

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

RECEIVED**AUG 19 2014**WATER RESOURCES
WESTERN REGION

A Beneficial Use Field Report is prepared by a water right examiner as the result of an examination to clearly confirm and establish the extent of the beneficial use of water established in connection with a permit during the development period authorized by the permit and any extensions of time previously approved.

A. GENERAL INFORMATIONPermit No. 63-10211

1. Owner City of Nampa Phone No. (208) 468-5420
Current address 411 Third Street South, Nampa ID 83651
2. Examiner's name Scott N. King, PE EXAM DATE June 9, 2014
3. Accompanied by Albert Garcia Email _____
Address 411 Third Street South, Nampa ID 83651
Relationship to permit holder Water system operator Phone No. (208) 468-5420
4. Source groundwater tributary to _____

B. OVERLAP REVIEW

1. Other water rights with the same place of use See Attachment E
2. Other water rights with the same source and point of diversion None.

C. DIVERSION AND DELIVERY SYSTEM

1. Point(s) of Diversion: See Point of Diversion Supplement

Ident. No.	Gov't Lot	1/4	1/4	1/4	Sec	Twp	Rge	County	Method of Determination/Remarks

2. Place(s) of Use: Method of determination _____

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	

Place of use is within the service area of the applicant's municipal water supply system as provided for under Idaho Law.

Ident. No. 63-10211

Attachment to: ☐ Application for Permit to Appropriate Water ☐ Application for Transfer** ☐ Adjudication Claim
☐ Application for Amendment of Permit ☒ Beneficial Use Field Report ☐ Statutory Claim

[illegible]

a. If water is for irrigation, indicate acreage in each subdivision in the tabulation below.

b. If water is used for other purposes, place a symbol of the use (example: D for Domestic) in the corresponding place of use below.

[illegible]

3. **Delivery System Diagram:** Indicate all major components and distances between components. Indicate weir size/ditch size/pipe diameter (inside), as applicable. Use the space provided or ☒ see attached.

Scale: 1" = _____

- ☒ Copy of USGS Quadrangle attached showing location(s) of point(s) of diversion and place(s) of use (**required**)
☒ Aerial photo attached (required for irrigation of 10+ acres)
☒ Photo of diversion and system attached

4. See Attachment C.4

Well or Diversion Identification No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size

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

D. FLOW MEASUREMENTS See Attachment F

1.

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

2. Measurements: _____

Attachment C.4

Well No.	Well Name	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
1	Meadowbrook I	Franklin Electric	25	Unknown - submersible	Unknown	6-inch
2	Meadowbrook II	Franklin Electric	30	Unknown - submersible	Crown	6-inch
3	Boone	U.S. Motors	30	R-2985-02-D-373 R2075512	LB Vertical	45318 4-inch
4	Winther	Franklin Electric	20	23660460	Berkeley	4-inch
5	Sweetwood	G.E.	20	FLJ 611326	HPC-Hydraulic	6-inch
6	Venice	Westinghouse	40	7902	Layne	79146 6-inch
7	Young	Franklin Electric	20	unknown	Berkeley	G030491
8	Juniper	Franklin Electric	25	Unknown - submersible	Unknown	4-inch

E. NARRATIVE/REMARKS/COMMENTS

The eight ground water pumps examined for this permit divert water to the City of Nampa's pressurized irrigation system. These pumps turn on and off based on system demands with system pressure used as the demand indicator. During the exam, system demand was low based on statements by the system operator, Albert Garcia, and observations that many pumps were off, and for those that were on pressure was high. For example, the Venice pump is set to turn on at 55 psi and off at 78 psi. Pressure during the exam was 75 psi. The Juniper, Boone, and Winther pumps were off due to low demand. Meadowbrook II was also off, but this pump is rarely used due to sand issues. Mr. Garcia reported that the Young pump used to run in the 1980s and 1990s, but has not operated since 2000 per his recollection. The Young well and pump facilities are still in place and can be treated as a source of backup supply in the future, if needed at that location. We understand all examined wells were constructed prior to 1980. Well driller's logs were available for only the Juniper and Venice wells (see Attachment B). Existing flow meters were read at each operating pump site (Meadowbrook I, Sweetwood, and Venice; see Attachment F), but we assume these measurements are not indicative of system capacity due to low system demands and high system pressure conditions. Recommended diversion rates are based on an engineering report prepared by SPF for the City of Nampa ("Pressurized Irrigation System Evaluation", SPF, February 25, 2013). A copy of the SPF report is submitted with this field exam report. Station (pump) capacities are summarized on pages 19-22 of the SPF report. A summary of the pump capacities is included as Attachment H.

Has the permit holder met all conditions of permit approval, including any mitigation requirements and/or measuring device installation requirements? ☒ Yes ☐ No If no, what must be done to meet the permit requirements?

F. FLOW CALCULATIONS☒ Additional computation sheets attached

Measured Method:

See Attachment H

G. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

 $V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) =$ _____ $V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation Season}) \times 1.9835 =$ _____ $V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} =$ _____

2. Volume Calculations for Other Uses:

No volume calculation is required for municipal use.

H. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Period of Use		Rate of Diversion Q (cfs)	Annual Volume V (afa)
	From	To		
Municipal	1/1	12/31	6.33	
Totals:			6.33	

2. Recommended Amendments

☒ Change P.D. as reflected on page 1☐ Add P.D. as reflected on page 1☐ None☐ Change P.U. as reflected on page 1☐ Add P.U. as reflected on page 1☐ Other**I. AUTHENTICATION**Field Examiner's Signature Scott N. King Date 8-15-2014

Reviewer _____ Date _____



ATTACHMENT A

PERMIT RECORD AND PROOF OF BENEFICIAL USE

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
APPLICATION FOR PERMIT

To appropriate the public waters of the State of Idaho

APPROVED

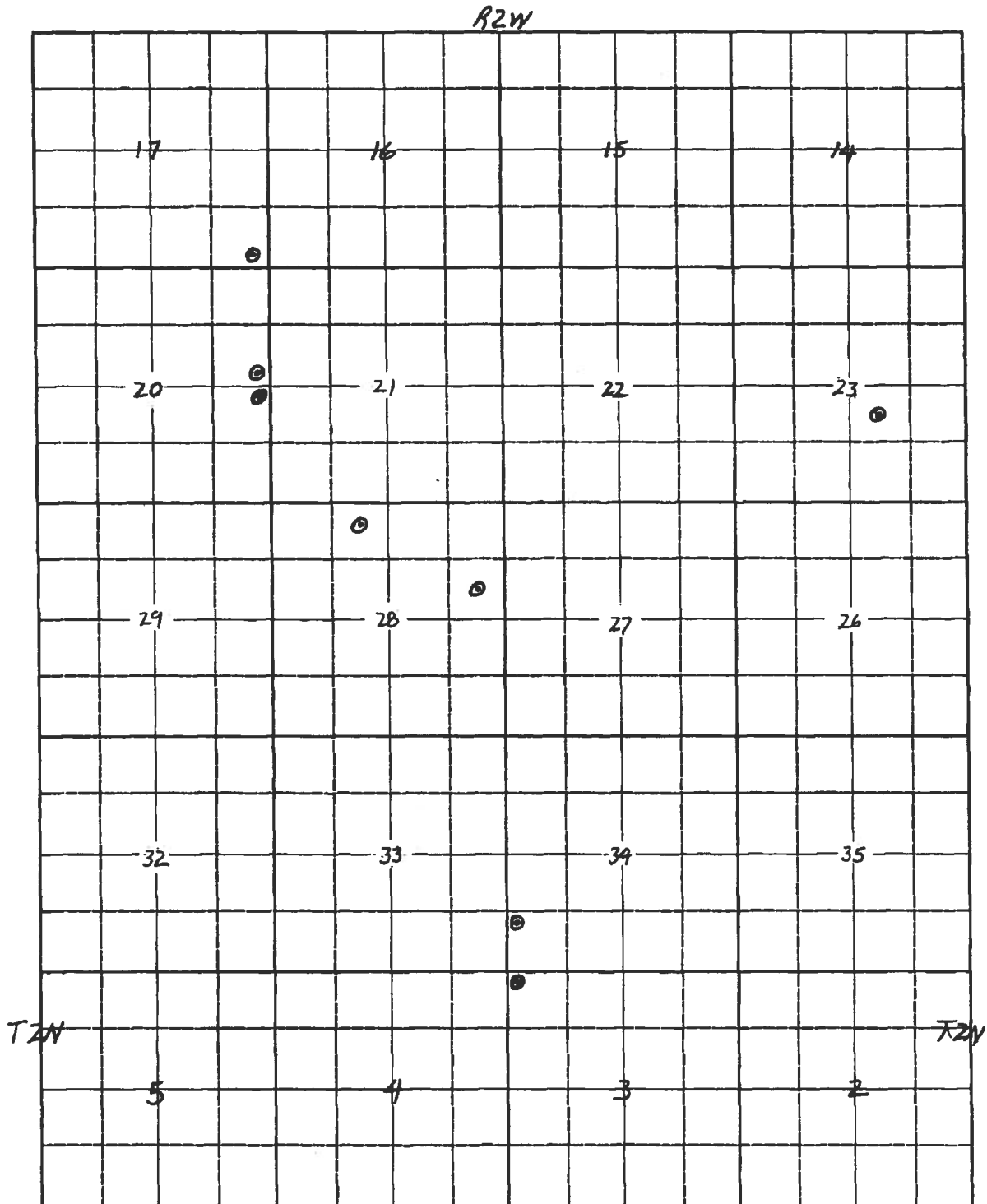
1. Name of applicant CITY OF NAMPA Phone 466-9221
Post office address 411 - 3rd. St. South, Nampa, ID 83651
2. Source of water supply groundwater which is a tributary of _____
3. Location of point of diversion is NW $\frac{1}{4}$ of NW $\frac{1}{4}$ of Section 3 Township 2N
Range 2W B.M. Canyon County, additional points of diversion if any: NESE, Sec. 26; NENW, Sec. 28, SESE, Sec. 17, NWSE, Sec. 23, SENE, Sec. 28, SWSW, Sec. 34, SENE, Sec. 20, T. 3N, R. 2W.
4. Water will be used for the following purposes:
Amount 8.69 for municipal purposes from 1/1 to 12/31 (both dates inclusive)
(cfs or acre-feet per annum)
Amount _____ for _____ purposes from _____ to _____ (both dates inclusive)
(cfs or acre-feet per annum)
Amount _____ for _____ purposes from _____ to _____ (both dates inclusive)
(cfs or acre-feet per annum)
Amount _____ for _____ purposes from _____ to _____ (both dates inclusive)
(cfs or acre-feet per annum)
5. Total quantity to be appropriated:
a. 8.69 cubic feet per second and/or b. _____ acre-feet per annum.
6. Proposed diverting works:
a. Description of ditches, flumes, pumps, headgates, etc. Wells with pumps and pipelines
into city system

b. Height of storage dam _____ feet, active reservoir capacity _____ acre-feet; total reservoir capacity _____ acre-feet, materials used in storage dam: _____
Period of year when water will be diverted to storage _____ to _____ inclusive.
(Month/Day) (Month/Day)
c. Proposed well diameter is _____ inches; proposed depth of well is _____ feet.
7. Time required for the completion of the works and application of the water to the proposed beneficial use is 5 years (minimum 1 year - maximum 5 years).
8. Description of proposed uses:
a. If water is not for irrigation: City limits of Nampa, ID
(1) Give the place of use of water: _____ $\frac{1}{4}$ of _____ $\frac{1}{4}$ of Section _____ Township _____
Range _____ B.M.
(2) Amount of power to be generated: _____ horsepower under _____ feet of head.
(3) List number of each kind of livestock to be watered _____

(4) Name of municipality to be served Nampa, Id., or number of families to be supplied with domestic water _____
(5) If water is to be used for other purposes describe: _____

RECEIVED

11. Map of proposed project: show clearly the proposed point of diversion, place of use, section number, township and range number.



Scale: 2 inches equal 1 mile.

R2W

BE IT KNOWN that the undersigned hereby makes application for permit to appropriate the public waters of the State of Idaho as herein set forth.

RECEIVED

Larry Blodhol
(Applicant)
City Engineer - City of Nampa

Proposed Priority 1/10/84

Received by 6LS Date 1/10/84 Time 223
Preliminary check by 6LS Fee \$ 205.00
Receipted by JP Date 6/20/83 # 32211
Publication prepared by JP Date 1/12/84
Published in The Press-Tribune
Publication dates 1/12 & 1/26/84 cont. 1/27 & 1/28/84
Publication approved JP Date 1/16/84
Protests filed by: none

Copies of protests forwarded by _____
Hearing held by _____ Date _____
Recommended for approval denial by 6LS kw

see memo
of 7/26/84
for reason
of priority
delay. kw

ACTION OF THE DIRECTOR, DEPARTMENT OF WATER RESOURCES

This is to certify that I have examined Application for Permit to appropriate the public waters of the State of Idaho No. 63-10211, and said application is hereby APPROVED.

1. Approval of said application is subject to the following limitations and conditions:

- a. SUBJECT TO ALL PRIOR WATER RIGHTS.
- b. Proof of construction of works and application of water to beneficial use shall be submitted on or before July 1, 19 89.
- c. The rate of diversion, if water is to be used for irrigation under this permit, when combined with all other water rights for the same land shall not exceed 0.02 cubic feet per second for each acre of land.
- d. Other: Permit holder shall commence the excavation or construction of diverting works within one year of the date this permit is issued and shall proceed diligently until the project is complete.
The issuance of this permit in no way grants any right-of-way or easement across the land of another.
A flow measurement port or other device as specified by the Department shall be installed by the permit holder to provide for the installation of measuring equipment and the determination of the rate of diversion by the Department.

Witness my hand this 30 day of July, 1984.

David R. Tuttle
Acting Chief, Operations Bureau

FOR OFFICE USE ONLY

Amt. Of Fee \$: 175.00
Receipt No. 6035114
Receipt By: MC
Date Received: 10-6-04

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

RECEIVED

OCT 05 2004

DEPARTMENT OF
WATER RESOURCES

AMENDED PROOF OF BENEFICIAL USE

The Idaho Department of Water Resources considers this form a statement that the permit holder(s) has/have completed all development that will occur under this permit and that water has been applied according to the provisions of the permit for the beneficial use(s) described below. This form must be accompanied by a license examination fee, when necessary, or be accompanied by a completed field examination report prepared by a certified water right examiner.

1. Permit No. 63-10211 Telephone No. 208-465-2220

2. Name of Permit Holder(s): City of Nampa

3. Mailing Address: 411 3rd St. South

City Nampa State ID Zip 83651

4. Source of Water: Ground Water If **GROUNDWATER** (well), Date Drilled: mo. Unknown

Well Driller: Eight wells, different drillers Drilling Permit Number: Unknown

5. Use(s) (as authorized by the water right permit):

Domestic (No. of households): _____ Stockwater (No. and type of stock): _____

Irrigation (No. of acres): _____ Other: Municipal

6. Total rate of diversion and/or volume for which proof is submitted: 8.69 cfs OR _____ acre-feet

7. Measuring Device Requirement: (refer to the approval conditions on your permit and respond accordingly)
(This question is not optional. Please check either yes or no. Proofs returned not checked accordingly, will be considered incomplete)

Measuring Device: Is a measuring device required? Yes X or No _____
Has the measuring device been installed? Yes X or No _____

8. Fee Enclosed: \$ 175 (See Fee Schedule on back of the instructions for filing proof of beneficial use)

9. Person to contact to accompany the Department representative during field examination of the water system.

Name: Bryan Donaldson Telephone Number: 208-467-5253

Address: J-U-B Engineers, 217 W. Georgia Ave., Ste. 120, Nampa, ID 83686

10. *The information given on this form is my true statement of the extent to which the above numbered permit Has been developed and water has been diverted. I agree to relinquish any undeveloped portion of the permit to the State of Idaho.*

Signature of permit holder [Signature] Date: 9-24-04

(include your title, if on behalf of company or organization)

ATTACHMENT B

WELL DRILLERS' REPORTS AND PUMP CURVES

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

USE TYPEWRITER OR
BALLPOINT PEN

State law requires that this report be filed with the Director, Department of Water Resources
within 30 days after the completion or abandonment of the well.

