/4/2008	9:22	NA	105	11.538	
On	11/4/2008	9:48	NA	110	11.538	
On	11/4/2008	10:14	NA	115	11.538	
On	11/4/2008	10:41	NA	120	11.111	
On	11/4/2008	11:07	NA	125	11.538	
On	11/4/2008	11:33	NA	130	11.538	
On	11/4/2008	12:00	NA	135	11.111	
On	11/4/2008	12:27	NA	140	11.111	
On	11/4/2008	12:54	NA	145	11.111	
On	11/4/2008	13:20	NA	150	11.538	
On	11/4/2008	13:45	NA	155	12.000	
On	11/4/2008	14:11	NA	160	11.538	
On	11/4/2008	14:38	NA	165	11.111	
On	11/4/2008	15:03	NA	170	12.000	
On	11/4/2008	15:29	NA	175	11.538	
On	11/4/2008	15:55	NA	180	11.538	
On	11/4/2008	16:21	NA	185	11.538	
On	11/4/2008	16:46	NA	190	12.000	
On	11/4/2008	17:13	NA	195	11.111	
On	11/4/2008	17:38	NA	200	12.000	
On	11/4/2008	18:04	NA	205	11.538	
On	11/4/2008	18:31	NA	210	11.111	
On	11/4/2008	18:57	NA	215	11.538	

On	11/4/2008	19:24	NA	220	11.111	
On	11/4/2008	19:50	NA	225	11.538	
On	11/4/2008	20:16	NA	230	11.538	
On	11/4/2008	20:42	NA	235	11.538	
On	11/4/2008	21:09	NA	240	11.111	
On	11/4/2008	21:35	NA	245	11.538	
On	11/4/2008	21:59	NA	250	12.500	
On	11/4/2008	22:27	NA	255	10.714	
On	11/4/2008	22:52	NA	260	12.000	
On	11/4/2008	23:18	NA	265	11.538	
On	11/4/2008	23:45	NA	270	11.111	
On	11/4/2008	24:11	NA	275	11.538	
On	11/4/2008	24:39	NA	280	10.714	
On	11/4/2008	25:03	NA	285	12.500	
On	11/4/2008	25:30	NA	290	11.111	
On	11/4/2008	25:57	NA	295	11.111	
On	11/4/2008	26:22	NA	300	12.000	
On	11/4/2008	26:48	NA	305	11.538	
On	11/4/2008	27:13	NA	310	12.000	
On	11/4/2008	27:40	NA	315	11.111	
On	11/4/2008	28:06	NA	320	11.538	
On	11/4/2008	28:31	NA	325	12.000	
On	11/4/2008	28:58	NA	330	11.111	
On	11/4/2008	29:24	NA	335	11.538	
On	11/4/2008	29:49	NA	340	12.000	
Off	11/4/2008	30:16	NA	345	11.111	Pump off at 2:26 pm

Note:
1) NA means that well was Not Accessible (NA) to take water level measurements

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: FLHURT002___

State Well ID: _____

Stark County, North Dakota

WATER QUALITY DATA

Sample Date: 11/4/08 Time: 2:26pm (usually at end of pump testing)

Sample point: End of 50-foot hose connected to faucet.

Total Volume Purged: 345 gallons

pH (field measurement): 7.30 Conductivity (field measurement): 7.636 m S/cm

Temperature (field measurement): 10.08 ^{o}C

Appearance (clarity, odor, sediment, etc.): Brown tint, relatively clear, sulfur odor, no sediment

Comments:

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Northern Analytical and Southwestern District Health Unit

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: FLHURT002

State Well ID: _____

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (2 of 2 wells) is accurate to the best of my knowledge and represents the true condition of this well on

Floyd R. Hurt
PRINT NAME

Floyd R. Hurt 12-04-08
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 11/4/08 .This WATER WELL CERTIFICATION is signed and certified as true and accurate

Ryan Tolene
PRINT NAME Ryan Tolene

Ryan Tolene 11.4.2008
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: FLHURT002___

State Well ID: _____

Stark County, North Dakota

Additional Notes (if necessary):

PHOTO LOG



Photo #1: Well location for FLHURT002 near shop building east of Floyd's house.

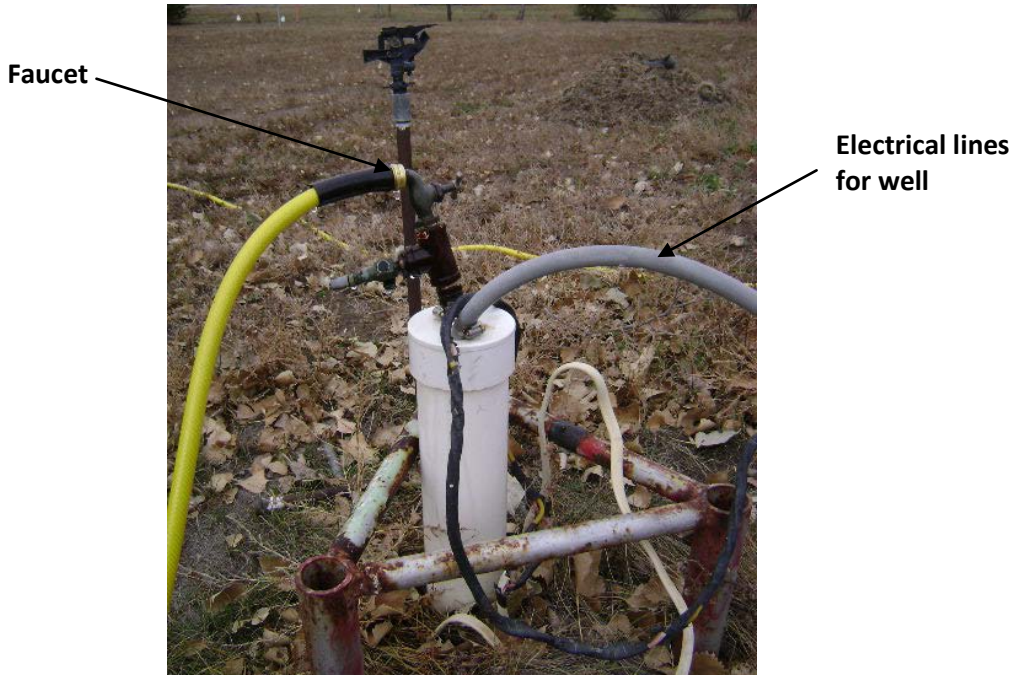

Photo #2: Well setup for FLHURT002 showing plumbing.



Photo #3: Well pump for FLHURT002.

Client: GOLDER ASSOCIATES, INC.
Project Name: SOUTH HEART WELL CERTIFICATION
Project No.: 063-2174
Laboratory No.: 2008110032-3
Sample Name: FLHURT002
Sample Date/Time: 11/04/2008 14:26:00
Collected by: NATHAN MONNIG
Sample Type: WATER

PARAMETER	MEASURED VALUE	UNITS	ANALYST	REPORTING LIMIT	METHOD NUMBER	DATE/TIME ANALYZED
SOUTH HEART WELL CERTIFICATION						
Turbidity	0.70	NTU	ES	0.2	180.1	11/05/2008 02:45:00 PM
Tannins & Lignins	1.47	mg/l	ES	0.1	SM	11/24/2008 02:00:00 PM
pH	8.5	S.U.	ES	0.1-13.5	4500-H+-B	11/05/2008 05:30:00 PM
Alkalinity Bicarbonate as HCO3	770	mg/l	ES	1	2320B	11/14/2008 11:00:00 AM
Alkalinity Carbonate as CO3	0	mg/l	ES	0	2320B	11/14/2008 11:00:00 AM
Alkalinity Total as CaCO3	631	mg/l	ES	1	2320B	11/14/2008 11:00:00 AM
Chloride as Cl	9	mg/l	MRK	1	300.0	11/07/2008 04:52:00 AM
Sulfate as SO4	1400	mg/l	MRK	50	300.0	11/07/2008 05:22:00 AM
Hardness as CaCO3	420	mg/l	BH	7	2340B	11/06/2008 04:41:00 PM
Electrical Conductivity	3420	umhos/cm	MRK	10	2510B	11/14/2008 02:20:00 PM
Total Dissolved Solids	2520	mg/l	ES	20	2540C	11/10/2008 04:00:00 PM
Total Suspended Solids	3	mg/l	ES	1	2540D	11/10/2008 04:00:00 PM
Calcium as Ca (Total)	51	mg/l	BH	1	200.7	11/06/2008 04:41:00 PM
Iron as Fe (Total)	0.05	mg/l	BH	0.05	200.7	11/17/2008 07:06:00 PM
Magnesium as Mg (Total)	71	mg/l	BH	1	200.7	11/06/2008 04:41:00 PM
Sodium as Na (Total)	822	mg/l	BH	1	200.7	11/06/2008 04:41:00 PM
Nitrate as N	0.02 HT	mg/l	CC	0.01	353.2	11/21/2008 05:13:00 PM
Nitrite as N	<0.01 HT	mg/l	MRK	0.01	300.0	11/07/2008 04:52:00 AM
Nitrate + Nitrite as N	0.02	mg/l	CC	0.01	353.2	11/21/2008 05:26:00 PM
Sodium Adsorption Ratio	17.5	-----	BH	0.2	20b	11/06/2008 04:41:00 PM
Cations	44.14	meq/l	---	0.30	1030F	
Anions	42.02	meq/l	---	0.38	1030F	
Cation/Anion Balance	2.46	% [max 5%]	---	-----	AWWA/APHA	
Metals Batch#/Digestion Date	1917	-----	BH	-----	200.2	11/06/2008 09:45:00 AM

WATER SYSTEM BACTERIOLOGICAL WATER ANALYSIS

SOUTHWESTERN DISTRICT HEALTH UNIT
2869 3rd Avenue West, Dickinson, ND 58601 • 701-483-0171 or 1-800-697-3145

LEFT SIDE OF FORM MUST BE COMPLETED BY COLLECTOR

Name of Collector	Telephone Number
Nathan Monnig	303 980 0540
Date Collected	**Time Collected**
11/4/08	2:26 pm

Collection Point/Remarks: FLHURT ØØ2

Sample Source (Check One):
- ☒ Domestic Well
- ☐ Swimming Pool
- ☐ Surface Water
- ☐ Spa
- ☐ Stock Well
- ☐ Public Water System _____
- ☐ Other _____

Reason for Sample (Check One):
- ☐ Routine
- ☐ Retest
- ☐ Mortgage Requirement
- ☐ USDA Required
- ☐ Required by other state or federal regulations
- ☐ Water treatment check (raw or treated)
- ☐ ND Dairy Dept.
- ☒ Special purpose (explain) Well Certification

SWIMMING POOL/SPA INFORMATION

POOL/SPA NAME		
Free Chlorine	Total Chlorine	pH

WATER SUPPLY INFORMATION FOR PRIVATE SYSTEMS

County: Stark

Township Number	Range Number	Section Number

Well Depth _____ ft. Well Diameter _____ in.

Owner: Floyd Hurt

Address:

City	State	Zip Code

Send Results To (if other than owner): Ed Pottorff, Golder Associates

Address: 44 Union Blvd, Suite 300

City	State	Zip Code
Lakewood	CO	80228

STOP! RIGHT SIDE OF FORM IS FOR LABORATORY USE ONLY.

Paid - Amount	☐ CHECK # _____ ☐ CASH

PLEASE READ THE ENCLOSED INSTRUCTIONS BEFORE SAMPLING

Do NOT Submit Samples on FRIDAYS

(***NOTE** - Pool/Spa, Retest, and Fermentation Tube samples must be **received** by Wednesday of the week)

Lab Number: 1571

Date of Receipt	Time of Receipt
11-4-08	1530
Date of Analysis	**Time of Analysis**
11-4-08	1535
Date Completed	**Analyst**

Remarks:

ANALYSIS METHOD
- ☒ Fermentation Tube
- ☐ Membrane Filter
- ☐ Presence-Absence
- ☐ Other _____

COLIFORM ANALYSIS
- ☒ SATISFACTORY - No Coliforms Found
- ☐ UNSATISFACTORY - Coliforms Present - SEND REPEAT SAMPLES
  - ☐ No Fecal Coliforms Found
  - ☐ Fecal Coliforms Present
  - ☐ No *E coli* Found
  - ☐ *E coli* Present

Coliforms per 100 ml	Fecal Coliforms per 100 ml
0	

SAMPLE VOIDED - SEND REPLACEMENT
- ☐ Turbid Without Gas Production
- ☐ Too Numerous to Count
- ☐ Confluent Growth
- ☐ Turbid Without Acid Reaction
- ☐ Sample Too Old
- ☐ Other _____

STANDARD PLATE COUNT PER ML _____
R2A PLATE COUNT PER ML _____
- ☐ Satisfactory
- ☐ Unsatisfactory

NITRATE SCREEN < 2 mg/l
- ☒ Satisfactory
- ☐ Unsatisfactory
- ☐ Result to Follow

(< is less than > is more than)

SWDHU 05/2004

White - lab (top copy) will be returned with the results

Canary - retained by lab

GLWAGNER001

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GLWAGNER001_
State Well ID: 56815
Stark County, North Dakota

LOCATION DATA

Owner/Operator Name: Wagner Farms LP (Glenn Wagner)

Owner/Operator Address and Contact Information: Wagner Farms LP PO Box 219 South Heart, ND 58655

701-677-5374

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 26 Quarter Section NW Quarter Section NW Quarter Section NW

Coordinates of well/spring location and projection (from GPS):

Northing 433814 Easting 1370444 Projection State Plane

Relative location to landmarks and/or buildings: Southeast of house in adjacent field

Ground elevation 2522 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Stock

Owner/Operator comments: _Used to be hooked up to a stock tank with float as water for ~250 cows. Electrical _ line removed five years ago.

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photos #1-2

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: ~120 feet

Screened Interval: Unknown to Unknown feet

Diameter/Finish (metal casing, PVC, etc.): PVC with a metal cap, 4.5-inch casing

Date drilled/developed: ~1990

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

Is Driller/Contractor's log available: Yes (No) (circle one)

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GLWAGNER001_
State Well ID: 56815
Stark County, North Dakota

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Fair condition. Some rust, covered with a metal barrel for protection

Comments:

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photo #3

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Submersible

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): None (previously 120 Volt electric outlet)

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GLWAGNER001_

State Well ID: 56815

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Well Not Accessible

MP height above ground level: Well Not Accessible feet

Static water level in feet below MP: Not able to measure feet

Test Date: 9/9/08 Time: 8:45 am to 9:16 am

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): (in-place) temporary (circle one) Description Used the pump in-place

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments:

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GLWAGNER001_

State Well ID: 56815

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	9/9/08	0:29	NA	5	10.345	Change in flow, sediment in water
On	9/9/08	1:18	NA	10	6.122	
On	9/9/08	2:14	NA	15	5.357	
On	9/9/08	3:21	NA	20	4.478	Steady flow
On	9/9/08	4:16	NA	25	5.455	
On	9/9/08	5:20	NA	30	4.688	
On	9/9/08	6:14	NA	35	5.455	
On	9/9/08	7:18	NA	40	4.762	
On	9/9/08	8:13	NA	45	5.455	
On	9/9/08	9:17	NA	50	4.688	
On	9/9/08	10:09	NA	55	5.769	
On	9/9/08	11:14	NA	60	4.615	
On	9/9/08	12:06	NA	65	5.769	
On	9/9/08	13:12	NA	70	4.545	
On	9/9/08	14:05	NA	75	5.660	
On	9/9/08	15:08	NA	80	4.762	
On	9/9/08	16:03	NA	85	5.455	
On	9/9/08	17:07	NA	90	4.688	
On	9/9/08	17:58	NA	95	5.882	
On	9/9/08	19:00	NA	100	4.839	
On	9/9/08	19:53	NA	105	5.660	
On	9/9/08	20:55	NA	110	4.839	
On	9/9/08	21:48	NA	115	5.660	
On	9/9/08	22:50	NA	120	4.839	
On	9/9/08	23:43	NA	125	5.556	
On	9/9/08	24:48	NA	130	4.688	
On	9/9/08	25:39	NA	135	5.882	
On	9/9/08	26:43	NA	140	4.688	
On	9/9/08	27:42	NA	145	5.085	
On	9/9/08	28:44	NA	150	4.839	
On	9/9/08	29:35	NA	155	5.882	
Off	9/9/08	30:36	NA	160	4.918	

Note:
1) NA means that well was Not Accessible (NA) to take water level measurements

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GLWAGNER001_
State Well ID: 56815
Stark County, North Dakota

WATER QUALITY DATA

Sample Date: 9/9/08 Time: 9:16 am (usually at end of pump testing)

Sample point: End of 50-foot garden hose connected to faucet that is ~4 inches above ground.

Total Volume Purged: 160 gallons

pH (field measurement): 7.53 Conductivity (field measurement): 2.66 m S/cm

Temperature (field measurement): 13.3 ^{o}C

Appearance (clarity, odor, sediment, etc.): Brown tint, some to little sediment, no odor

Comments: When performing pump test, water was usually clear with a slight brown tint

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Northern Analytical and Southwestern District Health Unit

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GLWAGNER001

State Well ID: 56815

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (1 of 2 wells) is accurate to the best of my knowledge and represents the true condition of this well on 9-9-08

Glenn Wagner
PRINT NAME

Glenn Wagner 9-9-08
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 9-9-08 .This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi
PRINT NAME Jill Parisi

Jill Parisi 9/9/08
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GLWAGNER001_

State Well ID: _56815_____

Stark County, North Dakota

Additional Notes (if necessary):

PHOTO LOG



Photo #1: Well location for GLWAGNER001 in field southeast of house.



Photo #2: Well location for GLWAGNER001 showing water flow.



Photo #3: Well setup for GLWAGNER001 showing plumbing.

Client: GOLDER ASSOCIATES, INC.
Project Name: SOUTH HEART WELL CERTIFICATION
Project No.: 0632174
Laboratory No.: 2008090082-1
Sample Name: GWAGNER001
Sample Date/Time: 09/09/2008 09:16:00
Collected by: JILL PARISI
Sample Type: WATER

SOUTH HEART WELL CERTIFICATION

PARAMETER	MEASURED VALUE	UNITS	ANALYST	REPORTING LIMIT	METHOD NUMBER	DATE/TIME ANALYZED
Turbidity	21	NTU	MRK	0.2	180.1	09/10/2008 02:10:00 PM
Tannins & Lignins	2.54	mg/l	ES	0.05	5550A	09/18/2008 03:30:00 PM
pH	7.4	S.U.	RM	0.1-13.5	4500-H+-B	09/10/2008 06:00:00 PM
Alkalinity Bicarbonate as HCO3	666	mg/l	RM	1	2320B	09/12/2008 10:20:00 AM
Alkalinity Carbonate as CO3	0	mg/l	RM	0	2320B	09/12/2008 10:20:00 AM
Alkalinity Total as CaCO3	546	mg/l	RM	1	2320B	09/12/2008 10:20:00 AM
Chloride as Cl	6	mg/l	MRK	1	300.0	09/17/2008 10:50:00 AM
Sulfate as SO4	904	mg/l	MRK	50	300.0	09/17/2008 11:51:00 AM
Hardness as CaCO3	138	mg/l	BH	7	2340B	09/15/2008 05:07:00 PM
Electrical Conductivity	2480	umhos/cm	MRK	10	2510B	09/15/2008 03:54:00 PM
Total Dissolved Solids	1800	mg/l	RM	20	2540C	09/15/2008 09:07:00 AM
Total Suspended Solids	177	mg/l	RM	1	2540D	09/15/2008 09:06:00 AM
Calcium as Ca (Total)	24	mg/l	BH	1	200.7	09/15/2008 05:07:00 PM
Iron as Fe (Total)	2.85	mg/l	BH	0.01	200.7	09/15/2008 05:07:00 PM
Magnesium as Mg (Total)	19	mg/l	BH	1	200.7	09/15/2008 05:07:00 PM
Sodium as Na (Total)	643	mg/l	BH	1	200.7	09/15/2008 05:07:00 PM
ICPMS Batch#/Digest Date	1761	-----	BH	-----	200.2	09/12/2008 02:45:00 PM
Nitrate as N	0.14	mg/l	CC	0.01	353.2	09/12/2008 03:10:00 PM
Nitrite as N	0.02	mg/l	MRK	0.01	4500-NO2 B	09/10/2008 03:39:00 PM
Nitrate + Nitrite as N	0.16	mg/l	CC	0.01	353.2	09/12/2008 03:10:00 PM
Sodium Adsorption Ratio	23.8	-----	BH	0.2	20b	09/15/2008 05:07:00 PM
Cations	30.73	meq/l	---	0.30	1030F	
Anions	29.92	meq/l	---	0.20	1030F	
Cation/Anion Balance	1.34	% [max 5%]	---	-----	AWWA/APHA	

WATER SYSTEM BACTERIOLOGICAL WATER ANALYSIS

SOUTHWESTERN DISTRICT HEALTH UNIT
2869 3rd Avenue West, Dickinson, ND 58601 • 701-483-0171 or 1-800-697-3145

LEFT SIDE OF FORM MUST BE COMPLETED BY COLLECTOR

Name of Collector	Telephone Number
Jill Parisi	3039800540
Date Collected	**Time Collected**
9-9-08	9:16 AM

Collection Point/Remarks: GWAGNER001

Sample Source (Check One):
- ☑ Domestic Well
- ☐ Surface Water
- ☐ Stock Well
- ☐ Public Water System _____
- ☐ Other _____
- ☐ Swimming Pool
- ☐ Spa

Reason for Sample (Check One):
- ☐ Routine
- ☐ Retest
- ☐ Mortgage Requirement
- ☐ USDA Required
- ☐ Required by other state or federal regulations
- ☐ Water treatment check (raw or treated)
- ☐ ND Dairy Dept.
- ☑ Special purpose (explain) _____

SWIMMING POOL/SPA INFORMATION

POOL/SPA NAME

Free Chlorine	Total Chlorine	pH

WATER SUPPLY INFORMATION FOR PRIVATE SYSTEMS

County: Stark County

Township Number	Range Number	Section Number
139N	98W	

Well Depth 120 ft. Well Diameter 4.5 in.

Owner: Glen Wagner

Address:

City	State	Zip Code

Send Results To (if other than owner): Jill Parisi

Address: 44 Union Blvd, Suite 300

City	State	Zip Code
Lakewood	CO	80228

STOP! RIGHT SIDE OF FORM IS FOR LABORATORY USE ONLY.

Paid - Amount	
12.00	☑ CHECK # 1232 ☐ CASH

PLEASE READ THE ENCLOSED INSTRUCTIONS BEFORE SAMPLING

Do NOT Submit Samples on FRIDAYS

(***NOTE*** - Pool/Spa, Retest, and Fermentation Tube samples must be **received** by Wednesday of the week)

Lab Number	1301
Date of Receipt 9-9-08	**Time of Receipt** 12:05 pm
Date of Analysis 9-9-08	**Time of Analysis** 1530
Date Completed 9-11-08	**Analyst** RO
Remarks	

ANALYSIS METHOD
- ☐ Fermentation Tube
- ☑ Membrane Filter
- ☐ Presence-Absence
- ☐ Other _____

COLIFORM ANALYSIS
- ☑ SATISFACTORY - No Coliforms Found
- ☐ UNSATISFACTORY - Coliforms Present - SEND REPEAT SAMPLES
  - ☐ No Fecal Coliforms Found
  - ☐ Fecal Coliforms Present
  - ☐ No *E coli* Found
  - ☐ *E coli* Present

Coliforms per 100 ml	Fecal Coliforms per 100 ml
0	

SAMPLE VOIDED - SEND REPLACEMENT
- ☐ Turbid Without Gas Production
- ☐ Too Numerous to Count
- ☐ Confluent Growth
- ☐ Turbid Without Acid Reaction
- ☐ Sample Too Old
- ☐ Other _____

STANDARD PLATE COUNT PER ML _____
R2A PLATE COUNT PER ML _____
- ☐ Satisfactory
- ☐ Unsatisfactory

NITRATE SCREEN < 2 mg/l
- ☑ Satisfactory
- ☐ Unsatisfactory
- ☐ Result to Follow

(< is less than > is more than)

SWDHU 05/2004

White - lab (top copy) will be returned with the results

Canary - retained by lab

GLWAGNER002

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GLWAGNER002_
State Well ID: 10635
Stark County, North Dakota

LOCATION DATA

Owner/Operator Name: Wagner Farms LP (Glenn Wagner)

Owner/Operator Address and Contact Information: Wagner Farms LP PO Box 219 South Heart, ND 58655

701-677-5374

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 26 Quarter Section NW Quarter Section SE Quarter Section SE

Coordinates of well/spring location and projection (from GPS):

Northing 434514 Easting 1369630 Projection State Plane

Relative location to landmarks and/or buildings: East of house next to rental apartment

Ground elevation 2533 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Domestic and Stock

Owner/Operator comments: _Used to be hooked up to apartment but is now used for a stock tank, watering lawn, and for miscellaneous farming activities. Apartment has been on Southwest water for ~1 month.

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photo #1

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 110 feet

Screened Interval: Not known to Not known feet

Diameter/Finish (metal casing, PVC, etc.): Metal casing and cap

Date drilled/developed: ~ Late 1960's

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GLWAGNER002_
State Well ID: 10635
Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Good condition

Comments:

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photo #2

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Submersible

Make: Goulds Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Not Available

Horsepower (e.g., ½, ¾, 1, etc.): 3/4

Comments: Pump is two weeks old

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GLWAGNER002_
State Well ID: 10635
Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Well Not Accessible

MP height above ground level: Well Not Accessible feet

Static water level in feet below MP: Not able to measure feet

Test Date: 9/9/08 Time: 9:21 am to 9:52 am

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): (in-place) temporary (circle one) Description Used pump in-place

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments:

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GLWAGNER002_

State Well ID: 10635

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	9/9/08	0:30	NA	5	9.677	
On	9/9/08	0:45	NA	10	21.429	
On	9/9/08	1:25	NA	15	7.500	
On	9/9/08	1:52	NA	20	11.111	
On	9/9/08	2:19	NA	25	11.111	
On	9/9/08	2:45	NA	30	11.538	
On	9/9/08	3:11	NA	35	11.538	
On	9/9/08	3:42	NA	40	9.677	
On	9/9/08	4:09	NA	45	11.111	
On	9/9/08	4:32	NA	50	13.043	
On	9/9/08	4:58	NA	55	11.538	
On	9/9/08	5:21	NA	60	13.043	
On	9/9/08	5:48	NA	65	11.111	
On	9/9/08	6:10	NA	70	13.636	
On	9/9/08	6:34	NA	75	12.500	
On	9/9/08	6:58	NA	80	12.500	
On	9/9/08	7:24	NA	85	11.538	
On	9/9/08	7:48	NA	90	12.500	
On	9/9/08	8:14	NA	95	11.538	
On	9/9/08	8:36	NA	100	13.636	
On	9/9/08	9:01	NA	105	12.000	
On	9/9/08	9:23	NA	110	13.636	
On	9/9/08	9:48	NA	115	12.000	
On	9/9/08	10:10	NA	120	13.636	
On	9/9/08	10:35	NA	125	12.000	
On	9/9/08	10:57	NA	130	13.636	
On	9/9/08	11:22	NA	135	12.000	
On	9/9/08	11:44	NA	140	13.636	
On	9/9/08	12:08	NA	145	12.500	
On	9/9/08	12:35	NA	150	11.111	
On	9/9/08	13:01	NA	155	11.538	
On	9/9/08	13:24	NA	160	13.043	
On	9/9/08	13:49	NA	165	12.000	
On	9/9/08	14:15	NA	170	11.538	
On	9/9/08	14:43	NA	175	10.714	
On	9/9/08	15:07	NA	180	12.500	
On	9/9/08	15:29	NA	185	13.636	
On	9/9/08	15:54	NA	190	12.000	
On	9/9/08	16:16	NA	195	13.636	
On	9/9/08	16:40	NA	200	12.500	
On	9/9/08	17:07	NA	205	11.111	
On	9/9/08	17:34	NA	210	11.111	
On	9/9/08	17:56	NA	215	13.636	
On	9/9/08	18:21	NA	220	12.000	
On	9/9/08	18:48	NA	225	11.111	

Note:
1) NA means that well was Not Accessible (NA) to take water level measurements

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GLWAGNER002_

State Well ID: 10635

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	9/9/08	19:12	NA	230	12.500	
On	9/9/08	19:39	NA	235	11.111	
On	9/9/08	20:00	NA	240	14.286	
On	9/9/08	20:26	NA	245	11.538	
On	9/9/08	20:48	NA	250	13.636	
On	9/9/08	21:11	NA	255	13.043	
On	9/9/08	21:35	NA	260	12.500	
On	9/9/08	21:59	NA	265	12.500	
On	9/9/08	22:26	NA	270	11.111	
On	9/9/08	22:51	NA	275	12.000	
On	9/9/08	23:17	NA	280	11.538	
On	9/9/08	23:40	NA	285	13.043	
On	9/9/08	24:04	NA	290	12.500	
On	9/9/08	24:29	NA	295	12.000	
On	9/9/08	24:52	NA	300	13.043	
On	9/9/08	25:23	NA	305	9.677	
On	9/9/08	25:47	NA	310	12.500	
On	9/9/08	26:09	NA	315	13.636	
On	9/9/08	26:32	NA	320	13.043	
On	9/9/08	26:54	NA	325	13.636	
On	9/9/08	27:16	NA	330	13.636	
On	9/9/08	27:41	NA	335	12.000	
On	9/9/08	28:10	NA	340	10.345	
On	9/9/08	28:33	NA	345	13.043	
On	9/9/08	29:00	NA	350	11.111	
On	9/9/08	29:22	NA	355	13.636	
On	9/9/08	29:47	NA	360	12.000	
Off	9/9/08	30:14	NA	365	11.111	

Note:
1) NA means that well was Not Accessible (NA) to take water level measurements

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GLWAGNER002_
State Well ID: 10635
Stark County, North Dakota

WATER QUALITY DATA

Sample Date: 9/9/08 Time: 9:52 am (usually at end of pump testing)

Sample point: Faucet/hydrantby rental apartment. Faucet is ~4.3 feet above ground.

Total Volume Purged: 365 gallons

pH (field measurement): 7.28 Conductivity (field measurement): 2.90 m S/cm

Temperature (field measurement): 12.1 ^{o}C

Appearance (clarity, odor, sediment, etc.): Brown tint, sulfur odor, clear

Comments:

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Northern Analytical and Southwestern District Health Unit

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GLWAGNER002

State Well ID: 10635

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (2 of 2 wells) is accurate to the best of my knowledge and represents the true condition of this well on 9-9-08

Glenn Wagner
PRINT NAME

Glenn Wagner 9-9-08
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 9-9-08 .This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi
PRINT NAME Jill Parisi

Jill Parisi 9/9/08
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GLWAGNER002_

State Well ID: _10635_____

Stark County, North Dakota

Additional Notes (if necessary):

PHOTO LOG



Photo #1: Well location for GLWAGNER002 east of the house.



Photo #2: Well setup for GLWAGNER002 showing faucet/hydrant plumbed to well.

Client: GOLDER ASSOCIATES, INC.
Project Name: SOUTH HEART WELL CERTIFICATION
Project No.: 0632174
Laboratory No.: 2008090082-2
Sample Name: GWAGNER002
Sample Date/Time: 09/09/2008 09:52:00
Collected by: JILL PARISI
Sample Type: WATER

SOUTH HEART WELL CERTIFICATION

PARAMETER	MEASURED VALUE	UNITS	ANALYST	REPORTING LIMIT	METHOD NUMBER	DATE/TIME ANALYZED
Turbidity	0.75	NTU	MRK	0.2	180.1	09/10/2008 02:10:00 PM
Tannins & Lignins	3.04	mg/l	ES	0.05	5550A	09/18/2008 03:30:00 PM
pH	7.3	S.U.	RM	0.1-13.5	4500-H+-B	09/10/2008 06:00:00 PM
Alkalinity Bicarbonate as HCO3	735	mg/l	RM	1	2320B	09/12/2008 10:20:00 AM
Alkalinity Carbonate as CO3	0	mg/l	RM	0	2320B	09/12/2008 10:20:00 AM
Alkalinity Total as CaCO3	603	mg/l	RM	1	2320B	09/12/2008 10:20:00 AM
Chloride as Cl	6	mg/l	MRK	1	300.0	09/17/2008 01:53:00 PM
Sulfate as SO4	918	mg/l	MRK	50	300.0	09/26/2008 04:11:00 PM
Hardness as CaCO3	96	mg/l	BH	7	2340B	09/15/2008 05:34:00 PM
Electrical Conductivity	2860	umhos/cm	MRK	10	2510B	09/15/2008 03:54:00 PM
Total Dissolved Solids	1990	mg/l	RM	20	2540C	09/15/2008 09:07:00 AM
Total Suspended Solids	<1	mg/l	RM	1	2540D	09/15/2008 09:06:00 AM
Calcium as Ca (Total)	17	mg/l	BH	1	200.7	09/15/2008 05:34:00 PM
Iron as Fe (Total)	0.12	mg/l	BH	0.01	200.7	09/15/2008 05:22:00 PM
Magnesium as Mg (Total)	13	mg/l	BH	1	200.7	09/15/2008 05:34:00 PM
Sodium as Na (Total)	735	mg/l	BH	1	200.7	09/15/2008 05:34:00 PM
ICPMS Batch#/Digest Date	1761	-----	BH	-----	200.2	09/12/2008 02:45:00 PM
Nitrate as N	0.01	mg/l	CC	0.01	353.2	09/19/2008 05:39:00 PM
Nitrite as N	0.02	mg/l	MRK	0.01	4500-NO2 B	09/10/2008 03:39:00 PM
Nitrate + Nitrite as N	0.01	mg/l	CC	0.01	353.2	09/19/2008 05:39:00 PM
Sodium Adsorption Ratio	32.6	-----	BH	0.2	20b	09/15/2008 05:34:00 PM
Cations	33.89	meq/l	---	0.30	1030F	
Anions	31.34	meq/l	---	0.20	1030F	
Cation/Anion Balance	3.91	% [max 5%]	---	-----	AWWA/APHA	

WATER SYSTEM BACTERIOLOGICAL WATER ANALYSIS

SOUTHWESTERN DISTRICT HEALTH UNIT
2869 3rd Avenue West, Dickinson, ND 58601 • 701-483-0171 or 1-800-697-3145

LEFT SIDE OF FORM MUST BE COMPLETED BY COLLECTOR

Name of Collector	Telephone Number
Jill Parisi	303-980-0540

Date Collected	Time Collected
9-9-08	9:52

Collection Point/Remarks: GWAGNER002

Sample Source (Check One):
- [x] Domestic Well
- [ ] Swimming Pool
- [ ] Surface Water
- [ ] Spa
- [ ] Stock Well
- [ ] Public Water System _____
- [ ] Other _____

Reason for Sample (Check One):
- [ ] Routine
- [ ] Retest
- [ ] Mortgage Requirement
- [ ] USDA Required
- [ ] Required by other state or federal regulations
- [ ] Water treatment check (raw or treated)
- [ ] ND Dairy Dept.
- [x] Special purpose (explain) _____

SWIMMING POOL/SPA INFORMATION

POOL/SPA NAME		
Free Chlorine	Total Chlorine	pH

WATER SUPPLY INFORMATION FOR PRIVATE SYSTEMS

County: Stark County

Township Number	Range Number	Section Number
139N	98W	

Well Depth 110 ft. Well Diameter 4.5 in.

Owner: Glen Wagner

Address:

City	State	Zip Code

Send Results To (if other than owner): Jill Parisi

Address: 44 Union Blvd, Suite 300

City	State	Zip Code
Lakewood	CO	80228

STOP! RIGHT SIDE OF FORM IS FOR LABORATORY USE ONLY.

Paid - Amount: 12.00
- [x] CHECK # 1232
- [ ] CASH

PLEASE READ THE ENCLOSED INSTRUCTIONS BEFORE SAMPLING

Do NOT Submit Samples on FRIDAYS

(***NOTE*** - Pool/Spa, Retest, and Fermentation Tube samples must be **received** by Wednesday of the week)

Lab Number	1300
Date of Receipt: 9-9-08	Time of Receipt: 12:05 pm
Date of Analysis: 9-9-08	Time of Analysis: 1530
Date Completed: 9-11-08	Analyst: KP
Remarks:	

ANALYSIS METHOD
- [ ] Fermentation Tube
- [x] Membrane Filter
- [ ] Presence-Absence
- [ ] Other _____

COLIFORM ANALYSIS
- [x] SATISFACTORY - No Coliforms Found
- [ ] UNSATISFACTORY - Coliforms Present - SEND REPEAT SAMPLES
  - [ ] No Fecal Coliforms Found
  - [ ] Fecal Coliforms Present
  - [ ] No *E coli* Found
  - [ ] *E coli* Present

Coliforms per 100 ml	Fecal Coliforms per 100 ml
0	

SAMPLE VOIDED - SEND REPLACEMENT
- [ ] Turbid Without Gas Production
- [ ] Too Numerous to Count
- [ ] Confluent Growth
- [ ] Turbid Without Acid Reaction
- [ ] Sample Too Old
- [ ] Other _____

STANDARD PLATE COUNT PER ML _____
R2A PLATE COUNT PER ML _____
- [ ] Satisfactory
- [ ] Unsatisfactory

NITRATE SCREEN < 2 mg/l
- [x] Satisfactory
- [ ] Unsatisfactory
- [ ] Result to Follow

(< is less than > is more than)

SWDHU 05/2004 White - lab (top copy) will be returned with the results Canary - retained by

GMEDUNA002

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GMEDUNA002
State Well ID: _____
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: Gary Meduna

Owner/Operator Address and Contact Information: PO Box 123 South Heart, ND 58655 (701)677-5639

Cell (701) 290-2327.

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 10 Quarter Section SE Quarter Section NE Quarter Section NW

Coordinates of well/spring location and projection (from GPS):

Northing 448455.7 Easting 1368850.7 Projection State Plane

Relative location to landmarks and/or buildings: 35 feet east of southeast corner of barn along fence line, 5 feet west of water fountain.

Ground elevation 2507 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Stock

Owner/Operator comments: Well owner uses well to water livestock.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):1

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GMEDUNA002 ___
State Well ID: _____
Stark County, North Dakota

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 60 feet

Screened Interval: Not Available. to Not Available. feet

Diameter/Finish (metal casing, PVC, etc.): 6-inch diameter metal casing.

Date drilled/developed: Approximately 1973

Driller/Contractor's Name: Not Available.

Driller/Contractor's address and contact information: Not Available

Is Driller/Contractor's log available: Yes ☐ No ☒

Probable stratigraphic unit of well completion: Not Available

Condition of Well and Sanitary Protection: Good condition and well area tidy and protected with fence and metal cover.

Comments: Well has a buried pressure tank located on south side of wellhead. 6-inch diameter metal case extends 12-inches above ground level. Well has a sealed wellhead with a pressure switch and pressure gauge.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):2-3

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GMEDUNA002 ___

State Well ID: _____

Stark County, North Dakota

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Submersible.

Make:Not Available. Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Electric

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Electrical source is 120 volt electric box located next to well head.

Photograph(s) Taken: Yes ☐ No ☒ Photo ID(s):

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GMEDUNA002 ___

State Well ID: _____

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Available

MP height above ground level: Not Available feet

Static water level in feet below MP: Not able to measure feet

Test Date: 10/27/09 Time: 1:27 pm to 1:57 pm

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place ☒ temporary ☐ Description In-place pump .

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Pumped well continuously for 30 minutes, measuring flow rate in 5 gallon pails with stopwatch. Unable to take water level readings without removing sealed well head cap and possibly damaging the well and well accessories like the piping system. Removed float on water fountain and attached adapter end to attach hose for flow test.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):4-5

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GMEDUNA002
State Well ID: _____
Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	10/27/2009	0:28	NA	5	10.714	Pump on at 1:27 pm
On	10/27/2009	0:58	NA	10	10.000	
On	10/27/2009	1:27	NA	15	10.345	
On	10/27/2009	1:54	NA	20	11.111	
On	10/27/2009	2:24	NA	25	10.000	
On	10/27/2009	2:51	NA	30	11.111	
On	10/27/2009	3:18	NA	35	11.111	
On	10/27/2009	3:45	NA	40	11.111	
On	10/27/2009	4:12	NA	45	11.111	
On	10/27/2009	4:40	NA	50	10.714	
On	10/27/2009	5:07	NA	55	11.111	
On	10/27/2009	5:34	NA	60	11.111	
On	10/27/2009	6:02	NA	65	10.714	
On	10/27/2009	6:29	NA	70	11.111	
On	10/27/2009	6:56	NA	75	11.111	
On	10/27/2009	7:24	NA	80	10.714	
On	10/27/2009	7:51	NA	85	11.111	
On	10/27/2009	8:17	NA	90	11.538	
On	10/27/2009	8:43	NA	95	11.538	
On	10/27/2009	9:10	NA	100	11.111	
On	10/27/2009	9:37	NA	105	11.111	
On	10/27/2009	10:04	NA	110	11.111	
On	10/27/2009	10:30	NA	115	11.538	
On	10/27/2009	10:58	NA	120	10.714	
On	10/27/2009	11:24	NA	125	11.538	
On	10/27/2009	11:51	NA	130	11.111	
On	10/27/2009	12:18	NA	135	11.111	
On	10/27/2009	12:45	NA	140	11.111	
On	10/27/2009	13:12	NA	145	11.111	
On	10/27/2009	13:39	NA	150	11.111	
On	10/27/2009	14:05	NA	155	11.538	
On	10/27/2009	14:32	NA	160	11.111	
On	10/27/2009	14:59	NA	165	11.111	
On	10/27/2009	15:26	NA	170	11.111	
On	10/27/2009	15:52	NA	175	11.538	
On	10/27/2009	16:18	NA	180	11.538	
On	10/27/2009	16:44	NA	185	11.538	
On	10/27/2009	17:11	NA	190	11.111	
On	10/27/2009	17:36	NA	195	12.000	
On	10/27/2009	18:02	NA	200	11.538	
On	10/27/2009	18:28	NA	205	11.538	
On	10/27/2009	18:54	NA	210	11.538	
On	10/27/2009	19:21	NA	215	11.111	
On	10/27/2009	19:47	NA	220	11.538	
On	10/27/2009	20:14	NA	225	11.111	
On	10/27/2009	20:40	NA	230	11.538	
On	10/27/2009	21:07	NA	235	11.111	
On	10/27/2009	21:34	NA	240	11.111	
On	10/27/2009	22:00	NA	245	11.538	
On	10/27/2009	22:26	NA	250	11.538	
On	10/27/2009	22:52	NA	255	11.538	
On	10/27/2009	23:18	NA	260	11.538	
On	10/27/2009	23:44	NA	265	11.538	
On	10/27/2009	24:10	NA	270	11.538	
On	10/27/2009	24:37	NA	275	11.111	
On	10/27/2009	25:03	NA	280	11.538	
On	10/27/2009	25:29	NA	285	11.538	
On	10/27/2009	25:55	NA	290	11.538	
On	10/27/2009	26:21	NA	295	11.538	
On	10/27/2009	26:46	NA	300	12.000	
On	10/27/2009	27:12	NA	305	11.538	
On	10/27/2009	27:38	NA	310	11.538	
On	10/27/2009	28:04	NA	315	11.538	
On	10/27/2009	28:30	NA	320	11.538	
On	10/27/2009	28:56	NA	325	11.538	
On	10/27/2009	29:22	NA	330	11.538	
On	10/27/2009	29:48	NA	335	11.538	
Off	10/27/2009	30:15	NA	340	11.111	Pump off at 1:57 pm

Note:
1) NA means that well was Not Accessible (NA) to take water level measurements

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GMEDUNA002

State Well ID: _____

Stark County, North Dakota

WATER QUALITY DATA

Sample Date: 10/27/09 Time: 2:04 pm (usually at end of pump testing)

Sample point: At end of fountain end after removing hose used for flow test.

Total Volume Purged: 340 gallons

pH (field measurement): 7.19 Conductivity (field measurement): 3907 µ S/cm

Temperature (field measurement): 9.21 °C

Appearance (clarity, odor, sediment, etc.): Clear with very slight yellow tint. Very small amount of brown and black sediment. No odor.

Comments: Took sample after completing pump test, removing garden hose, and disinfecting fountain end with Clorox wipe and by heating with a handheld butane torch. Ran water for 30 seconds after cleaning end and prior to sampling.

Photograph(s) Taken: Yes ☐ No ☒ Photo ID(s):

Laboratory analysis: Pace Analytical and Southwestern District Health Unit.

In general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

GOLDER Received JAN 11 2010 DENVER

Well/Spring ID: GMedura #2

State Well ID: _____

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (2 of 3 wells) is accurate to the best of my knowledge and represents the true condition of this well on

Gary Medura
PRINT NAME

Gary Medura 10-27-09
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 10/27/09. This WATER WELL CERTIFICATION is signed and certified as true and accurate

JAY BERG
PRINT NAME

[signature] 10-27-09
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GMEDUNA002 ___

State Well ID: _____

Stark County, North Dakota

Additional Notes (if necessary):

.

PHOTO LOG

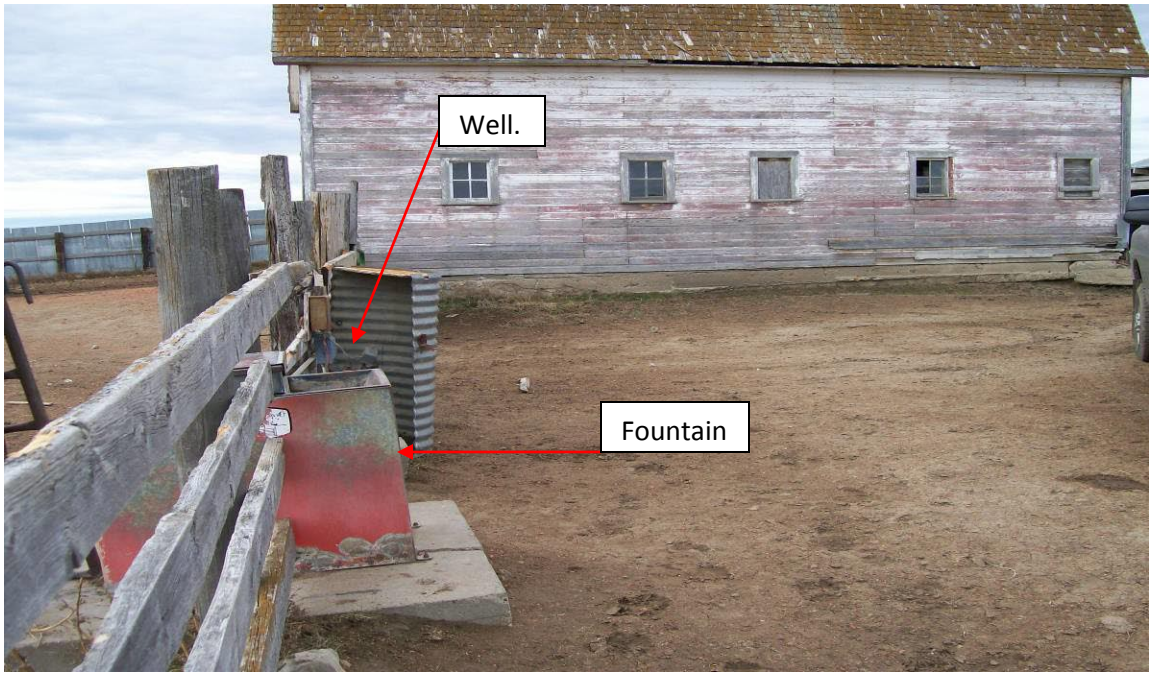

Photo #1: Well location.

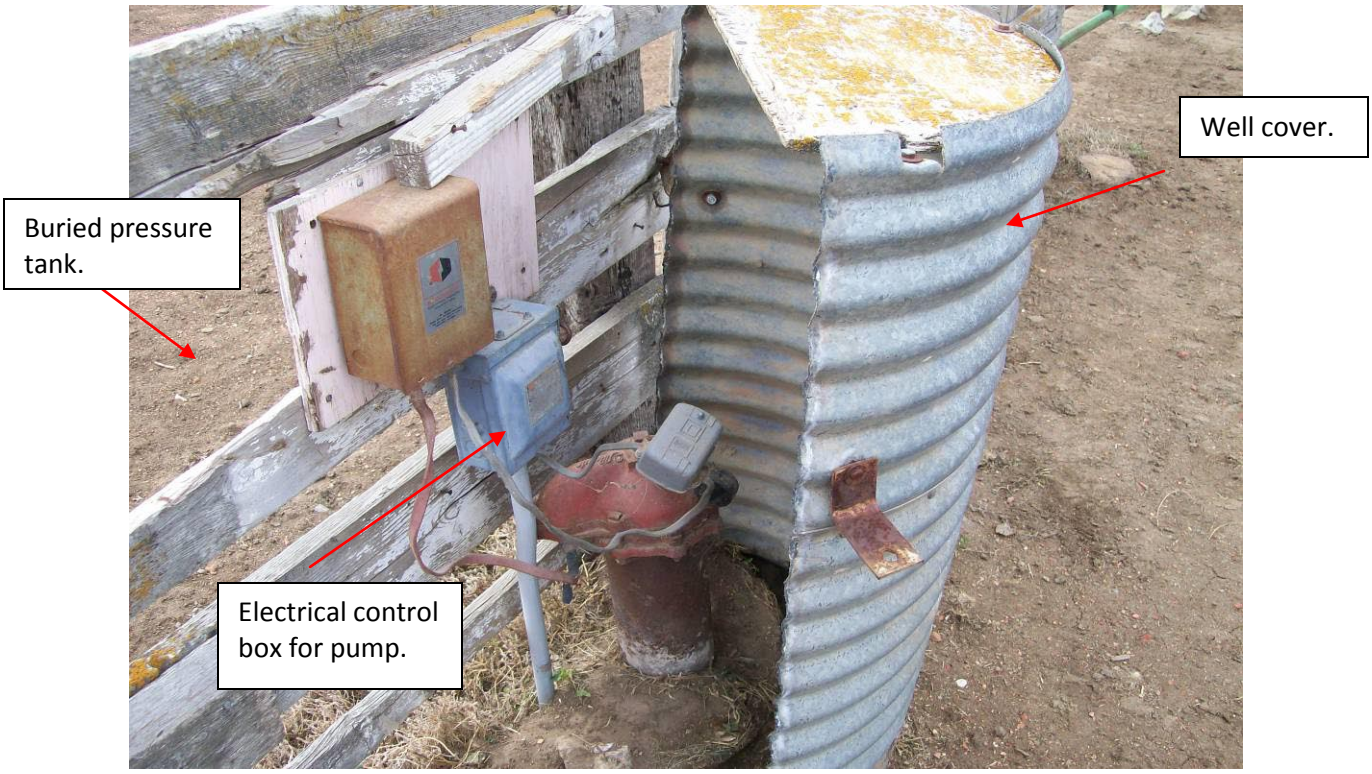

Photo #2: Well



Photo #3: Well head.



Photo #4: Water fountain where sampling and pump test were performed.



Photo #5: Water fountain (with float removed) where sampling and pump test were performed.

Pace Analytical Services, Inc.
602 S 25th Street
Billings, MT 591014549
(406)254-7226

ANALYTICAL RESULTS

Project: SH Well Cert. 063-2174
Pace Project No.: 10115671

Sample: G MEDUNA 002 **Lab ID: 10115671001** Collected: 10/27/09 14:04 Received: 10/28/09 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium	**164**	mg/L	0.50	0.25	1	11/02/09 12:02	11/04/09 13:21	7440-70-2	P6
Magnesium	**73.0**	mg/L	0.50	0.25	1	11/02/09 12:02	11/03/09 22:41	7439-95-4	
Sodium	**484**	mg/L	1.0	0.50	1	11/02/09 12:02	11/03/09 22:41	7440-23-5	
Total Hardness by 2340B	**709**	mg/L	3.3	1.6	1	11/02/09 12:02	11/03/09 22:41		
Sodium Adsorption Ratio, SAR	Analytical Method: Calculated								
Sodium Adsorption Ratio	**7.9**		0.24		1		11/03/09 00:00		
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Iron	**0.13**	mg/L	0.010	0.0050	1	11/02/09 10:26	11/06/09 06:53	7439-89-6	
2130B Turbidity	Analytical Method: SM 2130B								
Turbidity	**1.1**	NTU	0.20	0.050	1		10/28/09 15:55		
2510B Specific Conductance	Analytical Method: SM 2510B								
Specific Conductance	**3250**	umhos/cm	10.0	5.0	1		10/30/09 11:30		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**6.9**	mg/L	1.3	0.66	1		10/29/09 08:05		
300.0 IC Anions	Analytical Method: EPA 300.0								
Chloride	**27.7**	mg/L	1.0	0.028	1		10/28/09 22:45	16887-00-6	
Sulfate	**1070**	mg/L	50.0	1.6	10		11/04/09 00:10	14808-79-8	
353.2 Nitrate + Nitrite pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**9.0**	mg/L	0.20	0.10	20		10/30/09 17:11		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.6**	Std. Units	0.10	0.050	1		10/28/09 16:00		H6
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**781**	mg/L	5.0	0.26	1		11/05/09 16:45		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	5.0	0.26	1		11/05/09 16:45		
Alkalinity, Total as CaCO3	**781**	mg/L	5.0	0.26	1		11/05/09 16:45		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**2330**	mg/L	20.0	5.0	1		11/02/09 13:30		
Cation/Anion Balance	Analytical Method: SM 1030F								
Cation/Anion Balance	**5.2**	%			1		11/12/09 17:50		1M,3M

Date: 11/19/2009 06:07 PM

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
602 S 25th Street
Billings, MT 591014549
(406)254-7226

QUALIFIERS

Project: SH Well Cert. 063-2174
Pace Project No.: 10115671

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

U - Indicates the compound was analyzed for, but not detected.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis
PASI-MT	Pace Analytical Services - Montana

ANALYTE QUALIFIERS

1M	The cation/anion balance difference is greater than the allowable difference of 5%. Results verified by second analysis.
2M	The cation/anion balance difference is less than the allowable difference of 5%.
3M	The cation/anion balance was determined using the individual compounds listed in this report.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
H6	Analysis initiated more than 15 minutes after sample collection.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
P6	Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.
R1	RPD value was outside control limits.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Data Qualifiers

Inorganic Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
E	The result is an estimated amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
Z	Too many colonies were present (TNTC). The numeric value represents the filtration volume.
i	The MRL/MDL has been elevated due to matrix interference.
X	See case narrative.

