

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 37-22542

Exam Date: 7/12/2017

1. Current Owner: BLAINE COUNTY SCHOOL DISTRICT #61
118 W BULLION ST
HAILEY ID 83333
(208) 578-5000

Daniel A. Nelson scheduled the site visit and oversaw the measurements. He was accompanied by IDWR state office personnel, Chelsey Serrano and Manuel Rauhut.

2. Accompanied by: Howard Royal, Facilities Director and
Phone No: 208-578-5402
Email Address: hroyal@blaineschools.org
Relationship to Permit Holder: Blaine County School District (BCSD) employee

3. **SOURCE**

GROUNDWATER

TRIBUTARY

NA

B. OVERLAP REVIEW

1. Other water rights with the same place of use: City of Carey municipal water rights provide potable water to the schools.
2. Other water rights with the same point of diversion: none

C. DIVERSION AND DELIVERY SYSTEM1. **LOCATION OF POINT(S) OF DIVERSION:**

GROUND WATER NW¼NE¼ Sec. 27, Twp 01S, Rge 21E, B.M. BLAINE County (on QQ line)
GROUND WATER NW¼NE¼ Sec. 27, Twp 01S, Rge 21E, B.M. BLAINE County

LOCATION OF POINT(S) OF INJECTION:

GROUND WATER SW¼NE¼ Sec. 27, Twp 01S, Rge 21E, B.M. BLAINE County

Method of Determination:

The well locations were confirmed by GPS during the July 12, 2017 site visit. The injection well is best represented by spatial data point 428221 and the production wells by spatial data points 428220 and 428222.

2.

PLACE OF USE: COOLING and HEATING

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
01S	21E	27		X	X														

Method of Determination:

The school campus is visible in aerial photography and is located at the PLS address given on the permit.

3. ☒ Delivery System Diagram Attached (required). Indicate all major components and distances between components. See the BAS screen-shot schematic provided by Brian Formusa, P.E.
- ☐ 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

4.

Well or Diversion ID No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
Production WMIS D0057471					
Production D0057472					
Injection D0057461					

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

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date

2. Measurements:

Please refer to the field visit memo from Dan Nelson.

During the July 2017 site visit, school was not in session. Measurements were targeted at calibration of the flow meter rather than confirmation of beneficial use. The meter proved to be operating within an acceptable margin of error. So the measurement data provided by the permit holder/system operator for 2015 and 2016 was also acceptable for determining a volume of water used by the system.

I confirmed beneficial use of 1119 gpm (2.49 cfs) from the SCADA system documentation provided to me by the lead mechanical engineer for the project, Brian Formusa P.E.

E. FLOW CALCULATIONS

__X__ Additional Computation Sheets Attached

Measured Method:

Please refer to Dan Nelson's memo.

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation: not applicable

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

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

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

2. Volume Calculations for Other Uses:

See the attached spreadsheet of heating and cooling volume calculations

G. NARRATIVE/REMARKS/COMMENTSOwnership

Available Blaine County tax parcel information shows that Blaine County Schools own the properties which contains the POU, and the production and injection wells.

Water Use

The development period was from September 16, 2010 to September 16, 2013. The permit did not require submittal of water use data but I learned that Blaine County School District (BCSD) personnel were keeping records of the totalizer readings. I requested and received data from 9/11/2013 - 1/23/2017 through the BCSD consultant, SPF Water Engineering.

The available data from within the development period was limited to the days 9/11/2013 - 9/16/2013. That data was sufficient to confirm beneficial use but not the maximum rate or an annual volume.

The beneficial use was not confined to the Carey Elementary School. The HVAC system was operating and using water for climate control in three buildings: the elementary school, the gym and the high school during the development period

According to WMIS the max volume for heating and cooling combined occurred in 2016 and was 303.25 af. Because the numbers of days that that totalized reading represented was not available, the WMIS data was not used to determine the volume.

Operation strategy

The Carey School campus has a ground water-sourced heat pump system. The heating and cooling water use is non-consumptive and occurs in an open loop configuration. Two production wells can supply water to the system and a single injection well accepts the 'spent' water from that system. Between the production and injection wells, is a plate and frame heat exchanger served by a single supply line from both production wells. The exchanger removes heat from the ground water loop on one side and passes that heat to a loop on other side. The loop on the building side contains water and glycol and connects dozens of heat pumps which are distributed in throughout the campus. The ground water supply in the open loop, is never in contact with the fluids in the closed loops and the only change to the ground water is a change in temperature. In this case, the heat exchanger can increase the water temperature 6 degrees F.

The lead mechanical engineer and construction manager for the project was Brian Formusa P.E. I discussed this HVAC system with him on July 31, 2017 and he provided additional system information via email.

Rate

I am recommending 2.49 cfs for each of the uses but those rates are not additive. I am also recommending 2.49 cfs as total rate for the license.

This recommendation is based on the maximum flow rate confirmed during the operational period-of-record for the system, not just during the development period.

Volume

According to IDAPA 37.03.02. Beneficial Use Examination Rule 035.01.j.

"Annual diversion volumes for heating and cooling uses may be adjusted to account for documented weather conditions during any single heating or cooling season from among the fifty (50) years immediately prior to submitting proof of beneficial use for the permit."

This location has very few CDD and it would be unlikely that the maximum CDD and the maximum HDD would occur in the same year. A heating and cooling system for this area would be designed to meet the demand for the dominant season which would be the heating season. My volume recommendation is a degree-day based calculation applied to pre-permit weather conditions at a nearby weather station in Picabo, ID (NWS station 107040). The max HDD for the period-of-record for Picabo Idaho occurred in 1985 which is within the 50 years prior to the development period of the permit. (Other NWS weather stations in the area had similar max HDDs.)

Using the actual weather from Accuweather station Carey Idaho and the WRCC's 1985 climate data for Picabo Idaho, the heating volume for the licensed water use would be 497.4 af and the cooling volume would be 37.5 af. I am recommending the same total annual diversion volume limit for both heating and cooling which gives the right holder flexibility to meet climate control requirements without exceeding the total authorized annual diversion volume. I am recommending 535.0 AF as the total volume for the license and for each use.

Conditions

Beginning December 2011, the WD130 watermaster had concerns about the placement and then the accuracy and reliability of the totalizer that had been installed on this HVAC system. Those concerns were resolved and a variance on the meter was approved in Oct 2012.

The watermaster also required that a condition be added to the permit which stated that the water use would be in the Carey Elementary school only. However, at the time that the application for permit was being reviewed, IDWR staff recognized that adjacent buildings on the Carey campus would also benefit from the new climate control system. The legal notice listed the "Carey Elementary and High Schools" as the place of use and the engineering space estimates included the gym and the high school. The mechanical room which contains the heat exchanger (the actual POU where heat is transferred from water), is located in the high school. As a consequence, I am modifying the condition to more accurately describe the spaces served by the system.

SOU

The permit authorized year-round SOU for both heating and cooling. This part of the state requires some heating even during the summer months. I am recommending a year-round SOU. Even though the school is not in session year-round, the building is maintained year-round.

Point-of-Discharge

The injection well was authorized by Injection Well Permit 37-W-083-001. A copy of the authorization was submitted with proof. That well appears to be accepting the spent heating/cooling water as expected. The well is located in the SWNE of sec 27, T01S, R21E.

Trust Water Right

Although the use is non-consumptive, the PODs are within the Trust Water Right area. The license will carry a condition which identifies the use as non-consumptive and exempt from Trust Water Right review.

Have conditions of permit approval been met? ☒ Yes ☐ No

H. RECOMMENDATIONS

I recommend that.

1. Recommended Amounts

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
HEATING	01/01 to 12/31	2.49 CFS	535.0 AF
COOLING	01/01 to 12/31	2.49 CFS	535.0 AF
	<u>Totals:</u>	2.49 CFS	535.0 AF

2. Recommended Amendments

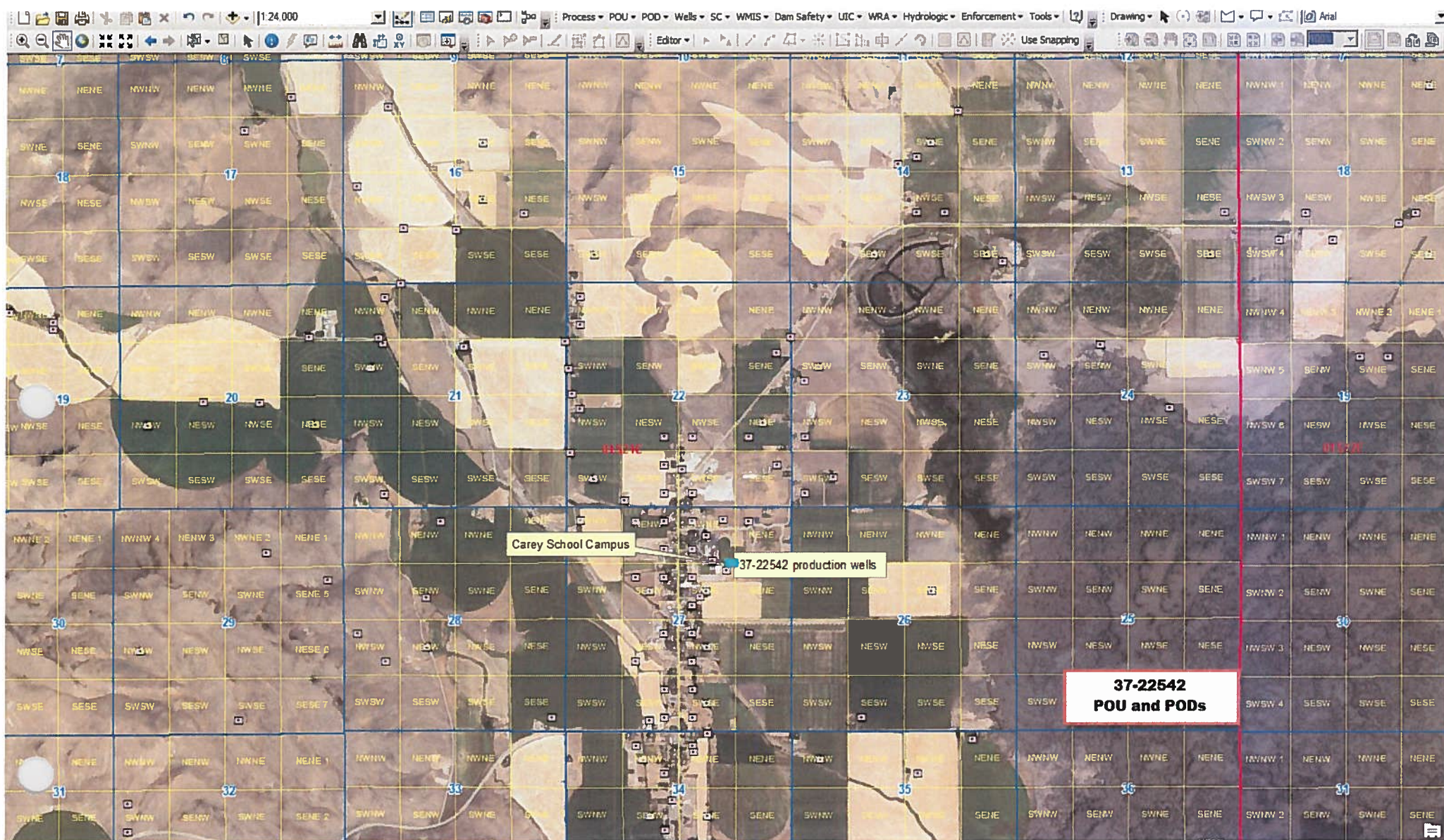
☐ Change P.D. as reflected above ☐ Add P.D. as reflected above ☒ None

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

I. AUTHENTICATION

Field Examiner's Name Michele Edl Date 09/5/2017

Reviewer _____ Date _____



WR #37-22542		Carey School Campus		calculated by Michele Edl on 9/5/2017				
		Heating volume calculations						
		totalizer data	date		comment			
		293154000	12/21/2016		other heat sources (kids, lights, computers..) mostly absent			
		292462000	12/20/2016					
	A	692000	gallons/ that day					
	B	43	HDD/ that day		calculations by ME on data from Carey Idaho accuweather station			
					TMAX= 30	TMIN= 14	43	=Base 65 HDD
	A/B	16093.02	gal / HDD		unitized as representative of the bldg			
		gal/AF	325851.4319		conversion factor			
	D	8389.24	long-term avg HDD		Picabo station calculations by WRCC			
	A/B x D	135008234.4	gal / avg yr					
		414.325	convert gal to af					
		414.3	AF for heating avg yr					
	A/B	16093.02326	gal / HDD					
		gal/AF	325851.4319		conversion factor			
	E	10071		1985	period-of-record max HDD at Picabo station calculated by WRCC			
	A/B x E	162072837.2	gal / yr with max HDD					
		497.383	convert gal to af					
		497.4	AF heating during the highest HDD yr					
		Cooling volume calculations						
		totalizer data	date		comment			
		264361000	8/31/2016	Wed	school in session so other heat sources in the bldg			
		264018000	8/29/2016	Mon				
	A	171500.00	gallons / day		delta reading divided by 2			
	B	3	CDD		calculations by ME on data from Carey, ID accuweather station; (avg of 2 days)			
		0	HDD those days		TMAX= 82	TMIN= 52	2	=Base 65 CDD
	A/B	57166.66667	gal / CDD		unitized	TMAX= 84	TMIN= 54	4 =Base 65 CDD
		gal/AF	325851.4319					
	F	208.99	long-term avg CDD		Picabo station calculations by WRCC			
	A/B x F	11947261.67	gal / avg yr					
		36.665	AF for cooling avg CDD yr					
	A/B	57166.66667	gal/CDD					
		gal/AF	325851.4319					
	G	214		1985	Picabo station calculations by WRCC			max CDD occurs when school is out
	A/B x G	12233666.67	gal / yr for cooling during the max HDD year					
		37.5	AF for cooling during the max HDD year					
		reality check of system						
		303.25	afa '2016' WMIS					
		262.48	afa '2015' WMIS					
	7/12 measure	1092 gpm run continuously yields 1761.4 afa						

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November 2016

View:

December

2016

January 2017

SUN 11/27 Actual Temp 43°/27° Hist. Avg. 36°/12°	MON 11/28 Actual Temp 36°/25° Hist. Avg. 35°/12°	TUE 11/29 Actual Temp 37°/19° Hist. Avg. 35°/12°	WED 11/30 Actual Temp 32°/23° Hist. Avg. 34°/11°	THU 12/1 Actual Temp 30°/18° Hist. Avg. 34°/11°	FRI 12/2 Actual Temp 27°/14° Hist. Avg. 33°/11°	SAT 12/3 Actual Temp 34°/18° Hist. Avg. 33°/10°
SUN 12/4 Actual Temp 39°/19° Hist. Avg. 33°/10°	MON 12/5 Actual Temp 28°/5° Hist. Avg. 32°/10°	TUE 12/6 Actual Temp 19°/1° Hist. Avg. 32°/10°	WED 12/7 Actual Temp 16°/0° Hist. Avg. 32°/9°	THU 12/8 Actual Temp 21°/1° Hist. Avg. 31°/9°	FRI 12/9 Actual Temp 30°/19° Hist. Avg. 31°/9°	SAT 12/10 Actual Temp 39°/27° Hist. Avg. 31°/8°
SUN 12/11 Actual Temp 28°/10° Hist. Avg. 31°/8°	MON 12/12 Actual Temp 32°/10° Hist. Avg. 30°/8°	TUE 12/13 Actual Temp 21°/7° Hist. Avg. 30°/8°	WED 12/14 Actual Temp 28°/18° Hist. Avg. 30°/8°	THU 12/15 Actual Temp 39°/28° Hist. Avg. 30°/8°	FRI 12/16 Actual Temp 34°/10° Hist. Avg. 30°/8°	SAT 12/17 Actual Temp 14°/0° Hist. Avg. 30°/8°
SUN 12/18 Actual Temp 9°/-9° Hist. Avg. 30°/8°	MON 12/19 Actual Temp 18°/0° Hist. Avg. 30°/7°	TUE 12/20 Actual Temp 30°/14° Hist. Avg. 30°/7°	WED 12/21 Actual Temp 28°/9° Hist. Avg. 30°/7°	THU 12/22 Actual Temp 28°/10° Hist. Avg. 30°/7°	FRI 12/23 Actual Temp 28°/10° Hist. Avg. 30°/7°	SAT 12/24 Actual Temp 32°/23° Hist. Avg. 30°/7°
SUN 12/25 Actual Temp 23°/16° Hist. Avg. 30°/7°	MON 12/26 Actual Temp 16°/3° Hist. Avg. 30°/7°	TUE 12/27 Actual Temp 19°/5° Hist. Avg. 30°/7°	WED 12/28 Actual Temp 27°/9° Hist. Avg. 30°/7°	THU 12/29 Actual Temp 34°/7° Hist. Avg. 30°/7°	FRI 12/30 Actual Temp 28°/9° Hist. Avg. 30°/7°	SAT 12/31 Actual Temp 16°/0° Hist. Avg. 30°/7°

November 2016

January 2017

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July 2016

View:

August

2016

September 2016

SUN 7/31 Actual Temp 88°/55° Hist. Avg. 83°/46°	MON 8/1 Actual Temp 86°/54° Hist. Avg. 82°/46°	TUE 8/2 Actual Temp 88°/52° Hist. Avg. 82°/46°	WED 8/3 Actual Temp 81°/48° Hist. Avg. 82°/46°	THU 8/4 Actual Temp 79°/46° Hist. Avg. 82°/46°	FRI 8/5 Actual Temp 84°/52° Hist. Avg. 82°/45°	SAT 8/6 Actual Temp 84°/54° Hist. Avg. 82°/45°
SUN 8/7 Actual Temp 81°/55° Hist. Avg. 82°/45°	MON 8/8 Actual Temp 81°/50° Hist. Avg. 82°/45°	TUE 8/9 Actual Temp 73°/48° Hist. Avg. 82°/45°	WED 8/10 Actual Temp 75°/41° Hist. Avg. 81°/45°	THU 8/11 Actual Temp 77°/45° Hist. Avg. 81°/44°	FRI 8/12 Actual Temp 82°/50° Hist. Avg. 81°/44°	SAT 8/13 Actual Temp 84°/54° Hist. Avg. 81°/44°
SUN 8/14 Actual Temp 86°/54° Hist. Avg. 80°/44°	MON 8/15 Actual Temp 88°/54° Hist. Avg. 80°/44°	TUE 8/16 Actual Temp 90°/55° Hist. Avg. 80°/43°	WED 8/17 Actual Temp 88°/59° Hist. Avg. 80°/43°	THU 8/18 Actual Temp 84°/59° Hist. Avg. 79°/43°	FRI 8/19 Actual Temp 79°/54° Hist. Avg. 79°/43°	SAT 8/20 Actual Temp 82°/52° Hist. Avg. 79°/42°
SUN 8/21 Actual Temp 86°/50° Hist. Avg. 79°/42°	MON 8/22 Actual Temp 82°/50° Hist. Avg. 78°/42°	TUE 8/23 Actual Temp 75°/43° Hist. Avg. 78°/42°	WED 8/24 Actual Temp 73°/45° Hist. Avg. 78°/41°	THU 8/25 Actual Temp 73°/45° Hist. Avg. 77°/41°	FRI 8/26 Actual Temp 75°/46° Hist. Avg. 77°/41°	SAT 8/27 Actual Temp 79°/46° Hist. Avg. 77°/41°
SUN 8/28 Actual Temp 82°/48° Hist. Avg. 76°/40°	MON 8/29 Actual Temp 82°/52° Hist. Avg. 76°/40°	TUE 8/30 Actual Temp 84°/54° Hist. Avg. 76°/40°	WED 8/31 Actual Temp 81°/59° Hist. Avg. 75°/40°	THU 9/1 Actual Temp 82°/55° Hist. Avg. 75°/39°	FRI 9/2 Actual Temp 70°/46° Hist. Avg. 75°/39°	SAT 9/3 Actual Temp 66°/45° Hist. Avg. 74°/39°

July 2016

September 2016

PICABO, IDAHO

Monthly Total Heating Degree Days

(107040)

Base Temperature = 65 F

File last updated on Apr 4, 2013

*** Note *** Provisional Data *** After Year/Month 201304

a = 1 day missing, b = 2 days missing, c = 3 days, ..etc.,

z = 26 or more days missing, A = Accumulations present

Long-term means based on columns; thus, the monthly row may not sum (or average) to the long-term annual value.