1. WELL OWNER Name <u>Frank Marcum</u> Address <u>Box 384 Mardin</u> Owner's Permit No. _____	7. WATER LEVEL Static water level <u>10 ft.</u> feet below land surface. Flowing? ☐ Yes ☐ No G.P.M. flow _____ Artesian closed-in pressure _____ p.s.i. Controlled by: ☐ Valve ☐ Cap ☐ Plug Temperature _____ OF. Quality _____																																			
2. NATURE OF WORK ☒ New well ☐ Deepened ☐ Replacement ☐ Abandoned (describe method of abandoning) _____	8. WELL TEST DATA ☐ Pump ☐ Bailor ☒ Air ☐ Other _____ <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Discharge G.P.M.</th> <th>Pumping Level</th> <th>Hours Pumped</th> </tr> <tr> <td><u>1000</u></td> <td><u>50 ft.</u></td> <td><u>5</u></td> </tr> </table>	Discharge G.P.M.	Pumping Level	Hours Pumped	<u>1000</u>	<u>50 ft.</u>	<u>5</u>																													
Discharge G.P.M.	Pumping Level	Hours Pumped																																		
<u>1000</u>	<u>50 ft.</u>	<u>5</u>																																		
3. PROPOSED USE ☐ Domestic ☒ Irrigation ☐ Test ☐ Municipal ☐ Industrial ☐ Stock ☐ Waste Disposal or Injection ☐ Other _____ (specify type)	9. LITHOLOGIC LOG <u>106359</u> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Hole Diam.</th> <th>Depth From</th> <th>To</th> <th>Material</th> <th>Water Yes No</th> </tr> </thead> <tbody> <tr> <td><u>18"</u></td> <td><u>0</u></td> <td><u>2</u></td> <td><u>sand & gravel</u></td> <td><u>X</u></td> </tr> <tr> <td><u>18"</u></td> <td><u>2</u></td> <td><u>4</u></td> <td><u>fine sand</u></td> <td><u>X</u></td> </tr> <tr> <td><u>18"</u></td> <td><u>4</u></td> <td><u>7</u></td> <td><u>fine sand</u></td> <td><u>X</u></td> </tr> <tr> <td><u>18"</u></td> <td><u>7</u></td> <td><u>18</u></td> <td><u>fine sand & gravel</u></td> <td><u>X</u></td> </tr> <tr> <td><u>12"</u></td> <td><u>18</u></td> <td><u>43</u></td> <td><u>red sandstone</u></td> <td><u>X</u></td> </tr> <tr> <td><u>12"</u></td> <td><u>43</u></td> <td><u>50</u></td> <td><u>red sand & gravel</u></td> <td><u>X</u></td> </tr> </tbody> </table> <u>Total depth of well after development is 50 ft.</u> <u>Area had to be back filled</u> <u>I welded on another 3 ft.</u> <u>* 6" of casing 7 days after well was completed</u> <u>Total casing in well now 50 ft.</u>	Hole Diam.	Depth From	To	Material	Water Yes No	<u>18"</u>	<u>0</u>	<u>2</u>	<u>sand & gravel</u>	<u>X</u>	<u>18"</u>	<u>2</u>	<u>4</u>	<u>fine sand</u>	<u>X</u>	<u>18"</u>	<u>4</u>	<u>7</u>	<u>fine sand</u>	<u>X</u>	<u>18"</u>	<u>7</u>	<u>18</u>	<u>fine sand & gravel</u>	<u>X</u>	<u>12"</u>	<u>18</u>	<u>43</u>	<u>red sandstone</u>	<u>X</u>	<u>12"</u>	<u>43</u>	<u>50</u>	<u>red sand & gravel</u>	<u>X</u>
Hole Diam.	Depth From	To	Material	Water Yes No																																
<u>18"</u>	<u>0</u>	<u>2</u>	<u>sand & gravel</u>	<u>X</u>																																
<u>18"</u>	<u>2</u>	<u>4</u>	<u>fine sand</u>	<u>X</u>																																
<u>18"</u>	<u>4</u>	<u>7</u>	<u>fine sand</u>	<u>X</u>																																
<u>18"</u>	<u>7</u>	<u>18</u>	<u>fine sand & gravel</u>	<u>X</u>																																
<u>12"</u>	<u>18</u>	<u>43</u>	<u>red sandstone</u>	<u>X</u>																																
<u>12"</u>	<u>43</u>	<u>50</u>	<u>red sand & gravel</u>	<u>X</u>																																
4. METHOD DRILLED ☐ Rotary ☐ Air ☐ Hydraulic ☐ Reverse rotary ☒ Cable ☐ Dug ☐ Other _____	5. WELL CONSTRUCTION <u>Total casing in well now 23 feet</u> Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____ <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Thickness</th> <th>Diameter</th> <th>From</th> <th>To</th> </tr> </thead> <tbody> <tr> <td><u>250</u> inches</td> <td><u>12</u> inches</td> <td><u>4</u> feet</td> <td><u>19</u> feet</td> </tr> <tr> <td>_____ inches</td> <td>_____ inches</td> <td>_____ feet</td> <td>_____ feet</td> </tr> <tr> <td>_____ inches</td> <td>_____ inches</td> <td>_____ feet</td> <td>_____ feet</td> </tr> <tr> <td>_____ inches</td> <td>_____ inches</td> <td>_____ feet</td> <td>_____ feet</td> </tr> </tbody> </table> Was casing drive shoe used? ☐ Yes ☒ No <u>no well bottom</u> Was a packer or seal used? ☐ Yes ☒ No <u>no well bottom</u> Perforated? ☐ Yes ☒ No How perforated? ☐ Factory ☐ Knife ☐ Torch Size of perforation _____ inches by _____ inches <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Number</th> <th>From</th> <th>To</th> </tr> </thead> <tbody> <tr> <td>_____ perforations</td> <td>_____ feet</td> <td>_____ feet</td> </tr> <tr> <td>_____ perforations</td> <td>_____ feet</td> <td>_____ feet</td> </tr> <tr> <td>_____ perforations</td> <td>_____ feet</td> <td>_____ feet</td> </tr> </tbody> </table> Well screen installed? ☐ Yes ☐ No Manufacturer's name _____ Type _____ Model No. _____ Diameter _____ Slot size _____ Set from _____ feet to _____ feet Diameter _____ Slot size _____ Set from _____ feet to _____ feet Gravel packed? ☐ Yes ☐ No ☐ Size of gravel _____ Placed from _____ feet to _____ feet Surface seal depth <u>18"</u> Material used in seal: ☒ Cement grout ☐ Puddling clay ☐ Well cuttings Sealing procedure used: ☐ Slurry pit ☐ Temp. surface casing ☒ Overbore to seal depth Method of joining casing: ☐ Threaded ☒ Welded ☐ Solvent Weld ☐ Cemented between strata Describe access port _____	Thickness	Diameter	From	To	<u>250</u> inches	<u>12</u> inches	<u>4</u> feet	<u>19</u> feet	_____ inches	_____ inches	_____ feet	_____ feet	_____ inches	_____ inches	_____ feet	_____ feet	_____ inches	_____ inches	_____ feet	_____ feet	Number	From	To	_____ perforations	_____ feet	_____ feet	_____ perforations	_____ feet	_____ feet	_____ perforations	_____ feet	_____ feet			
Thickness	Diameter	From	To																																	
<u>250</u> inches	<u>12</u> inches	<u>4</u> feet	<u>19</u> feet																																	
_____ inches	_____ inches	_____ feet	_____ feet																																	
_____ inches	_____ inches	_____ feet	_____ feet																																	
_____ inches	_____ inches	_____ feet	_____ feet																																	
Number	From	To																																		
_____ perforations	_____ feet	_____ feet																																		
_____ perforations	_____ feet	_____ feet																																		
_____ perforations	_____ feet	_____ feet																																		
6. LOCATION OF WELL Sketch map location must agree with written location. Subdivision Name <u>Venice</u> <u>2nd. Sub.</u> Lot No. <u>8</u> Block No. <u>5</u> County <u>Canyon</u> <u>NW 1/4 SE 1/4 Sec. 23, T. 3 N. R. 2 W.</u>	11. DRILLERS CERTIFICATION I/We certify that all minimum well construction standards were complied with at the time the rig was removed. Firm Name <u>Ken Old Hall Drilling</u> Firm No. <u>304</u> Address <u>Box 328 Kana</u> Date <u>3/24/79</u> Signed by (Firm Official) <u>Earl Skinner</u> and (Operator) <u>Earl Skinner</u>																																			

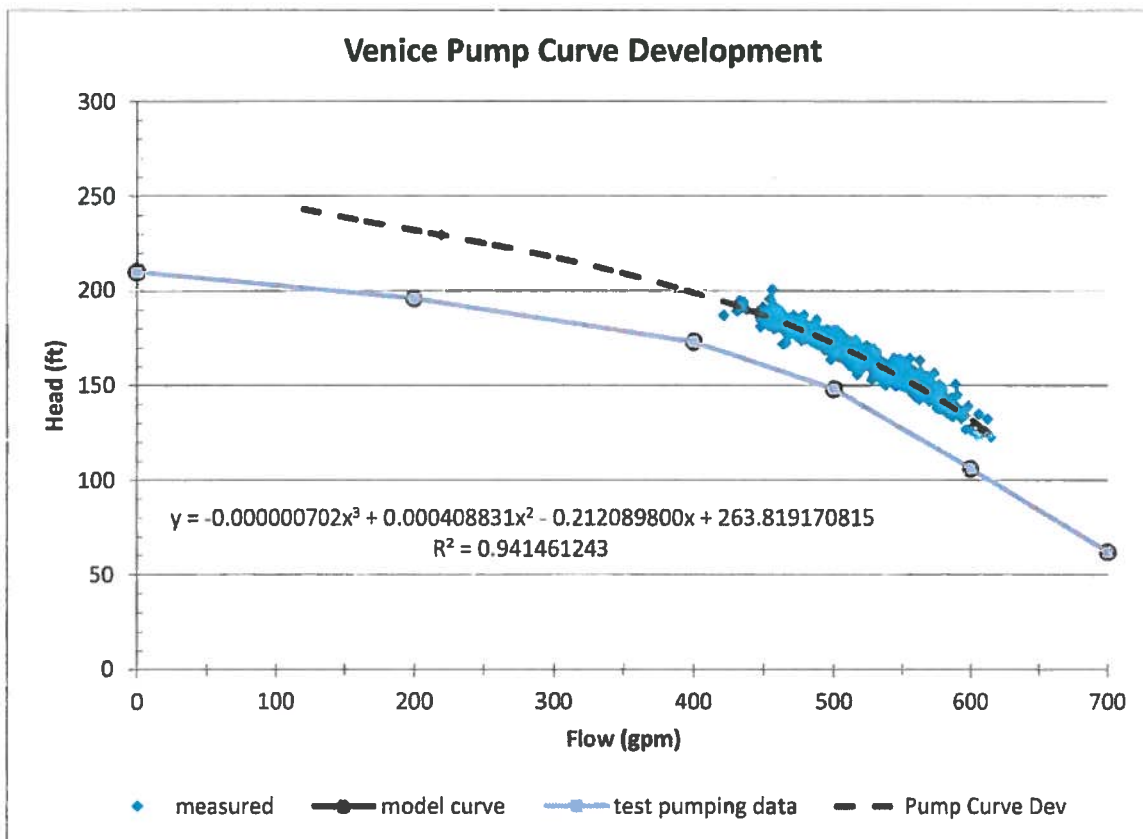


Figure D-30. Venice developed pump curve and model curve.

Table D-30. Recommended Venice pump curve.

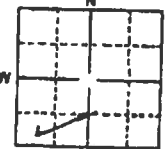
Q (gpm)	Head (ft)
100	246
200	232
300	218
400	199
500	172
600	132

USE TYPEWRITER OR
BALL POINT PEN

State of Idaho
Department of Water Resources

WELL DRILLER'S REPORT

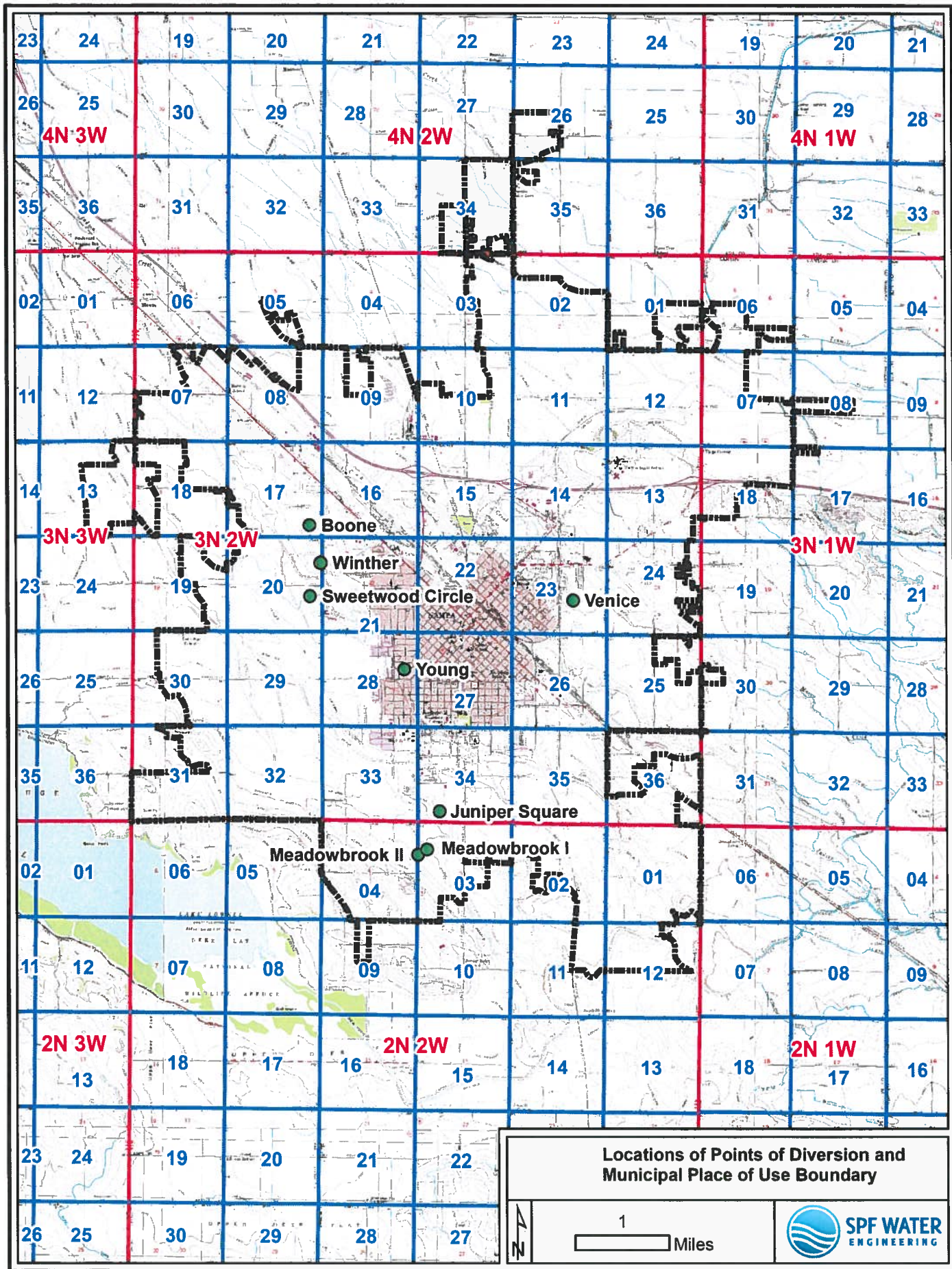
State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