Metals Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The reported value is estimated because of the presence of matrix interference.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The result was determined by Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL has been elevated due to matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.

Organic Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
A	The tentatively identified compound is a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria were exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides)
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
i	The MRL/MDL has been elevated due to a chromatographic interference.
X	See case narrative.

Petroleum Hydrocarbon Specific

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Pace Analytical Services
Project Name : SH Well Cert 063-2174
Project Number : 10115671
Sample Matrix : WATER

Service Request : J0905355
Date Collected : 10/27/09
Date Received : 10/29/09

Tannin and Lignin

Analysis Method : SM 5550B
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date/Time Analyzed	Result	Result Notes
G MEDUNA 002	J0905355-001	0.5	0.048	1	11/05/09 11:58	2.4	X
Method Blank	J0905355-MB	0.5	0.048	1	11/05/09 11:58	U	

Report By: Palimi

WATER SYSTEM BACTERIOLOGICAL WATER ANALYSIS

SOUTHWESTERN DISTRICT HEALTH UNIT
2869 3rd Avenue West, Dickinson, ND 58601 • 701-483-0171 or 1-800-697-3145

GOLDER Received NOV 0 2 2009 DENVER

LEFT SIDE OF FORM MUST BE COMPLETED BY COLLECTOR

Name of Collector	Telephone Number
JAY BERG	701-360-6118
Date Collected	**Time Collected**
10/27/09	14:04

Collection Point/Remarks: GMEDUNA #2

Sample Source (Check One):
- ☐ Domestic Well
- ☐ Swimming Pool
- ☐ Surface Water
- ☐ Spa
- ☒ Stock Well
- ☐ Public Water System
- ☐ Other

Reason for Sample (Check One):
- ☐ Routine
- ☐ Retest
- ☐ Mortgage Requirement
- ☐ USDA Required
- ☐ Required by other state or federal regulations
- ☐ Water treatment check (raw or treated)
- ☐ ND Dairy Dept.
- ☒ Special purpose (explain) well certification

SWIMMING POOL/SPA INFORMATION

POOL/SPA NAME		
Free Chlorine	Total Chlorine	pH

WATER SUPPLY INFORMATION FOR PRIVATE SYSTEMS

County		
STARK		
Township Number	Range Number	Section Number

Well Depth _____ ft. Well Diameter _____ in.

Owner: Gary Medunа.

Address:

City	State	Zip Code

Send Results To (if other than owner): Ed Pottorff, Golder Associates

Address: 44 Union Blvd Suite 300

City	State	Zip Code
Lakewood	CO	80228

STOP! RIGHT SIDE OF FORM IS FOR LABORATORY USE ONLY.

Paid - Amount

☐ CHECK #
☐ CASH

PLEASE READ THE ENCLOSED INSTRUCTIONS BEFORE SAMPLING

Do NOT Submit Samples on FRIDAYS

(*NOTE - Pool/Spa, Retest, and Fermentation Tube samples must be **received** by Wednesday of the week)

Lab Number	
1450	
Date of Receipt	**Time of Receipt**
10-27-09	1520
Date of Analysis	**Time of Analysis**
10-27-09	1525
Date Completed	**Analyst**
10-29-09	BH

Remarks:

ANALYSIS METHOD
- ☒ Fermentation Tube
- ☐ Membrane Filter
- ☐ Presence-Absence
- ☐ Other

COLIFORM ANALYSIS
- ☒ SATISFACTORY - No Coliforms Found
- ☐ UNSATISFACTORY - Coliforms Present - SEND REPEAT SAMPLES
  - ☐ No Fecal Coliforms Found
  - ☐ Fecal Coliforms Present
  - ☐ No *E coli* Found
  - ☐ *E coli* Present

Coliforms per 100 ml	Fecal Coliforms per 100 ml
0	

SAMPLE VOIDED - SEND REPLACEMENT
- ☐ Turbid Without Gas Production
- ☐ Too Numerous to Count
- ☐ Confluent Growth
- ☐ Turbid Without Acid Reaction
- ☐ Sample Too Old
- ☐ Other

STANDARD PLATE COUNT PER ML _____
R2A PLATE COUNT PER ML _____
- ☐ Satisfactory
- ☐ Unsatisfactory

NITRATE SCREEN 5 mg/l
- ☒ Satisfactory
- ☐ Unsatisfactory
- ☐ Result to Follow

(< is less than > is more than)

White - lab (top copy) will be returned with the results

Canary - retained by lab

GMEDUNA003

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GMEDUNA003___
State Well ID: _____
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: Gary Meduna

Owner/Operator Address and Contact Information: PO Box 123 South Heart, ND 58655 (701)677-5639

Cell (701) 290-2327.

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 10 Quarter Section NE Quarter Section SE Quarter Section SW

Coordinates of well/spring location and projection (from GPS):

Northing 448739.7 Easting 1368827.6 Projection State Plane

Relative location to landmarks and/or buildings: In basement cellar of well owners home.

Ground elevation 2515 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Domestic (includes lawn watering)

Owner/Operator comments: Well owner uses to water lawn. Well owner stated that the well was hooked up to the house until approximately 2002-2003 when Southwest water was piped to the house.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):1

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GMEDUNA003___

State Well ID: _____

Stark County, North Dakota

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 60 feet

Screened Interval: Not Available. to Not Available. feet

Diameter/Finish (metal casing, PVC, etc.): Casing was level with the cement floor and sealed. 2-inch diameter PVC pipe come up out of casing.

Date drilled/developed: Not Available.

Driller/Contractor's Name: Not Available.

Driller/Contractor's address and contact information: Not Available

Is Driller/Contractor's log available: Yes ☐ No ☒

Probable stratigraphic unit of well completion: Not Available

Condition of Well and Sanitary Protection: Excellent condition and tidy around well head.

Comments: 2-inch diameter PVC pipe comes up out of sealed casing 8-inches and connects to a pressure tank, pressure switch and pressure valve. Well is then plumbed to faucets outside the well owners home.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):2

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GMEDUNA003___
State Well ID: _____
Stark County, North Dakota

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Submersible.

Make: Not Available. Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Electric

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Electrical source is 120 volt electric box located in basement next to pump and pressure tank.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s): 3

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GMEDUNA003___

State Well ID: _____

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Available

MP height above ground level: Not Available feet

Static water level in feet below MP: Not able to measure feet

Test Date: 10/27/09 Time: 11:21 am to 11:52 am

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place ☒ temporary ☐ Description In-place pump .

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Pumped well continuously for 30 minutes, measuring flow rate in 5 gallon pails with stopwatch. Unable to take water level readings without removing sealed well head cap and possibly damaging the well and well accessories like the piping system. Pump test water discharged at the end of a 50-foot garden hose. Ran well pump for 2 minutes before starting pump test.

Photograph(s) Taken: Yes ☐ No ☒ Photo ID(s):

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GMEDUNA003
State Well ID: _____
Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	10/27/2009	0:37	NA	5	8.108	Pump on at 11:21 am
On	10/27/2009	1:27	NA	10	6.000	
On	10/27/2009	2:16	NA	15	6.122	
On	10/27/2009	2:59	NA	20	6.977	
On	10/27/2009	3:39	NA	25	7.500	
On	10/27/2009	4:22	NA	30	6.977	
On	10/27/2009	5:14	NA	35	5.769	
On	10/27/2009	6:00	NA	40	6.522	
On	10/27/2009	6:41	NA	45	7.317	
On	10/27/2009	7:20	NA	50	7.692	
On	10/27/2009	8:05	NA	55	6.667	
On	10/27/2009	8:57	NA	60	5.769	
On	10/27/2009	9:42	NA	65	6.667	
On	10/27/2009	10:24	NA	70	7.143	
On	10/27/2009	11:04	NA	75	7.500	
On	10/27/2009	11:52	NA	80	6.250	
On	10/27/2009	12:42	NA	85	6.000	
On	10/27/2009	13:28	NA	90	6.522	
On	10/27/2009	14:09	NA	95	7.317	
On	10/27/2009	14:50	NA	100	7.317	
On	10/27/2009	15:39	NA	105	6.122	
On	10/27/2009	16:29	NA	110	6.000	
On	10/27/2009	17:12	NA	115	6.977	
On	10/27/2009	17:52	NA	120	7.500	
On	10/27/2009	18:32	NA	125	7.500	
On	10/27/2009	19:22	NA	130	6.000	
On	10/27/2009	20:10	NA	135	6.250	
On	10/27/2009	20:53	NA	140	6.977	
On	10/27/2009	21:33	NA	145	7.500	
On	10/27/2009	22:14	NA	150	7.317	
On	10/27/2009	23:05	NA	155	5.882	
On	10/27/2009	23:52	NA	160	6.383	
On	10/27/2009	24:34	NA	165	7.143	
On	10/27/2009	25:14	NA	170	7.500	
On	10/27/2009	25:56	NA	175	7.143	
On	10/27/2009	26:48	NA	180	5.769	
On	10/27/2009	27:33	NA	185	6.667	
On	10/27/2009	28:15	NA	190	7.143	
On	10/27/2009	28:53	NA	195	7.895	
On	10/27/2009	29:37	NA	200	6.818	
Off	10/27/2009	30:29	NA	205	5.769	Pump off at 11:52 am

Note:
1) NA means that well was Not Accessible (NA) to take water level measurements

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GMEDUNA003___

State Well ID: _____

Stark County, North Dakota

WATER QUALITY DATA

Sample Date: 10/27/09 Time:11:56 am (usually at end of pump testing)

Sample point: At end of faucet on southeast corner of house (removed hose used for pump test).

Total Volume Purged: 205 gallons

pH (field measurement): 7.13 Conductivity (field measurement): 3250 µ S/cm

Temperature (field measurement): 10.02 ^{o}C

Appearance (clarity, odor, sediment, etc.):.Clear. Sulfur smell throughout test. Very small amount of black sediment during pump test.

Comments: Took sample after completing pump test, removing garden hose, and cleaned faucet end with Clorox wipe. Ran 2 gallons of water through faucet before sampling.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s): 4-5

Laboratory analysis: Pace Analytical and Southwestern District Health Unit.

In general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

GOLDER Received JAN 1 1 2010 DENVER

Well/Spring ID: GMedina003

State Well ID: _____

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (3 of 3 wells) is accurate to the best of my knowledge and represents the true condition of this well on

Gary Medina
PRINT NAME

Gary Medina 10-27-09
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 10/27/09. This WATER WELL CERTIFICATION is signed and certified as true and accurate

JAY BERG
PRINT NAME

[signature] 10-27-09
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GMEDUNA003___

State Well ID: _____

Stark County, North Dakota

Additional Notes (if necessary):

.

PHOTO LOG

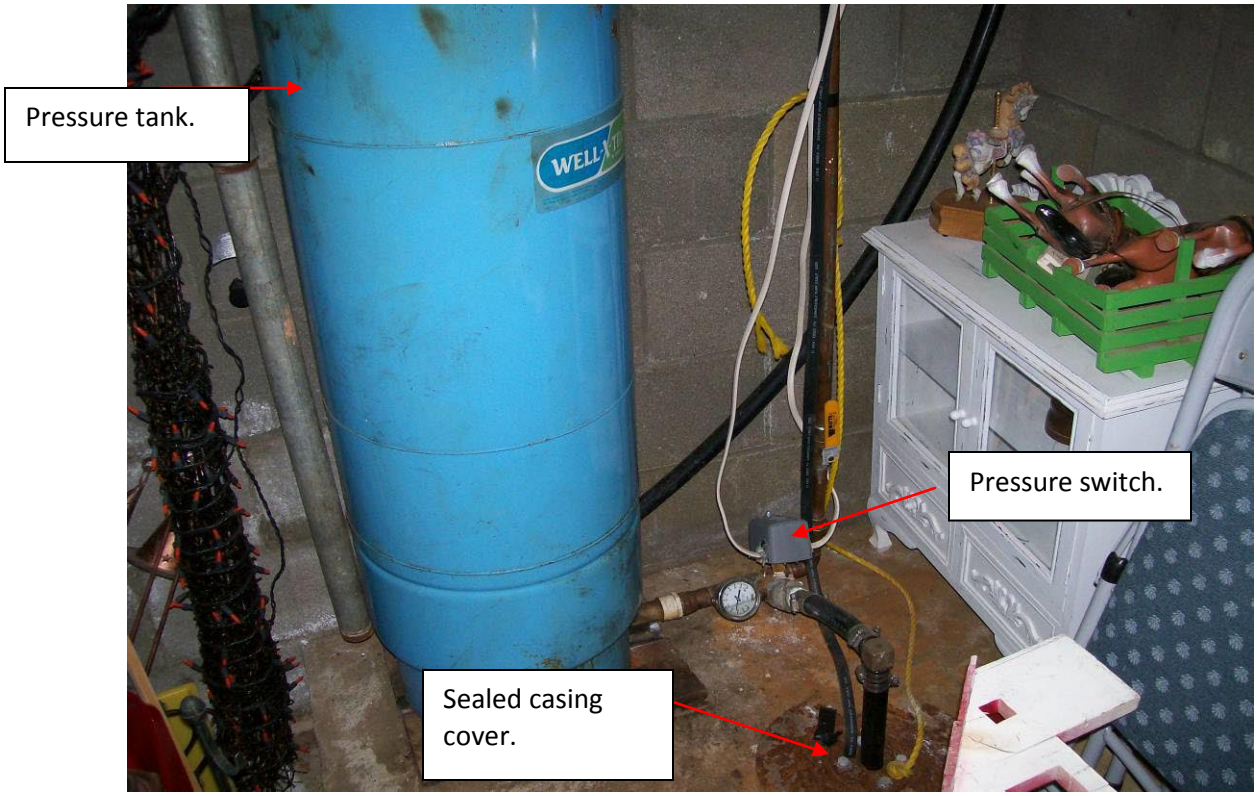

Photo #1: Well location.

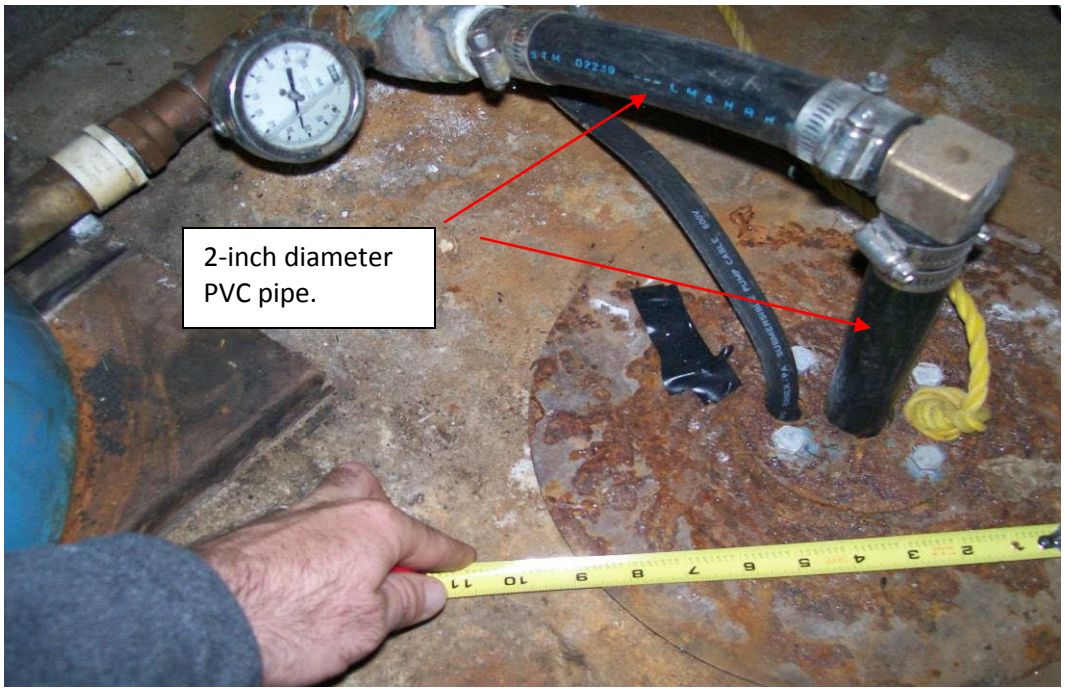

Photo #2: Well construction.



Photo #3: 120 volt electrical system for well.



Photo #4: Faucet on southeast corner of house where pump test and sampling were perfomed.



Photo #5: Water sample.

Pace Analytical Services, Inc.
602 S 25th Street
Billings, MT 591014549
(406)254-7226

ANALYTICAL RESULTS

Project: SH Well Cert. 063-2174
Pace Project No.: 10115671

Sample: G MEDUNA 003 **Lab ID: 10115671002** Collected: 10/27/09 11:56 Received: 10/28/09 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium	**157**	mg/L	0.50	0.25	1	11/02/09 12:02	11/04/09 13:42	7440-70-2	
Magnesium	**115**	mg/L	0.50	0.25	1	11/02/09 12:02	11/03/09 23:02	7439-95-4	
Sodium	**291**	mg/L	1.0	0.50	1	11/02/09 12:02	11/03/09 23:02	7440-23-5	
Total Hardness by 2340B	**890**	mg/L	3.3	1.6	1	11/02/09 12:02	11/03/09 23:02		
Sodium Adsorption Ratio, SAR	Analytical Method: Calculated								
Sodium Adsorption Ratio	**4.3**		0.24		1		11/03/09 00:00		
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Iron	**1.6**	mg/L	0.010	0.0050	1	11/02/09 10:26	11/06/09 06:57	7439-89-6	
2130B Turbidity	Analytical Method: SM 2130B								
Turbidity	**13.4**	NTU	0.20	0.050	1		10/28/09 15:55		
2510B Specific Conductance	Analytical Method: SM 2510B								
Specific Conductance	**2690**	umhos/cm	10.0	5.0	1		10/30/09 11:30		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**0.87J**	mg/L	1.1	0.54	1		10/29/09 08:05		
300.0 IC Anions	Analytical Method: EPA 300.0								
Chloride	**4.9**	mg/L	1.0	0.028	1		10/28/09 23:16	16887-00-6	
Sulfate	**1040**	mg/L	50.0	1.6	10		11/04/09 01:11	14808-79-8	
353.2 Nitrate + Nitrite pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**0.24**	mg/L	0.020	0.010	2		10/30/09 17:36		M0
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.4**	Std. Units	0.10	0.050	1		10/28/09 16:00		H6
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**582**	mg/L	10.0	0.52	2		11/05/09 16:45		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	10.0	0.52	2		11/05/09 16:45		
Alkalinity, Total as CaCO3	**582**	mg/L	10.0	0.52	2		11/05/09 16:45		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1980**	mg/L	20.0	5.0	1		11/02/09 13:30		
Cation/Anion Balance	Analytical Method: SM 1030F								
Cation/Anion Balance	**5.0**	%			1		11/12/09 17:52		2M,3M

Date: 11/19/2009 06:07 PM

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
602 S 25th Street
Billings, MT 591014549
(406)254-7226

QUALIFIERS

Project: SH Well Cert. 063-2174
Pace Project No.: 10115671

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

U - Indicates the compound was analyzed for, but not detected.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis
PASI-MT	Pace Analytical Services - Montana

ANALYTE QUALIFIERS

1M	The cation/anion balance difference is greater than the allowable difference of 5%. Results verified by second analysis.
2M	The cation/anion balance difference is less than the allowable difference of 5%.
3M	The cation/anion balance was determined using the individual compounds listed in this report.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
H6	Analysis initiated more than 15 minutes after sample collection.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
P6	Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.
R1	RPD value was outside control limits.

REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, Inc..

Data Qualifiers

Inorganic Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
E	The result is an estimated amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
Z	Too many colonies were present (TNTC). The numeric value represents the filtration volume.
i	The MRL/MDL has been elevated due to matrix interference.
X	See case narrative.

Metals Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The reported value is estimated because of the presence of matrix interference.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The result was determined by Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL has been elevated due to matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.

Organic Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
A	The tentatively identified compound is a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria were exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides)
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
i	The MRL/MDL has been elevated due to a chromatographic interference.
X	See case narrative.

Petroleum Hydrocarbon Specific

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Pace Analytical Services
Project Name : SH Well Cert 063-2174
Project Number : 10115671
Sample Matrix : WATER

Service Request : J0905355
Date Collected : 10/27/09
Date Received : 10/29/09

Tannin and Lignin

Analysis Method : SM 5550B
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date/Time Analyzed	Result	Result Notes
G MEDUNA 003	J0905355-002	0.5	0.048	1	11/05/09 11:58	1.7	
Method Blank	J0905355-MB	0.5	0.048	1	11/05/09 11:58	U	

Report By: Palimi

WATER SYSTEM BACTERIOLOGICAL WATER ANALYSIS

SOUTHWESTERN DISTRICT HEALTH UNIT
2869 3rd Avenue West, Dickinson, ND 58601 • 701-483-0171 or 1-800-697-3145

LEFT SIDE OF FORM MUST BE COMPLETED BY COLLECTOR

Name of Collector	Telephone Number
JAY BERG	701-260-6118

Date Collected	Time Collected
10/27/09	11:56

Collection Point/Remarks: GMEDUNA 003

Sample Source (Check One):
- [x] Domestic Well
- [ ] Swimming Pool
- [ ] Surface Water
- [ ] Spa
- [ ] Stock Well
- [ ] Public Water System
- [ ] Other

Reason for Sample (Check One):
- [ ] Routine
- [ ] Retest
- [ ] Mortgage Requirement
- [ ] USDA Required
- [ ] Required by other state or federal regulations
- [ ] Water treatment check (raw or treated)
- [ ] ND Dairy Dept.
- [x] Special purpose (explain) Well Certification

SWIMMING POOL/SPA INFORMATION

POOL/SPA NAME

Free Chlorine	Total Chlorine	pH

WATER SUPPLY INFORMATION FOR PRIVATE SYSTEMS

County: STARK

Township Number	Range Number	Section Number

Well Depth _____ ft. Well Diameter _____ in.

Owner: Gary Meduna.

Address:

City	State	Zip Code

Send Results To (if other than owner): Ed Pottorff, Golder Associates.

Address: 44 Union Blvd Suite 300

City	State	Zip Code
Lakewood	CO	80228

STOP! RIGHT SIDE OF FORM IS FOR LABORATORY USE ONLY.

Paid - Amount	☐ CHECK # _____ ☐ CASH

PLEASE READ THE ENCLOSED INSTRUCTIONS BEFORE SAMPLING

Do NOT Submit Samples on FRIDAYS

(*NOTE - Pool/Spa, Retest, and Fermentation Tube samples must be **received** by Wednesday of the week)

Lab Number: 1451

Date of Receipt	Time of Receipt
10-27-09	1520

Date of Analysis	Time of Analysis
10-27-09	1525

Date Completed	Analyst
10-29-09	KA

Remarks:

ANALYSIS METHOD
- [x] Fermentation Tube
- [ ] Membrane Filter
- [ ] Presence-Absence
- [ ] Other

COLIFORM ANALYSIS
- [x] SATISFACTORY - No Coliforms Found
- [ ] UNSATISFACTORY - Coliforms Present - SEND REPEAT SAMPLES
  - [ ] No Fecal Coliforms Found
  - [ ] Fecal Coliforms Present
  - [ ] No *E coli* Found
  - [ ] *E coli* Present

Coliforms per 100 ml	Fecal Coliforms per 100 ml
0	

SAMPLE VOIDED - SEND REPLACEMENT
- [ ] Turbid Without Gas Production
- [ ] Too Numerous to Count
- [ ] Confluent Growth
- [ ] Turbid Without Acid Reaction
- [ ] Sample Too Old
- [ ] Other

STANDARD PLATE COUNT PER ML _____
R2A PLATE COUNT PER ML _____
- [ ] Satisfactory
- [ ] Unsatisfactory

NITRATE SCREEN < 2 mg/l
- [x] Satisfactory
- [ ] Unsatisfactory
- [ ] Result to Follow

(< is less than > is more than)

SWDHU 05/2004

White - lab (top copy) will be returned with the results

Canary - retained by lab

GMEDUNA004

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GMEDUNA004
State Well ID: 56787
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: Gary L. and Barbara Meduna

Owner/Operator Address and Contact Information: PO Box 123 South Heart, ND 58655 701-677-5639

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N* Range 98W*

Section 10* Quarter Section SE* Quarter Section SE* Quarter Section SE*

Coordinates of well/spring location and projection (from GPS):

Northing 446229* Easting 1369227* Projection State Plane*

Relative location to landmarks and/or buildings: Owner cannot locate this well. The owners believe the well does not currently exist.

Ground elevation 2498.6 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Domestic*

Owner/Operator comments: The owners believe the well does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 48* feet

Screened Interval: 45* to 48* feet

Diameter/Finish (metal casing, PVC, etc.): Not known

Date drilled/developed: Not known

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GMEDUNA004
State Well ID: 56787
Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Not known

Comments: Owner can't locate this well and believes that it does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Not Available

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Not Available

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner.

Information could not be obtained directly because the owners believe the well does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GMEDUNA004
State Well ID: 56787
Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Tested

MP height above ground level: Not Tested feet

Static water level in feet below MP: Not able to measure feet

Test Date: Not Tested Time: to

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place temporary (circle one) Description Not Tested

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Not tested, the owners believe the well does not currently exist

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GMEDUNA004

State Well ID: 56787

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GMEDUNA004
State Well ID: 56787
Stark County, North Dakota

WATER QUALITY DATA

Sample Date: Not Sampled Time: Not Sampled (usually at end of pump testing)

Sample point: Not Sampled

Total Volume Purged: Not Sampled gallons

pH (field measurement): Not Sampled Conductivity (field measurement): Not Sampled µ S/cm

Temperature (field measurement): Not Sampled °C

Appearance (clarity, odor, sediment, etc.): Not Sampled

Comments: Well not sampled because the owners believe the well does not currently exist

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Not Sampled

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GMEDUNA004

State Well ID: 56787

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (4 of 4 wells) is accurate to the best of my knowledge and represents the true condition of this well on

PRINT NAME

SIGNED DATE

Certification Field Information Form sent on 9/17/08 and owner signature is pending.

Inspector/Certifier

I do hereby certify that the preceding data was recorded ~~and a water sample was collected~~ by me on 10-1-08. This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi

PRINT NAME Jill Parisi

Jill Parisi 10-1-08

SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GMEDUNA004

State Well ID: 56787

Stark County, North Dakota

Additional Notes (if necessary):

This well appears in the North Dakota State Water Commission database but does not exist according to the owner. Information from the North Dakota State Water Commission database was provided where applicable.

GZARAK002

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GZARAK002

State Well ID: _____

Stark County, North Dakota

LOCATION DATA

Owner/Operator Name: George and Arlene Zarak

Owner/Operator Address and Contact Information: 12550 Highway 10 South Heart, ND 58655 701-575-4705

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 6 Quarter Section SW Quarter Section SE Quarter Section NW

Coordinates of well/spring location and projection (from GPS):

Northing 453039 Easting 1350671 Projection State Plane

Relative location to landmarks and/or buildings: West across the street from the house; 55 feet west of Quonset hut.

Ground elevation 2507 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Stock

Owner/Operator comments: Used for up to 100 head of cattle. Plumbed to two faucets and an automatic watering tank for cattle. South faucet ~10 ft west of barn (~150 ft south of Quonset hut). North faucet ~100 ft west of Quonset hut.

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photo #1

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 84 feet

Screened Interval: 68 to 84 feet

Diameter/Finish (metal casing, PVC, etc.): 4.5" diameter PVC with 0.020" slot screen, Hole diameter 7-7/8-inch

Date drilled/developed: 10/7/2004

Driller/Contractor's Name: Stumvoll Drilling LLC, certificate #52

Driller/Contractor's address and contact information: 2919 17th Street NW Coleharbor, ND 58531

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GZARAK002

State Well ID: _____

Stark County, North Dakota

Is Driller/Contractor's log available: (Yes) No (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Fair condition

Comments: Well construction information recorded from a copy of the drilling report that George had.

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photos #2-7

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Submersible

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Electric

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GZARAK002

State Well ID: _____

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: End of 50-foot hose connected to south faucet

MP height above ground level: ~3 feet

Static water level in feet below MP: Not able to measure feet

Test Date: 11/5/08 Time: 10:34 am to 11:04 am

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place temporary (circle one) Description Used the pump in-place

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: There was no readily available access into the well for water level measurements. Water level measured at 13 feet below ground surface in drilling report.

Photograph(s) Taken: Yes No (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: _GZARAK002____

State Well ID: _____

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	11/5/2008	0:37	NA	5	8.108	Pump on at 10:34 am
On	11/5/2008	1:11	NA	10	8.824	
On	11/5/2008	1:42	NA	15	9.677	
On	11/5/2008	2:12	NA	20	10.000	
On	11/5/2008	2:41	NA	25	10.345	
On	11/5/2008	3:07	NA	30	11.538	
On	11/5/2008	3:33	NA	35	11.538	
On	11/5/2008	4:00	NA	40	11.111	
On	11/5/2008	4:25	NA	45	12.000	
On	11/5/2008	4:51	NA	50	11.538	
On	11/5/2008	5:17	NA	55	11.538	
On	11/5/2008	5:43	NA	60	11.538	
On	11/5/2008	6:10	NA	65	11.111	
On	11/5/2008	6:35	NA	70	12.000	
On	11/5/2008	7:03	NA	75	10.714	
On	11/5/2008	7:30	NA	80	11.111	
On	11/5/2008	7:59	NA	85	10.345	
On	11/5/2008	8:27	NA	90	10.714	
On	11/5/2008	8:58	NA	95	9.677	
On	11/5/2008	9:26	NA	100	10.714	
On	11/5/2008	9:56	NA	105	10.000	
On	11/5/2008	10:24	NA	110	10.714	
On	11/5/2008	10:56	NA	115	9.375	
On	11/5/2008	11:28	NA	120	9.375	
On	11/5/2008	11:59	NA	125	9.677	
On	11/5/2008	12:30	NA	130	9.677	
On	11/5/2008	13:02	NA	135	9.375	
On	11/5/2008	13:33	NA	140	9.677	
On	11/5/2008	14:05	NA	145	9.375	
On	11/5/2008	14:37	NA	150	9.375	
On	11/5/2008	15:12	NA	155	8.571	
On	11/5/2008	15:46	NA	160	8.824	
On	11/5/2008	16:18	NA	165	9.375	
On	11/5/2008	16:49	NA	170	9.677	
On	11/5/2008	17:24	NA	175	8.571	
On	11/5/2008	17:56	NA	180	9.375	
On	11/5/2008	18:29	NA	185	9.091	
On	11/5/2008	19:03	NA	190	8.824	
On	11/5/2008	19:40	NA	195	8.108	
On	11/5/2008	20:10	NA	200	10.000	
On	11/5/2008	20:45	NA	205	8.571	
On	11/5/2008	21:16	NA	210	9.677	

On	11/5/2008	21:51	NA	215	8.571	
On	11/5/2008	22:25	NA	220	8.824	
On	11/5/2008	23:01	NA	225	8.333	
On	11/5/2008	23:35	NA	230	8.824	
On	11/5/2008	24:12	NA	235	8.108	
On	11/5/2008	24:44	NA	240	9.375	
On	11/5/2008	25:20	NA	245	8.333	
On	11/5/2008	25:59	NA	250	7.692	
On	11/5/2008	26:28	NA	255	10.345	
On	11/5/2008	27:03	NA	260	8.571	
On	11/5/2008	27:38	NA	265	8.571	
On	11/5/2008	28:13	NA	270	8.571	
On	11/5/2008	28:49	NA	275	8.333	
On	11/5/2008	29:26	NA	280	8.108	
Off	11/5/2008	30:00	NA	285	8.824	Pump off at 11:04 am

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GZARAK002

State Well ID: _____

Stark County, North Dakota

WATER QUALITY DATA

Sample Date: 11/5/08 Time: 11:04 am (usually at end of pump testing)

Sample point: End of 50-foot hose connected to south faucet

Total Volume Purged: 285 gallons

pH (field measurement): 7.77 Conductivity (field measurement): 7.399 m S/cm

Temperature (field measurement): 9.20 °C

Appearance (clarity, odor, sediment, etc.): Clear with slight yellowish tint, no odor or sediment

Comments: _____

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Northern Analytical and Southwestern District Health Unit

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GZARAK002

State Well ID: _____

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (2 of 2 wells) is accurate to the best of my knowledge and represents the true condition of this well on

PRINT NAME

SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 11/5/08 .This WATER WELL CERTIFICATION is signed and certified as true and accurate

Ryan Tolene

PRINT NAME Ryan Tolene

Ryan Tolene 11.5.2008

SIGNED DATE

Certification Field Information Form sent and owner signature is pending.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: GZARAK002

State Well ID: _____

Stark County, North Dakota

Additional Notes (if necessary):

PHOTO LOG



Photo #1: Photo showing location of well GZarak002 with respect to Quonset hut.



Photo #2: Close-up photo of well GZarak002.



Photo #3: Photo showing location of south faucet plumbed to well GZarak002.



Photo #4: Close-up photo of south faucet plumbed to well GZarak002.



Photo #5: Photo of automatic livestock watering tank plumbed to well GZarak002.



Photo #6: Photo of north faucet plumbed to well GZarak002.



Photo #7: Close-up photo of north faucet plumbed to well GZarak002.

Client: GOLDER ASSOCIATES, INC.
Project Name: SOUTH HEART WELL CERTIFICATION
Project No.: 063-2174
Laboratory No.: 2008110051-4
Sample Name: GZARAK002
Sample Date/Time: 11/05/2008 11:04:00
Collected by: NATHAN MONNIG
Sample Type: WATER

PARAMETER	MEASURED VALUE	UNITS	ANALYST	REPORTING LIMIT	METHOD NUMBER	DATE/TIME ANALYZED
SOUTH HEART WELL CERTIFICATION						
Turbidity	0.70	NTU	ES	0.2	180.1	11/10/2008 05:15:00 PM
Tannins & Lignins	0.73	mg/l	CC	0.05	5550B	12/04/2008 05:25:00 PM
pH	7.9	S.U.	ES	0.1-13.5	4500-H+-B	11/08/2008 03:00:00 PM
Alkalinity Bicarbonate as HCO3	783	mg/l	ES	1	2320B	11/19/2008 02:00:00 AM
Alkalinity Carbonate as CO3	0	mg/l	ES	0	2320B	11/19/2008 02:00:00 AM
Alkalinity Total as CaCO3	641	mg/l	ES	1	2320B	11/19/2008 02:00:00 AM
Chloride as Cl	12	mg/l	MRK	1	300.0	11/27/2008 12:24:00 AM
Sulfate as SO4	1470	mg/l	MRK	50	300.0	11/25/2008 08:24:00 PM
Hardness as CaCO3	207	mg/l	BH	7	2340B	11/13/2008 01:54:00 PM
Electrical Conductivity	3310	umhos/cm	MRK	10	2510B	11/14/2008 02:20:00 PM
Total Dissolved Solids	2450	mg/l	ES	20	2540C	11/10/2008 04:00:00 PM
Total Suspended Solids	<1	mg/l	ES	1	2540D	11/10/2008 04:00:00 PM
Calcium as Ca (Total)	40	mg/l	BH	1	200.7	11/13/2008 01:54:00 PM
Iron as Fe (Total)	0.60	mg/l	BH	0.01	200.7	11/13/2008 01:54:00 PM
Magnesium as Mg (Total)	26	mg/l	BH	1	200.7	11/13/2008 01:54:00 PM
Sodium as Na (Total)	868	mg/l	BH	1	200.7	11/17/2008 05:04:00 PM
Nitrate as N	<0.01	mg/l	CC	0.01	353.2	11/26/2008 04:41:00 PM
Nitrite as N	<0.01 HT	mg/l	MRK	0.01	300.0	11/27/2008 12:24:00 AM
Nitrate + Nitrite as N	<0.01	mg/l	CC	0.01	353.2	11/26/2008 03:56:00 PM
Sodium Adsorption Ratio	26.3	-----	BH	0.2	20b	11/17/2008 05:04:00 PM
Cations	41.89	meq/l	---	0.30	1030F	
Anions	43.76	meq/l	---	0.38	1030F	
Cation/Anion Balance	2.18	% [max 5%]	---	-----	AWWA/APHA	
Metals Batch#/Digestion Date	1928	-----	BH	-----	200.2	11/12/2008 09:30:00 AM

WATER SYSTEM BACTERIOLOGICAL WATER ANALYSIS

SOUTHWESTERN DISTRICT HEALTH UNIT
2869 3rd Avenue West, Dickinson, ND 58601 • 701-483-0171 or 1-800-697-3145

LEFT SIDE OF FORM MUST BE COMPLETED BY COLLECTOR

Name of Collector	Telephone Number
Nathan Monnig	303 980 0540
Date Collected	**Time Collected**
11/5/08	11:05 am

Collection Point/Remarks: GZarak #02

Sample Source (Check One):
- ☐ Domestic Well
- ☐ Swimming Pool
- ☐ Surface Water
- ☐ Spa
- ☒ Stock Well
- ☐ Public Water System _____
- ☐ Other _____

Reason for Sample (Check One):
- ☐ Routine
- ☐ Retest
- ☐ Mortgage Requirement
- ☐ USDA Required
- ☐ Required by other state or federal regulations
- ☐ Water treatment check (raw or treated)
- ☐ ND Dairy Dept.
- ☒ Special purpose (explain) Well Certification

SWIMMING POOL/SPA INFORMATION

POOL/SPA NAME		
Free Chlorine	Total Chlorine	pH

WATER SUPPLY INFORMATION FOR PRIVATE SYSTEMS

County: Stark

Township Number	Range Number	Section Number

Well Depth _____ ft. Well Diameter _____ in.

Owner: George Zarak

Address:

City	State	Zip Code

Send Results To (if other than owner): Ed Potterff, Golder Assoc.

Address: 44 Union Blvd., Suite 300

City	State	Zip Code
Lakewood	CO	80228

STOP! RIGHT SIDE OF FORM IS FOR LABORATORY USE ONLY.

Paid - Amount	☐ CHECK # _____ ☐ CASH

PLEASE READ THE ENCLOSED INSTRUCTIONS BEFORE SAMPLING

Do NOT Submit Samples on FRIDAYS

(***NOTE*** - Pool/Spa, Retest, and Fermentation Tube samples must be **received** by Wednesday of the week)

Lab Number	
1602	
Date of Receipt	**Time of Receipt**
11-5-08	1645
Date of Analysis	**Time of Analysis**
11-5-08	1645
Date Completed	**Analyst**
11-7-08	BH

Remarks:

ANALYSIS METHOD
- ☒ Fermentation Tube
- ☐ Membrane Filter
- ☐ Presence-Absence
- ☐ Other _____

COLIFORM ANALYSIS
- ☒ SATISFACTORY - No Coliforms Found
- ☐ UNSATISFACTORY - Coliforms Present - SEND REPEAT SAMPLES
  - ☐ No Fecal Coliforms Found
  - ☐ Fecal Coliforms Present
  - ☐ No *E coli* Found
  - ☐ *E coli* Present

Coliforms per 100 ml	Fecal Coliforms per 100 ml
0	

SAMPLE VOIDED - SEND REPLACEMENT
- ☐ Turbid Without Gas Production
- ☐ Too Numerous to Count
- ☐ Confluent Growth
- ☐ Turbid Without Acid Reaction
- ☐ Sample Too Old
- ☐ Other _____

STANDARD PLATE COUNT PER ML _____
R2A PLATE COUNT PER ML _____
- ☐ Satisfactory
- ☐ Unsatisfactory

NITRATE SCREEN < 2 mg/l
- ☒ Satisfactory
- ☐ Unsatisfactory
- ☐ Result to Follow

(< is less than > is more than)

JBLANKENSHIP001

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JBLANKENSHIP001

State Well ID: _____

Stark County, North Dakota

LOCATION DATA

Owner/Operator Name: Joe and Robin Blankenship

Owner/Operator Address and Contact Information: 12020 Highway 10 Dickinson, ND 58601 701-677-1007

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 12 Quarter Section NE Quarter Section NE Quarter Section NW

Coordinates of well/spring location and projection (from GPS):

Northing 450516 Easting 1379170 Projection State Plane

Relative location to landmarks and/or buildings: Located 121 feet east of barn

Ground elevation 2484 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Stock (watering horses)

Owner/Operator comments: Joe noted that the water was too salty to use for anything else besides watering his 2 horses.

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photos #1-2

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: ~50 to 60 feet

Screened Interval: Not known to Not known feet

Diameter/Finish (metal casing, PVC, etc.): ~7-inch diameter metal casing

Date drilled/developed: ~ Early 1980's

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JBLANKENSHIP001

State Well ID: _____

Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Good condition

Comments: Plumbed to pressure tank in house then plumbed to barn faucet/hydrant and automatic watering tank near barn

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photos #3-6

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Submersible

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Electric

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: _____

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JBLANKENSHIP001

State Well ID: _____

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: End of 50 ft hose connected to faucet

MP height above ground level: ~4.5 feet

Static water level in feet below MP: Not able to measure feet

Test Date: 11/3/08 Time: 5:48 pm to 6:18 pm

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place temporary (circle one) Description Used the pump in-place

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Flow surged every few minutes during test. There was no readily available access into the well for water level measurements.

Photograph(s) Taken: Yes No (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JBLANKENSHIP001_

State Well ID: _____

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	11/3/2008	0:28	NA	5	10.714	Pump on at 5:48 pm
On	11/3/2008	0:54	NA	10	11.538	
On	11/3/2008	1:24	NA	15	10.000	
On	11/3/2008	1:53	NA	20	10.345	
On	11/3/2008	2:20	NA	25	11.111	
On	11/3/2008	2:48	NA	30	10.714	
On	11/3/2008	3:14	NA	35	11.538	
On	11/3/2008	3:47	NA	40	9.091	
On	11/3/2008	4:16	NA	45	10.345	
On	11/3/2008	4:44	NA	50	10.714	
On	11/3/2008	5:10	NA	55	11.538	
On	11/3/2008	5:37	NA	60	11.111	
On	11/3/2008	6:08	NA	65	9.677	
On	11/3/2008	6:37	NA	70	10.345	
On	11/3/2008	7:05	NA	75	10.714	
On	11/3/2008	7:32	NA	80	11.111	
On	11/3/2008	7:57	NA	85	12.000	
On	11/3/2008	8:27	NA	90	10.000	
On	11/3/2008	8:58	NA	95	9.677	
On	11/3/2008	9:27	NA	100	10.345	
On	11/3/2008	9:55	NA	105	10.714	
On	11/3/2008	10:21	NA	110	11.538	
On	11/3/2008	10:48	NA	115	11.111	
On	11/3/2008	11:13	NA	120	12.000	
On	11/3/2008	11:39	NA	125	11.538	
On	11/3/2008	12:04	NA	130	12.000	
On	11/3/2008	12:31	NA	135	11.111	
On	11/3/2008	12:56	NA	140	12.000	
On	11/3/2008	13:24	NA	145	10.714	
On	11/3/2008	13:49	NA	150	12.000	
On	11/3/2008	14:16	NA	155	11.111	
On	11/3/2008	14:42	NA	160	11.538	
On	11/3/2008	15:09	NA	165	11.111	
On	11/3/2008	15:34	NA	170	12.000	
On	11/3/2008	16:01	NA	175	11.111	
On	11/3/2008	16:27	NA	180	11.538	
On	11/3/2008	16:54	NA	185	11.111	
On	11/3/2008	17:21	NA	190	11.111	
On	11/3/2008	17:49	NA	195	10.714	
On	11/3/2008	18:14	NA	200	12.000	
On	11/3/2008	18:39	NA	205	12.000	
On	11/3/2008	19:06	NA	210	11.111	
On	11/3/2008	19:33	NA	215	11.111	

On	11/3/2008	20:01	NA	220	10.714	
On	11/3/2008	20:28	NA	225	11.111	
On	11/3/2008	20:55	NA	230	11.111	
On	11/3/2008	21:22	NA	235	11.111	
On	11/3/2008	21:48	NA	240	11.538	
On	11/3/2008	22:15	NA	245	11.111	
On	11/3/2008	22:42	NA	250	11.111	
On	11/3/2008	23:08	NA	255	11.538	
On	11/3/2008	23:34	NA	260	11.538	
On	11/3/2008	24:00	NA	265	11.538	
On	11/3/2008	24:26	NA	270	11.538	
On	11/3/2008	24:54	NA	275	10.714	
On	11/3/2008	25:20	NA	280	11.538	
On	11/3/2008	25:47	NA	285	11.111	
On	11/3/2008	26:13	NA	290	11.538	
On	11/3/2008	26:39	NA	295	11.538	
On	11/3/2008	27:06	NA	300	11.111	
On	11/3/2008	27:32	NA	305	11.538	
On	11/3/2008	27:59	NA	310	11.111	
On	11/3/2008	28:26	NA	315	11.111	
On	11/3/2008	28:52	NA	320	11.538	
On	11/3/2008	29:21	NA	325	10.345	
On	11/3/2008	29:48	NA	330	11.111	
Off	11/3/2008	30:15	NA	335	11.111	Pump off at 6:18 pm

Note:
1) NA means that well was Not Accessible (NA) to take water level measurements

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JBLANKENSHIP001_
State Well ID: _____
Stark County, North Dakota

WATER QUALITY DATA

Sample Date: 11/3/08 Time: 6:24 pm (usually at end of pump testing)

Sample point: End of 50 ft hose connected to faucet

Total Volume Purged: 335 gallons

pH (field measurement): 7.57 Conductivity (field measurement): 8.635 m S/cm

Temperature (field measurement): 10.20 ^{o}C

Appearance (clarity, odor, sediment, etc.): Yellowish tint, no apparent odor or sediment

Comments:

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Northern Analytical and Southwestern District Health Unit

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JBLANKENSHIP001

State Well ID: _____

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (1 of 1 wells) is accurate to the best of my knowledge and represents the true condition of this well on

Robin L. Blankenship
PRINT NAME

Robin L Blankenship
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 11/3/08. This WATER WELL CERTIFICATION is signed and certified as true and accurate

Ryan Tolene
PRINT NAME Ryan Tolene

Ryan Tolene 11.3.2008
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JBLANKENSHIP001_

State Well ID: _____

Stark County, North Dakota

Additional Notes (if necessary):

PHOTO LOG



Photo #1: Photo showing location of well JBlankenship001 with respect to house.



Photo #2: Photo showing location of well JBlankenship001 with respect to shed.



Photo #3: Close-up photo of well JBlankenship001



Photo #4: Photo showing location of faucet plumbed to well JBlankenship001.



Photo #5: Close-up photo of faucet plumbed to well JBlankenship001.



Photo #6: Close-up photo of automatic livestock watering unit plumbed to well JBlankenship001.

Client: GOLDER ASSOCIATES, INC.
Project Name: SOUTH HEART WELL CERTIFICATION
Project No.: 063-2174
Laboratory No.: 2008110032-1
Sample Name: JBLANKENSHIP001
Sample Date/Time: 11/03/2008 18:24:00
Collected by: NATHAN MONNIG
Sample Type: WATER

SOUTH HEART WELL CERTIFICATION

PARAMETER	MEASURED VALUE	UNITS	ANALYST	REPORTING LIMIT	METHOD NUMBER	DATE/TIME ANALYZED
Turbidity	4.6	NTU	ES	0.2	180.1	11/05/2008 02:45:00 PM
Tannins & Lignins	0.49	mg/l	ES	0.1	SM	11/24/2008 02:00:00 PM
pH	7.9	S.U.	ES	0.1-13.5	4500-H+-B	11/05/2008 05:30:00 PM
Alkalinity Bicarbonate as HCO3	935	mg/l	ES	1	2320B	11/14/2008 11:00:00 AM
Alkalinity Carbonate as CO3	0	mg/l	ES	0	2320B	11/14/2008 11:00:00 AM
Alkalinity Total as CaCO3	766	mg/l	ES	1	2320B	11/14/2008 11:00:00 AM
Chloride as Cl	48	mg/l	MRK	1	300.0	11/06/2008 11:16:00 PM
Sulfate as SO4	1430	mg/l	MRK	50	300.0	11/07/2008 01:49:00 AM
Hardness as CaCO3	179	mg/l	BH	7	2340B	11/06/2008 04:35:00 PM
Electrical Conductivity	3980	umhos/cm	MRK	10	2510B	11/14/2008 02:20:00 PM
Total Dissolved Solids	2730	mg/l	ES	20	2540C	11/10/2008 04:00:00 PM
Total Suspended Solids	8	mg/l	ES	1	2540D	11/10/2008 04:00:00 PM
Calcium as Ca (Total)	29	mg/l	BH	1	200.7	11/06/2008 04:35:00 PM
Iron as Fe (Total)	0.20	mg/l	BH	0.05	200.7	11/06/2008 04:26:00 PM
Magnesium as Mg (Total)	26	mg/l	BH	1	200.7	11/06/2008 04:35:00 PM
Sodium as Na (Total)	933	mg/l	BH	1	200.7	11/06/2008 04:35:00 PM
Nitrate as N	0.05 HT	mg/l	CC	0.01	353.2	11/21/2008 05:13:00 PM
Nitrite as N	<0.01 HT	mg/l	MRK	0.01	300.0	11/06/2008 11:16:00 PM
Nitrate + Nitrite as N	0.05	mg/l	CC	0.01	353.2	11/21/2008 05:13:00 PM
Sodium Adsorption Ratio	30.3	-----	BH	0.2	20b	11/06/2008 04:35:00 PM
Cations	44.17	meq/l	---	0.30	1030F	
Anions	46.45	meq/l	---	0.38	1030F	
Cation/Anion Balance	2.52	% [max 5%]	---	-----	AWWA/APHA	
Metals Batch#/Digestion Date	1917	-----	BH	-----	200.2	11/06/2008 09:45:00 AM

WATER SYSTEM BACTERIOLOGICAL WATER ANALYSIS

SOUTHWESTERN DISTRICT HEALTH UNIT
2869 3rd Avenue West, Dickinson, ND 58601 • 701-483-0171 or 1-800-697-3145

LEFT SIDE OF FORM MUST BE COMPLETED BY COLLECTOR

Name of Collector: Nate Monnig
Telephone Number: 3039800540
Date Collected: 11/3/08
Time Collected: 6:27 pm
Collection Point/Remarks: J Blankenship #01

Sample Source (Check One):
- ☐ Domestic Well
- ☐ Swimming Pool
- ☐ Surface Water
- ☐ Spa
- ☒ Stock Well
- ☐ Public Water System _____
- ☐ Other _____

Reason for Sample (Check One):
- ☐ Routine
- ☐ Retest
- ☐ Mortgage Requirement
- ☐ USDA Required
- ☐ Required by other state or federal regulations
- ☐ Water treatment check (raw or treated)
- ☐ ND Dairy Dept.
- ☒ Special purpose (explain) Well Certification

SWIMMING POOL/SPA INFORMATION

POOL/SPA NAME

Free Chlorine	Total Chlorine	pH

WATER SUPPLY INFORMATION FOR PRIVATE SYSTEMS

County: Stark

Township Number	Range Number	Section Number

Well Depth _____ ft. Well Diameter _____ in.

Owner: Joe Blankenship
Address:
City: State: Zip Code:

Send Results To (if other than owner): Ed Pottorff, Golder Assoc.
Address: 44 Union Blvd
City: Lakewood State: CO Zip Code: 80228

STOP! RIGHT SIDE OF FORM IS FOR LABORATORY USE ONLY.

Paid - Amount
☐ CHECK # _____
☐ CASH

PLEASE READ THE ENCLOSED INSTRUCTIONS BEFORE SAMPLING

Do NOT Submit Samples on FRIDAYS

(***NOTE*** - Pool/Spa, Retest, and Fermentation Tube samples must be **received** by Wednesday of the week)

Lab Number: 1561
Date of Receipt: 11-4-08
Time of Receipt: 8:30 AM
Date of Analysis: 11-4-08
Time of Analysis: 1445
Date Completed: 11-7-08
Analyst: RA
Remarks:

ANALYSIS METHOD
- ☒ Fermentation Tube
- ☐ Membrane Filter
- ☐ Presence-Absence
- ☐ Other _____

COLIFORM ANALYSIS
- ☐ SATISFACTORY - No Coliforms Found
- ☒ UNSATISFACTORY - Coliforms Present - SEND REPEAT SAMPLES
  - ☐ No Fecal Coliforms Found
  - ☐ Fecal Coliforms Present
  - ☐ No *E coli* Found
  - ☒ *E coli* Present

Coliforms per 100 ml: +
Fecal Coliforms per 100 ml:

SAMPLE VOIDED - SEND REPLACEMENT
- ☐ Turbid Without Gas Production
- ☐ Too Numerous to Count
- ☐ Confluent Growth
- ☐ Turbid Without Acid Reaction
- ☐ Sample Too Old
- ☐ Other _____

STANDARD PLATE COUNT PER ML _____
R2A PLATE COUNT PER ML _____
- ☐ Satisfactory
- ☐ Unsatisfactory

NITRATE SCREEN < 2 mg/l
- ☒ Satisfactory
- ☐ Unsatisfactory
- ☐ Result to Follow

(< is less than > is more than)

SWDHU 05/2004

White - lab (top copy) will be returned with the results

Canary - retained by lab

JBLANKENSHIP002

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JBLANKENSHIP002
State Well ID: 56789
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: Joe and Robin Blankenship

Owner/Operator Address and Contact Information: 12020 Highway 10 Dickinson, ND 58601 (701) 677-1007

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N* Range 98W*

Section 12* Quarter Section NE* Quarter Section NE* Quarter Section NW*

Coordinates of well/spring location and projection:

Northing 450730.9* Easting 1379318.1* Projection State Plane*

Relative location to landmarks and/or buildings: Owners cannot locate this well. The owners believe the well does not currently exist.