Months with 5 missing days or less use mean for missing day(s)

Individual Months not used for annual or monthly statistics if more than 5 days are missing.

Individual Years not used for annual statistics if any month in that year has more than 5 days missing.

YEAR (S)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
1958	0.00z	0.00z	0.00z	223.00u	189.00	141.50	62.00	20.00	243.00	481.50	984.50	1022.50	3144.00
1959	1198.00	1113.00	1034.00	612.86b	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	846.00k	3957.86
1960	1492.50	1345.50	1096.50	640.50	452.00	137.50	7.00	156.50	161.50	603.00	972.00	1307.00	8371.50
1961	1305.50	1009.50	963.00	698.50	422.50	67.00	14.50	2.50	403.50	710.50	1057.50	1455.50	8110.00
1962	1649.00	1186.00	1201.00	617.50	514.50	218.00	71.50	130.50	232.00	587.50	942.41a	1181.00	8530.91
1963	1519.50	792.50	929.50	762.00	346.50	270.00	53.00	34.00	117.00	0.00z	989.00	1474.50	7287.50
1964	1546.00	1541.50	1372.50	778.00	456.50	284.00	19.50	138.00	362.50	509.50	1068.50	1290.50	9367.00
1965	1295.00	1130.00	1099.50	626.50	514.50	215.50	57.00	104.50	453.50	479.00	826.50	1248.50	8050.00
1966	1431.00	1262.50	1039.50	704.50	322.50	220.00	21.00	74.00	170.00	675.00	901.00	1429.50	8250.50
1967	1292.00	1138.00	1032.50	813.00	457.50	244.00	3.50	17.00	156.00	655.50	896.50	1526.50	8232.00
1968	1500.00	1065.50	850.00	796.00	465.50	210.50	31.50	198.50	304.00	662.50	1017.50	1329.50	8431.00
1969	1303.50	1238.00	1296.32a	644.00	332.50	206.00	65.00	37.50	229.50	819.50	979.50	1253.00	8404.32
1970	1302.50	1066.00	1044.00	868.00	458.00	207.50	48.00	9.50	463.00	760.50	931.00	1454.50	8612.50
1971	1412.00	1207.00	1250.00	754.00	445.37a	277.00	76.00	25.00	442.50	731.00	1074.50	1543.50	9237.87
1972	1484.50	1278.00	932.00	760.00	458.00	148.50	65.00	33.50	468.50	650.50	1038.50	1564.00	8881.00
1973	1532.50	1256.50	1106.50	740.00	413.00	220.50	0.00z	48.57a	330.00	625.00	991.00	1189.50	8453.07
1974	1533.50	1265.00	1012.00	701.00	505.00	134.00	47.50	82.00	209.00	556.50	936.50	1329.00	8311.00
1975	1522.00	1280.50	1185.00	930.00	572.50	300.50	17.00	138.50	235.00	677.00	1066.00	1196.00	9120.00
1976	1440.00	1301.38a	1303.03a	746.00	378.00	303.00	34.10a	122.97a	238.45a	655.65a	898.00	1233.50	8654.07
1977	1549.50	1048.50	1049.00	573.00	581.50	69.50	61.50	81.50	306.00	576.00	1040.00	1180.00	8116.00
1978	1253.50	1165.50	935.17a	685.50	541.00	245.00	46.00	135.50	354.00	529.50	1057.50	1453.00	8401.17
1979	1699.00	1171.00	990.00	739.50	410.00	197.88d	30.00	45.00	161.00	535.27a	1092.50	1236.50	8307.65
1980	1454.50	1075.00	1017.00	599.00	482.50	283.00	0.00z	114.70a	272.50	618.50	994.66a	1227.50	8138.86
1981	1113.50	1103.93a	831.00	658.00	481.00	235.34a	37.50	7.00	243.00	717.28b	871.50	1199.00	7498.05
1982	1551.00	1315.50	1016.00	856.00	535.50	204.50	97.50	35.00	322.50	740.00	1116.00	1470.00	9259.50
1983	1249.00	1094.50	977.00	787.00	484.00	234.50	111.00	27.00	298.50	570.50	1021.50	1531.50	8386.00
1984	1624.50	1429.00	1131.50	742.00	462.50	289.50	7.50	22.50	337.50	767.00	1023.50	1589.27a	9426.27
1985	1721.50	1546.50	1334.50	614.00	356.00	149.50	8.50	146.50	453.50	711.50	1281.50	1747.50	10071.00
1986	1342.50	1068.00	779.00	685.50	463.50	70.50	88.00	8.00	461.90a	625.50	1025.50	1300.00	7917.90
1987	1538.50	1027.00	932.00	507.00	338.50	140.00	92.00	98.50	214.00	514.00	954.00	1295.28a	7650.78
1988	1473.50	1077.00	953.50	610.50	395.50	110.17a	17.00	31.50	370.00	408.00	1126.00	1556.50	8129.17
1989	1683.00	1409.50	1048.50	621.50	493.50	159.50	7.00	120.50	279.00	681.50	1026.00	1411.50	8941.00
1990	1314.00	1269.00	897.50	541.50	538.00	250.00	31.00	89.00	98.00	634.50	980.50	1611.00	8254.00
1991	1471.50	815.50	955.50	712.50	542.50	235.00	13.00	6.00	184.50	576.00	1074.50	1263.50	7850.00
1992	1249.00	843.50	684.50	504.50	219.00	118.50	84.50	71.50	282.00	498.00	1109.50	1512.00	7176.50

1993	1584.50	1248.50	1009.50	725.50	266.00	300.50	231.00	115.00	282.50	562.50	1159.00	1286.00	8770.50
1994	1252.50	1168.00	825.00	587.50	299.50	186.50	46.00	28.00	156.00	655.00	1240.00	1321.50	7765.50
1995	1284.00	979.50	972.50	707.00	495.00	278.50	60.50	74.00	230.50	665.00	837.50	1138.50	7722.50
1996	1278.50	1151.00	901.00	680.50	477.50	156.00	18.50	70.50	338.00	602.50	897.50	1341.27a	7912.77
1997	1373.50	1170.00	1008.50	721.00	332.50	162.00	95.00	19.12a	197.00	636.50	950.50	1329.50	7995.12
1998	1199.50	1022.00	1008.00	699.00	0.00z	331.50	0.00	18.00	149.00	651.50	997.50	1449.50	7525.50
1999	1373.00	1238.50	1082.50	804.00	600.00	281.00	121.00	53.50	391.50	615.50	826.50	1409.00	8796.00
2000	1371.00	1036.50	1030.00	636.00	483.50	197.00	39.50	37.50	353.50	685.50	1220.50	1353.50	8444.00
2001	1454.23c	1212.00	890.00	721.00	341.00	232.00	23.00	13.00	154.00	629.00	876.50	1585.50	8131.23
2002	1505.00	1344.50	1165.00	645.00	479.50	182.50	9.00	86.00	264.00	706.00	1008.50	1208.50	8603.50
2003	1141.50	1044.50	889.50	698.50	463.00	160.50	6.00	14.00	261.50	486.00	1116.50	1200.00	7481.50
2004	1497.50	1334.00	897.00	596.00	467.50	180.50	37.50	99.50	294.00	616.50	981.00	1302.00	8303.00
2005	1392.50	1200.00	962.00	711.00	503.00	320.00	19.00	61.00	304.00	590.00	974.00	1417.00	8453.50
2006	1376.50	1344.00	1103.50	656.00	393.50	118.00	0.00	44.50w	286.00	635.50	1024.00	1353.50	8290.50
2007	1522.50	999.00	845.00	664.50	378.50	154.00	0.00	44.00	300.00	702.00	935.50	1402.00	7947.00
2008	1616.00	1314.00	1193.50	887.50	465.00	264.50	5.00	61.50	287.00	646.50	856.50	1380.50	8977.50
2009	1453.50	1229.00	1084.00	714.00	433.50	256.50	0.00z	91.50	147.00	795.50	1028.50	1517.50	8750.50
2010	1343.50	1183.00	1049.50	730.00	644.50	284.50	78.00	95.00	250.00	514.00	1056.50	1268.50	8497.00
2011	1491.00	1254.50	1046.50	838.00	579.50	321.50	29.50	14.00	159.50	605.00	1079.00	1310.50	8728.50
2012	1281.50	1208.50	941.50	587.50	447.00	230.00	11.00	22.00	210.00	673.50	883.00	1321.00	7816.50
2013	1668.00	1122.00	964.00	15.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	3754.00
Period of Record Statistics													
MEAN	1427.40	1177.06	1020.85	697.02	444.86	211.02	44.21	64.71	275.40	626.72	1005.81	1361.25	8389.24
S.D.	146.97	154.86	138.66	92.14	93.19	68.32	41.68	48.03	96.79	86.39	100.35	143.53	566.59
SKEW	-0.03	-0.11	0.42	0.23	-0.55	-0.25	1.96	0.65	0.34	-0.17	0.43	0.29	0.50
MAX	1721.50	1546.50	1372.50	930.00	644.50	331.50	231.00	198.50	468.50	819.50	1281.50	1747.50	10071.00
MIN	1113.50	792.50	684.50	504.50	189.00	67.00	0.00	2.50	98.00	408.00	826.50	1022.50	7176.50
NO YRS	55	55	55	54	53	54	51	53	54	53	54	54	47

PICABO, IDAHO

Monthly Total Cooling Degree Days

(107040)

Base Temperature = 65 F

File last updated on Apr 4, 2013

*** Note *** Provisional Data *** After Year/Month 201304

a = 1 day missing, b = 2 days missing, c = 3 days, ..etc.,

z = 26 or more days missing, A = Accumulations present

Long-term means based on columns; thus, the monthly row may not
sum (or average) to the long-term annual value.

Months with 5 missing days or less use mean for missing day(s)

Individual Months not used for annual or monthly statistics if more than 5 days are missing.

Individual Years not used for annual statistics if any month in that year has more than 5 days missing.

YEAR (S)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
1958	0.00z	0.00z	0.00z	0.00u	17.00	30.50	47.00	133.50	31.50	0.00	0.00	0.00	259.50
1959	0.00	0.00	0.00	0.00b	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00k	0.00
1960	0.00	0.00	0.00	0.00	1.00	11.50	232.00	68.50	17.00	0.00	0.00	0.00	330.00
1961	0.00	0.00	0.00	0.00	9.50	112.00	147.00	184.50	0.00	0.00	0.00	0.00	453.00
1962	0.00	0.00	0.00	0.00	0.00	13.00	64.50	41.00	0.00	0.00	0.00a	0.00	118.50
1963	0.00	0.00	0.00	0.00	0.00	4.00	53.50	109.00	31.00	0.00z	0.00	0.00	197.50
1964	0.00	0.00	0.00	0.00	0.00	12.50	129.50	53.00	0.00	0.00	0.00	0.00	195.00
1965	0.00	0.00	0.00	0.00	0.00	7.00	75.50	63.50	0.00	0.00	0.00	0.00	146.00
1966	0.00	0.00	0.00	0.00	3.00	22.50	134.00	77.00	22.00	0.00	0.00	0.00	258.50
1967	0.00	0.00	0.00	0.00	2.50	10.00	141.00	151.50	18.50	0.00	0.00	0.00	323.50
1968	0.00	0.00	0.00	0.00	0.00	9.00	138.00	36.50	0.00	0.00	0.00	0.00	183.50
1969	0.00	0.00	0.00a	0.00	0.00	9.50	93.50	116.50	8.50	0.00	0.00	0.00	228.00
1970	0.00	0.00	0.00	0.00	0.00	53.50	121.50	97.50	0.00	0.00	0.00	0.00	272.50
1971	0.00	0.00	0.00	0.00	0.00a	11.00	102.50	155.00	0.00	0.00	0.00	0.00	268.50
1972	0.00	0.00	0.00	0.00	1.50	7.50	47.50	71.50	0.00	0.00	0.00	0.00	128.00
1973	0.00	0.00	0.00	0.00	1.00	32.50	0.00z	71.30a	1.50	0.00	0.00	0.00	106.30
1974	0.00	0.00	0.00	0.00	0.00	85.00	98.00	54.00	0.00	0.00	0.00	0.00	237.00
1975	0.00	0.00	0.00	0.00	0.00	0.00	178.50	17.50	3.00	0.00	0.00	0.00	199.00
1976	0.00	0.00a	0.00a	0.00	0.00	7.50	92.48a	17.05a	12.93a	0.00a	0.00	0.00	129.96
1977	0.00	0.00	0.00	0.00	0.00	50.00	73.50	90.50	16.00	0.00	0.00	0.00	230.00
1978	0.00	0.00	0.00a	0.00	0.00	3.50	85.00	72.00	18.00	0.00	0.00	0.00	178.50
1979	0.00	0.00	0.00	0.00	0.00	35.77d	90.50	58.00	9.00	0.00a	0.00	0.00	193.27
1980	0.00	0.00	0.00	0.00	0.00	6.50	0.00z	25.83a	4.00	0.00	0.00a	0.00	36.33
1981	0.00	0.00a	0.00	0.00	0.00	17.07a	60.50	144.50	7.50	0.00b	0.00	0.00	229.57
1982	0.00	0.00	0.00	0.00	0.00	7.00	78.00	96.00	2.00	0.00	0.00	0.00	183.00

Post CDD 224.7

1983	0.00	0.00	0.00	0.00	4.00	0.00	35.00	109.00	3.00	0.00	0.00	0.00	151.00
1984	0.00	0.00	0.00	0.00	1.50	18.00	124.00	81.50	6.00	0.00	0.00	0.00a	231.00
1985	0.00	0.00	0.00	0.00	0.00	27.00	180.50	6.50	0.00	0.00	0.00	0.00	214.00
1986	0.00	0.00	0.00	0.00	20.50	48.50	17.00	120.00	0.00a	0.00	0.00	0.00	206.00
1987	0.00	0.00	0.00	0.00	0.50	28.00	54.50	24.00	10.50	0.00	0.00	0.00a	117.50
1988	0.00	0.00	0.00	0.00	0.50	88.45a	111.00	21.00	10.00	0.00	0.00	0.00	230.95
1989	0.00	0.00	0.00	0.00	0.00	7.50	136.00	34.00	0.00	0.00	0.00	0.00	177.50
1990	0.00	0.00	0.00	0.00	0.00	35.00	98.00	85.50	14.50	0.00	0.00	0.00	233.00
1991	0.00	0.00	0.00	0.00	0.00	0.50	125.50	167.50	11.00	0.00	0.00	0.00	304.50
1992	0.00	0.00	0.00	0.00	2.00	59.50	47.00	160.50	1.00	0.00	0.00	0.00	270.00
1993	0.00	0.00	0.00	0.00	4.00	9.50	3.00	29.00	0.00	0.00	0.00	0.00	45.50
1994	0.00	0.00	0.00	0.00	1.50	47.00	152.00	127.50	2.50	0.00	0.00	0.00	330.50
1995	0.00	0.00	0.00	0.00	0.00	6.00	38.00	54.00	33.50	0.00	0.00	0.00	131.50
1996	0.00	0.00	0.00	0.00	0.00	31.00	122.50	85.00	2.00	0.00	0.00	0.00a	240.50
1997	0.00	0.00	0.00	0.00	1.00	0.50	59.00	66.13a	20.50	0.00	0.00	0.00	147.13
1998	0.00	0.00	0.00	0.00	0.00z	1.50	183.00	110.00	62.00	0.00	0.00	0.00	356.50
1999	0.00	0.00	0.00	0.00	0.00	5.50	20.00	42.00	0.00	0.00	0.00	0.00	67.50
2000	0.00	0.00	0.00	0.00	0.00	0.00	84.00	81.50	3.50	0.00	0.00	0.00	169.00
2001	0.00c	0.00	0.00	0.00	5.00	7.50	96.50	108.50	18.50	0.00	0.00	0.00	236.00
2002	0.00	0.00	0.00	0.00	4.50	49.50	165.50	14.00	5.00	0.00	0.00	0.00	238.50
2003	0.00	0.00	0.00	0.00	12.50	19.50	203.00	114.00	5.00	0.00	0.00	0.00	354.00
2004	0.00	0.00	0.00	0.00	0.00	4.50	81.50	47.00	4.00	0.00	0.00	0.00	137.00
2005	0.00	0.00	0.00	0.00	0.00	3.00	115.50	67.00	1.00	0.00	0.00	0.00	186.50
2006	0.00	0.00	0.00	0.00	7.50	32.50	206.00	2.50w	6.00	0.00	0.00	0.00	252.00
2007	0.00	0.00	0.00	0.00	0.00	21.00	236.50	84.00	17.50	0.00	0.00	0.00	359.00
2008	0.00	0.00	0.00	0.00	1.00	17.00	79.50	60.00	0.00	0.00	0.00	0.00	157.50
2009	0.00	0.00	0.00	0.00	1.50	2.00	0.00z	73.00	11.50	0.00	0.00	0.00	88.00
2010	0.00	0.00	0.00	0.00	0.00	9.50	39.50	39.50	0.00	2.00	0.00	0.00	90.50
2011	0.00	0.00	0.00	0.00	0.00	0.00	51.00	66.00	0.00	0.00	0.00	0.00	117.00
2012	0.00	0.00	0.00	0.00	0.00	4.50	118.00	71.50	0.00	0.00	0.00	0.00	194.00
2013	0.00	0.00	0.00	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00z	0.00

Period of Record Statistics

MEAN	0.00	0.00	0.00	0.00	1.94	21.15	103.25	78.38	8.35	0.04	0.00	0.00	208.99
S.D.	0.00	0.00	0.00	0.00	4.21	24.24	55.25	43.17	11.63	0.27	0.00	0.00	81.34
SKEW	0.00	0.00	0.00	0.00	2.97	1.83	0.52	0.49	2.31	7.07	0.00	0.00	0.57
MAX	0.00	0.00	0.00	0.00	20.50	112.00	236.50	184.50	62.00	2.00	0.00	0.00	453.00
MIN	0.00	0.00	0.00	0.00	0.00	0.00	3.00	6.50	0.00	0.00	0.00	0.00	45.50
NO YRS	55	55	55	54	53	54	51	53	54	53	54	54	47

PICABO, IDAHO

Period of Record General Climate Summary - Cooling Degree Days

Station:(107040) PICABO													
From Year=1958 To Year=2012													
Cooling Degree Days for Selected Base Temperature (F)													
Base	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
55	0	0	0	4	49	156	371	331	110	11	0	0	1032
57	0	0	0	2	32	117	312	274	77	5	0	0	819
60	0	0	0	0	15	69	227	193	40	1	0	0	546
65	0	0	0	0	2	21	103	79	8	0	0	0	214
70	0	0	0	0	0	4	26	16	1	0	0	0	46

Cooling Degree Day units are computed as the difference between the daily average temperature and the base temperature. (Daily Ave. Temp. - Base Temp.) One unit is accumulated for each degree Fahrenheit the average temperature is above the base temperature. Negative numbers are discarded. Example: If the days high temperature was 95 and the low temperature was 51, the base 60 heating degree day units is $((95 + 51) / 2) - 60 = 13$. This is done for each day of the month and summed.

