

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 37-22661

Exam Date: 10/6/2011

1. Current Owner: CITY OF CAREY
20482 MAIN ST
PO BOX 9
CAREY ID 83320
(208) 823-4045
2. Accompanied by: Bob Simpson
Phone No: 208-309-0319
Address: P.O. Box 9
Carey, ID 83320
Relationship to Permit Holder: Water Superintendent

3. SOURCE TRIBUTARY
GROUND WATER

B. OVERLAP REVIEW

1. Other water rights with the same place of use: 37-7766, 37-21355, 37-21243 and 37-20384
2. Other water rights with the same point of diversion: 37-21243

C. DIVERSION AND DELIVERY SYSTEM

1. LOCATION OF POINT(S) OF DIVERSION:

GROUND WATER NE1/4NW1/4NE1/4 Sec. 27, Twp 01S, Rge 21E, B.M.
BLAINE County

Method of Determination:

Updated to GPS points from spatial data layer collected by staff.

2. PLACE OF USE: Municipal

**Place of use is within the City of Carey and surrounding service area.

Method of Determination:

Place of use is described from a service area map that was submitted with Transfer 71537 (37-7766 adding a point of diversion). Bob Simpson has stated that this is the most current map for the city of Carey service area. (see attached corrected map)

3. _____ Delivery System Diagram Attached (required). Indicate all major components and distances between components. Indicate weir size/pipe as applicable.
_____ Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be 1:24,000 or greater.
_____ Aerial Photo Attached (required for irrigation of 10+ acres).
_____ Photo of Diversion and System Attached

<u>Well or Diversion</u> <u>ID No.*</u>	<u>Motor Make</u>	<u>Hp</u>	<u>Motor Serial No.</u>	<u>Pump Make</u>	<u>Pump Serial No. or Discharge</u> <u>Size</u>
D0030213		50 HP			8 inch pipe

*Code to correspond with No. on map and aerial photo

D. FLOW MEASUREMENTS

1.

<u>Equipment</u>	<u>Measurement</u> <u>Type</u>	<u>Make</u>	<u>Model No.</u>	<u>Serial No.</u>	<u>Size</u>	<u>Calib. Date</u>
Portaflow	Polysonic	FUJI		240332		8/2/2011

2. Measurements:

On 8/2/2011, Cindy Yenter conducted a flow measurement of well # 3. This measurement indicated that well # 3 has a capacity of 922 gpm, or 2.05 cfs.

E. FLOW CALCULATIONS

_____ Additional Computation Sheets Attached

Measured Method:

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation: N/A

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) =$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 =$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} =$$

2. Volume Calculations for Other Uses:

No volume for Municipal (fire protection).

G. NARRATIVE/REMARKS/COMMENTS

37-22661 is the fourth of four permits for the city of Carey. There are three wells for the municipal system with a total measured rate of 4.75 cfs at full system capacity. Wells #2 (1.95 cfs) and #3(2.05 cfs) are the primary wells and well #1(0.75 cfs) is the backup. The first two permits (37-20384 and 37-21355) were developed under well #1 and well #2 and will be licensed for their full system capacity (2.70 cfs) with no volume limits. The third and fourth permits (37-21243 and 37-22661) were developed under well #3. On 8/2/2011, Cindy Yenter conducted a flow measurement of well # 3. This measurement indicated that well # 3 has a capacity of 992 gpm, or 2.05 cfs. The third license (37-21243) has been recommended for 0.6 cfs. This leaves **1.45 cfs** of water available to potentially be licensed under permit 37-22661 (2.05 cfs -0.6 cfs =1.45 cfs).

The following condition of use appears on permit 37-22661:

"In connection with the proof of beneficial use submitted for this permit, the permit holder shall also submit a report showing the total annual volume, the maximum daily volume, and the maximum instantaneous rate of flow diverted from the point of diversion authorized for this permit during the development period. The report shall also show the maximum instantaneous rate of diversion, either measured or reasonably estimated by a qualified professional engineer, geologist, or certified water rights examiner, for the entire City of Carey municipal water system. The report shall also describe and explain how water diverted under this permit provides an additional increment of beneficial use of water for the City of Carey municipal water system as opposed to an alternative point of diversion for prior water rights already held and used by the City of Carey for its municipal water system."

After discussion with the State Office and after review of Memorandum 18, "Processing Applications and Amendments and Determining Beneficial Use for Non-RAFN Municipal Water Rights", the following analysis was completed based on information submitted by the City.

A Water Facility Plan was provided from DEQ that included a residential water demand projections calculation. The city of Carey's monthly records for July, August and September showed the high average daily demand (ADD) being recorded on July 31, 2011 for 246,742 gpd for all three wells. (see attached)

Where:

$$\text{Maximum Daily Demand (MDD)} = 3 \times \text{ADD} = 3 \times 246,742 \text{ gpd} = 740,226 \text{ gpd}$$

$$\text{Peak Hourly Demand (PHD)} = 1.5 \times \text{MDD} = 1.5 \times 740,226 \text{ gpd} = 1,110,339 \text{ gpd}$$

Then:

$$1,110,339 \text{ gpd} / 24 \text{ hour} \times 60 \text{ min.} \times 448.8 \text{ gal.} = 1.72 \text{ cfs}$$

Given that the above residential demand of 1.72 cfs has already been developed under the earlier municipal license (37-7766) and permits (37-20384 and 37-21355) the entire authorized flow developed under this permit will be recommended for fire protection. This is supported by the future fire flow requirements of 2000 gpm or 4.5 cfs for residential, commercial and industrial fire protection for the City of Carey, also included in the attached Water Facility Plan. **Recommended flow for the final license is 1.45 cfs for Municipal use limited to fire protection with no volume.**

Recommended place of use is the City of Carey and surrounding service area.