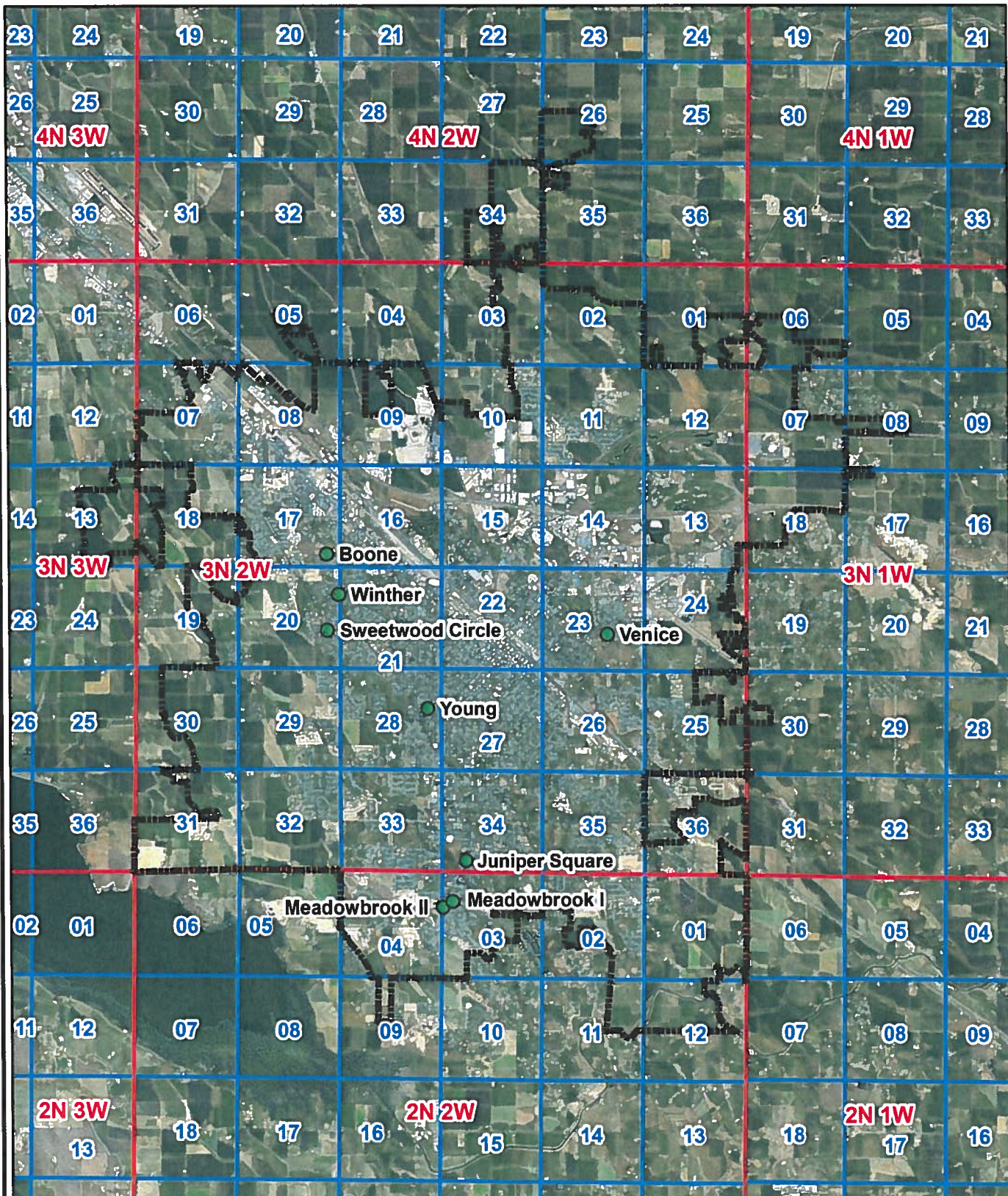
1. WELL OWNER Name <u>JUNIPER SQUARE addition</u> <u>BOB FARBER</u> Address <u>Boise, IDAHO</u> Owner's Permit No. _____		7. WATER LEVEL Static water level <u>17</u> feet below land surface Flowing? ☐ Yes ☐ No G.P.M. flow _____ Temperature _____ ° F. Quality _____ Artesian closed-in pressure _____ p.s.i. Controlled by ☐ Valve ☐ Cap ☐ Plug																																																																															
2. NATURE OF WORK ☒ New well ☐ Deepened ☐ Abandoned (describe method of abandonment) _____ 3. PROPOSED USE ☐ Domestic ☒ Irrigation ☐ Test ☐ Other (specify type) _____ ☐ Municipal ☐ Industrial ☐ Stock ☐ Waste Disposal or Injection		8. WELL TEST DATA ☒ Pump ☐ Bailer ☐ Other Discharge G.P.M. <u>420</u> Draw Down <u>6 FT</u> Hours Pumped <u>7 Hour</u>																																																																															
4. METHOD DRILLED ☒ Cable ☐ Rotary ☐ Dug ☐ Other		9. LITHOLOGIC LOG 029006 Hole Diam. Depth From To Material Water Yes No <table border="1"><tr><td>16</td><td>0</td><td>2</td><td>TOP SOIL</td><td></td><td></td></tr><tr><td>16</td><td>2</td><td>18</td><td>BROWN CLAY</td><td></td><td></td></tr><tr><td>16</td><td>18</td><td>28</td><td>LOOSE GRAVEL, CLAY</td><td></td><td></td></tr><tr><td>16</td><td>28</td><td>41</td><td>BASALT LAVA</td><td></td><td></td></tr><tr><td>12</td><td>41</td><td>53</td><td>BROWN CLAY</td><td></td><td></td></tr><tr><td>12</td><td>53</td><td>71</td><td>CLAY GRAVEL MIXED</td><td></td><td></td></tr><tr><td>12</td><td>71</td><td>79</td><td>BROKEN LAVA</td><td></td><td></td></tr><tr><td>12</td><td>79</td><td>104</td><td>LAVA HARD</td><td></td><td></td></tr><tr><td>12</td><td>104</td><td>131</td><td>BROWN CLAY DIRTY</td><td></td><td></td></tr><tr><td>8</td><td>131</td><td>134</td><td>SAND (MEDIUM)</td><td></td><td></td></tr><tr><td>8</td><td>134</td><td>142</td><td>SAND AND GRAVEL</td><td></td><td></td></tr><tr><td>8</td><td>142</td><td>176</td><td>SAND GRAVEL (CLEAN)</td><td></td><td></td></tr><tr><td>8</td><td>176</td><td>181</td><td>SANDY CLAY</td><td></td><td></td></tr></table>		16	0	2	TOP SOIL			16	2	18	BROWN CLAY			16	18	28	LOOSE GRAVEL, CLAY			16	28	41	BASALT LAVA			12	41	53	BROWN CLAY			12	53	71	CLAY GRAVEL MIXED			12	71	79	BROKEN LAVA			12	79	104	LAVA HARD			12	104	131	BROWN CLAY DIRTY			8	131	134	SAND (MEDIUM)			8	134	142	SAND AND GRAVEL			8	142	176	SAND GRAVEL (CLEAN)			8	176	181	SANDY CLAY		
16	0	2	TOP SOIL																																																																														
16	2	18	BROWN CLAY																																																																														
16	18	28	LOOSE GRAVEL, CLAY																																																																														
16	28	41	BASALT LAVA																																																																														
12	41	53	BROWN CLAY																																																																														
12	53	71	CLAY GRAVEL MIXED																																																																														
12	71	79	BROKEN LAVA																																																																														
12	79	104	LAVA HARD																																																																														
12	104	131	BROWN CLAY DIRTY																																																																														
8	131	134	SAND (MEDIUM)																																																																														
8	134	142	SAND AND GRAVEL																																																																														
8	142	176	SAND GRAVEL (CLEAN)																																																																														
8	176	181	SANDY CLAY																																																																														
5. WELL CONSTRUCTION Diameter of hole <u>16</u> inches Total depth <u>180</u> feet Casing schedule: ☒ Steel ☐ Concrete Thickness Diameter From To <u>375</u> inches <u>12</u> inches <u>0+1</u> feet <u>80</u> feet <u>322</u> inches <u>8</u> inches <u>0+1.5</u> feet <u>146</u> feet <u>280</u> inches <u>5</u> inches <u>142</u> feet <u>142</u> feet _____ inches <u>5</u> inches <u>172</u> feet <u>180</u> feet Was casing drive shoe used? ☒ Yes ☐ No Was a packer or seal used? ☒ Yes ☐ No Perforated? ☐ Yes ☐ No How perforated? ☐ Factory ☐ Knife ☐ Torch Size of perforation _____ inches by _____ inches Number _____ From _____ To _____ _____ perforations _____ feet _____ feet _____ perforations _____ feet _____ feet _____ perforations _____ feet _____ feet Well screen installed? ☒ Yes ☐ No Manufacturer's name <u>JOHNSON</u> Type <u>STAINLESS</u> Model No. <u>405</u> Diameter <u>4</u> Slot size <u>30</u> Set from <u>142</u> feet to <u>172</u> feet Diameter _____ Slot size _____ Set from _____ feet to _____ feet Gravel packed? ☐ Yes ☒ No Size of gravel _____ Placed from _____ feet to _____ feet Surface seal depth <u>20</u> Material used in seal ☒ Cement grout ☐ Pudding clay ☐ Well cuttings Sealing procedure used ☐ Slurry pit ☐ Temporary surface casing ☐ Overbore to seal depth																																																																																	
6. LOCATION OF WELL Sketch map location must agree with written location; <u>63</u>  Subdivision Name <u>JUNIPER SQUARE addition</u> Lot No. _____ Block No. _____ County <u>CANYON</u> <u>SW 1/4 SW 1/4 Sec. 34, T. 7 N., R. 2 W.</u>		10. Work started <u>8/8/77</u> finished <u>9/23/77</u>																																																																															
11. DRILLERS CERTIFICATION Firm Name <u>WITT DRILLING</u> Firm No. <u>55</u> Address <u>Caldwell, Idaho 9/27/77</u> Signed by (Firm Official) <u>Kenneth Witts</u> and (Operator) <u>Claude, Due For</u>																																																																																	

USE ADDITIONAL SHEETS IF NECESSARY

FORWARD THE WHITE COPY TO THE DEPARTMENT

ATTACHMENT C
TOPO MAP AND 2013 AERIAL PHOTO





Locations of Points of Diversion and
Municipal Place of Use Boundary

1
Miles

 **SPF WATER**
ENGINEERING

ATTACHMENT D
PHOTOS

Meadowbrook I



Figure 1: 25-hp submersible pump and plumbing.



Figure 2: Control panel.

Meadowbrook I

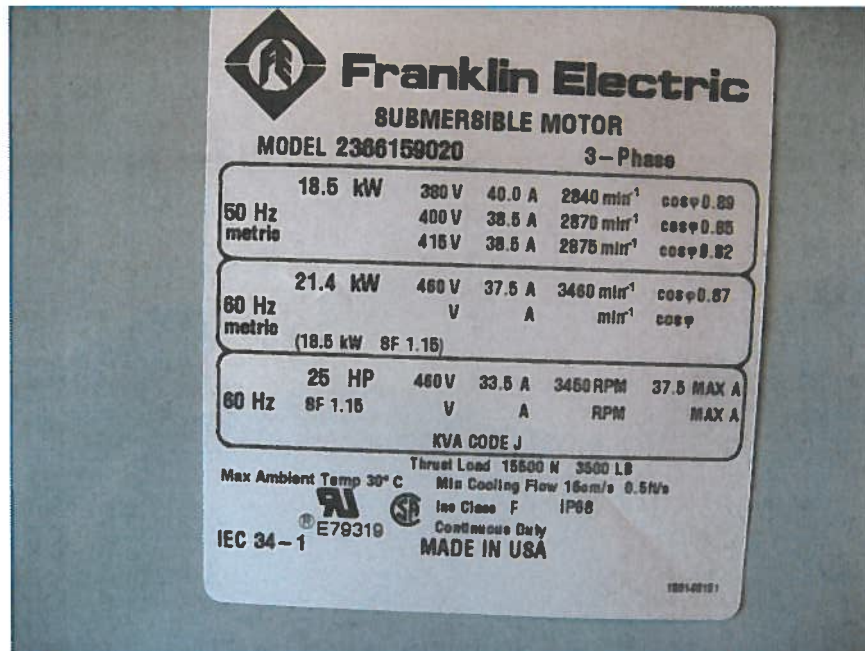


Figure 3: Franklin Electric motor tag.



Figure 4: Pump House

Meadowbrook II

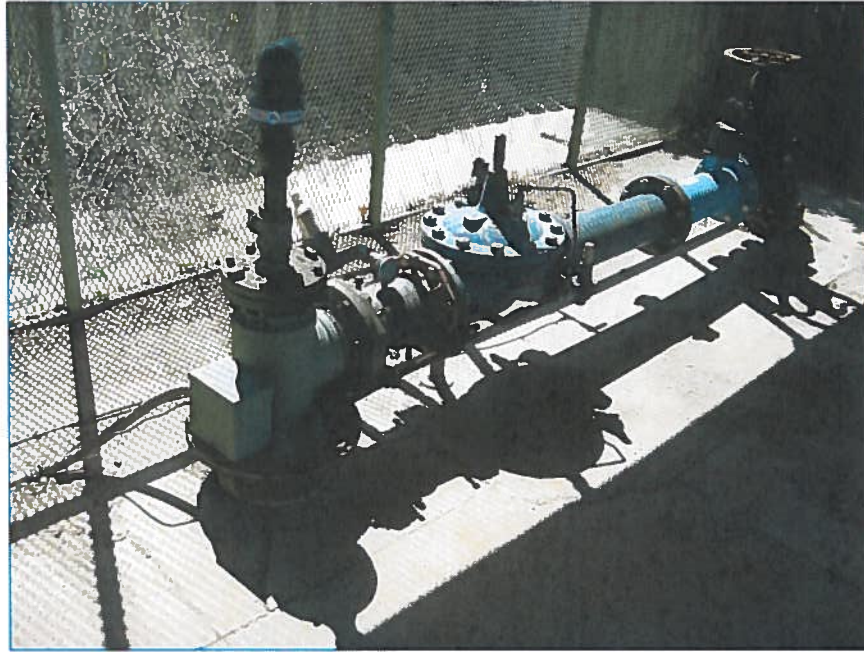


Figure 5: 30-hp submersible pump and plumbing.



Figure 6: Control panel.

Boone



Figure 7: 30-hp turbine pump and plumbing.



Figure 8: Control panel.

City of Nampa Pressurized Irrigation System Evaluation

Summary Report

RECEIVED

AUG 19 2014

**WATER RESOURCES
WESTERN REGION**

Prepared for

**Mr. Michael Fuss, P.E.
Mr. Len Grady, P.E.
City of Nampa
411 Third Street South
Nampa, ID 83651**

Prepared by

**SPF Water Engineering, LLC
300 East Mallard, Suite 350
Boise, Idaho 83706
(208) 383-4140**

February 25, 2013



1. EXECUTIVE SUMMARY

SPF Water Engineering (SPF) has completed a 2-year study of the City of Nampa pressurized irrigation system.

1.1. Project Goals

1. *Document that water deliveries from the various irrigation districts within the non-potable water system service area are being properly utilized in accordance with state law and irrigation district policy.*
2. *Determine the actual capacity of the existing non-potable groundwater sources and the existing and potential groundwater demand to support acquisition of additional ground water rights, if needed.*
3. *Determine the actual use of irrigation district water as a percentage of authorized or reported irrigation district delivery.*
4. *Identify means to improve and optimize the efficiency and functionality of the non-potable water system.*

1.2. P.I. System Description

The system is supplied by 92 pump stations, of which 82 are in service. In service pump stations include 47 wells and 35 surface water pumps stations.

Surface water pump stations obtain water primarily from Nampa & Meridian Irrigation District (NMID), Pioneer Irrigation District (PID or Pioneer), and Boise-Kuna Irrigation District (BKID)

- There are 80 pumps serving the main interconnected system and 12 pumps serving isolated systems.
- The main interconnected system is further divided into 10 subarea operating zones based on hydraulic limitations.

1.3. Monitoring Program

To achieve the project goals within the city's budget, water production at City-operated pumps stations was monitored in 2011 and 2012 to characterize pumping patterns, system capacities, and system operation. Either season-long or week-long monitoring was conducted at selected pump stations. Excluding the isolated systems, monitoring occurred at 32 stations representing approximately 70% of the main system capacity and 80% of the main system production. Monitoring consisted of continuous pumping rate, pressure, or motor speed monitoring, depending on station. In addition, flow meters accuracy was either verified or adjustment factors determined.

Table 1 and Table 2, below, provide a summary of system-wide pumping capacities determined from this study, expressed in gallons per minute (gpm) and cubic feet per second (cfs), respectively. Operational data suggest that during peak hours within a peak demand week, essentially all sources are pumping at capacity.

Table 1. System Capacities and Water Rights - Gallons Per Minute (gpm)

Source	System Capacity							Water Right
	In-Service and Out-of-Service			In-Service			Out-of-Service	
	Main	Isolated	Total	Main	Isolated	Total	Total	
Ground Water Sources With Water Rights	22,246	2,275	24,521	21,746	2,275	24,021	500	33,575
Ground Water Sources Without Water Rights	3,233	600	3,833	3,133	600	3,733	100	0
Total Groundwater	25,479	2,875	28,354	24,879	2,875	27,754	600	33,575
Nampa & Meridian Irrigation District	27,221	850	28,071	25,921	850	26,771	1,300	41,241
Pioneer Irrigation District	8,486	3,913	12,399	8,486	3,913	12,399	0	24,989
Boise-Kuna Irrigation District*	1,365	840	2,205	1,365	840	2,205	0	3,076
Elijah Drain (City-Owned Water Right)	550	0	550	0	0	0	550	801
Total Surface Water	37,621	5,603	43,224	35,771	5,603	41,374	1,850	70,107
Total Ground and Surface Water	63,100	8,478	71,578	60,650	8,478	69,128	2,450	103,682

*BKID water right assumed based on 342.74 ac * 9 gpm/ac

Table 2. System Capacities and Water Rights – Cubic Feet Per Second (cfs)

Source	System Capacity							Water Right Total
	In-Service and Out-of-Service			In-Service			Out-of-Service	
	Main	Isolated	Total	Main	Isolated	Total	Total	
Ground Water Sources With Water Rights	49.56	5.07	54.63	48.45	5.07	53.52	1.11	74.81
Ground Water Sources Without Water Rights	7.20	1.34	8.54	6.98	1.34	8.32	0.22	0.00
Total Groundwater	56.77	6.41	63.17	55.43	6.41	61.84	1.34	74.81
Nampa & Meridian Irrigation District	60.65	1.89	62.54	57.75	1.89	59.65	2.90	91.89
Pioneer Irrigation District	18.91	8.72	27.62	18.91	8.72	27.62	0.00	55.68
Boise-Kuna Irrigation District*	3.04	1.87	4.91	3.04	1.87	4.91	0.00	6.85
Elijah Drain (City-Owned Water Right)	1.23	0.00	1.23	0.00	0.00	0.00	1.23	1.78
Total Surface Water	83.82	12.48	96.30	79.70	12.48	92.18	4.12	156.20
Total Ground and Surface Water	140.59	18.89	159.48	135.13	18.89	154.02	5.46	231.01

*BKID water right assumed based on 342.74 ac *0.02 cfs/ac

1.4. Results Related to Project Goals

1. Document that water deliveries from the various irrigation districts within the non-potable water system service area are being properly utilized in accordance with state law and irrigation district policy.

The primary irrigation district policies considered are (1) the water delivered by each irrigation district must be utilized within the respective irrigation district and (2) that diversion rates should not exceed authorized allocations.

- a. Pumping capacities within Nampa & Meridian Irrigation District (NMID), Pioneer Irrigation District (Pioneer), and Boise-Kuna Irrigation District (BKID) are equal to 65%, 50%, and 72%, respectively, of the authorized diversion rates for these water sources. As a result, the City is not capable of diverting in excess of the aggregate water right diversion rates from these sources.
- b. Groundwater sources provide 40% of the in-service pumping capacity within the City pressurized irrigation system. Diversion of groundwater is one method to ensure that the pumped NMID, Pioneer, and BKID water is used within the respective irrigation district boundaries. In other words, given that (1) the irrigation district pumping capacities are only 50% to 72% of the authorized diversion rates, and (2)

groundwater is providing for approximately 40% of the demand within the City system, it is logical to assume that all of the diverted NMID, Pioneer, and BKID water (instantaneous rates and annual volumes) can be utilized entirely on lands within NMID, Pioneer, and BKID, respectively.

- c. On a more local basis, or a station specific basis, conclusions a. and b., above, are more tenuous.
 - i. Some pump stations (both within the interconnected system and for isolated systems) are capable of diverting in excess of the reported allocation at the pump station site.
 - ii. Some subareas include lands within two irrigation districts, but may not be utilizing water from both districts. For example:
 - The Main-Northwest has lands within both Pioneer and NMID, but has only Pioneer surface water sources which provide 65% of the subarea capacity. Groundwater provides the remaining 35% of the subarea capacity. It is likely that groundwater supply is adequate to cover all NMID lands within the Main-Northwest.
 - Main-Southwest is in both BKID and NMID, yet has only NMID surface water sources. Groundwater sources provide only 4 percent of the subarea capacity. We don't know if the P.I. system is serving BKID lands in this area.

The study did not investigate the irrigation district acreage currently served within each subarea.

2. Determine the actual capacity of the existing non-potable groundwater sources and the existing and potential groundwater demand to support acquisition of additional ground water rights, if needed.

To obtain approval of additional groundwater rights, the City will need to demonstrate (1) capacity to divert existing rights and (2) demand for additional rights.