Table updated on Oct 31, 2012

Months with 5 or more missing days are not considered

Years with 1 or more missing months are not considered

Western Regional Climate Center, wrcc@dri.edu

PICABO, IDAHO

Period of Record General Climate Summary - Heating Degree Days

Station:(107040) PICABO													
From Year=1958 To Year=2012													
Heating Degree Days for Selected Base Temperature (F)													
Base	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
65	1423	1178	1022	697	445	211	44	64	274	625	1008	1362	8354
60	1268	1037	867	547	303	109	13	23	156	471	858	1207	6859
57	1175	952	774	459	227	67	5	11	103	383	768	1114	6037
55	1113	895	712	401	182	46	2	7	76	326	708	1052	5519
50	958	754	557	263	90	13	0	1	30	197	558	897	4320

Heating Degree Day units are computed as the difference between the base temperature and the daily average temperature. (Base Temp. - Daily Ave. Temp.) One unit is accumulated for each degree Fahrenheit the average temperature is below the base temperature. Negative numbers are discarded. Example: If the days high temperature was 65 and the low temperature was 31, the base 50 heating degree day units is $50 - ((65 + 31) / 2) = 2$. This is done for each day of the month and summed.

Table updated on Oct 31, 2012

Months with 5 or more missing days are not considered

Years with 1 or more missing months are not considered

Western Regional Climate Center, wrcc@dri.edu

Edl, Michele

From: Brian Formusa <BKFORMUSA@msn.com>
Sent: Monday, July 24, 2017 1:28 PM
To: Edl, Michele
Cc: hroyal@blaineschools.org
Subject: RE: water right for Carey gym and high school

Michele,

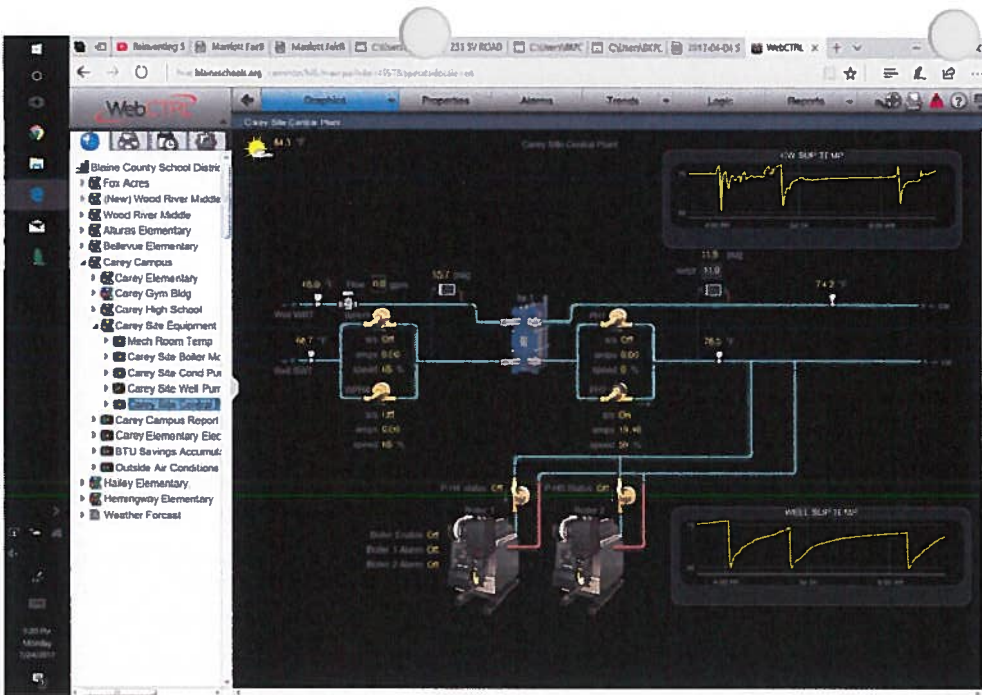
This pictures is worth so many words.

I've extracted a years worth of well flow SCADA /BAS/DDC data trend at the Carey Site. 2016/17 peak flow was 1119 gpm at the meter. Often the peak is just over 1100 gpm. 1105-1107 gpm are those peaks you see on the graph. So that's a reasonable data point to correlate to degree days.

There are 2 production wells, each can produce about 800 gpm but the heat exchangers may limit that – Howie and I are having our HVAC tech drive over there now to get the nameplate flow data off the heat exchanger.



Here too is a System schematic from the BAS. I remember now I had them remove one of three boilers as that plant was clearly overdesigned, no, lets say robustly designed. That well system likely flowing a bit more than it needs to. I wasn't allowed to make those adjustments perhaps until now.



Let me know if you want to find out maximum capacity of the well system. No trend data was compiled for VFD drives at 1119 gpm. However we have a tech driving over there now to look at the heat exchangers max. flow nameplate data. There are two HX in parallel. The two well pumps have 40 and 50 hp motors in the hole- a 50 hp motor usually does about 800 gpm at that depth. I could perform a test if you like as 'well'.

Brian Formusa P.E.
Cell: (208)-309-3023

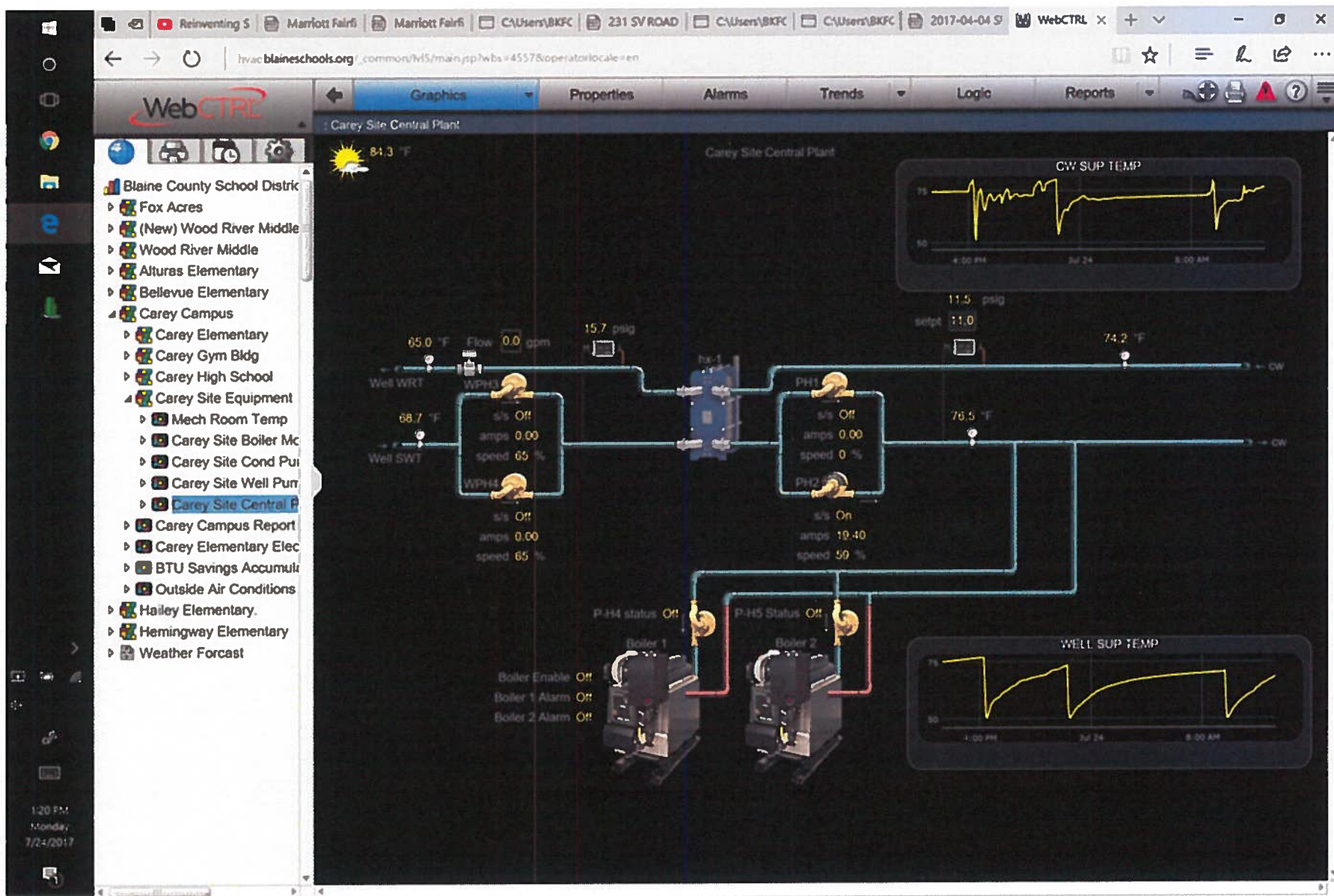
From: [Brian Formusa](#)
Sent: Monday, July 24, 2017 10:42 AM
To: [Edl, Michele](#)
Subject: RE: water right for Carey gym and high school

Howie reminded me that all 3 buildings are on the same well system and one heat exchanger. So it is one combined water right for Carey Elementary, the adjacent Gym and Carey high school.

Brian Formusa P.E.
Cell: (208)-309-3023

From: [Edl, Michele](#)
Sent: Friday, July 21, 2017 12:30 PM
To: [Brian Formusa](#)
Subject: water right for Carey gym and high school

Brian Formusa,
I have begun the review of the water right file and associated data submitted for Water Right Permit 37-22542. I have found that condition 9. of this permit states "Use of this right is at the Carey Elementary School." The application for the water right permit stated that the use would be heating and cooling in the Carey Elementary School, so a condition specifying the place of use makes some sense.



However, the back-file of the water right indicates that the rate requested accounted for the gym and the Carey High School heating-cooling additions which do not appear to have been in place when the permit was issued in September 10, 2010.

I have not located any other water right permits for heating-cooling use in the gym and high school, so I am a bit confused.

Is this one permit intended to cover the entire Carey campus? Or

Did the school district file an application for another water right permit to the cover later development? (I've not found any other records in the inactive archive either.)

Respectfully,

Michele Edl

P.S. I would have asked Mr. Royal this question, but you did direct me your way for any additional questions about BCSD heating-cooling systems.

MEMORANDUM

TO: Water Right Permit File 37-22542

FROM: Daniel A. Nelson

DATE: July 12, 2017

SUBJECT: Field Visit of Permit 37-22542

Michele Edl is the water right agent currently working on licensing the heating and cooling permits for Blaine County School District #61. Ms. Edl requested that I visit the site to gather some information that was not available through the permit holder's consultant. Chelsey Serrano, Manuel Rauhut, and I visited the site of July 11, 2017. We were shown the system by the Facilities Director, Howard Royal, 1630 Aviation Drive, Hailey, ID 83333, Telephone Number (208) 578-5402, Email – hroyal@blaineschools.org.

During the field examination, we GPS'ed the two production wells and the injection well. The flow meter for this system was calibrated by Cindy Yenter of the Department in 2013.

This is a non-approved meter, so Ms. Yenter did a thorough testing analysis of the meter. Ms. Yenter determined that the flow meter was within 3% of the standard Department meter, and she assigned the meter with a 0.97 calibration factor. This means that any volume records received from the permit holder should be adjusted down to 97% of the amount submitted.

School was not in session at the time we were at the facility, so we were not able to see the system operating under normal conditions. The system was turned on to provide us with a maximum flow rate and to provide a temperature of the system. The maximum flow rate measured on their flow meter was 1126 gpm. Using the calibration factor supplied in the Water Management Information System (WMIS) database, this flow rate would be 1092 gpm or 2.43 cfs ($1126 \text{ gpm} \times 0.97 = 1092 \text{ gpm}$). Cindy Yenter from the Department measured and calibrated this well at 748.9 gpm and the installed flow meter had a flow rate of 770.4 gpm in 2013.

The power panels have several varying flow rates between the standard meter used by the Department and installed flow meter display, but Ms. Yenter has a note in WMIS that a setting in the meter was off. Ms. Yenter stated that once the setting was corrected, the display for the high flows was very good, and the low flows tested approximately 6% out of range. The information on the power panels appears to be associated with the early tests performed by Ms. Yenter. I believe the maximum diversion capacity of the wells is the 1092 gpm calculated with the calibration factor. A maximum diversion rate of 1092 gpm or 2.43 cfs is well under the 3.65 cfs limitation in the permit.

The system did have several thermometers on the system, and they all read between 49 and 55 degrees. The computer system said the water was 47 degrees, so it appears as though the computer system is registering a lower water temperature than the thermometers on the well. I was not able to see the thermometer devices used by the computer on the system, so I am more inclined to go with the actual thermometer readings. I am more inclined to go with the thermometer readings.

The field examination revealed 2 other issues. The system has a small heat pump that serves a 160 square foot computer server room that is heated using only propane. They use the separate heating unit on this room, because a server room has more precise heating and cooling needs. This room should be deducted from the total square footage of the school.

The second issue is that the school has a fresh air system referred to by the applicant as the air handler that blows fresh air into the school all year round. The air handler blows approximately 3,847 to 13,000 Cubic Feet per Minute of air into the school. The system is designed to try to maintain a 55 degree intake air supply entering the school. The heating system in the intake air unit has the ability to provide a 6.1 to 80 degree rise (there was no discussion on the cooling of the air coming into the school). The air expelled from the school is also run through this unit to help heat the incoming air in an air heat exchanger type unit to try to maintain the incoming air at 55 degrees. The air is delivered to the individual heat pumps for each class room through a duct system, and used to heat the classroom. The water from the wells is run through a heat exchanger that heats the water being delivered to the individual classroom heat pumps. The water heat exchanger provides an estimated 2 and 4 degree delta heat exchange between the heat pump water and the well water.

Please review the maps, spreadsheets and pictures of the system for additional information. Other than being able to test the system under normal operating conditions, we supplied the information that was available.



210168

CERTIFIED BY:



ITT

SIDE
ONE

MAWP 150 PSI at 257 °F

MAEWP PSI at °F

MDMT +32 °F at 150 PSI

SIDE
TWO

MAWP 150 PSI at 257 °F

MAEWP PSI at °F

MDMT +32 °F at 150 PSI

S/N 148413-01

YEAR 2010

PART NO. %BY543200063900

5-432-23-147-009

BELL & GOSSETT P62

3-342-6-00-320-08

FOR LITERATURE SEE:

www.bellgossett.com

CERTIFIED BY:



ITT

210108

CERTIFIED BY:  **ITT**

www.bellgossett.com



SIDE ONE	MAWP 150 PSI at 257 °F
	MAEWP PSI at °F
	MDMT +32 °F at 150 PSI
SIDE TWO	MAWP 150 PSI at 257 °F
	MAEWP PSI at °F
	MDMT +32 °F at 150 PSI

S/N 148413-01 YEAR 2010

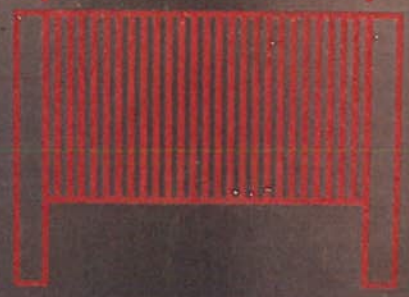
PART NO. %BY543200063900
5-432-23-147-009
BELL & GOSSETT P62

3-342-6-05-306-09

FOR LITERATURE SEE:

CERTIFIED BY:  **ITT**

16.5 MIN.
17.4 MAX.



3-342-6-05-306-09

PHOTOGRAPHER AND DATE OF PHOTOS Daniel A. Nelson, Manuel Rahhut, and Chelsey Serrano 7/11/2017

FILE NUMBER 37-22542



The well above is the west production well, and the well below is the east production well.