After the licensing of this permit, the city will then file for transfer to combine all water rights within the entire municipal system. The licensed maximum flow capacity of all Carey's water rights will total 4.75 cfs and satisfy the fire flow requirements.

Have conditions of permit approval been met? X Yes No

H. RECOMMENDATIONS**1. Recommended Amounts**

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
FIRE PROTECTION	01/01 to 12/31	1.450 CFS	N/A
<u>Totals:</u>		1.450 CFS	N/A

2. Recommended Amendments

☐ Change P.D. as reflected above ☐ Add P.D. as reflected above ☒ None

☐ Change P.U. as reflected above ☐ Add P.U. as reflected above ☐ Other

I. AUTHENTICATION

Field Examiner's Name



Date

3/22/12

Reviewer



Date

3/22/12

Corrected Map for

Transfer No. 71537

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

RECEIVED

OCT 28 2004

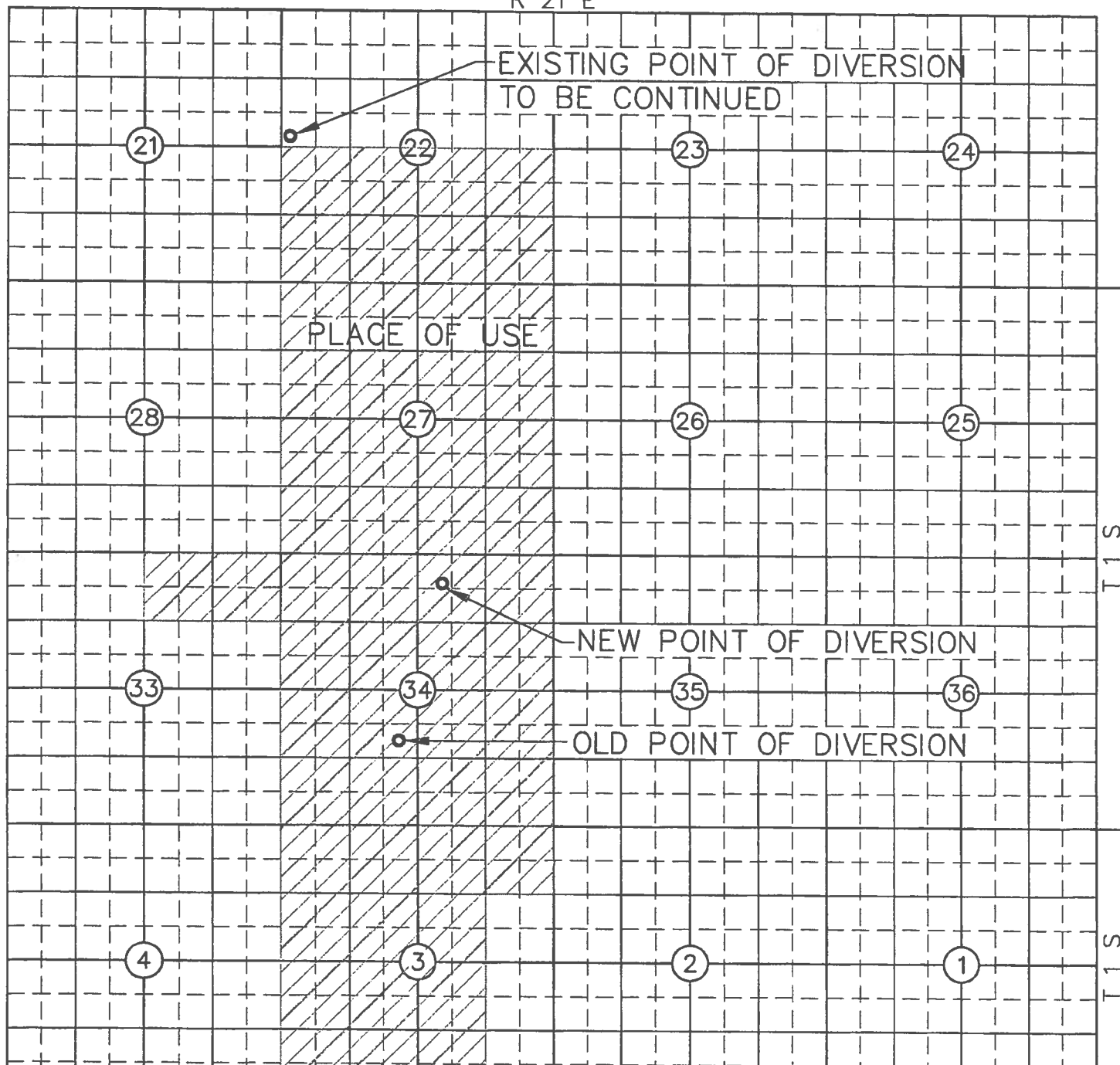
APPLICATION FOR TRANSFER OF WATER RIGHT

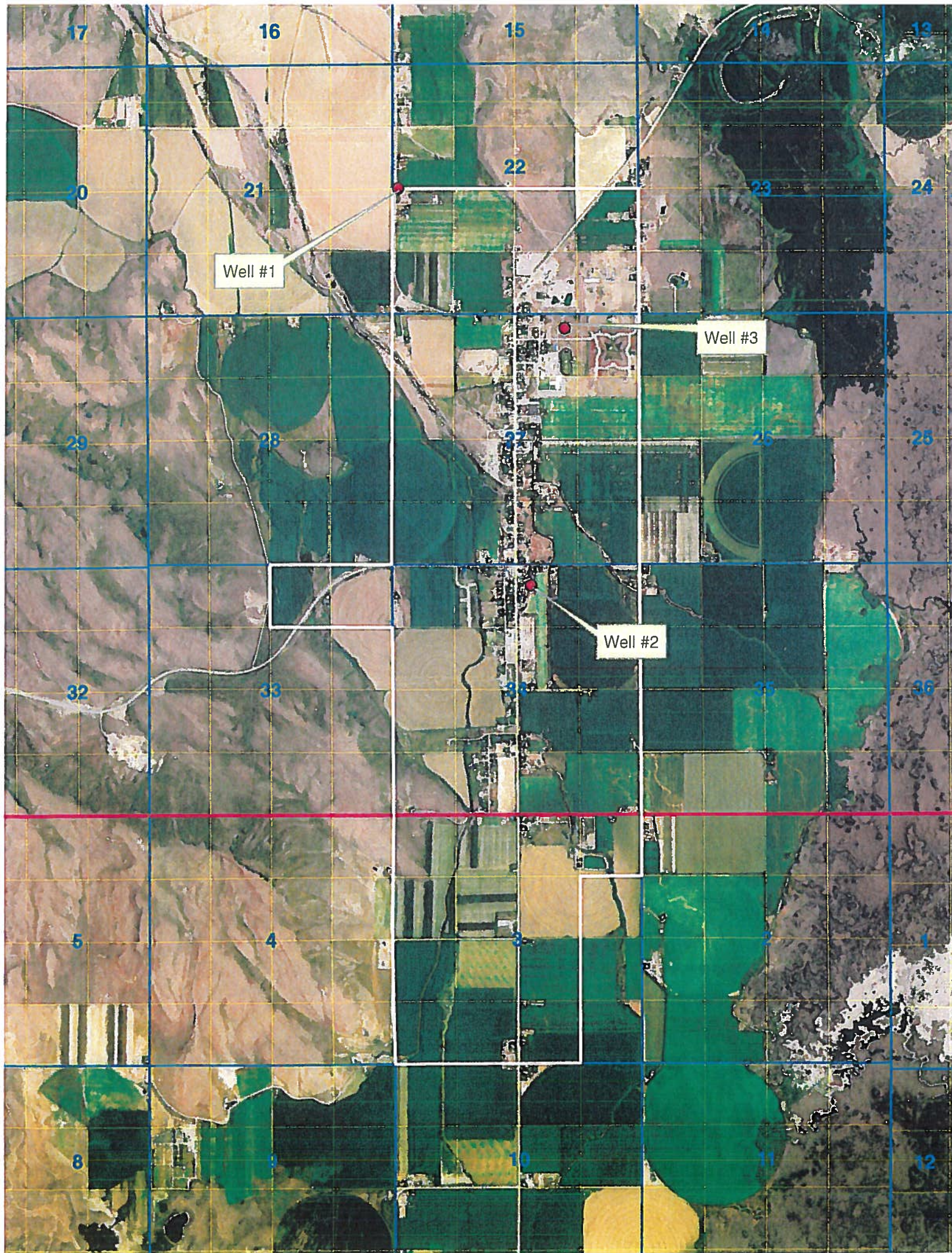
PART 3

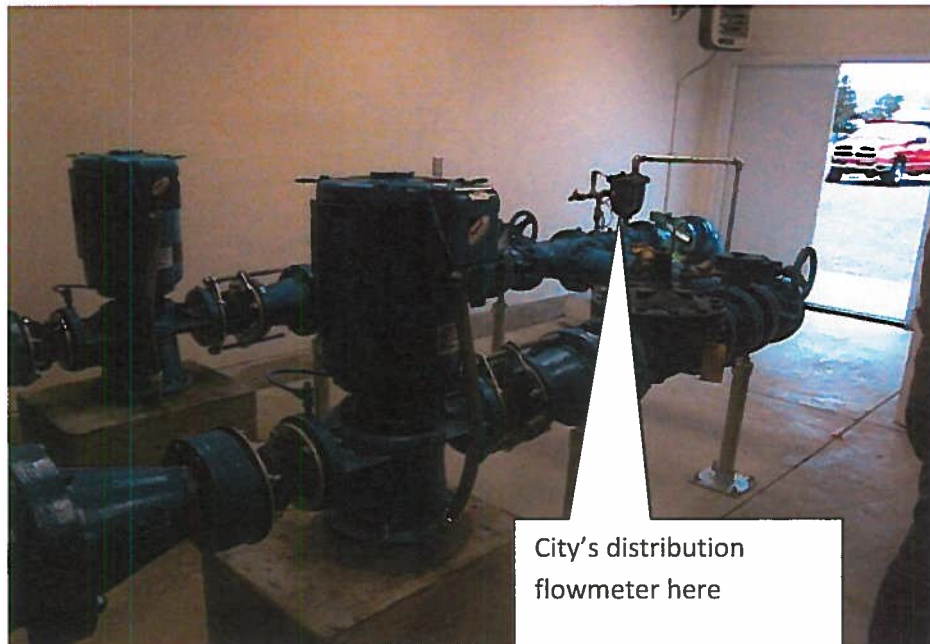
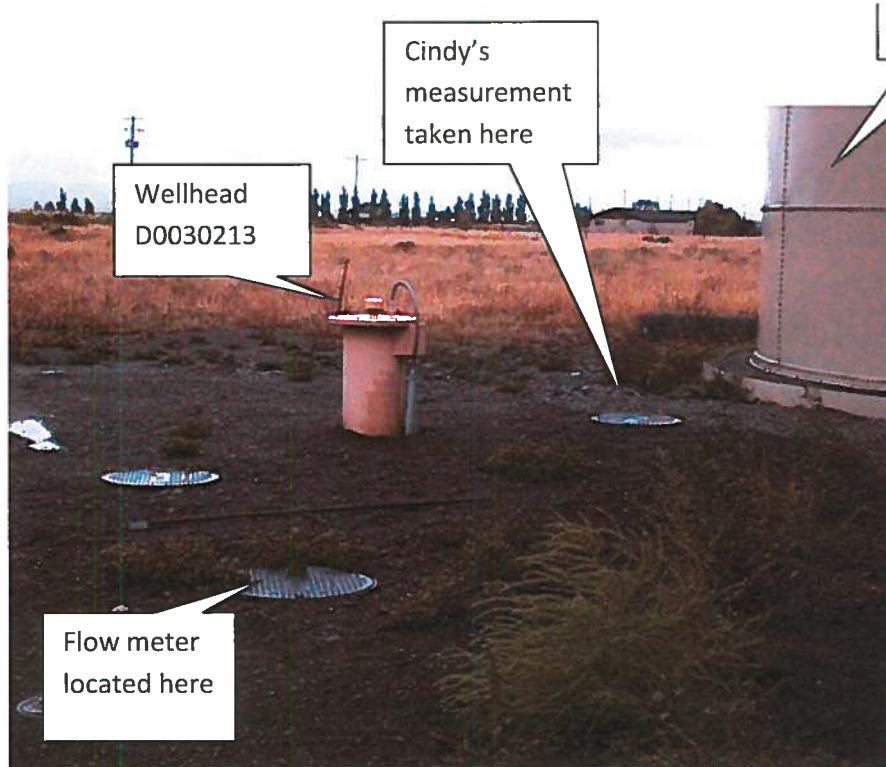
Department of Water Resources
Southern Region