Ground elevation Not Available feet

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Domestic*

Owner/Operator comments: The owners believe the well does not currently exist.

Photograph(s) Taken: Yes ☐ No ☒ Photo ID(s):

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JBLANKENSHIP002

State Well ID: 56789

Stark County, North Dakota

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 77* feet (based on borehole depth)

Screened Interval: 57* to 77* feet (screen assumed to be at bottom of borehole, i.e. 20 foot screen)

Diameter/Finish (metal casing, PVC, etc.):. Not Available

Date drilled/developed: 8/5/1986*

Driller/Contractor's Name: Not Available

Driller/Contractor's address and contact information: Not Available

Is Driller/Contractor's log available: Yes ☐ No ☒

Probable stratigraphic unit of well completion: Not Available

Condition of Well and Sanitary Protection: Not Available

Comments: Owner cannot locate this well and believes that it does not currently exist.

Photograph(s) Taken: Yes ☐ No ☒ Photo ID(s):

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JBLANKENSHIP002
State Well ID: 56789
Stark County, North Dakota

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.:. Not Available

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Not Available

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner. Information could not be obtained directly because the owners believe the well does not currently exist.

Photograph(s) Taken: Yes ☐ No ☒ Photo ID(s):

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JBLANKENSHIP002

State Well ID: 56789

Stark County, North Dakota

WELL/SPRING TEST DATA (* indicates obtained from North Dakota State Water Commission database)

Measuring point (MP) description: Not Available

MP height above ground level: Not Available feet

Static water level in feet below MP: 48* feet on 8/5/1986

Test Date: Not Tested Time: _____ to _____

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place ☐ temporary ☐ Description Not Tested

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Well not tested because the owners believe the well does not currently exist.

Photograph(s) Taken: Yes ☐ No ☒ Photo ID(s):

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JBLANKENSHIP002

State Well ID: 56789

Stark County, North Dakota

WATER QUALITY DATA

Sample Date: Not Sampled Time: Not Sampled (usually at end of pump testing)

Sample point:. Not Sampled

Total Volume Purged: Not Sampled gallons

pH (field measurement): Not Sampled Conductivity (field measurement): Not Sampled µ S/cm

Temperature (field measurement): Not Sampled

Appearance (clarity, odor, sediment, etc.):. Not Sampled

Comments:. Well not sampled because the owners believe the well does not currently exist.

Photograph(s) Taken: Yes ☐ No ☒ Photo ID(s):

Laboratory analysis: Not Sampled

In general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JBLANKENSHIP002

State Well ID: 56789

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (2 of 2 wells) is accurate to the best of my knowledge and represents the true condition of this well on

PRINT NAME

SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 11/3/08 .This WATER WELL CERTIFICATION is signed and certified as true and accurate

Ryan Tolene
PRINT NAME

Ryan Tolene 11.3.2008
SIGNED DATE

Certification Field Information Form sent and owner signature is pending.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JBLANKENSHIP002

State Well ID: 56789

Stark County, North Dakota

Additional Notes (if necessary):

This well appears in the North Dakota State Water Commission database but does not exist according to the owner. Information from the North Dakota State Water Commission database was provided where applicable.

JBUCKMAN001

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JBUCKMAN001
State Well ID: US71-293
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: John F. Buckman

Owner/Operator Address and Contact Information: 3891 – 122nd Ave. S.W. Belfield, ND 58622

701-677-5572

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N* Range 98W*

Section 15* Quarter Section SE* Quarter Section SE* Quarter Section SE*

Coordinates of well/spring location and projection (from GPS):

Northing 441080* Easting 1369291* Projection State Plane*

Relative location to landmarks and/or buildings:

Ground elevation 2498 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Domestic (water lawn)

Owner/Operator comments:

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 76* feet

Screened Interval: Not known* to Not known* feet

Diameter/Finish (metal casing, PVC, etc.): 4”

Date drilled/developed: Not known

Driller/Contractor’s Name: Not known

Driller/Contractor’s address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JBUCKMAN001
State Well ID: US71-293
Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not Known

Condition of Well and Sanitary Protection: Not Known

Comments:

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Not available

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Not available

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner.

Information could not be obtained directly because the well is inaccessible.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JBUCKMAN001
State Well ID: US71-293
Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Tested

MP height above ground level: Not Tested feet

Static water level in feet below MP: Not able to measure feet

Test Date: Not Tested Time: to

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place temporary (circle one) Description Not Tested

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Not Tested at Owners Request.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JBUCKMAN001_

State Well ID: US71-293

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JBUCKMAN001
State Well ID: US71-293
Stark County, North Dakota

WATER QUALITY DATA

Sample Date: Not Sampled Time: (usually at end of pump testing)

Sample point: Not Sampled

Total Volume Purged: Not Sampled gallons

pH (field measurement): Not Sampled Conductivity (field measurement): Not Sampled µ S/cm

Temperature (field measurement): Not Sampled ^{o}C

Appearance (clarity, odor, sediment, etc.): Not Sampled

Comments: Well not sampled at Owners Request.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Not Sampled

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JBUCKMAN001
State Well ID: US71-293
Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (1 of 1 wells) is accurate to the best of my knowledge and represents the true condition of this well on

John F. Buckman
PRINT NAME

John F. Buckman 10-2-08
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on _____.This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi
PRINT NAME Jill Parisi

Jill Parisi
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JBUCKMAN001_

State Well ID: US71-293

Stark County, North Dakota

Additional Notes (if necessary):

JMPERDAEMS001

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS001
State Well ID: 56809
Stark County, North Dakota

LOCATION DATA

Owner/Operator Name: James and Rosella Perdaems

Owner/Operator Address and Contact Information: PO Box 45 South Heart, ND 58655 701-677-5517

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 22 Quarter Section NE Quarter Section NW Quarter Section SE

Coordinates of well/spring location and projection (from GPS):

Northing 439426 Easting 1368027 Projection State Plane

Relative location to landmarks and/or buildings: Approximately one hundred feet south of the house by the grain and metal barn

Ground elevation 2514 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Stock

Owner/Operator comments: Plumbed to stock tanks and faucet

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photos #1-2

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: ~100 feet

Screened Interval: Not known* to 100* feet

Diameter/Finish (metal casing, PVC, etc.): Metal, 6-inch casing

Date drilled/developed: ~1980

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS001

State Well ID: 56809

Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Fair condition

Comments: Red cap with plumbing and pressure tank in concrete pit (bull pen). Connection with JMPerdaems001 shut off for all testing.

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photos #3-4

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Submersible

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Electric

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS001

State Well ID: 56809

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Well Not Accessible

MP height above ground level: Well Not Accessible feet

Static water level in feet below MP: Not able to measure feet

Test Date: 6/5/08 Time: 10:01am to 10:31am

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): (in-place) temporary (circle one) Description Used the pump in-place

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Good flow

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS001

State Well ID: 56809

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	6/5/08	0:24	NA	5	12.474	All measurements taken using a 5-gal bucket.
On	6/5/08	0:48	NA	10	12.422	
On	6/5/08	1:13	NA	15	12.351	
On	6/5/08	1:36	NA	20	12.959	
On	6/5/08	2:00	NA	25	12.165	
On	6/5/08	2:23	NA	30	13.636	
On	6/5/08	2:47	NA	35	12.136	
On	6/5/08	3:10	NA	40	13.026	
On	6/5/08	3:33	NA	45	13.465	
On	6/5/08	3:55	NA	50	13.520	
On	6/5/08	4:18	NA	55	12.804	
On	6/5/08	4:41	NA	60	13.222	
On	6/5/08	5:04	NA	65	12.953	
On	6/5/08	5:26	NA	70	13.831	
On	6/5/08	5:49	NA	75	12.584	
On	6/5/08	6:12	NA	80	13.538	
On	6/5/08	6:36	NA	85	12.584	
On	6/5/08	6:58	NA	90	13.369	
On	6/5/08	7:21	NA	95	13.010	
On	6/5/08	7:44	NA	100	13.280	
On	6/5/08	8:09	NA	105	11.765	
On	6/5/08	8:32	NA	110	13.257	
On	6/5/08	8:56	NA	115	12.584	
On	6/5/08	9:17	NA	120	13.889	
On	6/5/08	9:41	NA	125	12.701	
On	6/5/08	10:02	NA	130	14.368	
On	6/5/08	10:27	NA	135	12.034	
On	6/5/08	10:49	NA	140	13.636	
On	6/5/08	11:13	NA	145	12.563	
On	6/5/08	11:33	NA	150	14.634	
On	6/5/08	11:57	NA	155	12.648	
On	6/5/08	12:20	NA	160	12.821	
On	6/5/08	12:43	NA	165	13.095	
On	6/5/08	13:04	NA	170	14.306	
On	6/5/08	13:29	NA	175	11.909	
On	6/5/08	13:51	NA	180	13.793	
On	6/5/08	14:14	NA	185	12.766	
On	6/5/08	14:36	NA	190	13.774	
On	6/5/08	15:03	NA	195	11.177	
On	6/5/08	15:26	NA	200	13.298	
On	6/5/08	15:51	NA	205	11.952	
On	6/5/08	16:11	NA	210	14.837	
On	6/5/08	16:34	NA	215	12.887	
On	6/5/08	16:59	NA	220	12.325	
On	6/5/08	17:22	NA	225	13.043	
On	6/5/08	17:43	NA	230	13.793	
On	6/5/08	18:08	NA	235	12.356	

On	6/5/08	18:29	NA	240	14.078	
On	6/5/08	18:52	NA	245	12.728	
On	6/5/08	19:14	NA	250	14.098	
On	6/5/08	19:37	NA	255	12.782	
On	6/5/08	19:59	NA	260	13.280	
On	6/5/08	20:26	NA	265	11.538	
On	6/5/08	20:48	NA	270	13.405	
On	6/5/08	21:10	NA	275	13.636	
On	6/5/08	21:31	NA	280	14.205	
On	6/5/08	21:55	NA	285	12.584	
On	6/5/08	22:17	NA	290	13.441	
On	6/5/08	22:42	NA	295	12.407	
On	6/5/08	23:07	NA	300	11.678	
On	6/5/08	23:30	NA	305	12.970	
On	6/5/08	23:52	NA	310	14.245	
On	6/5/08	24:16	NA	315	12.185	
On	6/5/08	24:40	NA	320	12.386	
On	6/5/08	25:04	NA	325	12.728	
On	6/5/08	25:26	NA	330	13.857	
On	6/5/08	25:49	NA	335	12.903	
On	6/5/08	26:09	NA	340	14.634	
On	6/5/08	26:32	NA	345	12.970	
On	6/5/08	26:54	NA	350	13.812	
On	6/5/08	27:17	NA	355	12.853	
On	6/5/08	27:41	NA	360	12.531	
On	6/5/08	28:08	NA	365	11.165	
On	6/5/08	28:33	NA	370	11.995	
On	6/5/08	28:57	NA	375	12.837	
On	6/5/08	29:23	NA	380	11.499	
On	6/5/08	29:44	NA	385	13.953	
Off	6/5/08	30:07	NA	390	13.106	

Note:
1) NA means that well was Not Accessible (NA) to take water level measurements

WATER QUALITY DATA

Sample Date: 6/5/08 Time: 10:31am (usually at end of pump testing)

Sample point: End of the faucet (3.5 feet) with 50-foot hose connected for sampling and pump test.

Total Volume Purged: 390 gallons

pH (field measurement): 6.81 Conductivity (field measurement): 1.92 m S/cm

Temperature (field measurement): 9.8 ^{o}C

Appearance (clarity, odor, sediment, etc.): Yellowish-brown tint, clear, slight sulfur odor, no visible sediment

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS001

State Well ID: 56809

Stark County, North Dakota

Comments: _____

_____

_____

_____

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Northern Analytical

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS001

State Well ID: 56809

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (1 of 8 wells) is accurate to the best of my knowledge and represents the true condition of this well on

James Perdaems
PRINT NAME

James Perdaems 9-29-08
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 6/5/08 .This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi
PRINT NAME Jill Parisi

Jill Parisi
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS001

State Well ID: 56809

Stark County, North Dakota

Additional Notes (if necessary):

PHOTO LOG



Photo #1: Well location for JMPERDAEMS001 near grain and metal barn.



Photo #2: Well location for JMPERDAEMS001.



Photo #3: Well setup for JMPERDAEMS001 showing concrete pit near bull pen.

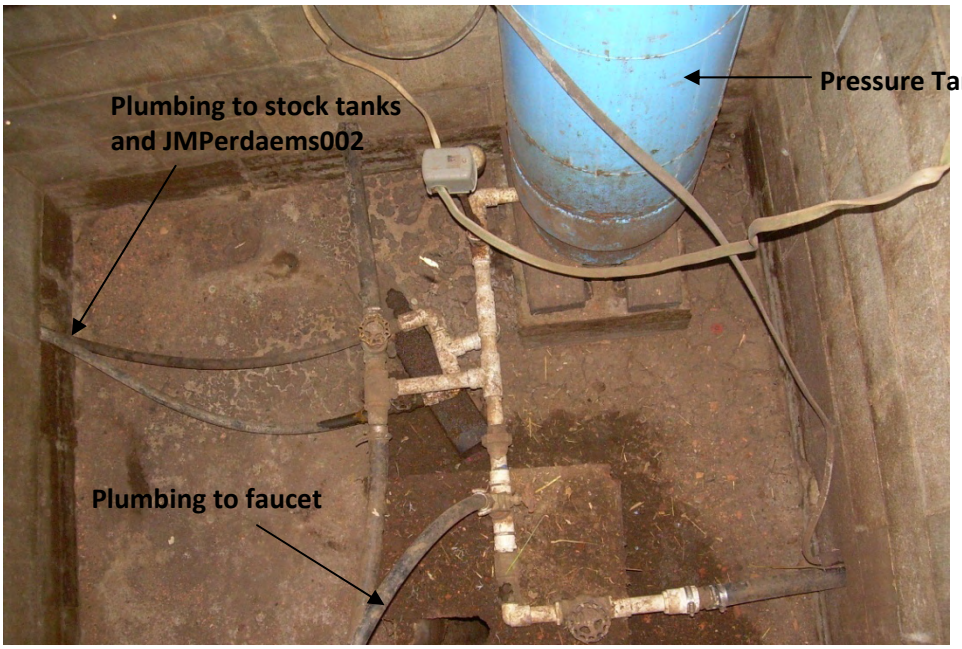

Photo #4: Well setup for JMPERDAEMS001 showing well plumbing and pressure tank in concrete pit.

Client: GOLDER ASSOCIATES, INC.
Project Name: SOUTH HEART
Project No.: 0632174
Laboratory No.: 2008060067-1
Sample Name: JM PERDEAMS 001
Sample Date/Time: 06/05/2008 10:31:00
Collected by: JILL PARISI
Sample Type: WATER

PARAMETER	MEASURED VALUE	UNITS	ANALYST	REPORTING LIMIT	METHOD NUMBER	DATE/TIME ANALYZED
SOUTH HEART						
Turbidity	0.40 HT	NTU	ES	0.2	180.1	06/09/2008 12:00:00 PM
Tannins & Lignins	0.94	mg/l	ES	0.05	5550B	06/30/2008 06:00:00 PM
pH	7.2	S.U.	ES	0.1-13.5	4500-H+-B	06/09/2008 07:00:00 PM
Alkalinity Bicarbonate as HCO3	826	mg/l	CC	1	2320B	06/16/2008 11:59:00 AM
Alkalinity Carbonate as CO3	0	mg/l	CC	0	2320B	06/16/2008 11:59:00 AM
Alkalinity Total as CaCO3	677	mg/l	CC	1	2320B	06/16/2008 11:59:00 AM
Chloride as Cl	5	mg/l	ES	1	300.0	06/18/2008 01:51:00 AM
Sulfate as SO4	709	mg/l	ES	5	300.0	06/18/2008 01:51:00 AM
Calcium as Ca	62	mg/l	KC	1	200.7	06/19/2008 07:23:00 PM
Hardness as CaCO3	361	mg/l	BH	7	2340B	06/19/2008 07:23:00 PM
Magnesium as Mg	50	mg/l	KC	1	200.7	06/19/2008 07:23:00 PM
Potassium as K	7	mg/l	KC	1	200.7	06/19/2008 07:23:00 PM
Sodium as Na	491	mg/l	KC	1	200.7	06/19/2008 07:23:00 PM
Electrical Conductivity	2480	umhos/cm	MRK	10	2510B	06/12/2008 01:13:00 PM
Total Dissolved Solids	1740	mg/l	RM	20	2540C	06/12/2008 11:35:00 AM
Total Suspended Solids	<3	mg/l	RM	3	2540D	06/12/2008 11:38:00 AM
Iron as Fe (Total)	0.15	mg/l	KC	0.01	200.7	06/20/2008 05:24:00 PM
Nitrate as N	0.01	mg/l	CC	0.01	353.2	06/25/2008 02:28:00 PM
Nitrite as N	<0.01 HT	mg/l	RM	0.01	4500-NO2-B	06/09/2008 11:03:00 AM
Nitrate + Nitrite as N	0.01	mg/l	CC	0.01	353.2	06/25/2008 02:28:00 PM
Sodium Adsorption Ratio	11.2	-----	BH	0.2	20b	06/19/2008 07:23:00 PM
Cations	28.75	meq/l	---	0.30	1030F	
Anions	28.44	meq/l	---	0.38	1030F	
Cation/Anion Balance	0.54	% [max 5%]	---	-----	AWWA/APHA	
Metals Batch#/Digestion Date	1570	-----	SH	-----	200.2	06/11/2008 03:30:00 PM

Northern Analytical Laboratories, Inc.

WATER SYSTEM BACTERIOLOGICAL WATER ANALYSIS

SOUTHWESTERN DISTRICT HEALTH UNIT
2869 3rd Avenue West, Dickinson, ND 58601 • 701-483-0171 or 1-800-697-3145

LEFT SIDE OF FORM MUST BE COMPLETED BY COLLECTOR

Name of Collector	Telephone Number
JAY BERG	701-260-6118

Date Collected	Time Collected
10/26/09	12:50

Collection Point/Remarks: JMPERDAEMS #001

Sample Source (Check One):
- ☐ Domestic Well
- ☐ Surface Water
- ☒ Stock Well
- ☐ Public Water System
- ☐ Other
- ☐ Swimming Pool
- ☐ Spa

Reason for Sample (Check One):
- ☐ Routine
- ☐ Retest
- ☐ Mortgage Requirement
- ☐ USDA Required
- ☐ Required by other state or federal regulations
- ☐ Water treatment check (raw or treated)
- ☐ ND Dairy Dept.
- ☒ Special purpose (explain) Well Certification

SWIMMING POOL/SPA INFORMATION

POOL/SPA NAME		
Free Chlorine	Total Chlorine	pH

WATER SUPPLY INFORMATION FOR PRIVATE SYSTEMS

County: Stark

Township Number	Range Number	Section Number

Well Depth _____ ft. Well Diameter _____ in.

Owner: James Perdaems

Address:

City	State	Zip Code

Send Results To (if other than owner): Ed Pothorft, Golder Assoc.

Address: 44 Union Blvd. Suite 300

City	State	Zip Code
Lakewood	CO	80228

STOP! RIGHT SIDE OF FORM IS FOR LABORATORY USE ONLY.

Paid - Amount	☐ CHECK # _____ ☐ CASH

PLEASE READ THE ENCLOSED INSTRUCTIONS BEFORE SAMPLING

Do NOT Submit Samples on FRIDAYS

(***NOTE*** - Pool/Spa, Retest, and Fermentation Tube samples must be **received** by Wednesday of the week)

Lab Number	
1427	
Date of Receipt: 10-26-09	Time of Receipt: 1404
Date of Analysis: 10-26-09	Time of Analysis: 1430
Date Completed: 10-28-09	Analyst: PAT

Remarks:

ANALYSIS METHOD
- ☒ Fermentation Tube
- ☐ Membrane Filter
- ☐ Presence-Absence
- ☐ Other

COLIFORM ANALYSIS
- ☐ SATISFACTORY - No Coliforms Found
- ☒ UNSATISFACTORY - Coliforms Present - SEND REPEAT SAMPLES
  - ☐ No Fecal Coliforms Found
  - ☐ Fecal Coliforms Present
  - ☐ No *E coli* Found
  - ☒ *E coli* Present

Coliforms per 100 ml	Fecal Coliforms per 100 ml
+	

SAMPLE VOIDED - SEND REPLACEMENT
- ☐ Turbid Without Gas Production
- ☐ Too Numerous to Count
- ☐ Confluent Growth
- ☐ Turbid Without Acid Reaction
- ☐ Sample Too Old
- ☐ Other

STANDARD PLATE COUNT PER ML _____
R2A PLATE COUNT PER ML _____
- ☐ Satisfactory
- ☐ Unsatisfactory

NITRATE SCREEN < 2 mg/l
- ☒ Satisfactory
- ☐ Unsatisfactory
- ☐ Result to Follow

(< is less than > is more than)

JMPERDAEMS002

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS002
State Well ID: US71-304
Stark County, North Dakota

LOCATION DATA

Owner/Operator Name: James and Rosella Perdaems

Owner/Operator Address and Contact Information: PO Box 45 South Heart, ND 58655 701-677-5517

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 22 Quarter Section NE Quarter Section NE Quarter Section SE

Coordinates of well/spring location and projection (from GPS):

Northing 439764 Easting 1369122 Projection State Plane

Relative location to landmarks and/or buildings: Approximately one hundred feet west of the house by the grain storage

Ground elevation 2502 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Domestic (includes lawn watering)

Owner/Operator comments: Plumbed to faucet by the house. Was the old water supply to the house.

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photos #1-2

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: ~56 feet

Screened Interval: Not known* to Not known* feet

Diameter/Finish (metal casing, PVC, etc.): Metal, 6-inch casing

Date drilled/developed: 2/2/1973

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS002
State Well ID: US71-304
Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Fair condition

Comments: Red cap, faucet output, plumbing and pressure tank ten feet in front of the house. Shut off connection with well JMPerdaems001 for all testing.

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photos #3-5

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Submersible

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Electric

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Gauge on pressure tank rusted and broken.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS002

State Well ID: US71-304

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Well Not Accessible

MP height above ground level: Well Not Accessible feet

Static water level in feet below MP: Not able to measure feet

Test Date: 6/5/08 Time: 10:51am to 11:21am

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): (in-place) temporary (circle one) Description Used the pump in-place

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments:

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS002

State Well ID: US71-304

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	6/5/08	0:41	NA	5	7.444	All measurements taken using a 5-gal bucket.
On	6/5/08	1:16	NA	10	8.429	
On	6/5/08	1:50	NA	15	8.889	
On	6/5/08	2:22	NA	20	9.337	
On	6/5/08	2:55	NA	25	9.169	
On	6/5/08	3:23	NA	30	10.669	
On	6/5/08	3:55	NA	35	9.311	
On	6/5/08	4:24	NA	40	10.323	
On	6/5/08	4:56	NA	45	9.494	
On	6/5/08	5:26	NA	50	9.826	
On	6/5/08	5:56	NA	55	10.094	
On	6/5/08	6:22	NA	60	11.650	
On	6/5/08	6:52	NA	65	9.826	
On	6/5/08	7:20	NA	70	10.680	
On	6/5/08	7:49	NA	75	10.593	
On	6/5/08	8:18	NA	80	10.183	
On	6/5/08	8:48	NA	85	10.050	
On	6/5/08	9:16	NA	90	10.515	
On	6/5/08	9:44	NA	95	10.823	
On	6/5/08	10:13	NA	100	10.277	
On	6/5/08	10:44	NA	105	9.728	
On	6/5/08	11:12	NA	110	10.834	
On	6/5/08	11:41	NA	115	10.381	
On	6/5/08	12:08	NA	120	10.969	
On	6/5/08	12:37	NA	125	10.515	
On	6/5/08	13:03	NA	130	11.228	
On	6/5/08	13:34	NA	135	9.950	
On	6/5/08	14:03	NA	140	10.334	
On	6/5/08	14:31	NA	145	10.653	
On	6/5/08	14:59	NA	150	10.749	
On	6/5/08	15:31	NA	155	9.302	
On	6/5/08	15:58	NA	160	11.050	
On	6/5/08	16:28	NA	165	10.010	
On	6/5/08	16:55	NA	170	11.173	
On	6/5/08	17:26	NA	175	9.690	
On	6/5/08	17:54	NA	180	10.749	
On	6/5/08	18:24	NA	185	9.826	
On	6/5/08	18:52	NA	190	10.665	
On	6/5/08	19:23	NA	195	9.898	
On	6/5/08	19:52	NA	200	10.409	
On	6/5/08	20:21	NA	205	10.348	
On	6/5/08	20:48	NA	210	10.909	
On	6/5/08	21:17	NA	215	10.413	
On	6/5/08	21:45	NA	220	10.619	
On	6/5/08	22:17	NA	225	9.485	
On	6/5/08	22:44	NA	230	10.997	
On	6/5/08	23:13	NA	235	10.323	

On	6/5/08	23:42	NA	240	10.320	
On	6/5/08	24:11	NA	245	10.402	
On	6/5/08	24:39	NA	250	10.653	
On	6/5/08	25:09	NA	255	10.194	
On	6/5/08	25:35	NA	260	11.228	
On	6/5/08	26:05	NA	265	10.221	
On	6/5/08	26:33	NA	270	10.753	
On	6/5/08	27:01	NA	275	10.665	
On	6/5/08	27:28	NA	280	10.799	
On	6/5/08	27:58	NA	285	10.235	
On	6/5/08	28:27	NA	290	10.334	
On	6/5/08	28:57	NA	295	10.064	
On	6/5/08	29:22	NA	300	11.765	
On	6/5/08	29:50	NA	305	10.933	
Off	6/5/08	30:00	NA	307	11.246	

Note:
1) NA means that well was Not Accessible (NA) to take water level measurements

WATER QUALITY DATA

Sample Date: 6/5/08 Time: 11:21am (usually at end of pump testing)

Sample point: End of the faucet (3.5 feet) with 50-foot hose connected for sampling and pump test.

Total Volume Purged: 307 gallons

pH (field measurement): 7.32 Conductivity (field measurement): 1.73 m S/cm

Temperature (field measurement): 9.2 ^{o}C

Appearance (clarity, odor, sediment, etc.): Yellowish tint, relatively clear, slight sulfur odor, no visible sediment

Comments:

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Northern Analytical

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS002

State Well ID: US71-304

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (2 of 8 wells) is accurate to the best of my knowledge and represents the true condition of this well on

James Perdaems
PRINT NAME

James Perdaems 9-29-08
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 6/5/08 .This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi
PRINT NAME Jill Parisi

Jill Parisi
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS002

State Well ID: US71-304

Stark County, North Dakota

Additional Notes (if necessary):

PHOTO LOG



Photo #1: Well location for JMPERDAEMS002 near grain silos.



Photo #2: Well location for JMPERDAEMS002.



Photo #3: Well setup for JMPERDAEMS002 showing concrete pit location.

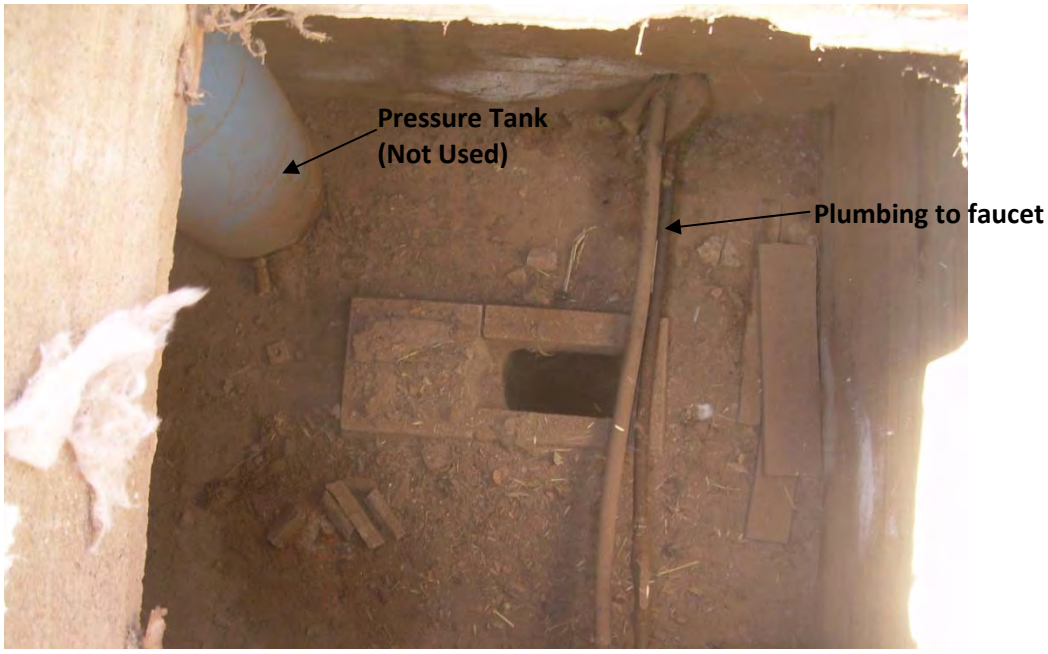

Photo #4: Well setup for JMPERDAEMS002 showing pressure tank and well plumbing within the concrete pit.

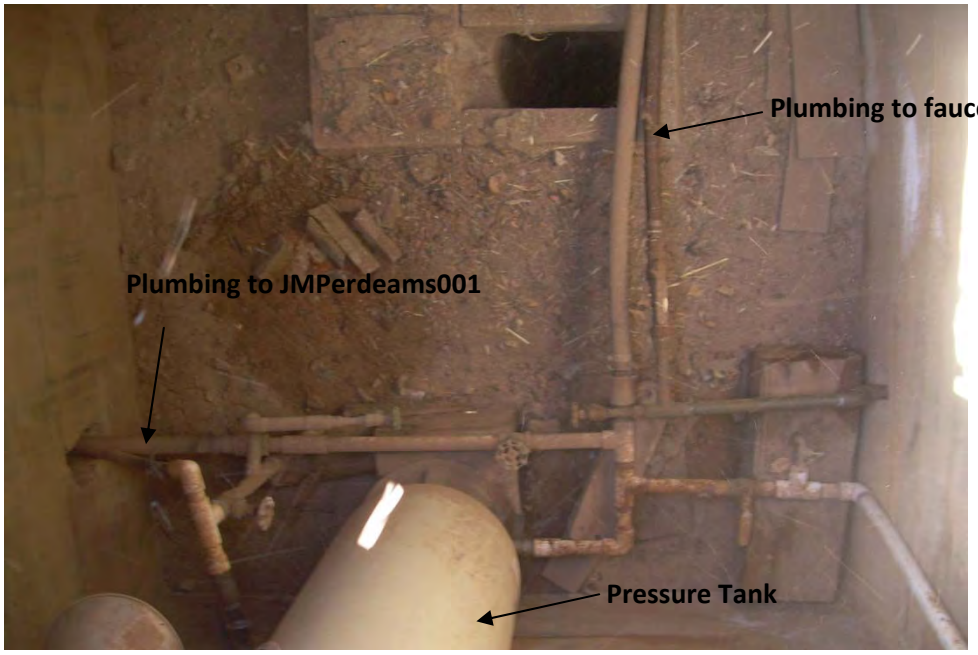

Photo #5: Well setup for JMPERDAEMS002 showing pressure tank and well plumbing within the concrete pit.

Client: GOLDER ASSOCIATES, INC.
Project Name: SOUTH HEART
Project No.: 0632174
Laboratory No.: 2008060067-2
Sample Name: JM PERDEAMS 002
Sample Date/Time: 06/05/2008 11:31:00
Collected by: JILL PARISI
Sample Type: WATER

PARAMETER	MEASURED VALUE	UNITS	ANALYST	REPORTING LIMIT	METHOD NUMBER	DATE/TIME ANALYZED
SOUTH HEART						
Turbidity	0.30 HT	NTU	ES	0.2	180.1	06/09/2008 12:00:00 PM
Tannins & Lignins	0.75	mg/l	ES	0.05	5550B	06/30/2008 06:00:00 PM
pH	7.3	S.U.	ES	0.1-13.5	4500-H+-B	06/09/2008 07:00:00 PM
Alkalinity Bicarbonate as HCO3	774	mg/l	CC	1	2320B	06/16/2008 11:59:00 AM
Alkalinity Carbonate as CO3	0	mg/l	CC	0	2320B	06/16/2008 11:59:00 AM
Alkalinity Total as CaCO3	635	mg/l	CC	1	2320B	06/16/2008 11:59:00 AM
Chloride as Cl	6	mg/l	ES	1	300.0	06/18/2008 01:58:00 PM
Sulfate as SO4	700	mg/l	ES	5	300.0	06/18/2008 02:22:00 AM
Calcium as Ca	32	mg/l	KC	1	200.7	06/19/2008 07:26:00 PM
Hardness as CaCO3	212	mg/l	BH	7	2340B	06/19/2008 07:26:00 PM
Magnesium as Mg	32	mg/l	KC	1	200.7	06/19/2008 07:26:00 PM
Potassium as K	6	mg/l	KC	1	200.7	06/19/2008 07:26:00 PM
Sodium as Na	532	mg/l	KC	1	200.7	06/19/2008 07:26:00 PM
Electrical Conductivity	2420	umhos/cm	MRK	10	2510B	06/12/2008 01:13:00 PM
Total Dissolved Solids	1680	mg/l	RM	20	2540C	06/12/2008 11:35:00 AM
Total Suspended Solids	<1	mg/l	RM	1	2540D	06/12/2008 11:38:00 AM
Iron as Fe (Total)	0.14	mg/l	KC	0.01	200.7	06/20/2008 05:30:00 PM
Nitrate as N	<0.01	mg/l	CC	0.01	353.2	06/25/2008 02:28:00 PM
Nitrite as N	<0.01 HT	mg/l	RM	0.01	4500-NO2-B	06/09/2008 11:03:00 AM
Nitrate + Nitrite as N	<0.01	mg/l	CC	0.01	353.2	06/25/2008 02:30:00 PM
Sodium Adsorption Ratio	15.9	-----	BH	0.2	20b	06/19/2008 07:26:00 PM
Cations	27.53	meq/l	---	0.30	1030F	
Anions	27.44	meq/l	---	0.38	1030F	
Cation/Anion Balance	0.16	% [max 5%]	---	-----	AWWA/APHA	
Metals Batch#/Digestion Date	1570	-----	SH	-----	200.2	06/11/2008 03:30:00 PM

WATER SYSTEM BACTERIOLOGICAL WATER ANALYSIS

SOUTHWESTERN DISTRICT HEALTH UNIT
2869 3rd Avenue West, Dickinson, ND 58601 • 701-483-0171 or 1-800-697-3145

LEFT SIDE OF FORM MUST BE COMPLETED BY COLLECTOR

Name of Collector	Telephone Number
JAY BERG	701-260-6118

Date Collected	Time Collected
10/26/09	12:45

Collection Point/Remarks: JMPERDAEMS ØØ2

Sample Source (Check One):
- ☐ Domestic Well
- ☐ Swimming Pool
- ☐ Surface Water
- ☐ Spa
- ☒ Stock Well
- ☐ Public Water System _____
- ☐ Other _____

Reason for Sample (Check One):
- ☐ Routine
- ☐ Retest
- ☐ Mortgage Requirement
- ☐ USDA Required
- ☐ Required by other state or federal regulations
- ☐ Water treatment check (raw or treated)
- ☐ ND Dairy Dept.
- ☒ Special purpose (explain) Well Certification

SWIMMING POOL/SPA INFORMATION

POOL/SPA NAME

Free Chlorine	Total Chlorine	pH

WATER SUPPLY INFORMATION FOR PRIVATE SYSTEMS

County: Stark

Township Number	Range Number	Section Number

Well Depth _____ ft. Well Diameter _____ in.

Owner: James Perdaems.

Address

City	State	Zip Code

Send Results To (if other than owner): Ed Pothorft, Golder Assoc.

Address: 44 Union Blvd Suite 300

City	State	Zip Code
Lakewood	CO	80228

STOP! RIGHT SIDE OF FORM IS FOR LABORATORY USE ONLY.

Paid - Amount	☐ CHECK # _____ ☐ CASH

PLEASE READ THE ENCLOSED INSTRUCTIONS BEFORE SAMPLING

Do NOT Submit Samples on FRIDAYS

(**NOTE* - Pool/Spa, Retest, and Fermentation Tube samples must be **received** by Wednesday of the week)

Lab Number: 1428

Date of Receipt	Time of Receipt
10-26-09	1404
Date of Analysis	**Time of Analysis**
10-26-09	1430
Date Completed	**Analyst**
10-30-09	BA

Remarks

ANALYSIS METHOD
- ☒ Fermentation Tube
- ☐ Membrane Filter
- ☐ Presence-Absence
- ☐ Other _____

COLIFORM ANALYSIS
- ☐ SATISFACTORY - No Coliforms Found
- ☐ UNSATISFACTORY - Coliforms Present - SEND REPEAT SAMPLES
  - ☐ No Fecal Coliforms Found
  - ☐ Fecal Coliforms Present
  - ☐ No *E coli* Found
  - ☐ *E coli* Present

Coliforms per 100 ml	Fecal Coliforms per 100 ml
0	

SAMPLE VOIDED - SEND REPLACEMENT
- ☒ Turbid Without Gas Production
- ☐ Too Numerous to Count
- ☐ Confluent Growth
- ☐ Turbid Without Acid Reaction
- ☐ Sample Too Old
- ☐ Other _____

STANDARD PLATE COUNT PER ML _____
R2A PLATE COUNT PER ML _____
- ☐ Satisfactory
- ☐ Unsatisfactory

NITRATE SCREEN < 2 mg/l
- ☒ Satisfactory
- ☐ Unsatisfactory
- ☐ Result to Follow

(< is less than > is more than)

SWDHU 05/2004

White - lab (top copy) will be returned with the results

Canary - retained by lab

JMPERDAEMS003

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS003
Well ID: 13909814CBC1
Stark County, North Dakota

LOCATION DATA

Owner/Operator Name: James and Rosella Perdaems

Owner/Operator Address and Contact Information: PO Box 45 South Heart, ND 58655 701-677-5517

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 14 Quarter Section SW Quarter Section NE Quarter Section SW

Coordinates of well/spring location and projection (from GPS):

Northing 442249 Easting 1371173 Projection State Plane

Relative location to landmarks and/or buildings: In field northeast of the house

Ground elevation 2504 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Stock

Owner/Operator comments: Stock tank has a hole in it. Black 1-inch PVC hose connected to stock tank with float.

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photo #1

WELL/SPRING CONSTRUCTION

Depth of well: ~80 feet

Screened Interval: Not known to Not known feet

Diameter/Finish (metal casing, PVC, etc.): Metal, 6-inch casing

Date drilled/developed: ~ 1980

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS003

Well ID: 13909814CBC1__

Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Fair condition. Well protected by wood fence.

Comments:

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photos #2-3

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Submersible

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Electric

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS003

Well ID: 13909814CBC1

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Well Not Accessible

MP height above ground level: Well Not Accessible feet

Static water level in feet below MP: Not able to measure feet

Test Date: 6/5/08 Time: 12:44pm to 1:14pm

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): (in-place) temporary (circle one) Description Used the pump in-place

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Used approximately 15 feet of 1-inch PVC hose connected to the tank.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS003

Well ID: 13909814CBC1__

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	6/5/08	0:19	NA	5	16.287	All measurements taken using a 5-gal bucket.
On	6/5/08	0:37	NA	10	16.243	
On	6/5/08	0:57	NA	15	14.955	
On	6/5/08	1:15	NA	20	17.192	
On	6/5/08	1:34	NA	25	15.568	
On	6/5/08	1:51	NA	30	17.261	
On	6/5/08	2:10	NA	35	15.789	
On	6/5/08	2:28	NA	40	17.026	
On	6/5/08	2:47	NA	45	15.408	
On	6/5/08	3:03	NA	50	19.231	
On	6/5/08	3:22	NA	55	15.440	
On	6/5/08	3:39	NA	60	18.215	
On	6/5/08	3:58	NA	65	15.504	
On	6/5/08	4:15	NA	70	18.116	
On	6/5/08	4:34	NA	75	15.267	
On	6/5/08	4:50	NA	80	19.048	
On	6/5/08	5:11	NA	85	14.071	
On	6/5/08	5:28	NA	90	18.645	
On	6/5/08	5:46	NA	95	15.949	
On	6/5/08	6:04	NA	100	17.513	
On	6/5/08	6:23	NA	105	15.488	
On	6/5/08	6:41	NA	110	16.694	
On	6/5/08	7:00	NA	115	15.337	
On	6/5/08	7:17	NA	120	18.282	
On	6/5/08	7:36	NA	125	15.682	
On	6/5/08	7:53	NA	130	18.051	
On	6/5/08	8:13	NA	135	14.677	
On	6/5/08	8:30	NA	140	17.847	
On	6/5/08	8:49	NA	145	15.337	
On	6/5/08	9:07	NA	150	16.722	
On	6/5/08	9:27	NA	155	15.609	
On	6/5/08	9:45	NA	160	15.924	
On	6/5/08	10:07	NA	165	13.831	
On	6/5/08	10:24	NA	170	18.007	
On	6/5/08	10:43	NA	175	15.690	
On	6/5/08	11:00	NA	180	17.045	
On	6/5/08	11:20	NA	185	15.666	
On	6/5/08	11:38	NA	190	16.750	
On	6/5/08	11:56	NA	195	15.814	
On	6/5/08	12:14	NA	200	17.493	
On	6/5/08	12:34	NA	205	14.500	
On	6/5/08	12:51	NA	210	17.710	
On	6/5/08	13:11	NA	215	15.432	
On	6/5/08	13:29	NA	220	16.704	
On	6/5/08	13:50	NA	225	13.993	
On	6/5/08	14:07	NA	230	17.585	
On	6/5/08	14:28	NA	235	14.218	
On	6/5/08	14:44	NA	240	19.481	
On	6/5/08	15:02	NA	245	15.940	
On	6/5/08	15:18	NA	250	19.243	
On	6/5/08	15:39	NA	255	14.613	
On	6/5/08	15:56	NA	260	17.331	

On	6/5/08	16:16	NA	265	14.584	
On	6/5/08	16:35	NA	270	16.026	
On	6/5/08	16:57	NA	275	13.895	
On	6/5/08	17:14	NA	280	17.783	
On	6/5/08	17:37	NA	285	12.970	
On	6/5/08	17:55	NA	290	16.077	
On	6/5/08	18:17	NA	295	13.999	
On	6/5/08	18:39	NA	300	13.423	
On	6/5/08	18:58	NA	305	16.086	
On	6/5/08	19:16	NA	310	16.129	
On	6/5/08	19:36	NA	315	15.098	
On	6/5/08	19:55	NA	320	16.026	
On	6/5/08	20:14	NA	325	15.890	
On	6/5/08	20:34	NA	330	14.706	
On	6/5/08	20:52	NA	335	16.807	
On	6/5/08	21:10	NA	340	16.411	
On	6/5/08	21:30	NA	345	15.213	
On	6/5/08	21:47	NA	350	17.554	
On	6/5/08	22:09	NA	355	13.674	
On	6/5/08	22:26	NA	360	17.751	
On	6/5/08	22:52	NA	365	11.385	
On	6/5/08	23:09	NA	370	17.678	
On	6/5/08	23:28	NA	375	15.848	
On	6/5/08	23:46	NA	380	16.575	
On	6/5/08	24:06	NA	385	15.053	
On	6/5/08	24:23	NA	390	17.773	
On	6/5/08	24:43	NA	395	15.190	
On	6/5/08	25:02	NA	400	15.839	
On	6/5/08	25:21	NA	405	15.488	
On	6/5/08	25:38	NA	410	18.462	
On	6/5/08	25:58	NA	415	14.815	
On	6/5/08	26:16	NA	420	16.694	
On	6/5/08	26:34	NA	425	16.322	
On	6/5/08	26:52	NA	430	17.114	
On	6/5/08	27:10	NA	435	16.112	
On	6/5/08	27:29	NA	440	16.103	
On	6/5/08	27:47	NA	445	16.164	
On	6/5/08	28:05	NA	450	17.422	
On	6/5/08	28:22	NA	455	17.143	
On	6/5/08	28:39	NA	460	17.943	
On	6/5/08	28:59	NA	465	14.479	
On	6/5/08	29:16	NA	470	18.715	
On	6/5/08	29:36	NA	475	15.053	
On	6/5/08	29:51	NA	480	19.157	
Off	6/5/08	30:11	NA	485	15.068	

Note:
1) NA means that well was Not Accessible (NA) to take water level measurements

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS003

Well ID: 13909814CBC1__

Stark County, North Dakota

WATER QUALITY DATA

Sample Date: 6/5/08 Time: 1:14pm (usually at end of pump testing)

Sample point: End of 15-foot hose(1-inch PVC) connected to well and stock tank for sampling and pump test.

Total Volume Purged: 485 gallons

pH (field measurement): 7.20 Conductivity (field measurement): 1731 µ S/cm

Temperature (field measurement): 9.3 °C

Appearance (clarity, odor, sediment, etc.): Slight yellowish tint, relatively clear, strong sulfur odor, no visible sediment

Comments: _____

_____

_____

_____

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Northern Analytical

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS003
State Well ID: 13909814CBC1
Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (3 of 8 wells) is accurate to the best of my knowledge and represents the true condition of this well on

James Perdaems
PRINT NAME

James Perdaems 9-29-08
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 6/5/08 .This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi
PRINT NAME Jill Parisi

Jill Parisi
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS003

Well ID: 13909814CBC1__

Stark County, North Dakota

Additional Notes (if necessary):

PHOTO LOG



Photo #1: Well location for JMPERDAEMS003 with 1-inch PVC hose connection.

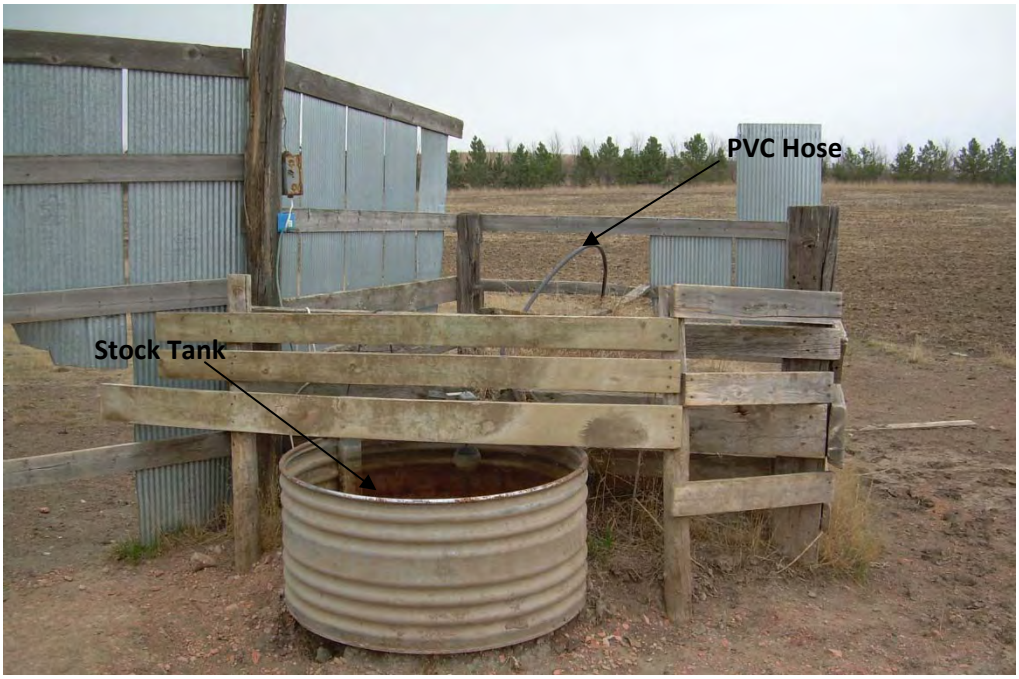

Photo #2: Well setup for JMPERDAEMS003 showing 1-inch PVC hose and stock tank.

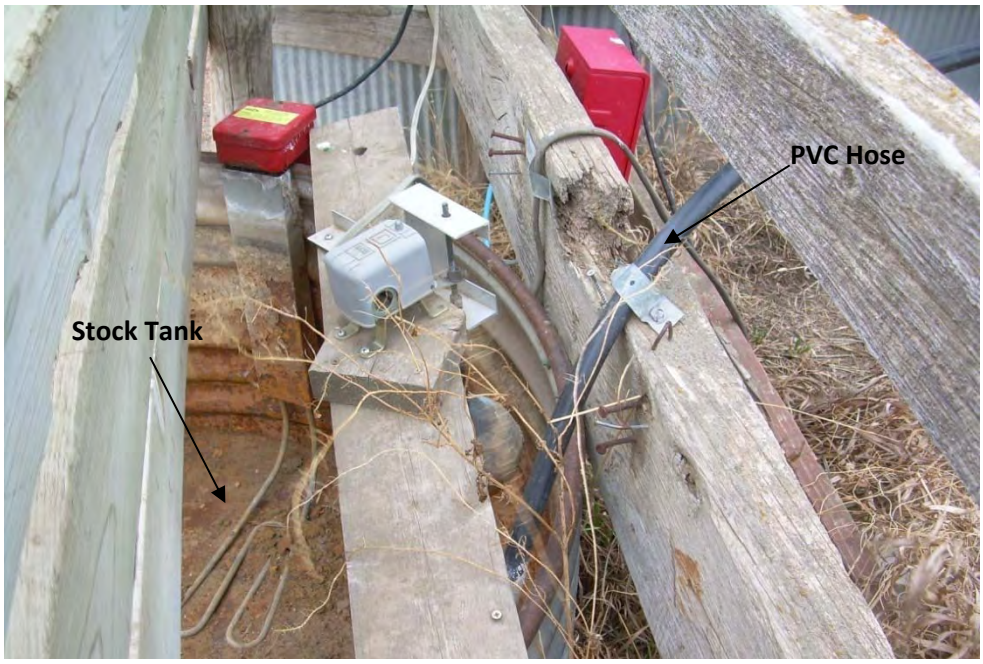

Photo #3: Well setup for JMPERDAEMS003 showing 1-inch PVC hose and stock tank.

Client: GOLDER ASSOCIATES, INC.
Project Name: SOUTH HEART
Project No.: 0632174
Laboratory No.: 2008060067-3
Sample Name: JM PERDEAMS 003
Sample Date/Time: 06/05/2008 13:14:00
Collected by: JILL PARISI
Sample Type: WATER

PARAMETER	MEASURED VALUE	UNITS	ANALYST	REPORTING LIMIT	METHOD NUMBER	DATE/TIME ANALYZED
SOUTH HEART						
Turbidity	4.7 HT	NTU	ES	0.2	180.1	06/09/2008 12:00:00 PM
Tannins & Lignins	0.52	mg/l	ES	0.05	5550B	06/30/2008 06:00:00 PM
pH	7.1	S.U.	ES	0.1-13.5	4500-H+-B	06/09/2008 07:00:00 PM
Alkalinity Bicarbonate as HCO3	769	mg/l	CC	1	2320B	06/16/2008 11:59:00 AM
Alkalinity Carbonate as CO3	0	mg/l	CC	0	2320B	06/16/2008 11:59:00 AM
Alkalinity Total as CaCO3	630	mg/l	CC	1	2320B	06/16/2008 11:59:00 AM
Chloride as Cl	7	mg/l	ES	1	300.0	06/18/2008 02:52:00 AM
Sulfate as SO4	742	mg/l	ES	5	300.0	06/18/2008 02:52:00 AM
Calcium as Ca	127	mg/l	KC	1	200.7	06/19/2008 07:28:00 PM
Hardness as CaCO3	634	mg/l	BH	7	2340B	06/19/2008 07:28:00 PM
Magnesium as Mg	77	mg/l	KC	1	200.7	06/19/2008 07:28:00 PM
Potassium as K	8	mg/l	KC	1	200.7	06/19/2008 07:28:00 PM
Sodium as Na	348	mg/l	KC	1	200.7	06/19/2008 07:28:00 PM
Electrical Conductivity	2220	umhos/cm	MRK	10	2510B	06/12/2008 01:13:00 PM
Total Dissolved Solids	1670	mg/l	RM	20	2540C	06/12/2008 11:35:00 AM
Total Suspended Solids	10	mg/l	RM	1	2540D	06/12/2008 11:38:00 AM
Iron as Fe (Total)	0.73	mg/l	KC	0.01	200.7	06/20/2008 05:33:00 PM
Nitrate as N	<0.01	mg/l	CC	0.01	353.2	06/25/2008 02:28:00 PM
Nitrite as N	<0.01 HT	mg/l	RM	0.01	4500-NO2-B	06/09/2008 11:03:00 AM
Nitrate + Nitrite as N	<0.01	mg/l	CC	0.01	353.2	06/25/2008 02:32:00 PM
Sodium Adsorption Ratio	6.01	-----	BH	0.2	20b	06/19/2008 07:28:00 PM
Cations	28.02	meq/l	---	0.30	1030F	
Anions	28.24	meq/l	---	0.38	1030F	
Cation/Anion Balance	0.39	% [max 5%]	---	-----	AWWA/APHA	
Metals Batch#/Digestion Date	1570	-----	SH	-----	200.2	06/11/2008 03:30:00 PM

WATER SYSTEM BACTERIOLOGICAL WATER ANALYSIS

SOUTHWESTERN DISTRICT HEALTH UNIT
2869 3rd Avenue West, Dickinson, ND 58601 • 701-483-0171 or 1-800-697-3145

Received OCT 30 2009 GOLDER DENVER

LEFT SIDE OF FORM MUST BE COMPLETED BY COLLECTOR

Name of Collector	Telephone Number
JAY BERG	701-260-6118

Date Collected	Time Collected
10/26/09	12:58

Collection Point/Remarks: JM PERDAEMS003

Sample Source (Check One):
- ☐ Domestic Well
- ☐ Swimming Pool
- ☐ Surface Water
- ☐ Spa
- ☒ Stock Well
- ☐ Public Water System _____
- ☐ Other _____

Reason for Sample (Check One):
- ☐ Routine
- ☐ Retest
- ☐ Mortgage Requirement
- ☐ USDA Required
- ☐ Required by other state or federal regulations
- ☐ Water treatment check (raw or treated)
- ☐ ND Dairy Dept.
- ☒ Special purpose (explain) well Certification

SWIMMING POOL/SPA INFORMATION

POOL/SPA NAME

Free Chlorine	Total Chlorine	pH

WATER SUPPLY INFORMATION FOR PRIVATE SYSTEMS

County: STARK

Township Number	Range Number	Section Number

Well Depth _____ ft. Well Diameter _____ in.