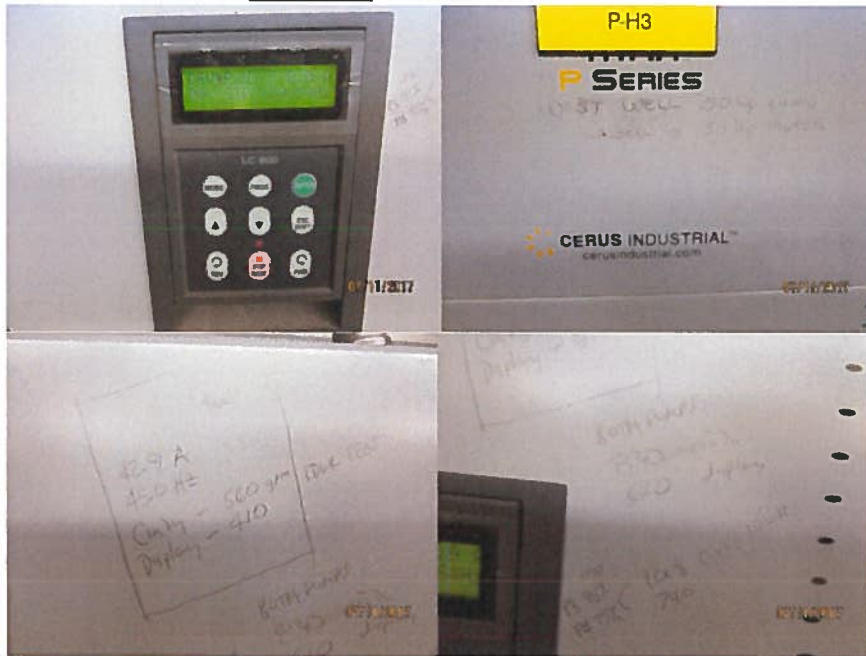


The well below is the injection well.

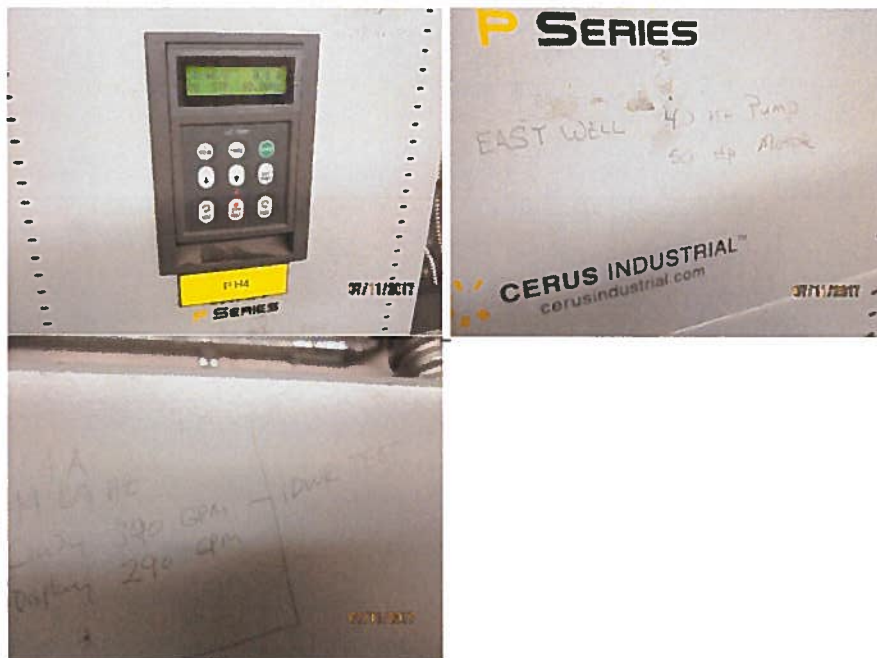


PHOTOGRAPHER AND DATE OF PHOTOS Daniel A. Nelson, Manuel Rauhut, and Chelsey Serrano 7/11/2017

FILE NUMBER 37-22542



The top 4 pictures are of the West Production Well's Variable Speed Drive. On the drive are the measurements that Cindy Yenter took while calibrating the flow meter. Ms. Yenter measured 560 gpm with just the west pump and 830 gpm with both pumps. The measurement device display said 410 gpm and 610 gpm. Ms. Yenter also measured 1008 gpm with the display at 740 gpm with the West well at 95% and the East well at 75%



The second set of pictures are from the Variable Speed Drive panel for the East Well. This panel shows writing on the pump that says the Ms. Yenter measured 390 gpm and the display showed 290 gpm.

The WMIS database states that the display was re-configured, and corrected the inaccurate display readings. This numbers appear to be from the early tests Ms. Yenter did on this flow meter.

PHOTOGRAPHER AND DATE OF PHOTOS Daniel A. Nelson, Manuel Rauhut, and Chelsey Serrano 7/11/2017

FILE NUMBER 37-22542



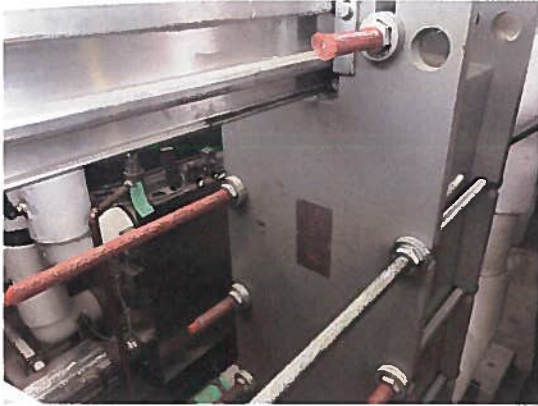
The above photo shows two of the thermometers on this system. One reads 49 degrees and the other reads 53 degrees. The photos below show the heating control room.



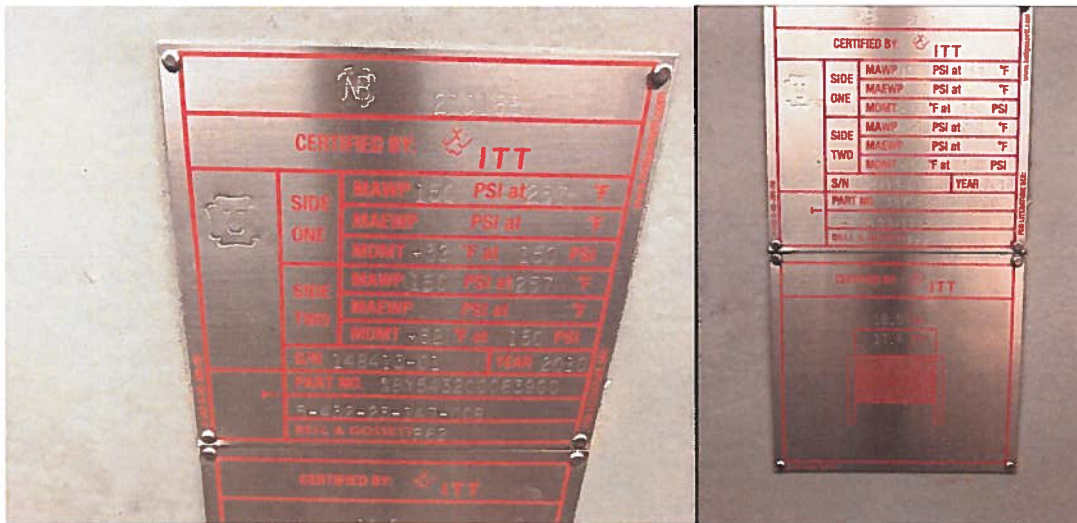
The photo above shows the fresh air intake unit. This unit provides fresh air to the school, and heats that air with propane when the outside temperature reaches 55 degrees.

PHOTOGRAPHER AND DATE OF PHOTOS Daniel A. Nelson, Manuel Rauhut, and
Chelsey Serrano 7/11/2017

FILE NUMBER 37-22542



The photo above shows the heat exchanger. The photos below are of the heat exchanger name plate.



MEMORANDUM

TO: Water Right Permit Files 37-22542, and 37-21742

FROM: Daniel A. Nelson

DATE: Various Dates

SUBJECT: Telephone Conversations with Permit Holder

On July 12, 2017, I spoke with Howie Royal concerning water rights 37-22542 and 37-21742. During this conversation, I asked for additional information for the various systems for the Carey School. I asked for the following information:

- 1.) I needed to know the size of the computer room that is only heated and cooled by the propane roof mounted unit.
- 2.) I needed to know more information for the fresh air system. I needed to know how much air in cubic feet was pumped into the school and confirmation of the temperature that the air is heated.

On July 12th, Howie Royal called me and told me that propane roof top heating unit supplied only one room, and it was the computer server room. Mr. Royal told me that the room was 160 square feet in size. He also told me he was still trying to attain the information on the fresh air system.

On July 14th, Mr. Royal left a message saying he had the information on the fresh air system.

On July 17th, I called Mr. Royal to find out about the fresh air unit and to ask what the maximum time they run their irrigation system was, so we could increase the diversion rate if needed. Mr. Royal was not at his office, but he told me he would call me back with the information.

On July 18, 2017, Mr. Royal and I spoke by telephone concerning the questions on the Cary High School. The air handler provides approximately 3,847 to 13,000 Cubic Feet per Minute of air. The system is designed to try to maintain a 55 degree intake air supply. The heating system in the intake air unit has the ability to provide a 6.1 to 80 degree rise. The air expelled from the school is also run through this unit to help heat the incoming air to the needed 55 degrees. The air is delivered to the individual heat pumps for each class room. The water from the well is run through a heat exchanger that heats the water being delivered to the individual classroom heat pumps. The water heat exchanger provides between 2 and 4 degree delta heat exchange between the heat pump water and the well water.

Mr Royal also stated that the irrigation system for the Carey School is operated between 5-6 hours per night. This is done to ensure that the fields has time to dry by the time the fields and playgrounds are in use.

Edl, Michele

From: Christian Petrich <CPetrich@spfwater.com>
Sent: Thursday, February 02, 2017 6:50 PM
To: Edl, Michele
Cc: Scott Davis (SDavis@blaineschools.org); 'Howie Royal (hroyal@blaineschools.org)'
Subject: Blaine Co School District Data (Carey)
Attachments: CAREY Water Meter.jpg; CAREY Water Meter 2.jpg; CAREY WELL TOTALIZER.xlsx

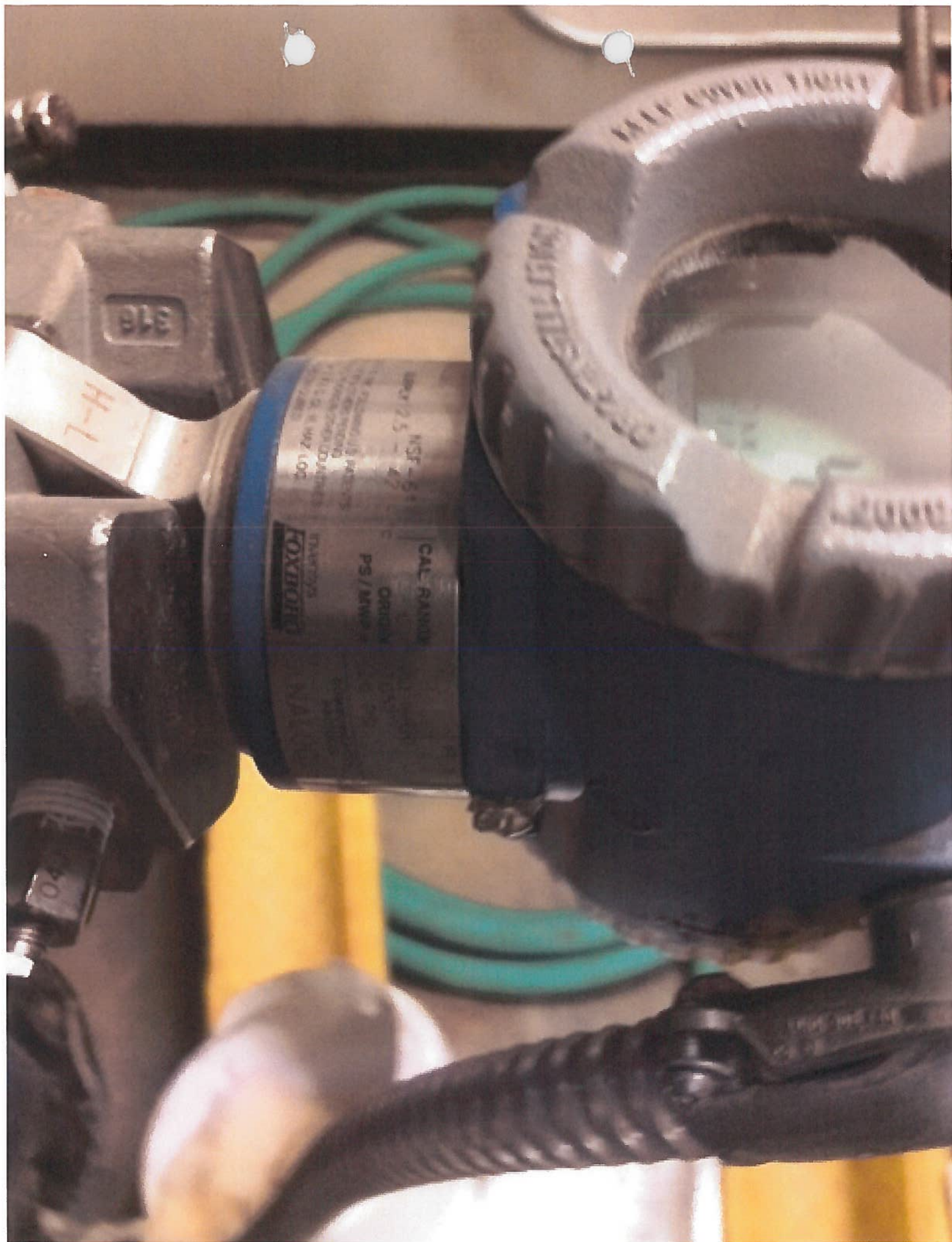
Michele,

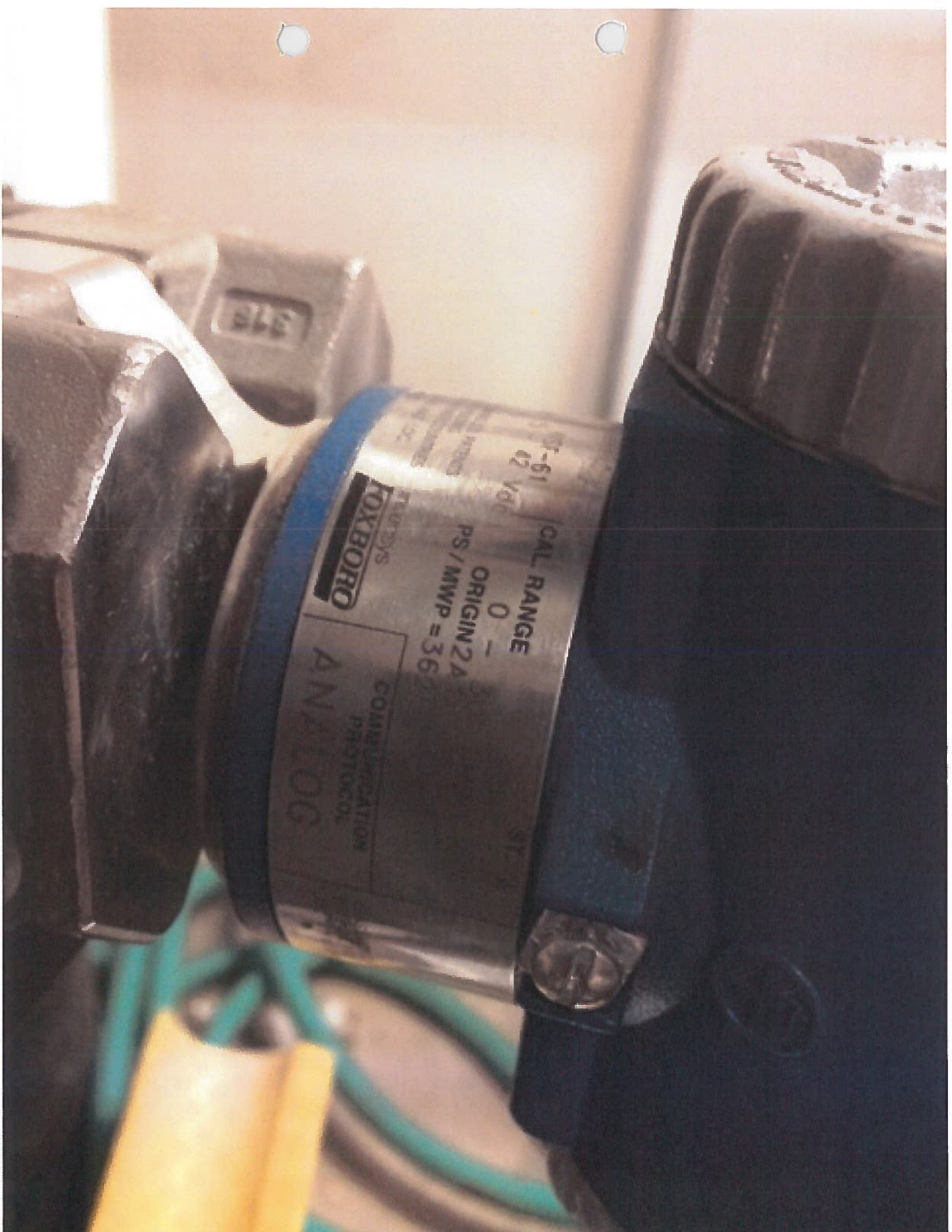
Attached are production data from the Carey schools collected between 9/11/2013 and 1/23/2017. Diversions for heating and cooling purposes are authorized under Permit 37-22542. Blaine County School District personnel recorded these data using a Foxburo IDP10-ALLAO1F-M1 flow meter (pictures attached). Please call if you have any questions about these data.