- A. Draw a map or attach a USGS map indicating the new point(s) of diversion and/or the new place of use for the rights described in part 1. Clearly depict the land by section, township and range number.

R 21 E







Water Facility Plan

(Water demand Projections)
Average Daily Demand (ADD)

Wells	# 1	# 2	# 3	Totals
	32			High ADD
7/31/11	~~204,226~~	234,226	12,484	246,742 gpd
8/31/11	0	207,290	25,258	232,548 gpd
9/9/11	0	172,778	60,867	233,645 gpd

Factors {
 $3 \times \text{ADD} = \text{MDD (Maximum Daily Demand)}$
 $1.5 \times \text{MDD} = \text{PHD (Peak Hourly Demand)}$

$$3 \times 1.5 \times 246,742 = 1,110,339 \text{ gpd}$$

$$\frac{1,110,339 \text{ gpd}}{1440 \text{ min/d}} = 771 \text{ gpm}$$

$$= 1.72 \text{ CFS}$$

Reeder, Jana

From: Saxton, Craig
Sent: Thursday, February 16, 2012 3:56 PM
To: Reeder, Jana
Subject: RE: City of Carey
Attachments: DOC004.pdf; DOC002.pdf; DOC001.pdf; Checklist to meet conditions.docx

Hey Jana,

Here is all the stuff I have. The original proof submittal is DOC004. Then we sent a Proof Deficiency Letter on Jan 18, 2012. What we got back is scanned in two parts, DOC001 and DOC002.

I have also attached a Doc file which is my checklist to see if they met the requirements for condition 13. They didn't as far as I can tell.

You probably already know all this, but the big deal with condition 13, is trying to get them to give us what we need to verify that an additional increment of beneficial use is developed under this permit...or that they actually need the additional diversion rate rather than just needed a new POD. I assume you are going out to do a field exam on the whole system for all the outstanding permits? By looking at the whole system and what their demand is, we can determine if they need all the water that is permitted to them. Just on surface review, stuff I found on the net shows that the population of the City of Carey has a population of 512 and has less than 200 connections (not sure how reliable that information is), but it appears that the 4.83 cfs they have in permits and decrees exceeds their need.

Anyway, sorry it took so long for me to get this to you. It's been a busy day.

Thanks,
Craig

From: Reeder, Jana
Sent: Thursday, February 16, 2012 3:26 PM
To: Saxton, Craig
Subject: RE: City of Carey

Thank You!!

From: Saxton, Craig
Sent: Thursday, February 16, 2012 2:22 PM
To: Reeder, Jana
Subject: City of Carey

Hey Jana,

I have another meeting at 2:30 but wanted to drop you a quick note to let you know that we are going to accept proof for 37-22661. I will scan everything I have and e-mail you a copy. Then I will have Darla officially send out proof acknowledgment.

More to come....
Craig

City of Carey Well #3 (Waterford Well) Test Data

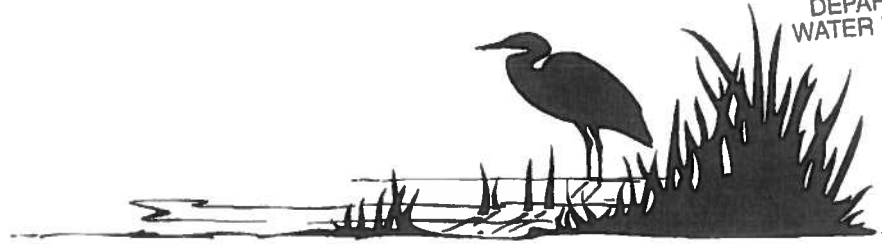
static water level at 91.5 ft from surface readings are ft above probe

[illegible]

RECEIVED

JAN 27 2012

DEPARTMENT OF
WATER RESOURCES



CITY OF CAREY, IDAHO

Public Works Department

20482 Main Street, PO Box 9, Carey, Idaho 83320

(w) 208-823-4045 (f) 208-823-4171

careywater@frontier.com

25 January 2012

Idaho Department of Water Resources
PO Box 83720
Boise ID 83720-0098

Re Wr 37-22661 Item 13 deficiency items on completion form

The application for this water right is in addition to the .60 CFS of WR 37-21243.