Owner: James Perdaems.

Address:

City	State	Zip Code

Send Results To (if other than owner): Ed Pottorff, Golder Assoc.

Address: 44 Union Blvd Suite 300

City	State	Zip Code
Lakewood	CO	80228

STOP! RIGHT SIDE OF FORM IS FOR LABORATORY USE ONLY.

Paid - Amount

☐ CHECK #
☐ CASH

PLEASE READ THE ENCLOSED INSTRUCTIONS BEFORE SAMPLING

Do NOT Submit Samples on FRIDAYS

(**NOTE* - Pool/Spa, Retest, and Fermentation Tube samples must be **received** by Wednesday of the week)

Lab Number	
1429	
Date of Receipt: 10-26-09	Time of Receipt: 1404
Date of Analysis: 10-26-09	Time of Analysis: 1430
Date Completed: 10-28-09	Analyst: RA
Remarks	

ANALYSIS METHOD
- ☒ Fermentation Tube
- ☐ Membrane Filter
- ☐ Presence-Absence
- ☐ Other _____

COLIFORM ANALYSIS
- ☐ SATISFACTORY - No Coliforms Found
- ☒ UNSATISFACTORY - Coliforms Present - SEND REPEAT SAMPLES
  - ☐ No Fecal Coliforms Found
  - ☐ Fecal Coliforms Present
  - ☐ No *E coli* Found
  - ☒ *E coli* Present

Coliforms per 100 ml	Fecal Coliforms per 100 ml
+	

SAMPLE VOIDED - SEND REPLACEMENT
- ☐ Turbid Without Gas Production
- ☐ Too Numerous to Count
- ☐ Confluent Growth
- ☐ Turbid Without Acid Reaction
- ☐ Sample Too Old
- ☐ Other _____

STANDARD PLATE COUNT PER ML _____
R2A PLATE COUNT PER ML _____
- ☐ Satisfactory
- ☐ Unsatisfactory

NITRATE SCREEN < 2 mg/l
- ☒ Satisfactory
- ☐ Unsatisfactory
- ☐ Result to Follow

(< is less than > is more than)

JMPERDAEMS004

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS004
State Well ID: 13909823BBC1
Stark County, North Dakota

LOCATION DATA

Owner/Operator Name: James and Rosella Perdaems

Owner/Operator Address and Contact Information: PO Box 45 South Heart, ND 58655 701-677-5517

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 23 Quarter Section NW Quarter Section NW Quarter Section SW

Coordinates of well/spring location and projection (from GPS):

Northing 439826 Easting 1370125 Projection State Plane

Relative location to landmarks and/or buildings: In field east of house

Ground elevation 2497 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Stock

Owner/Operator comments:

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photo #1

WELL/SPRING CONSTRUCTION

Depth of well: ~90 feet

Screened Interval: Not known to Not known feet

Diameter/Finish (metal casing, PVC, etc.): Not known

Date drilled/developed: ~1970s

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS004
State Well ID: 13909823BBC1
Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: _____

Comments: _____

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photo #2

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Submersible

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Electric

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS004

State Well ID: 13909823BBC1__

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Well Not Accessible

MP height above ground level: Well Not Accessible feet

Static water level in feet below MP: Not able to measure feet

Test Date: 9/10/08 Time: 11:13 am to 11:44 am

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): (in-place) temporary (circle one) Description Used pump in-place

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Faucet pipe with hole in it was patched with Duct tape prior to pump test

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photo #3

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS004

State Well ID: 13909823BBC1__

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	9/10/08	0:50	NA	5	6.000	Duct taped hole in faucet pipe, used 50-foot hose on faucet
On	9/10/08	1:43	NA	10	5.660	
On	9/10/08	2:25	NA	15	7.143	
On	9/10/08	3:11	NA	20	6.522	
On	9/10/08	3:53	NA	25.5	7.857	~ 5.5 gallons
On	9/10/08	4:42	NA	30.5	6.122	
On	9/10/08	5:18	NA	35.5	8.333	
On	9/10/08	6:02	NA	40.5	6.818	
On	9/10/08	6:39	NA	45.5	8.108	
On	9/10/08	7:22	NA	50.5	6.977	
On	9/10/08	7:58	NA	55.5	8.333	
On	9/10/08	8:42	NA	60.5	6.818	
On	9/10/08	9:26	NA	65.5	6.818	
On	9/10/08	10:26	NA	70.5	5.000	
On	9/10/08	11:14	NA	75.5	6.250	
On	9/10/08	12:07	NA	80.5	5.660	
On	9/10/08	12:52	NA	85.5	6.667	
On	9/10/08	13:38	NA	90.5	6.522	
On	9/10/08	14:20	NA	95.5	7.143	
On	9/10/08	15:05	NA	100.5	6.667	
On	9/10/08	15:43	NA	105.5	7.895	
On	9/10/08	16:26	NA	110.5	6.977	
On	9/10/08	17:03	NA	115.5	8.108	
On	9/10/08	17:47	NA	120.5	6.818	
On	9/10/08	18:24	NA	125.5	8.108	
On	9/10/08	19:05	NA	130.5	7.317	
On	9/10/08	19:44	NA	135.5	7.692	
On	9/10/08	20:26	NA	140.5	7.143	
On	9/10/08	21:11	NA	145.5	6.667	
On	9/10/08	22:01	NA	150.5	6.000	
On	9/10/08	22:43	NA	155.5	7.143	
On	9/10/08	23:22	NA	160.5	7.692	
On	9/10/08	24:05	NA	165.5	6.977	
On	9/10/08	24:50	NA	170.5	6.667	
On	9/10/08	25:37	NA	175.5	6.383	
On	9/10/08	26:21	NA	180.5	6.818	
On	9/10/08	27:00	NA	185.5	7.692	
On	9/10/08	27:44	NA	190.5	6.818	
On	9/10/08	28:30	NA	195.5	6.522	
On	9/10/08	29:17	NA	200.5	6.383	
On	9/10/08	29:59	NA	205.5	7.143	
Off	9/10/08	30:38	NA	210.5	7.692	

Note:
1) NA means that well was Not Accessible (NA) to take water level measurements

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS004
State Well ID: 13909823BBC1
Stark County, North Dakota

WATER QUALITY DATA

Sample Date: 9/10/08 Time: 11:44 am (usually at end of pump testing)

Sample point: End of 50-foot hose connected to faucet (~4.5 feet above ground)

Total Volume Purged: 210.5 gallons

pH (field measurement): 6.77 Conductivity (field measurement): 1.67 m S/cm

Temperature (field measurement): 13.3 °C

Appearance (clarity, odor, sediment, etc.): Clear, slight sulfur odor

Comments:

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Northern Analytical and Southwestern District Health Unit

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS004

State Well ID: 13909823BBC1/US71-309

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (4 of 8 wells) is accurate to the best of my knowledge and represents the true condition of this well on

James Perdaems
PRINT NAME

James Perdaems 9-29-08
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on _____.This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi
PRINT NAME Jill Parisi

Jill Parisi
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS004
State Well ID: 13909823BBC1
Stark County, North Dakota

Additional Notes (if necessary):

JMPerdaems008 (US71-309) may be the same well as JMPerdaems004 (13909823BBC1). However, the owners believe the depth of this well is 90 feet and it was drilled in the 1970s. The North Dakota State Water Commission database recorded this well depth as 28 feet and a drilled date of 5/9/1905. Due to these discrepancies, JMPerdaems008 (US71-309) and JMPerdaems004 (13909823BBC1) are assumed to be two different wells.

PHOTO LOG



Photo #1: Well location for JMPERDAEMS004 in concrete pit in field east of the house.

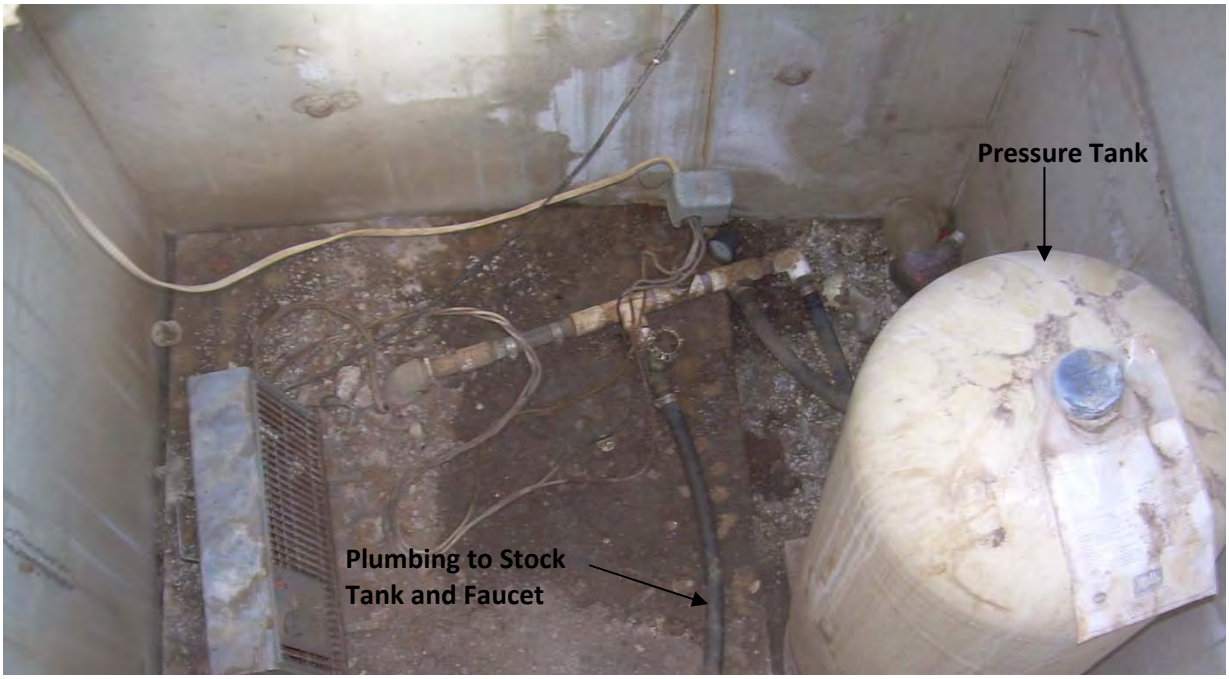

Photo #2: Well setup for JMPERDAEMS004 showing well plumbing and the pressure tank within the concrete pit.

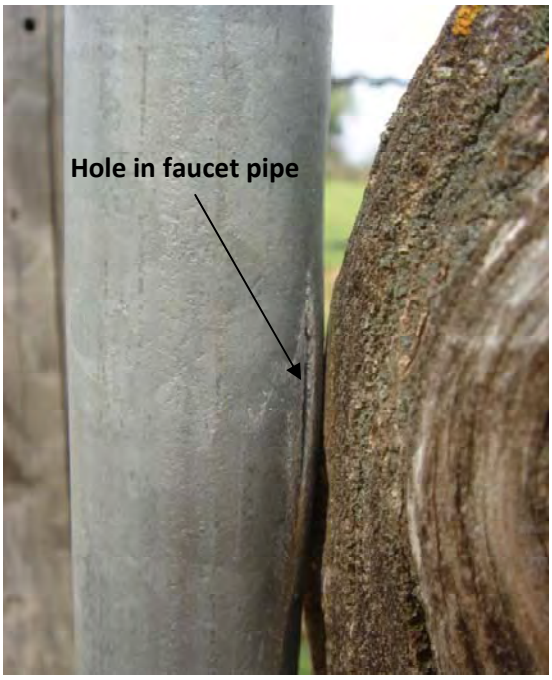

Photo #3: Well setup for JMPERDAEMS004 showing hole in faucet pipe that was patched prior to pump test.

Client: GOLDER ASSOCIATES, INC.
Project Name: SOUTH HEART WELL CERTIFICATION
Project No.: 0632174
Laboratory No.: 2008090094-2
Sample Name: JMPERDAEMS004
Sample Date/Time: 09/10/2008 11:44:00
Collected by: JILL PARISI
Sample Type: WATER

PARAMETER	MEASURED VALUE	UNITS	ANALYST	REPORTING LIMIT	METHOD NUMBER	DATE/TIME ANALYZED
SOUTH HEART WELL CERTIFICATION						
Turbidity	12	NTU	MRK	0.2	180.1	09/11/2008 01:10:00 PM
Tannins & Lignins	0.38	mg/l	ES	0.05	5550A	09/18/2008 03:30:00 PM
pH	7.2	S.U.	RM	0.1-13.5	4500-H+-B	09/11/2008 05:33:57 PM
Alkalinity Bicarbonate as HCO3	648	mg/l	RM	1	2320B	09/12/2008 10:20:00 AM
Alkalinity Carbonate as CO3	0	mg/l	RM	0	2320B	09/12/2008 10:20:00 AM
Alkalinity Total as CaCO3	531	mg/l	RM	1	2320B	09/12/2008 10:20:00 AM
Chloride as Cl	6	mg/l	MRK	1	300.0	09/17/2008 07:08:00 PM
Sulfate as SO4	555	mg/l	MRK	50	300.0	09/17/2008 07:38:00 PM
Hardness as CaCO3	582	mg/l	BH	7	2340B	09/15/2008 05:58:00 PM
Electrical Conductivity	1650	umhos/cm	MRK	10	2510B	09/15/2008 03:54:00 PM
Total Dissolved Solids	1220	mg/l	RM	20	2540C	09/15/2008 09:07:00 AM
Total Suspended Solids	4	mg/l	RM	1	2540D	09/15/2008 09:06:00 AM
Calcium as Ca (Total)	159	mg/l	BH	1	200.7	09/15/2008 05:58:00 PM
Iron as Fe (Total)	1.64	mg/l	BH	0.01	200.7	09/15/2008 05:58:00 PM
Magnesium as Mg (Total)	45	mg/l	BH	1	200.7	09/15/2008 05:58:00 PM
Sodium as Na (Total)	229	mg/l	BH	1	200.7	09/15/2008 05:58:00 PM
Nitrate as N	<0.01	mg/l	MRK	0.01	353.2	09/12/2008 03:19:00 PM
Nitrite as N	0.01	mg/l	MRK	0.01	4500-N02 B	09/11/2008 01:24:00 PM
Nitrate + Nitrite as N	0.01	mg/l	CC	0.01	353.2	09/12/2008 03:19:00 PM
Sodium Adsorption Ratio	4.13	-----	BH	0.2	20b	09/15/2008 05:58:00 PM
Cations	21.60	meq/l	---	0.30	1030F	
Anions	22.34	meq/l	---	0.20	1030F	
Cation/Anion Balance	1.68	% [max 5%]	---	----	AWWA/APHA	
Metals Batch#/Digestion Date	1761	-----	BH	-----	200.2	09/12/2008 02:45:00 PM

WATER SYSTEM BACTERIOLOGICAL WATER ANALYSIS

SOUTHWESTERN DISTRICT HEALTH UNIT
2869 3rd Avenue West, Dickinson, ND 58601 • 701-483-0171 or 1-800-697-3145

LEFT SIDE OF FORM MUST BE COMPLETED BY COLLECTOR

Name of Collector	Telephone Number
Jill Parisi	303-980-0540

Date Collected	Time Collected
9/10/08	11:44

Collection Point/Remarks: JMPERDAEM004

Sample Source (Check One):
- [x] Domestic Well
- [ ] Swimming Pool
- [ ] Surface Water
- [ ] Spa
- [x] Stock Well
- [ ] Public Water System _____
- [ ] Other _____

Reason for Sample (Check One):
- [ ] Routine
- [ ] Retest
- [ ] Mortgage Requirement
- [ ] USDA Required
- [ ] Required by other state or federal regulations
- [ ] Water treatment check (raw or treated)
- [ ] ND Dairy Dept.
- [x] Special purpose (explain) _____

SWIMMING POOL/SPA INFORMATION

POOL/SPA NAME

Free Chlorine	Total Chlorine	pH

WATER SUPPLY INFORMATION FOR PRIVATE SYSTEMS

County: Stark County

Township Number	Range Number	Section Number

Well Depth _____ ft. Well Diameter _____ in.

Owner: Jim Perdaem

Address:

City	State	Zip Code

Send Results To (if other than owner): Jill Parisi / Golder Associates

Address: 44 Union Blvd, Suite 300

City	State	Zip Code
Lakewood	CO	80228

STOP! RIGHT SIDE OF FORM IS FOR LABORATORY USE ONLY.

Paid - Amount: 12.00
- [x] CHECK # 1234
- [ ] CASH

PLEASE READ THE ENCLOSED INSTRUCTIONS BEFORE SAMPLING

Do NOT Submit Samples on FRIDAYS

(***NOTE*** - Pool/Spa, Retest, and Fermentation Tube samples must be **received** by Wednesday of the week)

Lab Number: 1316

Date of Receipt	Time of Receipt
9-10-8	12:35

Date of Analysis	Time of Analysis
9-10-08	1310

Date Completed	Analyst
9-12-08	CD

Remarks:

ANALYSIS METHOD
- [x] Fermentation Tube
- [ ] Membrane Filter
- [ ] Presence-Absence
- [ ] Other _____

COLIFORM ANALYSIS
- [ ] SATISFACTORY - No Coliforms Found
- [x] UNSATISFACTORY - Coliforms Present - SEND REPEAT SAMPLES
  - [ ] No Fecal Coliforms Found
  - [ ] Fecal Coliforms Present
  - [ ] No *E coli* Found
  - [ ] *E coli* Present

Coliforms per 100 ml	Fecal Coliforms per 100 ml
(+) Test	

SAMPLE VOIDED - SEND REPLACEMENT
- [ ] Turbid Without Gas Production
- [ ] Too Numerous to Count
- [ ] Confluent Growth
- [ ] Turbid Without Acid Reaction
- [ ] Sample Too Old
- [ ] Other _____

STANDARD PLATE COUNT PER ML _____
R2A PLATE COUNT PER ML _____
- [ ] Satisfactory
- [ ] Unsatisfactory

NITRATE SCREEN <2 mg/l
- [x] Satisfactory
- [ ] Unsatisfactory
- [ ] Result to Follow

(< is less than > is more than)

SWDHU 05/2004

White - lab (top copy) will be returned with the results

Canary - retained by lab

JMPERDAEMS005

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS005
State Well ID: US71-305
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: James and Rosella Perdaems

Owner/Operator Address and Contact Information: PO Box 45 South Heart, ND 58655 701-677-5517

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N* Range 98W*

Section 22* Quarter Section NW* Quarter Section NW Quarter Section NW

Coordinates of well/spring location and projection (from GPS):

Northing 440424* Easting 1364502* Projection State Plane*

Relative location to landmarks and/or buildings: Owner cannot locate this well. The owners believe the well does not currently exist.

Ground elevation 2527.6 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Not known*

Owner/Operator comments: The owners believe the well does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 72* feet

Screened Interval: Not known* to Not known* feet

Diameter/Finish (metal casing, PVC, etc.): Not known

Date drilled/developed: Not known

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS005

State Well ID: US71-305

Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Not known

Comments: Owner can't locate this well and believes that it does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Not Available

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Not Available

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner.

Information could not be obtained directly because the owners believe the well does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS005

State Well ID: US71-305

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Tested

MP height above ground level: Not Measured feet

Static water level in feet below MP: Not able to measure feet

Test Date: Not Tested Time: to

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place temporary (circle one) Description Not Tested

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Not tested, the owners believe the well does not currently exist

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS005

State Well ID: US71-305

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS005
State Well ID: US71-305
Stark County, North Dakota

WATER QUALITY DATA

Sample Date: Not Sampled Time: Not Sampled (usually at end of pump testing)

Sample point: Not Sampled

Total Volume Purged: Not Sampled gallons

pH (field measurement): Not Sampled Conductivity (field measurement): Not Sampled µ S/cm

Temperature (field measurement): Not Sampled °C

Appearance (clarity, odor, sediment, etc.): Not Sampled

Comments: Well not sampled because the owners believe the well does not currently exist

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Not Sampled

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS005
State Well ID: US71-305
Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (5 of 8 wells) is accurate to the best of my knowledge and represents the true condition of this well on

James Perdaems
PRINT NAME

James Perdaems 9-19-08
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on _____.This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi
PRINT NAME Jill Parisi

Jill Parisi
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS005

State Well ID: US71-305

Stark County, North Dakota

Additional Notes (if necessary):

This well appears in the North Dakota State Water Commission database but does not exist according to the owner. Information from the North Dakota State Water Commission database was provided where applicable.

JMPERDAEMS006

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS006
State Well ID: US71-306
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: James and Rosella Perdaems

Owner/Operator Address and Contact Information: PO Box 45 South Heart, ND 58655 701-677-5517

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N* Range 98W*

Section 22* Quarter Section NW* Quarter Section NW Quarter Section NW

Coordinates of well/spring location and projection (from GPS):

Northing 440424* Easting 1364502* Projection State Plane*

Relative location to landmarks and/or buildings: Owner cannot locate this well. The owners believe the well does not currently exist.

Ground elevation 2527.6 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Not known*

Owner/Operator comments: The owners believe the well does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 86* feet

Screened Interval: Not known* to Not known* feet

Diameter/Finish (metal casing, PVC, etc.): Not known

Date drilled/developed: Not known

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS006

State Well ID: US71-306

Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Not known

Comments: Owner can't locate this well and believes that it does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Not Available

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Not Available

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner.

Information could not be obtained directly because the owners believe the well does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING TEST DATA

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS006

State Well ID: US71-306

Stark County, North Dakota

Measuring point (MP) description: Not Tested

MP height above ground level: Not Tested feet

Static water level in feet below MP: Not able to measure feet

Test Date: Not Tested Time: to

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place temporary (circle one) Description Not Tested

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Not tested, the owners believe the well does not currently exist

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS006

State Well ID: US71-306

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS006
State Well ID: US71-306
Stark County, North Dakota

WATER QUALITY DATA

Sample Date: Not Sampled Time: Not Sampled (usually at end of pump testing)

Sample point: Not Sampled

Total Volume Purged: Not Sampled gallons

pH (field measurement): Not Sampled Conductivity (field measurement): Not Sampled µ S/cm

Temperature (field measurement): Not Sampled °C

Appearance (clarity, odor, sediment, etc.): Not Sampled

Comments: Well not sampled because the owners believe the well does not currently exist

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Not Sampled

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS006
State Well ID: US71-306
Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (6 of 8 wells) is accurate to the best of my knowledge and represents the true condition of this well on

James Perdaems
PRINT NAME

James Perdaems 9-29-08
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on _____.This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi
PRINT NAME Jill Parisi

Jill Parisi
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS006

State Well ID: US71-306

Stark County, North Dakota

Additional Notes (if necessary):

This well appears in the North Dakota State Water Commission database but does not exist according to the owner. Information from the North Dakota State Water Commission database was provided where applicable.

JMPERDAEMS007

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS007

State Well ID: 33348

Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: James and Rosella Perdaems

Owner/Operator Address and Contact Information: PO Box 45 South Heart, ND 58655 701-677-5517

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N* Range 98W*

Section 22* Quarter Section NW Quarter Section SE Quarter Section SE

Coordinates of well/spring location and projection (from GPS):

Northing 438121* Easting 1366696* Projection State Plane*

Relative location to landmarks and/or buildings: Owner cannot locate this well. The owners believe the well does not currently exist.

Ground elevation 2526.9 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Not known*

Owner/Operator comments: The owners believe the well does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 48* feet

Screened Interval: Not known* to 48* feet

Diameter/Finish (metal casing, PVC, etc.): Not known

Date drilled/developed: Not known

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS007

State Well ID: 33348

Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Not known

Comments: Owner can't locate this well and believes that it does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Not Available

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Not Available

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner.

Information could not be obtained directly because the owners believe the well does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Tested

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS007

State Well ID: 33348

Stark County, North Dakota

MP height above ground level: Not Tested feet

Static water level in feet below MP: Not able to measure feet

Test Date: Not Tested Time: to

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place temporary (circle one) Description Not Tested

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Not tested, the owners believe the well does not currently exist

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS007

State Well ID: 33348

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS007

State Well ID: 33348

Stark County, North Dakota

WATER QUALITY DATA

Sample Date: Not Sampled Time: Not Sampled (usually at end of pump testing)

Sample point: Not Sampled

Total Volume Purged: Not Sampled gallons

pH (field measurement): Not Sampled Conductivity (field measurement): Not Sampled µ S/cm

Temperature (field measurement): Not Sampled °C

Appearance (clarity, odor, sediment, etc.): Not Sampled

Comments: Well not sampled because the owners believe the well does not currently exist

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Not Sampled

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS007

State Well ID: 33348

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (7 of 8 wells) is accurate to the best of my knowledge and represents the true condition of this well on

James Perdaems
PRINT NAME

James Perdaems 9-29-08
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on _____.This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi
PRINT NAME Jill Parisi

Jill Parisi
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS007

State Well ID: 33348

Stark County, North Dakota

Additional Notes (if necessary):

This well appears in the North Dakota State Water Commission database but does not exist according to the owner. Information from the North Dakota State Water Commission database was provided where applicable.

JMPERDAEMS008

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS008
State Well ID: US71-309
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: James and Rosella Perdaems

Owner/Operator Address and Contact Information: PO Box 45 South Heart, ND 58655 701-677-5517

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N* Range 98W*

Section 23* Quarter Section NW* Quarter Section NW* Quarter Section SW*

Coordinates of well/spring location and projection (from GPS):

Northing 439620* Easting 1369801* Projection State Plane*

Relative location to landmarks and/or buildings: In field east of house

Ground elevation 2496 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Stock*

Owner/Operator comments:

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s):

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 28* feet

Screened Interval: Not known* to Not known* feet

Diameter/Finish (metal casing, PVC, etc.): Not known

Date drilled/developed: 5/9/1905*

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS008

State Well ID: US71-309

Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Not known

Comments:

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s):

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Not Available

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Not Available

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner. Information could Not be obtained directly because owners believe this well does not exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS008

State Well ID: US71-309

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Tested

MP height above ground level: Not Tested feet

Static water level in feet below MP: Not able to measure feet

Test Date: Not Tested Time: Not Tested to Not Tested

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place temporary (circle one) Description

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Not Tested

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s):

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS008

State Well ID: US71-309

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS008

State Well ID: US71-309

Stark County, North Dakota

WATER QUALITY DATA

Sample Date: Not Sampled Time: Not Sampled (usually at end of pump testing)

Sample point: Not Sampled

Total Volume Purged: Not Sampled gallons

pH (field measurement): Not Sampled Conductivity (field measurement): Not Sampled m S/cm

Temperature (field measurement): Not Sampled °C

Appearance (clarity, odor, sediment, etc.): Not Sampled

Comments:

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Not Sampled

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS008
State Well ID: US71-309
Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (8 of 8 wells) is accurate to the best of my knowledge and represents the true condition of this well on

James Perdaems
PRINT NAME

SIGNED 9-29-08 DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on _____.This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi
PRINT NAME Jill Parisi

SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JMPERDAEMS008

State Well ID: US71-309

Stark County, North Dakota

Additional Notes (if necessary):

JMPerdaems008 (US71-309) may be the same well as JMPerdaems004 (13909823BBC1). However, the owners believe the depth of this well is 90 feet and it was drilled in the 1970s. The North Dakota State Water Commission database recorded this well depth as 28 feet and a drilled date of 5/9/1905. Due to these discrepancies, JMPerdaems008 (US71-309) and JMPerdaems004 (13909823BBC1) are assumed to be two different wells.

JRPERDAEMS001

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JRPERDAEMS001
State Well ID: 56810
Stark County, North Dakota

LOCATION DATA

Owner/Operator Name: Jerry and Sandra Perdaems

Owner/Operator Address and Contact Information: PO Box 45 South Heart, ND 58655 701-677-5536

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 22 Quarter Section SE Quarter Section SE Quarter Section SW

Coordinates of well/spring location and projection (from GPS):

Northing 436420 Easting 1369148 Projection State Plane

Relative location to landmarks and/or buildings: East of house

Ground elevation 2505 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Domestic

Owner/Operator comments:

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photos #1-3

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: ~65 feet

Screened Interval: Not known to Not known feet

Diameter/Finish (metal casing, PVC, etc.): Not known

Date drilled/developed: Not known

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JRPERDAEMS001

State Well ID: 56810

Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Good condition with red metal cap

Comments:

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Jet

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Electric

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JRPERDAEMS001

State Well ID: 56810

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Well Not Accessible

MP height above ground level: Well Not Accessible ___ feet

Static water level in feet below MP: Not able to measure feet

Test Date: 9/11/08 Time: 9:13 am to 9:34 am

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): (in-place) temporary (circle one) Description Used pump in-place

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments:

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JRPERDAEMS001

State Well ID: 56810

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	9/11/08	0:37	NA	5	8.108	
On	9/11/08	1:20	NA	10	6.977	
On	9/11/08	1:56	NA	15	8.333	
On	9/11/08	2:38	NA	20	7.143	
On	9/11/08	3:14	NA	25	8.333	
On	9/11/08	3:57	NA	30	6.977	
On	9/11/08	4:33	NA	35	8.333	
On	9/11/08	5:13	NA	40	7.500	
On	9/11/08	5:51	NA	45	7.895	
On	9/11/08	6:30	NA	50	7.692	
On	9/11/08	7:14	NA	57	9.545	
On	9/11/08	7:55	NA	62	7.317	
On	9/11/08	8:30	NA	67	8.571	
On	9/11/08	9:11	NA	72	7.317	
On	9/11/08	9:45	NA	77	8.824	
On	9/11/08	10:26	NA	82	7.317	
On	9/11/08	11:01	NA	87	8.571	
On	9/11/08	11:43	NA	92	7.143	
On	9/11/08	12:18	NA	97	8.571	
On	9/11/08	12:59	NA	102	7.317	
On	9/11/08	13:31	NA	107	9.375	
On	9/11/08	14:13	NA	112	7.143	
On	9/11/08	14:49	NA	117	8.333	
On	9/11/08	15:29	NA	122	7.500	
On	9/11/08	16:03	NA	127	8.824	
On	9/11/08	16:44	NA	132	7.317	
On	9/11/08	17:17	NA	137	9.091	
On	9/11/08	17:58	NA	142	7.317	
On	9/11/08	18:32	NA	147	8.824	
On	9/11/08	19:12	NA	152	7.500	
On	9/11/08	19:46	NA	157	8.824	
On	9/11/08	20:26	NA	162	7.500	
On	9/11/08	21:00	NA	167	8.824	
On	9/11/08	21:41	NA	172	7.317	
On	9/11/08	22:15	NA	177	8.824	
On	9/11/08	22:57	NA	182	7.143	
On	9/11/08	23:38	NA	187	7.317	
On	9/11/08	24:12	NA	192	8.824	
On	9/11/08	24:54	NA	197	7.143	
On	9/11/08	25:35	NA	202	7.317	
On	9/11/08	26:09	NA	207	8.824	
On	9/11/08	26:51	NA	212	7.143	
On	9/11/08	27:26	NA	217	8.571	
On	9/11/08	28:07	NA	222	7.317	
On	9/11/08	28:44	NA	227	8.108	

1) NA means that well was Not Accessible (NA) to take water level measurements

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JRPERDAEMS001

State Well ID: 56810

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	9/11/08	29:26	NA	232	7.143	
Off	9/11/08	30:02	NA	237	8.333	

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JRPERDAEMS001

State Well ID: 56810

Stark County, North Dakota

WATER QUALITY DATA

Sample Date: 9/11/08 Time: 9:34 am (usually at end of pump testing)

Sample point: End of 100-foot hose connected to faucet on side of house

Total Volume Purged: 237 gallons

pH (field measurement): 6.84 Conductivity (field measurement): 1.14 m S/cm

Temperature (field measurement): 13.5 °C

Appearance (clarity, odor, sediment, etc.): Clear, no odor

Comments: Owner commented that water is slightly tinted when washing white clothes or white RV camper

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Northern Analytical and Southwestern District Health Unit

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JRPERDAEMS001

State Well ID: 56810

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (1 of 3 wells) is accurate to the best of my knowledge and represents the true condition of this well on 9-11-08

Jerry F. Peedaems
PRINT NAME

Jerry F. Peedaems 9-11-08
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 9-11-08 .This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi
PRINT NAME Jill Parisi

Jill Parisi 9/11/08
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JRPERDAEMS001

State Well ID: 56810

Stark County, North Dakota

Additional Notes (if necessary):

PHOTO LOG



Photo #1: Well location for JRPERDAEMS001 east of the house.



Photo #2: Well setup for JRPERDAEMS001 showing plumbing to the house.



Photo #3: Well setup for JRPERDAEMS001 showing faucet plumbed to well.

Client: GOLDER ASSOCIATES, INC.
Project Name: SOUTH HEART WELL CERT.
Project No.: 0632174
Laboratory No.: 2008090120-1
Sample Name: JRPERDAEMS001
Sample Date/Time: 09/11/2008 09:34:00
Collected by: JILL PARISI
Sample Type: WATER

SOUTH HEART WELL CERTIFICATION

PARAMETER	MEASURED VALUE	UNITS	ANALYST	REPORTING LIMIT	METHOD NUMBER	DATE/TIME ANALYZED
Turbidity	5.8	NTU	MRK	0.2	180.1	09/13/2008 11:40:00 AM
Tannins & Lignins	0.41	mg/l	ES	0.05	5550A	09/18/2008 03:30:00 PM
pH	7.2	S.U.	RM	0.1-13.5	4500-H+-B	09/13/2008 10:30:00 AM
Alkalinity Bicarbonate as HCO3	645	mg/l	ES	1	2320B	09/19/2008 12:00:00 PM
Alkalinity Carbonate as CO3	0	mg/l	ES	0	2320B	09/19/2008 12:00:00 PM
Alkalinity Total as CaCO3	528	mg/l	ES	1	2320B	09/19/2008 12:00:00 PM
Chloride as Cl	6	mg/l	MRK	1	300.0	09/25/2008 09:29:00 PM
Sulfate as SO4	488	mg/l	MRK	50	300.0	09/25/2008 10:00:00 PM
Hardness as CaCO3	590	mg/l	BH	7	2340B	09/18/2008 12:42:00 PM
Electrical Conductivity	1680	umhos/cm	MRK	10	2510B	09/25/2008 10:21:00 AM
Total Dissolved Solids	1250	mg/l	RM	20	2540C	09/16/2008 08:15:00 AM
Total Suspended Solids	3	mg/l	RM	1	2540D	09/16/2008 03:49:00 PM
Calcium as Ca (Total)	162	mg/l	BH	0.1	200.7	09/18/2008 12:42:00 PM
Iron as Fe (Total)	1.19	mg/l	BH	0.05	200.7	09/18/2008 12:42:00 PM
Magnesium as Mg (Total)	47	mg/l	BH	0.1	200.7	09/18/2008 12:42:00 PM
Sodium as Na (Total)	239	mg/l	BH	1	200.7	09/18/2008 12:42:00 PM
Nitrate as N	0.01	mg/l	CC	0.01	353.2	09/19/2008 06:02:00 PM
Nitrite as N	<0.01	mg/l	RM	0.01	4500-NO2-B	09/13/2008 11:55:00 AM
Nitrate + Nitrite as N	0.01	mg/l	CC	0.01	353.2	09/19/2008 06:02:00 PM
Sodium Adsorption Ratio	4.25	-----	BH	0.2	20b	09/18/2008 12:42:00 PM
Cations	22.35	meq/l	---	0.30	1030F	
Anions	20.89	meq/l	---	0.20	1030F	
Cation/Anion Balance	3.38	% [max 5%]	---	-----	AWWA/APHA	
Metals Batch#/Digestion Date	1765	-----	BH	-----	200.2	09/17/2008 01:00:00 PM

WATER SYSTEM BACTERIOLOGICAL WATER ANALYSIS

SOUTHWESTERN DISTRICT HEALTH UNIT
2869 3rd Avenue West, Dickinson, ND 58601 • 701-483-0171 or 1-800-697-3145

LEFT SIDE OF FORM MUST BE COMPLETED BY COLLECTOR

Name of Collector	Telephone Number
Jill Parisi	3039800540
Date Collected	**Time Collected**
9-11-08	9:34

Collection Point/Remarks: JR Perdaems 001

Sample Source (Check One):
- ☑ Domestic Well
- ☐ Surface Water
- ☐ Stock Well
- ☐ Public Water System
- ☐ Other
- ☐ Swimming Pool
- ☐ Spa

Reason for Sample (Check One):
- ☐ Routine
- ☐ Retest
- ☐ Mortgage Requirement
- ☐ USDA Required
- ☐ Required by other state or federal regulations
- ☐ Water treatment check (raw or treated)
- ☐ ND Dairy Dept.
- ☑ Special purpose (explain)

SWIMMING POOL/SPA INFORMATION

POOL/SPA NAME		
Free Chlorine	Total Chlorine	pH

WATER SUPPLY INFORMATION FOR PRIVATE SYSTEMS

County: Stark County

Township Number	Range Number	Section Number
139	98	

Well Depth 65 ft. Well Diameter 5 in.

Owner: Jerry Perdaems

Address:

City	State	Zip Code

Send Results To (if other than owner): Jill Parisi

Address: 44 Union Blvd Suite 300

City	State	Zip Code
Lakewood	CO	80228

STOP! RIGHT SIDE OF FORM IS FOR LABORATORY USE ONLY.

Paid - Amount	
12.00	☑ CHECK # 1255 ☐ CASH

PLEASE READ THE ENCLOSED INSTRUCTIONS BEFORE SAMPLING

Do NOT Submit Samples on FRIDAYS

(***NOTE*** - Pool/Spa, Retest, and Fermentation Tube samples must be **received** by Wednesday of the week)

Lab Number	
1925	
Date of Receipt	**Time of Receipt**
9-11-08	10:30
Date of Analysis	**Time of Analysis**
9-11-08	10:35
Date Completed	**Analyst**
9-15-08	KP

Remarks:

ANALYSIS METHOD
- ☑ Fermentation Tube
- ☐ Membrane Filter
- ☐ Presence-Absence
- ☐ Other

COLIFORM ANALYSIS
- ☐ SATISFACTORY - No Coliforms Found
- ☑ UNSATISFACTORY - Coliforms Present - SEND REPEAT SAMPLES
  - ☐ No Fecal Coliforms Found
  - ☐ Fecal Coliforms Present
  - ☐ No *E coli* Found
  - ☐ *E coli* Present

Coliforms per 100 ml	Fecal Coliforms per 100 ml
2J Test	

SAMPLE VOIDED - SEND REPLACEMENT
- ☐ Turbid Without Gas Production
- ☐ Too Numerous to Count
- ☐ Confluent Growth
- ☐ Turbid Without Acid Reaction
- ☐ Sample Too Old
- ☐ Other

STANDARD PLATE COUNT PER ML
R2A PLATE COUNT PER ML
- ☐ Satisfactory
- ☐ Unsatisfactory

NITRATE SCREEN <2 mg/l
- ☑ Satisfactory
- ☐ Unsatisfactory
- ☐ Result to Follow

(< is less than > is more than)

SWDHU 05/2004 White - lab (top copy) will be returned with the results Canary - retained by lab

JRPERDAEMS002

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JRPERDAEMS002
State Well ID: US71-308
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: Jerry and Sandra Perdaems

Owner/Operator Address and Contact Information: PO Box 45 South Heart, ND 58655 701-677-5536

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N* Range 98W*

Section 22* Quarter Section SE* Quarter Section SE Quarter Section NE

Coordinates of well/spring location and projection (from GPS):

Northing 436464* Easting 1369122* Projection State Plane*

Relative location to landmarks and/or buildings: Owner cannot locate this well. The owners believe the well does not currently exist.

Ground elevation 2505.1 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Not known*

Owner/Operator comments: The owners believe the well does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 48* feet

Screened Interval: Not known* to Not known* feet

Diameter/Finish (metal casing, PVC, etc.): Not known

Date drilled/developed: Not known

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JRPERDAEMS002
State Well ID: US71-308
Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Not known

Comments: Owner can't locate this well and believes that it does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Not Available

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Not Available

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner.

Information could not be obtained directly because the owners believe the well does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JRPERDAEMS002

State Well ID: US71-308

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Tested

MP height above ground level: Not Tested feet

Static water level in feet below MP: Not able to measure feet

Test Date: Not Tested Time: to

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place temporary (circle one) Description Not Tested

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Not tested, the owners believe the well does not currently exist

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JRPERDAEMS002

State Well ID: US71-308

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JRPERDAEMS002
State Well ID: US71-308
Stark County, North Dakota

WATER QUALITY DATA

Sample Date: Not Sampled Time: Not Sampled (usually at end of pump testing)

Sample point: Not Sampled

Total Volume Purged: Not Sampled gallons

pH (field measurement): Not Sampled Conductivity (field measurement): Not Sampled µ S/cm

Temperature (field measurement): Not Sampled °C

Appearance (clarity, odor, sediment, etc.): Not Sampled

Comments: Well not sampled because the owners believe the well does not currently exist

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Not Sampled

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JRPERDAEMS002

State Well ID: US71-308

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (2 of 3 wells) is accurate to the best of my knowledge and represents the true condition of this well on 9-11-08

Jeremy F. Perdaems
PRINT NAME

SIGNED 9-11-08 DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 9-11-08 .This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi
PRINT NAME Jill Parisi

SIGNED 9-11-08 DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JRPERDAEMS002

State Well ID: US71-308

Stark County, North Dakota

Additional Notes (if necessary):

This well appears in the North Dakota State Water Commission database but does not exist according to the owner. Information from the North Dakota State Water Commission database was provided where applicable.

JRPERDAEMS003

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JRPERDAEMS003
State Well ID: US71-307
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: Jerry and Sandra Perdaems

Owner/Operator Address and Contact Information: PO Box 45 South Heart, ND 58655 701-677-5536

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N* Range 98W*

Section 22* Quarter Section SE* Quarter Section SE Quarter Section NE

Coordinates of well/spring location and projection (from GPS):

Northing 436464* Easting 1369122* Projection State Plane*

Relative location to landmarks and/or buildings: Owner cannot locate this well. The owners believe the well does not currently exist.

Ground elevation 2505.1 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Not known*

Owner/Operator comments: The owners believe the well does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 70* feet

Screened Interval: Not known* to Not known* feet

Diameter/Finish (metal casing, PVC, etc.): Not known

Date drilled/developed: Not known

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JRPERDAEMS003
State Well ID: US71-307
Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Not known

Comments: Owner can't locate this well and believes that it does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Not Available

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Not Available

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner.

Information could not be obtained directly because the owners believe the well does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JRPERDAEMS003

State Well ID: US71-307

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Tested

MP height above ground level: Not Tested feet

Static water level in feet below MP: Not able to measure feet

Test Date: Not Tested Time: to

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place temporary (circle one) Description Not Tested

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Not tested, the owners believe the well does not currently exist

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JRPERDAEMS003

State Well ID: US71-307

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JRPERDAEMS003
State Well ID: US71-307
Stark County, North Dakota

WATER QUALITY DATA

Sample Date: Not Sampled Time: Not Sampled (usually at end of pump testing)

Sample point: Not Sampled

Total Volume Purged: Not Sampled gallons

pH (field measurement): Not Sampled Conductivity (field measurement): Not Sampled µ S/cm

Temperature (field measurement): Not Sampled °C

Appearance (clarity, odor, sediment, etc.): Not Sampled

Comments: Well not sampled because the owners believe the well does not currently exist

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Not Sampled

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JRPERDAEMS003

State Well ID: US71-307

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (3 of 3 wells) is accurate to the best of my knowledge and represents the true condition of this well on 9-11-08

Jerry F. Pendaems
PRINT NAME

Jerry F. Pendaems 9-11-08
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 9-11-08 .This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi
PRINT NAME Jill Parisi

Jill Parisi 9-11-08
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JRPERDAEMS003

State Well ID: US71-307

Stark County, North Dakota

Additional Notes (if necessary):

This well appears in the North Dakota State Water Commission database but does not exist according to the owner. Information from the North Dakota State Water Commission database was provided where applicable.

JWAGNER001

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JWAGNER001___
State Well ID: _____
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: Jerry Wagner

Owner/Operator Address and Contact Information: PO Box 314 South Heart, ND 58655 (701) 677-4180

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 3 Quarter Section SW Quarter Section SE Quarter Section NE

Coordinates of well/spring location and projection (from GPS):

Northing 452035.9 Easting 1366709.5 Projection State Plane

Relative location to landmarks and/or buildings: 16 feet from northeast corner of well owners home.

Ground elevation 2558 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Domestic and Stock

Owner/Operator comments: Well owner stated that well waters 400 head of cows and 200 head of feeder calves. Well owner stated that well has a restrictor attached that allows the well to pump a determined flow (GPM) otherwise the pump will burn-out if it runs unchecked.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):1

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JWAGNER001___

State Well ID: _____

Stark County, North Dakota

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 470 feet

Screened Interval: Not Available to Not Available feet

Diameter/Finish (metal casing, PVC, etc.): 4-inch diameter metal casing.

Date drilled/developed: 1984

Driller/Contractor's Name: Not Available

Driller/Contractor's address and contact information: Not Available

Is Driller/Contractor's log available: Yes ☐ No ☒

Probable stratigraphic unit of well completion: Not Available

Condition of Well and Sanitary Protection: Good condition. Area around well is tidy.

Comments: 4-inch diameter metal casing rising above ground level 4-inches with a sealed well head.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):2

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JWAGNER001___
State Well ID: _____
Stark County, North Dakota

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Submersible.

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Electric

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Well owner stated that the pump has a restriction valve in place so that the pump doesn't burn out.

Photograph(s) Taken: Yes ☐ No ☒ Photo ID(s):_____

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JWAGNER001___

State Well ID: _____

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Available

MP height above ground level: Not Available feet

Static water level in feet below MP: Not able to measure feet

Test Date: 10/21/09 Time: 10:55 am to 11:25 am

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place ☒ temporary ☐ Description In-place pump.

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Pumped well continuously for 30 minutes, measuring flow rate in 5 gallon pails with a stopwatch. Unable to take water level readings without removing sealed well head cap and possibly damaging the well and well accessories. Ran discharged water through 50-foot garden hose for pump test. Ran well pump for 5 minutes before starting pump test.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):3

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JWAGNER001
State Well ID: _____
Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	10/21/2009	0:30	NA	5	10.000	Pump on at 10:55 am
On	10/21/2009	1:01	NA	10	9.677	
On	10/21/2009	1:32	NA	15	9.677	
On	10/21/2009	2:05	NA	20	9.091	
On	10/21/2009	2:37	NA	25	9.375	
On	10/21/2009	3:13	NA	30	8.333	
On	10/21/2009	3:48	NA	35	8.571	
On	10/21/2009	4:24	NA	40	8.333	
On	10/21/2009	5:01	NA	45	8.108	
On	10/21/2009	5:39	NA	50	7.895	
On	10/21/2009	6:16	NA	55	8.108	
On	10/21/2009	6:56	NA	60	7.500	
On	10/21/2009	7:35	NA	65	7.692	
On	10/21/2009	8:16	NA	70	7.317	
On	10/21/2009	8:56	NA	75	7.500	
On	10/21/2009	9:36	NA	80	7.500	
On	10/21/2009	10:18	NA	85	7.143	
On	10/21/2009	11:01	NA	90	6.977	
On	10/21/2009	11:45	NA	95	6.818	
On	10/21/2009	12:31	NA	100	6.522	
On	10/21/2009	13:11	NA	105	7.500	
On	10/21/2009	13:50	NA	110	7.692	
On	10/21/2009	14:27	NA	115	8.108	
On	10/21/2009	15:02	NA	120	8.571	
On	10/21/2009	15:36	NA	125	8.824	
On	10/21/2009	16:09	NA	130	9.091	
On	10/21/2009	16:41	NA	135	9.375	
On	10/21/2009	17:13	NA	140	9.375	
On	10/21/2009	17:46	NA	145	9.091	
On	10/21/2009	18:18	NA	150	9.375	
On	10/21/2009	18:50	NA	155	9.375	
On	10/21/2009	19:21	NA	160	9.677	
On	10/21/2009	19:50	NA	165	10.345	
On	10/21/2009	20:20	NA	170	10.000	
On	10/21/2009	20:49	NA	175	10.345	
On	10/21/2009	21:20	NA	180	9.677	
On	10/21/2009	21:50	NA	185	10.000	
On	10/21/2009	22:20	NA	190	10.000	
On	10/21/2009	22:50	NA	195	10.000	
On	10/21/2009	23:21	NA	200	9.677	
On	10/21/2009	23:46	NA	205	12.000	
On	10/21/2009	24:15	NA	210	10.345	
On	10/21/2009	24:43	NA	215	10.714	
On	10/21/2009	25:11	NA	220	10.714	
On	10/21/2009	25:38	NA	225	11.111	
On	10/21/2009	26:07	NA	230	10.345	
On	10/21/2009	26:34	NA	235	11.111	
On	10/21/2009	27:02	NA	240	10.714	
On	10/21/2009	27:30	NA	245	10.714	
On	10/21/2009	27:58	NA	250	10.714	
On	10/21/2009	28:25	NA	255	11.111	
On	10/21/2009	28:53	NA	260	10.714	
On	10/21/2009	29:20	NA	265	11.111	
On	10/21/2009	29:49	NA	270	10.345	
Off	10/21/2009	30:17	NA	275	10.714	Pump off at 11:25 am

Note:
1) NA means that well was Not Accessible (NA) to take water level measurements

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JWAGNER001___

State Well ID: _____

Stark County, North Dakota

WATER QUALITY DATA

Sample Date: 10/21/09 Time:11:30 am (usually at end of pump testing)

Sample point: At end of faucet on north side of well owners home.

Total Volume Purged: 275 gallons

pH (field measurement): 8.25 Conductivity (field measurement): 1900 µ S/cm

Temperature (field measurement): 13.66 ^{o}C

Appearance (clarity, odor, sediment, etc.): Light yellow tint with no apparent sediment or odor.

Comments: Before sampling, the garden hose was removed and the faucet end was cleaned with a Clorox wipe. Ran 1 gallon of water through faucet before sampling.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):4

Laboratory analysis: Pace Analytical and Southwestern District Health Unit.

In general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

GOLDER Received JAN 11 2010 DENVER

Well/Spring ID: JWagner #01

State Well ID: _____

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (1 of 2 wells) is accurate to the best of my knowledge and represents the true condition of this well on

JERRY WAGNER
PRINT NAME

Jerry Wagner 10/21/09
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 10/21/09. This WATER WELL CERTIFICATION is signed and certified as true and accurate

JAY BERG
PRINT NAME

10/21/09
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JWAGNER001___

State Well ID: _____

Stark County, North Dakota

Additional Notes (if necessary):

_____

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JWAGNER001

State Well ID: _____

Stark County, North Dakota

PHOTO LOG

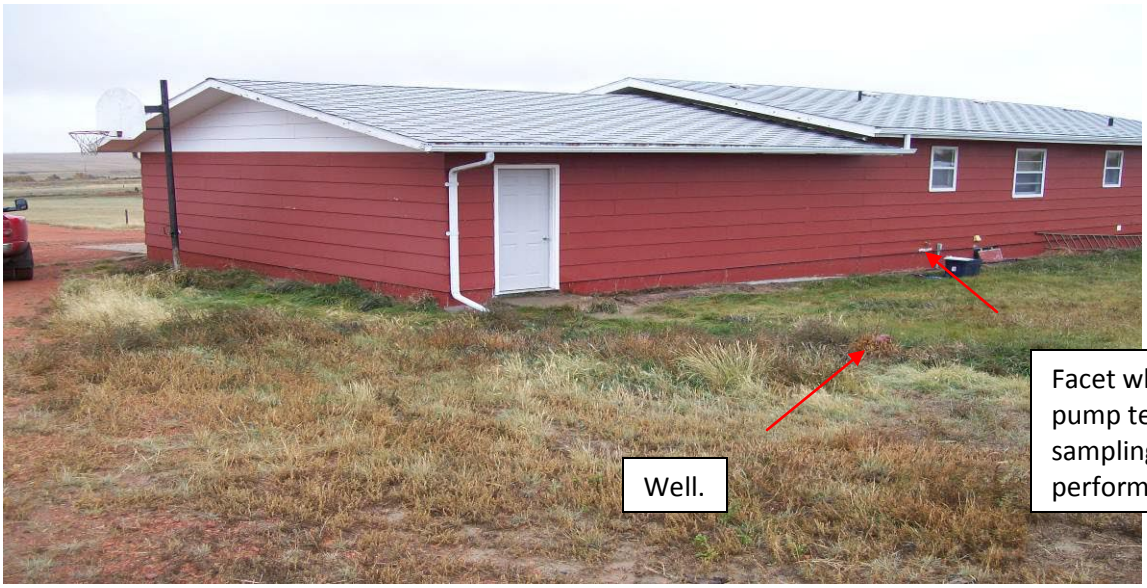

Photo #1: Well location.