- a. In-service groundwater capacity is 83 percent of the rate authorized under the City groundwater rights. Therefore, in the aggregate, the City is not exceeding the diversion rate allowed under current ground-water rights, nor can the City demonstrate current capacity to divert existing rights. Note, however:
 - i. station capacities exceed authorized water rights for 11 of the City's 21 water rights, and

- ii. the City has eleven wells without recorded water rights. Approximately 8 of these wells appear to be in operation with a total capacity of 3,733 gpm (8.32 cfs).

Existing groundwater rights should be modified through transfer or other means to properly authorize existing groundwater uses.

- b. Groundwater use and groundwater rights are concentrated within the Main-North, Main-Central, and Main-East subareas. As a result, other subareas could benefit from additional groundwater rights and groundwater capacity to supplement surface water supplies.

3. *Determine the actual use of irrigation district water as a percentage of authorized or reported irrigation district delivery.*

Pumping capacities within Nampa & Meridian Irrigation District (NMID), Pioneer Irrigation District (Pioneer), and Boise-Kuna Irrigation District (BKID) are equal to 65%, 50%, and 72%, respectively, of the authorized diversion rates for these water sources.

Daily peaking factors for monitored surface water stations averaged 1.49. For example, a station producing 1,000 gpm would have an average daily use of 671 gpm, suggesting that at least 33 percent of the available water delivery during peak demand periods is not utilized.

Assuming a continuous delivery for a 183-day irrigation season, the annual delivery of surface water from NMID and Pioneer was 33,352 acre feet and 20,209 acre feet respectively. City 2012 pumping records suggest that 32% (10,763 af) of the NMID delivery was pumped and 17% (3,434 af) of the Pioneer delivery was pumped. Estimated BKID diversion was 510 af in 2012, which was 40% of the 1,285 af assessed volume.

4. *Identify means to improve and optimize the efficiency and functionality of the non-potable water system.*

Means to improve and optimize the efficiency and functionality of the non-potable water system include the following.

1. Adjust irrigation deliveries/allocations to more closely match pump station capacities. There are many pump stations that are either (1) pumping in excess of their individual allocations or (2) not operated at full capacity to avoid exceeding the current allocation, while other pump stations sites do not have capacity to pump their current surface water deliveries.

2. Daily peaking factors result in wasted surface water deliveries. Both existing pumping capacity and irrigation district allocations could be better utilized by reducing the peaking factor through customer education and incentives.
3. Increased automation of pump stations can allow surface water pumps to continue to operate even if deliveries are variable. For example, surface water pumps equipped with wet well transducers can be operated to reduce pumping rates in the event of low wet well water levels.
4. To the extent possible, utilize the most efficient pumping systems (as determined in Section 8) preferentially.
5. Utilize findings from the City's hydraulic model to identify areas needing pump or piping upgrades, or areas that would benefit from alternative system operation.

Table of Contents

1. Executive Summary	i
1.1. Project Goals.....	i
1.2. P.I. System Description	i
1.3. Monitoring Program.....	i
1.4. Results Related to Project Goals	iii
2. Background and Scope.....	1
3. System Overview	3
3.1. Introduction	3
3.2. Pump Stations.....	5
3.3. Distribution System	7
3.4. Irrigation Districts	8
4. Data Collection Procedure	11
4.1. Objectives	11
4.2. Data Collection Procedure	11
4.2.1. Season-Long Data Collection	11
4.2.2. Week-Long Data Collection	12
4.2.3. Flow Meter Calibration	13
4.3. Site Prioritization	16
5. Station Data Compilation	18
5.1. Overview	18
5.2. Statistics.....	18
5.3. Station Capacity	19
5.4. System Capacity	22
5.4.1. Total System Capacity	22
5.4.2. System Capacity by Subarea.....	23
5.4.3. Existing Total System Capacity	26
6. System Pumping and Allocations.....	28
6.1. Station Capacity versus Instantaneous Allocation	28
6.2. Station Capacity versus Instantaneous Allocation within Subareas.....	35
6.3. Station Capacity versus Instantaneous Allocation by Water Right	37
6.4. Station Production versus Volume Allocation	42
7. Pumping Trends.....	44
7.1. Seasonal Pumping Trends.....	44
7.2. Daily Pumping Trends.....	46
8. Snapshot of System Operation	49
9. Station Efficiency Evaluation.....	51
9.1. Efficiency Ratios by Source	51

9.2. Efficiency Ratios by Operation	55
9.3. Pumping Costs	56
10. Pump Curves	61
11. Station Control and Operation.....	63
12. Flow Meter Calibration	66
13. Summary.....	68
13.1. Pressure Irrigation Pump System Capacities.....	68
13.2. Capacities vs. Groundwater Rights.....	68
13.3. Capacities vs. Surface Water Rights.....	69
13.4. Demand Variations.....	70
13.5. Pump Station Efficiencies	70
13.6. Pump Curves	70
13.7. Operational and Control Patterns.....	70
13.8. Flow Meter Calibration	71
14. Conclusions.....	72
15. Recommendations	75

List of Figures

Figure 1. Map of Nampa PI system including subareas and pump stations.	4
Figure 2. Map of Nampa Irrigation system and irrigation districts.	10
Figure 3. Map showing station with season- and week-long data collection.....	15
Figure 4. Stations with data collection expressed as a % of total system capacity.....	16
Figure 5. Stations with data collection expressed as a % of 2011 total system production.	17
Figure 6. Bar chart of total system capacity.	23
Figure 7. Groundwater and surface water capacities by subarea.....	25
Figure 8. Bar chart of system capacity using stations in service.....	27
Figure 9. Map showing stations and percent capacity of allocation.	34
Figure 10. Bar chart of system capacity and allocations.....	42
Figure 11. Total measured flow from stations with data collection for 2012 season.....	44
Figure 12. Total measured flow from stations with data collection for July 9, 2012 through July 16, 2012.....	45
Figure 13. Total measured flow from stations with data collection for July 13, 2012.	46

Figure 14. Station flow and pressure on September 20, 2012, 4:00 am.....	50
Figure 15. Groundwater station efficiency ratios.....	54
Figure 16. Surface water station efficiency ratios.	54
Figure 17. Efficiency ratio versus production.	55
Figure 18. Efficiency ratio based on station operation.	56
Figure 19. Groundwater pumping costs.....	59
Figure 20. Surface water pumping costs.....	60

List of Tables

Table 1. System Capacities and Water Rights - Gallons Per Minute (gpm)	ii
Table 2. System Capacities and Water Rights – Cubic Feet Per Second (cfs)	iii
Table 3. Pumping stations serving the Nampa irrigation system.	6
Table 4. Pumping stations in each irrigation subarea.	7
Table 5. Summary of distribution system	8
Table 6. Pump stations located in each irrigation district.	9
Table 7. Stations with season-long data collection in 2012.	12
Table 8. Stations with week-long data collection in 2012.....	13
Table 9. Stations with week-long data collection in 2011.....	14
Table 10. Summary of irrigation station capacities.	19
Table 11. System capacity summarized by subarea.....	24
Table 12. Summary of irrigation station capacities and allocations	29
Table 13. Summary of subarea capacities and allocations.....	36
Table 14. Summary of capacities and allocations by water right.	40
Table 15. Stations located in the Boise-Kuna irrigation district.	41
Table 16. Summary of surface water production and assessed volume.....	43
Table 17. Summary of groundwater production.	43
Table 18. Flow data for 19 irrigation stations.	47
Table 19. Efficiency ratios for irrigation stations.....	52

Table 20. Pumping costs for irrigation stations.	57
Table 21. Summary of station operation.	63
Table 22. Summary of station pressure setpoints.	64
Table 23. Summary of correction factors for station flow meters.	66

Appendices

Appendix A: 2011/2012 Nampa PI system data

Appendix B: Irrigation district assessments

Appendix C: Flow data for 19 irrigation stations between July 9 and July 16

Appendix D: Pump curves for 22 irrigation stations

2. BACKGROUND AND SCOPE

This report is the culmination of SPF's efforts to accomplish four major objectives¹ related to the City of Nampa's pressurized irrigation system:

1. Document that water deliveries from the various irrigation districts within the non-potable water system service area are being properly utilized in accordance with state law and irrigation district policy.
2. Determine the actual capacity of the existing non-potable groundwater sources and the existing and potential groundwater demand to support acquisition of additional ground water rights, if needed.
3. Determine the actual use of irrigation district water as a percentage of authorized or reported irrigation district delivery.
4. Identify means to improve and optimize the efficiency and functionality of the non-potable water system.

The data collection effort began during the 2011 irrigation season, when the following tasks were completed:

1. Available information on the City's pressurized irrigation (PI) system was examined and compiled.
2. Irrigation stations were visited, equipment was photographed and partially inventoried, and station operational details were discussed with City operators.
3. Week-long flow data was collected at 9 irrigation stations using a portable ultrasonic flow meter.
4. A final report was prepared dated February 7, 2012 summarizing the data collected.

In the spring of 2012, SPF and City staff developed a work plan for the 2012 irrigation season. The purpose of the work plan was to build on the information gathered during 2011, and to further define operational conditions of the irrigation system. The proposed work plan consisted of two major data collection efforts:

1. Measuring and recording flow data at important irrigation stations during the entire irrigation season.
2. Measuring and recording flow data at other stations for one-week durations throughout the irrigation season using a portable ultrasonic flow meter.

¹ The scope of this effort is outlined in the proposal to the City prepared by SPF Water Engineering (dated March 15, 2011).

In addition to the data-collection, an effort to assess the accuracy of the existing flow meters was proposed by comparing readings with a portable ultrasonic flow meter.

This report summarizes the data collection effort by SPF during the 2011 and 2012 irrigation seasons, including the data collection procedure, site prioritization, station and system capacities, the relationship between capacity and water rights and irrigation district assessments, and pumping trends. As available, the data are also being used for the City's PI system model activities, such as calibration flows and pressures, updating pump curves, station operation and control, and flow meter correction factors. Additional data could be needed for model calibration, depending on the city's anticipated uses of the model, and calibration needs. Collection of additional data beyond those data needed for meeting the objectives of this Pressure Irrigation System Evaluation could be provided separately.

3. SYSTEM OVERVIEW

3.1. Introduction

The City of Nampa pressurized irrigation system includes a large, interconnected delivery system (the main City system, or PI system), and 10 smaller isolated systems. The isolated systems generally include a single source of supply to a discrete neighborhood and/or commercial area, and are not considered part of the main City system for the purpose of this study². However, station capacities and allocations³ are reported for irrigation stations in isolated systems in an effort to provide a complete description of the City's use of groundwater and surface water in the entire PI system.

The data collection study focused on the main City system. The system was further subdivided into 10 "subareas" (as shown in Figure 1). The subareas were determined by operator knowledge of the system, and are defined in this study as distinct operating zones within the main City system. A subarea was identified as such if: (1) there was no current physical connection to any other subarea (North subarea), (2) the system was normally valved-off from other subareas (Generally Valved Off West, Permanently Valved Off, and Generally Valved Off East subareas), or (3) there was limited hydraulic connectivity to other subareas (Main-North, Main-Northwest, Main-Southwest, Main-South, Main-Central, and Main-East subareas).

² The isolated systems are identified as Crestwood, Treasure Valley Marketplace, Karcher Interchange, Idaho Center, NIC, Carriage Hill, Gateway, Golf Course, and two unnamed private systems.

³ In this report the term allocation is used to describe diversion rates or volumes authorized by water rights or assessed by irrigation districts.

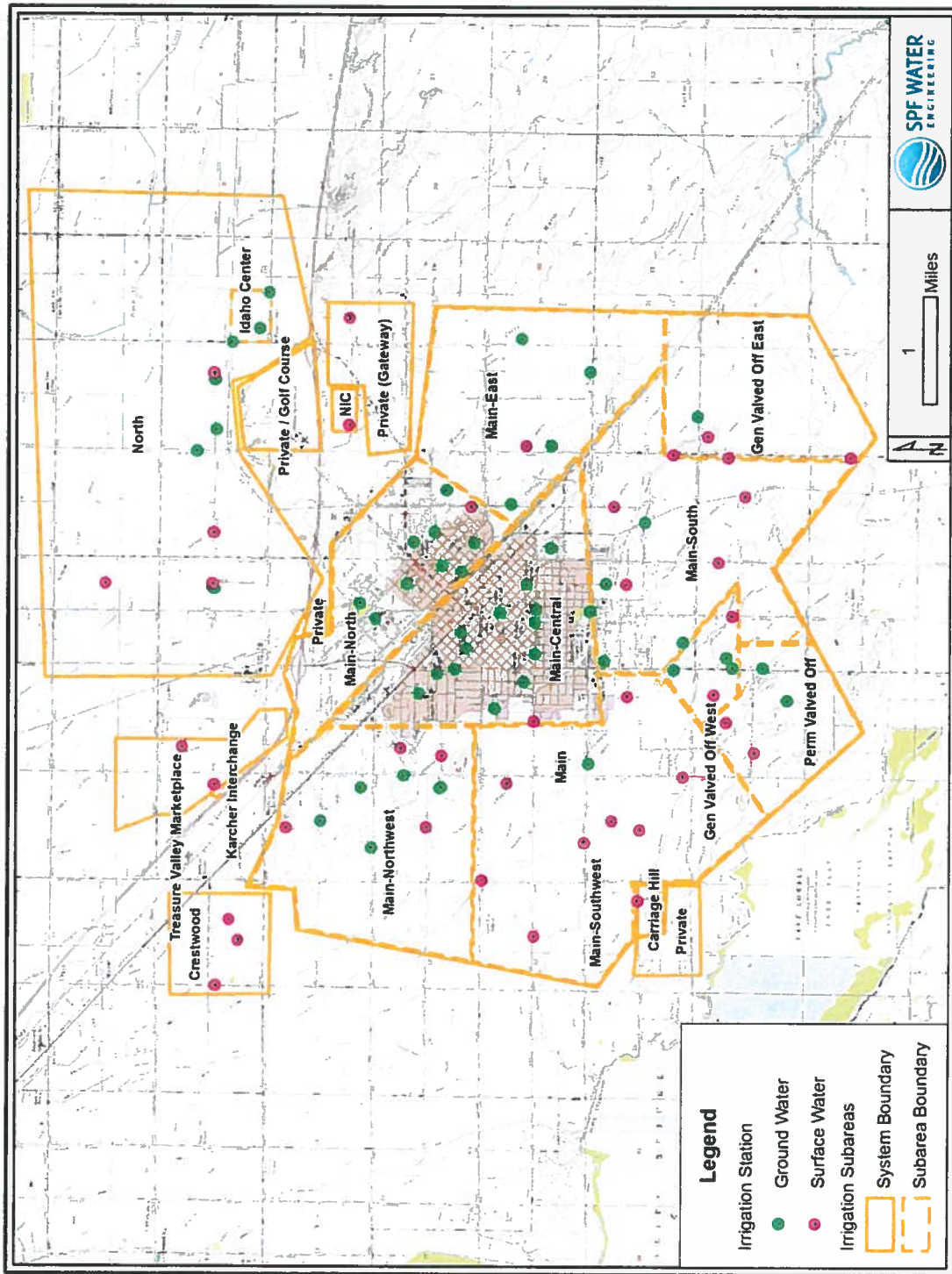


Figure 1. Map of Nampa PI system including subareas and pump stations.

3.2. Pump Stations

The entire City PI system is supplied by a total of 92 pumping stations. Of this total, 80 stations serve the main City PI system and 12 stations serve the ten isolated systems. Of the 80 stations that serve the main City PI system:

- 70 are in service, and 10 are not in service⁴; 49 are supplied by groundwater, and 31 are supplied by surface water, as shown on Figure 1.
 - 43 of the groundwater stations are in service, and six are not in service.
 - 27 of the surface water stations are in service, and four are not in service.

Of the 12 stations that serve the ten isolated systems:

- All 12 are in service.
 - 4 are supplied by groundwater.
 - 8 are supplied by surface water.

A summary of the irrigation stations that supply both the main City PI system and the separate isolated systems is provided in Table 3.

The main system has been subdivided into 10 subareas, as described above. A summary breakdown of the groundwater and surface water stations in each of the main City subareas is included as Table 4.

⁴For the purposes of this study, a station is considered to be in service if the station has a power meter, even if it was not used during the 2011 or 2012 irrigation seasons. A station is not in service if the power meter has been pulled and there is no electrical service to the site.

Table 3. Pumping stations serving the Nampa irrigation system.

Description	Source of Supply	Number of Stations
Main City PI System	Groundwater	49
	In Service	43
	Not In Service	6
	Surface water	31
	In Service	27
	Not In Service	4
	Total	80
	In Service	70
	Not In Service	10
Isolated Systems	Groundwater	4
	In Service	4
	Not In Service	0
	Surface water	8
	In Service	8
	Not In Service	0
	Total	12
	In Service	12
	Not In Service	0

Table 4. Pumping stations in each irrigation subarea.

Subarea	Source of Supply	Number of Stations
North	Groundwater	4
	Surface Water	4
	Total	8
Main-Central	Groundwater	14
	Surface Water	1
	Total	15
Main-North	Groundwater	10
	Surface Water	1
	Total	11
Main-South	Groundwater	4
	Surface Water	5
	Total	9
Main-East	Groundwater	4
	Surface Water	1
	Total	5
Main-Northwest	Groundwater	6
	Surface Water	4
	Total	10
Main-Southwest	Groundwater	1
	Surface Water	7
	Total	8
Perm Valved Off	Groundwater	2
	Surface Water	3
	Total	5
Gen Valved Off East	Groundwater	1
	Surface Water	3
	Total	4
Gen Valved Off West	Groundwater	3
	Surface Water	2
	Total	5
Total Main PI System	Groundwater	49
	Surface Water	31
	Total	80

3.3. Distribution System

According to the existing PI system EPANET model, the PI system distribution system consists of pipe ranging from 2-inch to 18-inch in diameter. Total piping length is

estimated to be over 330 miles. A summary of pipe diameters and associated lengths is included in Table 5.