In April we conducted the DEQ required 24 hr test on this new water source this was through a 12" 90 degree v notch weir at this time there was no flow meter installed on the system. At this time the well pumped approximately 2.0 CFS with a draw down of 40 ft.

In May the flow meter was installed and we started using this well as a part of the city's system. On October 2nd Cindy Yenter Watermaster 130 conducted the certification of the flow meter. At this time the well pumped 922 GPM / 2.05 CFS this is where we came up with requirement of 1.45 CFS plus the .60 CFS of WR 37-21243 to match what this well is pumping at full rate.

Attached are the test results from the IDWR testing and the test data from the 24 hr required DEQ testing and our summary report that was submitted to WD 130 the end of the year

If you have any questions or require additional information, please contact me at (208) 309-0319.

Sincerely,

Robert Simpson
Public Works Director

Table 3-1. Buildout Population Projections

Growth Area	New Development Connections	Total New Population
1	139	348
2	167	418
3	98	243
4	Commercial/Light Industrial	0
5	74	185
6	25	63
7	195	488
TOTAL	698	1,745
Total new population		1,745
Existing population		697
Total buildout design population		2,442

If the buildout number of connections and population is reached within the 20-year planning period, this represents a growth rate of approximately 5.97% per year. This growth rate is in line with the 6% annual growth rate predicted in the 2006 City of Carey Impact Fee Report (Caplan 2006).

3.2. Water Demand Projections

As discussed in section 2.5, the City provided Pharmed with water meter data from billing records to determine water usage. This Plan utilized this information to establish current demands and develop future water demands.

Due to recent water rate increases, some water conservation is expected in 2008. For residential demands, the current per capita water demand is expected to decrease by 10% from 111 gpcd to 100 gpcd. For future projections, residents are expected to have similar water usage patterns, so 100 gpcd will be used for all residents. As previously mentioned, an ADD to MDD peaking factor of 3.0 and a MDD to PHD peaking factor of 1.5 will be used for residential demands. The existing commercial demands of 45 gpcd and the existing peaking factors of 2.25 for ADD to MDD and 1.5 for MDD to PHD were also used for future projections.

Similar to the base water usage, the irrigation demand is also anticipated to decrease due to the new water rates. A greater percentage reduction is anticipated for irrigation consumption due to the ratcheting rates. Assuming a 20% reduction, the irrigation demand used for projections is 147 gpcd. All new subdivisions are required to have separate pressurized irrigation systems to help reduce demand on the potable water system.

Table 3-2 provides a summary of the water demands used to project future water demands in this Plan.

Table 3-2. Summary of Water Demands used for Projections (gpcd)

Users	ADD	MDD	PHD
Residential (existing)	100	300	450
Commercial	45	101	152
Irrigation	147	147	147

Table 3-3 shows the summarized ADD, MDD, and PHD projections through 2028 based solely on consumer demands and does not include the requirements for fire flow. Appendix G contains a complete list of demands by year.

Table 3-3. Demand Projections Summary (gpm / MGD)

Year	Connections	Population	ADD	MDD	PHD
2008	219	740	79 (0.11)	283 (0.41)	391
2013	329	997	106 (0.15)	358 (0.51)	504
2018	475	1,344	143 (0.20)	460 (0.66)	656
2023	669	1,812	192 (0.28)	596 (0.86)	862
2028	928	2,442	259 (0.37)	781 (1.12)	1,138

3.3. Future Fire Flow Requirements

Per IDAPA 58.01.08 requirements, the water sources and distribution system must be adequately sized to provide the required fire flow for the minimum duration during a MDD condition, while maintaining system pressures above 20 psi with the largest source out of service.

As previously mentioned in section 2.6, the Carey Rural Fire Department has determined that a flow of 1,000 gpm for 1 hour is suitable for residential fire protection and a flow of 2000 gpm for 1 hour is suitable for commercial and industrial fire protection. These figures will be used for future fire flow requirements for the City of Carey.

3.4. Future Water Facilities Required

Future Carey water facilities will include additional storage and distribution system improvements to provide adequate water service to the City over the next 20 years. The improvements will enable all future fire hydrants to supply the required fire flows for each zoning area. In addition, the improvements will incorporate changes that increase the available fire flow to the existing commercial district along Main Street. The following sections describe the required improvements

2.5. Existing Water Demands

The City of Carey provided Pharmer Engineering, L.L.C. (Pharmer) with water meter data from billing records and actual volumes of water pumped by Wells 1 and 2 over the same period. This Plan utilized this information to establish current demands and develop future water demands.

For this Plan, existing residential demands were calculated as follows (Table 2-2):

- The average winter usage has been assumed to be the average day demand (ADD) and was calculated to be 111 gallons per capita per day (gpcd)
- The average spring and fall usage has been assumed to be the maximum monthly demand (MMD) and was calculated to be 337 gpcd
- The differential between spring/fall usage and summer usage has been assumed to be the irrigation demand and was calculated to be 184 gpcd

The current ADD to MMD peaking factor calculated from data was 3.0. ADD to maximum day demands (MDD) peaking factors should be slightly greater than ADD to MMD peaking factors. However, it is anticipated that water usage will decrease slightly due to the new water rate structure and because of this, the existing ADD to MDD peaking factor was chosen to be the same as the current ADD to MMD peaking factor. Because actual data do not exist, an MDD to peak hour demand (PHD) peaking factor of 1.5 was selected for establishing peak water demands for the City's residential demands. The 1.5 peaking factor is a widely accepted value.