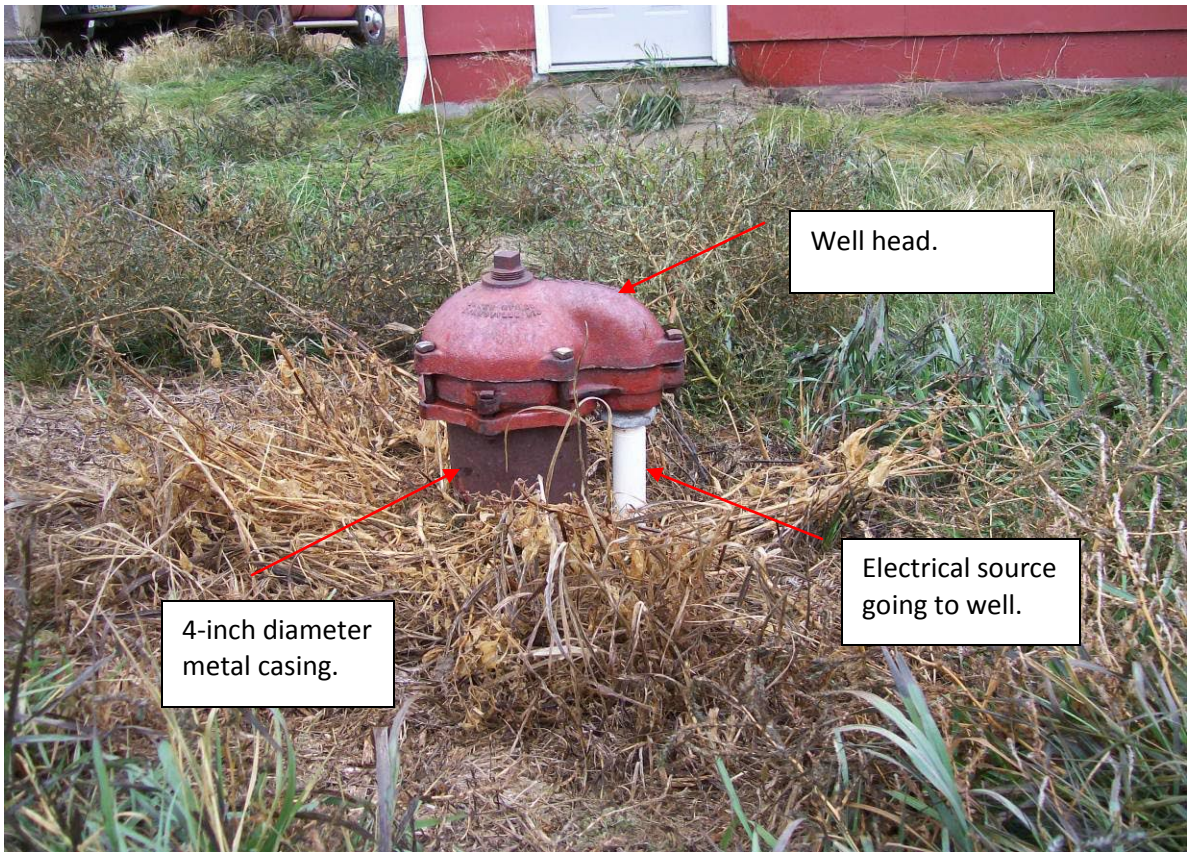

Photo #2: Well construction.



Photo #3: Faucet where pump test and sampling were performed.



Photo #4: Pump test.

Pace Analytical Services, Inc.
602 S 25th Street
Billings, MT 591014549
(406)254-7226

ANALYTICAL RESULTS

Project: SH Well Cert 063-2174
Pace Project No.: 10115236

Sample: JWAGNER 001 **Lab ID: 10115236001** Collected: 10/21/09 11:30 Received: 10/22/09 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium	**1.6**	mg/L	0.50	0.25	1	10/26/09 19:23	10/27/09 11:19	7440-70-2	
Magnesium	**0.95**	mg/L	0.50	0.25	1	10/26/09 19:23	10/27/09 11:19	7439-95-4	
Potassium	**1.9J**	mg/L	2.5	0.085	1	10/26/09 19:23	10/27/09 11:19	7440-09-7	
Sodium	**403**	mg/L	1.0	0.50	1	10/26/09 19:23	10/27/09 11:19	7440-23-5	
Total Hardness by 2340B	**7.8**	mg/L	3.3	1.6	1	10/26/09 19:23	10/27/09 11:19		
Sodium Adsorption Ratio, SAR	Analytical Method: Calculated								
Sodium Adsorption Ratio	**62.7**		0.24		1		10/30/09 11:42		
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Iron	**52.2**	mg/L	0.050	0.025	5	10/26/09 10:01	10/29/09 10:27	7439-89-6	
2130B Turbidity	Analytical Method: SM 2130B								
Turbidity	**0.89**	NTU	0.20	0.050	1		10/22/09 16:00		
2510B Specific Conductance	Analytical Method: SM 2510B								
Specific Conductance	**1650**	umhos/cm	10.0	5.0	1		10/22/09 17:45		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**0.90J**	mg/L	1.0	0.50	1		10/22/09 14:50		
300.0 IC Anions	Analytical Method: EPA 300.0								
Chloride	**7.2**	mg/L	5.0	0.14	5		10/23/09 19:28	16887-00-6	
Sulfate	**63.5**	mg/L	25.0	0.80	5		10/23/09 19:28	14808-79-8	
353.2 Nitrate + Nitrite pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	ND	mg/L	0.010	0.0050	1		10/26/09 12:38		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**8.6**	Std. Units	0.10	0.050	1		10/22/09 17:10		H6
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**743**	mg/L	10.0	0.52	2		10/27/09 08:54		
Alkalinity, Carbonate (CaCO3)	**42.6**	mg/L	10.0	0.52	2		10/27/09 08:54		
Alkalinity, Total as CaCO3	**785**	mg/L	10.0	0.52	2		10/27/09 08:54		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**988**	mg/L	20.0	5.0	1		10/26/09 14:17		
Cation/Anion Balance	Analytical Method: SM 1030F								
Cation/Anion Balance	**1.5**	%			1		11/02/09 17:02		1M

Date: 11/03/2009 05:20 PM

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
602 S 25th Street
Billings, MT 591014549
(406)254-7226

QUALIFIERS

Project: SH Well Cert 063-2174
Pace Project No.: 10115236

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

U - Indicates the compound was analyzed for, but not detected.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis
PASI-MT	Pace Analytical Services - Montana

ANALYTE QUALIFIERS

1M	The cation/anion balance was determined using the individual compounds listed in this report.
H6	Analysis initiated more than 15 minutes after sample collection.
P6	Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, Inc..

Data Qualifiers

Inorganic Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
E	The result is an estimated amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
Z	Too many colonies were present (TNTC). The numeric value represents the filtration volume.
i	The MRL/MDL has been elevated due to matrix interference.
X	See case narrative.

Metals Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The reported value is estimated because of the presence of matrix interference.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The result was determined by Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL has been elevated due to matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.

Organic Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
A	The tentatively identified compound is a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria were exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides)
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
i	The MRL/MDL has been elevated due to a chromatographic interference.
X	See case narrative.

Petroleum Hydrocarbon Specific

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Pace Analytical Services
Project Name : SH Well Cert 063-2174
Project Number : 10115236
Sample Matrix : WATER

Service Request : J0905251
Date Collected : 10/21/09
Date Received : 10/23/09

Tannin and Lignin

Analysis Method : SM 5550B
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date/Time Analyzed	Result	Result Notes
JWAGNER 001	J0905251-001	0.5	0.048	1	11/02/09 11:34	1.6	
Method Blank	J0905251-MB	0.5	0.048	1	11/02/09 11:34	U	

WATER SYSTEM BACTERIOLOGICAL WATER ANALYSIS

SOUTHWESTERN DISTRICT HEALTH UNIT
2869 3rd Avenue West, Dickinson, ND 58601 • 701-483-0171 or 1-800-697-3145

LEFT SIDE OF FORM MUST BE COMPLETED BY COLLECTOR

Name of Collector	Telephone Number
JAY BERG	701-260-6118
Date Collected	**Time Collected**
10/21/09	11:30

Collection Point/Remarks: JWAGNER ØØ1

Sample Source (Check One):
- ☐ Domestic Well
- ☐ Swimming Pool
- ☐ Surface Water
- ☐ Spa
- ☒ Stock Well
- ☐ Public Water System _____
- ☐ Other _____

Reason for Sample (Check One):
- ☐ Routine
- ☐ Retest
- ☐ Mortgage Requirement
- ☐ USDA Required
- ☐ Required by other state or federal regulations
- ☐ Water treatment check (raw or treated)
- ☐ ND Dairy Dept.
- ☒ Special purpose (explain) well certification

SWIMMING POOL/SPA INFORMATION

POOL/SPA NAME		
Free Chlorine	Total Chlorine	pH

WATER SUPPLY INFORMATION FOR PRIVATE SYSTEMS

County: STARK

Township Number	Range Number	Section Number

Well Depth _____ ft. Well Diameter _____ in.

Owner: Jerry Wagner

Address:

City	State	Zip Code

Send Results To (if other than owner): Ed Pothoff, Golder Assoc.

Address: 44 Union Blvd Suite 300

City	State	Zip Code
Lakewood	CO	80228

STOP! RIGHT SIDE OF FORM IS FOR LABORATORY USE ONLY.

Paid - Amount: ☐ CHECK # _____ ☐ CASH

PLEASE READ THE ENCLOSED INSTRUCTIONS BEFORE SAMPLING

Do NOT Submit Samples on FRIDAYS

(*NOTE - Pool/Spa, Retest, and Fermentation Tube samples must be **received** by Wednesday of the week)

Lab Number	
1422	
Date of Receipt	**Time of Receipt**
10-21-09	1555
Date of Analysis	**Time of Analysis**
10-21-09	1555
Date Completed	**Analyst**
10-22-09	KD

Remarks:

ANALYSIS METHOD
- ☒ Fermentation Tube
- ☐ Membrane Filter
- ☐ Presence-Absence
- ☐ Other _____

COLIFORM ANALYSIS
- ☒ SATISFACTORY - No Coliforms Found
- ☐ UNSATISFACTORY - Coliforms Present - SEND REPEAT SAMPLES
  - ☐ No Fecal Coliforms Found
  - ☐ Fecal Coliforms Present
  - ☐ No *E coli* Found
  - ☐ *E coli* Present

Coliforms per 100 ml	Fecal Coliforms per 100 ml
0	

SAMPLE VOIDED - SEND REPLACEMENT
- ☐ Turbid Without Gas Production
- ☐ Too Numerous to Count
- ☐ Confluent Growth
- ☐ Turbid Without Acid Reaction
- ☐ Sample Too Old
- ☐ Other _____

STANDARD PLATE COUNT PER ML _____
R2A PLATE COUNT PER ML _____
- ☐ Satisfactory
- ☐ Unsatisfactory

NITRATE SCREEN < 2 mg/l
- ☒ Satisfactory
- ☐ Unsatisfactory
- ☐ Result to Follow

(< is less than > is more than)

SWDHU 05/2004

White - lab (top copy) will be returned with the results

Canary - retained by lab

JWAGNER002

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JWAGNER002___
State Well ID: _____
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: Jerry Wagner

Owner/Operator Address and Contact Information: PO Box 314 South Heart, ND 58655 (701) 677-4180

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 3 Quarter Section SW Quarter Section SE Quarter Section NW

Coordinates of well/spring location and projection (from GPS):

Northing 452194.1 Easting 1366357.1 Projection State Plane

Relative location to landmarks and/or buildings: About 300 feet northeast of red shop on north end of feedlot pen.

Ground elevation 2557 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Stock

Owner/Operator comments: Well owner stated that the well waters 900 head of feeder calves. Well owner stated that the well has a restrictor valve that only allows it to pump a determined flow (GPM). Well owner stated that in the spring and fall months the well may run for 20 or more hours a day.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):1

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JWAGNER002___

State Well ID: _____

Stark County, North Dakota

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 485 feet

Screened Interval: Not Available to Not Available feet

Diameter/Finish (metal casing, PVC, etc.): 4-inch diameter metal casing.

Date drilled/developed: 1991

Driller/Contractor's Name: Not Available

Driller/Contractor's address and contact information: Not Available

Is Driller/Contractor's log available: Yes ☐ No ☒

Probable stratigraphic unit of well completion: Not Available

Condition of Well and Sanitary Protection: Good condition. Area around well is tidy and fenced off from livestock.

Comments: 4-inch diameter metal casing rising above ground level 5-inches with a sealed well head and pressure gauge.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):2

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JWAGNER002___

State Well ID: _____

Stark County, North Dakota

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Submersible.

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Electric

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Well owner stated that the pump has a restriction valve in place so that the pump doesn't burn out.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):3

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JWAGNER002___

State Well ID: _____

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Available

MP height above ground level: Not Available feet

Static water level in feet below MP: Not able to measure feet

Test Date: 10/21/09 Time: 1:13 pm to 1:43 pm

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place ☒ temporary ☐ Description In-Place pump.

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Pumped continuously for 30 minutes, measuring flow rate in 5 gallon pails with a stopwatch. Unable to take water level readings without removing sealed well head and possibly damaging the well and well accessories. Ran discharged water through 50-foot garden hose for pump test. Ran well pump for 3 minutes before starting pump test.

Photograph(s) Taken: Yes ☐ No ☒ Photo ID(s):3

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JWAGNER002
State Well ID: _____
Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	10/21/2009	0:30	NA	5	10.000	Pump on at 1:13 pm
On	10/21/2009	1:02	NA	10	9.375	
On	10/21/2009	1:35	NA	15	9.091	
On	10/21/2009	2:08	NA	20	9.091	
On	10/21/2009	2:42	NA	25	8.824	
On	10/21/2009	3:16	NA	30	8.824	
On	10/21/2009	3:52	NA	35	8.333	
On	10/21/2009	4:28	NA	40	8.333	
On	10/21/2009	5:06	NA	45	7.895	
On	10/21/2009	5:42	NA	50	8.333	
On	10/21/2009	6:22	NA	55	7.500	
On	10/21/2009	7:02	NA	60	7.500	
On	10/21/2009	7:36	NA	65	8.824	
On	10/21/2009	8:10	NA	70	8.824	
On	10/21/2009	8:43	NA	75	9.091	
On	10/21/2009	9:14	NA	80	9.677	
On	10/21/2009	9:44	NA	85	10.000	
On	10/21/2009	10:14	NA	90	10.000	
On	10/21/2009	10:46	NA	95	9.375	
On	10/21/2009	11:15	NA	100	10.345	
On	10/21/2009	11:44	NA	105	10.345	
On	10/21/2009	12:11	NA	110	11.111	
On	10/21/2009	12:38	NA	115	11.111	
On	10/21/2009	13:06	NA	120	10.714	
On	10/21/2009	13:33	NA	125	11.111	
On	10/21/2009	14:00	NA	130	11.111	
On	10/21/2009	14:28	NA	135	10.714	
On	10/21/2009	14:55	NA	140	11.111	
On	10/21/2009	15:21	NA	145	11.538	
On	10/21/2009	15:47	NA	150	11.538	
On	10/21/2009	16:13	NA	155	11.538	
On	10/21/2009	16:40	NA	160	11.111	
On	10/21/2009	17:06	NA	165	11.538	
On	10/21/2009	17:33	NA	170	11.111	
On	10/21/2009	17:59	NA	175	11.538	
On	10/21/2009	18:25	NA	180	11.538	
On	10/21/2009	18:51	NA	185	11.538	
On	10/21/2009	19:17	NA	190	11.538	
On	10/21/2009	19:43	NA	195	11.538	
On	10/21/2009	20:09	NA	200	11.538	
On	10/21/2009	20:35	NA	205	11.538	
On	10/21/2009	21:02	NA	210	11.111	
On	10/21/2009	21:28	NA	215	11.538	
On	10/21/2009	21:53	NA	220	12.000	
On	10/21/2009	22:19	NA	225	11.538	
On	10/21/2009	22:44	NA	230	12.000	
On	10/21/2009	23:11	NA	235	11.111	
On	10/21/2009	23:36	NA	240	12.000	
On	10/21/2009	24:02	NA	245	11.538	
On	10/21/2009	24:28	NA	250	11.538	
On	10/21/2009	24:54	NA	255	11.538	
On	10/21/2009	25:20	NA	260	11.538	
On	10/21/2009	25:46	NA	265	11.538	
On	10/21/2009	26:11	NA	270	12.000	
On	10/21/2009	26:40	NA	275	10.345	
On	10/21/2009	27:06	NA	280	11.538	
On	10/21/2009	27:32	NA	285	11.538	
On	10/21/2009	28:00	NA	290	10.714	
On	10/21/2009	28:26	NA	295	11.538	
On	10/21/2009	28:52	NA	300	11.538	
On	10/21/2009	29:17	NA	305	12.000	
On	10/21/2009	29:43	NA	310	11.538	
Off	10/21/2009	30:09	NA	315	11.538	Pump Off at 1:43 pm

Note:
1) NA means that well was Not Accessible (NA) to take water level measurements

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JWAGNER002___

State Well ID: _____

Stark County, North Dakota

WATER QUALITY DATA

Sample Date: 10/21/09 Time:1:49 pm (usually at end of pump testing)

Sample point: At end of hydrant 95 feet east of well.

Total Volume Purged: 315 gallons

pH (field measurement): 8.35 Conductivity (field measurement): 1850 µ S/cm

Temperature (field measurement): 11:85 ^{o}C

Appearance (clarity, odor, sediment, etc.): Yellow tint with no apparent odor and a small amount of black sediment.

Comments: Before sampling, the garden hose from the pump test was removed and the end of the hydrant spigot was cleaned with a Clorox wipe. Ran 1 gallon of water through spigot before sampling.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):4

Laboratory analysis: Pace Analytical and Southwestern District Health Unit.

In general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

GOLDER Received JAN 11 2010 DENVER

Well/Spring ID: JWagner002

State Well ID: _____

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (2 of 2 wells) is accurate to the best of my knowledge and represents the true condition of this well on

JERRY WAGNER
PRINT NAME

Jerry Wagner 10/21/09
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 10/21/09. This WATER WELL CERTIFICATION is signed and certified as true and accurate

JHY BERG
PRINT NAME

JHY B 10/21/09
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JWAGNER002___

State Well ID: _____

Stark County, North Dakota

Additional Notes (if necessary):

_____

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: JWAGNER002

State Well ID: _____

Stark County, North Dakota

PHOTO LOG



Photo #1: Well location.

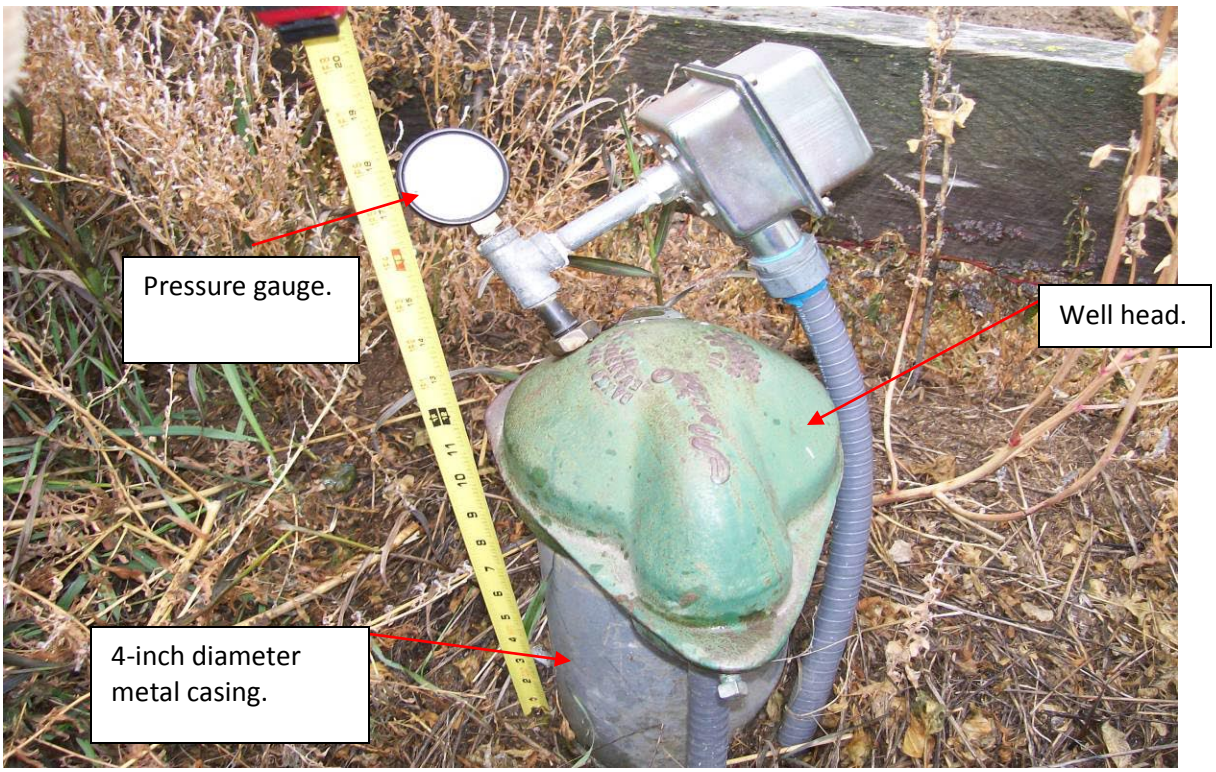

Photo #2: Well construction.



Photo #3: Electrical source for pump.



Photo #4: Hydrant where pump test and sampling were performed.

Pace Analytical Services, Inc.
602 S 25th Street
Billings, MT 591014549
(406)254-7226

ANALYTICAL RESULTS

Project: SH Well Cert 063-2174
Pace Project No.: 10115243

Sample: JWAGNER 002 **Lab ID: 10115243001** Collected: 10/21/09 13:49 Received: 10/22/09 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium	**1.7**	mg/L	0.50	0.25	1	10/26/09 19:23	10/27/09 11:26	7440-70-2	
Magnesium	**0.99**	mg/L	0.50	0.25	1	10/26/09 19:23	10/27/09 11:26	7439-95-4	
Potassium	**1.9J**	mg/L	2.5	0.085	1	10/26/09 19:23	10/27/09 11:26	7440-09-7	
Sodium	**422**	mg/L	1.0	0.50	1	10/26/09 19:23	10/27/09 11:26	7440-23-5	
Total Hardness by 2340B	**8.3**	mg/L	3.3	1.6	1	10/26/09 19:23	10/27/09 11:26		
Sodium Adsorption Ratio, SAR	Analytical Method: Calculated								
Sodium Adsorption Ratio	**63.8**		0.24		1		10/30/09 11:43		
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Iron	**0.087**	mg/L	0.010	0.0050	1	10/26/09 10:01	10/28/09 17:33	7439-89-6	
2130B Turbidity	Analytical Method: SM 2130B								
Turbidity	**1.4**	NTU	0.20	0.050	1		10/22/09 16:00		
2510B Specific Conductance	Analytical Method: SM 2510B								
Specific Conductance	**1630**	umhos/cm	10.0	5.0	1		10/22/09 17:45		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**1.0**	mg/L	1.0	0.51	1		10/22/09 14:50		
300.0 IC Anions	Analytical Method: EPA 300.0								
Chloride	**6.5**	mg/L	5.0	0.14	5		10/23/09 20:29	16887-00-6	
Sulfate	**79.9**	mg/L	25.0	0.80	5		10/23/09 20:29	14808-79-8	
353.2 Nitrate + Nitrite pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	ND	mg/L	0.010	0.0050	1		10/26/09 12:39		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**8.7**	Std. Units	0.10	0.050	1		10/22/09 17:10		H6
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**789**	mg/L	10.0	0.52	2		10/27/09 08:54		
Alkalinity, Carbonate (CaCO3)	**35.5**	mg/L	10.0	0.52	2		10/27/09 08:54		
Alkalinity, Total as CaCO3	**824**	mg/L	10.0	0.52	2		10/27/09 08:54		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**992**	mg/L	20.0	5.0	1		10/26/09 14:18		
Cation/Anion Balance	Analytical Method: SM 1030F								
Cation/Anion Balance	**2.6**	%			1		11/02/09 17:10		1M

Date: 11/03/2009 04:52 PM

REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
602 S 25th Street
Billings, MT 591014549
(406)254-7226

QUALIFIERS

Project: SH Well Cert 063-2174
Pace Project No.: 10115243

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

U - Indicates the compound was analyzed for, but not detected.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis
PASI-MT	Pace Analytical Services - Montana

ANALYTE QUALIFIERS

1M	The cation/anion balance was determined using the individual compounds listed in this report.
H6	Analysis initiated more than 15 minutes after sample collection.
P6	Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

REPORT OF LABORATORY ANALYSIS

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Data Qualifiers

Inorganic Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
E	The result is an estimated amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
Z	Too many colonies were present (TNTC). The numeric value represents the filtration volume.
i	The MRL/MDL has been elevated due to matrix interference.
X	See case narrative.

Metals Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The reported value is estimated because of the presence of matrix interference.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The result was determined by Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL has been elevated due to matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.

Organic Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
A	The tentatively identified compound is a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria were exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides)
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
i	The MRL/MDL has been elevated due to a chromatographic interference.
X	See case narrative.

Petroleum Hydrocarbon Specific

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Pace Analytical Services
Project Name : SH Well Cert 063-2174
Project Number : 10115243
Sample Matrix : WATER

Service Request : J0905252
Date Collected : 10/21/09
Date Received : 10/23/09

Tannin and Lignin

Analysis Method : SM 5550B
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date/Time Analyzed	Result	Result Notes
JWAGNER 002	J0905252-001	0.5	0.048	1	11/02/09 11:34	1.9	
Method Blank	J0905252-MB	0.5	0.048	1	11/02/09 11:34	U	

Report By: Palimi

WATER SYSTEM BACTERIOLOGICAL WATER ANALYSIS

SOUTHWESTERN DISTRICT HEALTH UNIT
2869 3rd Avenue West, Dickinson, ND 58601 • 701-483-0171 or 1-800-697-3145

GOLDER Received OCT 30 2009 DENVER

LEFT SIDE OF FORM MUST BE COMPLETED BY COLLECTOR

Name of Collector	Telephone Number
JAY BERG / Catona	701-260-6118
Date Collected	**Time Collected**
10/21/09	13:49

Collection Point/Remarks: JWAGNER 002

Sample Source (Check One):
- ☐ Domestic Well
- ☐ Swimming Pool
- ☐ Surface Water
- ☐ Spa
- ☒ Stock Well
- ☐ Public Water System _____
- ☐ Other _____

Reason for Sample (Check One):
- ☐ Routine ☐ Retest ☐ Mortgage Requirement
- ☐ USDA Required ☐ Required by other state or federal regulations
- ☐ Water treatment check (raw or treated) ☐ ND Dairy Dept.
- ☒ Special purpose (explain) Well Certification

SWIMMING POOL/SPA INFORMATION

POOL/SPA NAME		
Free Chlorine	Total Chlorine	pH

WATER SUPPLY INFORMATION FOR PRIVATE SYSTEMS

County: STARK

Township Number	Range Number	Section Number

Well Depth _____ ft. Well Diameter _____ in.

Owner: Jerry Wagner

Address:

City	State	Zip Code

Send Results To (if other than owner): Ed Potthoff, Golder Associates.

Address: 44 Union Blvd, Suite 300

City	State	Zip Code
Lakewood	CO	80228

STOP! RIGHT SIDE OF FORM IS FOR LABORATORY USE ONLY.

Paid - Amount	☐ CHECK # ☐ CASH

PLEASE READ THE ENCLOSED INSTRUCTIONS BEFORE SAMPLING

Do NOT Submit Samples on FRIDAYS

(*NOTE - Pool/Spa, Retest, and Fermentation Tube samples must be **received** by Wednesday of the week)

Lab Number	
1423	
Date of Receipt	**Time of Receipt**
10-21-09	1555
Date of Analysis	**Time of Analysis**
10-21-09	1555
Date Completed	**Analyst**
10-28-09	BD

Remarks:

ANALYSIS METHOD
- ☒ Fermentation Tube ☐ Membrane Filter
- ☐ Presence-Absence
- ☐ Other _____

COLIFORM ANALYSIS
- ☒ SATISFACTORY - No Coliforms Found
- ☐ UNSATISFACTORY - Coliforms Present - SEND REPEAT SAMPLES
  - ☐ No Fecal Coliforms Found
  - ☐ Fecal Coliforms Present
  - ☐ No *E coli* Found
  - ☐ *E coli* Present

Coliforms per 100 ml	Fecal Coliforms per 100 ml
0	

SAMPLE VOIDED - SEND REPLACEMENT
- ☐ Turbid Without Gas Production ☐ Too Numerous to Count
- ☐ Confluent Growth ☐ Turbid Without Acid Reaction
- ☐ Sample Too Old ☐ Other _____

STANDARD PLATE COUNT PER ML _____
R2A PLATE COUNT PER ML _____
- ☐ Satisfactory ☐ Unsatisfactory

NITRATE SCREEN 22 mg/l
- ☒ Satisfactory ☐ Unsatisfactory ☐ Result to Follow

(< is less than > is more than)

SWDHU 05/2004

White - lab (top copy) will be returned with the results

Canary - retained by lab

KKUDRNA001

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: KKUDRNA001___
State Well ID: _____
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: Kenneth Kudrna

Owner/Operator Address and Contact Information: 11961 41st Street SW South Heart, ND 58655

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 97W

Section 30 Quarter Section SW Quarter Section NE Quarter Section SW

Coordinates of well/spring location and projection (from GPS):

Northing 431152.6 Easting 1381691.1 Projection State Plane

Relative location to landmarks and/or buildings: In basement of well owners home.

Ground elevation 2641 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Domestic (includes lawn watering) and Stock

Owner/Operator comments: Uses the well to water the lawn and the well is also piped to feedyard to water livestock when in the feedyard area. Well owner stated that the well had been connected to and used as household water until approximately 1995 when Southwest Water pipeline was hooked up to the house.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):1-2

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: KKUDRNA001___

State Well ID: _____

Stark County, North Dakota

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 200 feet

Screened Interval: Not Available. to Not Available. feet

Diameter/Finish (metal casing, PVC, etc.): 6-inch diameter metal casing.

Date drilled/developed: 1/1/1955

Driller/Contractor's Name: Not Available.

Driller/Contractor's address and contact information: Not Available

Is Driller/Contractor's log available: Yes ☐ No ☒

Probable stratigraphic unit of well completion: Not Available

Condition of Well and Sanitary Protection: Very tidy around well area.

Comments: Well owner stated that well was cased to about 160 feet. Well casing extends 6-inches above cement floor of basement and has a sealed well head. Well has copper pipe that is necked down (for pressure control) that connects to a pressure tank and pressure switch. There is a hole in the cement ceiling above the well for removal of well pipe in the event of a well repair.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):3-6

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: KKUDRNA001___
State Well ID: _____
Stark County, North Dakota

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Submersible.

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: about 125 to 150 feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Electric

Horsepower (e.g., ½, ¾, 1, etc.): ¾ hp

Comments: _____

Photograph(s) Taken: Yes ☐ No ☒ Photo ID(s):_____

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: KKUDRNA001___

State Well ID: _____

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Available

MP height above ground level: Not Available feet

Static water level in feet below MP: Not able to measure feet

Test Date: 10/28/09 Time: 10:59 am to 11:30 am

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place ☒ temporary ☐ Description Used pump in-place.

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Pumped well continuously for 30 minutes, measuring flow rate in 5 gallon pails with a stopwatch. Unable to take water level readings without removing and possibly damaging piping system and sealed well head. Ran the well and pump for 2 minutes before starting pump test.

Photograph(s) Taken: Yes ☐ No ☒ Photo ID(s):_____

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: KKUDRNA001
State Well ID: _____
Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	10/28/2009	0:32	NA	5	9.375	Pump on at 10:59 am
On	10/28/2009	1:06	NA	10	8.824	
On	10/28/2009	1:58	NA	15	5.769	
On	10/28/2009	2:52	NA	20	5.556	
On	10/28/2009	3:44	NA	25	5.769	
On	10/28/2009	4:38	NA	30	5.556	
On	10/28/2009	5:32	NA	35	5.556	
On	10/28/2009	6:24	NA	40	5.769	
On	10/28/2009	7:19	NA	45	5.455	
On	10/28/2009	8:12	NA	50	5.660	
On	10/28/2009	9:05	NA	55	5.660	
On	10/28/2009	9:59	NA	60	5.556	
On	10/28/2009	10:54	NA	65	5.455	
On	10/28/2009	11:51	NA	70	5.263	
On	10/28/2009	12:45	NA	75	5.556	
On	10/28/2009	13:39	NA	80	5.556	
On	10/28/2009	14:34	NA	85	5.455	
On	10/28/2009	15:28	NA	90	5.556	
On	10/28/2009	16:22	NA	95	5.556	
On	10/28/2009	17:16	NA	100	5.556	
On	10/28/2009	18:11	NA	105	5.455	
On	10/28/2009	19:05	NA	110	5.556	
On	10/28/2009	19:59	NA	115	5.556	
On	10/28/2009	21:47	NA	120	2.778	
On	10/28/2009	22:42	NA	125	5.455	
On	10/28/2009	23:37	NA	130	5.455	
On	10/28/2009	24:32	NA	135	5.455	
On	10/28/2009	25:26	NA	140	5.556	
On	10/28/2009	26:20	NA	145	5.556	
On	10/28/2009	27:14	NA	150	5.556	
On	10/28/2009	28:10	NA	155	5.357	
On	10/28/2009	29:05	NA	160	5.455	
On	10/28/2009	30:00	NA	165	5.455	
Off	10/28/2009	30:55	NA	170	5.455	Pump off at 11:30 am

Note:
1) NA means that well was Not Accessible (NA) to take water level measurements

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: KKUDRNA001___

State Well ID: _____

Stark County, North Dakota

WATER QUALITY DATA

Sample Date: 10/28/09 Time:11:35 am (usually at end of pump testing)

Sample point: At the end of the faucet connected to the west side of the house (removed the hose from the pump test).

Total Volume Purged: 170 gallons

pH (field measurement): 8.34 Conductivity (field measurement): 1724 µ S/cm

Temperature (field measurement): 10.11 ^{o}C

Appearance (clarity, odor, sediment, etc.): Brown with no apparent odor or sediment.

Comments: Well owner commented that water has good taste when used as drinking water. Sampled water after unhooking hose used for pump test and cleaning end of faucet with Clorox wipe. Ran 2 gallons of water through faucet before sampling.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):7

Laboratory analysis: Pace Analytical and Southwestern District Health Unit.

In general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

GOLDER Received JAN 11 2010 DENVER

Well/Spring ID: KKudna 001

State Well ID: _____

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (1 of 2 wells) is accurate to the best of my knowledge and represents the true condition of this well on

Ken Kudrna
PRINT NAME

Ken Kudrna 10/28/09
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 10/28/09. This WATER WELL CERTIFICATION is signed and certified as true and accurate

JAY BERG
PRINT NAME

SIGNED 10/28/09
DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: KKUDRNA001___

State Well ID: _____

Stark County, North Dakota

Additional Notes :

Well owner stated that in 2005 they had a sprinkler system installed and had a pump test done on the well system. Well owner was concerned about showing where the area was that would need to be dug up above the well if the system was to be removed or repaired. Took photographs of this area. Well owner shut covers on cattle watering tank for the pump test to be performed. The well system drains down when cattle watering tank and domestic water are used at the same time which would not give a representative pump test. Well owner would like a copy of well certification information for his records. Please contact well owner with this information as soon as available.

PHOTO LOG

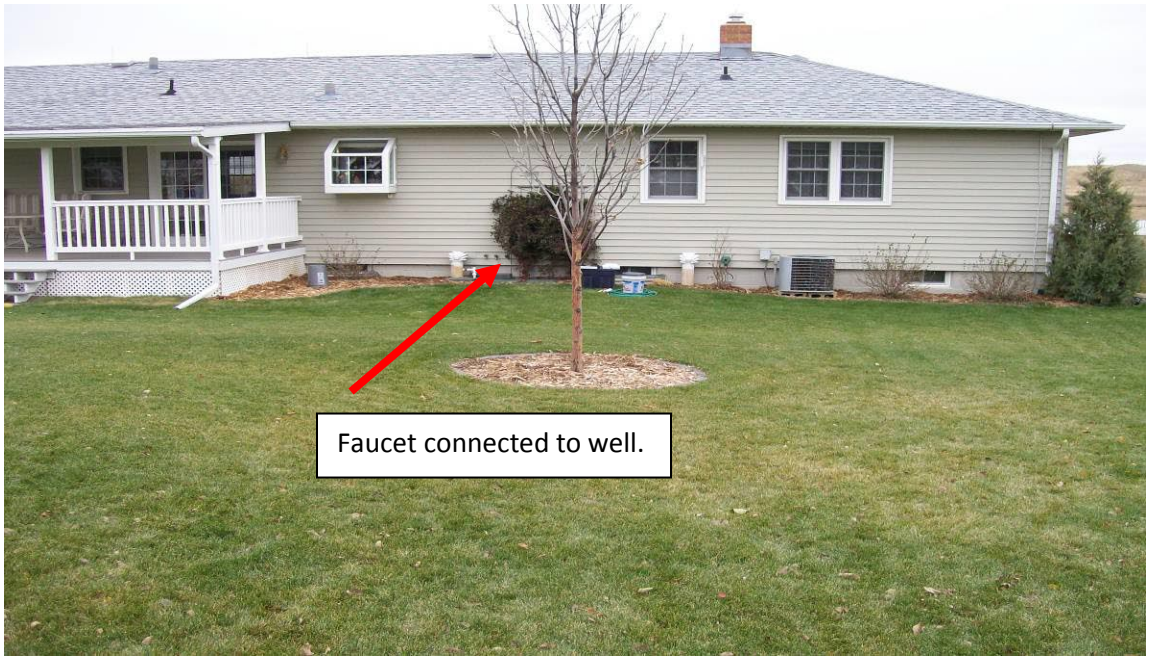

Photo #1: Well location.

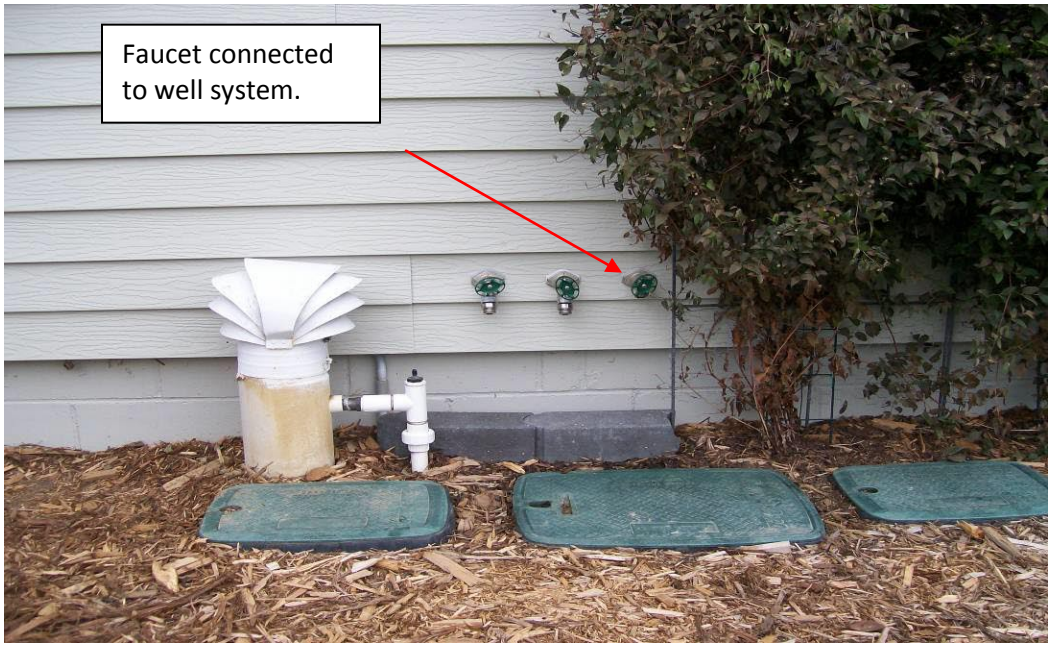

Photo #2: Faucet on south side of house connected to well.

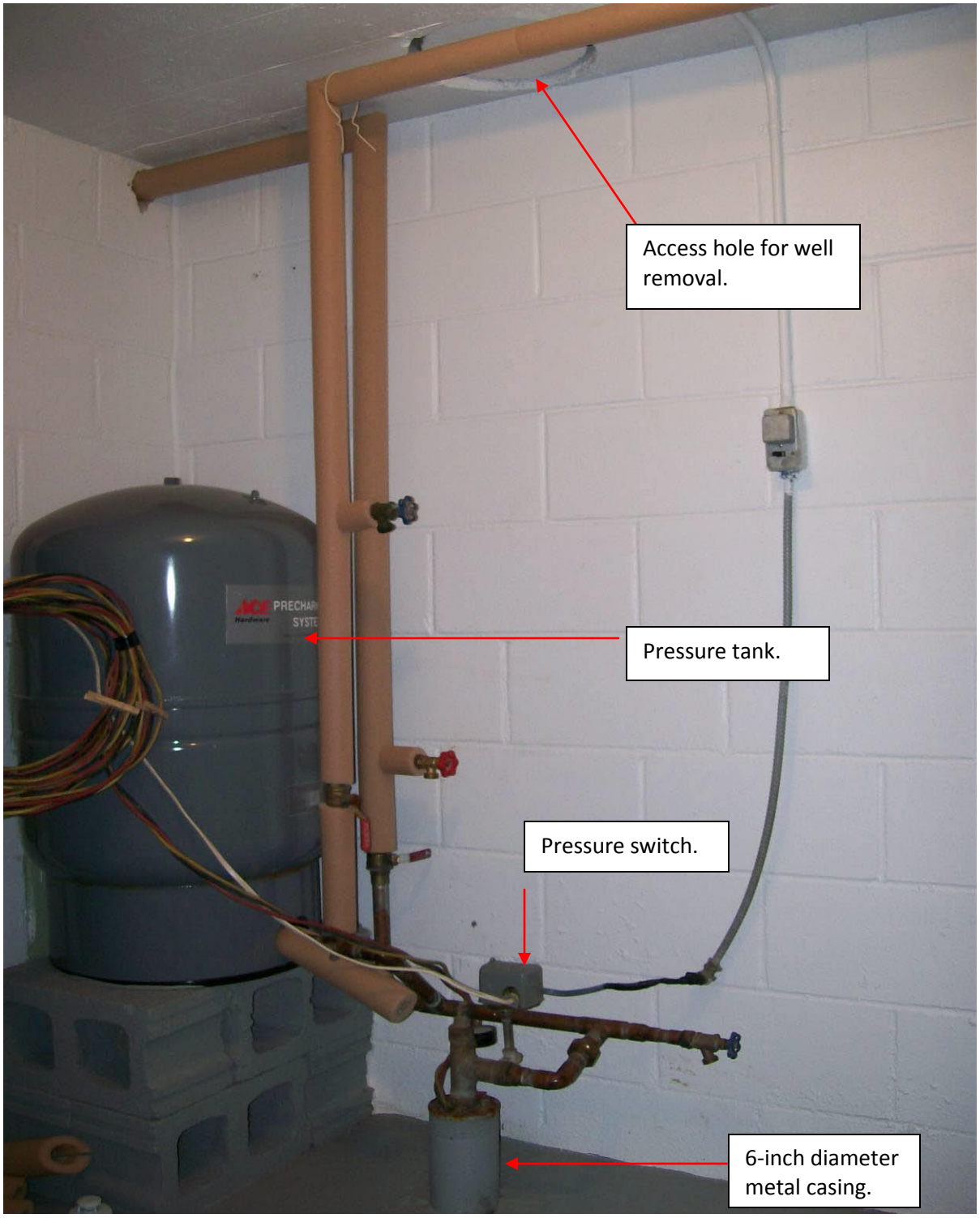

Photo #3: Well in basement of house.



Photo #4: Well with copper pipe reduced down.



Photo #5: Hole in ceiling above well.



Photo #6: Location of access hole for well above basement ceiling.



Photo #7: Well water sample and pump test.

Pace Analytical Services, Inc.
602 S 25th Street
Billings, MT 591014549
(406)254-7226

ANALYTICAL RESULTS

Project: SH Well Certification 063-2174
Pace Project No.: 10115793

Sample: K KUDRNA 001 **Lab ID: 10115793001** Collected: 10/28/09 11:35 Received: 10/29/09 09:10 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium	**2.6**	mg/L	0.50	0.25	1	11/02/09 12:02	11/04/09 13:49	7440-70-2	
Magnesium	**1.2**	mg/L	0.50	0.25	1	11/02/09 12:02	11/03/09 23:15	7439-95-4	
Potassium	**2.1J**	mg/L	2.5	1.2	1	11/02/09 12:02	11/03/09 23:15	7440-09-7	
Sodium	**326**	mg/L	1.0	0.50	1	11/02/09 12:02	11/03/09 23:15	7440-23-5	
Total Hardness by 2340B	**11.5**	mg/L	3.3	1.6	1	11/02/09 12:02	11/04/09 13:49		
Sodium Adsorption Ratio, SAR	Analytical Method: Calculated								
Sodium Adsorption Ratio	**41.8**		0.24		1		11/03/09 00:00		
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Iron	**0.080**	mg/L	0.010	0.0050	1	11/03/09 14:28	11/10/09 20:25	7439-89-6	
2130B Turbidity	Analytical Method: SM 2130B								
Turbidity	**0.37**	NTU	0.20	0.050	1		10/30/09 10:10		
2510B Specific Conductance	Analytical Method: SM 2510B								
Specific Conductance	**1450**	umhos/cm	10.0	5.0	1		10/30/09 11:30		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**1.4**	mg/L	1.0	0.51	1		10/30/09 11:30		
300.0 IC Anions	Analytical Method: EPA 300.0								
Chloride	**15.1**	mg/L	1.0	0.028	1		10/29/09 23:45	16887-00-6	
Sulfate	**179**	mg/L	5.0	0.16	1		10/29/09 23:45	14808-79-8	
353.2 Nitrate + Nitrite pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**0.010**	mg/L	0.010	0.0050	1		10/30/09 16:47		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**8.8**	Std. Units	0.10	0.050	1		10/29/09 15:35		H6
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**541**	mg/L	10.0	0.52	2		11/06/09 14:43		
Alkalinity, Carbonate (CaCO3)	**43.7**	mg/L	10.0	0.52	2		11/06/09 14:43		
Alkalinity, Total as CaCO3	**584**	mg/L	10.0	0.52	2		11/06/09 14:43		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**878**	mg/L	20.0	5.0	1		11/02/09 13:58		
Cation/Anion Balance	Analytical Method: SM 1030F								
Cation/Anion Balance	**4.5**	%			1		11/11/09 19:24		1M,2M

Date: 11/16/2009 05:46 PM

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
602 S 25th Street
Billings, MT 591014549
(406)254-7226

QUALIFIERS

Project: SH Well Certification 063-2174
Pace Project No.: 10115793

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

U - Indicates the compound was analyzed for, but not detected.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis
PASI-MT	Pace Analytical Services - Montana

ANALYTE QUALIFIERS

1M	The cation/anion balance difference is less than the the allowable difference of 5%.
2M	The cation/anion balance was determined using the individual compounds listed in this report.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
H6	Analysis initiated more than 15 minutes after sample collection.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
P6	Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

REPORT OF LABORATORY ANALYSIS

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Data Qualifiers

Inorganic Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
E	The result is an estimated amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
Z	Too many colonies were present (TNTC). The numeric value represents the filtration volume.
i	The MRL/MDL has been elevated due to matrix interference.
X	See case narrative.

Metals Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The reported value is estimated because of the presence of matrix interference.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The result was determined by Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL has been elevated due to matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.

Organic Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
A	The tentatively identified compound is a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria were exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides)
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
i	The MRL/MDL has been elevated due to a chromatographic interference.
X	See case narrative.

Petroleum Hydrocarbon Specific

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Pace Analytical Services
Project Name : SH Well Certification 063-2174
Project Number : 10115793
Sample Matrix : WATER

Service Request : J0905387
Date Collected : 10/28/09
Date Received : 10/30/09

Tannin and Lignin

Analysis Method : SM 5550B
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date/Time Analyzed	Result	Result Notes
K KUDRNA 001	J0905387-001	0.5	0.048	1	11/05/09 11:58	4.7	
Method Blank	J0905387-MB	0.5	0.048	1	11/05/09 11:58	U	

Report By: Palimi

WATER SYSTEM BACTERIOLOGICAL WATER ANALYSIS

SOUTHWESTERN DISTRICT HEALTH UNIT
2869 3rd Avenue West, Dickinson, ND 58601 • 701-483-0171 or 1-800-697-3145

Received NOV 05 2009 GOLDER DENVER

LEFT SIDE OF FORM MUST BE COMPLETED BY COLLECTOR

Name of Collector	Telephone Number
JAY BERG	701-260-6118

Date Collected	Time Collected
10/28/09	11:35

Collection Point/Remarks: KKUDRNA 0001

Sample Source (Check One):
- ☐ Domestic Well
- ☐ Surface Water
- ☐ Stock Well
- ☐ Public Water System
- ☐ Other
- ☐ Swimming Pool
- ☐ Spa

Reason for Sample (Check One):
- ☐ Routine
- ☐ Retest
- ☐ Mortgage Requirement
- ☐ USDA Required
- ☐ Required by other state or federal regulations
- ☐ Water treatment check (raw or treated)
- ☐ ND Dairy Dept.
- ☒ Special purpose (explain) well disinfection

SWIMMING POOL/SPA INFORMATION

POOL/SPA NAME		
Free Chlorine	Total Chlorine	pH

WATER SUPPLY INFORMATION FOR PRIVATE SYSTEMS

County: STARK

Township Number	Range Number	Section Number

Well Depth _____ ft. Well Diameter _____ in.

Owner: Kenneth Kudrna

Address:

City	State	Zip Code

Send Results To (if other than owner): Ed Pottorff, Golder Associates

Address: 44 Union Blvd Suite 300

City	State	Zip Code
Lakewood	CO	80228

STOP! RIGHT SIDE OF FORM IS FOR LABORATORY USE ONLY.

Paid - Amount	☐ CHECK# ☐ CASH

PLEASE READ THE ENCLOSED INSTRUCTIONS BEFORE SAMPLING

Do NOT Submit Samples on FRIDAYS

(***NOTE** - Pool/Spa, Retest, and Fermentation Tube samples must be **received** by Wednesday of the week)

Lab Number	1460	
Date of Receipt	10-28-09	Time of Receipt: 1320
Date of Analysis	10-28-09	Time of Analysis: 1320
Date Completed	10-30-09	Analyst: RM
Remarks		

ANALYSIS METHOD
- ☒ Fermentation Tube
- ☐ Membrane Filter
- ☐ Presence-Absence
- ☐ Other

COLIFORM ANALYSIS
- ☒ SATISFACTORY - No Coliforms Found
- ☐ UNSATISFACTORY - Coliforms Present - SEND REPEAT SAMPLES
  - ☐ No Fecal Coliforms Found
  - ☐ Fecal Coliforms Present
  - ☐ No *E coli* Found
  - ☐ *E coli* Present

Coliforms per 100 ml	Fecal Coliforms per 100 ml
0	

SAMPLE VOIDED - SEND REPLACEMENT
- ☐ Turbid Without Gas Production
- ☐ Too Numerous to Count
- ☐ Confluent Growth
- ☐ Turbid Without Acid Reaction
- ☐ Sample Too Old
- ☐ Other

STANDARD PLATE COUNT PER ML _____
R2A PLATE COUNT PER ML _____
- ☐ Satisfactory
- ☐ Unsatisfactory

NITRATE SCREEN _____ mg/l
- ☐ Satisfactory
- ☐ Unsatisfactory
- ☐ Result to Follow

(< is less than > is more than)

SWDHU 05/2004

White - lab (top copy) will be returned with the results

Canary - retained by lab

LEMMILFT001

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: LEMMILFT001
State Well ID: US71-310
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: Emmil, Leocadia Family Trust (Lydia Meduna and Doris Fettig)

Owner/Operator Address and Contact Information: 393 1st Ave SW Dickinson, ND 58601

701-225-6649

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N* Range 98W*

Section 24* Quarter Section NW* Quarter Section SW* Quarter Section NW*

Coordinates of well/spring location and projection (from GPS):

Northing 438805* Easting 1375105* Projection State Plane*

Relative location to landmarks and/or buildings: Not known

Ground elevation 2505 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Not known*

Owner/Operator comments: The owners believe the well does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 140* feet

Screened Interval: Not known* to Not known* feet

Diameter/Finish (metal casing, PVC, etc.): Not known

Date drilled/developed: Not known

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: LEMMILFT001
State Well ID: US71-310
Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Not known

Comments:

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Not Available

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Not Available

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: LEMMILFT001
State Well ID: US71-310
Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Tested

MP height above ground level: Not tested feet

Static water level in feet below MP: Not able to measure feet

Test Date: Not Tested Time: to

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place temporary (circle one) Description Not Tested

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Not tested becausethe owners believe the well does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: LEMMILFT001

State Well ID: US71-310

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: LEMMILFT001
State Well ID: US71-310
Stark County, North Dakota

WATER QUALITY DATA

Sample Date: Not Sampled Time: (usually at end of pump testing)

Sample point: Not Sampled

Total Volume Purged: Not Sampled gallons

pH (field measurement): Not Sampled Conductivity (field measurement): Not Sampled µ S/cm

Temperature (field measurement): Not Sampled °C

Appearance (clarity, odor, sediment, etc.): Not Sampled

Comments: Not sampled because the owners believe the well does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Not Sampled

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: LEMMILFT001
State Well ID: US71-310
Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (1 of 1 wells) is accurate to the best of my knowledge and represents the true condition of this well on

Lydia Meduna, trustee
PRINT NAME

Lydia Meduna, trustee
SIGNED

9-23-08
DATE

Inspector/Certifier

I do hereby certify that the preceding data was ~~of~~ recorded ~~and a water sample was collected~~ by me on 9-23-08. This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi
PRINT NAME Jill Parisi

Jill Parisi
SIGNED

10-1-08
DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: LEMMILFT001

State Well ID: US71-310

Stark County, North Dakota

Additional Notes (if necessary):

LKEATOR001

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: LKEATOR001___
State Well ID: _____
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: Leon Keator

Owner/Operator Address and Contact Information: PO Box 23 South Heart, ND 58655 (701) 590-3512

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 12 Quarter Section SW Quarter Section SE Quarter Section NW

Coordinates of well/spring location and projection (from GPS):

Northing 446504.4 Easting 1376685.6 Projection State Plane

Relative location to landmarks and/or buildings: 60 feet west of house, next to southeast corner of shed.