Table 5. Summary of distribution system

Pipe Diameter	Length (miles)
2-inch	3.0
2.5-inch	0.3
3-inch	4.8
4-inch	100.5
6-inch	117.0
8-inch	65.6
10-inch	17.7
12-inch	23.8
15-inch	0.2
18-inch	0.3
Total	333.1

3.4. Irrigation Districts

The City of Nampa is served by three different irrigation districts: Nampa & Meridian (NMID), Pioneer (Pioneer), and Boise-Kuna (BKID). NMID serves the largest area (south and east of the Phyllis Canal), with Pioneer serving the north/northwest part of the City and BKID serving the southwest corner. The number of pump stations located in each irrigation district is summarized in Table 6. Table 4 also identifies those stations that serve the main City PI system, whether or not those stations are in service or not in service, and those that serve isolated systems. Some general observations regarding the irrigation district pump stations include:

- There are 21 stations that serve the main City PI system that are located in NMID. Eighteen (18) of these are in service and three are not in service. There are two stations that serve isolated systems.
- There are seven stations that serve the main City PI system that are located in Pioneer. All of these are in service. There are an additional five stations that serve isolated systems.
- There are two stations that serve the main City PI system that are located in BKID. All of these are in service. There is one additional station that serves an isolated system.

- There is one surface water pump station (Brandts) that is physically located in Pioneer, but pumps directly from Mason Creek. For the purpose of this study, Brandts is assumed to be pumping Pioneer water, but this assumption should be further investigated by the City.

A map of the Nampa irrigation system, the designated subareas, irrigation districts, and pump stations is included in Figure 2.

Table 6. Pump stations located in each irrigation district.

Irrigation District	Location	Number of Stations
Nampa & Meridian	Main City PI System	21
	In Service	18
	Not in Service	3
	Isolated System	2
Pioneer	Main City PI System	7
	In Service	7
	Not in Service	0
	Isolated System	5
Boise-Kuna	Main City PI System	2
	In Service	2
	Not in Service	0
	Isolated System	1

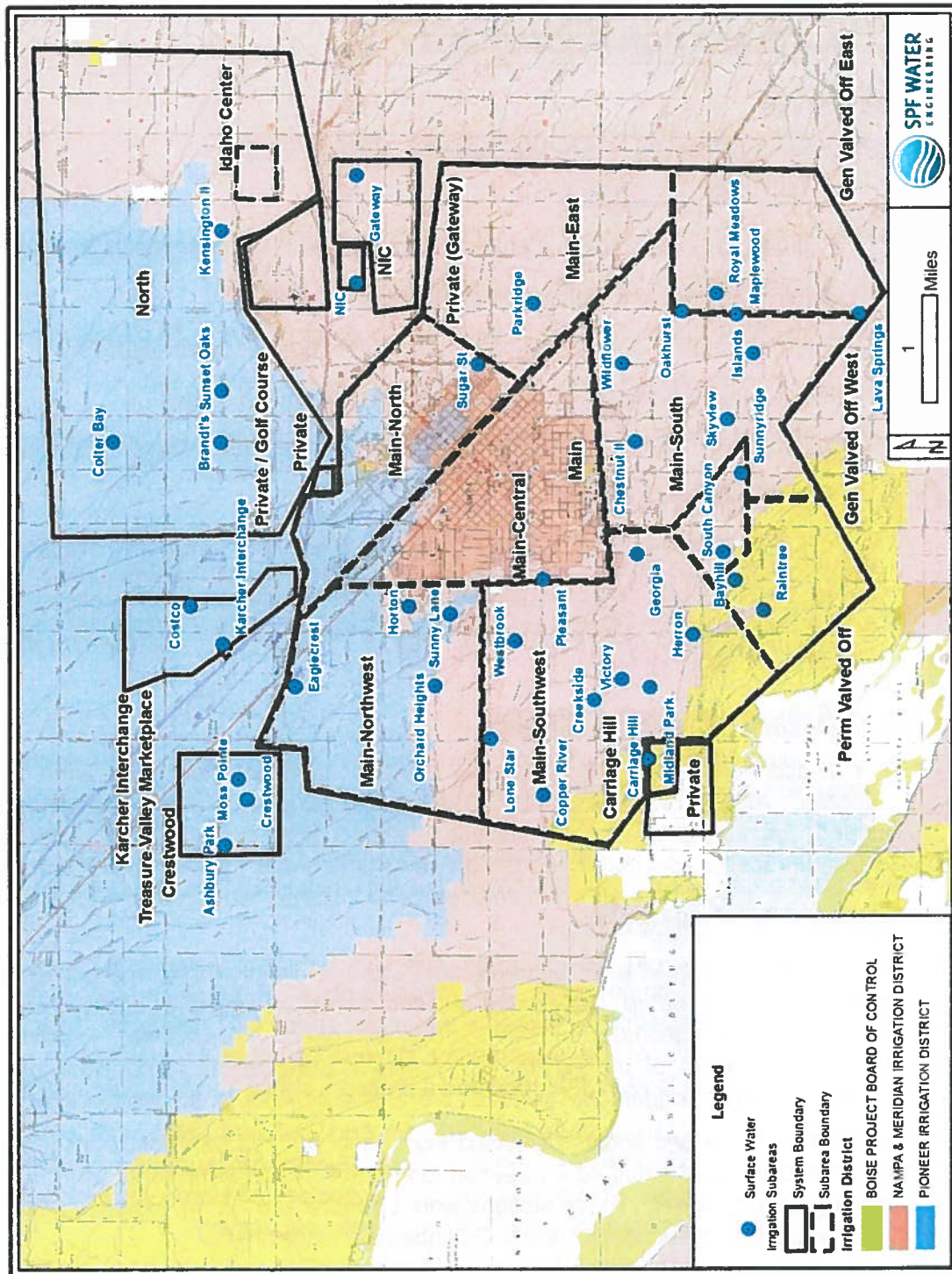


Figure 2. Map of Nampa Irrigation system and irrigation districts.

4. DATA COLLECTION PROCEDURE

4.1. Objectives

The primary objectives of the data collection effort were to:

1. Quantify station capacities
2. Evaluate daily and seasonal pumping patterns and calculate peaking factors
3. Identify pressure setpoints or constant pressure settings
4. Determine station operational patterns (i.e. automatic vs hand operation)
5. Develop theoretical pump curves, or verify known pump curves
6. Calibrate existing flow meters by comparison with portable ultrasonic flow meter

4.2. Data Collection Procedure

The data of primary interest are flow rate and pressure. The data collection effort included two major protocols: (1) season-long data collection, and (2) week-long data collection. The data collection procedure is briefly described below. Additional detail on the data collection effort is provided in the 2012 Work Plan Outline prepared by the City and SPF (April 10, 2012).

4.2.1. Season-Long Data Collection

For season-long data collection, two stations were selected from each system subarea. At one of these stations flow and pressure were directly measured and logged. At all but one of the stations (Happy Valley), this required replacing the existing propeller flow meter heads with new meter heads that had signal outputs. At all stations a 4-20 mA current datalogger was installed to receive a signal from the flow meter and log flow data.

At the other station in each subarea, flow was not directly measured but estimated from the station pump curve and measurements of pressure and motor on/off (constant speed stations) or pressure and motor speed (VFD stations). Pressure was measured at each of the season-long stations using either stand-alone pressure loggers or current loggers that recorded a pressure signal from the station VFD.

In addition to the two stations selected from each subarea (total of 20 stations), two more stations were selected for season-long pressure measurements using a stand-alone pressure logger. These stations were Lonestar and Heron, located in the Main-Southwest and Permanently Valved Off subareas, respectively.

Table 7 summarizes those 22 stations where season-long monitoring occurred and the type of data collected at each station. These stations are also identified on the map in Figure 3. At Heron and Lonestar, only pressure was measured throughout the

entire irrigation season. At Sunnyridge, season-long data collection was anticipated. However, there were delays in getting the datalogger installed due to problems with connecting with the station VFD. Once the datalogger was installed, data were only collected for about one week prior to the VFD failing.

Table 7. Stations with season-long data collection in 2012.

Subarea	Site	Data Collected
North	Colter Bay	Flow, Pressure
	Kensington II	Pressure, Motor Speed
Main-North	Birdseye	Flow, Pressure
	Indian Creek	Pressure, Motor On/Off
Main-Central	Maple	Flow, Pressure
	19 th Ave S	Pressure, Motor On/Off
Main-East	Happy Valley	Flow, Pressure
	Parkridge	Pressure
Main-South	Islands	Flow, Pressure
	Chestnut II	Pressure, Motor On/Off
Main-Southwest	Midland Park	Flow, Pressure
	Copper River	Pressure, Motor Speed
	Lonestar	Pressure
Main-Northwest	Horton	Flow, Pressure
	Orchard Heights	Pressure, Motor Speed
Gen Valved Off East	Oakhurst	Flow, Pressure
	Lava Springs	Pressure, Motor Speed
Gen Valved Off West	South Valley	Flow, Pressure
	Sunnyridge	Pressure, Motor Speed
Perm Valved Off	Raintree	Flow, Pressure
	Vista Ridge	Pressure, Motor Speed
	Heron	Pressure

4.2.2. Week-Long Data Collection

At the stations with week-long data collection, flow was directly measured using a portable ultrasonic flow meter and pressure was recorded using a stand-alone portable pressure logger.

The 22 stations where week-long data collection occurred in 2012 are listed in Table 8, and Table 9 includes those nine stations where week-long flow data collection occurred in 2011. The portable flow meter was installed for a week at the 12 stations where flow was indirectly measured using pressure and motor operation to provide actual flow data to compare with predicted values. Therefore there were 10 stations

where the only data collected was weekly flow and pressure. These stations are also identified on the map in Figure 3.

4.2.3. Flow Meter Calibration

An additional component of the data collection effort was to assess the accuracy of the existing flow meters installed at many of the City's irrigation stations by comparing totalized readings with totalized readings from a portable ultrasonic flow meter. Flow meter correction factors were calculated by comparing the totalized readings which can then be applied to station flow meter flow data to produce more accurate and reliable data.

Table 8. Stations with week-long data collection in 2012.

Subarea	Location	Date Start	Date End	Data Collected
North	Kensington II	5/7/2012	5/23/2012	Flow, Pressure
Gen Valved Off East	Lava Springs	5/23/2012	5/31/2012	Flow, Pressure
Main-North	Indian Creek	5/31/2012	6/6/2012	Flow, Pressure
Main-South	Chestnut II	6/6/2012	6/14/2012	Flow, Pressure
Main-East	Parkridge	6/14/2012	6/20/2012	Flow, Pressure
Main-Southwest	Lonestar	6/21/2012	6/28/2012	Flow, Pressure
Main-Southwest	Creekside	6/28/2012	7/3/2012	Flow, Pressure
Main-Northwest	Orchard Heights	7/3/2012	7/12/2012	Flow, Pressure
Main-South	Skyview	7/12/2012	7/19/2012	Flow, Pressure
Gen Valved Off West	South Canyon	7/19/2012	7/26/2012	Flow, Pressure
Main-Central	Holly	7/26/2012	8/2/2012	Flow, Pressure
Main-North	Venice	8/2/2012	8/9/2012	Flow, Pressure
Main-North	Sugar St	8/9/2012	8/15/2012	Flow, Pressure
Main-Central	19th Ave S	8/17/2012	8/23/2012	Flow, Pressure
Gen Valved Off West	Sunnyridge	8/31/2012	9/6/2012	Flow, Pressure
North	Kensington II	9/10/2012	9/13/2012	Flow, Pressure
Main-Southwest	Copper River	9/13/2012	9/19/2012	Flow, Pressure
Perm Valved Off	Vista Ridge	9/20/2012	9/25/2012	Flow, Pressure
Main-Central	14th Ave S	9/27/2012	10/1/2012	Flow, Pressure
Perm Valved Off	Heron	10/1/2012	10/4/2012	Flow, Pressure
Main-Southwest	Georgia	10/4/2012	10/9/2012	Flow, Pressure
Main-Central	Fern	10/2/2012	10/4/2012	Pressure

Table 9. Stations with week-long data collection in 2011.

Subarea	Location	Date Start	Date End	Data Collected
Main-East	Happy Valley	8/2/2011	8/9/2011	Flow
North	Kensington II	8/9/2011	8/16/2011	Flow
Perm Valved Off	Heron	8/16/2011	8/22/2011	Flow
Gen Valved Off West	Sunnyridge	8/22/2011	8/30/2011	Flow
Perm Valved Off	Vista Ridge	8/30/2011	9/6/2011	Flow
Gen Valved Off East	Oakhurst	9/6/2011	9/13/2011	Flow
Main-Southwest	Lonestar	9/13/2011	9/20/2011	Flow
Main-South	Islands	9/20/2011	10/4/2011	Flow
Main-East	Amity	10/4/2011	10/13/2011	Flow

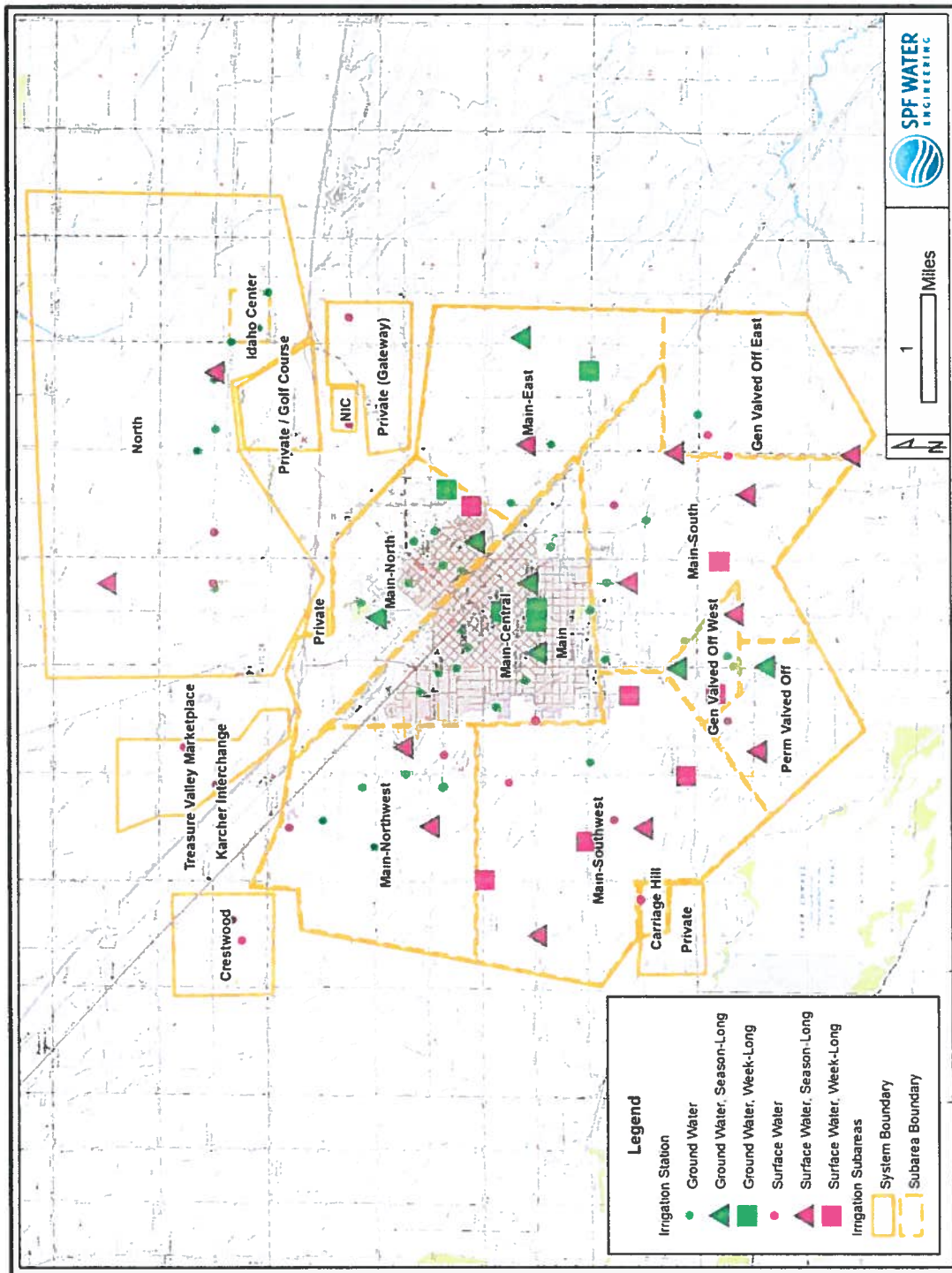


Figure 3. Map showing station with season- and week-long data collection.

4.3. Site Prioritization

A key component of the data collection effort was site prioritization. Given the large number of stations within the irrigation system, it was not practical or economically feasible to collect data at every station. SPF and the City worked together to select two high priority stations within each subarea for season-long data collection. In addition to the season-long measurements, SPF also installed a portable ultrasonic flow meter and portable pressure logging equipment at selected stations for approximate one-week durations.

With the prioritized data collection effort, the 22 stations with season-long data collection and the 10 stations with week-long data collection account for 69% of the total main City PI system capacity. This total main City PI system capacity excludes stations that are not in service, excludes those stations that serve isolated systems, and does not include two stations with unknown capacities. These two stations are Bayhill, which is only used for neighborhood pond circulation and does not supply the main City PI system, and Schobert, which is a station that is rarely used.

The other 36 stations in the main City PI system where no data were collected account for 31% of total system capacity. This information is depicted in the pie chart in Figure 4.