Regards,
Christian

Christian R. Petrich, Ph.D., P.E., P.G.
Principal Engineer/Hydrologist
SPF Water Engineering, LLC
300 E Mallard Drive, Suite 350 | Boise, ID 83706
Tel: 208.383.4140
Fax: 208.383.4156
Cell: 208.869.4569

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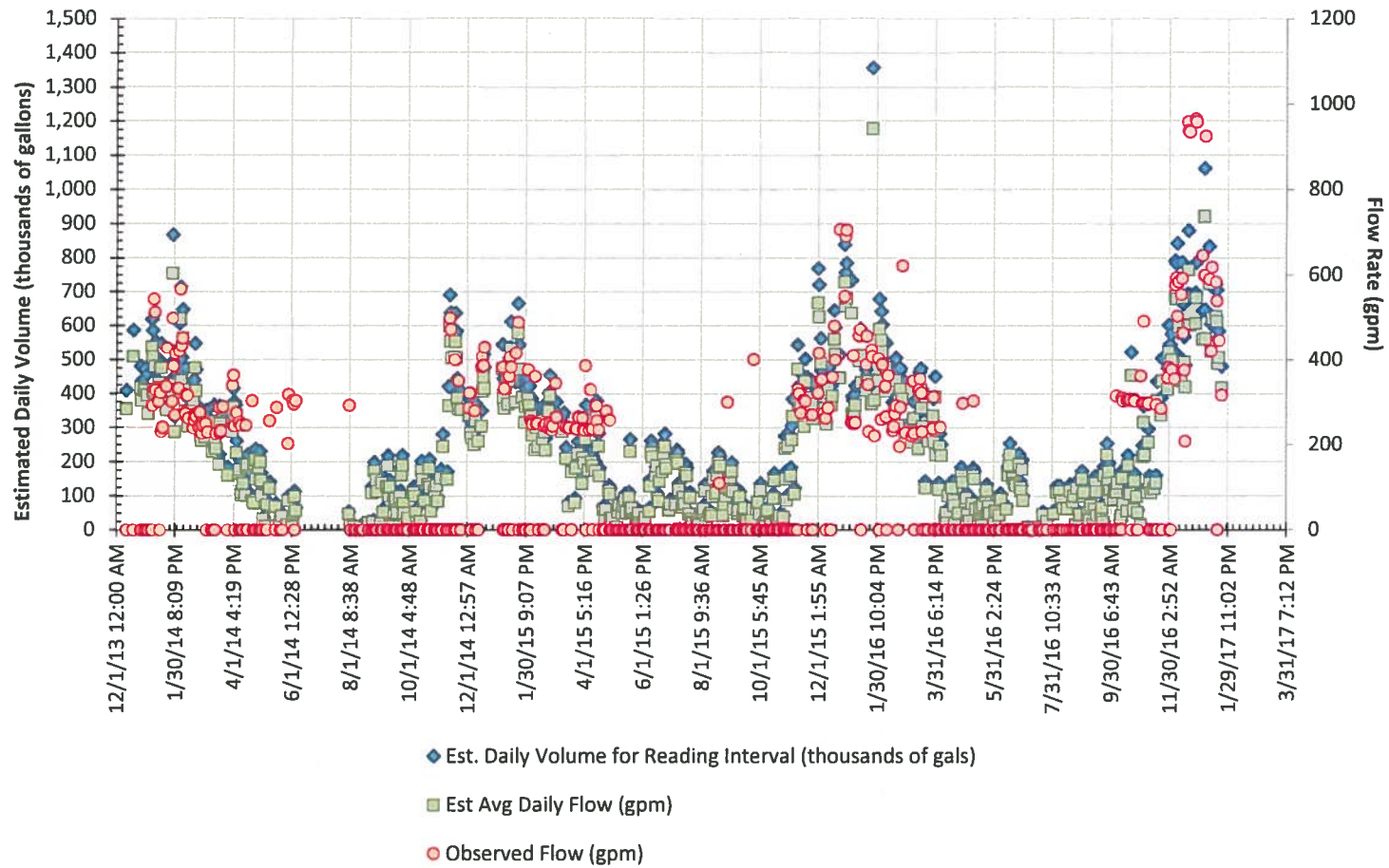


FOXBORO

COMMUNICATION
PROTOCOL
ANALOG

CAL RANGE
0 - 3
ORIGIN 2A
PS / MWP = 362

Carey Schools



Blaine County School District Heating/Cooling System Water Production									
Date	Time	Date & Time	Totalizer Reading (gals)	Observed Flow (gpm)	Difference (gals)	Elapsed minutes	Est. Daily Volume for Reading Interval (thousands of gals)	Est Avg Daily Flow (gpm)	Comments
9/11/2013	11:00 AM	9/11/13 11:00 AM	10,491,000	0	0	0	0	0	
9/14/2013	12:00 PM	9/14/13 12:00 PM	11,104,000	0	613,000	4,380	202	140	
9/18/2013	11:00 AM	9/18/13 11:00 AM	11,530,000	0	426,000	5,700	108	75	
9/25/2013	1:00 PM	9/25/13 1:00 PM	11,702,000	0	172,000	10,200	24	17	
10/3/2013	11:00 AM	10/3/13 11:00 AM	12,480,000	0	778,000	11,400	98	68	
10/11/2013	2:00 PM	10/11/13 2:00 PM	14,038,000	0	1,558,000	11,700	192	133	
10/16/2013	11:00 AM	10/16/13 11:00 AM	15,024,000	0	986,000	7,020	202	140	
10/23/2013	1:00 PM	10/23/13 1:00 PM	16,438,000	0	1,414,000	10,200	200	139	
10/30/2013	12:00 PM	10/30/13 12:00 PM	17,887,000	0	1,449,000	10,020	208	145	
11/6/2013	11:00 AM	11/6/13 11:00 AM	20,173,000	0	2,286,000	10,020	329	228	
11/13/2013	1:00 PM	11/13/13 1:00 PM	21,983,000	0	1,810,000	10,200	256	177	
11/20/2013	11:00 AM	11/20/13 11:00 AM	24,757,000	0	2,774,000	9,960	401	279	
11/27/2013	2:00 PM	11/27/13 2:00 PM	32,278,000	0	7,521,000	10,260	1,056	733	
12/11/2013	11:00 AM	12/11/13 11:00 AM	37,945,000	0	5,667,000	19,980	408	284	
12/18/2013	11:00 AM	12/18/13 11:00 AM	42,051,000	0	4,106,000	10,080	587	407	
12/26/2013	8:00 AM	12/26/13 8:00 AM	45,828,000	0	3,777,000	11,340	480	333	
12/27/2013	7:00 AM	12/27/13 7:00 AM	46,247,000	0	419,000	1,380	437	304	
12/30/2013	8:36 AM	12/30/13 8:36 AM	47,700,000	0	1,453,000	4,416	474	329	
12/31/2013	9:07 AM	12/31/13 9:07 AM	48,182,000	0	482,000	1,471	472	328	
1/2/2014	11:08 AM	1/2/14 11:08 AM	49,133,000	0	951,000	3,001	456	317	
1/3/2014	8:02 AM	1/3/14 8:02 AM	49,474,000	0	341,000	1,254	392	272	
1/6/2014	2:09 PM	1/6/14 2:09 PM	51,487,000	0	2,013,000	4,687	618	429	
1/7/2014	2:09 PM	1/7/14 2:09 PM	52,073,000	293	586,000	1,440	586	407	
1/8/2014	2:35 PM	1/8/14 2:35 PM	52,547,000	543	474,000	1,466	466	323	
1/9/2014	3:00 PM	1/9/14 3:00 PM	53,026,000	512	479,000	1,465	471	327	
1/10/2014	2:10 PM	1/10/14 2:10 PM	53,560,000	329	534,000	1,390	553	384	
1/13/2014	2:02 PM	1/13/14 2:02 PM	54,967,000	301	1,407,000	4,312	470	326	
1/14/2014	2:12 PM	1/14/14 2:12 PM	55,467,000	0	500,000	1,450	497	345	
1/15/2014	2:46 PM	1/15/14 2:46 PM	55,959,000	323	492,000	1,474	481	334	
1/16/2014	2:19 PM	1/16/14 2:19 PM	56,495,000	231	536,000	1,413	546	379	
1/17/2014	2:59 PM	1/17/14 2:59 PM	56,984,000	241	489,000	1,480	476	330	
1/21/2014	2:08 PM	1/21/14 2:08 PM	58,630,000	337	1,646,000	5,709	415	288	
1/22/2014	10:25 AM	1/22/14 10:25 AM	58,972,000	427	342,000	1,217	405	281	
1/27/2014	2:16 PM	1/27/14 2:16 PM	61,497,000	301	2,525,000	7,431	489	340	

1/28/2014	6:08 AM	1/28/14 6:08 AM	62,071,000	498	574,000	952	868	603	
1/29/2014	6:11 AM	1/29/14 6:11 AM	62,517,000	385	446,000	1,443	445	309	
1/30/2014	1:58 PM	1/30/14 1:58 PM	62,956,000	269	439,000	1,907	331	230	
1/31/2014	11:18 AM	1/31/14 11:18 AM	63,392,000	415	436,000	1,280	490	341	
2/3/2014	1:54 PM	2/3/14 1:54 PM	64,872,000	332	1,480,000	4,476	476	331	
2/4/2014	2:02 PM	2/4/14 2:02 PM	65,482,000	421	610,000	1,448	607	421	
2/5/2014	2:07 PM	2/5/14 2:07 PM	66,199,000	566	717,000	1,445	715	496	
2/6/2014	2:07 PM	2/6/14 2:07 PM	66,705,000	434	506,000	1,440	506	351	
2/7/2014	2:23 PM	2/7/14 2:23 PM	67,360,000	451	655,000	1,456	648	450	
2/10/2014	2:01 PM	2/10/14 2:01 PM	68,556,000	274	1,196,000	4,298	401	278	
2/11/2014	2:25 PM	2/11/14 2:25 PM	69,037,000	318	481,000	1,464	473	329	
2/12/2014	2:12 PM	2/12/14 2:12 PM	69,419,000	316	382,000	1,427	385	268	
2/13/2014	1:55 PM	2/13/14 1:55 PM	69,765,000	263	346,000	1,423	350	243	
2/18/2014	2:25 PM	2/18/14 2:25 PM	71,851,000	239	2,086,000	7,230	415	289	
2/19/2014	1:56 PM	2/19/14 1:56 PM	72,281,000	259	430,000	1,411	439	305	
2/20/2014	2:06 PM	2/20/14 2:06 PM	72,832,000	272	551,000	1,450	547	380	
2/21/2014	2:10 PM	2/21/14 2:10 PM	73,303,000	267	471,000	1,444	470	326	
2/24/2014	2:13 PM	2/24/14 2:13 PM	74,384,000	242	1,081,000	4,323	360	250	
2/25/2014	2:13 PM	2/25/14 2:13 PM	74,723,000	276	339,000	1,440	339	235	
2/26/2014	2:25 PM	2/26/14 2:25 PM	75,042,000	250	319,000	1,452	316	220	
2/27/2014	1:20 PM	2/27/14 1:20 PM	75,330,000	228	288,000	1,375	302	209	
2/28/2014	2:21 PM	2/28/14 2:21 PM	75,680,000	246	350,000	1,501	336	233	
3/3/2014	2:30 PM	3/3/14 2:30 PM	76,627,000	250	947,000	4,329	315	219	
3/4/2014	2:27 PM	3/4/14 2:27 PM	76,977,000	0	350,000	1,437	351	244	
3/5/2014	1:29 PM	3/5/14 1:29 PM	77,294,000	231	317,000	1,382	330	229	
3/10/2014	2:19 PM	3/10/14 2:19 PM	78,628,000	0	1,334,000	7,250	265	184	
3/12/2014	1:56 PM	3/12/14 1:56 PM	79,354,000	0	726,000	2,857	366	254	
3/13/2014	2:00 PM	3/13/14 2:00 PM	79,640,000	0	286,000	1,444	285	198	
3/14/2014	2:27 PM	3/14/14 2:27 PM	79,920,000	227	280,000	1,467	275	191	
3/17/2014	2:01 PM	3/17/14 2:01 PM	80,581,000	286	661,000	4,294	222	154	
3/18/2014	2:15 PM	3/18/14 2:15 PM	80,948,000	229	367,000	1,454	363	252	
3/19/2014	2:03 PM	3/19/14 2:03 PM	81,304,000	232	356,000	1,428	359	249	
3/21/2014	12:24 PM	3/21/14 12:24 PM	81,954,000	289	650,000	2,781	337	234	
3/26/2014	2:16 PM	3/26/14 2:16 PM	82,886,000	0	932,000	7,312	184	127	
3/31/2014	2:08 PM	3/31/14 2:08 PM	84,540,000	340	1,654,000	7,192	331	230	
4/1/2014	2:06 PM	4/1/14 2:06 PM	84,954,000	363	414,000	1,438	415	288	
4/2/2014	2:19 PM	4/2/14 2:19 PM	85,334,000	245	380,000	1,453	377	262	
4/3/2014	2:18 PM	4/3/14 2:18 PM	85,701,000	0	367,000	1,439	367	255	
4/4/2014	2:36 PM	4/4/14 2:36 PM	85,965,000	276	264,000	1,458	261	181	
4/7/2014	10:30 AM	4/7/14 10:30 AM	86,502,000	253	537,000	4,074	190	132	
4/8/2014	1:58 PM	4/8/14 1:58 PM	86,736,000	0	234,000	1,648	204	142	

4/9/2014	1:57 PM	4/9/14 1:57 PM	86,855,000	246	119,000	1,439	119	83	
4/10/2014	1:36 PM	4/10/14 1:36 PM	86,981,000	0	126,000	1,419	128	89	
4/11/2014	2:03 PM	4/11/14 2:03 PM	87,139,000	0	158,000	1,467	155	108	
4/14/2014	2:29 PM	4/14/14 2:29 PM	87,496,000	245	357,000	4,346	118	82	
4/15/2014	2:13 PM	4/15/14 2:13 PM	87,706,000	0	210,000	1,424	212	147	
4/16/2014	1:30 PM	4/16/14 1:30 PM	87,920,000	0	214,000	1,397	221	153	
4/21/2014	9:47 AM	4/21/14 9:47 AM	88,401,000	302	481,000	6,977	99	69	
4/22/2014	2:16 PM	4/22/14 2:16 PM	88,509,000	0	108,000	1,709	91	63	
4/23/2014	2:26 PM	4/23/14 2:26 PM	88,735,000	0	226,000	1,450	224	156	
4/24/2014	2:06 PM	4/24/14 2:06 PM	88,969,000	0	234,000	1,420	237	165	
4/25/2014	2:08 PM	4/25/14 2:08 PM	89,141,000	0	172,000	1,442	172	119	
4/28/2014	2:00 PM	4/28/14 2:00 PM	89,771,000	0	630,000	4,312	210	146	
4/29/2014	2:18 PM	4/29/14 2:18 PM	90,004,000	0	233,000	1,458	230	160	
4/30/2014	1:52 PM	4/30/14 1:52 PM	90,167,000	0	163,000	1,414	166	115	
5/1/2014	2:15 PM	5/1/14 2:15 PM	90,287,000	0	120,000	1,463	118	82	
5/2/2014	1:55 PM	5/2/14 1:55 PM	90,325,000	0	38,000	1,420	39	27	
5/5/2014	2:14 PM	5/5/14 2:14 PM	90,368,000	0	43,000	4,339	14	10	
5/6/2014	2:38 PM	5/6/14 2:38 PM	90,455,000	0	87,000	1,464	86	59	
5/9/2014	1:55 PM	5/9/14 1:55 PM	90,871,000	256	416,000	4,277	140	97	
5/15/2014	2:12 PM	5/15/14 2:12 PM	91,345,000	0	474,000	8,657	79	55	
5/16/2014	2:44 PM	5/16/14 2:44 PM	91,361,000	286	16,000	1,472	16	11	
5/20/2014	2:00 PM	5/20/14 2:00 PM	91,522,000	0	161,000	5,716	41	28	
5/22/2014	2:33 PM	5/22/14 2:33 PM	91,617,000	0	95,000	2,913	47	33	
5/28/2014	2:07 PM	5/28/14 2:07 PM	91,720,000	203	103,000	8,614	17	12	
5/29/2014	6:05 AM	5/29/14 6:05 AM	91,786,000	316	66,000	958	99	69	
6/2/2014	1:52 PM	6/2/14 1:52 PM	91,832,000	303	46,000	6,227	11	7	
6/3/2014	1:52 PM	6/3/14 1:52 PM	91,887,000	294	55,000	1,440	55	38	
6/4/2014	2:00 PM	6/4/14 2:00 PM	92,001,000	0	114,000	1,448	113	79	
6/5/2014	2:06 PM	6/5/14 2:06 PM	92,066,000	302	65,000	1,446	65	45	
7/30/2014	3:32 PM	7/30/14 3:32 PM	95,013,000	291	2,947,000	79,286	54	37	
8/1/2014	3:00 PM	8/1/14 3:00 PM	95,043,000	0	30,000	2,848	15	11	
8/5/2014	3:45 PM	8/5/14 3:45 PM	95,086,000	0	43,000	5,805	11	7	
8/6/2014	3:00 PM	8/6/14 3:00 PM	95,086,000	0	0	0	0	0	
8/7/2014	2:00 PM	8/7/14 2:00 PM	95,086,000	0	0	0	0	0	
8/11/2014	2:30 PM	8/11/14 2:30 PM	95,089,000	0	3,000	5,790	1	1	
8/12/2014	3:00 PM	8/12/14 3:00 PM	95,102,000	0	13,000	1,470	13	9	
8/13/2014	8:00 AM	8/13/14 8:00 AM	95,107,000	0	5,000	1,020	7	5	
8/14/2014	2:30 PM	8/14/14 2:30 PM	95,107,000	0	0	0	0	0	
8/20/2014	2:30 PM	8/20/14 2:30 PM	95,253,000	0	146,000	8,640	24	17	
8/23/2014	8:30 PM	8/23/14 8:30 PM	95,660,000	0	407,000	4,680	125	87	
8/25/2014	11:30 AM	8/25/14 11:30 AM	95,705,000	0	45,000	2,340	28	19	