Ground elevation 2478 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Not Active

Owner/Operator comments: Well owner was told by previous owners that well was good but it is not hooked up to a pump at the present time. Well not in use and no pump installed so unable to sample or test this well.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):1-3

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: LKEATOR001___

State Well ID: _____

Stark County, North Dakota

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: Not known feet

Screened Interval: Not known to Not known feet

Diameter/Finish (metal casing, PVC, etc.): Not known

Date drilled/developed: Not known

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

Is Driller/Contractor's log available: Yes ☐ No ☒

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Poor condition

Comments: _____

Photograph(s) Taken: Yes ☐ No ☒ Photo ID(s):_____

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: LKEATOR001___
State Well ID: _____
Stark County, North Dakota

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Not Available

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Not Available

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner. Information could not be obtained directly because the well is inaccessible.

Photograph(s) Taken: Yes ☐ No ☒ Photo ID(s):_____

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: LKEATOR001___

State Well ID: _____

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Tested

MP height above ground level: Not Tested feet

Static water level in feet below MP: Not able to measure feet

Test Date: Not Tested Time: _____ to _____

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place ☐ temporary ☐ Description Not Tested

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Well not tested because well not in use. No pump installed.

Photograph(s) Taken: Yes ☐ No ☒ Photo ID(s):_____

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: LKEATOR001___

State Well ID: _____

Stark County, North Dakota

WATER QUALITY DATA

Sample Date: Not Sampled Time: Not Sampled (usually at end of pump testing)

Sample point: Not Sampled

Total Volume Purged: Not Sampled gallons

pH (field measurement): Not Sampled Conductivity (field measurement): Not Sampled µ S/cm

Temperature (field measurement): Not Sampled ^{o}C

Appearance (clarity, odor, sediment, etc.): Not Sampled

Comments: Well not sampled because well not in use. No pump installed.

Photograph(s) Taken: Yes ☐ No ☒ Photo ID(s):_____

Laboratory analysis: Not Sampled

In general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: LKEATOR001

State Well ID: _____

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (1 of 2 wells) is accurate to the best of my knowledge and represents the true condition of this well on

_____
PRINT NAME

_____
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded ~~and a water sample was collected by me~~ RMT on 9/3/09 .This WATER WELL CERTIFICATION is signed and certified as true and accurate

Ryan Tolene
PRINT NAME

Ryan Tolene 9/3/09
SIGNED DATE

Certification Field Information Form sent and owner signature is pending

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: LKEATOR001___

State Well ID: _____

Stark County, North Dakota

Additional Notes (if necessary):

_____

PHOTO LOG



Photo #1: Well vault.



Photo #2: Well and well vault.



Photo #3: Well casing hole.

LKEATOR002

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: LKEATOR002___
State Well ID: _____
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: Leon Keator

Owner/Operator Address and Contact Information: PO Box 23 South Heart, ND 58655 (701) 590-3512

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 12 Quarter Section SW Quarter Section SE Quarter Section NW

Coordinates of well/spring location and projection (from GPS):

Northing 446541.8 Easting 1376720.6 Projection State Plane

Relative location to landmarks and/or buildings: 20 feet west of garage.

Ground elevation 2478 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Not Active

Owner/Operator comments: Well owner said well wasn't active when purchased. Well not in use and no pump installed so unable to sample or test this well.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):1-2

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: LKEATOR002___

State Well ID: _____

Stark County, North Dakota

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: Not known feet

Screened Interval: Not known to Not known feet

Diameter/Finish (metal casing, PVC, etc.): 6-inch diameter PVC casing

Date drilled/developed: Not known

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

Is Driller/Contractor's log available: Yes ☐ No ☒

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Not known

Comments: _____

Photograph(s) Taken: Yes ☐ No ☒ Photo ID(s):_____

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: LKEATOR002___
State Well ID: _____
Stark County, North Dakota

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: None

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): None

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: _____

Photograph(s) Taken: Yes ☐ No ☒ Photo ID(s):_____

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: LKEATOR002___

State Well ID: _____

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Tested

MP height above ground level: Not Tested feet

Static water level in feet below MP: Not able to measure feet

Test Date: Not Tested Time: _____ to _____

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place ☐ temporary ☐ Description Not Tested

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Well not tested because well not in use. No pump installed.

Photograph(s) Taken: Yes ☐ No ☒ Photo ID(s):_____

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: LKEATOR002___

State Well ID: _____

Stark County, North Dakota

WATER QUALITY DATA

Sample Date: Not Sampled Time: Not Sampled (usually at end of pump testing)

Sample point: Not Sampled

Total Volume Purged: Not Sampled gallons

pH (field measurement): Not Sampled Conductivity (field measurement): Not Sampled µ S/cm

Temperature (field measurement): Not Sampled °C

Appearance (clarity, odor, sediment, etc.): Not Sampled

Comments: Well not sampled because well not in use. No pump installed.

Photograph(s) Taken: Yes ☐ No ☒ Photo ID(s):_____

Laboratory analysis: Not Sampled

In general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: LKEATOR002

State Well ID: _____

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (2 of 2 wells) is accurate to the best of my knowledge and represents the true condition of this well on

_____
PRINT NAME

_____
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded ~~and a water sample was collected by me~~ on 9/3/09. This WATER WELL CERTIFICATION is signed and certified as true and accurate

Ryan Tolene
PRINT NAME

Ryan Tolene 9/3/09
SIGNED DATE

Certification Field Information Form sent and owner signature is pending

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: LKEATOR002___

State Well ID: _____

Stark County, North Dakota

Additional Notes (if necessary):

_____

PHOTO LOG

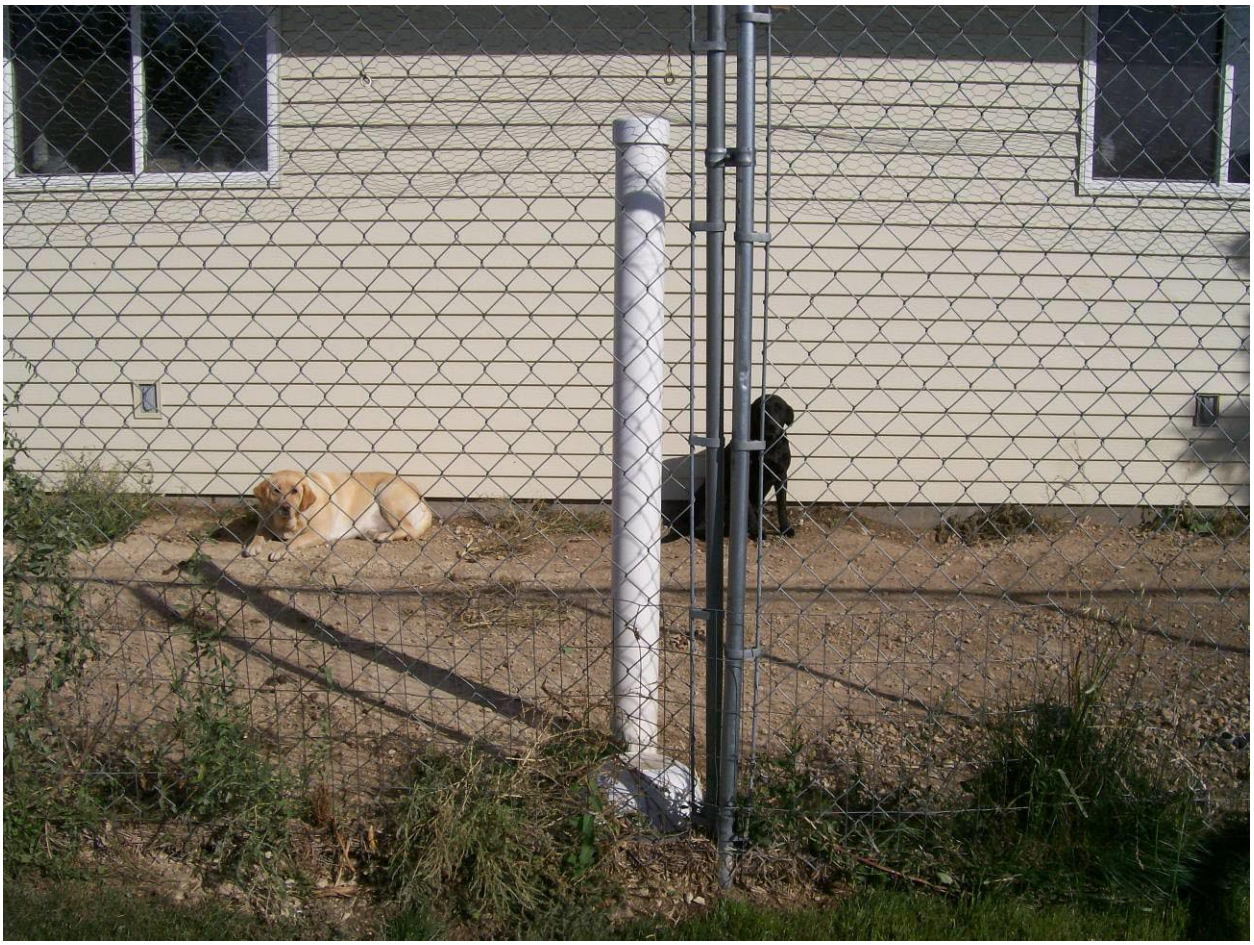

Photo #1: Well.



Photo #2: Well casing.

LMOSBRUCKER001

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: LMOSBRUCKER001

State Well ID: _____

Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: Linda Mosbrucker

Owner/Operator Address and Contact Information: PO Box 54 South Heart, ND 58655 (701) 677-5398

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 12 Quarter Section SW Quarter Section SE Quarter Section NW

Coordinates of well/spring location and projection (from GPS):

Northing 446615.0 Easting 1376705.0 Projection State Plane

Relative location to landmarks and/or buildings: 7 feet from southeast corner of house

Ground elevation 2478 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Domestic (includes lawn watering)

Owner/Operator comments: Used for watering the lawn and washing cars.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):1

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: LMOSBRUCKER001

State Well ID: _____

Stark County, North Dakota

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 60 feet

Screened Interval: Not Available to Not Available feet

Diameter/Finish (metal casing, PVC, etc.): 4.5-inch diameter PVC casing

Date drilled/developed: Not Available

Driller/Contractor's Name: Not Available

Driller/Contractor's address and contact information: Not Available

Is Driller/Contractor's log available: Yes ☐ No ☒

Probable stratigraphic unit of well completion: Not Available

Condition of Well and Sanitary Protection: Good.

Comments: Well owner stated that well was part of the old post office. Well owner stated that she pours a couple gallons of bleach down the well every fall to clean it.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):2

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: LMOSBRUCKER001

State Well ID: _____

Stark County, North Dakota

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Submersible

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Electric

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Well owner stated that she had the well pump removed about 7 years ago.

Photograph(s) Taken: Yes ☐ No ☒ Photo ID(s):_____

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: LMOSBRUCKER001

State Well ID: _____

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Available

MP height above ground level: Not Available feet

Static water level in feet below MP: Not able to measure feet

Test Date: 9/3/09 Time: 10:07 am to 10:37 am

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place ☒ temporary ☐ Description In-place pump

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Pumped continuously for 30 minutes, measuring flow rate in 5 gallon pails with stopwatch, Unable to take water level readings without removing well head cap and possibly damaging the well and well accessories.

Photograph(s) Taken: Yes ☐ No ☒ Photo ID(s):_____

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: LMOSBRUCKER001
State Well ID: _____
Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	9/3/2009	0:34	NA	5	8.824	Pump on at 10:07 am
On	9/3/2009	1:06	NA	10	9.375	
On	9/3/2009	1:43	NA	15	8.108	
On	9/3/2009	2:13	NA	20	10.000	
On	9/3/2009	2:51	NA	25	7.895	
On	9/3/2009	3:22	NA	30	9.677	
On	9/3/2009	3:55	NA	35	9.091	
On	9/3/2009	4:25	NA	40	10.000	
On	9/3/2009	4:59	NA	45	8.824	
On	9/3/2009	5:29	NA	50	10.000	
On	9/3/2009	6:04	NA	55	8.571	
On	9/3/2009	6:34	NA	60	10.000	
On	9/3/2009	7:05	NA	65	9.677	
On	9/3/2009	7:37	NA	70	9.375	
On	9/3/2009	8:11	NA	75	8.824	
On	9/3/2009	8:43	NA	80	9.375	
On	9/3/2009	9:15	NA	85	9.375	
On	9/3/2009	9:46	NA	90	9.677	
On	9/3/2009	10:20	NA	95	8.824	
On	9/3/2009	10:50	NA	100	10.000	
On	9/3/2009	11:24	NA	105	8.824	
On	9/3/2009	11:54	NA	110	10.000	
On	9/3/2009	12:28	NA	115	8.824	
On	9/3/2009	12:57	NA	120	10.345	
On	9/3/2009	13:31	NA	125	8.824	
On	9/3/2009	13:59	NA	130	10.714	
On	9/3/2009	14:35	NA	135	8.333	
On	9/3/2009	15:05	NA	140	10.000	
On	9/3/2009	15:38	NA	145	9.091	
On	9/3/2009	16:09	NA	150	9.677	
On	9/3/2009	16:43	NA	155	8.824	
On	9/3/2009	17:15	NA	160	9.375	
On	9/3/2009	17:47	NA	165	9.375	
On	9/3/2009	18:18	NA	170	9.677	
On	9/3/2009	18:52	NA	175	8.824	
On	9/3/2009	19:23	NA	180	9.677	
On	9/3/2009	19:56	NA	185	9.091	
On	9/3/2009	20:26	NA	190	10.000	
On	9/3/2009	21:01	NA	195	8.571	
On	9/3/2009	21:34	NA	200	9.091	
On	9/3/2009	22:05	NA	205	9.677	
On	9/3/2009	22:38	NA	210	9.091	
On	9/3/2009	23:11	NA	215	9.091	
On	9/3/2009	23:49	NA	220	7.895	
On	9/3/2009	24:15	NA	225	11.538	
On	9/3/2009	24:46	NA	230	9.677	
On	9/3/2009	25:20	NA	235	8.824	
On	9/3/2009	25:52	NA	240	9.375	
On	9/3/2009	26:24	NA	245	9.375	
On	9/3/2009	26:56	NA	250	9.375	
On	9/3/2009	27:29	NA	255	9.091	
On	9/3/2009	28:00	NA	260	9.677	
On	9/3/2009	28:34	NA	265	8.824	
On	9/3/2009	29:06	NA	270	9.375	
On	9/3/2009	29:39	NA	275	9.091	
Off	9/3/2009	30:10	NA	280	9.677	Pump off at 10:37 am

Note:
1) NA means that well was Not Accessible (NA) to take water level measurements

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: LMOSBRUCKER001

State Well ID: _____

Stark County, North Dakota

WATER QUALITY DATA

Sample Date: 9/3/09 Time:10:39 am (usually at end of pump testing)

Sample point: At end of 50-foot garden hose

Total Volume Purged: 280 gallons

pH (field measurement): 6.66 Conductivity (field measurement): 2722 µ S/cm

Temperature (field measurement): 11.30 ^{o}C

Appearance (clarity, odor, sediment, etc.): _____

Comments: Took a second sample for Southwestern District Health Unit direct from well head on 9/29/09. Cleaned tap with clorox wipe before sampling. Ran 1 gallon of water through pipe before sampling This sampling technique was recommended by the lab. Both lab test analyses are included.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):3

Laboratory analysis: Pace Analytical and Southwestern District Health Unit.

In general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

GOLDER Received JAN 11 2010 DENVER

Well/Spring ID: LMosbrucker001

State Well ID: _____

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (of wells) is accurate to the best of my knowledge and represents the true condition of this well on

Linda Mosbrucker
PRINT NAME

Linda Mosbrucker 9/3/09
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 9/3/09 .This WATER WELL CERTIFICATION is signed and certified as true and accurate

JAY BERG
PRINT NAME

9/3/09
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: LMOSBRUCKER001

State Well ID: _____

Stark County, North Dakota

Additional Notes (if necessary):

PHOTO LOG



Photo #1: Well location.

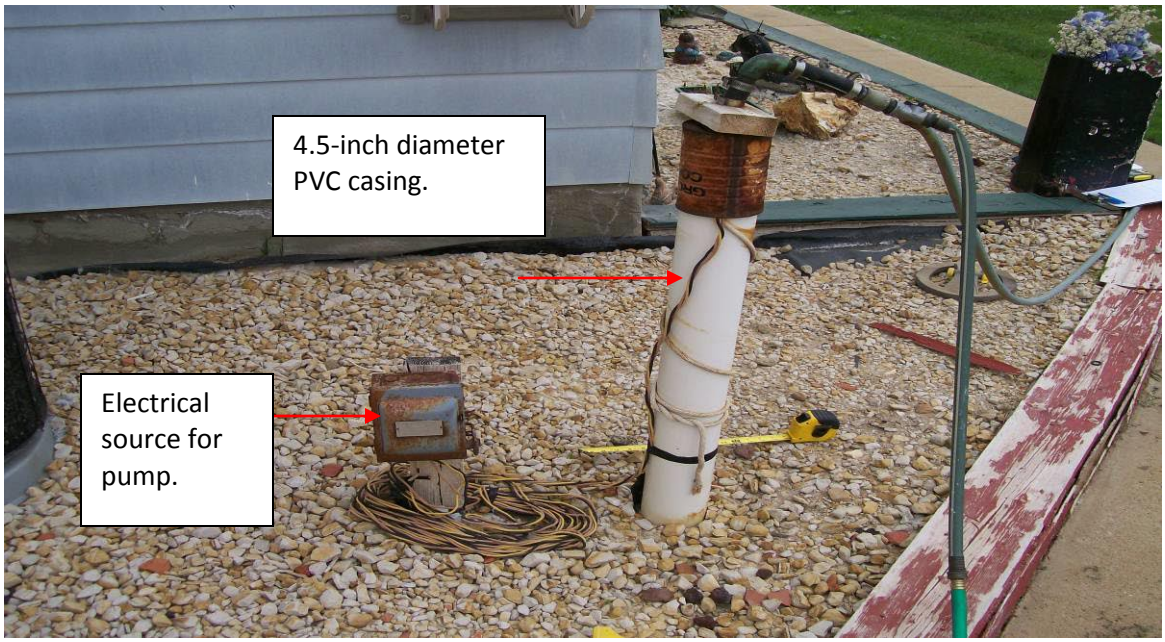

Photo #2: Well construction.



Photo #3: Sample and pump test setup for well.

Pace Analytical Services, Inc.
602 S 25th Street
Billings, MT 591014549
(406)254-7226

ANALYTICAL RESULTS

Project: South Heart Well Cert 063-2174
Pace Project No.: 10111876

Sample: LMOSBRUCKER 001 **Lab ID: 10111876001** Collected: 09/03/09 10:39 Received: 09/04/09 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium	**15.1**	mg/L	0.50	0.25	1	09/15/09 15:32	09/15/09 16:18	7440-70-2	
Magnesium	**12.1**	mg/L	0.50	0.25	1	09/15/09 15:32	09/15/09 16:18	7439-95-4	
Sodium	**644**	mg/L	5.0	2.5	5	09/15/09 15:32	09/15/09 16:25	7440-23-5	
Total Hardness by 2340B	**87.6**	mg/L	3.3	1.6	1	09/15/09 15:32	09/15/09 16:18		
Sodium Adsorption Ratio, SAR	Analytical Method: Calculated								
Sodium Adsorption Ratio	**29.9**		0.24		1		09/16/09 14:11		
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Iron	**0.46**	mg/L	0.010	0.0050	1	09/09/09 15:04	09/11/09 06:06	7439-89-6	
2130B Turbidity	Analytical Method: SM 2130B								
Turbidity	**1.7**	NTU	0.20	0.050	1		09/04/09 11:32		
2510B Specific Conductance	Analytical Method: SM 2510B								
Specific Conductance	**2060**	umhos/cm	10.0	5.0	1		09/11/09 13:59		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**0.81J**	mg/L	1.0	0.51	1		09/04/09 09:23		
300.0 IC Anions	Analytical Method: EPA 300.0								
Chloride	**6.2**	mg/L	2.0	1.0	2		09/05/09 13:03	16887-00-6	
Sulfate	**857**	mg/L	50.0	1.6	10		09/05/09 12:32	14808-79-8	
353.2 Nitrate + Nitrite pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**0.020**	mg/L	0.010	0.0050	1		09/14/09 16:55		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.8**	Std. Units	0.10	0.050	1		09/04/09 15:15		H6
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**596**	mg/L	10.0	0.52	2		09/17/09 16:56		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	10.0	0.52	2		09/17/09 16:56		
Alkalinity, Total as CaCO3	**596**	mg/L	10.0	0.52	2		09/17/09 16:56		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1760**	mg/L	20.0	5.0	1		09/08/09 14:26		
Cation/Anion Balance	Analytical Method: SM 1030F								
Cation/Anion Balance	**0.25**	%			1		09/21/09 16:44		1M

Date: 09/29/2009 04:26 PM

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
602 S 25th Street
Billings, MT 591014549
(406)254-7226

QUALIFIERS

Project: South Heart Well Cert 063-2174
Pace Project No.: 10111876

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

U - Indicates the compound was analyzed for, but not detected.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis
PASI-MT	Pace Analytical Services - Montana

ANALYTE QUALIFIERS

1M	Percent difference is less than the allowable difference of 5%.
H6	Analysis initiated more than 15 minutes after sample collection.
R1	RPD value was outside control limits.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Data Qualifiers

Inorganic Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
E	The result is an estimated amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
Z	Too many colonies were present (TNTC). The numeric value represents the filtration volume.
i	The MRL/MDL has been elevated due to matrix interference.
X	See case narrative.

Metals Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The reported value is estimated because of the presence of matrix interference.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The result was determined by Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL has been elevated due to matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.

Organic Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
A	The tentatively identified compound is a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria were exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides)
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
i	The MRL/MDL has been elevated due to a chromatographic interference.
X	See case narrative.

Petroleum Hydrocarbon Specific

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Pace Analytical Services
Project Name : South Heart Well Cert 063-2174
Project Number : 10111876
Sample Matrix : WATER

Service Request : J0904468
Date Collected : 09/03/09
Date Received : 09/09/09

Tannin and Lignin

Analysis Method : SM 5550B
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date/Time Analyzed	Result	Result Notes
LMOSBRUCKER 001	J0904468-001	0.5	0.048	1	09/21/09 16:11	2.1	
Method Blank	J0904468-MB	0.5	0.048	1	09/21/09 16:11	U	

Report By: Palimi

WATER SYSTEM BACTERIOLOGICAL WATER ANALYSIS

SOUTHWESTERN DISTRICT HEALTH UNIT
2869 3rd Avenue West, Dickinson, ND 58601 • 701-483-0171 or 1-800-697-3145

LEFT SIDE OF FORM MUST BE COMPLETED BY COLLECTOR

Name of Collector: JAY BERG
Telephone Number: 701-391-3126
Date Collected: 9/3/09
Time Collected: 10:39
Collection Point/Remarks: LMosbrucker 001

Sample Source (Check One):
- [X] Domestic Well
- [ ] Swimming Pool
- [ ] Surface Water
- [ ] Spa
- [ ] Stock Well
- [ ] Public Water System
- [ ] Other

Reason for Sample (Check One):
- [ ] Routine
- [ ] Retest
- [ ] Mortgage Requirement
- [ ] USDA Required
- [ ] Required by other state or federal regulations
- [ ] Water treatment check (raw or treated)
- [ ] ND Dairy Dept.
- [X] Special purpose (explain) well Certification

SWIMMING POOL/SPA INFORMATION

POOL/SPA NAME

Free Chlorine	Total Chlorine	pH

WATER SUPPLY INFORMATION FOR PRIVATE SYSTEMS

County: Stark
Township Number | Range Number | Section Number

Well Depth _____ ft. Well Diameter _____ in.

Owner: Linda Mosbrucker
Address:
City | State | Zip Code

Send Results To (if other than owner): Ed Pottorff, Golder Assoc.
Address: 44 Union Blvd, Suite 300
City: Lakewood | State: CO | Zip Code: 80228

STOP! RIGHT SIDE OF FORM IS FOR LABORATORY USE ONLY.

Paid - Amount
- [ ] CHECK # _____
- [ ] CASH

PLEASE READ THE ENCLOSED INSTRUCTIONS BEFORE SAMPLING

Do NOT Submit Samples on FRIDAYS

(***NOTE*** - Pool/Spa, Retest, and Fermentation Tube samples must be **received** by Wednesday of the week)

Lab Number: 1207
Date of Receipt: 9-3-09 | Time of Receipt: 1450
Date of Analysis: 9-3-09 | Time of Analysis: 1455
Date Completed: 9-7-09 | Analyst: LB
Remarks:

ANALYSIS METHOD
- [X] Fermentation Tube
- [ ] Membrane Filter
- [ ] Presence-Absence
- [ ] Other

COLIFORM ANALYSIS
- [ ] SATISFACTORY - No Coliforms Found
- [ ] UNSATISFACTORY - Coliforms Present - SEND REPEAT SAMPLES
  - [ ] No Fecal Coliforms Found
  - [ ] Fecal Coliforms Present
  - [ ] No *E coli* Found
  - [ ] *E coli* Present

Coliforms per 100 ml: —
Fecal Coliforms per 100 ml:

SAMPLE VOIDED - SEND REPLACEMENT
- [X] Turbid Without Gas Production
- [ ] Too Numerous to Count
- [ ] Confluent Growth
- [ ] Turbid Without Acid Reaction
- [ ] Sample Too Old
- [ ] Other

STANDARD PLATE COUNT PER ML _____
R2A PLATE COUNT PER ML _____
- [ ] Satisfactory
- [ ] Unsatisfactory

NITRATE SCREEN < 2 mg/l
- [X] Satisfactory
- [ ] Unsatisfactory
- [ ] Result to Follow

(< is less than > is more than)

SWDHU 05/2004

White - lab (top copy) will be returned with the results

Canary - retained by lab

WATER SYSTEM BACTERIOLOGICAL WATER ANALYSIS

SOUTHWESTERN DISTRICT HEALTH UNIT
2869 3rd Avenue West, Dickinson, ND 58601 • 701-483-0171 or 1-800-697-3145

Received OCT 06 2009 DENVER COLDER

Paid - Amount

☐ CHECK # _____
☐ CASH

LEFT SIDE OF FORM MUST BE COMPLETED BY COLLECTOR

Name of Collector	Telephone Number
JAY BERG	701-260-6118

Date Collected	Time Collected
9/29/09	14:10

Collection Point/Remarks: LMosbrucker #01

Sample Source (Check One):
- ☒ Domestic Well
- ☐ Surface Water
- ☐ Stock Well
- ☐ Public Water System _____
- ☐ Other _____
- ☐ Swimming Pool
- ☐ Spa

Reason for Sample (Check One):
- ☐ Routine
- ☐ Retest
- ☐ Mortgage Requirement
- ☐ USDA Required
- ☐ Required by other state or federal regulations
- ☐ Water treatment check (raw or treated)
- ☐ ND Dairy Dept.
- ☒ Special purpose (explain) Well Cert

SWIMMING POOL/SPA INFORMATION

POOL/SPA NAME

Free Chlorine	Total Chlorine	pH

WATER SUPPLY INFORMATION FOR PRIVATE SYSTEMS

County: STARK

Township Number	Range Number	Section Number

Well Depth _____ ft. Well Diameter _____ in.

Owner: Linda Mosbrucker

Address:

City	State	Zip Code

Send Results To (if other than owner): Ed Pothoff, Golder Associates.

Address: 44 Union Blvd. suite 300

City	State	Zip Code
Lakewood	CO	80228

STOP! RIGHT SIDE OF FORM IS FOR LABORATORY USE ONLY.

PLEASE READ THE ENCLOSED INSTRUCTIONS BEFORE SAMPLING

Do NOT Submit Samples on FRIDAYS

(***NOTE*** - Pool/Spa, Retest, and Fermentation Tube samples must be **received** by Wednesday of the week)

Lab Number: 1319

Date of Receipt	Time of Receipt
9-29-09	1540
Date of Analysis	**Time of Analysis**
9-29-09	1545
Date Completed	**Analyst**
10-2-09	KO

Remarks:

ANALYSIS METHOD
- ☒ Fermentation Tube
- ☐ Membrane Filter
- ☐ Presence-Absence
- ☐ Other _____

COLIFORM ANALYSIS
- ☐ SATISFACTORY - No Coliforms Found
- ☒ UNSATISFACTORY - Coliforms Present - SEND REPEAT SAMPLES
  - ☐ No Fecal Coliforms Found
  - ☐ Fecal Coliforms Present
  - ☐ No *E coli* Found
  - ☐ *E coli* Present

Coliforms per 100 ml	Fecal Coliforms per 100 ml
(+) Test	

SAMPLE VOIDED - SEND REPLACEMENT
- ☐ Turbid Without Gas Production
- ☐ Too Numerous to Count
- ☐ Confluent Growth
- ☐ Turbid Without Acid Reaction
- ☐ Sample Too Old
- ☐ Other _____

STANDARD PLATE COUNT PER ML _____
R2A PLATE COUNT PER ML _____
- ☐ Satisfactory
- ☐ Unsatisfactory

NITRATE SCREEN <2 mg/l
- ☒ Satisfactory
- ☐ Unsatisfactory
- ☐ Result to Follow

(< is less than > is more than)

White - lab (top copy) will be returned with the results

Canary - retained by lab

MKUYLEN001

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: MKUYLEN001

State Well ID: _____

Stark County, North Dakota

LOCATION DATA

Owner/Operator Name: Martha Kuylen

Owner/Operator Address and Contact Information: PO Box 226 South Heart, ND 58655 701-677-5612

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 13 Quarter Section NW Quarter Section NW Quarter Section SE

Coordinates of well/spring location and projection (from GPS):

Northing 444811 Easting 1375904 Projection State Plane

Relative location to landmarks and/or buildings: Located approximately 3 feet south of garage

Ground elevation 2486 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Domestic (includes lawn watering)

Owner/Operator comments: Talked to Bob Kuylen about well

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photo #2

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 71 feet

Screened Interval: Not known to Not known feet

Diameter/Finish (metal casing, PVC, etc.): 4" diameter PVC

Date drilled/developed: 6/5/1996

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: MKUYLEN001

State Well ID: _____

Stark County, North Dakota

Is Driller/Contractor's log available: (Yes) No (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Good condition. Well protected by steel bollards.

Comments: _____

_____

_____

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photo #1

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Submersible

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Electric

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: _____

_____

_____

_____

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: MKUYLEN001

State Well ID: _____

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: End of 50 ft hose connected to faucet

MP height above ground level: ~ 1 foot

Static water level in feet below MP: Not able to measure feet

Test Date: 11/3/08 Time: 10:22 am to 10:52 am

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): (in-place) temporary (circle one) Description Used the pump in-place

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: There was no readily available access into the well for water level measurements.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: _MKUYLEN001____

State Well ID: _____

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	11/3/2008	0:23	NA	5	13.043	Pump on at 10:22 am
On	11/3/2008	0:44	NA	10	14.286	
On	11/3/2008	1:11	NA	15	11.111	
On	11/3/2008	1:32	NA	20	14.286	
On	11/3/2008	1:55	NA	25	13.043	
On	11/3/2008	2:16	NA	30	14.286	
On	11/3/2008	2:38	NA	35	13.636	
On	11/3/2008	3:00	NA	40	13.636	
On	11/3/2008	3:22	NA	45	13.636	
On	11/3/2008	3:45	NA	50	13.043	
On	11/3/2008	4:08	NA	55	13.043	
On	11/3/2008	4:27	NA	60	15.789	
On	11/3/2008	4:50	NA	65	13.043	
On	11/3/2008	5:11	NA	70	14.286	
On	11/3/2008	5:33	NA	75	13.636	
On	11/3/2008	5:54	NA	80	14.286	
On	11/3/2008	6:16	NA	85	13.636	
On	11/3/2008	6:36	NA	90	15.000	
On	11/3/2008	6:58	NA	95	13.636	
On	11/3/2008	7:19	NA	100	14.286	
On	11/3/2008	7:41	NA	105	13.636	
On	11/3/2008	8:01	NA	110	15.000	
On	11/3/2008	8:23	NA	115	13.636	
On	11/3/2008	8:44	NA	120	14.286	
On	11/3/2008	9:05	NA	125	14.286	
On	11/3/2008	9:26	NA	130	14.286	
On	11/3/2008	9:47	NA	135	14.286	
On	11/3/2008	10:07	NA	140	15.000	
On	11/3/2008	10:28	NA	145	14.286	
On	11/3/2008	10:51	NA	150	13.043	
On	11/3/2008	11:13	NA	155	13.636	
On	11/3/2008	11:34	NA	160	14.286	
On	11/3/2008	11:55	NA	165	14.286	
On	11/3/2008	12:17	NA	170	13.636	
On	11/3/2008	12:38	NA	175	14.286	
On	11/3/2008	13:02	NA	180	12.500	
On	11/3/2008	13:23	NA	185	14.286	
On	11/3/2008	13:45	NA	190	13.636	
On	11/3/2008	14:07	NA	195	13.636	
On	11/3/2008	14:30	NA	200	13.043	
On	11/3/2008	14:51	NA	205	14.286	
On	11/3/2008	15:14	NA	210	13.043	
On	11/3/2008	15:33	NA	215	15.789	

On	11/3/2008	15:55	NA	220	13.636	
On	11/3/2008	16:16	NA	225	14.286	
On	11/3/2008	16:38	NA	230	13.636	
On	11/3/2008	17:00	NA	235	13.636	
On	11/3/2008	17:22	NA	240	13.636	
On	11/3/2008	17:43	NA	245	14.286	
On	11/3/2008	18:05	NA	250	13.636	
On	11/3/2008	18:25	NA	255	15.000	
On	11/3/2008	18:45	NA	260	15.000	
On	11/3/2008	19:07	NA	265	13.636	
On	11/3/2008	19:28	NA	270	14.286	
On	11/3/2008	19:51	NA	275	13.043	
On	11/3/2008	20:11	NA	280	15.000	
On	11/3/2008	20:34	NA	285	13.043	
On	11/3/2008	20:56	NA	290	13.636	
On	11/3/2008	21:18	NA	295	13.636	
On	11/3/2008	21:38	NA	300	15.000	
On	11/3/2008	22:01	NA	305	13.043	
On	11/3/2008	22:23	NA	310	13.636	
On	11/3/2008	22:44	NA	315	14.286	
On	11/3/2008	23:06	NA	320	13.636	
On	11/3/2008	23:26	NA	325	15.000	
On	11/3/2008	23:46	NA	330	15.000	
On	11/3/2008	24:08	NA	335	13.636	
On	11/3/2008	24:30	NA	340	13.636	
On	11/3/2008	24:52	NA	345	13.636	
On	11/3/2008	25:18	NA	350	11.538	
On	11/3/2008	25:39	NA	355	14.286	
On	11/3/2008	26:02	NA	360	13.043	
On	11/3/2008	26:26	NA	365	12.500	
On	11/3/2008	26:48	NA	370	13.636	
On	11/3/2008	27:10	NA	375	13.636	
On	11/3/2008	27:32	NA	380	13.636	
On	11/3/2008	27:54	NA	385	13.636	
On	11/3/2008	28:17	NA	390	13.043	
On	11/3/2008	28:40	NA	395	13.043	
On	11/3/2008	29:02	NA	400	13.636	
On	11/3/2008	29:23	NA	405	14.286	
On	11/3/2008	29:45	NA	410	13.636	
Off	11/3/2008	30:07	NA	415	13.636	Pump off at 10:52 am

Note:
1) NA means that well was Not Accessible (NA) to take water level measurements

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: MKUYLEN001

State Well ID: _____

Stark County, North Dakota

WATER QUALITY DATA

Sample Date: 11/3/08 Time: 11:02 am (usually at end of pump testing)

Sample point: End of 50-foot hose connected to faucet

Total Volume Purged: 415 gallons

pH (field measurement): 8.45 Conductivity (field measurement): 5.298 m S/cm

Temperature (field measurement): 10.72 °C

Appearance (clarity, odor, sediment, etc.): Clear, slight sulfur odor

Comments: _____

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Northern Analytical and Southwestern District Health Unit

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: MKUYLEN001

State Well ID: _____

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (1 of 1 wells) is accurate to the best of my knowledge and represents the true condition of this well on

MARTHA KUYLEN
PRINT NAME

Martha Kuylen 10-3.08
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 11/3/08. This WATER WELL CERTIFICATION is signed and certified as true and accurate

Ryan Tolene
PRINT NAME Ryan Tolene

Ryan Tolene 11.3.2008
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: _MKUYLEN001____

State Well ID: _____

Stark County, North Dakota

Additional Notes (if necessary):

PHOTO LOG



Photo #1: Photo showing plumbing of well MKuylen001.



Photo #2: Photo showing location of well MKuylen001 near garage.

Client: GOLDER ASSOCIATES, INC.
Project Name: SOUTH HEART WELL CERTIFICATION
Project No.: 063-2174
Laboratory No.: 2008110019-1
Sample Name: MKUYLEN001
Sample Date/Time: 11/03/2008 10:52:00
Collected by: RYAN TOLENE
Sample Type: WATER

PARAMETER	MEASURED VALUE	UNITS	ANALYST	REPORTING LIMIT	METHOD NUMBER	DATE/TIME ANALYZED
SOUTH HEART WELL CERTIFICATION						
Turbidity	3.1	NTU	ES	0.2	180.1	11/04/2008 06:15:00 PM
Tannins & Lignins	2.01	mg/l	ES	0.1	5550B	11/24/2008 02:00:00 PM
pH	7.6	S.U.	MRK	0.1-13.5	4500-H+-B	11/04/2008 04:05:05 PM
Alkalinity Bicarbonate as HCO3	725	mg/l	ES	1	2320B	11/14/2008 11:00:00 AM
Alkalinity Total as CaCO3	594	mg/l	ES	1	2320B	11/14/2008 11:00:00 AM
Chloride as Cl	4	mg/l	MRK	1	300.0	11/07/2008 05:53:00 AM
Sulfate as SO4	761	mg/l	MRK	50	300.0	11/07/2008 06:23:00 AM
Hardness as CaCO3	179	mg/l	BH	7	2340B	11/06/2008 04:23:00 PM
Electrical Conductivity	2290	umhos/cm	MRK	10	2510B	11/07/2008 11:15:00 AM
Total Dissolved Solids	1690	mg/l	ES	20	2540C	11/06/2008 04:00:00 PM
Total Suspended Solids	4	mg/l	ES	1	2540D	11/06/2008 04:00:00 PM
Calcium as Ca (Total)	32	mg/l	BH	1	200.7	11/06/2008 04:23:00 PM
Iron as Fe (Total)	0.62	mg/l	BH	0.01	200.7	11/06/2008 04:10:00 PM
Magnesium as Mg (Total)	24	mg/l	BH	1	200.7	11/06/2008 04:23:00 PM
Sodium as Na (Total)	579	mg/l	BH	1	200.7	11/06/2008 04:23:00 PM
Nitrate as N	0.04 HT	mg/l	CC	0.01	353.2	11/21/2008 05:11:00 PM
Nitrite as N	<0.01 HT	mg/l	MRK	0.01	300.0	11/07/2008 05:53:00 AM
Nitrate + Nitrite as N	0.04	mg/l	CC	0.01	353.2	11/21/2008 05:11:00 PM
Sodium Adsorption Ratio	18.8	-----	BH	0.2	20b	11/06/2008 04:23:00 PM
Cations	28.76	meq/l	---	0.30	1030F	
Anions	27.84	meq/l	---	0.38	1030F	
Cation/Anion Balance	1.63	% [max 5%]	---	-----	AWWA/APHA	
Metals Batch#/Digestion Date	1917	-----	BH	-----	200.2	11/06/2008 09:45:00 AM

WATER SYSTEM BACTERIOLOGICAL WATER ANALYSIS

SOUTHWESTERN DISTRICT HEALTH UNIT
2869 3rd Avenue West, Dickinson, ND 58601 • 701-483-0171 or 1-800-697-3145

LEFT SIDE OF FORM MUST BE COMPLETED BY COLLECTOR

Name of Collector	Telephone Number
Nathan Monnig	303 980 0540

Date Collected	Time Collected
11/3/08	10:52

Collection Point/Remarks: M Kuylen ØØ1

Sample Source (Check One):
- ☒ Domestic Well
- ☐ Swimming Pool
- ☐ Surface Water
- ☐ Spa
- ☐ Stock Well
- ☐ Public Water System _____
- ☐ Other _____

Reason for Sample (Check One):
- ☐ Routine
- ☐ Retest
- ☐ Mortgage Requirement
- ☐ USDA Required
- ☐ Required by other state or federal regulations
- ☐ Water treatment check (raw or treated)
- ☐ ND Dairy Dept.
- ☒ Special purpose (explain) Well certification

SWIMMING POOL/SPA INFORMATION

POOL/SPA NAME		
Free Chlorine	Total Chlorine	pH

WATER SUPPLY INFORMATION FOR PRIVATE SYSTEMS

County: Stark

Township Number	Range Number	Section Number

Well Depth _____ ft. Well Diameter _____ in.

Owner: Martha Kuylen

Address:

City	State	Zip Code

Send Results To (if other than owner): Ed Pottorff, Golder Assoc.

Address: 44 Union Blvd, Suite 300

City	State	Zip Code
Lakewood	CO	80228

STOP! RIGHT SIDE OF FORM IS FOR LABORATORY USE ONLY.

Paid - Amount	☐ CHECK # _____ ☐ CASH

PLEASE READ THE ENCLOSED INSTRUCTIONS BEFORE SAMPLING

Do NOT Submit Samples on FRIDAYS

(***NOTE** - Pool/Spa, Retest, and Fermentation Tube samples must be **received** by Wednesday of the week)

Lab Number	
1550	
Date of Receipt: 11/3/08	Time of Receipt: 1:00 pm
Date of Analysis: 11/3/08	Time of Analysis: 1305
Date Completed: 11-5-08	Analyst: RT

Remarks:

ANALYSIS METHOD
- ☒ Fermentation Tube
- ☐ Membrane Filter
- ☐ Presence-Absence
- ☐ Other _____

COLIFORM ANALYSIS
- ☒ SATISFACTORY - No Coliforms Found
- ☐ UNSATISFACTORY - Coliforms Present - SEND REPEAT SAMPLES
  - ☐ No Fecal Coliforms Found
  - ☐ Fecal Coliforms Present
  - ☐ No *E coli* Found
  - ☐ *E coli* Present

Coliforms per 100 ml	Fecal Coliforms per 100 ml
0	

SAMPLE VOIDED - SEND REPLACEMENT
- ☐ Turbid Without Gas Production
- ☐ Too Numerous to Count
- ☐ Confluent Growth
- ☐ Turbid Without Acid Reaction
- ☐ Sample Too Old
- ☐ Other _____

STANDARD PLATE COUNT PER ML _____
R2A PLATE COUNT PER ML _____
- ☐ Satisfactory
- ☐ Unsatisfactory

NITRATE SCREEN 2.2 mg/l
- ☒ Satisfactory
- ☐ Unsatisfactory
- ☐ Result to Follow

(< is less than > is more than)

PKUYLEN001

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN001
State Well ID: 13909827BCD1
Stark County, North Dakota

LOCATION DATA

Owner/Operator Name: Katherine and Patrick Kuylen

Owner/Operator Address and Contact Information: PO Box 184 South Heart, ND 58655 701-677-5815

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 27 Quarter Section NW Quarter Section SW Quarter Section SE

Coordinates of well/spring location and projection (from GPS):

Northing 433170 Easting 1364779 Projection State Plane

Relative location to landmarks and/or buildings: South of house in a concrete pit

Ground elevation 2521 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Domestic (includes lawn watering)

Owner/Operator comments: Plumbed to faucet next to the well. Was the old well to the house before connected to Southwest Water.

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photo #1

WELL/SPRING CONSTRUCTION

Depth of well: ~200 feet

Screened Interval: Not known to Not known feet

Diameter/Finish (metal casing, PVC, etc.): Metal, 6-inch casing

Date drilled/developed: ~1950

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN001
State Well ID: 13909827BCD1
Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Fair condition

Comments:

Photograph(s) Taken (Yes) No (circle one) Photo ID(s): Photo #2

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Submersible

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Electric

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: There was no access to the pump. There is no known information about the well pump.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN001
State Well ID: 13909827BCD1
Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Well Not Accessible

MP height above ground level: Well Not Accessible feet

Static water level in feet below MP: Not able to measure feet

Test Date: 6/4/08 Time: 11:33am to 12:05pm

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): (in-place) temporary (circle one) Description Used the pump in-place

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: There was no readily available access into the well for water level measurements.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN001
State Well ID: 13909827BCD1
Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	6/4/08	0:50	NA	5	6.000	All measurements taken using a 5-gal bucket.
On	6/4/08	1:35	NA	10	6.667	
On	6/4/08	2:27	NA	15	5.769	
On	6/4/08	3:18	NA	20	5.882	
On	6/4/08	4:13	NA	25	5.455	
On	6/4/08	5:02	NA	30	6.122	
On	6/4/08	5:55	NA	35	5.660	
On	6/4/08	6:46	NA	40	5.882	
On	6/4/08	7:34	NA	45	6.250	
On	6/4/08	8:26	NA	50	5.769	
On	6/4/08	9:19	NA	55	5.660	
On	6/4/08	10:14	NA	60	5.455	
On	6/4/08	11:08	NA	65	5.556	
On	6/4/08	12:03	NA	70	5.455	
On	6/4/08	13:00	NA	75	5.263	
On	6/4/08	13:55	NA	80	5.455	
On	6/4/08	14:49	NA	85	5.556	
On	6/4/08	15:41	NA	90	5.769	
On	6/4/08	16:38	NA	95	5.263	
On	6/4/08	17:34	NA	100	5.357	
On	6/4/08	18:30	NA	105	5.357	
On	6/4/08	19:25	NA	110	5.455	
On	6/4/08	20:22	NA	115	5.263	
On	6/4/08	21:20	NA	120	5.172	
On	6/4/08	22:18	NA	125	5.172	
On	6/4/08	23:17	NA	130	5.085	
On	6/4/08	24:11	NA	135	5.556	
On	6/4/08	25:13	NA	140	4.839	
On	6/4/08	26:07	NA	145	5.556	
On	6/4/08	27:00	NA	150	5.660	
On	6/4/08	27:54	NA	155	5.556	
On	6/4/08	28:50	NA	160	5.357	
On	6/4/08	29:45	NA	165	5.455	
On	6/4/08	30:42	NA	170	5.263	
Off	6/4/08	31:39	NA	175	5.263	

Note:
1) NA means that well was Not Accessible (NA) to take water level measurements

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN001
State Well ID: 13909827BCD1
Stark County, North Dakota

WATER QUALITY DATA

Sample Date: 6/4/08 Time: 12:05pm (usually at end of pump testing)

Sample point: Not known

Total Volume Purged: 175 gallons

pH (field measurement): 7.62 Conductivity (field measurement): 1743 µ S/cm

Temperature (field measurement): 12.6 °C

Appearance (clarity, odor, sediment, etc.): Brown color, slight organic odor

Comments:

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Northern Analytical

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN001
~~State~~ Well ID: 13909827BCD1
Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (1 of 8 wells) is accurate to the best of my knowledge and represents the true condition of this well on

PATRICK KUYLEN
PRINT NAME

Patrick Kuylen 9-12-08
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 6/4/08 .This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi
PRINT NAME Jill Parisi

Jill Parisi 9/12/08
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN001

State Well ID: 13909827BCD1

Stark County, North Dakota

Additional Notes (if necessary):

PHOTO LOG



Photo #1: Well location for PKUYLEN001 in concrete pit south of the house.

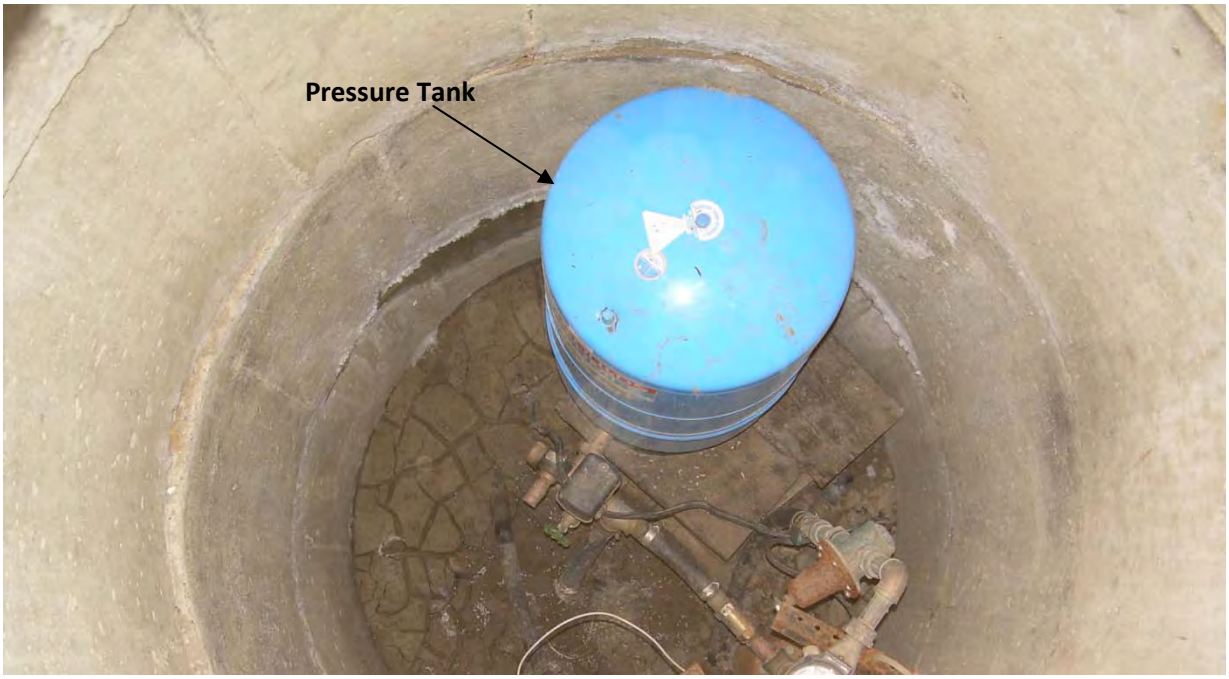

Photo #2: Well setup for PKUYLEN001 showing concrete pit and pressure tank.

Client: GOLDER ASSOCIATES, INC.
Project Name: SOUTH HEART
Project No.: NONE GIVEN
Laboratory No.: 2008060038-1
Sample Name: PKUYLEN001
Sample Date/Time: 06/04/2008 12:05:00
Collected by: JILL PARISI
Sample Type: WATER

PARAMETER	MEASURED VALUE	UNITS	ANALYST	REPORTING LIMIT	METHOD NUMBER	DATE/TIME ANALYZED
SOUTH HEART						
Turbidity	5.3	NTU	ES	0.2	180.1	06/06/2008 08:30:00 AM
Tannins & Lignins	3.57	mg/l	ES	0.05	5550B	06/30/2008 06:00:00 PM
pH	8.8	S.U.	CC	0.1-13.5	4500-H+-B	06/05/2008 06:15:00 PM
Alkalinity Bicarbonate as HCO3	659	mg/l	CC	1	2320B	06/13/2008 04:15:00 PM
Alkalinity Carbonate as CO3	34	mg/l	CC	0	2320B	06/13/2008 04:15:00 PM
Alkalinity Total as CaCO3	597	mg/l	CC	1	2320B	06/13/2008 04:15:00 PM
Chloride as Cl	6	mg/l	ES	5	300.0	06/11/2008 11:06:00 PM
Sulfate as SO4	259	mg/l	ES	25	300.0	06/11/2008 11:06:00 PM
Calcium as Ca	2	mg/l	KC	1	200.7	06/19/2008 06:12:00 PM
Hardness as CaCO3	13	mg/l	BH	7	2340B	06/19/2008 06:12:00 PM
Magnesium as Mg	2	mg/l	BH	1	200.7	06/16/2008 03:28:00 PM
Sodium as Na	362	mg/l	BH	1	200.7	06/16/2008 03:28:00 PM
Total Coliform Bacteria	Absent	cfy/100ml	BD	-----	AMATEC	06/05/2008 03:15:00 PM
Electrical Conductivity	1600	umhos/cm	MRK	10	2510B	06/12/2008 01:13:00 PM
Total Dissolved Solids	1040	mg/l	RM	20	2540C	06/11/2008 02:04:00 PM
Total Suspended Solids	48	mg/l	RM	2	2540D	06/11/2008 02:08:00 PM
Iron as Fe (Total)	0.39	mg/l	BH	0.05	200.7	06/12/2008 10:39:00 PM
Nitrate as N	0.20	mg/l	CC	0.01	353.2	06/23/2008 09:20:00 AM
Nitrite as N	0.01	mg/l	RM	0.01	4500 NO2 B	06/06/2008 10:00:00 AM
Nitrate + Nitrite as N	0.21	mg/l	CC	0.01	353.2	06/23/2008 09:20:00 AM
Sodium Adsorption Ratio	43.3	-----	BH	0.2	20b	06/16/2008 03:28:00 PM
Cations	16.01	meq/l	---	0.30	1030F	
Anions	17.51	meq/l	---	0.38	1030F	
Cation/Anion Balance	4.48	% [max 5%]	---	-----	AWWA/APHA	
Metals Batch#/Digestion Date	1564	-----	DK	-----	200.2	06/09/2008 04:45:00 PM

AMATEC™
Services, Inc.
1537 Avenue D
P.O. Box 20873
Billings, MT 59104-0873
(406) 248-2159
1-800-999-0976
(406) 248-5243 FAX
amatec@bresnan.net

REPORT OF BACTERIOLOGICAL EXAMINATION OF WATER SAMPLES

Northern Analytical
Attn: Kathy Smit
602 South 24th St
PO Box 30315
BILLINGS, MT 59107-0315

Office Use Only
1999-1195
R22656

Received Date 6/5/2008
Received Time 1152
Received By R. Davidson
Test Date/Time 6/5/08 1515
Report Date 6/7/2008
Amount Due
P.O. # / Invoice #
PAID CASH
CHECK #
CrCd #
PAYMENT REQUIRED TO OBTAIN RESULTS

PERSON OR BUSINESS TO RECEIVE REPORT
(Please Indicate Changes)

Name Northern Analytical
Address 602 South 24th St
City Billings State MT Zip 59107-0315
County Yellowstone LOC: Private
Phone 406-254-7226 FAX Number 254-1389
E-Mail

SAMPLE COLLECTION INFORMATION
(Please Print)

Collected On Date 6/4/2008 Hour 1205
SYSTEM (Check One) ☐ Public ☒ Private
Collected By J Parisi
Certified Operator
Certificate #

Sample Type	PWSID Number	Sample Site No. or Repeat location **	Cl RES P.P.M.	Sample No.	RESULTS–LAB USE ONLY Analytical Method: Colilert TOTAL COLIFORM	FECAL	HPC
Water	NonPub	PKuylen 001		802767	**Coliforms Absent**		

PLEASE READ AND FOLLOW THESE DIRECTIONS.