The calculated irrigation demand was assigned a 1.0 peaking for both ADD to MDD and MDD to PHD. Commercial demands per capita were also calculated for ADD and MMD and were 45 and 91 gpcd, respectively. The ADD to MMD peaking factor was calculated to be 2.0. A slightly higher 2.25 peaking was selected for ADD to MDD demands, resulting in a projected MDD demand of 101 gpcd. The same MDD to PHD peaking factor of 1.5 used for residential was used for commercial demands.

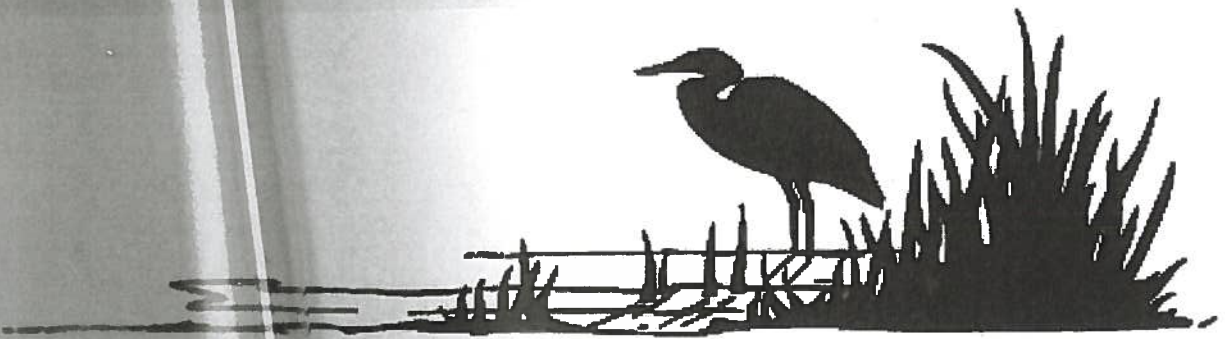
Table 2-2. Summary of Existing Water Demands (gpcd)

Users	ADD	MDD	PHD
Residential	111	337	506
Commercial	45	101	152
Irrigation	184	184	184

W-145-08

Water Facility Plan

Prepared for
City of Carey, Idaho



PHARMER
ENGINEERING

1998 W. Judith Lane
Boise, ID 83705
208-433-1900
www.pharmereng.com

Submitted May 13, 2008
Final Revision October 3, 2008

Revised and New RAFN centric conditions:

1. Revised Condition X64:

This right authorizes < 0.00 > cfs for reasonably anticipated future needs for a planning horizon that ends in <2030> within the service area pursuant to Chapter 2, Title 42, Idaho Code.

The purpose of this revision is to clarify the duration and end of the planning horizon on both RAFN permits and licenses.

2. Condition 236 RAFN Proof Due Restriction Condition:

Proof of application of water to beneficial use shall be submitted after <permit issue date plus 4.5 years> and received no later than the beneficial use due date of <permit issue date plus 5 years>.

This condition is intended for inclusion on RAFN permits only. The purpose of this condition is to maximize the elapsed time into the planning horizon at which point the Department will have its final opportunity for review.

3. Condition 237 RAFN Proof Due Attachment Requirements

Included with the proof of application of water to beneficial use, the permit holder shall submit to the Department the following material: an updated summary of all other water rights belonging to the permit holder, a revised description of the service area, a revised planning horizon, and a revised analysis of reasonably anticipated future needs, including a gap analysis comparing the revised water right summary to the revised reasonably anticipated future need. Proof of beneficial use shall be deemed incomplete and returned to the permit holder if all material required by this condition is not provided.

This condition is intended for inclusion on RAFN permits only. The purpose of this condition is to help the permit holder comply with 42-217 (4), and to assist Department staff in the timely licensing of RAFN water right permits.

42-217. Proof of application to beneficial use. On or before the date set for the beneficial use of waters appropriated under the provisions of this chapter, the permit holder shall submit a statement that he has used such water for the beneficial purpose allowed by the permit. The statement shall include:

1. The name and post-office address of the permit holder.
2. The permit number.
3. A description of the extent of the use.
4. **In the case of a municipal provider, a revised estimate of the reasonably anticipated future needs, a revised description of the service area, and a revised planning horizon, together with appropriate supporting documentation.**

CITY OF CAREY
2011 well tests

		WR #	Amt permitted CFS	Date tested	pump test Flow cfs	Tested by
Well #1	A0004263	37-7766	0.71	8/2/2011	0.75	Cindy Yenter IDWR
Well #2	D0034183	37-20384 37-21355	0.70 1.37	10/5/2011	1.96	Jana Reeder IDWR
Well #3	D0030213	37-21243 37-22661	0.60 1.45	8/2/2011	2.05	Cindy Yenter IDWR
Totals			4.83		4.76	

**CITY OF CAREY WELL #1
A0004263
2011 MONTHLY SUMMARY**

DATE	METER READING	GALLONS PUMPED	GPD	GPM per Day	MGPM	MGPD	ACRE FT / MO	DEPTH STATIC	DEPTH DYNAMIC
12/31/10	349700								
01/31/11	359510	981000	31645	22	0.981	0.032	3.01	73.08	
02/28/11	370220	1071000	38250	27	1.071	0.038	3.29	79.20	
03/31/11	382230	1201000	38742	27	1.201	0.039	3.69	86.30	
04/29/11	393200	1097000	37828	26	1.097	0.038	3.37	74.08	
05/31/11	398550	535000	16719	12	0.535	0.017	1.64	41.00	
06/30/11	400080	153000	5100	4	0.153	0.005	0.47	31.54	
07/31/11	400090	1000	32	0	0.001	0.000	0.00	30.50	
08/31/11	400160	7000	226	0	0.007	0.000	0.02	33.17	
09/30/11	400160	0	0	0	0.000	0.000	0.00	43.00	
10/31/11	400264	10400	335	0	0.010	0.000	0.03		
11/30/11	400266	200	7	0	0.000	0.000	0.00	48.45	
12/30/11	400266	0	0	0	0.000	0.000	0.00	54.15	
Total		5056600			5.06		15.52		