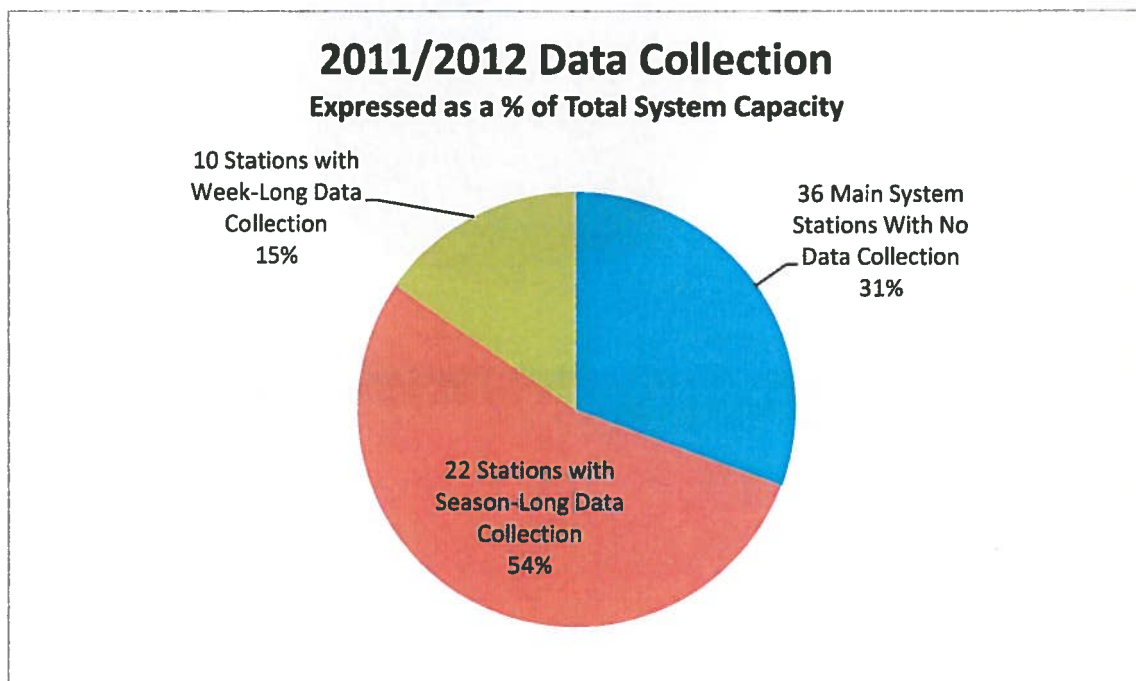


Figure 4. Stations with data collection expressed as a % of total system capacity.

The stations where data was collected can also be examined relative to system production (volume in gallons). Using 2011 production data, the 22 stations with season-long data collection and the 10 stations with week-long data collection account for 80% of total main City PI system production. This total main City PI system production only includes stations with 2011 production data and excludes those stations that serve isolated systems.

There are 31 stations in the main City system that had 2011 production where no data was collected. These stations account for only 20% of total system production. This information is depicted in the pie chart in Figure 5.

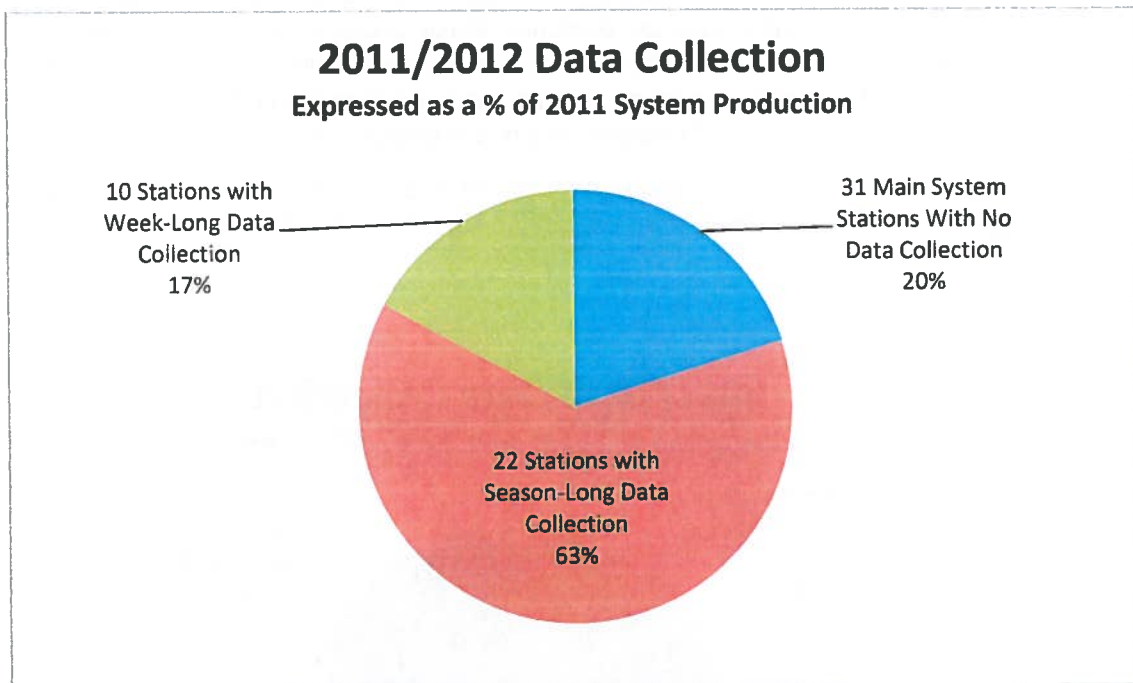


Figure 5. Stations with data collection expressed as a % of 2011 total system production.

5. STATION DATA COMPILATION

5.1. Overview

All of the collected data were delivered to City staff on a CD on November 26, 2012, and is also attached to this report as Appendix A. The data set primarily includes:

- (1) flow for those stations where direct measurements of flow were collected,
- (2) motor speed for those stations with VFDs where flow was calculated using the pump curve,
- (3) pump on/off operation for those constant-speed stations where flow was calculated using the pump curve, and
- (4) pressure for all stations.

All data types were measured at 15 minute intervals. For 22 stations there is season-long data and for 10 stations there is week-long data.

5.2. Statistics

Various summary statistics were generated using the data collected at each station. These statistics include:

- Monthly maximum, minimum, and average flows (19 stations with season-long data collection)
- Monthly maximum flow:average flow peaking factors (19 stations with season-long data collection)
- Monthly maximum, minimum, and average pressure (19 stations with season-long data collection)
- Weekly maximum, minimum, and average flows (13 stations with week-long flow data collection)
- Weekly maximum flow:average flow peaking factors (13 stations with week-long flow data collection)
- Weekly maximum, minimum, and average pressure (13 stations with week-long pressure data collection)
- Average daily maximum, average daily minimum, and average daily flows (32 stations with daily flow data collection)
- Average daily maximum flow:average daily flow peaking factors (32 stations with daily flow data collection)
- Average daily maximum, average daily minimum, and average daily pressure (32 stations with daily pressure data collection)

These statistics are summarized in a spreadsheet included on the CD delivered to the City on November 26 and also attached with this report in Appendix A.

5.3. Station Capacity

For the purpose of this study, station capacity was determined as follows:

- For those stations where flow data were collected throughout the irrigation season, capacity was calculated as the average daily maximum flow for the month which included the highest average maximum flow.
- For those stations with only weekly flow data, capacity was defined as the average daily maximum flow for the week of data collection.
- For the remaining stations, the value used was the estimated pumping capacity from the "2008 City of Nampa Pressure Irrigation System Master Plan Update" (Table 2.5), prepared by J-U-B Engineering.
- There are two stations that are in service that have unknown capacities. One of these (Bayhill) is only used for aesthetic pond circulation and does not supply the main City PI system and the other (Schobert) is a station that is rarely used. As a results, the capacities of these systems have little or no bearing on this evaluation.

A summary of station capacities is included in Table 10.

Table 10. Summary of irrigation station capacities.

Subarea	Station	Station Capacity (gpm) ¹	Service Status	Source of Capacity ²
North	Colter Bay	991	In Service	Note 1
North	Birch	300	In Service	Note 3
North	Brandt's	200	In Service	Note 3
North	Sunset Oaks	1000	In Service	Note 3
North	Canterbury	300	In Service	Note 3
North	Greens	100	Available, Not Used	Note 3
North	Kensington I		Not In Service, No Meter	Note 4
North	Kensington II	2,110	In Service	Note 1
Main-Central	19th Ave S	743	In Service	Note 1
Main-Central	Meyer	400	In Service	Note 3
Main-Central	Fern	588	In Service	Note 2
Main-Central	Holly	827	In Service	Note 2
Main-Central	Maple	660	In Service	Note 1
Main-Central	Kurtz Park	500	In Service	Note 3
Main-Central	State St	350	In Service	Note 3
Main-Central	Canyon	800	In Service	Note 3
Main-Central	Hudson	350	In Service	Note 3
Main-Central	High	500	In Service	Note 3

Subarea	Station	Station Capacity (gpm) ¹	Service Status	Source of Capacity ²
Main-Central	6th St S	500	In Service	Note 3
Main-Central	4th St S	500	In Service	Note 3
Main-Central	14th Ave S	539	In Service	Note 2
Main-Central	Pleasant	450	Not In Service, No Meter	Note 5
Main-Central	Young Ave	250	Not In Service, No Meter	Note 3
Main-North	Venice	591	In Service	Note 2
Main-North	Sugar St	368	In Service	Note 2
Main-North	Birdseye	1,384	In Service	Note 1
Main-North	Cemetery	400	In Service	Note 3
Main-North	5th & Phyllis	600	In Service	Note 3
Main-North	Lakeview Park	500	In Service	Note 3
Main-North	13th Ave N	250	In Service	Note 3
Main-North	14th Ave N	250	Not In Service, No Meter	Note 3
Main-North	Indian Creek	344	In Service	Note 1
Main-North	Mayor's	400	In Service	Note 3
Main-North	Near Mayor's		Not In Service, No Meter	Note 4
Main-South	Colorado	750	In Service	Note 3
Main-South	Juniper Square	200	In Service	Note 3
Main-South	Skyview	698	In Service	Note 2
Main-South	Islands	1,342	In Service	Note 1
Main-South	Maplewood	800	In Service	Note 3
Main-South	Wildflower	800	Available, Rarely Used	Note 3
Main-South	Chestnut I	600	Available, Rarely Used	Note 3
Main-South	Chestnut II	1,538	In Service	Note 1
Main-South	Port Meadows	100	Not In Service, No Meter	Note 3
Main-East	Sugar Manor	450	In Service	Note 3
Main-East	Parkridge	891	In Service	Note 1
Main-East	Kings Road	1500	In Service	Note 3
Main-East	Amity	1,097	In Service	Note 2
Main-East	Happy Valley	2,411	In Service	Note 1
Main-Northwest	Orchard Heights	1,657	In Service	Note 1
Main-Northwest	Eaglecrest	450	Available, Rarely Used	Note 3
Main-Northwest	Grange Park	450	In Service	Note 3
Main-Northwest	Boone Ave	400	In Service	Note 3
Main-Northwest	Karcher II		Not In Service, No Meter	Note 7
Main-Northwest	Winther Ave	300	In Service	Note 3
Main-Northwest	Morgan	300	In Service	Note 3
Main-Northwest	Sweetwood Circle	300	In Service	Note 3
Main-Northwest	Sunny Lane	550	Not In Service, No Meter	Note 3
Main-Northwest	Horton	2,078	In Service	Note 1
Main-Southwest	Georgia	1,762	In Service	Note 2
Main-Southwest	Augusta	450	In Service	Note 3

Subarea	Station	Station Capacity (gpm) ¹	Service Status	Source of Capacity ²
Main-Southwest	Midland Park	1,893	In Service	Note 1
Main-Southwest	Victory	500	Not In Service, No Meter	Note 3
Main-Southwest	Creeside	2,354	In Service	Note 2
Main-Southwest	Copper River	2,457	In Service	Note 1
Main-Southwest	Lone Star	1,841	In Service	Note 2
Main-Southwest	Westbrook	350	Not In Service, No Meter	Note 3
Perm Valved Off	Raintree	1,365	In Service	Note 1
Perm Valved Off	Bayhill		Only Used for Pond Circulation	Note 4
Perm Valved Off	Shobert		Available, Rarely Used	Note 4
Perm Valved Off	Vista Ridge	1,363	In Service	Note 1
Perm Valved Off	Heron	1,085	In Service	Note 2
Gen Valved Off East	Lava Springs	2,356	In Service	Note 1
Gen Valved Off East	Royal Meadows	1500	Available, Not Used	Note 3
Gen Valved Off East	Pheasant Hollow	600	In Service	Note 3
Gen Valved Off East	Oakhurst	2,440	In Service	Note 1
Gen Valved Off West	South Valley	483	In Service	Note 1
Gen Valved Off West	South Canyon	484	In Service	Note 2
Gen Valved Off West	Meadowbrook II	300	In Service	Note 3
Gen Valved Off West	Meadowbrook I	500	In Service	Note 3
Gen Valved Off West	Sunnyridge	1,312	In Service	Note 2
isolated system	Costco	1,500	In Service	Note 3
isolated system	Karcher Interchange	275	Supplemental Supply	Note 8
isolated system	Karcher Interchange	213	In Service	Note 6
isolated system	Carriage Hill	840	In Service	Note 3
isolated system	Gateway	750	In Service	Note 3
isolated system	Moss Point	500	In Service	Note 3
isolated system	NIC	100	In Service	Note 3
isolated system	Crestwood	1,200	In Service	Note 3
isolated system	Asbury Park	500	In Service	Note 3
isolated system	Idaho Center II	300	Available, Rarely Used	Note 3
isolated system	Idaho Center I	300	In Service	Note 3
isolated system	Farm & City	2,000	In Service	Note 3

1 - Includes capacity of stations that are not in service

2 - Source of capacity notes:

Note 1. capacity derived from 2012 continuous, season-long flow and pressure monitoring

Subarea	Station	Station Capacity (gpm) ¹	Service Status	Source of Capacity ²
---------	---------	-------------------------------------	----------------	---------------------------------

Note 2. capacity derived from 2012 continuous, week-long flow and pressure monitoring

Note 3. 2008 Nampa Pressure Irrigation System Master Plan Update

Note 4. unknown capacity

Note 5. rated flow of pump from City records

Note 6. capacity estimated from motor hp

Note 7. well capped, no pump

Note 8. capacity from WR Beneficial Use Field Exam

5.4. System Capacity

5.4.1. Total System Capacity

The capacity of the entire Nampa PI system (including isolated systems and stations not in service) can be expressed in terms of total groundwater and total surface water supply using the individual station capacities presented in Table 10. Some general observations regarding system capacity are noted below:

- The total capacity of groundwater stations is calculated to be 28,354 gpm.
- The total capacity of surface water stations is calculated to be 43,224 gpm.
- Total system capacity is 71,578 gpm.

System capacity is summarized in the bar chart in Figure 6. These values include capacities of those seven stations with known capacities that are not in service (electrical meter pulled)⁵. There are five stations with unknown capacities, three of which are not in service⁶, one well in service but rarely used (Schobert), and one surface water station only used for pond circulation (Bayhill).

⁵ Young Ave, 14th Ave N, Port Meadows, Pleasant, Sunny Lane, Victory, and Westbrook

⁶ Kensington I, Karcher II, and Near Mayor's

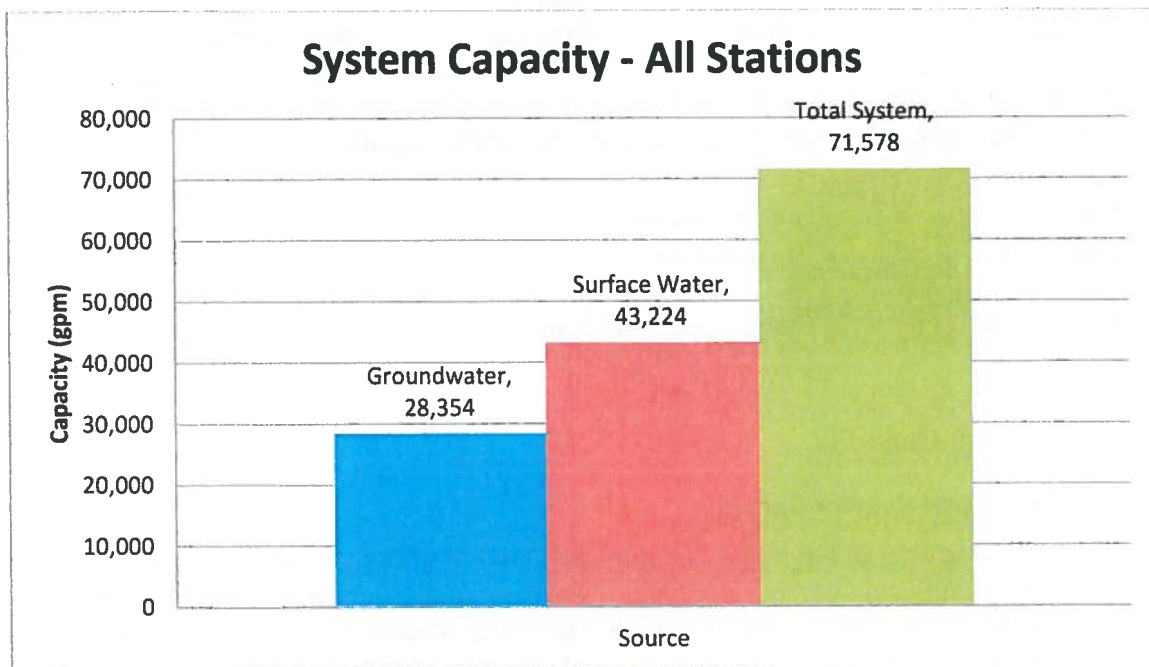


Figure 6. Bar chart of total system capacity.

5.4.2. System Capacity by Subarea

System capacity can also be summarized by subarea to provide insight as to how supply varies throughout the PI system. Figure 7 is a map of the Nampa PI system with groundwater and surface water capacities displayed by subarea. This map shows that:

- Groundwater is the dominant source of supply in the Main-North, Main-Central, and Main-East subareas.
- Surface water is the primary source in the North, Main-Northwest, Main-Southwest, Main-South, and Generally Valved Off East subareas.
- In the Generally Valved Off West and Permanently Valved Off subareas, surface water sources have greater capacity than groundwater, although the difference is not as significant as in the other subareas where surface water sources dominate.