8/26/2014	11:00 AM	8/26/14 11:00 AM	95,899,000	0	194,000	1,410	198	138	
8/27/2014	8:45 AM	8/27/14 8:45 AM	95,900,000	0	1,000	1,305	1	1	
8/28/2014	1:15 PM	8/28/14 1:15 PM	96,101,000	0	201,000	1,710	169	118	
8/29/2014	7:30 AM	8/29/14 7:30 AM	96,199,000	0	98,000	1,095	129	89	
9/2/2014	2:00 PM	9/2/14 2:00 PM	96,305,000	0	106,000	6,150	25	17	
9/3/2014	2:00 PM	9/3/14 2:00 PM	96,464,000	0	159,000	1,440	159	110	
9/4/2014	2:00 PM	9/4/14 2:00 PM	96,525,000	0	61,000	1,440	61	42	
9/8/2014	2:20 PM	9/8/14 2:20 PM	97,108,000	0	583,000	5,780	145	101	
9/9/2014	2:37 PM	9/9/14 2:37 PM	97,328,000	0	220,000	1,457	217	151	
9/10/2014	1:55 PM	9/10/14 1:55 PM	97,441,000	0	113,000	1,398	116	81	
9/11/2014	2:10 PM	9/11/14 2:10 PM	97,587,000	0	146,000	1,455	144	100	
9/12/2014	2:30 PM	9/12/14 2:30 PM	97,605,000	0	18,000	1,460	18	12	
9/15/2014	2:00 PM	9/15/14 2:00 PM	97,644,000	0	39,000	4,290	13	9	
9/16/2014	2:00 PM	9/16/14 2:00 PM	97,744,000	0	100,000	1,440	100	69	
9/17/2014	2:00 PM	9/17/14 2:00 PM	97,842,000	0	98,000	1,440	98	68	
9/18/2014	2:00 PM	9/18/14 2:00 PM	97,950,000	0	108,000	1,440	108	75	
9/19/2014	12:00 PM	9/19/14 12:00 PM	98,004,000	0	54,000	1,320	59	41	
9/22/2014	2:00 PM	9/22/14 2:00 PM	98,356,000	0	352,000	4,440	114	79	
9/23/2014	2:00 PM	9/23/14 2:00 PM	98,541,000	0	185,000	1,440	185	128	
9/24/2014	2:00 PM	9/24/14 2:00 PM	98,759,000	0	218,000	1,440	218	151	
9/25/2014	2:00 PM	9/25/14 2:00 PM	98,848,000	0	89,000	1,440	89	62	
9/26/2014	1:54 PM	9/26/14 1:54 PM	98,905,000	0	57,000	1,434	57	40	
9/29/2014	2:00 PM	9/29/14 2:00 PM	98,933,000	0	28,000	4,326	9	6	
9/30/2014	2:00 PM	9/30/14 2:00 PM	98,973,000	0	40,000	1,440	40	28	
10/6/2014	2:00 PM	10/6/14 2:00 PM	99,727,000	0	754,000	8,640	126	87	
10/7/2014	2:00 PM	10/7/14 2:00 PM	99,841,000	0	114,000	1,440	114	79	
10/8/2014	2:00 PM	10/8/14 2:00 PM	99,902,000	0	61,000	1,440	61	42	
10/9/2014	2:00 PM	10/9/14 2:00 PM	99,928,000	0	26,000	1,440	26	18	
10/10/2014	2:00 PM	10/10/14 2:00 PM	99,938,000	0	10,000	1,440	10	7	
10/13/2014	2:00 PM	10/13/14 2:00 PM	100,022,000	0	84,000	4,320	28	19	
10/14/2014	2:00 PM	10/14/14 2:00 PM	100,223,000	0	201,000	1,440	201	140	
10/15/2014	2:00 PM	10/15/14 2:00 PM	100,393,000	0	170,000	1,440	170	118	
10/16/2014	2:00 PM	10/16/14 2:00 PM	100,489,000	0	96,000	1,440	96	67	
10/17/2014	12:00 PM	10/17/14 12:00 PM	100,578,000	0	89,000	1,320	97	67	
10/21/2014	2:00 PM	10/21/14 2:00 PM	101,207,000	0	629,000	5,880	154	107	
10/22/2014	2:00 PM	10/22/14 2:00 PM	101,414,000	0	207,000	1,440	207	144	
10/23/2014	2:00 PM	10/23/14 2:00 PM	101,559,000	0	145,000	1,440	145	101	
10/24/2014	2:00 PM	10/24/14 2:00 PM	101,622,000	0	63,000	1,440	63	44	
10/28/2014	2:00 PM	10/28/14 2:00 PM	102,145,000	0	523,000	5,760	131	91	
10/30/2014	9:30 AM	10/30/14 9:30 AM	102,418,000	0	273,000	2,610	151	105	
10/31/2014	2:00 PM	10/31/14 2:00 PM	102,532,000	0	114,000	1,710	96	67	

11/3/2014	1:30 PM	11/3/14 1:30 PM	103,056,000	0	524,000	4,290	176	122	
11/5/2014	2:00 PM	11/5/14 2:00 PM	103,623,000	0	567,000	2,910	281	195	
11/10/2014	10:00 AM	11/10/14 10:00 AM	104,444,000	0	821,000	6,960	170	118	
11/11/2014	1:30 PM	11/11/14 1:30 PM	104,925,000	0	481,000	1,650	420	292	
11/12/2014	2:00 PM	11/12/14 2:00 PM	105,630,000	498	705,000	1,470	691	480	1 Well Pump Running
11/13/2014	2:00 PM	11/13/14 2:00 PM	106,269,000	471	639,000	1,440	639	444	1 Well Pump Running
11/14/2014	1:30 PM	11/14/14 1:30 PM	106,838,000	0	569,000	1,410	581	404	
11/17/2014	1:30 PM	11/17/14 1:30 PM	108,596,000	0	1,758,000	4,320	586	407	
11/18/2014	1:30 PM	11/18/14 1:30 PM	109,233,000	399	637,000	1,440	637	442	1 Well Pump Running
11/19/2014	1:30 PM	11/19/14 1:30 PM	109,816,000	0	583,000	1,440	583	405	
11/20/2014	1:30 PM	11/20/14 1:30 PM	110,260,000	0	444,000	1,440	444	308	
11/21/2014	1:30 PM	11/21/14 1:30 PM	110,669,000	350	409,000	1,440	409	284	
11/24/2014	1:30 PM	11/24/14 1:30 PM	111,886,000	0	1,217,000	4,320	406	282	
12/2/2014	1:30 PM	12/2/14 1:30 PM	114,975,000	286	3,089,000	11,520	386	268	1 Well Pump Running
12/3/2014	1:30 PM	12/3/14 1:30 PM	115,364,000	321	389,000	1,440	389	270	1 Well Pump Running
12/4/2014	1:30 PM	12/4/14 1:30 PM	115,691,000	0	327,000	1,440	327	227	
12/5/2014	1:30 PM	12/5/14 1:30 PM	116,002,000	0	311,000	1,440	311	216	
12/8/2014	1:30 PM	12/8/14 1:30 PM	116,866,000	279	864,000	4,320	288	200	1 Well Pump Running
12/9/2014	1:30 PM	12/9/14 1:30 PM	117,236,000	0	370,000	1,440	370	257	
12/12/2014	1:30 PM	12/12/14 1:30 PM	118,136,000	0	900,000	4,320	300	208	
12/15/2014	2:00 PM	12/15/14 2:00 PM	119,193,000	383	1,057,000	4,350	350	243	1 Well Pump Running
12/16/2014	2:00 PM	12/16/14 2:00 PM	119,662,000	406	469,000	1,440	469	326	1 Well Pump Running
12/17/2014	1:30 PM	12/17/14 1:30 PM	120,167,000	385	505,000	1,410	516	358	1 Well Pump Running
12/18/2014	1:30 PM	12/18/14 1:30 PM	120,645,000	429	478,000	1,440	478	332	1 Well Pump Running
1/6/2015	1:30 PM	1/6/15 1:30 PM	130,992,000	382	10,347,000	27,360	545	378	1 Well Pump Running
1/7/2015	1:30 PM	1/7/15 1:30 PM	131,436,000	0	444,000	1,440	444	308	
1/8/2015	1:30 PM	1/8/15 1:30 PM	131,846,000	331	410,000	1,440	410	285	1 Well Pump Running
1/9/2015	1:30 PM	1/9/15 1:30 PM	132,326,000	0	480,000	1,440	480	333	
1/12/2015	1:30 PM	1/12/15 1:30 PM	133,602,000	0	1,276,000	4,320	425	295	
1/13/2015	1:30 PM	1/13/15 1:30 PM	134,106,000	360	504,000	1,440	504	350	1 Well Pump Running
1/14/2015	1:30 PM	1/14/15 1:30 PM	134,643,000	405	537,000	1,440	537	373	1 Well Pump Running
1/15/2015	1:30 PM	1/15/15 1:30 PM	135,255,000	382	612,000	1,440	612	425	1 Well Pump Running
1/16/2015	1:30 PM	1/16/15 1:30 PM	135,779,000	0	524,000	1,440	524	364	
1/20/2015	1:30 PM	1/20/15 1:30 PM	137,512,000	415	1,733,000	5,760	433	301	1 Well Pump Running
1/22/2015	1:30 PM	1/22/15 1:30 PM	138,844,000	488	1,332,000	2,880	666	463	1 Well Pump Running
1/23/2015	1:30 PM	1/23/15 1:30 PM	139,388,000	0	544,000	1,440	544	378	
1/27/2015	1:30 PM	1/27/15 1:30 PM	141,182,000	0	1,794,000	5,760	449	311	
1/29/2015	1:30 PM	1/29/15 1:30 PM	141,908,000	0	726,000	2,880	363	252	
1/30/2015	1:30 PM	1/30/15 1:30 PM	142,324,000	0	416,000	1,440	416	289	
2/2/2015	1:30 PM	2/2/15 1:30 PM	143,655,000	375	1,331,000	4,320	444	308	1 Well Pump Running
2/3/2015	1:30 PM	2/3/15 1:30 PM	144,076,000	0	421,000	1,440	421	292	

2/4/2015	1:30 PM	2/4/15 1:30 PM	144,464,000	0	388,000	1,440	388	269	
2/5/2015	1:30 PM	2/5/15 1:30 PM	144,850,000	256	386,000	1,440	386	268	1 Well Pump Running
2/6/2015	1:30 PM	2/6/15 1:30 PM	145,170,000	249	320,000	1,440	320	222	1 Well Pump Running
2/9/2015	1:30 PM	2/9/15 1:30 PM	145,981,000	360	811,000	4,320	270	188	1 Well Pump Running
2/10/2015	1:30 PM	2/10/15 1:30 PM	146,328,000	250	347,000	1,440	347	241	1 Well Pump Running
2/11/2015	1:30 PM	2/11/15 1:30 PM	146,688,000	251	360,000	1,440	360	250	1 Well Pump Running
2/12/2015	1:30 PM	2/12/15 1:30 PM	146,970,000	0	282,000	1,440	282	196	
2/17/2015	1:30 PM	2/17/15 1:30 PM	148,510,000	0	1,540,000	7,200	308	214	
2/18/2015	1:30 PM	2/18/15 1:30 PM	148,878,000	245	368,000	1,440	368	256	1 Well Pump Running
2/19/2015	1:30 PM	2/19/15 1:30 PM	149,209,000	0	331,000	1,440	331	230	
2/20/2015	1:30 PM	2/20/15 1:30 PM	149,478,000	249	269,000	1,440	269	187	1 Well Pump Running
2/23/2015	1:30 PM	2/23/15 1:30 PM	150,683,000	239	1,205,000	4,320	402	279	1 Well Pump Running
2/24/2015	1:30 PM	2/24/15 1:30 PM	151,136,000	249	453,000	1,440	453	315	1 Well Pump Running
2/26/2015	1:30 PM	2/26/15 1:30 PM	151,856,000	235	720,000	2,880	360	250	1 Well Pump Running
2/27/2015	1:30 PM	2/27/15 1:30 PM	152,209,000	245	353,000	1,440	353	245	1 Well Pump Running
3/2/2015	1:30 PM	3/2/15 1:30 PM	153,251,000	344	1,042,000	4,320	347	241	1 Well Pump Running
3/3/2015	1:30 PM	3/3/15 1:30 PM	153,627,000	264	376,000	1,440	376	261	1 Well Pump Running
3/9/2015	1:30 PM	3/9/15 1:30 PM	155,620,000	0	1,993,000	8,640	332	231	
3/11/2015	1:30 PM	3/11/15 1:30 PM	156,308,000	0	688,000	2,880	344	239	
3/13/2015	1:30 PM	3/13/15 1:30 PM	156,791,000	242	483,000	2,880	242	168	1 Well Pump Running
3/16/2015	1:30 PM	3/16/15 1:30 PM	157,033,000	241	242,000	4,320	81	56	1 Well Pump Running
3/19/2015	1:30 PM	3/19/15 1:30 PM	157,622,000	0	589,000	4,320	196	136	1 Well Pump Running
3/23/2015	8:00 AM	3/23/15 8:00 AM	157,971,000	237	349,000	5,430	93	64	1 Well Pump Running
3/24/2015	7:00 AM	3/24/15 7:00 AM	158,172,000	238	201,000	1,380	210	146	1 Well Pump Running
3/26/2015	7:30 AM	3/26/15 7:30 AM	158,695,000	265	523,000	2,910	259	180	1 Well Pump Running
3/30/2015	1:30 PM	3/30/15 1:30 PM	159,360,000	262	665,000	6,120	156	109	1 Well Pump Running
3/31/2015	1:30 PM	3/31/15 1:30 PM	159,604,000	237	244,000	1,440	244	169	1 Well Pump Running
4/1/2015	1:30 PM	4/1/15 1:30 PM	159,831,000	234	227,000	1,440	227	158	1 Well Pump Running
4/2/2015	1:30 PM	4/2/15 1:30 PM	160,138,000	385	307,000	1,440	307	213	1 Well Pump Running
4/3/2015	1:30 PM	4/3/15 1:30 PM	160,504,000	0	366,000	1,440	366	254	
4/6/2015	1:30 PM	4/6/15 1:30 PM	161,110,000	236	606,000	4,320	202	140	1 Well Pump Running
4/7/2015	1:30 PM	4/7/15 1:30 PM	161,445,000	329	335,000	1,440	335	233	1 Well Pump Running
4/9/2015	1:30 PM	4/9/15 1:30 PM	161,905,000	238	460,000	2,880	230	160	1 Well Pump Running
4/10/2015	12:00 PM	4/10/15 12:00 PM	162,108,000	0	203,000	1,350	217	150	
4/13/2015	1:30 PM	4/13/15 1:30 PM	162,720,000	292	612,000	4,410	200	139	1 Well Pump Running
4/14/2015	1:30 PM	4/14/15 1:30 PM	163,098,000	256	378,000	1,440	378	263	1 Well Pump Running
4/16/2015	1:30 PM	4/16/15 1:30 PM	163,662,000	234	564,000	2,880	282	196	1 Well Pump Running
4/17/2015	1:30 PM	4/17/15 1:30 PM	163,844,000	0	182,000	1,440	182	126	
4/21/2015	1:30 PM	4/21/15 1:30 PM	164,123,000	0	279,000	5,760	70	48	
4/23/2015	1:30 PM	4/23/15 1:30 PM	164,210,000	0	87,000	2,880	44	30	
4/24/2015	1:30 PM	4/24/15 1:30 PM	164,281,000	279	71,000	1,440	71	49	1 Well Pump Running

4/27/2015	1:30 PM	4/27/15 1:30 PM	164,668,000	258	387,000	4,320	129	90	1 Well Pump Running
4/28/2015	1:30 PM	4/28/15 1:30 PM	164,789,000	0	121,000	1,440	121	84	
4/29/2015	1:30 PM	4/29/15 1:30 PM	164,829,000	0	40,000	1,440	40	28	
4/30/2015	1:30 PM	4/30/15 1:30 PM	164,858,000	0	29,000	1,440	29	20	
5/1/2015	1:30 PM	5/1/15 1:30 PM	164,899,000	0	41,000	1,440	41	28	
5/4/2015	1:30 PM	5/4/15 1:30 PM	164,920,000	0	21,000	4,320	7	5	
5/5/2015	1:30 PM	5/5/15 1:30 PM	164,924,000	0	4,000	1,440	4	3	
5/6/2015	1:30 PM	5/6/15 1:30 PM	164,933,000	0	9,000	1,440	9	6	
5/7/2015	1:30 PM	5/7/15 1:30 PM	164,995,000	0	62,000	1,440	62	43	
5/8/2015	1:30 PM	5/8/15 1:30 PM	165,079,000	0	84,000	1,440	84	58	
5/11/2015	1:30 PM	5/11/15 1:30 PM	165,251,000	0	172,000	4,320	57	40	
5/12/2015	1:30 PM	5/12/15 1:30 PM	165,332,000	0	81,000	1,440	81	56	
5/14/2015	1:30 PM	5/14/15 1:30 PM	165,542,000	0	210,000	2,880	105	73	
5/15/2015	1:30 PM	5/15/15 1:30 PM	165,603,000	0	61,000	1,440	61	42	
5/18/2015	1:30 PM	5/18/15 1:30 PM	165,934,000	0	331,000	4,320	110	77	
5/19/2015	1:30 PM	5/19/15 1:30 PM	166,199,000	0	265,000	1,440	265	184	
5/20/2015	1:30 PM	5/20/15 1:30 PM	166,268,000	0	69,000	1,440	69	48	
5/21/2015	1:30 PM	5/21/15 1:30 PM	166,343,000	0	75,000	1,440	75	52	
5/26/2015	1:30 PM	5/26/15 1:30 PM	166,547,000	0	204,000	7,200	41	28	
5/27/2015	1:30 PM	5/27/15 1:30 PM	166,588,000	0	41,000	1,440	41	28	
5/28/2015	1:30 PM	5/28/15 1:30 PM	166,646,000	0	58,000	1,440	58	40	
5/29/2015	1:30 PM	5/29/15 1:30 PM	166,671,000	0	25,000	1,440	25	17	
6/1/2015	1:30 PM	6/1/15 1:30 PM	166,724,000	0	53,000	4,320	18	12	
6/2/2015	1:30 PM	6/2/15 1:30 PM	166,744,000	0	20,000	1,440	20	14	
6/3/2015	1:30 PM	6/3/15 1:30 PM	166,767,000	0	23,000	1,440	23	16	
6/4/2015	1:30 PM	6/4/15 1:30 PM	166,810,000	0	43,000	1,440	43	30	
6/8/2015	2:00 PM	6/8/15 2:00 PM	167,067,000	0	257,000	5,790	64	44	
6/9/2015	9:00 AM	6/9/15 9:00 AM	167,184,000	0	117,000	1,140	148	103	
6/10/2015	7:00 AM	6/10/15 7:00 AM	167,423,000	0	239,000	1,320	261	181	
6/11/2015	7:00 AM	6/11/15 7:00 AM	167,669,000	0	246,000	1,440	246	171	
6/15/2015	7:00 AM	6/15/15 7:00 AM	168,406,000	0	737,000	5,760	184	128	
6/16/2015	7:00 AM	6/16/15 7:00 AM	168,622,000	0	216,000	1,440	216	150	
6/17/2015	7:00 AM	6/17/15 7:00 AM	168,730,000	0	108,000	1,440	108	75	
6/18/2015	7:00 AM	6/18/15 7:00 AM	168,826,000	0	96,000	1,440	96	67	
6/19/2015	7:00 AM	6/19/15 7:00 AM	168,990,000	0	164,000	1,440	164	114	
6/22/2015	7:00 AM	6/22/15 7:00 AM	169,579,000	0	589,000	4,320	196	136	
6/23/2015	7:20 AM	6/23/15 7:20 AM	169,841,000	0	262,000	1,460	258	179	
6/24/2015	12:00 PM	6/24/15 12:00 PM	170,177,000	0	336,000	1,720	281	195	
6/25/2015	8:30 AM	6/25/15 8:30 AM	170,365,000	0	188,000	1,230	220	153	
6/26/2015	7:00 AM	6/26/15 7:00 AM	170,560,000	0	195,000	1,350	208	144	
6/29/2015	7:00 AM	6/29/15 7:00 AM	170,767,000	0	207,000	4,320	69	48	