**CITY OF CAREY WELL #3
D0030213
2011 MONTHLY SUMMARY**

DATE	METER READING	GALLONS PUMPED	GPD	GPM per Day	MGPM	MGPD	ACRE FT / MO	DEPTH STATIC	DEPTH DYNAMIC
12/31/10									
01/31/11									
02/28/11									
03/31/11									
04/08/11		1500000	187500	130	1.500	0.188	4.60	95.70	est amt DEQ req 24 hr test plus pump testing
05/31/11									
06/30/11	473	473000	15767	11	0.473	0.016	1.45	63.40	
07/31/11	860	387000	12484	9	0.387	0.012	1.19	58.50	
08/31/11	1643	783000	25258	18	0.783	0.025	2.40	74.40	
09/30/11	3469	1826000	60867	42	1.826	0.061	5.60	79.70	
10/31/11	5292	1823000	58806	41	1.823	0.059	5.59	83.70	
11/30/11	6503	1211000	40367	28	1.211	0.040	3.72	88.80	
12/31/11	7467	964000	31097	22	0.964	0.031	2.96	95.50	
Total		8967000			8.97		27.52		

CITY OF CAREY WELL #2
D0034183
2011 MONTHLY SUMMARY

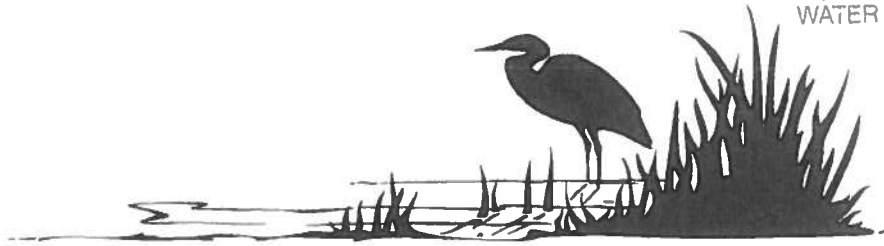
DATE	METER READING	GALLONS PUMPED	GPD	GPM per Day	MGPM	MGPD	ACRE FT / MO	DEPTH STATIC	DEPTH DYNAMIC
12/31/10	626590								
01/30/11	627580	99000	3300	2	0.099	0.003	0.30	61.90	81.20
02/28/11	629820	224000	7724	5	0.224	0.008	0.69	66.60	85.20
03/31/11	631370	155000	5000	3	0.155	0.005	0.48	73.80	
04/30/11	631610	24000	800	1	0.024	0.001	0.07	67.90	
05/31/11	653420	2181000	70355	49	2.181	0.070	6.69	43.10	
06/30/11	695590	4217000	140567	98	4.217	0.141	12.94	33.90	
07/31/11	768200	7261000	234226	163	7.261	0.234	22.28	28.10	
08/31/11	832460	6426000	207290	144	6.426	0.207	19.72	28.10	
09/09/11	848010	1555000	172778	120	1.555	0.173	4.77		
09/30/11	277	277000	13190	9	0.277	0.013	0.85	30.80	52.60
10/31/11	305	28000	903	1	0.028	0.001	0.09	38.30	
11/30/11	384	79000	2633	2	0.079	0.003	0.24	45.10	
12/31/11	765	381000	12290	9	0.381	0.012	1.17	51.40	
Total		22907000			22.91		70.30		

install new mag meter

RECEIVED

DEC 30 2011

DEPARTMENT OF
WATER RESOURCES



CITY OF CAREY, IDAHO

Public Works Department

20482 Main Street, PO Box 9, Carey, Idaho 83320

(w) 208-823-4045 (f) 208-823-4171

careywater@frontier.com

22 December 2011

Idaho Department of Water Resources
PO Box 83720
Boise ID 83720-0098

Re Wr 37-22661 items on completion form

Item 7 conditions of permit

City of Carey is an active member of the Carey Valley Ground Water District and is paying into the mitigation plan of the district.

This water right combined with the other water rights of the city brings the total flow to approximately 2100 GPM which should meet the flow required by the water master plan completed in 2008 by Pharmer Engineering. The Carey Rural Fire District requires 1000 GPM for residential and 2000 GPM for commercial/light industrial areas. The well flows in addition to 150,000 gallon storage should meet this requirement.

Attached is a copy of the Executive Summary of the Pharmer report.

If you have any questions or require additional information, please contact me at (208) 309-0319.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert Simpson". The signature is fluid and cursive, written over a horizontal line.

Robert Simpson
Public Works Director

Executive Summary

Future Demand

Improvements presented in this Water Facility Plan were developed to meet the City of Carey's (City) growing water demand through 2028, while meeting applicable Idaho Department of Environmental Quality regulations for water quality, fire flow, and mechanical redundancy. The City's 2007 end-of-year population was estimated at 697 people, and population in 2028 is projected to be 2,442, which is equivalent to a 5.97% annual growth. Based on projected future growth, design water demands were developed and are summarized in Table E-1.

Table E-1. Demand Projections Summary (gallons per minute per million gallons per day)

Year	Connections	Population	Average Day Demand	Maximum Day Demand	Peak-Hour Demand
2008	219	740	79 / 0.11	283/0.41	391
2013	329	997	106 / 0.15	358/0.51	504
2018	475	1,344	143 / 0.20	460/0.66	656
2023	669	1,812	192 / 0.28	596/0.86	862
2028	928	2,442	259 / 0.37	781/1.12	1,138

Fire Flow

While meeting user demand, the water system must also meet fire flow requirements, which are determined by the Carey Rural Fire Department. The recently adopted (March 2008) fire flow ordinances require a fire flow of 1,000 gallons per minute for residential areas and 2,000 gallons per minute in commercial/light industrial areas. Both are based on a one-hour duration.