1) Select Fixed Faucet. Remove Faucet Screen. Run cold water 3 minutes
2) Do Not Rinse bottle or remove pill. Fill to Line.
3) Complete Blank Form Info Request. Incompletes delay reporting.
   • Return to lab no later than 30 hours after collection.
   • EPA regs require the lab to commence testing within 30 hours after sampling.
   • When samples are mailed, a) collect after 9AM the same day your mail,
   • and b) mail priority before 12 Noon. Do not mail on Fridays.
4) Do not mail or deliver samples the day before any holiday. Samples must be tested or repeated, if tested extra charges will apply.
5) Routine testing is Monday, Tuesday, Wednesday, Thursday, and until Noon Friday.
6) Samples received by 3 PM on these days are set up the same day; otherwise they are heldover.
7) Samples received after Friday noon, and week-ends will result in extra charges.
8) The laboratory at its option determines the routine testing method(s), other methods used will result in extra charges.

Results of the examination of samples at the time received indicated that the water was:

☒ Satisfactory
☐ Unsatisfactory
☐ Send Repeat samples immediatly
☐ Repeat non-coliform interference

Date Notified: 6/9/2008 Notified by: Mail

Certified Microbiologist:
B. A. Microbiology
B. Davidson
Montana Lab # 0051

PKUYLEN002

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN002
State Well ID: 13909827BCC1
Stark County, North Dakota

LOCATION DATA

Owner/Operator Name: Katherine and Patrick Kuylen

Owner/Operator Address and Contact Information: PO Box 184 South Heart, ND 58655 701-677-5815

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 27 Quarter Section NW Quarter Section SW Quarter Section SE

Coordinates of well/spring location and projection (from GPS):

Northing 433131 Easting 1364851 Projection State Plane

Relative location to landmarks and/or buildings: West of house in a concrete pit

Ground elevation 2520 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Stock

Owner/Operator comments: Plumbed to faucet by the bull pen (W of the house) and 2 Stock tanks in field NW of the house in Section 28 NE1/4 SW1/4 NE1/4. There is no way to shut off flow to the stock tanks so running faucet can cause tanks to drop in water level.

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photo #1

WELL/SPRING CONSTRUCTION

Depth of well: ~120 feet

Screened Interval: Not known to Not known feet

Diameter/Finish (metal casing, PVC, etc.): Metal, 6-inch casing

Date drilled/developed: ~1950

Driller/Contractor's Name: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN002
State Well ID: 13909827BCC1
Stark County, North Dakota

Driller/Contractor's address and contact information: Not known

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Fair condition, substantial mold in the well pit and some rust around well.

Comments:

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photo #2

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Submersible

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Electric

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: There was no access to the well or pump. There is no known information about the well pump.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN002
State Well ID: 13909827BCC1
Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Well Not Accessible

MP height above ground level: Well Not Accessible feet

Static water level in feet below MP: Not able to measure feet

Test Date: 6/4/08 Time: 1:15pm to 1:46pm

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): (in-place) temporary (circle one) Description Use the pump in-place

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: There was no readily available access into the well for water level measurements. There was considerable rust at the well cap.

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photo #3

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN002
State Well ID: 13909827BCC1
Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	6/4/08	0:50	NA	5	6.667	All measurements taken using a 5-gal bucket.
On	6/4/08	1:38	NA	10	5.660	
On	6/4/08	2:26	NA	15	6.250	
On	6/4/08	3:15	NA	20	6.122	
On	6/4/08	4:02	NA	25	6.383	
On	6/4/08	4:48	NA	30	6.522	
On	6/4/08	5:34	NA	35	6.522	
On	6/4/08	6:22	NA	40	6.250	
On	6/4/08	7:09	NA	45	6.383	
On	6/4/08	7:54	NA	50	6.667	
On	6/4/08	8:40	NA	55	6.522	
On	6/4/08	9:26	NA	60	6.522	
On	6/4/08	10:14	NA	65	6.250	
On	6/4/08	10:59	NA	70	6.667	
On	6/4/08	11:46	NA	75	6.383	
On	6/4/08	12:33	NA	80	6.383	
On	6/4/08	13:18	NA	85	6.667	
On	6/4/08	14:04	NA	90	6.522	
On	6/4/08	14:50	NA	95	6.522	
On	6/4/08	15:36	NA	100	6.522	
On	6/4/08	16:19	NA	105	6.977	
On	6/4/08	16:59	NA	110	7.500	
On	6/4/08	17:45	NA	115	6.522	
On	6/4/08	18:28	NA	120	6.977	
On	6/4/08	19:13	NA	125	6.667	
On	6/4/08	20:03	NA	130	6.000	
On	6/4/08	20:48	NA	135	6.667	
On	6/4/08	21:33	NA	140	6.667	
On	6/4/08	22:20	NA	145	6.383	
On	6/4/08	23:04	NA	150	6.818	
On	6/4/08	23:51	NA	155	6.383	
On	6/4/08	24:37	NA	160	6.522	
On	6/4/08	25:24	NA	165	6.383	
On	6/4/08	26:14	NA	170	6.000	
On	6/4/08	27:02	NA	175	6.250	
On	6/4/08	27:50	NA	180	6.250	
On	6/4/08	28:39	NA	185	6.122	
On	6/4/08	29:26	NA	190	6.383	
Off	6/4/08	30:11	NA	195	6.667	

Note:
1) NA means that well was Not Accessible (NA) to take water level measurements

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN002
State Well ID: 13909827BCC1
Stark County, North Dakota

WATER QUALITY DATA

Sample Date: 6/4/08 Time: 2:20pm (usually at end of pump testing)

Sample point: End of the faucet with 50-foot hose connected for sampling and pump test.

Total Volume Purged: 195 gallons

pH (field measurement): 6.85 Conductivity (field measurement): 1999 µ S/cm

Temperature (field measurement): 11.7 °C

Appearance (clarity, odor, sediment, etc.): Cloudy, Brownish-Red color, visible sediment, no odor

Comments:

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Northern Analytical Sample ID: 2008060038-2

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN002
State Well ID: 13909827BCC1
Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (2 of 8 wells) is accurate to the best of my knowledge and represents the true condition of this well on

PATRICK KUYLEN
PRINT NAME

Patrick Kuylen 9-12-08
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 6/4/08 .This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi
PRINT NAME Jill Parisi

Jill Parisi 9/12/08
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN002

State Well ID: 13909827BCC1

Stark County, North Dakota

Additional Notes (if necessary):

PHOTO LOG



Photo #1: Well location for PKUYLEN002 in concrete pit (covered with metal in the bottom right corner) in front of house.



Photo #2: Well setup for PKUYLEN002 showing concrete pit and pressure tank.

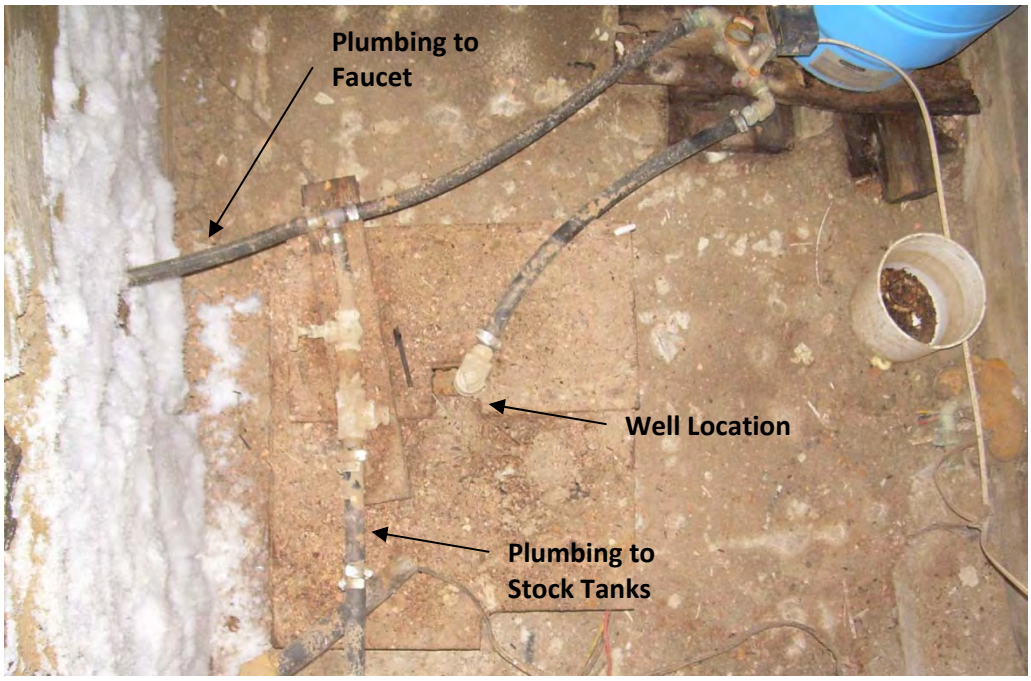

Photo #3: Well setup for PKUYLEN002 showing concrete pit and well plumbing.

Client: GOLDER ASSOCIATES, INC.
Project Name: SOUTH HEART
Project No.: NONE GIVEN
Laboratory No.: 2008060038-2
Sample Name: PKUYLEN002
Sample Date/Time: 06/04/2008 14:20:00
Collected by: JILL PARISI
Sample Type: WATER

PARAMETER	MEASURED VALUE	UNITS	ANALYST	REPORTING LIMIT	METHOD NUMBER	DATE/TIME ANALYZED
SOUTH HEART						
Turbidity	3.4	NTU	ES	0.2	180.1	06/06/2008 08:30:00 AM
Tannins & Lignins	21.8	mg/l	ES	0.05	5550B	06/30/2008 06:00:00 PM
pH	8.3	S.U.	CC	0.1-13.5	4500-H+-B	06/05/2008 06:15:00 PM
Alkalinity Bicarbonate as HCO3	1300	mg/l	CC	1	2320B	06/13/2008 04:15:00 PM
Alkalinity Carbonate as CO3	17	mg/l	CC	0	2320B	06/13/2008 04:15:00 PM
Alkalinity Total as CaCO3	1090	mg/l	CC	1	2320B	06/13/2008 04:15:00 PM
Chloride as Cl	7	mg/l	ES	2	300.0	06/12/2008 07:55:00 PM
Sulfate as SO4	<5	mg/l	ES	10	300.0	06/12/2008 07:55:00 PM
Calcium as Ca	3	mg/l	KC	1	200.7	06/26/2008 09:05:00 PM
Hardness as CaCO3	16	mg/l	BH	7	2340B	06/26/2008 09:05:00 PM
Magnesium as Mg	2	mg/l	KC	1	200.7	06/26/2008 09:05:00 PM
Sodium as Na	465	mg/l	KC	1	200.7	06/26/2008 09:05:00 PM
Total Coliform Bacteria	Absent	cfu/100ml	BD	----	AMATEC	06/05/2008 03:15:00 PM
Electrical Conductivity	1860	umhos/cm	MRK	10	2510B	06/12/2008 01:13:00 PM
Total Dissolved Solids	1270	mg/l	RM	20	2540C	06/11/2008 02:04:00 PM
Total Suspended Solids	<1	mg/l	RM	1	2540D	06/11/2008 02:08:00 PM
Iron as Fe (Total)	0.20	mg/l	BH	0.05	200.7	06/12/2008 10:42:00 PM
Nitrate as N	0.12	mg/l	CC	0.01	353.2	06/23/2008 09:20:00 AM
Nitrite as N	<0.01	mg/l	RM	0.01	4500 NO2 B	06/06/2008 10:00:00 AM
Nitrate + Nitrite as N	0.12	mg/l	CC	0.01	353.2	06/23/2008 09:21:00 AM
Sodium Adsorption Ratio	51.0	----	BH	0.2	20b	06/26/2008 09:05:00 PM
Cations	20.62	meq/l	—	0.30	1030F	
Anions	22.00	meq/l	—	0.38	1030F	
Cation/Anion Balance	3.24	% [max 5%]	—	-----	AWWA/APHA	
Metals Batch#/Digestion Date	1564	----	DK	-----	200.2	06/09/2008 04:45:00 PM

AMATEC™
Services, Inc.
1537 Avenue D
P.O. Box 20873
Billings, MT 59104-0873
(406) 248-2159
1-800-999-0976
(406) 248-5243 FAX
amatec@bresnan.net

REPORT OF BACTERIOLOGICAL EXAMINATION OF WATER SAMPLES

Office Use Only
1999-1195
R22657

Received Date 6/5/2008
Received Time 1152
Received By R. Davidson
Test Date/Time 6/5/08 1515
Report Date 6/7/2008
Amount Due
P.O. # / Invoice #
PAID CASH
CHECK #
CrCd #
PAYMENT REQUIRED TO OBTAIN RESULTS

Northern Analytical
Attn: Kathy Smit
602 South 24th St
PO Box 30315
BILLINGS, MT 59107-0315

PERSON OR BUSINESS TO RECEIVE REPORT
(Please Indicate Changes)

Name Northern Analytical
Address 602 South 24th St
City Billings State MT Zip 59107-0315
County Yellowstone LOC: Private
Phone 406-254-7226 FAX Number 254-1389
E-Mail

SAMPLE COLLECTION INFORMATION
(Please Print)

Collected On Date 6/4/2008 Hour 1420
SYSTEM (Check One) ☐ Public ☒ Private
Collected By J Parisi
Certified Operator
Certificate #

Sample Type	PWSID Number	Sample Site No. or Repeat location **	Cl RES P.P.M.	Sample No.	RESULTS–LAB USE ONLY Analytical Method: Colisure		
					TOTAL COLIFORM	FECAL	HPC
Water	NonPub	PKuylen 002		802768	Coliforms Absent		

PLEASE READ AND FOLLOW THESE DIRECTIONS.

Sample extended incubation using Colisure 48 hours due extremely discolored sample.

Results of the examination of samples at the time received indicated that the water was:

- ☒ Satisfactory
- ☐ Unsatisfactory
- ☐ Send Repeat samples immediatly
- ☐ Repeat non-coliform interference

Date Notified: 6/9/2008 Notified by: Mail

Certified Microbiologist:
B. A. Microbiology

B. Davidson
Montana Lab # 0051

6

PKUYLEN003

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN003
State Well ID: 13909827CBC1
Stark County, North Dakota

LOCATION DATA

Owner/Operator Name: Katherine and Patrick Kuylen

Owner/Operator Address and Contact Information: PO Box 184 South Heart, ND 58655 701-677-5815

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 27 Quarter Section SW Quarter Section SE Quarter Section NE

Coordinates of well/spring location and projection (from GPS):

Northing 431392 Easting 1366115 Projection State Plane

Relative location to landmarks and/or buildings: In field south of house

Ground elevation 2528 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Stock

Owner/Operator comments: Plumbed to stock tank.

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photo #1

WELL/SPRING CONSTRUCTION

Depth of well: ~ 200 feet

Screened Interval: Not known to Not known feet

Diameter/Finish (metal casing, PVC, etc.): Metal

Date drilled/developed: Not known

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

Is Driller/Contractor's log available: Yes (No) (circle one)

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN003
State Well ID: 13909827CBC1
Stark County, North Dakota

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection:

Comments:

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photo #2

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Submersible

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Electric

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING TEST DATA

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN003
State Well ID: 13909827CBC1
Stark County, North Dakota

Measuring point (MP) description: Well Not Accessible

MP height above ground level: Well Not Accessible feet

Static water level in feet below MP: Not able to measure feet

Test Date: 9/9/08 Time: 1:17 pm to 1:26 pm

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): (in-place) temporary (circle one) Description Used pump in-place

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: There was no way to access the well outlet as it was connected to an automatic float in a stock tank. The pump test was performed by measuring the water level in the stock tank and estimating volume in the time it took to rise ¼-inch. This was done until there was no freeboard left in the stock tank without overflowing.

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photos #3-4

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN003

State Well ID: 13909827CBC1

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	9/9/08	1:19	NA	4.4	3.342	Measured water level rise in the stock tank on a ¼-inch scale
On	9/9/08	2:06	NA	8.8	5.617	
On	9/9/08	3:21	NA	17.6	7.040	
On	9/9/08	4:45	NA	22.0	3.143	
On	9/9/08	5:46	NA	26.4	4.328	
On	9/9/08	6:53	NA	30.8	3.940	
Off	9/9/08	8:16	NA	35.2	3.181	Test did not last the entire 30 minutes because there was not enough freeboard to continue to measure the water level rise in the stock tank

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN003
State Well ID: 13909827CBC1
Stark County, North Dakota

WATER QUALITY DATA

Sample Date: 9/9/08 Time: 1:26 pm (usually at end of pump testing)

Sample point: End of float

Total Volume Purged: 35.2 gallons

pH (field measurement): 8.38 Conductivity (field measurement): 2.01 mS/cm

Temperature (field measurement): 15.9 ^{o}C

Appearance (clarity, odor, sediment, etc.): Brown tint, sulfur odor, clear

Comments:

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Northern Analytical and Southwestern District Health Unit

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN003

~~State~~ Well ID: 13909827CBC1

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (3 of 8 wells) is accurate to the best of my knowledge and represents the true condition of this well on

PATRICK KUYLEN
PRINT NAME

Patrick Kuylen 9-12-08
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 9-10-08 .This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi
PRINT NAME Jill Parisi

Jill Parisi 9/12/08
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN003

State Well ID: 13909827CBC1

Stark County, North Dakota

Additional Notes (if necessary):

PKuylen003 (13909827CBC1) may be the same well as PKuylen004(56818). However, the well is located in a different location then recorded on the North Dakota State Water Commission database. Due to this discrepancy PKuylen003 (13909827CBC1) and PKuylen004(56818) were assumed to be two different wells.

PHOTO LOG

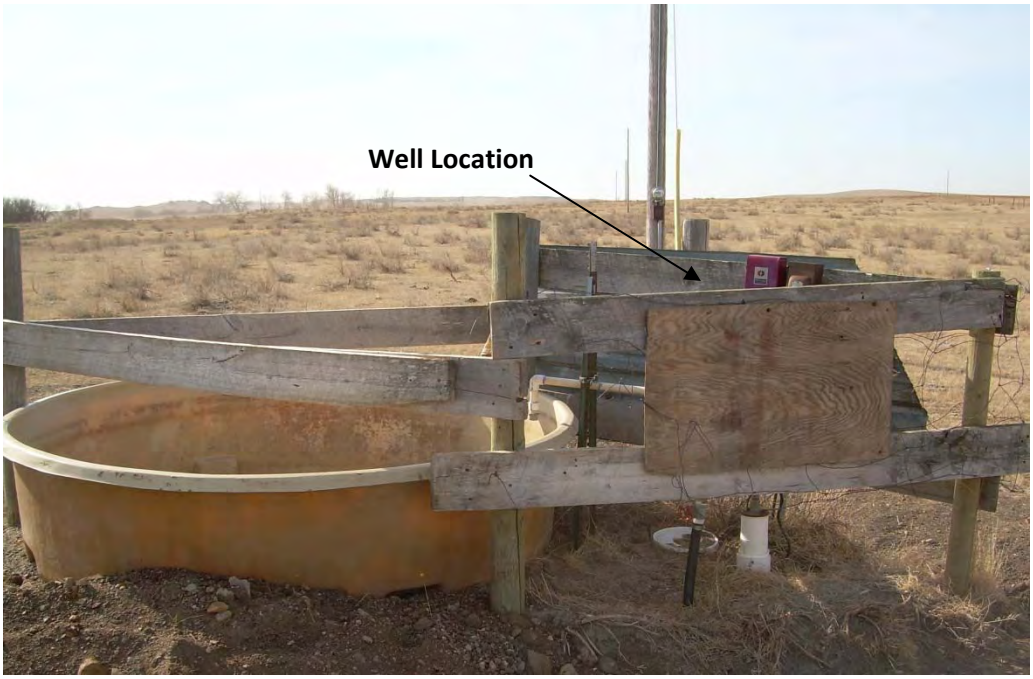

Photo #1: Well location for PKUYLEN003 in field.

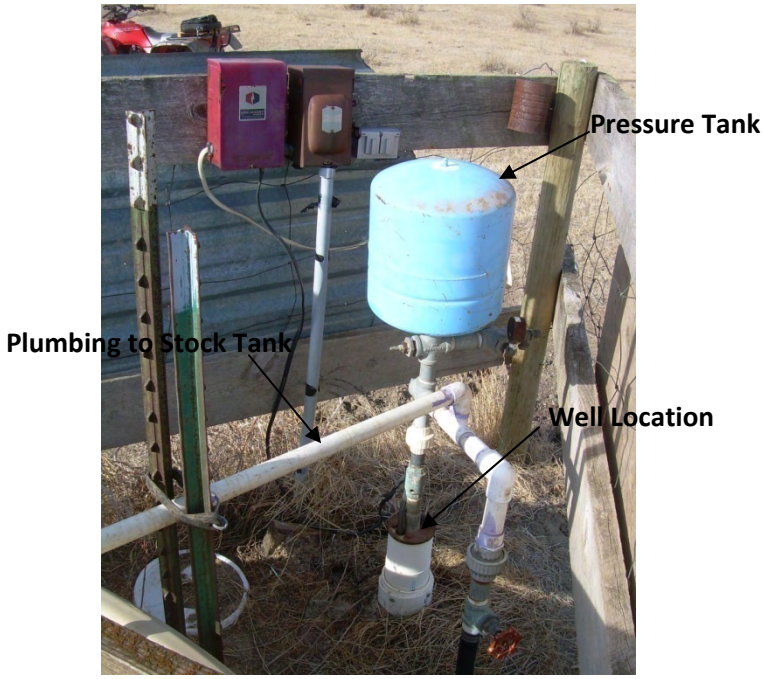

Photo #2: Well setup for PKUYLEN003 showing pressure tank and plumbing.



Photo #3: Well setup for PKUYLEN003 showing float.



Photo #4: Well setup for PKUYLEN003 showing float.

Client: GOLDER ASSOCIATES, INC.
Project Name: SOUTH HEART WELL CERTIFICATION
Project No.: 0632174
Laboratory No.: 2008090094-1
Sample Name: PKUYLEN003
Sample Date/Time: 09/09/2008 13:26:00
Collected by: JILL PARISI
Sample Type: WATER

PARAMETER	MEASURED VALUE	UNITS	ANALYST	REPORTING LIMIT	METHOD NUMBER	DATE/TIME ANALYZED
SOUTH HEART WELL CERTIFICATION						
Turbidity	2.8	NTU	MRK	0.2	180.1	09/11/2008 01:10:00 PM
Tannins & Lignins	25.4	mg/l	ES	0.5	5550A	09/18/2008 03:30:00 PM
pH	8.3	S.U.	RM	0.1-13.5	4500-H+-B	09/11/2008 05:30:59 PM
Alkalinity Bicarbonate as HCO3	1410	mg/l	RM	1	2320B	09/12/2008 10:20:00 AM
Alkalinity Carbonate as CO3	0	mg/l	RM	0	2320B	09/12/2008 10:20:00 AM
Alkalinity Total as CaCO3	1160	mg/l	RM	1	2320B	09/12/2008 10:20:00 AM
Chloride as Cl	8	mg/l	MRK	1	300.0	09/17/2008 04:25:00 PM
Sulfate as SO4	<5	mg/l	MRK	5	300.0	09/17/2008 04:25:00 PM
Hardness as CaCO3	16	mg/l	BH	7	2340B	09/15/2008 05:40:00 PM
Electrical Conductivity	1990	umhos/cm	MRK	10	2510B	09/15/2008 03:54:00 PM
Total Dissolved Solids	1320	mg/l	RM	20	2540C	09/15/2008 09:07:00 AM
Total Suspended Solids	2	mg/l	RM	1	2540D	09/15/2008 09:06:00 AM
Calcium as Ca (Total)	3	mg/l	BH	1	200.7	09/15/2008 05:40:00 PM
Iron as Fe (Total)	0.20	mg/l	BH	0.01	200.7	09/15/2008 05:40:00 PM
Magnesium as Mg (Total)	2	mg/l	BH	1	200.7	09/15/2008 05:40:00 PM
Sodium as Na (Total)	565	mg/l	BH	1	200.7	09/15/2008 05:40:00 PM
Nitrate as N	<0.01	mg/l	MRK	0.01	353.2	09/12/2008 03:17:00 PM
Nitrite as N	0.01	mg/l	MRK	0.01	4500-N02 B	09/11/2008 01:24:00 PM
Nitrate + Nitrite as N	<0.01	mg/l	CC	0.01	353.2	09/12/2008 03:17:00 PM
Sodium Adsorption Ratio	62.0	-----	BH	0.2	20b	09/15/2008 05:40:00 PM
Cations	24.89	meq/l	---	0.30	1030F	
Anions	23.38	meq/l	---	0.20	1030F	
Cation/Anion Balance	3.13	% [max 5%]	---	-----	AWWA/APHA	
Metals Batch#/Digestion Date	1761	-----	BH	-----	200.2	09/12/2008 02:45:00 PM

WATER SYSTEM BACTERIOLOGICAL WATER ANALYSIS

SOUTHWESTERN DISTRICT HEALTH UNIT
2869 3rd Avenue West, Dickinson, ND 58601 • 701-483-0171 or 1-800-697-3145

LEFT SIDE OF FORM MUST BE COMPLETED BY COLLECTOR

Name of Collector	Telephone Number
Jill Parisi	303-980-0540

Date Collected	Time Collected
9/9/08	13:22

Collection Point/Remarks: PKuylen 003

Sample Source (Check One):
- [x] Domestic Well
- [ ] Swimming Pool
- [ ] Surface Water
- [ ] Spa
- [ ] Stock Well
- [ ] Public Water System _____
- [ ] Other _____

Reason for Sample (Check One):
- [ ] Routine
- [ ] Retest
- [ ] Mortgage Requirement
- [ ] USDA Required
- [ ] Required by other state or federal regulations
- [ ] Water treatment check (raw or treated)
- [ ] ND Dairy Dept.
- [x] Special purpose (explain) _____

SWIMMING POOL/SPA INFORMATION

POOL/SPA NAME		
Free Chlorine	Total Chlorine	pH

WATER SUPPLY INFORMATION FOR PRIVATE SYSTEMS

County: Stark County

Township Number	Range Number	Section Number
139	98	

Well Depth _____ ft. Well Diameter _____ in.

Owner: Pat Kuylen

Address:

City	State	Zip Code

Send Results To (if other than owner): Jill Parisi / Golder Associates

Address: 44 Union Blvd, Suite 300

City	State	Zip Code
Lakewood	CO	80228

STOP! RIGHT SIDE OF FORM IS FOR LABORATORY USE ONLY.

Paid - Amount 12.00
- [x] CHECK # 1233
- [ ] CASH

PLEASE READ THE ENCLOSED INSTRUCTIONS BEFORE SAMPLING

Do NOT Submit Samples on FRIDAYS

(***NOTE*** - Pool/Spa, Retest, and Fermentation Tube samples must be **received** by Wednesday of the week)

Lab Number	1299	
Date of Receipt	9-9-08	Time of Receipt: 2:20 pm.
Date of Analysis	9-9-08	Time of Analysis: 1530
Date Completed	9-13-08	Analyst: KP

Remarks:

ANALYSIS METHOD
- [ ] Fermentation Tube
- [x] Membrane Filter
- [ ] Presence-Absence
- [ ] Other _____

COLIFORM ANALYSIS
- [ ] SATISFACTORY - No Coliforms Found
- [ ] UNSATISFACTORY - Coliforms Present - SEND REPEAT SAMPLES
  - [ ] No Fecal Coliforms Found
  - [ ] Fecal Coliforms Present
  - [ ] No *E coli* Found
  - [ ] *E coli* Present

Coliforms per 100 ml	Fecal Coliforms per 100 ml
—	

SAMPLE ~~VOIDED - SEND~~ REPLACEMENT
- [x] Turbid Without Gas Production
- [ ] Too Numerous to Count
- [ ] Confluent Growth
- [x] Turbid Without Acid Reaction
- [ ] Sample Too Old
- [ ] Other _____

STANDARD PLATE COUNT PER ML _____
R2A PLATE COUNT PER ML _____
- [ ] Satisfactory
- [ ] Unsatisfactory

NITRATE SCREEN < 2 mg/l
- [x] Satisfactory
- [ ] Unsatisfactory
- [ ] Result to Follow

(< is less than > is more than)

SWDHU 05/2004

White - lab (top copy) will be returned with the results

Canary - retained by lab

PKUYLEN004

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN004
State Well ID: 56818
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: Katherine and Patrick Kuylen

Owner/Operator Address and Contact Information: PO Box 184 South Heart, ND 58655 701-677-5815

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N* Range 98W*

Section 27* Quarter Section SE* Quarter Section SW* Quarter Section NW*

Coordinates of well/spring location and projection (from GPS):

Northing 431132* Easting 1366786* Projection State Plane*

Relative location to landmarks and/or buildings: Owner cannot locate this well. The owners believe the well does not currently exist.

Ground elevation 2526 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., stock, domestic, industrial, irrigation, etc.): Stock*

Owner/Operator comments: The owners believe the well does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 205* feet

Screened Interval: 185* to 200* feet

Diameter/Finish (metal casing, PVC, etc.): Not known

Date drilled/developed: Not known

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN004
State Well ID: 56818
Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Not known

Comments: Owner can't locate this well and believes that it does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Not Available

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Not Available

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner.

Information could not be obtained directly because the owners believe the well does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Tested

MP height above ground level: Not Tested feet

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN004

State Well ID: 56818

Stark County, North Dakota

Static water level in feet below MP: Not able to measure feet

Test Date: Not Tested Time: to

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place temporary (circle one) Description Not Tested

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Not tested, the owners believe the well does not currently exist

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN004

State Well ID: 56818

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN004
State Well ID: 56818
Stark County, North Dakota

WATER QUALITY DATA

Sample Date: Not Sampled Time: Not Sampled (usually at end of pump testing)

Sample point: Not Sampled

Total Volume Purged: Not Sampled gallons

pH (field measurement): Not Sampled Conductivity (field measurement): Not Sampled µ S/cm

Temperature (field measurement): Not Sampled °C

Appearance (clarity, odor, sediment, etc.): Not Sampled

Comments: Well not sampled because the owners believe the well does not currently exist

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Not Sampled

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN004

State Well ID: 56818

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (4 of 8 wells) is accurate to the best of my knowledge and represents the true condition of this well on 9-12-08.

PATRICK KUYLEN
PRINT NAME

Patrick Kuylen 9-12-08
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 9-12-08. This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi
PRINT NAME Jill Parisi

Jill Parisi 9/12/08
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN004

State Well ID: 56818

Stark County, North Dakota

Additional Notes (if necessary):

This well appears in the North Dakota State Water Commission database but does not exist according to the owner. Information from the North Dakota State Water Commission database was provided where applicable. PKuylen003 (13909827CBC1) may be the same well as PKuylen004(56818). However, the well is located in a different location then recorded on the North Dakota State Water Commission database. Due to this discrepancy PKuylen003 (13909827CBC1) and PKuylen004(56818) were assumed to be two different wells.

PKUYLEN005

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN005
State Well ID: US71-313
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: Katherine and Patrick Kuylen

Owner/Operator Address and Contact Information: PO Box 184 South Heart, ND 58655 701-677-5815

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N* Range 98W*

Section 27* Quarter Section NW* Quarter Section SW Quarter Section SE

Coordinates of well/spring location and projection (from GPS):

Northing 433163* Easting 1365002* Projection State Plane*

Relative location to landmarks and/or buildings: Owner cannot locate this well. The owners believe the well does not currently exist.

Ground elevation 2510.3 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Not known*

Owner/Operator comments: The owners believe the well does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 27* feet

Screened Interval: Not known* to Not known* feet

Diameter/Finish (metal casing, PVC, etc.): Not known

Date drilled/developed: Not known

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN005
State Well ID: US71-313
Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Not known

Comments: Owner can't locate this well and believes that it does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Not Available

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Not Available

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner.

Information could not be obtained directly because the owners believe the well does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN005
State Well ID: US71-313
Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Tested

MP height above ground level: Not Tested feet

Static water level in feet below MP: Not able to measure feet

Test Date: Not Tested Time: to

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place temporary (circle one) Description Not Tested

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Not tested, the owners believe the well does not currently exist

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN005

State Well ID: US71-313

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN005
State Well ID: US71-313
Stark County, North Dakota

WATER QUALITY DATA

Sample Date: Not Sampled Time: Not Sampled (usually at end of pump testing)

Sample point: Not Sampled

Total Volume Purged: Not Sampled gallons

pH (field measurement): Not Sampled Conductivity (field measurement): Not Sampled µ S/cm

Temperature (field measurement): Not Sampled °C

Appearance (clarity, odor, sediment, etc.): Not Sampled

Comments: Well not sampled because the owners believe the well does not currently exist

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Not Sampled

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN005
State Well ID: US71-313
Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (5 of 8 wells) is accurate to the best of my knowledge and represents the true condition of this well on 9-12-08

PATRICK KUYLEN
PRINT NAME

Patrick Kuylen 9-11-08
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 9-12-08. This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi
PRINT NAME Jill Parisi

Jill Parisi 9-12-08
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN005

State Well ID: US71-313

Stark County, North Dakota

Additional Notes (if necessary):

This well appears in the North Dakota State Water Commission database but does not exist according to the owner. Information from the North Dakota State Water Commission database was provided where applicable.

PKUYLEN006

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN006
State Well ID: US71-314
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: Katherine and Patrick Kuylen

Owner/Operator Address and Contact Information: PO Box 184 South Heart, ND 58655 701-677-5815

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N* Range 98W*

Section 27* Quarter Section NW* Quarter Section SE Quarter Section SW

Coordinates of well/spring location and projection (from GPS):

Northing 433163* Easting 1365662* Projection State Plane*

Relative location to landmarks and/or buildings: Owner cannot locate this well. The owners believe the well does not currently exist.

Ground elevation 2515.0 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Not known*

Owner/Operator comments: The owners believe the well does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 180* feet

Screened Interval: Not known* to Not known* feet

Diameter/Finish (metal casing, PVC, etc.): Not known

Date drilled/developed: Not known

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN006
State Well ID: US71-314
Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Not known

Comments: Owner can't locate this well and believes that it does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Not Available

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Not Available

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner.

Information could not be obtained directly because the owners believe the well does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN006
State Well ID: US71-314
Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Tested

MP height above ground level: Not Tested feet

Static water level in feet below MP: Not able to measure feet

Test Date: Not Tested Time: to

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place temporary (circle one) Description Not Tested

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Not tested, the owners believe the well does not currently exist

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN006

State Well ID: US71-314

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN006
State Well ID: US71-314
Stark County, North Dakota

WATER QUALITY DATA

Sample Date: Not Sampled Time: Not Sampled (usually at end of pump testing)

Sample point: Not Sampled

Total Volume Purged: Not Sampled gallons

pH (field measurement): Not Sampled Conductivity (field measurement): Not Sampled µ S/cm

Temperature (field measurement): Not Sampled °C

Appearance (clarity, odor, sediment, etc.): Not Sampled

Comments: Well not sampled because the owners believe the well does not currently exist

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Not Sampled

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN006
State Well ID: US71-314
Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (6 of 8 wells) is accurate to the best of my knowledge and represents the true condition of this well on 9-12-08.

PATRICK KUYLEN
PRINT NAME

Patrick Kuylen 9-12-08
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 9-12-08. This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi
PRINT NAME Jill Parisi

Jill Parisi 9-12-08
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN006

State Well ID: US71-314

Stark County, North Dakota

Additional Notes (if necessary):

This well appears in the North Dakota State Water Commission database but does not exist according to the owner. Information from the North Dakota State Water Commission database was provided where applicable.

PKUYLEN007

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN007
State Well ID: 56816
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: Katherine and Patrick Kuylen

Owner/Operator Address and Contact Information: PO Box 184 South Heart, ND 58655 701-677-5815

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N* Range 98W*

Section 27* Quarter Section SW* Quarter Section SW Quarter Section SW

Coordinates of well/spring location and projection (from GPS):

Northing 430861* Easting 1364553* Projection State Plane*

Relative location to landmarks and/or buildings: Owner cannot locate this well. The owners believe the well does not currently exist.

Ground elevation 2566.7 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Industrial*

Owner/Operator comments: The owners believe the well does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 850* feet

Screened Interval: 375* to 830* feet

Diameter/Finish (metal casing, PVC, etc.): Not known

Date drilled/developed: Not known

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN007
State Well ID: 56816
Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Not known

Comments: Owner can't locate this well and believes that it does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Not Available

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Not Available

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner.

Information could not be obtained directly because the owners believe the well does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN007
State Well ID: 56816
Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Tested

MP height above ground level: Not Tested feet

Static water level in feet below MP: Not able to measure feet

Test Date: Not Tested Time: to

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place temporary (circle one) Description Not Tested

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Not tested, the owners believe the well does not currently exist

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN007

State Well ID: 56816

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN007
State Well ID: 56816
Stark County, North Dakota

WATER QUALITY DATA

Sample Date: Not Sampled Time: Not Sampled (usually at end of pump testing)

Sample point: Not Sampled

Total Volume Purged: Not Sampled gallons

pH (field measurement): Not Sampled Conductivity (field measurement): Not Sampled µ S/cm

Temperature (field measurement): Not Sampled °C

Appearance (clarity, odor, sediment, etc.): Not Sampled

Comments: Well not sampled because the owners believe the well does not currently exist

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Not Sampled

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN007
State Well ID: 56816
Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (7 of 8 wells) is accurate to the best of my knowledge and represents the true condition of this well on 9-12-08

PATRICK KUYLEN
PRINT NAME

Patrick Kuylen 9-12-08
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 9-12-08. This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi
PRINT NAME Jill Parisi

Jill Parisi 9-12-08
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN007

State Well ID: 56816

Stark County, North Dakota

Additional Notes (if necessary):

This well appears in the North Dakota State Water Commission database but does not exist according to the owner. Information from the North Dakota State Water Commission database was provided where applicable.

PKUYLEN008

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN008
State Well ID: 56817
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: Katherine and Patrick Kuylen

Owner/Operator Address and Contact Information: PO Box 184 South Heart, ND 58655 701-677-5815

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N* Range 98W*

Section 27* Quarter Section SW* Quarter Section SW Quarter Section SW

Coordinates of well/spring location and projection (from GPS):

Northing 430861* Easting 1364553* Projection State Plane*

Relative location to landmarks and/or buildings: Owner cannot locate this well. The owners believe the well does not currently exist.

Ground elevation 2566.7 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Stock*

Owner/Operator comments: The owners believe the well does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 975* feet

Screened Interval: 930* to 975* feet

Diameter/Finish (metal casing, PVC, etc.): Not known

Date drilled/developed: Not known

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN008
State Well ID: 56817
Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Not known

Comments: Owner can't locate this well and believes that it does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Not Available

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Not Available

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Pump information not available on SWC database and unknown to well owner.

Information could not be obtained directly because the owners believe the well does not currently exist.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN008
State Well ID: 56817
Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Tested

MP height above ground level: Not Tested feet

Static water level in feet below MP: Not able to measure feet

Test Date: Not Tested Time: to

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place temporary (circle one) Description Not Tested

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Not tested, the owners believe the well does not currently exist

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN008

State Well ID: 56817

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN008
State Well ID: 56817
Stark County, North Dakota

WATER QUALITY DATA

Sample Date: Not Sampled Time: Not Sampled (usually at end of pump testing)

Sample point: Not Sampled

Total Volume Purged: Not Sampled gallons

pH (field measurement): Not Sampled Conductivity (field measurement): Not Sampled µ S/cm

Temperature (field measurement): Not Sampled °C

Appearance (clarity, odor, sediment, etc.): Not Sampled

Comments: Well not sampled because the owners believe the well does not currently exist

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Not Sampled

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN008
State Well ID: 56817
Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (8 of 8 wells) is accurate to the best of my knowledge and represents the true condition of this well on 9-12-08

PATRICK KUYLEN
PRINT NAME

Patrick Kuylen 9-12-08
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 9-12-08 .This WATER WELL CERTIFICATION is signed and certified as true and accurate

Jill Parisi
PRINT NAME Jill Parisi

Jill Parisi 9-12-08
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: PKUYLEN008

State Well ID: 56817

Stark County, North Dakota

Additional Notes (if necessary):

This well appears in the North Dakota State Water Commission database but does not exist according to the owner. Information from the North Dakota State Water Commission database was provided where applicable.

QKUDRNA001

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: QKUDRNA001

State Well ID: _____

Stark County, North Dakota

LOCATION DATA

Owner/Operator Name: Quain and Lorraine Kudrna

Owner/Operator Address and Contact Information: PO Box 121 South Heart, ND 58655 701-677-5347

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 12 Quarter Section SW Quarter Section SE Quarter Section NW

Coordinates of well/spring location and projection (from GPS):

Northing 446820 Easting 1376678 Projection State Plane

Relative location to landmarks and/or buildings: 14 feet northeast of shop building

Ground elevation 2478 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Domestic (includes lawn watering)

Owner/Operator comments: Used for underground sprinkler system or as a faucet that can bypass system.

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photo #1

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 80 feet

Screened Interval: Not known to Not known feet

Diameter/Finish (metal casing, PVC, etc.): 4-inch diameter PVC

Date drilled/developed: 2007

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: QKUDRNA001

State Well ID: _____

Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Good condition

Comments: _____

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photo #2

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Submersible

Make: Gould Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Electric

Horsepower (e.g., ½, ¾, 1, etc.): ¾ horsepower

Comments: _____

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: QKUDRNA001

State Well ID: _____

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: End of 50-foot hose connected to faucet

MP height above ground level: ~ 4 feet

Static water level in feet below MP: Not able to measure feet

Test Date: 11/5/08 Time: 3:31pm to 4:01pm

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): (in-place) temporary (circle one) Description Used the pump in-place

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: There was no readily available access into the well for water level measurements.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: QKUDRNA001____

State Well ID: _____

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	11/5/2008	0:22	NA	5	13.636	Pump on at 3:31 pm
On	11/5/2008	0:43	NA	10	14.286	
On	11/5/2008	1:04	NA	15	14.286	
On	11/5/2008	1:26	NA	20	13.636	
On	11/5/2008	1:47	NA	25	14.286	
On	11/5/2008	2:08	NA	30	14.286	
On	11/5/2008	2:30	NA	35	13.636	
On	11/5/2008	2:51	NA	40	14.286	
On	11/5/2008	3:11	NA	45	15.000	
On	11/5/2008	3:32	NA	50	14.286	
On	11/5/2008	3:54	NA	55	13.636	
On	11/5/2008	4:15	NA	60	14.286	
On	11/5/2008	4:36	NA	65	14.286	
On	11/5/2008	4:57	NA	70	14.286	
On	11/5/2008	5:20	NA	75	13.043	
On	11/5/2008	5:41	NA	80	14.286	
On	11/5/2008	6:02	NA	85	14.286	
On	11/5/2008	6:24	NA	90	13.636	
On	11/5/2008	6:44	NA	95	15.000	
On	11/5/2008	7:05	NA	100	14.286	
On	11/5/2008	7:26	NA	105	14.286	
On	11/5/2008	7:47	NA	110	14.286	
On	11/5/2008	8:09	NA	115	13.636	
On	11/5/2008	8:30	NA	120	14.286	
On	11/5/2008	8:51	NA	125	14.286	
On	11/5/2008	9:12	NA	130	14.286	
On	11/5/2008	9:34	NA	135	13.636	
On	11/5/2008	9:55	NA	140	14.286	
On	11/5/2008	10:16	NA	145	14.286	
On	11/5/2008	10:37	NA	150	14.286	
On	11/5/2008	11:00	NA	155	13.043	
On	11/5/2008	11:20	NA	160	15.000	
On	11/5/2008	11:40	NA	165	15.000	
On	11/5/2008	12:02	NA	170	13.636	
On	11/5/2008	12:25	NA	175	13.043	
On	11/5/2008	12:45	NA	180	15.000	
On	11/5/2008	13:06	NA	185	14.286	
On	11/5/2008	13:27	NA	190	14.286	
On	11/5/2008	13:48	NA	195	14.286	
On	11/5/2008	14:10	NA	200	13.636	
On	11/5/2008	14:30	NA	205	15.000	
On	11/5/2008	14:50	NA	210	15.000	
On	11/5/2008	15:11	NA	215	14.286	

On	11/5/2008	15:32	NA	220	14.286	
On	11/5/2008	15:52	NA	225	15.000	
On	11/5/2008	16:13	NA	230	14.286	
On	11/5/2008	16:34	NA	235	14.286	
On	11/5/2008	16:55	NA	240	14.286	
On	11/5/2008	17:15	NA	245	15.000	
On	11/5/2008	17:36	NA	250	14.286	
On	11/5/2008	17:56	NA	255	15.000	
On	11/5/2008	18:17	NA	260	14.286	
On	11/5/2008	18:38	NA	265	14.286	
On	11/5/2008	19:00	NA	270	13.636	
On	11/5/2008	19:20	NA	275	15.000	
On	11/5/2008	19:41	NA	280	14.286	
On	11/5/2008	20:03	NA	285	13.636	
On	11/5/2008	20:23	NA	290	15.000	
On	11/5/2008	20:44	NA	295	14.286	
On	11/5/2008	21:04	NA	300	15.000	
On	11/5/2008	21:25	NA	305	14.286	
On	11/5/2008	21:46	NA	310	14.286	
On	11/5/2008	22:07	NA	315	14.286	
On	11/5/2008	22:28	NA	320	14.286	
On	11/5/2008	22:49	NA	325	14.286	
On	11/5/2008	23:10	NA	330	14.286	
On	11/5/2008	23:30	NA	335	15.000	
On	11/5/2008	23:51	NA	340	14.286	
On	11/5/2008	24:14	NA	345	13.043	
On	11/5/2008	24:32	NA	350	16.667	
On	11/5/2008	24:54	NA	355	13.636	
On	11/5/2008	25:14	NA	360	15.000	
On	11/5/2008	25:36	NA	365	13.636	
On	11/5/2008	25:58	NA	370	13.636	
On	11/5/2008	26:18	NA	375	15.000	
On	11/5/2008	26:40	NA	380	13.636	
On	11/5/2008	27:02	NA	385	13.636	
On	11/5/2008	27:24	NA	390	13.636	
On	11/5/2008	27:46	NA	395	13.636	
On	11/5/2008	28:07	NA	400	14.286	
On	11/5/2008	28:28	NA	405	14.286	
On	11/5/2008	28:50	NA	410	13.636	
On	11/5/2008	29:12	NA	415	13.636	
On	11/5/2008	29:34	NA	420	13.636	
On	11/5/2008	29:55	NA	425	14.286	
Off	11/5/2008	30:16	NA	430	14.286	Pump off at 4:01 pm

Note:
1) NA means that well was Not Accessible (NA) to take water level measurements

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: QKUDRNA001

State Well ID: _____

Stark County, North Dakota

WATER QUALITY DATA

Sample Date: 11/5/08 Time: 4:05pm (usually at end of pump testing)

Sample point: End of 50-foot hose connected to faucet

Total Volume Purged: 430 gallons

pH (field measurement): 7.61 Conductivity (field measurement): 5.344 m S/cm

Temperature (field measurement): 9.52 ^{o}C

Appearance (clarity, odor, sediment, etc.): Clear with slight yellowish tint, no apparent odor or sediment

Comments: _____

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Northern Analytical and Southwestern District Health Unit

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: QKUDRNA 001

State Well ID: _____

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (1 of 1 wells) is accurate to the best of my knowledge and represents the true condition of this well on

Quinn Kudrna
PRINT NAME

Quinn Kudrna 11-5-08
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 11/5/08. This WATER WELL CERTIFICATION is signed and certified as true and accurate

Ryan Tolene
PRINT NAME Ryan Tolene

Ryan Tolene 11.5.2008
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: QKUDRNA001____

State Well ID: _____

Stark County, North Dakota

Additional Notes (if necessary):

PHOTO LOG



Photo #1: Well location for QKUDRNA001 near house and shop building.

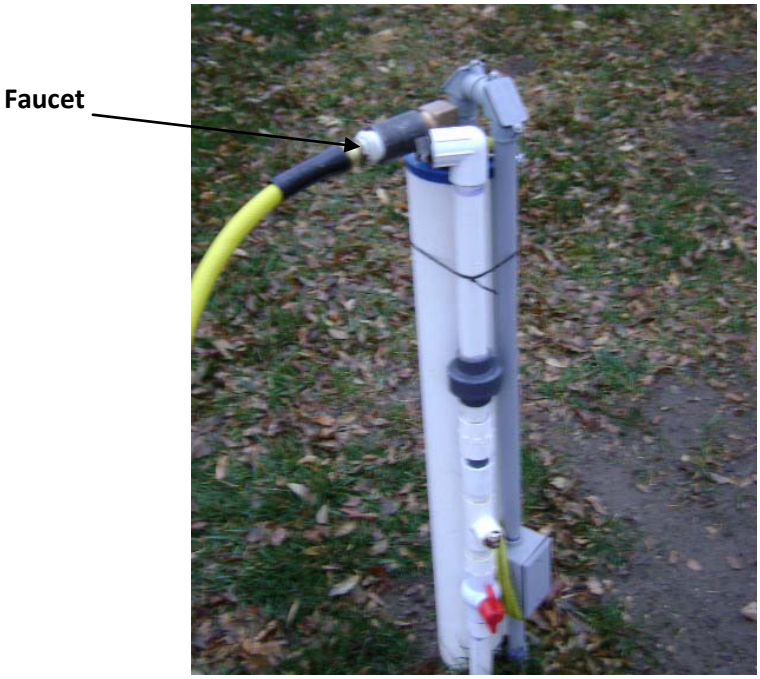

Photo #2: Well setup for QKUDRNA001.

Client: GOLDER ASSOCIATES, INC.
Project Name: SOUTH HEART WELL CERTIFICATION
Project No.: 063-2174
Laboratory No.: 2008110051-1
Sample Name: QKUDRNA001
Sample Date/Time: 11/05/2008 16:05:00
Collected by: NATHAN MONNIG
Sample Type: WATER

PARAMETER	MEASURED VALUE	UNITS	ANALYST	REPORTING LIMIT	METHOD NUMBER	DATE/TIME ANALYZED
SOUTH HEART WELL CERTIFICATION						
Turbidity	0.30	NTU	ES	0.2	180.1	11/10/2008 05:15:00 PM
Tannins & Lignins	0.87	mg/l	CC	0.05	5550B	12/04/2008 05:25:00 PM
pH	7.7	S.U.	ES	0.1-13.5	4500-H+-B	11/08/2008 03:00:00 PM
Alkalinity Bicarbonate as HCO3	776	mg/l	ES	1	2320B	11/19/2008 02:00:00 AM
Alkalinity Carbonate as CO3	0	mg/l	ES	0	2320B	11/19/2008 02:00:00 AM
Alkalinity Total as CaCO3	636	mg/l	ES	1	2320B	11/19/2008 02:00:00 AM
Chloride as Cl	7	mg/l	MRK	1	300.0	11/26/2008 08:20:00 PM
Sulfate as SO4	867	mg/l	MRK	50	300.0	11/25/2008 04:20:00 PM
Hardness as CaCO3	75	mg/l	BH	7	2340B	11/13/2008 01:27:00 PM
Electrical Conductivity	2380	umhos/cm	MRK	10	2510B	11/14/2008 02:20:00 PM
Total Dissolved Solids	1670	mg/l	ES	20	2540C	11/10/2008 04:00:00 PM
Total Suspended Solids	<1	mg/l	ES	1	2540D	11/10/2008 04:00:00 PM
Calcium as Ca (Total)	12	mg/l	BH	1	200.7	11/13/2008 01:27:00 PM
Iron as Fe (Total)	0.13	mg/l	BH	0.01	200.7	11/13/2008 01:27:00 PM
Magnesium as Mg (Total)	11	mg/l	BH	1	200.7	11/13/2008 01:27:00 PM
Sodium as Na (Total)	654	mg/l	BH	1	200.7	11/13/2008 01:27:00 PM
Nitrate as N	<0.01	mg/l	CC	0.01	353.2	11/26/2008 04:41:00 PM
Nitrite as N	<0.01 HT	mg/l	MRK	0.01	300.0	11/26/2008 08:20:00 PM
Nitrate + Nitrite as N	<0.01	mg/l	CC	0.01	353.2	11/26/2008 03:39:00 PM
Sodium Adsorption Ratio	32.8	-----	BH	0.2	20b	11/13/2008 01:27:00 PM
Cations	29.95	meq/l	---	0.30	1030F	
Anions	30.97	meq/l	---	0.38	1030F	
Cation/Anion Balance	1.67	% [max 5%]	---	-----	AWWA/APHA	
Metals Batch#/Digestion Date	1928	-----	BH	-----	200.2	11/12/2008 09:30:00 AM

WATER SYSTEM BACTERIOLOGICAL WATER ANALYSIS

SOUTHWESTERN DISTRICT HEALTH UNIT
2869 3rd Avenue West, Dickinson, ND 58601 • 701-483-0171 or 1-800-697-3145

LEFT SIDE OF FORM MUST BE COMPLETED BY COLLECTOR

Name of Collector	Telephone Number
Nathan Monnig	303 980 0540
Date Collected	**Time Collected**
11/5/08	4:05 pm

Collection Point/Remarks: QKudrna 001

Sample Source (Check One):
- ☒ Domestic Well
- ☐ Swimming Pool
- ☐ Surface Water
- ☐ Spa
- ☐ Stock Well
- ☐ Public Water System _____
- ☐ Other _____

Reason for Sample (Check One):
- ☐ Routine
- ☐ Retest
- ☐ Mortgage Requirement
- ☐ USDA Required
- ☐ Required by other state or federal regulations
- ☐ Water treatment check (raw or treated)
- ☐ ND Dairy Dept.
- ☒ Special purpose (explain) Well Certification

SWIMMING POOL/SPA INFORMATION

POOL/SPA NAME		
Free Chlorine	Total Chlorine	pH

WATER SUPPLY INFORMATION FOR PRIVATE SYSTEMS

County: Stark

Township Number	Range Number	Section Number

Well Depth _____ ft. Well Diameter _____ in.