6/30/2015	7:00 AM	6/30/15 7:00 AM	170,856,000	0	89,000	1,440	89	62	
7/6/2015	7:00 AM	7/6/15 7:00 AM	171,379,000	0	523,000	8,640	87	61	
7/7/2015	7:00 AM	7/7/15 7:00 AM	171,613,000	0	234,000	1,440	234	163	
7/8/2015	7:00 AM	7/8/15 7:00 AM	171,838,000	0	225,000	1,440	225	156	
7/9/2015	7:00 AM	7/9/15 7:00 AM	171,975,000	0	137,000	1,440	137	95	
7/10/2015	7:00 AM	7/10/15 7:00 AM	171,979,000	0	4,000	1,440	4	3	
7/13/2015	7:00 AM	7/13/15 7:00 AM	172,212,000	0	233,000	4,320	78	54	
7/14/2015	7:00 AM	7/14/15 7:00 AM	172,324,000	0	112,000	1,440	112	78	
7/15/2015	7:00 AM	7/15/15 7:00 AM	172,413,000	0	89,000	1,440	89	62	
7/16/2015	7:00 AM	7/16/15 7:00 AM	172,606,000	0	193,000	1,440	193	134	
7/17/2015	7:00 AM	7/17/15 7:00 AM	172,788,000	0	182,000	1,440	182	126	
7/20/2015	7:00 AM	7/20/15 7:00 AM	172,955,000	0	167,000	4,320	56	39	
7/21/2015	7:00 AM	7/21/15 7:00 AM	173,065,000	0	110,000	1,440	110	76	
7/22/2015	7:00 AM	7/22/15 7:00 AM	173,103,000	0	38,000	1,440	38	26	
7/23/2015	7:00 AM	7/23/15 7:00 AM	173,129,000	0	26,000	1,440	26	18	
7/24/2015	7:00 AM	7/24/15 7:00 AM	173,153,000	0	24,000	1,440	24	17	
7/27/2015	7:00 AM	7/27/15 7:00 AM	173,160,000	0	7,000	4,320	2	2	
7/28/2015	7:00 AM	7/28/15 7:00 AM	173,181,000	0	21,000	1,440	21	15	
7/29/2015	7:00 AM	7/29/15 7:00 AM	173,210,000	0	29,000	1,440	29	20	
7/30/2015	7:00 AM	7/30/15 7:00 AM	173,230,000	0	20,000	1,440	20	14	
8/3/2015	7:00 AM	8/3/15 7:00 AM	173,470,000	0	240,000	5,760	60	42	
8/4/2015	7:00 AM	8/4/15 7:00 AM	173,543,000	0	73,000	1,440	73	51	
8/5/2015	7:00 AM	8/5/15 7:00 AM	173,675,000	0	132,000	1,440	132	92	
8/6/2015	7:00 AM	8/6/15 7:00 AM	173,675,000	0	0	0	0	0	
8/7/2015	7:00 AM	8/7/15 7:00 AM	173,700,000	0	25,000	1,440	25	17	
8/10/2015	7:00 AM	8/10/15 7:00 AM	173,848,000	0	148,000	4,320	49	34	
8/11/2015	7:00 AM	8/11/15 7:00 AM	173,904,000	0	56,000	1,440	56	39	
8/12/2015	7:00 AM	8/12/15 7:00 AM	173,951,000	0	47,000	1,440	47	33	
8/13/2015	7:00 AM	8/13/15 7:00 AM	174,065,000	0	114,000	1,440	114	79	
8/14/2015	7:00 AM	8/14/15 7:00 AM	174,238,000	0	173,000	1,440	173	120	
8/17/2015	7:00 AM	8/17/15 7:00 AM	174,614,000	0	376,000	4,320	125	87	
8/18/2015	7:00 AM	8/18/15 7:00 AM	174,800,000	0	186,000	1,440	186	129	
8/19/2015	7:00 AM	8/19/15 7:00 AM	175,027,000	0	227,000	1,440	227	158	
8/20/2015	7:00 AM	8/20/15 7:00 AM	175,239,000	110	212,000	1,440	212	147	1 Well Pump Running
8/21/2015	7:00 AM	8/21/15 7:00 AM	175,454,000	0	215,000	1,440	215	149	
8/24/2015	7:00 AM	8/24/15 7:00 AM	175,602,000	0	148,000	4,320	49	34	
8/25/2015	7:00 AM	8/25/15 7:00 AM	175,688,000	0	86,000	1,440	86	60	
8/26/2015	7:00 AM	8/26/15 7:00 AM	175,813,000	0	125,000	1,440	125	87	
8/27/2015	7:00 AM	8/27/15 7:00 AM	175,928,000	0	115,000	1,440	115	80	
8/28/2015	7:00 AM	8/28/15 7:00 AM	176,072,000	300	144,000	1,440	144	100	
8/31/2015	7:00 AM	8/31/15 7:00 AM	176,489,000	0	417,000	4,320	139	97	

9/1/2015	7:00 AM	9/1/15 7:00 AM	176,665,000	0	176,000	1,440	176	122	
9/2/2015	7:00 AM	9/2/15 7:00 AM	176,862,000	0	197,000	1,440	197	137	
9/3/2015	7:00 AM	9/3/15 7:00 AM	176,993,000	0	131,000	1,440	131	91	
9/4/2015	7:00 AM	9/4/15 7:00 AM	177,064,000	0	71,000	1,440	71	49	
9/8/2015	2:00 PM	9/8/15 2:00 PM	177,306,000	0	242,000	6,180	56	39	
9/9/2015	2:00 PM	9/9/15 2:00 PM	177,374,000	0	68,000	1,440	68	47	
9/10/2015	2:00 PM	9/10/15 2:00 PM	177,486,000	0	112,000	1,440	112	78	
9/14/2015	2:00 PM	9/14/15 2:00 PM	177,678,000	0	192,000	5,760	48	33	
9/15/2015	2:00 PM	9/15/15 2:00 PM	177,753,000	0	75,000	1,440	75	52	
9/16/2015	2:00 PM	9/16/15 2:00 PM	177,784,000	0	31,000	1,440	31	22	
9/17/2015	2:00 PM	9/17/15 2:00 PM	177,788,000	0	4,000	1,440	4	3	
9/18/2015	8:30 AM	9/18/15 8:30 AM	177,811,000	0	23,000	1,110	30	21	
9/22/2015	2:00 PM	9/22/15 2:00 PM	177,954,000	0	143,000	6,090	34	23	
9/24/2015	2:00 PM	9/24/15 2:00 PM	178,097,000	400	143,000	2,880	72	50	1 Well Pump Running
9/28/2015	1:50 PM	9/28/15 1:50 PM	178,379,000	0	282,000	5,750	71	49	
9/29/2015	2:00 PM	9/29/15 2:00 PM	178,473,000	0	94,000	1,450	93	65	
10/1/2015	8:00 AM	10/1/15 8:00 AM	178,570,000	0	97,000	2,520	55	38	
10/2/2015	8:00 AM	10/2/15 8:00 AM	178,705,000	0	135,000	1,440	135	94	
10/5/2015	2:00 PM	10/5/15 2:00 PM	178,740,000	0	35,000	4,680	11	7	
10/6/2015	2:00 PM	10/6/15 2:00 PM	178,765,000	0	25,000	1,440	25	17	
10/7/2015	2:00 PM	10/7/15 2:00 PM	178,793,000	0	28,000	1,440	28	19	
10/8/2015	2:00 PM	10/8/15 2:00 PM	178,845,000	0	52,000	1,440	52	36	
10/9/2015	10:00 AM	10/9/15 10:00 AM	178,900,000	0	55,000	1,200	66	46	
10/12/2015	2:00 PM	10/12/15 2:00 PM	178,982,000	0	82,000	4,560	26	18	
10/13/2015	2:00 PM	10/13/15 2:00 PM	179,001,000	0	19,000	1,440	19	13	
10/15/2015	2:00 PM	10/15/15 2:00 PM	179,215,000	0	214,000	2,880	107	74	
10/16/2015	2:00 PM	10/16/15 2:00 PM	179,381,000	0	166,000	1,440	166	115	
10/19/2015	2:00 PM	10/19/15 2:00 PM	179,476,000	0	95,000	4,320	32	22	
10/20/2015	2:00 PM	10/20/15 2:00 PM	179,476,000	0	0	0	0	0	
10/21/2015	2:00 PM	10/21/15 2:00 PM	179,519,000	0	43,000	1,440	43	30	
10/22/2015	2:00 PM	10/22/15 2:00 PM	179,568,000	0	49,000	1,440	49	34	
10/26/2015	9:00 AM	10/26/15 9:00 AM	179,731,000	0	163,000	5,460	43	30	
10/27/2015	2:00 PM	10/27/15 2:00 PM	180,063,000	0	332,000	1,740	275	191	
10/28/2015	2:00 PM	10/28/15 2:00 PM	180,234,000	0	171,000	1,440	171	119	
10/29/2015	2:00 PM	10/29/15 2:00 PM	180,335,000	0	101,000	1,440	101	70	
10/30/2015	2:00 PM	10/30/15 2:00 PM	180,618,000	0	283,000	1,440	283	197	
11/2/2015	2:00 PM	11/2/15 2:00 PM	181,167,000	0	549,000	4,320	183	127	
11/3/2015	2:00 PM	11/3/15 2:00 PM	181,472,000	0	305,000	1,440	305	212	
11/4/2015	2:00 PM	11/4/15 2:00 PM	181,856,000	0	384,000	1,440	384	267	
11/6/2015	2:00 PM	11/6/15 2:00 PM	182,100,000	0	244,000	2,880	122	85	
11/9/2015	1:47 PM	11/9/15 1:47 PM	183,726,000	0	1,626,000	4,307	544	378	

11/10/2015	2:00 PM	11/10/15 2:00 PM	184,152,000	329	426,000	1,453	422	293	
11/11/2015	2:00 PM	11/11/15 2:00 PM	184,614,000	320	462,000	1,440	462	321	
11/12/2015	2:00 PM	11/12/15 2:00 PM	185,030,000	274	416,000	1,440	416	289	
11/16/2015	2:00 PM	11/16/15 2:00 PM	186,423,000	304	1,393,000	5,760	348	242	
11/17/2015	2:00 PM	11/17/15 2:00 PM	186,925,000	302	502,000	1,440	502	349	
11/19/2015	2:00 PM	11/19/15 2:00 PM	187,821,000	0	896,000	2,880	448	311	
11/20/2015	12:30 PM	11/20/15 12:30 PM	188,231,000	0	410,000	1,350	437	304	
11/23/2015	2:00 PM	11/23/15 2:00 PM	189,578,000	270	1,347,000	4,410	440	305	
11/24/2015	2:00 PM	11/24/15 2:00 PM	190,005,000	270	427,000	1,440	427	297	
11/25/2015	12:30 PM	11/25/15 12:30 PM	190,357,000	0	352,000	1,350	375	261	
11/30/2015	1:45 PM	11/30/15 1:45 PM	194,244,000	321	3,887,000	7,275	769	534	
12/1/2015	2:00 PM	12/1/15 2:00 PM	194,973,000	415	729,000	1,455	721	501	
12/3/2015	1:57 PM	12/3/15 1:57 PM	196,097,000	352	1,124,000	2,877	563	391	
12/4/2015	2:00 PM	12/4/15 2:00 PM	196,564,000	353	467,000	1,443	466	324	
12/7/2015	2:00 PM	12/7/15 2:00 PM	197,798,000	276	1,234,000	4,320	411	286	
12/8/2015	2:00 PM	12/8/15 2:00 PM	198,184,000	262	386,000	1,440	386	268	
12/9/2015	2:00 PM	12/9/15 2:00 PM	198,542,000	0	358,000	1,440	358	249	
12/11/2015	2:00 PM	12/11/15 2:00 PM	199,493,000	286	951,000	2,880	476	330	
12/14/2015	2:00 PM	12/14/15 2:00 PM	200,762,000	0	1,269,000	4,320	423	294	
12/15/2015	2:00 PM	12/15/15 2:00 PM	201,214,000	359	452,000	1,440	452	314	
12/17/2015	2:00 PM	12/17/15 2:00 PM	202,505,000	479	1,291,000	2,880	646	448	
12/18/2015	9:30 AM	12/18/15 9:30 AM	202,988,000	399	483,000	1,170	594	413	
12/23/2015	8:00 AM	12/23/15 8:00 AM	205,527,000	707	2,539,000	7,110	514	357	
12/28/2015	7:30 AM	12/28/15 7:30 AM	209,707,000	550	4,180,000	7,170	839	583	
12/29/2015	7:30 AM	12/29/15 7:30 AM	210,465,000	691	758,000	1,440	758	526	
12/30/2015	7:00 AM	12/30/15 7:00 AM	211,234,000	706	769,000	1,410	785	545	
1/4/2016	2:00 PM	1/4/16 2:00 PM	215,119,000	252	3,885,000	7,620	734	510	
1/5/2016	2:00 PM	1/5/16 2:00 PM	215,512,000	250	393,000	1,440	393	273	
1/6/2016	2:00 PM	1/6/16 2:00 PM	215,892,000	409	380,000	1,440	380	264	
1/7/2016	2:00 PM	1/7/16 2:00 PM	216,290,000	249	398,000	1,440	398	276	
1/8/2016	2:00 PM	1/8/16 2:00 PM	216,713,000	252	423,000	1,440	423	294	
1/12/2016	1:30 PM	1/12/16 1:30 PM	218,988,000	456	2,275,000	5,730	572	397	
1/13/2016	2:00 PM	1/13/16 2:00 PM	219,591,000	470	603,000	1,470	591	410	
1/14/2016	2:00 PM	1/14/16 2:00 PM	220,089,000	0	498,000	1,440	498	346	
1/19/2016	2:00 PM	1/19/16 2:00 PM	222,446,000	388	2,357,000	7,200	471	327	
1/20/2016	12:00 PM	1/20/16 12:00 PM	222,911,000	455	465,000	1,320	507	352	
1/21/2016	2:00 PM	1/21/16 2:00 PM	223,461,000	341	550,000	1,560	508	353	
1/22/2016	1:22 PM	1/22/16 1:22 PM	223,950,000	231	489,000	1,402	502	349	
1/25/2016	1:53 PM	1/25/16 1:53 PM	225,240,000	422	1,290,000	4,351	427	296	
1/26/2016	1:49 AM	1/26/16 1:49 AM	225,915,000	407	675,000	716	1,358	943	
1/28/2016	2:00 PM	1/28/16 2:00 PM	227,015,000	221	1,100,000	3,611	439	305	

2/1/2016	1:55 PM	2/1/16 1:55 PM	229,030,000	402	2,015,000	5,755	504	350	
2/2/2016	2:00 PM	2/2/16 2:00 PM	229,712,000	0	682,000	1,445	680	472	
2/4/2016	2:00 PM	2/4/16 2:00 PM	230,997,000	259	1,285,000	2,880	643	446	
2/5/2016	12:00 PM	2/5/16 12:00 PM	231,550,000	388	553,000	1,320	603	419	
2/8/2016	2:00 PM	2/8/16 2:00 PM	232,999,000	337	1,449,000	4,440	470	326	
2/9/2016	2:00 PM	2/9/16 2:00 PM	233,548,000	266	549,000	1,440	549	381	
2/10/2016	2:00 PM	2/10/16 2:00 PM	234,033,000	0	485,000	1,440	485	337	
2/11/2016	2:00 PM	2/11/16 2:00 PM	234,515,000	362	482,000	1,440	482	335	
2/16/2016	1:55 PM	2/16/16 1:55 PM	236,386,000	233	1,871,000	7,195	374	260	
2/17/2016	2:00 PM	2/17/16 2:00 PM	236,761,000	242	375,000	1,445	374	260	
2/18/2016	2:25 PM	2/18/16 2:25 PM	237,176,000	273	415,000	1,465	408	283	
2/19/2016	2:50 PM	2/19/16 2:50 PM	237,690,000	291	514,000	1,465	505	351	
2/22/2016	1:30 PM	2/22/16 1:30 PM	238,730,000	0	1,040,000	4,240	353	245	
2/23/2016	1:52 PM	2/23/16 1:52 PM	239,202,000	196	472,000	1,462	465	323	
2/24/2016	2:00 PM	2/24/16 2:00 PM	239,679,000	288	477,000	1,448	474	329	
2/26/2016	12:00 PM	2/26/16 12:00 PM	240,526,000	622	847,000	2,760	442	307	
2/29/2016	3:20 PM	2/29/16 3:20 PM	241,461,000	228	935,000	4,520	298	207	
3/7/2016	1:30 PM	3/7/16 1:30 PM	243,513,000	221	2,052,000	9,970	296	206	
3/8/2016	2:00 PM	3/8/16 2:00 PM	243,844,000	349	331,000	1,470	324	225	
3/9/2016	1:30 PM	3/9/16 1:30 PM	244,213,000	227	369,000	1,410	377	262	
3/10/2016	12:00 PM	3/10/16 12:00 PM	244,522,000	0	309,000	1,350	330	229	
3/14/2016	1:52 PM	3/14/16 1:52 PM	245,638,000	328	1,116,000	5,872	274	190	
3/15/2016	1:40 PM	3/15/16 1:40 PM	246,097,000	354	459,000	1,428	463	321	
3/16/2016	1:30 PM	3/16/16 1:30 PM	246,567,000	321	470,000	1,430	473	329	
3/17/2016	1:30 PM	3/17/16 1:30 PM	246,979,000	231	412,000	1,440	412	286	
3/18/2016	12:00 PM	3/18/16 12:00 PM	247,307,000	0	328,000	1,350	350	243	
3/21/2016	1:30 PM	3/21/16 1:30 PM	247,740,000	0	433,000	4,410	141	98	
3/24/2016	1:30 PM	3/24/16 1:30 PM	248,643,000	0	903,000	4,320	301	209	
3/28/2016	1:30 PM	3/28/16 1:30 PM	249,965,000	238	1,322,000	5,760	331	230	
3/29/2016	1:54 PM	3/29/16 1:54 PM	250,356,000	312	391,000	1,464	385	267	
3/30/2016	1:55 PM	3/30/16 1:55 PM	250,653,000	0	297,000	1,441	297	206	
3/31/2016	2:00 PM	3/31/16 2:00 PM	251,104,000	0	451,000	1,445	449	312	
4/1/2016	2:00 PM	4/1/16 2:00 PM	251,357,000	0	253,000	1,440	253	176	
4/4/2016	1:30 PM	4/4/16 1:30 PM	251,765,000	0	408,000	4,290	137	95	
4/5/2016	1:30 PM	4/5/16 1:30 PM	252,046,000	241	281,000	1,440	281	195	
4/7/2016	7:00 AM	4/7/16 7:00 AM	252,479,000	0	433,000	2,490	250	174	
4/11/2016	2:00 PM	4/11/16 2:00 PM	252,640,000	0	161,000	6,180	38	26	
4/12/2016	11:00 AM	4/12/16 11:00 AM	252,690,000	0	50,000	1,260	57	40	
4/13/2016	7:30 AM	4/13/16 7:30 AM	252,711,000	0	21,000	1,230	25	17	
4/14/2016	2:00 PM	4/14/16 2:00 PM	252,857,000	0	146,000	1,830	115	80	
4/18/2016	2:00 PM	4/18/16 2:00 PM	253,423,000	0	566,000	5,760	142	98	