The existing distribution system has enough storage capacity to supply the residential fire flow to future developments; however, not enough storage exists to supply the commercial/light industrial fire flow. In addition, the majority of the piping within the distribution system is undersized and cannot deliver the required fire flows, with the exception of the north end of the City.

Wells

The existing water system has enough capacity to meet Idaho Administrative Procedures Act (IDAPA) 58.01.08.552.07 requirements whereby the system must be capable of providing a minimum 800 gallons per day per residence, plus irrigation demands. This requirement can be met until approximately 2018.

Wells #1 & 2

7766 (L) 0.71

20384 (P) 0.70

21355 (P) 1.37

2.78

meas #1 = 0.75

meas #2 = 1.95

capacity 2.70 cfs

Well #3 (sec 27) Waterford meas = 2.05

21243 (P) 0.6

22661 (P) 1.45

2.05

(Limit to inhouse use .6 per lot for subdivision.)

Use 2 & 3 Well 1 is back up.

Total Flow
4.75

App 881017

Form 238-7
6/02IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT1. WELL TAG NO. D 0030213
DRILLING PERMIT NO. 810554
Water Right or Injection Well No. 37-212432. OWNER:
Name Waterford Partners III, LLC
Address P.O. Box 2477
City Hailey State ID Zip 83333

3. LOCATION OF WELL by legal description:

You must provide address or Lot, Blk, Sub. or Directions to well.

Twp. 01 North ☐ or South ☒
Rge. 21 East ☒ or West ☐
Sec. 27 NE 1/4 NW 1/4 NE 1/4
Gov't Lot 10 acres County BlaineLat: 43° 51' N Long: 114° 10' W
Address of Well Site Carey Lake Drive + 200's,
1/4 mile East of Hwy 88 City Carey
(Give at least name of road - Distance to Road or Landmark)Lt. 1 Blk. 1 Sub. Name 1

4. USE:

☐ Domestic ☒ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other

5. TYPE OF WORK check all that apply

(Replacement etc.)

☒ New Well ☐ Modify ☐ Abandonment ☐ Other

6. DRILL METHOD:

☐ Air Rotary ☒ Cable ☐ Mud Rotary ☐ Other

7. SEALING PROCEDURES

Seal Material	From	To	Weight / Volume	Seal Placement Method
Bentonite Grout	80	67	1300 lbs.	tremmie
Bentonite Chys	67	0	6000 lbs.	Dry pack, then hydrated

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 22.9 - 228'
Was drive shoe seal tested? ☐ Y ☐ N How? N/A

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
14"	+2	228	.375	Steel	☒	☐	☐	☐
10"	196	261	.365	Steel	☐	☒	☐	☐

Length of Headpipe 4' Length of Tailpipe 2' (fence stub)
Packer ☐ Y ☒ N Type Flared drive head, 12.9"
reinforced steel.

9. PERFORATIONS/SCREENS/SCREENS PACKER TYPE

Perforation Method torchScreen Type & Method of Installation N/A

From	To	Size	Number	Diameter	Material	Casing	Liner
230	260	3/16"	200	8"	Steel	☐	☒
198	230	3/16"	150	8"	Steel	☐	☒

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

67 ft. below ground Artesian pressure N/A lb.
Depth flow encountered N/A ft. Describe access point or control devices: N/A

Office Use Only			
Well ID No. _____			
Inspected by _____			
Twp _____	Rge _____	Sec _____	
1/4 _____		1/4 _____	
1/4 _____		1/4 _____	
Lat: _____		Long: _____	

12. WELL TESTS:

☒ Pump ☒ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
<u>50</u>	<u>0</u>	<u>67</u>	<u>30 min</u>
<u>985</u>	<u>81</u>	<u>148</u>	<u>6 hrs</u>

Water Temp. 51°F Bottom hole temp. 51°FWater Quality test or comments: apparently good, clear,
col, odorless, tasteless Depth first Water Encounter 56'

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Water

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
24	0	3	Soil and gravel, some cobbles		X
24	3	19	Coarse gravel, some cobbles w/ grey sandy clay		X
18	19	48	same as above		X
18	48	79	Sand & gravel w/ grey sandy clay	X	
14	79	135	Gravel w/ sand, some clay and cobbles	X	
14	135	147	Lt. brn. sandy clay w/ gravel	X	
14	147	163	Weakly cemented sandstone w/ clayey sand (brown)	X	
14	163	205	Brown sandy clay w/ gravel	X	
14	205	228	Weakly cemented sand & gravel	X	
14	228	234	Gravel & sand, track clay	X	
14	234	258	Basalt, dark gray, hard	X	
10	258	261	Coarse sand & gravel	X	
10	261	264	Weakly cemented clayey sand	X	
10	264	275	Strongly cemented silty sandstone	X	
10	275	292	Brown grey sandy clay w/ gravel	X	
10	292	293	Coarse gravel	X	

RECEIVED

OCT 26 2004

Department of Water Resources
Southern RegionCompleted Depth 292 (Measurable)Date: Started 7/5/04 Completed 10/19/04

14. DRILLER'S CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Stan Lloyd Drilling LLC Firm No. 294Principal Driller Alan Lloyd Date 10/23/04

Driller or Operator II _____ Date _____

Operator I _____ Date _____

Principal Driller and Rig Operator Required.
Operator I must have signature of Driller/Operator II.

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