Owner: Quain Kudrna

Address:

City	State	Zip Code

Send Results To (if other than owner): Ed Potthoff, Golder Assoc.

Address: 44 Union Blvd, Suite 300

City	State	Zip Code
Lakewood	CO	80228

STOP! RIGHT SIDE OF FORM IS FOR LABORATORY USE ONLY.

Paid - Amount	☐ CHECK # _____ ☐ CASH

PLEASE READ THE ENCLOSED INSTRUCTIONS BEFORE SAMPLING

Do NOT Submit Samples on FRIDAYS

(***NOTE*** - Pool/Spa, Retest, and Fermentation Tube samples must be **received** by Wednesday of the week)

Lab Number	
1604	
Date of Receipt	**Time of Receipt**
11-5-08	1645
Date of Analysis	**Time of Analysis**
11-5-08	1645
Date Completed	**Analyst**
11-7-08	RH

Remarks:

ANALYSIS METHOD
- ☒ Fermentation Tube
- ☐ Membrane Filter
- ☐ Presence-Absence
- ☐ Other _____

COLIFORM ANALYSIS
- ☑ SATISFACTORY - No Coliforms Found
- ☐ UNSATISFACTORY - Coliforms Present - SEND REPEAT SAMPLES
  - ☐ No Fecal Coliforms Found
  - ☐ Fecal Coliforms Present
  - ☐ No *E coli* Found
  - ☐ *E coli* Present

Coliforms per 100 ml	Fecal Coliforms per 100 ml
0	

SAMPLE VOIDED - SEND REPLACEMENT
- ☐ Turbid Without Gas Production
- ☐ Too Numerous to Count
- ☐ Confluent Growth
- ☐ Turbid Without Acid Reaction
- ☐ Sample Too Old
- ☐ Other _____

STANDARD PLATE COUNT PER ML _____
R2A PLATE COUNT PER ML _____
- ☐ Satisfactory
- ☐ Unsatisfactory

NITRATE SCREEN < 2 mg/l
- ☒ Satisfactory
- ☐ Unsatisfactory
- ☐ Result to Follow

(< is less than > is more than)

SWDHU 05/2004

White - lab (top copy) will be returned with the results

Canary - retained by lab

QKUDRNA002

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: QKUDRNA002

State Well ID: _____

Stark County, North Dakota

LOCATION DATA

Owner/Operator Name: Quain and Lorraine Kudrna

Owner/Operator Address and Contact Information: PO Box 121 South Heart, ND 58655 701-677-5347

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 12 Quarter Section SW Quarter Section SE Quarter Section NW

Coordinates of well/spring location and projection (from GPS): House not GPS'd, close to QKUDRNA001 location. Northing and Easting estimated from Aerial Map from 6/19/2006

Northing 446727 Easting 1376846 Projection State Plane

Relative location to landmarks and/or buildings: In basement under stairwell

Ground elevation Not Available feet

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Domestic

Owner/Operator comments: This well is currently not in use.

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photo #1

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 70 feet

Screened Interval: Not known to Not known feet

Diameter/Finish (metal casing, PVC, etc.): 4-inch diameter casing

Date drilled/developed: ~1950s

Driller/Contractor's Name: Not known

Driller/Contractor's address and contact information: Not known

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: QKUDRNA002

State Well ID: _____

Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Fair condition

Comments: This well is currently not in use.

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photo #1

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Submersible

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Electric

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: _____

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: QKUDRNA002

State Well ID: _____

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Tested

MP height above ground level: Not Tested feet

Static water level in feet below MP: Not able to measure feet

Test Date: Not Tested Time: _____ to _____

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place temporary (circle one) Description Not Tested

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Not tested because well is not being used by owner.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: QKUDRNA002____

State Well ID: _____

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: QKUDRNA002
State Well ID: _____
Stark County, North Dakota

WATER QUALITY DATA

Sample Date: Not Sampled Time: Not Sampled (usually at end of pump testing)

Sample point: Not Sampled

Total Volume Purged: Not Sampled gallons

pH (field measurement): Not Sampled Conductivity (field measurement): Not Sampled µ S/cm

Temperature (field measurement): Not Sampled °C

Appearance (clarity, odor, sediment, etc.): Not Sampled

Comments: Well not sampled because well is not being used by owner.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Not Sampled

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: QKUDRNA002

State Well ID: _____

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (2 of 2 wells) is accurate to the best of my knowledge and represents the true condition of this well on

_____
PRINT NAME

_____
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 11/5/08 .This WATER WELL CERTIFICATION is signed and certified as true and accurate

Ryan Tolene
PRINT NAME Ryan Tolene

Ryan Tolene 11.5.2008
SIGNED DATE

Certification Field Information Form sent and owner signature is pending.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: QKUDRNA002

State Well ID: _____

Stark County, North Dakota

Additional Notes (if necessary):

This well is not currently in use.

PHOTO LOG



Photo #1: Well location for QKUDRNA002 in basement.

RPRIVRAT001

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: RPRIVRAT001___
State Well ID: _____
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: Robert Privratsky

Owner/Operator Address and Contact Information: 4311 122nd Ave SW South Heart, ND 58655 (701) 677-5696

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 138N Range 98W

Section 10 Quarter Section NE Quarter Section NE Quarter Section NW

Coordinates of well/spring location and projection (from GPS):

Northing 418846.0 Easting 1368036.7 Projection State Plane

Relative location to landmarks and/or buildings: 200 feet west of well owners home in corral next to light pole.

Ground elevation 2601 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Stock and Domestic (includes lawn watering)

Owner/Operator comments: Well owner stated that well primarily waters cattle but is also used to fill tanks to mix with herbicides for spraying crops and for lawn watering.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):1

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: RPRIVRAT001___
State Well ID: _____
Stark County, North Dakota

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: 100 feet

Screened Interval: Not Available to Not Available feet

Diameter/Finish (metal casing, PVC, etc.): 4-inch diameter metal casing.

Date drilled/developed: 1950

Driller/Contractor's Name: Not Available

Driller/Contractor's address and contact information: Not Available

Is Driller/Contractor's log available: Yes ☐ No ☒

Probable stratigraphic unit of well completion: Not Available

Condition of Well and Sanitary Protection: Good condition. Area around well is tidy.

Comments: Casing extends 12-inches above ground level. Well is protected from livestock by corral panels.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):2

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: RPRIVRAT001___

State Well ID: _____

Stark County, North Dakota

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Submersible.

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Electric

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Well owner stated that the well was there on the property before he purchased the homestead.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):3

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: RPRIVRAT001___

State Well ID: _____

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Available

MP height above ground level: Not Available feet

Static water level in feet below MP: Not able to measure feet

Test Date: 10/26/09 Time: 10:47 am to 11:18 am

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place ☒ temporary ☐ Description In-Place pump.

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Pumped continuously for 30 minutes, measuring flow rate in 5 gallon pails with a stopwatch. Unable to take water level readings without removing well head cap and possibly damaging the well and well accessories. Ran discharged water through 50-foot garden hose for pump test. Ran well pump for 5 minutes before starting pump test.

Photograph(s) Taken: Yes ☐ No ☒ Photo ID(s):

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: RPRIVRAT001
State Well ID: _____
Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	10/26/2009	1:41	NA	5	2.970	Pump on at 10:47 am
On	10/26/2009	3:23	NA	10	2.941	
On	10/26/2009	5:04	NA	15	2.970	
On	10/26/2009	6:46	NA	20	2.941	
On	10/26/2009	8:29	NA	25	2.913	
On	10/26/2009	10:13	NA	30	2.885	
On	10/26/2009	11:54	NA	35	2.970	
On	10/26/2009	13:39	NA	40	2.857	
On	10/26/2009	15:22	NA	45	2.913	
On	10/26/2009	17:08	NA	50	2.830	
On	10/26/2009	18:50	NA	55	2.941	
On	10/26/2009	20:36	NA	60	2.830	
On	10/26/2009	22:19	NA	65	2.913	
On	10/26/2009	24:03	NA	70	2.885	
On	10/26/2009	25:45	NA	75	2.941	
On	10/26/2009	27:29	NA	80	2.885	
On	10/26/2009	29:13	NA	85	2.885	
Off	10/26/2009	30:58	NA	90	2.857	Pump off at 11:18 am

Note:
1) NA means that well was Not Accessible (NA) to take water level measurements

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: RPRIVRAT001___
State Well ID: _____
Stark County, North Dakota

WATER QUALITY DATA

Sample Date: 10/26/09 Time:11:24 am (usually at end of pump testing)

Sample point: At end of 3.5-foot pipe connected to well head.

Total Volume Purged: 90 gallons

pH (field measurement): 7.60 Conductivity (field measurement): 2315 µ S/cm

Temperature (field measurement): 10.73 ^{o}C

Appearance (clarity, odor, sediment, etc.): Dark brown with no odor. Small diameter black/brown sediment flakes.

Comments: Before sampling, disinfected end of pipe with Clorox wipe and by heating with handheld butane torch. Ran 1 gallon of water through pipe before sampling.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):4

Laboratory analysis: Pace Analytical and Southwestern District Health Unit.

In general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

GOLDER Received JAN 11 2010 DENVER

Well/Spring ID: RPrivrat 09/

State Well ID: _____

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (1 of 2 wells) is accurate to the best of my knowledge and represents the true condition of this well on

Robert I Privrazsky
PRINT NAME

Robert Privrazsky 10/26/09
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 10/26/09. This WATER WELL CERTIFICATION is signed and certified as true and accurate

JAY BERT
PRINT NAME

10/26/09
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: RPRIVRAT001___

State Well ID: _____

Stark County, North Dakota

Additional Notes (if necessary):

_____

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: RPRIVRAT001___

State Well ID: _____

Stark County, North Dakota

PHOTO LOG



Photo #1: Well location.

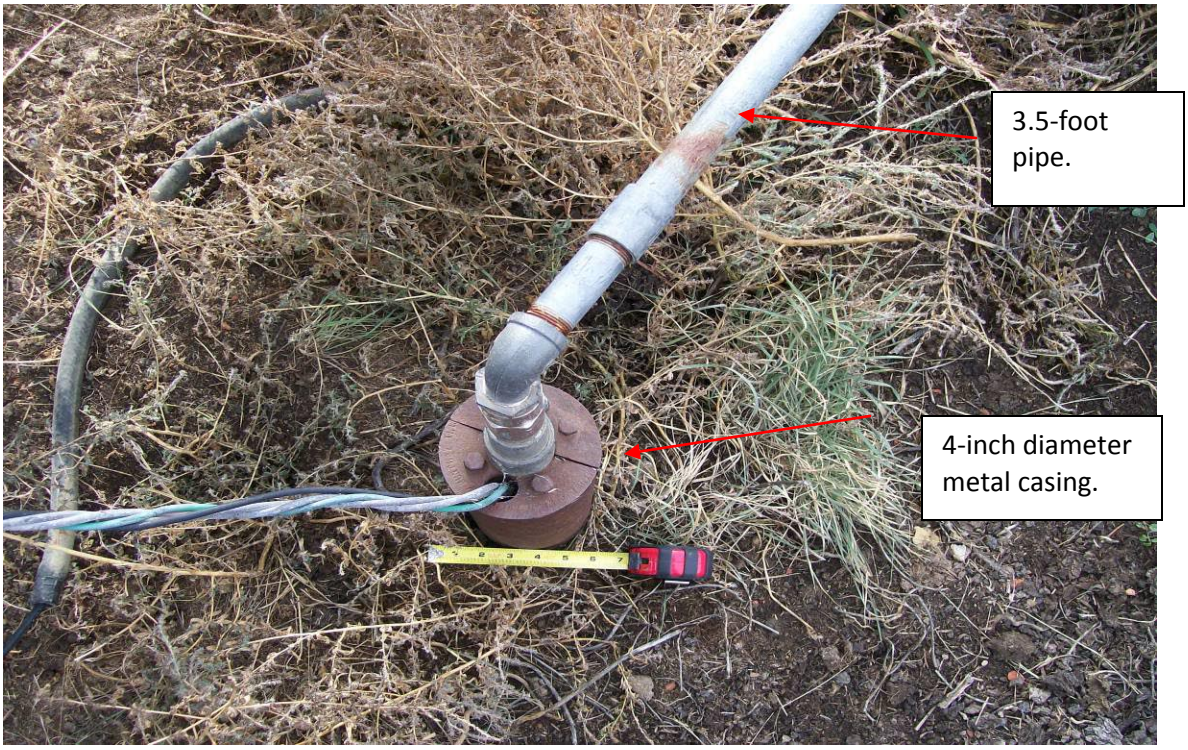

Photo #2: Well construction.



Photo #3: Electrical source for well.



Photo #4: Water quality data.

Pace Analytical Services, Inc.
602 S 25th Street
Billings, MT 591014549
(406)254-7226

ANALYTICAL RESULTS

Project: SH Well Cert 063-2174
Pace Project No.: 10115528

Sample: RPRIVRAT 001 **Lab ID: 10115528001** Collected: 10/26/09 11:24 Received: 10/27/09 09:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium	**3.6**	mg/L	0.50	0.25	1	10/28/09 15:36	10/29/09 15:15	7440-70-2	
Magnesium	**2.5**	mg/L	0.50	0.25	1	10/28/09 15:36	10/29/09 15:15	7439-95-4	
Sodium	**421**	mg/L	1.0	0.50	1	10/28/09 15:36	10/29/09 15:15	7440-23-5	
Total Hardness by 2340B	**19.2**	mg/L	3.3	1.6	1	10/28/09 15:36	10/29/09 15:15		
Sodium Adsorption Ratio, SAR	Analytical Method: Calculated								
Sodium Adsorption Ratio	**41.8**		0.24		1		10/30/09 11:43		
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Iron	**0.52**	mg/L	0.25	0.12	25	11/02/09 14:39	11/06/09 23:50	7439-89-6	
2130B Turbidity	Analytical Method: SM 2130B								
Turbidity	**5.8**	NTU	0.20	0.050	1		10/27/09 16:20		
2510B Specific Conductance	Analytical Method: SM 2510B								
Specific Conductance	**1910**	umhos/cm	10.0	5.0	1		10/28/09 11:30		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**27.6**	mg/L	6.4	3.2	1		10/29/09 08:05		
300.0 IC Anions	Analytical Method: EPA 300.0								
Chloride	**8.8**	mg/L	2.0	0.056	2		10/27/09 22:58	16887-00-6	
Sulfate	**0.39J**	mg/L	10.0	0.32	2		10/27/09 22:58	14808-79-8	
353.2 Nitrate + Nitrite pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	ND	mg/L	0.010	0.0050	1		10/30/09 16:43		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**8.1**	Std. Units	0.10	0.050	1		10/27/09 13:30		H6
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**1120**	mg/L	10.0	0.52	2		11/05/09 08:11		
Alkalinity, Carbonate (CaCO3)	**14.6**	mg/L	10.0	0.52	2		11/05/09 08:11		
Alkalinity, Total as CaCO3	**1140**	mg/L	10.0	0.52	2		11/05/09 08:11		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1330**	mg/L	20.0	5.0	1		10/30/09 15:08		
Cation/Anion Balance	Analytical Method: SM 1030F								
Cation/Anion Balance	**10.2**	%			1		11/10/09 17:28		1M

Date: 11/19/2009 06:22 PM

REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
602 S 25th Street
Billings, MT 591014549
(406)254-7226

QUALIFIERS

Project: SH Well Cert 063-2174
Pace Project No.: 10115528

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

U - Indicates the compound was analyzed for, but not detected.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis
PASI-MT	Pace Analytical Services - Montana

ANALYTE QUALIFIERS

1M	The cation/anion balance is greater than the allowable difference of 5%. Results verified with second analysis.
H6	Analysis initiated more than 15 minutes after sample collection.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
P6	Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.
R1	RPD value was outside control limits.

REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, Inc..

Data Qualifiers

Inorganic Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
E	The result is an estimated amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
Z	Too many colonies were present (TNTC). The numeric value represents the filtration volume.
i	The MRL/MDL has been elevated due to matrix interference.
X	See case narrative.

Metals Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The reported value is estimated because of the presence of matrix interference.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The result was determined by Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL has been elevated due to matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.

Organic Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
A	The tentatively identified compound is a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria were exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides)
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
i	The MRL/MDL has been elevated due to a chromatographic interference.
X	See case narrative.

Petroleum Hydrocarbon Specific

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Pace Analytical Services
Project Name : SH Well Cert 063-2174
Project Number : 10115528
Sample Matrix : WATER

Service Request : J0905315
Date Collected : 10/26/09
Date Received : 10/28/09

Tannin and Lignin

Analysis Method : SM 5550B
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date/Time Analyzed	Result	Result Notes
RPRIVRAT 001	J0905315-001	2.5	0.24	5	11/05/09 11:58	26	
Method Blank	J0905315-MB	0.5	0.048	1	11/05/09 11:58	U	

Report By: Palimi

WATER SYSTEM BACTERIOLOGICAL WATER ANALYSIS

SOUTHWESTERN DISTRICT HEALTH UNIT
2869 3rd Avenue West, Dickinson, ND 58601 • 701-483-0171 or 1-800-697-3145

Received NOV 02 2009 DENVER COLLECTOR

LEFT SIDE OF FORM MUST BE COMPLETED BY COLLECTOR

Name of Collector	Telephone Number
JAY BERG	701-260-6118
Date Collected	**Time Collected**
10/26/09	11:24

Collection Point/Remarks: RPRIVRAT ØØ1

Sample Source (Check One):
- ☐ Domestic Well
- ☐ Swimming Pool
- ☐ Surface Water
- ☐ Spa
- ☒ Stock Well
- ☐ Public Water System
- ☐ Other

Reason for Sample (Check One):
- ☐ Routine
- ☐ Retest
- ☐ Mortgage Requirement
- ☐ USDA Required
- ☐ Required by other state or federal regulations
- ☐ Water treatment check (raw or treated)
- ☐ ND Dairy Dept.
- ☒ Special purpose (explain) well Certification.

SWIMMING POOL/SPA INFORMATION

POOL/SPA NAME		
Free Chlorine	Total Chlorine	pH

WATER SUPPLY INFORMATION FOR PRIVATE SYSTEMS

County: STARK

Township Number	Range Number	Section Number

Well Depth _____ ft. Well Diameter _____ in.

Owner: Robert Priuratsky

Address:

City	State	Zip Code

Send Results To (if other than owner): Ed Pothorff, Golder Associates.

Address: 44 Union Blvd suite 300

City	State	Zip Code
Lakewood	CO	80228

STOP! RIGHT SIDE OF FORM IS FOR LABORATORY USE ONLY.

Paid - Amount	☐ CHECK #
	☐ CASH

PLEASE READ THE ENCLOSED INSTRUCTIONS BEFORE SAMPLING

Do NOT Submit Samples on FRIDAYS

(***NOTE** - Pool/Spa, Retest, and Fermentation Tube samples must be **received** by Wednesday of the week)

Lab Number	1426
Date of Receipt	**Time of Receipt**
10-26-09	1404
Date of Analysis	**Time of Analysis**
10-26-09	1430
Date Completed	**Analyst**
10-29-09	PM

Remarks:

ANALYSIS METHOD
- ☒ Fermentation Tube
- ☐ Membrane Filter
- ☐ Presence-Absence
- ☐ Other

COLIFORM ANALYSIS
- ☐ SATISFACTORY - No Coliforms Found
- ☒ UNSATISFACTORY - Coliforms Present - SEND REPEAT SAMPLES
  - ☐ No Fecal Coliforms Found
  - ☐ Fecal Coliforms Present
  - ☐ No *E coli* Found
  - ☒ *E coli* Present

Coliforms per 100 ml	Fecal Coliforms per 100 ml
+	

SAMPLE VOIDED - SEND REPLACEMENT
- ☐ Turbid Without Gas Production
- ☐ Too Numerous to Count
- ☐ Confluent Growth
- ☐ Turbid Without Acid Reaction
- ☐ Sample Too Old
- ☐ Other

STANDARD PLATE COUNT PER ML _____
R2A PLATE COUNT PER ML _____
- ☐ Satisfactory
- ☐ Unsatisfactory

NITRATE SCREEN < 2 mg/l
- ☒ Satisfactory
- ☐ Unsatisfactory
- ☐ Result to Follow

(< is less than > is more than)

SWDHU 05/2004

White - lab (top copy) will be returned with the results

Canary - retained by lab

VHOFFMAN001

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: VHOFFMAN001
State Well ID: _____
Stark County, North Dakota

LOCATION DATA (* indicates obtained from North Dakota State Water Commission database)

Owner/Operator Name: Viola Hoffman

Owner/Operator Address and Contact Information: PO Box 122 South Heart, ND 58655 (701) 677-5310

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 12 Quarter Section SW Quarter Section SW Quarter Section NE

Coordinates of well/spring location and projection (from GPS):

Northing 446691.3 Easting 1375776.1 Projection State Plane

Relative location to landmarks and/or buildings: 50 feet south of well owners house under a large windmill

Ground elevation 2479 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Domestic (includes lawn watering)

Owner/Operator comments: Interviewed well owners son Jason during field certification. Well water used for watering the lawn and garden and washing cars. Well was there when the well owner purchased the house.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):1

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: VHOFFMAN001

State Well ID: _____

Stark County, North Dakota

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: ~60 feet

Screened Interval: Not Available to Not Available feet

Diameter/Finish (metal casing, PVC, etc.): Not Available

Date drilled/developed: ~1951

Driller/Contractor's Name: Not Available

Driller/Contractor's address and contact information: Not Available

Is Driller/Contractor's log available: Yes ☐ No ☒

Probable stratigraphic unit of well completion: Not Available

Condition of Well and Sanitary Protection: Fair condition.

Comments: Not able to measure diameter of well casing because the casing is below grade at the location of the hydrant and casing was not accessible without damaging the seal around the hydrant. Well casing surrounded by 16-inch diameter concrete with a cistern located next to the well. Cistern was originally used with the well. The cistern and well was later connected to a windmill as a pumping system. The cistern is now sealed and the well has a submersible pump system with a hydrant.

Photograph(s) Taken: Yes ☒ No ☐ Photo ID(s):2-4

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: VHOFFMAN001
State Well ID: _____
Stark County, North Dakota

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Submersible

Make: Not Available Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Electric

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: _____

Photograph(s) Taken: Yes ☐ No ☒ Photo ID(s):_____

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: VHOFFMAN001

State Well ID: _____

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Available

MP height above ground level: Not Available feet

Static water level in feet below MP: Not able to measure feet

Test Date: 9/2/09 Time: 2:43 pm to 3:13 pm

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place ☒ temporary ☐ Description In-place pump

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: Pumped continuously for 30 minutes, measuring flow rate in 5 gallon pails with stopwatch, Unable to take water level readings without removing well plumbing and possibly damaging the well and well accessories.

Photograph(s) Taken: Yes ☐ No ☒ Photo ID(s):_____

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: VHOFFMAN001
State Well ID: _____
Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes
On	9/2/2009	0:32	NA	5	9.375	Pump on at 2:43 pm
On	9/2/2009	1:06	NA	10	8.824	
On	9/2/2009	1:40	NA	15	8.824	
On	9/2/2009	2:15	NA	20	8.571	
On	9/2/2009	2:49	NA	25	8.824	
On	9/2/2009	3:26	NA	30	8.108	
On	9/2/2009	3:59	NA	35	9.091	
On	9/2/2009	4:35	NA	40	8.333	
On	9/2/2009	5:12	NA	45	8.108	
On	9/2/2009	5:49	NA	50	8.108	
On	9/2/2009	6:24	NA	55	8.571	
On	9/2/2009	6:59	NA	60	8.571	
On	9/2/2009	7:33	NA	65	8.824	
On	9/2/2009	8:10	NA	70	8.108	
On	9/2/2009	8:44	NA	75	8.824	
On	9/2/2009	9:21	NA	80	8.108	
On	9/2/2009	9:55	NA	85	8.824	
On	9/2/2009	10:33	NA	90	7.895	
On	9/2/2009	11:06	NA	95	9.091	
On	9/2/2009	11:45	NA	100	7.692	
On	9/2/2009	12:19	NA	105	8.824	
On	9/2/2009	12:54	NA	110	8.571	
On	9/2/2009	13:28	NA	115	8.824	
On	9/2/2009	14:04	NA	120	8.333	
On	9/2/2009	14:38	NA	125	8.824	
On	9/2/2009	15:15	NA	130	8.108	
On	9/2/2009	15:49	NA	135	8.824	
On	9/2/2009	16:27	NA	140	7.895	
On	9/2/2009	17:00	NA	145	9.091	
On	9/2/2009	17:38	NA	150	7.895	
On	9/2/2009	18:11	NA	155	9.091	
On	9/2/2009	18:47	NA	160	8.333	
On	9/2/2009	19:21	NA	165	8.824	
On	9/2/2009	19:57	NA	170	8.333	
On	9/2/2009	20:32	NA	175	8.571	
On	9/2/2009	21:08	NA	180	8.333	
On	9/2/2009	21:41	NA	185	9.091	
On	9/2/2009	22:18	NA	190	8.108	
On	9/2/2009	22:51	NA	195	9.091	
On	9/2/2009	23:29	NA	200	7.895	
On	9/2/2009	24:03	NA	205	8.824	
On	9/2/2009	24:40	NA	210	8.108	
On	9/2/2009	25:14	NA	215	8.824	
On	9/2/2009	25:53	NA	220	7.692	
On	9/2/2009	26:27	NA	225	8.824	
On	9/2/2009	27:03	NA	230	8.333	
On	9/2/2009	27:38	NA	235	8.571	
On	9/2/2009	28:13	NA	240	8.571	
On	9/2/2009	28:47	NA	245	8.824	
On	9/2/2009	29:23	NA	250	8.333	
On	9/2/2009	29:56	NA	255	9.091	
Off	9/2/2009	30:32	NA	260	8.333	Pump off at 3:13 pm

Note:
1) NA means that well was Not Accessible (NA) to take water level measurements

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: VHOFFMAN001

State Well ID: _____

Stark County, North Dakota

WATER QUALITY DATA

Sample Date: 9/2/09 Time:3:13 pm (usually at end of pump testing)

Sample point: At end of 50 foot garden hose attached to faucet

Total Volume Purged: 260 gallons

pH (field measurement): 6.63 Conductivity (field measurement): 2025 µ S/cm

Temperature (field measurement): 11.76 ^{o}C

Appearance (clarity, odor, sediment, etc.): Clear, slight sulfur odor with no apparent sediment

Comments: Took a second sample for Southwestern District Health Unit direct from hydrant tap on 9/29/09. Cleaned tap with clorox wipe before sampling. Ran 1 gallon of water through pipe before sampling This sampling technique was recommended by the lab. Both lab test analyses are included.

Photograph(s) Taken: Yes ☐ No ☒ Photo ID(s):_____

Laboratory analysis: Pace Analytical and Southwestern District Health Unit.

In general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: VHOFFMAN001

State Well ID: _____

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (1 of 1 wells) is accurate to the best of my knowledge and represents the true condition of this well on

Jason Hoffman
PRINT NAME

Jason Hoffman 9-02-09
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 9/2/09. This WATER WELL CERTIFICATION is signed and certified as true and accurate

Ryan Tolene
PRINT NAME

Ryan Tolene 9.2.2009
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: VHOFFMAN001___

State Well ID: _____

Stark County, North Dakota

Additional Notes (if necessary):

PHOTO LOG



Photo #1: Hydrant and well location relative to well owners house and windmill.

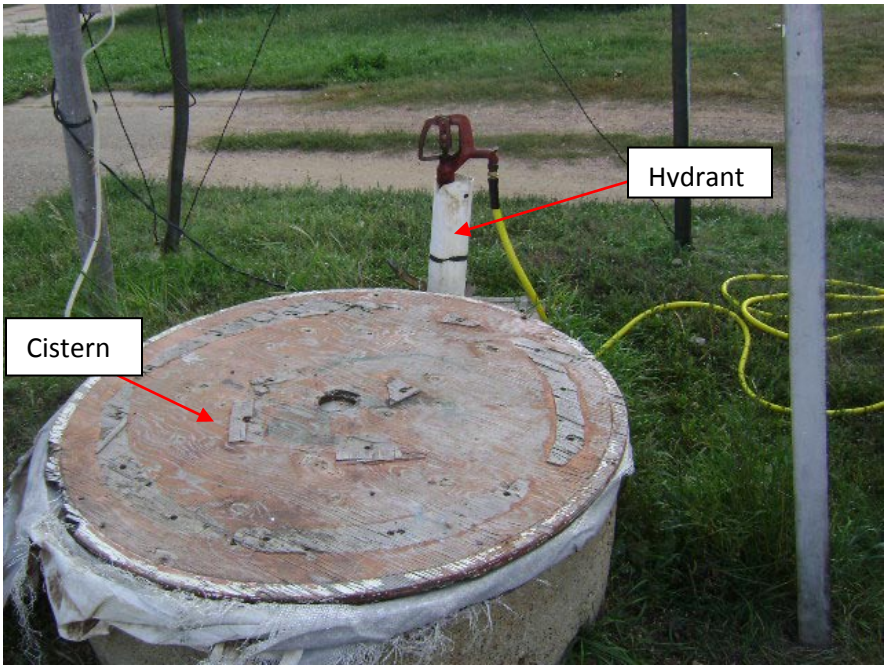

Photo #2: Well construction.



Photo #3: Well construction.



Photo #4: Well construction.

Pace Analytical Services, Inc.
602 S 25th Street
Billings, MT 591014549
(406)254-7226

ANALYTICAL RESULTS

Project: South Heart Well Cert 063-2174
Pace Project No.: 10111777

Sample: VHOFFMAN001 **Lab ID: 10111777001** Collected: 09/02/09 15:13 Received: 09/03/09 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium	**53.6**	mg/L	0.50	0.25	1	09/15/09 15:32	09/15/09 16:07	7440-70-2	
Magnesium	**49.8**	mg/L	0.50	0.25	1	09/15/09 15:32	09/15/09 16:07	7439-95-4	
Sodium	**361**	mg/L	1.0	0.50	1	09/15/09 15:32	09/15/09 16:07	7440-23-5	
Total Hardness by 2340B	**339**	mg/L	3.3	1.6	1	09/15/09 15:32	09/15/09 16:07		
Sodium Adsorption Ratio, SAR	Analytical Method: Calculated								
Sodium Adsorption Ratio	**8.5**		0.24		1		09/16/09 14:10		
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Iron	**0.44**	mg/L	0.0050	0.0050	1	09/11/09 16:30	09/14/09 19:52	7439-89-6	
2130B Turbidity	Analytical Method: SM 2130B								
Turbidity	**2.0**	NTU	0.20	0.050	1		09/04/09 11:32		
2510B Specific Conductance	Analytical Method: SM 2510B								
Specific Conductance	**2060**	umhos/cm	10.0	5.0	1		09/03/09 17:10		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**9.1**	mg/L	1.0	0.50	1		09/04/09 09:23		
300.0 IC Anions	Analytical Method: EPA 300.0								
Chloride	**5.7**	mg/L	1.0	0.50	1		09/05/09 10:15	16887-00-6	
Sulfate	**623**	mg/L	50.0	1.6	10		09/05/09 11:16	14808-79-8	
353.2 Nitrate + Nitrite pres.	Analytical Method: EPA 353.2								
Nitrogen, NO2 plus NO3	**0.070**	mg/L	0.010	0.0050	1		09/03/09 16:46		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B								
pH at 25 Degrees C	**7.2**	Std. Units	0.10	0.050	1		09/03/09 17:09		H6
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**499**	mg/L	5.0	2.5	1		09/16/09 16:43		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	5.0	2.5	1		09/16/09 16:43		
Alkalinity, Total as CaCO3	**499**	mg/L	5.0	2.5	1		09/16/09 16:43		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1350**	mg/L	20.0	5.0	1		09/08/09 14:25		
Cation/Anion Balance	Analytical Method: SM 1030F								
Cation/Anion Balance	**1.4**	%			1		09/17/09 17:52		1M

Date: 09/29/2009 12:27 PM

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
602 S 25th Street
Billings, MT 591014549
(406)254-7226

QUALIFIERS

Project: South Heart Well Cert 063-2174
Pace Project No.: 10111777

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

U - Indicates the compound was analyzed for, but not detected.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis
PASI-MT	Pace Analytical Services - Montana

ANALYTE QUALIFIERS

1M	Percent Difference is less than the allowable difference of 5%.
H6	Analysis initiated more than 15 minutes after sample collection.
R1	RPD value was outside control limits.

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Data Qualifiers

Inorganic Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
E	The result is an estimated amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
Z	Too many colonies were present (TNTC). The numeric value represents the filtration volume.
i	The MRL/MDL has been elevated due to matrix interference.
X	See case narrative.

Metals Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The reported value is estimated because of the presence of matrix interference.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The result was determined by Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL has been elevated due to matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.

Organic Data

*	The result is an outlier. See case narrative.
#	The control limit criteria are not applicable. See case narrative.
A	The tentatively identified compound is a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria were exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides)
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
i	The MRL/MDL has been elevated due to a chromatographic interference.
X	See case narrative.

Petroleum Hydrocarbon Specific

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Pace Analytical Services
Project Name : South Heart Well Cert 063-2174
Project Number : 10111777
Sample Matrix : WATER

Service Request : J0904467
Date Collected : 09/02/09
Date Received : 09/09/09

Tannin and Lignin

Analysis Method : SM 5550B
Test Notes :

Units : mg/L (ppm)
Basis : NA

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date/Time Analyzed	Result	Result Notes
VHOFFMAN001	J0904467-001	0.5	0.048	1	09/21/09 16:11	0.68	
Method Blank	J0904467-MB	0.5	0.048	1	09/21/09 16:11	U	

Report By: Palimi

Fax TO: 303-985-2080

WATER SYSTEM BACTERIOLOGICAL WATER ANALYSIS

SOUTHWESTERN DISTRICT HEALTH UNIT
2869 3rd Avenue West, Dickinson, ND 58601 • 701-483-0171 or 1-800-697-3145

LEFT SIDE OF FORM MUST BE COMPLETED BY COLLECTOR

Name of Collector	Telephone Number
Ryan Tolene	(303)980-0540
Date Collected	**Time Collected**
9/2/2009	15:13

Collection Point/Remarks: VHOFFMAN 001

Sample Source (Check One):
- [X] Domestic Well
- [ ] Swimming Pool
- [ ] Surface Water
- [ ] Spa
- [ ] Stock Well
- [ ] Public Water System
- [ ] Other

Reason for Sample (Check One):
- [ ] Routine
- [ ] Retest
- [ ] Mortgage Requirement
- [ ] USDA Required
- [ ] Required by other state or federal regulations
- [ ] Water treatment check (raw or treated)
- [ ] ND Dairy Dept.
- [X] Special purpose (explain) Well Certification

SWIMMING POOL/SPA INFORMATION

POOL/SPA NAME		
Free Chlorine	Total Chlorine	pH

WATER SUPPLY INFORMATION FOR PRIVATE SYSTEMS

County: Stark

Township Number	Range Number	Section Number

Well Depth _____ ft. Well Diameter _____ in.

Owner: Viola Hoffman

Address:

City	State	Zip Code

Send Results To (if other than owner): Ed Pottorff, Golder Associates

Address: 44Union Blvd, Suite 300

City	State	Zip Code
Lakewood	CO	80228

STOP! RIGHT SIDE OF FORM IS FOR LABORATORY USE ONLY.

Paid - Amount	☐ CHECK # _____ ☐ CASH

PLEASE READ THE ENCLOSED INSTRUCTIONS BEFORE SAMPLING

Do NOT Submit Samples on FRIDAYS

(***NOTE** - Pool/Spa, Retest, and Fermentation Tube samples must be **received** by Wednesday of the week)

Lab Number	1199
Date of Receipt	**Time of Receipt**
9-2-09	1635
Date of Analysis	**Time of Analysis**
9-2-09	1640
Date Completed	**Analyst**
9-4-09	ICP

Remarks:

ANALYSIS METHOD
- [X] Fermentation Tube
- [ ] Membrane Filter
- [ ] Presence-Absence
- [ ] Other

COLIFORM ANALYSIS
- [ ] SATISFACTORY - No Coliforms Found
- [X] UNSATISFACTORY - Coliforms Present - SEND REPEAT SAMPLES
  - [ ] No Fecal Coliforms Found
  - [ ] Fecal Coliforms Present
  - [ ] No *E coli* Found
  - [ ] *E coli* Present

Coliforms per 100 ml	Fecal Coliforms per 100 ml
(+) Test	

SAMPLE VOIDED - SEND REPLACEMENT
- [ ] Turbid Without Gas Production
- [ ] Too Numerous to Count
- [ ] Confluent Growth
- [ ] Turbid Without Acid Reaction
- [ ] Sample Too Old
- [ ] Other

STANDARD PLATE COUNT PER ML _____
R2A PLATE COUNT PER ML _____
- [ ] Satisfactory
- [ ] Unsatisfactory

NITRATE SCREEN <2 mg/l
- [X] Satisfactory
- [ ] Unsatisfactory
- [ ] Result to Follow

(< is less than > is more than)

White - lab (top copy) will be returned with the results

Canary - retained by lab

WATER SYSTEM BACTERIOLOGICAL WATER ANALYSIS

SOUTHWESTERN DISTRICT HEALTH UNIT
2869 3rd Avenue West, Dickinson, ND 58601 • 701-483-0171 or 1-800-697-3145

Received OCT 06 2009 GOLDER DENVER

LEFT SIDE OF FORM MUST BE COMPLETED BY COLLECTOR

Name of Collector	Telephone Number
JAY BERG	701-260-6118

Date Collected	Time Collected
9/29/09	14:20

Collection Point/Remarks: V Hoffman #1

Sample Source (Check One):
- [X] Domestic Well
- [ ] Swimming Pool
- [ ] Surface Water
- [ ] Spa
- [ ] Stock Well
- [ ] Public Water System _____
- [ ] Other _____

Reason for Sample (Check One):
- [ ] Routine
- [ ] Retest
- [ ] Mortgage Requirement
- [ ] USDA Required
- [ ] Required by other state or federal regulations
- [ ] Water treatment check (raw or treated)
- [ ] ND Dairy Dept.
- [X] Special purpose (explain) Well Cert

SWIMMING POOL/SPA INFORMATION

POOL/SPA NAME		
Free Chlorine	Total Chlorine	pH

WATER SUPPLY INFORMATION FOR PRIVATE SYSTEMS

County: STARK

Township Number	Range Number	Section Number

Well Depth _____ ft. Well Diameter _____ in.

Owner: Viola Hoffman

Address:

City	State	Zip Code

Send Results To (if other than owner): Ed Pothorf / Golder Associates

Address: 44 Union Blvd, Suite 300

City	State	Zip Code
Lakewood	CO	80228

STOP! RIGHT SIDE OF FORM IS FOR LABORATORY USE ONLY.

Paid - Amount	CHECK # _____ / CASH

PLEASE READ THE ENCLOSED INSTRUCTIONS BEFORE SAMPLING

Do NOT Submit Samples on FRIDAYS

(***NOTE** - Pool/Spa, Retest, and Fermentation Tube samples must be **received** by Wednesday of the week)

Lab Number	
~~1375~~ 1321	
Date of Receipt: 9-29-09	Time of Receipt: 1540
Date of Analysis: 9-29-09	Time of Analysis: 1545
Date Completed: 10-2-09	Analyst: KD

Remarks:

ANALYSIS METHOD
- [X] Fermentation Tube
- [ ] Membrane Filter
- [ ] Presence-Absence
- [ ] Other _____

COLIFORM ANALYSIS
- [ ] ~~SATISFACTORY~~ - No Coliforms Found
- [X] UNSATISFACTORY - Coliforms Present - SEND REPEAT SAMPLES
  - [ ] No Fecal Coliforms Found
  - [ ] Fecal Coliforms Present
  - [ ] No *E coli* Found
  - [ ] *E coli* Present

Coliforms per 100 ml	Fecal Coliforms per 100 ml
(+) Test	

SAMPLE VOIDED - SEND REPLACEMENT
- [ ] Turbid Without Gas Production
- [ ] Too Numerous to Count
- [ ] Confluent Growth
- [ ] Turbid Without Acid Reaction
- [ ] Sample Too Old
- [ ] Other _____

STANDARD PLATE COUNT PER ML _____
R2A PLATE COUNT PER ML _____
- [ ] Satisfactory
- [ ] Unsatisfactory

NITRATE SCREEN <2 mg/l
- [X] Satisfactory
- [ ] Unsatisfactory
- [ ] Result to Follow

(< is less than > is more than)

White - lab (top copy) will be returned with the results

Canary - retained by lab

WKUBAS001

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: WKUBAS001

State Well ID: _____

Stark County, North Dakota

LOCATION DATA

Owner/Operator Name: Wayne and Marla Kubas

Owner/Operator Address and Contact Information: PO Box 201 South Heart, ND 58655 701-677-9846

Well/Spring Location (legal description to the ¼, ¼, ¼): Township 139N Range 98W

Section 13 Quarter Section NW Quarter Section NW Quarter Section NE

Coordinates of well/spring location and projection (from GPS):

Northing 445546 Easting 1376302 Projection State Plane

Relative location to landmarks and/or buildings: 29 feet northwest of house

Ground elevation 2479 feet estimated from Digital Elevation Model

Use(s) of Water (e.g., livestock, domestic, industrial, irrigation, etc.): Domestic (includes lawn watering)

Owner/Operator comments: Used for above ground sprinklers.

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photo #1

WELL/SPRING CONSTRUCTION (* indicates obtained from North Dakota State Water Commission database)

Depth of well: ~60 feet

Screened Interval: Not known to Not known feet

Diameter/Finish (metal casing, PVC, etc.): 6-inch diameter PVC

Date drilled/developed: ~2000 or 2001

Driller/Contractor's Name: Tysver Drilling

Driller/Contractor's address and contact information: 506 6th Ave. Scranton, ND 58653 701-275-6222

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: WKUBAS001

State Well ID: _____

Stark County, North Dakota

Is Driller/Contractor's log available: Yes (No) (circle one)

Probable stratigraphic unit of well completion: Not known

Condition of Well and Sanitary Protection: Good condition

Comments: _____

Photograph(s) Taken: (Yes) No (circle one) Photo ID(s): Photo #2

PUMP SPECIFICATIONS

Type, e.g., air, bucket centrifugal, piston, turbine, jet, submersible, etc.: Submersible

Make: Grundfos Model Not Available Serial # Not Available

Pump intake depth: Not Available feet below ground surface (ft bgs)

Power source (e.g., electric, solar, diesel, gasoline, hand, windmill, etc.): Electric

Horsepower (e.g., ½, ¾, 1, etc.): Not Available

Comments: Stainless steel pump

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: WKUBAS001

State Well ID: _____

Stark County, North Dakota

WELL/SPRING TEST DATA

Measuring point (MP) description: Not Tested

MP height above ground level: Not Tested feet

Static water level in feet below MP: Not able to measure feet

Test Date: Not Tested Time: _____ to _____

Type of Pump Used (The tester should provide a portable submersible pump to be used if required, e.g., Grundfos Redi Flo 2): in-place temporary (circle one) Description Not Tested

Pump test data recorded on next page (Make effort to measure water level every minute for the first ten minutes, then every 5 minutes after that for a minimum of 30-60 minutes. During recovery, measure again every minute for first ten minutes and then every 5 minutes for up to 15 minutes or until recovery within approximately 1 foot or less of the measured static water level, if practical. Flow measurement should be taken every 5 minutes throughout pumping period.)

Estimated Specific Capacity (discharge vs. drawdown in GPM/Ft. at end of pumping period): Not able to calculate

Comments: There was no readily available access into the well for water level measurements. Wayne noted that the pump was choked down to 3.5 to 4 gallons per minute. Pump yielded intermittent flow so a full 30 minute pump test was not performed. With 5-gallon bucket, Golder measured a flow of five gallons in 1 minute and 7 seconds. Wayne noted that the well runs dry with just a hose connected to the faucet and no resistance from the sprinkler attachment.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: WKUBAS001____

State Well ID: _____

Stark County, North Dakota

Pump On/Off	Date	Elapsed Time (min:sec)	Depth to Water (feet below MP)	Cumulative Discharge Vol. (gal)	Flow Rate (GPM)	Comments/Notes

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: WKUBAS001

State Well ID: _____

Stark County, North Dakota

WATER QUALITY DATA

Sample Date: 11/5/08 Time: 2:30pm (usually at end of pump testing)

Sample point: End of 50-foot hose connected to faucet

Total Volume Purged: Not Tested gallons

pH (field measurement): 7.04 Conductivity (field measurement): 19.52 m S/cm

Temperature (field measurement): 8.76 °C

Appearance (clarity, odor, sediment, etc.): Clear with yellowish tint, no apparent odor or sediment

Comments: Pump was left running for ~ 17 minutes prior to sampling. Water stopped flowing intermittently during sampling. Wayne noted that the well runs dry with just a hose connected to the faucet and no resistance from the sprinkler attachment.

Photograph(s) Taken: Yes (No) (circle one) Photo ID(s): None

Laboratory analysis: Northern Analytical and Southwestern District Health Unit

(in general conformance with 69-05.2-08-06(1)(e) to include TDS in mg/L, hardness in mg/L, sodium in mg/L, iron, bicarbonate, nitrate, sulfate, and chloride in mg/L, pH, SAR, EC in µm/cm, and additional site-specific parameters required by the Commission. Bacteriological analysis is recommended as well as turbidity or TSS, and possibly humic acid/folic acid or tannins and lignins.

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: WKUBAS001

State Well ID: _____

Stark County, North Dakota

CERTIFICATION

Owner/Operator

I do hereby acknowledge that the preceding description of my well (1 of 1 wells) is accurate to the best of my knowledge and represents the true condition of this well on

Wayne Kubas
PRINT NAME

Wayne Kubas 11/5/08
SIGNED DATE

Inspector/Certifier

I do hereby certify that the preceding data was recorded and a water sample was collected by me on 11/5/08 .This WATER WELL CERTIFICATION is signed and certified as true and accurate

Ryan Tolene
PRINT NAME Ryan Tolene

Ryan Tolene 11.5.2008
SIGNED DATE

WELL/SPRING CERTIFICATION
FIELD INFORMATION FORM

Well/Spring ID: WKUBAS001____

State Well ID: _____

Stark County, North Dakota

Additional Notes (if necessary):

PHOTO LOG



Photo #1: Well location for WKUBAS001 northwest of house.



Photo #2: Well setup for WKUBAS001.

Client: GOLDER ASSOCIATES, INC.
Project Name: SOUTH HEART WELL CERTIFICATION
Project No.: 063-2174
Laboratory No.: 2008110051-2
Sample Name: WKUBAS001
Sample Date/Time: 11/05/2008 14:30:00
Collected by: NATHAN MONNIG
Sample Type: WATER

PARAMETER	MEASURED VALUE	UNITS	ANALYST	REPORTING LIMIT	METHOD NUMBER	DATE/TIME ANALYZED
SOUTH HEART WELL CERTIFICATION						
Turbidity	6.2	NTU	ES	0.2	180.1	11/10/2008 05:15:00 PM
Tannins & Lignins	2.02 J	mg/l	CC	0.05	5550B	12/04/2008 05:25:00 PM
pH	7.2	S.U.	ES	0.1-13.5	4500-H+-B	11/08/2008 03:00:00 PM
Alkalinity Bicarbonate as HCO3	1120	mg/l	ES	1	2320B	11/19/2008 02:00:00 AM
Alkalinity Carbonate as CO3	0	mg/l	ES	0	2320B	11/19/2008 02:00:00 AM
Alkalinity Total as CaCO3	915	mg/l	ES	1	2320B	11/19/2008 02:00:00 AM
Chloride as Cl	41	mg/l	MRK	1	300.0	11/26/2008 10:53:00 PM
Sulfate as SO4	5990	mg/l	MRK	125	300.0	11/25/2008 05:21:00 PM
Hardness as CaCO3	1290	mg/l	BH	7	2340B	11/17/2008 04:55:00 PM
Electrical Conductivity	9310	umhos/cm	MRK	10	2510B	11/14/2008 02:20:00 PM
Total Dissolved Solids	8310	mg/l	ES	20	2540C	11/10/2008 04:00:00 PM
Total Suspended Solids	6	mg/l	ES	1	2540D	11/10/2008 04:00:00 PM
Calcium as Ca (Total)	191	mg/l	BH	1	200.7	11/17/2008 04:55:00 PM
Iron as Fe (Total)	1.03	mg/l	BH	0.01	200.7	11/13/2008 01:33:00 PM
Magnesium as Mg (Total)	198	mg/l	BH	1	200.7	11/13/2008 01:33:00 PM
Sodium as Na (Total)	2320	mg/l	BH	1	200.7	11/17/2008 04:55:00 PM
Nitrate as N	0.01	mg/l	CC	0.01	353.2	11/26/2008 04:41:00 PM
Nitrite as N	0.03 HT	mg/l	MRK	0.01	300.0	11/26/2008 10:53:00 PM
Nitrate + Nitrite as N	0.04	mg/l	CC	0.01	353.2	11/26/2008 04:41:00 PM
Sodium Adsorption Ratio	28.1	-----	BH	0.2	20b	11/17/2008 04:55:00 PM
Cations	126.74	meq/l	---	0.30	1030F	
Anions	144.17	meq/l	---	0.38	1030F	
Cation/Anion Balance	6.43*	% [max 5%]	---	-----	AWWA/APHA	
Metals Batch#/Digestion Date	1928	-----	BH	-----	200.2	11/12/2008 09:30:00 AM

WATER SYSTEM BACTERIOLOGICAL WATER ANALYSIS

SOUTHWESTERN DISTRICT HEALTH UNIT
2869 3rd Avenue West, Dickinson, ND 58601 • 701-483-0171 or 1-800-697-3145

LEFT SIDE OF FORM MUST BE COMPLETED BY COLLECTOR

Name of Collector	Telephone Number
Nathan Monnig	303 980 0540
Date Collected	**Time Collected**
11/5/08	2:30 pm

Collection Point/Remarks: W Kubas #01

Sample Source (Check One):
- [x] Domestic Well
- [ ] Swimming Pool
- [ ] Surface Water
- [ ] Spa
- [ ] Stock Well
- [ ] Public Water System _____
- [ ] Other _____

Reason for Sample (Check One):
- [ ] Routine
- [ ] Retest
- [ ] Mortgage Requirement
- [ ] USDA Required
- [ ] Required by other state or federal regulations
- [ ] Water treatment check (raw or treated)
- [ ] ND Dairy Dept.
- [x] Special purpose (explain) Well Certification

SWIMMING POOL/SPA INFORMATION

POOL/SPA NAME		
Free Chlorine	Total Chlorine	pH

WATER SUPPLY INFORMATION FOR PRIVATE SYSTEMS

County: Stark

Township Number	Range Number	Section Number

Well Depth _____ ft. Well Diameter _____ in.

Owner: Wayne Kubas

Address:

City	State	Zip Code

Send Results To (if other than owner): Ed Pottorff, Golder Assoc.

Address: 44 Union Blvd, Suite 300

City	State	Zip Code
Lakewood	CO	80228

STOP! RIGHT SIDE OF FORM IS FOR LABORATORY USE ONLY.

Paid - Amount

- [ ] CHECK # _____
- [ ] CASH

PLEASE READ THE ENCLOSED INSTRUCTIONS BEFORE SAMPLING

Do NOT Submit Samples on FRIDAYS

(***NOTE** - Pool/Spa, Retest, and Fermentation Tube samples must be **received** by Wednesday of the week)

Lab Number	
1603	
Date of Receipt	**Time of Receipt**
11-5-08	1645
Date of Analysis	**Time of Analysis**
11-5-08	1645
Date Completed	**Analyst**
11-7-08	GH

Remarks:

ANALYSIS METHOD
- [x] Fermentation Tube
- [ ] Membrane Filter
- [ ] Presence-Absence
- [ ] Other _____

COLIFORM ANALYSIS
- [x] SATISFACTORY - No Coliforms Found
- [ ] UNSATISFACTORY - Coliforms Present - SEND REPEAT SAMPLES
  - [ ] No Fecal Coliforms Found
  - [ ] Fecal Coliforms Present
  - [ ] No *E coli* Found
  - [ ] *E coli* Present

Coliforms per 100 ml	Fecal Coliforms per 100 ml
0	

SAMPLE VOIDED - SEND REPLACEMENT
- [ ] Turbid Without Gas Production
- [ ] Too Numerous to Count
- [ ] Confluent Growth
- [ ] Turbid Without Acid Reaction
- [ ] Sample Too Old
- [ ] Other _____

STANDARD PLATE COUNT PER ML _____
R2A PLATE COUNT PER ML _____
- [ ] Satisfactory
- [ ] Unsatisfactory

NITRATE SCREEN < 2 mg/l
- [x] Satisfactory
- [ ] Unsatisfactory
- [ ] Result to Follow

(< is less than > is more than)

SWDHU 05/2004

White - lab (top copy) will be returned with the results

Canary - retained by lab