The subarea with the highest capacity is the Main-Southwest, at 11,606 gpm, followed by Main-Central at 7,956 gpm. The Permanently Valved Off and Generally Valved Off subareas have the lowest capacities at 3,813 and 3,079 gpm, respectively. Subarea capacities are summarized in Table 11.

Table 11. System capacity summarized by subarea.

Subarea	Total Capacity (gpm)¹
Main-Southwest	11,606
Main-Central	7,956
Generally Valved Off East	6,896
Main-South	6,829
Main-Northwest	6,485
Main-East	6,349
Main-North	5,087
North	5,001
Permanently Valved Off	3,813
Generally Valved Off West	3,079

1 - Includes capacity of stations that are not in service

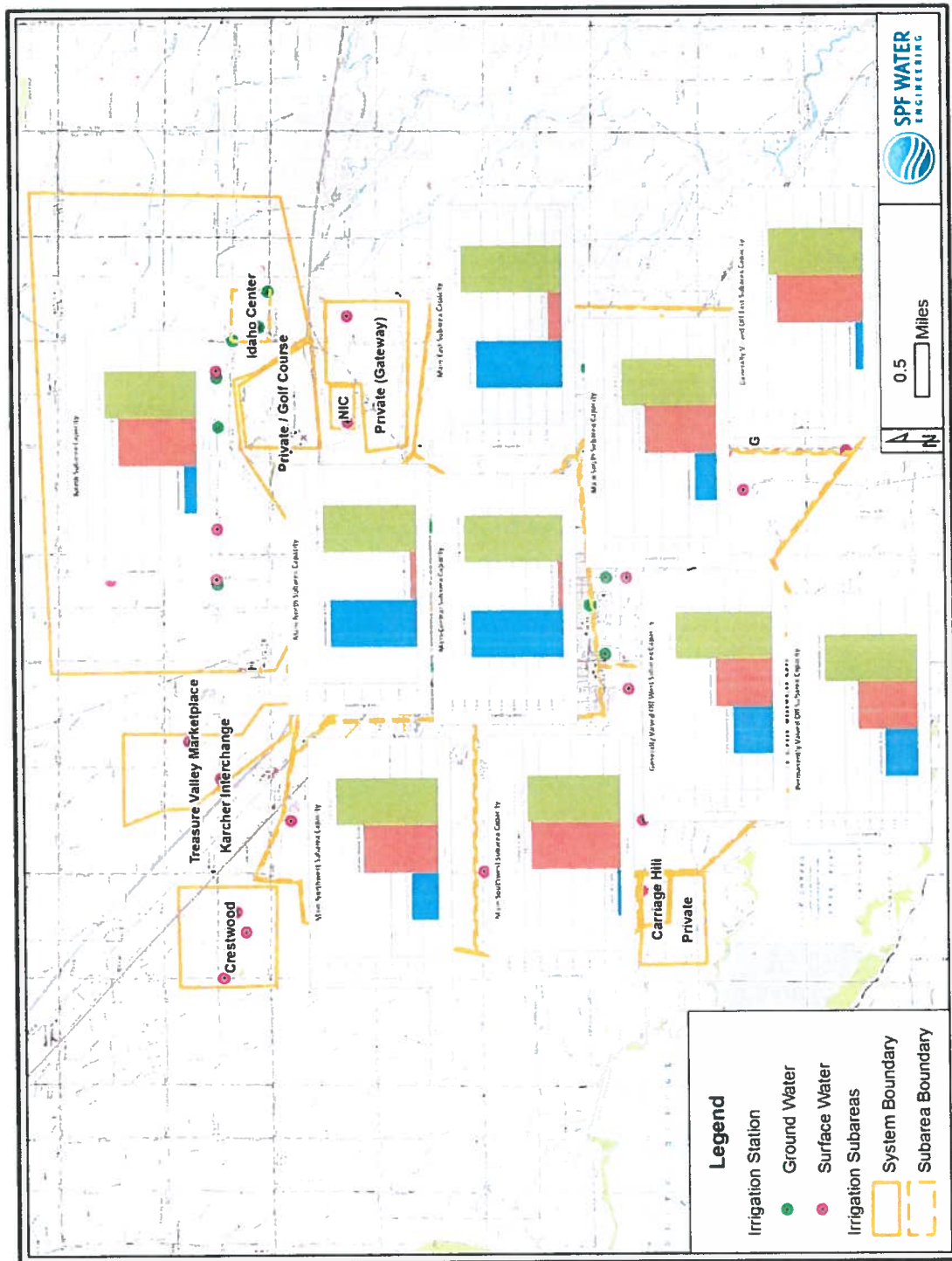


Figure 7. Groundwater and surface water capacities by subarea.

5.4.3. Existing Total System Capacity

The capacity of the entire Nampa PI system (including isolated systems) can also be defined as "existing", taking into account only those stations that are in service (i.e. have electrical service). These are the stations that are currently capable of operation without the need to provide a new electrical service.

Furthermore, the capacity of those 11 stations⁷ that have not been identified as being points of diversion for any of the City's existing groundwater rights can be identified separately. This can provide useful information for the City on the extent to which their system capacity is provided by stations that need to be added as points of diversion to the City's water rights.

Total system capacity using only those stations that are in service is summarized in the bar chart in Figure 8. This bar chart further describes capacity for surface water stations in the NMID and Pioneer (excluding BKID), groundwater stations with water rights, and groundwater stations that have not been identified as being points of diversion for any of the City's existing groundwater rights. The Pioneer capacity includes Brandts. Surface water stations in the BKID were not included because Boise-Kuna assesses on a volume basis (acre-feet), not by instantaneous diversion rate.

Some general observations regarding existing total system capacity are noted below:

- The total system capacity for in-service surface water stations and groundwater stations with water rights is 63,191 gpm. Adding groundwater stations without water rights (3,733 gpm) and Boise-Kuna stations (2,205 gpm), the total in-service system capacity is 69,128 gpm.
- The largest contributor to existing total system capacity are stations pumping groundwater (27,754 gpm). Of this total, most is derived from stations with water rights (24,021 gpm). Stations without water rights account for a total capacity of 3,733 gpm.
- Stations pumping NMID water provide the majority of the surface water supply (26,771 gpm), followed by stations pumping Pioneer water (12,399 gpm). Pumping capacity for stations diverting Boise-Kuna is 2,205 gpm.

⁷ Birch, Canterbury, Greens, Kensington I, Port Meadows, Sugar Manor, Kings Road, Shobert, South Valley, Idaho Center I, and Idaho Center II

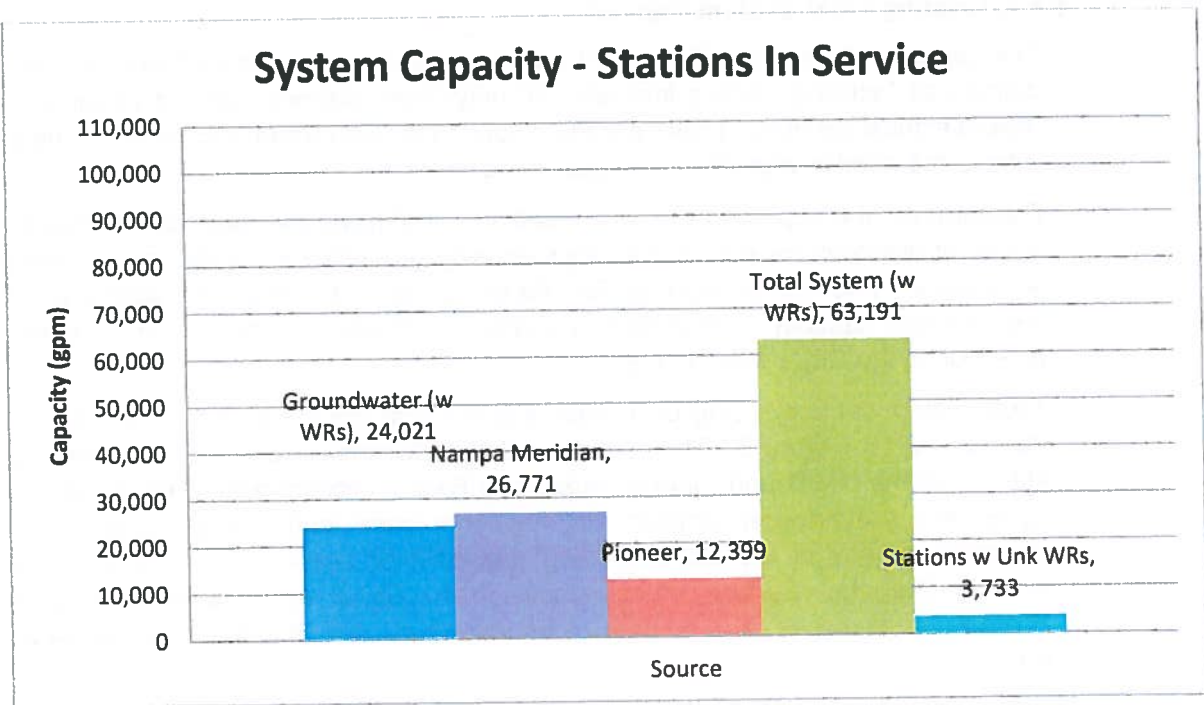


Figure 8. Bar chart of system capacity using stations in service.

6. SYSTEM PUMPING AND ALLOCATIONS

6.1. Station Capacity versus Instantaneous Allocation

For the purposes of this study, allocation is defined as the instantaneous diversion rate or annual volume authorized for a station by either a City-owned water right or irrigation district assessment. Irrigation district assessments are included in Appendix B. The City owns several groundwater rights and one surface water right for the Elijah Drain. The point of diversion for the surface water right is Sunny Lane, a station which is currently not in service.

Table 12 includes a summary of station capacities, allocations, and also a comparison between the station capacity and allocation expressed as a percentage, found in the "Percent Of Allocation" column in Table 12. In this column, percentages greater than 100 indicate that the station capacity exceeds the allocation by that amount, whereas percentages less than 100 indicate that capacity is less than the allocation by that amount. Important notes regarding the information contained in Table 12 are listed below:

- The City owns two water rights for irrigation use with multiple points of diversion: 63-2787 (15 wells) and 63-10211 (8 wells). For these water rights, the authorized total instantaneous diversion rate applies to all wells listed as points of diversion, and the total pumping capacity of these wells cannot exceed this rate. For 63-2787, the authorized diversion rate is 30 cfs (13,500 gpm), and for 63-10211 the authorized diversion rate is 8.69 cfs (3,911 gpm). To compare capacity and allocation for these rights, the total pumping capacity of all wells listed as points of diversion for each of these rights was compared to the total authorized instantaneous diversion rate for that right.
- Stations with unknown water rights were identified with zeros in the allocation column and "unknown" in the "Percent Of Allocation" column.
- Stations that are not in service were given capacities of zero.
- Most of the surface water stations in the NMID were assigned allocations directly from information provided by NMID (Sugar St and Gateway are exceptions, for these the number of inches that the operator orders from NMID was used for the allocation).
- Pioneer did not provide station-specific allocation information on the 2012 assessment. Rather, Pioneer's assessment is based on acres, and in 2012 Nampa was assessed for a total of 2,784 acres. Given the lack of specific information, it was not possible to determine station-specific allocations from the Pioneer assessment. Instead, the number of inches that the operator ordered was used for the Pioneer allocation (converted to gpm).
- Allocations by the BKID are on a volume basis, not instantaneous diversion rate. Station-specific instantaneous allocations cannot be determined from the

2012 assessment, therefore it is not possible to compare station production rate with volume allocations. Although BKID does not assess Nampa based on instantaneous diversion, it was possible to compare station capacity with operator orders.

Table 12. Summary of irrigation station capacities and allocations

Irrigation District/Water Right No.	Station	Station Capacity (gpm)	Peak Instantaneous Allocation (gpm)	Percent Of Allocation ²	Subarea	Source of Allocation ¹
63-2449	Mayor's	400	360	111	Main-North	Note 7
63-2450	Near Mayor's	0	450	0	Main-North	Note 7
63-2484	6th St S	500	729	69	Main-Central	Note 7
63-2780	Lakeview Park	500	1,125	44	Main-North	Note 7
63-2787	19th Ave S	7,550	13,500	56	Main-Central	Note 6
	Meyer				Main-Central	
	Fern				Main-Central	
	Holly				Main-Central	
	Maple				Main-Central	
	Kurtz Park				Main-Central	
	Hudson				Main-Central	
	High				Main-Central	
	4th St S				Main-Central	
	14th Ave S				Main-Central	
	Cemetery				Main-North	
	5th & Phyllis				Main-North	
	14th Ave N				Main-North	
	Indian Creek				Main-North	
	Chestnut I				Main-South	
63-2943	Canyon	800	783	102	Main-Central	Note 7
63-5257	13th Ave N	250	135	185	Main-North	Note 7
63-7003	Birdseye	1,384	3,456	40	Main-North	Note 7
63-7708	State St	350	180	194	Main-Central	Note 7
63-7954	Sunny Lane	0	801	0	Main-Northwest	Note 7
63-8312	Morgan	300	225	133	Main-Northwest	Note 7
63-9853	Grange Park	450	450	100	Main-Northwest	Note 7
63-9889	Colorado	750	675	111	Main-South	Note 7

Irrigation District/Water Right No.	Station	Station Capacity (gpm)	Peak Instantaneous Allocation (gpm)	Percent Of Allocation ²	Subarea	Source of Allocation ¹
63-10211	Young Ave	2,591	3,911	66	Main-Central	Note 6
	Venice				Main-North	
	Juniper Square				Main-South	
	Boone Ave				Main-Northwest	
	Winther Ave				Main-Northwest	
	Sweetwood Circle				Main-Northwest	
	Meadowbrook II				Gen Valved Off West	
	Meadowbrook I				Gen Valved Off West	
63-11511	Karcher II	0	675	0	Main-Northwest	Note 7
63-11894	Augusta	450	230	196	Main-Southwest	Note 7
63-12322	Pheasant Hollow	600	378	159	Gen Valved Off East	Note 7
63-31504	Amity	1,097	1,679	65	Main-East	Note 7
63-31598	Karcher Interchange	275	90	306	isolated system	Note 7
63-31949	Vista Ridge	1,363	1,530	89	Perm Valved Off	Note 7
63-31961, 63-32179	Farm & City	2,000	765	261	isolated system	Note 7
63-32337	Happy Valley	2,411	2,250	107	Main-East	Note 7
Boise-Kuna	Raintree	1,365	987	138	Perm Valved Off	Note 5
Boise-Kuna	Bayhill			unknown	Perm Valved Off	Note 9
Boise-Kuna	Carriage Hill	840	449	187	isolated system	Note 5
Nampa & Meridian	Pleasant	0	310	0	Main-Central	Note 1
Nampa & Meridian	Sugar St	368	449	82	Main-North	Note 3
Nampa & Meridian	Skyview	698	801	87	Main-South	Note 1
Nampa & Meridian	Islands	1,342	1,503	89	Main-South	Note 1
Nampa & Meridian	Maplewood	800	1,010	79	Main-South	Note 1
Nampa & Meridian	Wildflower	800	1,800	44	Main-South	Note 1
Nampa & Meridian	Chestnut II	1,538	1,374	112	Main-South	Note 2
Nampa & Meridian	Parkridge	891	763	117	Main-East	Note 1
Nampa & Meridian	Georgia	1,762	1,800	98	Main-Southwest	Note 1

Irrigation District/Water Right No.	Station	Station Capacity (gpm)	Peak Instantaneous Allocation (gpm)	Percent Of Allocation²	Subarea	Source of Allocation¹
Nampa & Meridian	Midland Park	1,893	2,007	94	Main-Southwest	Note 1
Nampa & Meridian	Victory	0	1,208	0	Main-Southwest	Note 1
Nampa & Meridian	Creekside	2,354	2,999	78	Main-Southwest	Note 1
Nampa & Meridian	Copper River	2,457	2,998	82	Main-Southwest	Note 1
Nampa & Meridian	Lone Star	1,841	2,998	61	Main-Southwest	Note 1
Nampa & Meridian	Westbrook	0	506	0	Main-Southwest	Note 1
Nampa & Meridian	Heron	1,085	2,998	36	Perm Valved Off	Note 1
Nampa & Meridian	Lava Springs	2,356	3,142	75	Gen Valved Off East	Note 1
Nampa & Meridian	Royal Meadows	1500	2,397	63	Gen Valved Off East	Note 1
Nampa & Meridian	Oakhurst	2,440	1,993	122	Gen Valved Off East	Note 1
Nampa & Meridian	South Canyon	484	754	64	Gen Valved Off West	Note 1
Nampa & Meridian	Sunnyridge	1,312	1,499	88	Gen Valved Off West	Note 1
Nampa & Meridian	Gateway	750	449	167	isolated system	Note 3
Nampa & Meridian	NIC	100	503	20	isolated system	Note 1
Pioneer	Colter Bay	991	898	110	North	Note 4
Pioneer	Sunset Oaks	1000	898	111	North	Note 4
Pioneer	Kensington II	2,110	2,962	71	North	Note 4
Pioneer	Orchard Heights	1,657	1,436	115	Main-Northwest	Note 4
Pioneer	Eaglecrest	450	673	67	Main-Northwest	Note 4
Pioneer	Horton	2,078	1,616	129	Main-Northwest	Note 4
Pioneer	Costco	1,500	898	167	isolated system	Note 4
Pioneer	Karcher Interchange	213	180	119	isolated system	Note 4
Pioneer	Moss Point	500	449	111	isolated system	Note 4
Pioneer	Crestwood	1,200	673	178	isolated system	Note 4
Pioneer	Asbury Park	500	449	111	isolated system	Note 4
Pioneer	Brandt's	200	0	unknown	North	Note 8