4/19/2016	10:30 PM	4/19/16 10:30 PM	253,561,000	0	138,000	1,950	102	71	
4/20/2016	2:00 PM	4/20/16 2:00 PM	253,615,000	0	54,000	930	84	58	
4/21/2016	2:00 PM	4/21/16 2:00 PM	253,638,000	0	23,000	1,440	23	16	
4/25/2016	2:00 PM	4/25/16 2:00 PM	253,864,000	0	226,000	5,760	57	39	
4/27/2016	10:30 PM	4/27/16 10:30 PM	254,296,000	0	432,000	3,390	184	127	
4/29/2016	6:30 AM	4/29/16 6:30 AM	254,510,000	297	214,000	1,920	160	111	
5/2/2016	2:00 PM	5/2/16 2:00 PM	254,837,000	0	327,000	4,770	99	69	
5/3/2016	2:00 PM	5/3/16 2:00 PM	254,946,000	0	109,000	1,440	109	76	
5/4/2016	2:00 PM	5/4/16 2:00 PM	254,998,000	0	52,000	1,440	52	36	
5/6/2016	12:30 PM	5/6/16 12:30 PM	255,057,000	0	59,000	2,790	30	21	
5/9/2016	2:00 PM	5/9/16 2:00 PM	255,333,000	0	276,000	4,410	90	63	
5/10/2016	2:00 PM	5/10/16 2:00 PM	255,514,000	303	181,000	1,440	181	126	
5/11/2016	2:00 PM	5/11/16 2:00 PM	255,685,000	0	171,000	1,440	171	119	
5/13/2016	9:00 AM	5/13/16 9:00 AM	255,814,000	0	129,000	2,580	72	50	
5/16/2016	2:00 PM	5/16/16 2:00 PM	255,915,000	0	101,000	4,620	31	22	
5/17/2016	2:00 PM	5/17/16 2:00 PM	255,992,000	0	77,000	1,440	77	53	
5/18/2016	2:00 PM	5/18/16 2:00 PM	256,018,000	0	26,000	1,440	26	18	
5/19/2016	2:00 PM	5/19/16 2:00 PM	256,034,000	0	16,000	1,440	16	11	
5/20/2016	2:00 PM	5/20/16 2:00 PM	256,119,000	0	85,000	1,440	85	59	
5/23/2016	2:00 PM	5/23/16 2:00 PM	256,472,000	0	353,000	4,320	118	82	
5/24/2016	2:00 PM	5/24/16 2:00 PM	256,604,000	0	132,000	1,440	132	92	
5/25/2016	2:00 PM	5/25/16 2:00 PM	256,662,000	0	58,000	1,440	58	40	
5/26/2016	2:00 PM	5/26/16 2:00 PM	256,743,000	0	81,000	1,440	81	56	
5/27/2016	11:00 AM	5/27/16 11:00 AM	256,793,000	0	50,000	1,260	57	40	
5/31/2016	2:00 PM	5/31/16 2:00 PM	256,871,000	0	78,000	5,940	19	13	
6/1/2016	2:00 PM	6/1/16 2:00 PM	256,895,000	0	24,000	1,440	24	17	
6/2/2016	2:00 PM	6/2/16 2:00 PM	256,961,000	0	66,000	1,440	66	46	
6/3/2016	2:00 PM	6/3/16 2:00 PM	257,023,000	0	62,000	1,440	62	43	
6/6/2016	2:00 PM	6/6/16 2:00 PM	257,170,000	0	147,000	4,320	49	34	
6/7/2016	2:00 PM	6/7/16 2:00 PM	257,276,000	0	106,000	1,440	106	74	
6/8/2016	2:00 PM	6/8/16 2:00 PM	257,380,000	0	104,000	1,440	104	72	
6/14/2016	9:00 AM	6/14/16 9:00 AM	257,782,000	0	402,000	8,340	69	48	
6/15/2016	8:30 AM	6/15/16 8:30 AM	257,963,000	0	181,000	1,410	185	128	
6/16/2016	3:00 PM	6/16/16 3:00 PM	258,239,000	0	276,000	1,830	217	151	
6/17/2016	2:30 PM	6/17/16 2:30 PM	258,487,000	0	248,000	1,410	253	176	
6/20/2016	2:00 PM	6/20/16 2:00 PM	259,007,000	0	520,000	4,290	175	121	
6/22/2016	2:00 PM	6/22/16 2:00 PM	259,323,000	0	316,000	2,880	158	110	
6/23/2016	2:00 PM	6/23/16 2:00 PM	259,473,000	0	150,000	1,440	150	104	
6/27/2016	8:00 AM	6/27/16 8:00 AM	260,303,000	0	830,000	5,400	221	154	
6/28/2016	8:00 AM	6/28/16 8:00 AM	260,445,200	0	142,200	1,440	142	99	
6/29/2016	8:15 AM	6/29/16 8:15 AM	260,577,000	0	131,800	1,455	130	91	

6/30/2016	7:00 AM	6/30/16 7:00 AM	260,771,000	0	194,000	1,365	205	142	
7/1/2016	7:00 AM	7/1/16 7:00 AM	260,870,000	0	99,000	1,440	99	69	
7/6/2016	7:00 AM	7/6/16 7:00 AM	260,904,000	0	34,000	7,200	7	5	
7/7/2016	2:00 PM	7/7/16 2:00 PM	260,904,000	0	0	0	0	0	
7/8/2016	2:00 PM	7/8/16 2:00 PM	260,904,000	0	0	0	0	0	
7/11/2016	7:00 AM	7/11/16 7:00 AM	260,904,000	0	0	0	0	0	
7/18/2016	7:00 AM	7/18/16 7:00 AM	260,904,000	0	0	0	0	0	
7/19/2016	7:30 AM	7/19/16 7:30 AM	260,913,000	0	9,000	1,470	9	6	
7/21/2016	11:30 AM	7/21/16 11:30 AM	260,928,000	0	15,000	3,120	7	5	
7/22/2016	9:00 AM	7/22/16 9:00 AM	260,975,000	0	47,000	1,290	52	36	
7/26/2016	7:30 AM	7/26/16 7:30 AM	261,091,000	0	116,000	5,670	29	20	
8/2/2016	8:30 AM	8/2/16 8:30 AM	261,474,000	0	383,000	10,140	54	38	
8/5/2016	8:00 AM	8/5/16 8:00 AM	261,854,000	0	380,000	4,290	128	89	
8/8/2016	8:00 AM	8/8/16 8:00 AM	262,238,000	0	384,000	4,320	128	89	
8/10/2016	8:00 AM	8/10/16 8:00 AM	262,436,000	0	198,000	2,880	99	69	
8/12/2016	7:50 AM	8/12/16 7:50 AM	262,585,000	0	149,000	2,870	75	52	
8/16/2016	8:00 AM	8/16/16 8:00 AM	262,872,000	0	287,000	5,770	72	50	
8/19/2016	8:00 AM	8/19/16 8:00 AM	263,271,000	0	399,000	4,320	133	92	
8/22/2016	7:00 AM	8/22/16 7:00 AM	263,554,000	0	283,000	4,260	96	66	
8/23/2016	7:00 AM	8/23/16 7:00 AM	263,669,000	0	115,000	1,440	115	80	
8/25/2016	7:00 AM	8/25/16 7:00 AM	263,707,000	0	38,000	2,880	19	13	
8/26/2016	7:00 AM	8/26/16 7:00 AM	263,849,000	0	142,000	1,440	142	99	
8/29/2016	2:00 PM	8/29/16 2:00 PM	264,018,000	0	169,000	4,740	51	36	
8/31/2016	2:00 PM	8/31/16 2:00 PM	264,361,000	0	343,000	2,880	172	119	
9/1/2016	2:00 PM	9/1/16 2:00 PM	264,475,000	0	114,000	1,440	114	79	
9/2/2016	2:00 PM	9/2/16 2:00 PM	264,602,000	0	127,000	1,440	127	88	
9/6/2016	2:00 PM	9/6/16 2:00 PM	264,838,000	0	236,000	5,760	59	41	
9/8/2016	2:00 PM	9/8/16 2:00 PM	264,905,000	0	67,000	2,880	34	23	
9/9/2016	12:00 PM	9/9/16 12:00 PM	264,982,000	0	77,000	1,320	84	58	
9/12/2016	2:00 PM	9/12/16 2:00 PM	265,041,000	0	59,000	4,440	19	13	
9/13/2016	2:00 PM	9/13/16 2:00 PM	265,112,000	0	71,000	1,440	71	49	
9/14/2016	2:00 PM	9/14/16 2:00 PM	265,269,000	0	157,000	1,440	157	109	
9/15/2016	2:00 PM	9/15/16 2:00 PM	265,397,000	0	128,000	1,440	128	89	
9/16/2016	8:04 AM	9/16/16 8:04 AM	265,434,000	0	37,000	1,084	49	34	
9/20/2016	2:00 PM	9/20/16 2:00 PM	265,662,000	0	228,000	6,116	54	37	
9/21/2016	2:00 PM	9/21/16 2:00 PM	265,737,000	0	75,000	1,440	75	52	
9/23/2016	2:00 PM	9/23/16 2:00 PM	265,949,000	0	185,000	1,440	185	128	
9/26/2016	2:00 PM	9/26/16 2:00 PM	266,707,000	0	758,000	4,320	253	175	
9/27/2016	2:00 PM	9/27/16 2:00 PM	266,865,000	0	158,000	1,440	158	110	
9/28/2016	2:00 PM	9/28/16 2:00 PM	267,061,000	0	196,000	1,440	196	136	

9/29/2016	2:00 PM	9/29/16 2:00 PM	267,193,000	0	132,000	1,440	132	92	
9/30/2016	2:00 PM	9/30/16 2:00 PM	267,295,000	0	102,000	1,440	102	71	
10/3/2016	2:00 PM	10/3/16 2:00 PM	267,608,000	0	313,000	4,320	104	72	
10/4/2016	2:00 PM	10/4/16 2:00 PM	267,740,000	0	132,000	1,440	132	92	
10/5/2016	2:00 PM	10/5/16 2:00 PM	267,877,000	0	137,000	1,440	137	95	
10/6/2016	2:00 PM	10/6/16 2:00 PM	268,006,000	314	129,000	1,440	129	90	
10/7/2016	2:00 PM	10/7/16 2:00 PM	268,165,000	0	159,000	1,440	159	110	
10/10/2016	2:00 PM	10/10/16 2:00 PM	268,254,000	0	89,000	4,320	30	21	
10/11/2016	2:00 PM	10/11/16 2:00 PM	268,303,000	0	49,000	1,440	49	34	
10/12/2016	11:00 AM	10/12/16 11:00 AM	268,455,000	309	152,000	1,260	174	121	
10/13/2016	11:00 AM	10/13/16 11:00 AM	268,543,000	303	88,000	1,440	88	61	
10/17/2016	2:00 PM	10/17/16 2:00 PM	268,811,000	305	268,000	5,940	65	45	
10/18/2016	2:00 PM	10/18/16 2:00 PM	269,029,000	304	218,000	1,440	218	151	
10/20/2016	2:00 PM	10/20/16 2:00 PM	269,276,000	306	247,000	2,880	124	86	
10/21/2016	2:00 PM	10/21/16 2:00 PM	269,798,000	0	522,000	1,440	522	363	
10/24/2016	2:00 PM	10/24/16 2:00 PM	270,006,000	306	208,000	4,320	69	48	
10/25/2016	2:00 PM	10/25/16 2:00 PM	270,170,000	303	164,000	1,440	164	114	
10/27/2016	2:00 PM	10/27/16 2:00 PM	270,396,000	0	226,000	2,880	113	78	
10/28/2016	2:00 PM	10/28/16 2:00 PM	270,455,000	0	59,000	1,440	59	41	
10/31/2016	2:00 PM	10/31/16 2:00 PM	270,508,000	361	53,000	4,320	18	12	
11/2/2016	2:00 PM	11/2/16 2:00 PM	271,003,000	298	495,000	2,880	248	172	
11/3/2016	2:00 PM	11/3/16 2:00 PM	271,366,000	491	363,000	1,440	363	252	
11/4/2016	2:00 PM	11/4/16 2:00 PM	271,618,000	297	252,000	1,440	252	175	
11/7/2016	2:00 PM	11/7/16 2:00 PM	272,002,000	294	384,000	4,320	128	89	
11/8/2016	2:00 PM	11/8/16 2:00 PM	272,298,000	298	296,000	1,440	296	206	
11/9/2016	2:00 PM	11/9/16 2:00 PM	272,456,000	0	158,000	1,440	158	110	
11/11/2016	2:00 PM	11/11/16 2:00 PM	272,708,000	0	252,000	2,880	126	88	
11/14/2016	2:00 PM	11/14/16 2:00 PM	273,130,000	0	422,000	4,320	141	98	
11/16/2016	2:00 PM	11/16/16 2:00 PM	273,449,000	294	319,000	2,880	160	111	
11/17/2016	10:00 AM	11/17/16 10:00 AM	273,812,000	0	363,000	1,200	436	303	
11/21/2016	2:00 PM	11/21/16 2:00 PM	275,426,000	285	1,614,000	6,000	387	269	
11/22/2016	2:00 PM	11/22/16 2:00 PM	275,930,000	0	504,000	1,440	504	350	
11/28/2016	2:00 PM	11/28/16 2:00 PM	278,778,000	356	2,848,000	8,640	475	330	
11/29/2016	2:00 PM	11/29/16 2:00 PM	279,380,000	381	602,000	1,440	602	418	
11/30/2016	2:00 PM	11/30/16 2:00 PM	279,925,000	0	545,000	1,440	545	378	
12/1/2016	2:00 PM	12/1/16 2:00 PM	280,470,000	0	545,000	1,440	545	378	
12/2/2016	2:00 PM	12/2/16 2:00 PM	281,045,000	376	575,000	1,440	575	399	
12/5/2016	2:00 PM	12/5/16 2:00 PM	282,613,000	354	1,568,000	4,320	523	363	
12/6/2016	2:00 PM	12/6/16 2:00 PM	283,405,000	576	792,000	1,440	792	550	
12/7/2016	2:00 PM	12/7/16 2:00 PM	284,188,000	593	783,000	1,440	783	544	
12/8/2016	2:00 PM	12/8/16 2:00 PM	285,031,000	503	843,000	1,440	843	585	

12/9/2016	2:00 PM	12/9/16 2:00 PM	285,719,000	584	688,000	1,440	688	478	
12/12/2016	2:00 PM	12/12/16 2:00 PM	287,229,000	554	1,510,000	4,320	503	350	
12/13/2016	2:00 PM	12/13/16 2:00 PM	288,016,000	592	787,000	1,440	787	547	
12/14/2016	2:00 PM	12/14/16 2:00 PM	288,681,000	462	665,000	1,440	665	462	
12/15/2016	2:00 PM	12/15/16 2:00 PM	289,249,000	375	568,000	1,440	568	394	
12/16/2016	2:00 PM	12/16/16 2:00 PM	289,732,000	208	483,000	1,440	483	335	
12/19/2016	11:00 AM	12/19/16 11:00 AM	291,728,000	958	1,996,000	4,140	694	482	
12/20/2016	7:00 AM	12/20/16 7:00 AM	292,462,000	938	734,000	1,200	881	612	
12/21/2016	7:00 AM	12/21/16 7:00 AM	293,154,000	935	692,000	1,440	692	481	
12/27/2016	7:00 AM	12/27/16 7:00 AM	297,342,000	964	4,188,000	8,640	698	485	
12/28/2016	7:00 AM	12/28/16 7:00 AM	298,129,000	958	787,000	1,440	787	547	
1/3/2017	2:00 PM	1/3/17 2:00 PM	302,185,000	646	4,056,000	9,060	645	448	
1/5/2017	2:00 PM	1/5/17 2:00 PM	304,307,000	599	2,122,000	2,880	1,061	737	
1/6/2017	2:00 PM	1/6/17 2:00 PM	304,954,000	925	647,000	1,440	647	449	
1/10/2017	1:07 PM	1/10/17 1:07 PM	308,260,000	590	3,306,000	5,707	834	579	
1/12/2017	2:00 PM	1/12/17 2:00 PM	309,491,000	420	1,231,000	2,933	604	420	
1/13/2017	2:00 PM	1/13/17 2:00 PM	310,206,000	618	715,000	1,440	715	497	
1/17/2017	2:00 PM	1/17/17 2:00 PM	313,099,000	583	2,893,000	5,760	723	502	
1/18/2017	2:00 PM	1/18/17 2:00 PM	313,805,000	539	706,000	1,440	706	490	
1/19/2017	2:00 PM	1/19/17 2:00 PM	314,367,000	0	562,000	1,440	562	390	
1/20/2017	2:00 PM	1/20/17 2:00 PM	314,951,000	445	584,000	1,440	584	406	
1/23/2017	2:00 PM	1/23/17 2:00 PM	316,390,000	316	1,439,000	4,320	480	333	
					0	0	#DIV/0!	0	
					0	0	#DIV/0!	0	