Irrigation District/Water Right No.	Station	Station Capacity (gpm)	Peak Instantaneous Allocation (gpm)	Percent Of Allocation²	Subarea	Source of Allocation¹
Unknown GW Right	Birch	300	0	unknown	North	Note 8
	Canterbury	300	0		North	Note 8
	Greens	100	0		North	Note 8
	Kensington I		0		North	Note 8
	Port Meadows	0	0		Main-South	Note 8
	Sugar Manor	450	0		Main-East	Note 8
	Kings Road	1500	0		Main-East	Note 8
	Shobert		0		Perm Valved Off	Note 8
					Gen Valved Off	
	South Valley	483	0		West	Note 8
	Idaho Center II	300	0		isolated system	Note 8
	Idaho Center I	300	0		isolated system	Note 8

1 - Source of allocation notes:

Note 1. allocation derived from Nampa Meridian 2012 assessment, confirmed by operators

Note 2. allocation derived from Nampa Meridian 2012 assessment, operator states that Kurtz 11 is for Chestnut II

Note 3. station in NMID, could not be referenced to 2012 assessment, allocation based on operator order from NMID

Note 4. station in Pioneer, 2012 assessment does not provide station-specific info, allocation based on operator order

Note 5. station in Boise Kuna which assesses on a volume basis, 2012 assessment does not provide station-specific information, allocation based on operator order (assessment not based on instantaneous diversion)

Note 6. Allocation based on total allowable diversion rate authorized by water right with multiple points of diversion

Note 7. allocation based on water right maximum diversion rate

Note 8. the station's water right status is not known

Note 9. station located in Boise-Kuna, station only used for local pond circulation, operator does not order water

2 - Values highlighted in red are those stations with capacities exceeding allocations/orders,

Values highlighted in green are stations out of service with allocations

Several important observations can be made from the information contained in Table 12, including:

- 26 of the 79 stations with known allocations and capacities have capacities that exceed their allocations or orders
 - The capacities exceed allocations by percentages ranging from 102 to 306%
 - 15 of the 26 stations are surface water
 - 11 of the 26 stations are groundwater

- 47 of the 79 stations with known allocations and capacities have capacities that are less than their allocations or orders
 - Stations that are grouped under a single water right were all considered to have capacities less than the total allocation right if the sum of all the station capacities was less than the total right.
 - 18 of the 47 stations are surface water
 - 29 of the 47 stations are groundwater
- 6 of the 79 stations are not in service (capacities that are zero), therefore less than their allocations or orders
 - The total of 6 does not include one station not in service that is grouped under water right 63-2787 (14th Ave N)
 - The total of 6 does not include 1 station not in service that is grouped under water right 63-10211 (Young Ave)
 - 4 of the 6 stations are surface water
 - 2 of the 6 stations are groundwater

The information contained in Table 12 is displayed on a system map in Figure 9. In this figure, the size of the symbol is directly related to the degree that the capacity differs from the allocation. Smaller symbols represent those stations where capacity is less than the allocation and larger symbols represent those stations where capacity exceeds the allocation. Those stations marked by an asterisk were out of service in 2012 (no capacity), and the percent of allocation is zero. The number displayed near each station is the actual difference between the capacity and allocation. Negative values indicate that the capacity exceeds the allocation by that amount.

In Figure 9, the wells listed as multiple points of diversion under water rights 63-2787 (15 wells) and 63-10211 (8 wells) are shown as stations with grouped water rights. Each of these stations is assigned a percent allocation equal to the sum of all the station capacities for that right divided by the total allowable diversion under that right. The wells listed under right 63-2787 as a group have the capacity to pump 56% of the total water right. The wells listed under 63-10211 as a group have the capacity to pump 66% of the total water right.

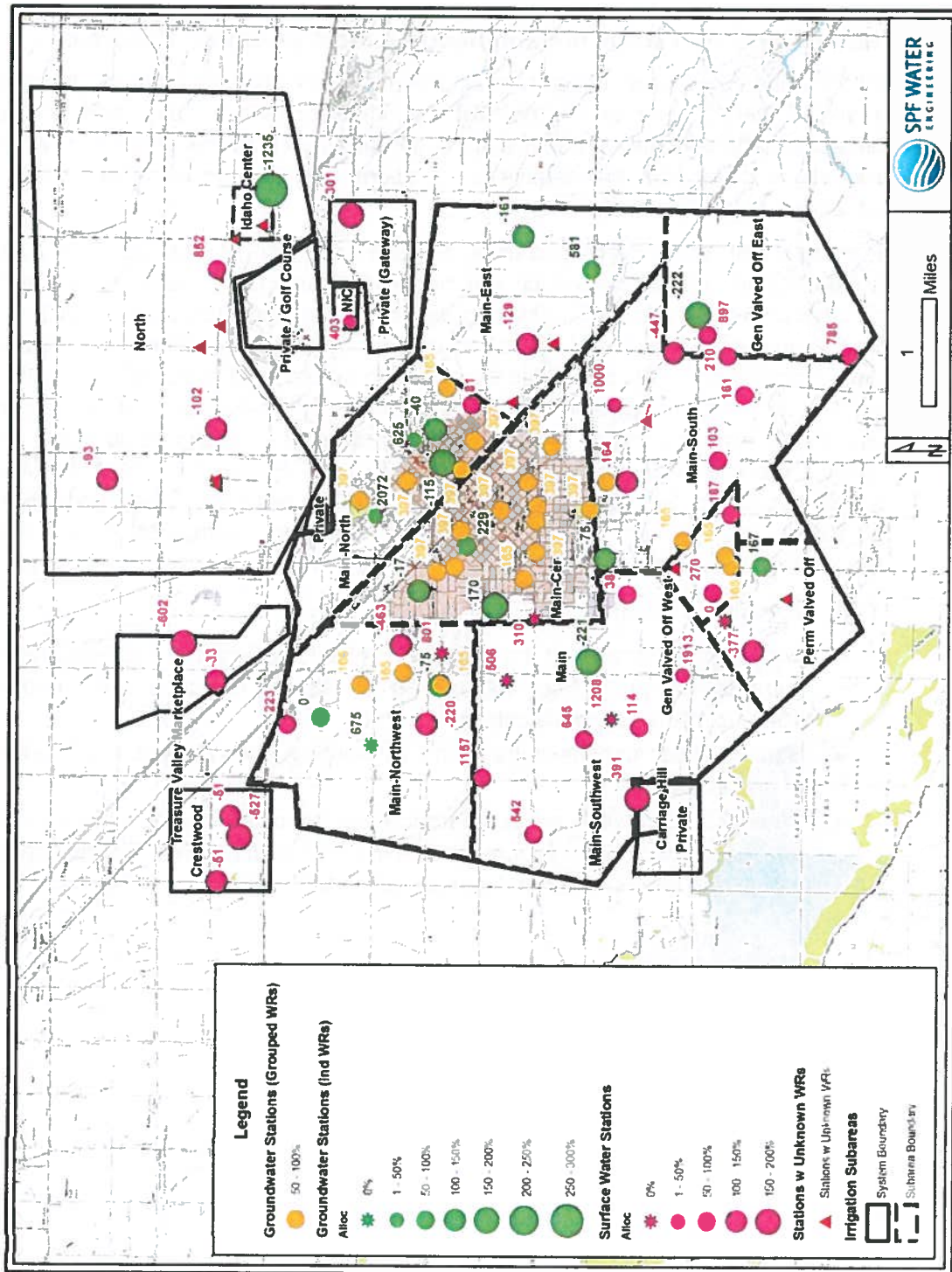


Figure 9. Map showing stations and percent capacity of allocation.

6.2. Station Capacity versus Instantaneous Allocation within Subareas

A comparison between capacity and allocation can also be made at the subarea scale. Table 13 summarizes the total groundwater, surface water, and total overall capacities and allocations within each subarea, as well as the percent by which the allocations differ from the capacities. Stations that are not in service were given capacities of zero.

For those wells that are grouped under a single water right, it was necessary to assign a capacity and allocation to each well because those wells occur in several different subareas. These grouped wells can essentially be considered as a single source when comparing capacity to allocation allowed by that right. Therefore capacity for each grouped well was calculated by summing up the total capacity of all wells for a given water right and dividing by the number of wells to calculate an average capacity associated with that right. An average allocation was assigned to each well by dividing the total allocation by the number of wells. For right 63-2787, the average station capacity is 503 gpm, compared to an average allocation of 900 gpm. For right 63-10211, the average station capacity is 324 gpm, compared to an average allocation of 489 gpm.

Table 13 demonstrates that:

- Groundwater stations in the Generally Valved Off East and Main-Southwest subareas have capacities that exceed allocations. The capacities range from 159% to 196% of the allocations.
- Surface water stations in the Main-East subarea have capacities that are 117% of the allocation.
- When total capacities are compared to total allocations in each subarea, the total capacity of every subarea is less than the total allocation for that subarea (combined groundwater and surface water allocations).

Table 13. Summary of subarea capacities and allocations

Subarea	Source of Supply	Total Capacity (gpm)	Total Instantaneous Allocation (gpm)	Percent of Allocation
Gen Valved Off East	Groundwater	600	378	159
	Surface Water	6,296	7,531	84
	Total	6,896	7,909	87
Gen Valved Off West	Groundwater	648	978	66
	Surface Water	1,796	2,253	80
	Total	2,444	3,231	76
Main-Central	Groundwater	7,004	11,181	63
	Surface Water	0	310	0
	Total	7,004	11,490	61
Main-East	Groundwater	3,508	3,929	89
	Surface Water	891	763	117
	Total	4,399	4,691	94
Main-North	Groundwater	4,870	9,615	51
	Surface Water	368	449	82
	Total	5,238	10,064	52
Main-Northwest	Groundwater	1,722	2,816	61
	Surface Water	4,185	4,526	92
	Total	5,907	7,343	80
Main-South	Groundwater	1,577	2,064	76
	Surface Water	5,179	6,488	80
	Total	6,756	8,552	79
Main-Southwest	Groundwater	450	230	196
	Surface Water	10,306	14,517	71
	Total	10,756	14,746	73
North	Groundwater	---	---	---
	Surface Water	4,301	4,758	90
	Total	4,301	4,758	90
Perm Valved Off	Groundwater	1,363	1,530	89
	Surface Water	2,450	3,986	61
	Total	3,813	5,516	69

6.3. Station Capacity versus Instantaneous Allocation by Water Right

A comparison between capacity and allocation can also be made based on water right and irrigation district assessments. The total capacity of all stations under a given water right or within a given irrigation district can be compared with the total allocation of that water right or irrigation district assessment. This comparison applies to the entire Nampa PI system.

Table 14 summarizes groundwater capacities and allocations by individual water right and total groundwater right capacity and allocation. General observations are included below:

- The total capacity of groundwater stations with water rights is 24,021 gpm, compared to a total maximum allowable diversion rate (peak instantaneous allocation) of 33,575 gpm. If stations without water rights are included, the total groundwater capacity is 28,354 gpm, of which 27,754 gpm of capacity is currently in service.
- The City has authorized points of diversion to pump 72% of the groundwater that the City has the right to pump.
- Accounting for groundwater stations without water rights, the City is pumping 83% of the total maximum allowable diversion rate.
- While total capacity of groundwater stations is less than the sum of all the water rights, station capacities exceed allocations for 11 of the City's 21 water rights.
- The stations⁸ associated with two of the City's water rights (63-2450 and 63-11511) are currently not in service and therefore these rights are not currently being used.
- The City appears to have "excess" groundwater rights such that those water rights may be modified so that stations that currently have capacities that exceed allocations can have their allocations increased.

Table 14 also summarizes surface water pump capacities and irrigation district allocations by district. For NMID, the total allocation was calculated directly from the 2012 assessment by adding Ridenbaugh miner's inches and Project miner's inches and converting to flow rate (gpm). For Pioneer, the assessment is based on a total

⁸ Karcher II and Near Mayor's

number of acres, so the allocation was calculated by totaling the number of assessed acres, which equals the number of miner's inches⁹, and converting to flow rate (gpm).

General observations for NMID and Pioneer are included below:

- For the NMID, in-service surface water capacity is 26,771 gpm, while 41,241 gpm were assessed in 2012. In other words, the City only has the pumping capacity to pump 65% of the NMID assessment.
- For Pioneer, in-service surface water capacity is 12,399 gpm¹⁰. The City was assessed for a total of 2,784 acres by Pioneer (Pioneer assesses by the acre). Using a value of one inch (0.02 cfs) per acre, the City is being assessed for 24,989 gpm. Therefore, only 50% of the water that the City is being assessed for by Pioneer can be pumped.
- There are four stations¹¹ that pump NMID water that have capacities that exceed the allocation amounts listed on the 2012 assessment.
- There are three stations¹² that are not in service and are listed on the NMID assessment for 2012.
- There are ten¹³ stations that pump Pioneer water where it appears that the station capacity exceeds the water ordered (not necessarily the amount assessed but this cannot be determined from the information provided by Pioneer). This number includes Brandts where no water is currently ordered.
- There are two¹⁴ stations that pump BKID water where it appears that the station capacity exceeds the water ordered (not necessarily the amount assessed but this cannot be determined from the information provided by BKID).
- Nampa owns one surface water right (63-7954) from the Elijah Drain, but the station associated with this right, Sunny Lane, is not in service, therefore there is zero percent of this right being pumped.
- The total capacity of in-service surface water stations is 41,374 gpm, compared to a total maximum allowable diversion rate (peak instantaneous allocation) of 70,107 gpm.

⁹ Pioneer Irrigation District delivers its assessments at a rate of 1 miner's inch (0.02 cfs) per acre.

¹⁰ This capacity assumes Brandts is pumping Pioneer water

¹¹ Chestnut II, Parkridge, Oakhurst, and Gateway

¹² Pleasant, Victory, and Westbrook

¹³ Colter Bay, Sunset Oaks, Orchard Heights, Horton, Costco, Karcher Interchange, Moss Pointe, Crestwood, Asbury Park, and Brandts

¹⁴ Raintree and Carriage Hill

- The City only has the means to pump 59% of the surface water that the City has the right to pump based on irrigation district assessments and right 63-7954.
- While certain stations in the NMID have the pumping capacity to exceed the station assessment, there appears to be an overall excess of NMID water that could be “moved” to these stations.
- There are stations in Pioneer that have capacity that exceeds the amount of water being ordered. However, the City currently has pumping capacity for only half of the total assessment, so there looks to be an opportunity to increase order amounts or otherwise “move” water to those stations needing it.
- Looking at the overall PI system, the in-service capacity of stations with water rights (groundwater or irrigation district) is 69,128 gpm, while the total allocation is 103,682 gpm. Therefore system-wide only 67% of the groundwater or surface water that is allowed to be pumped by right or assessment can be pumped.

For BKID, water rights are based on an annual volume. For the City this allowable volume was 1,285 acre-feet in 2011, based on 342.74 acres assessed and the BKID minimum delivery rate of 3.75 acre-feet per acre. The assessment for 2012 was not available at the time of this report, so it is assumed that the number of acres assessed did not change between 2011 and 2012. The three¹⁵ surface water stations located in BKID pumped a total volume of 510 acre-feet in 2012, which is about 40% of the allocated volume. The stations located in BKID and their 2012 production in gallons and acre-feet are listed in Table 15.

The production listed for Carriage Hill in Table 15 is 10 times lower than the production reported by the City. However, the reported value does not appear to be correct. The reported value of 779,602,000 gallons equates to an average pumping rate of over 3,000 gpm throughout the 172-day period of operation. However, the station is equipped with 50-hp and 80-hp lineshaft turbine pumps, which should theoretically produce a combined 1,800 gpm at a discharge pressure of 70 psi. This suggests that the reported production is not accurate and the production in gallons is being recorded with an extra zero. If that is the case, then the actual production is 77,960,200 gallons (239 acre-feet), equal to an average pumping rate of just over 300 gpm during the irrigation season. The flow meter at Carriage Hill should be checked to verify that the totalizer readings being recorded are correct.

¹⁵ Only two have reported production: Raintree and Carriage Hill. There was no production reported for Bayhill.

Boone



Figure 9: Motor tag.



Figure 10: Pump tag.

Winther



Figure 11: 20-hp submersible pump and plumbing.

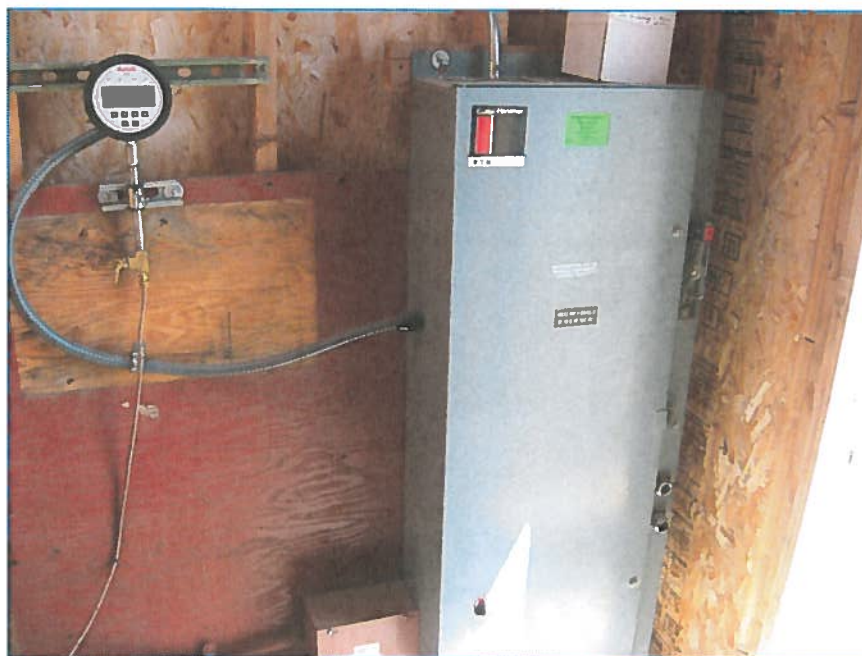


Figure 12: Control panel.

Sweetwood



Figure 13: 20-hp turbine pump and plumbing.



Figure 14: Flowmeter

Sweetwood



Figure 15: Control panel.

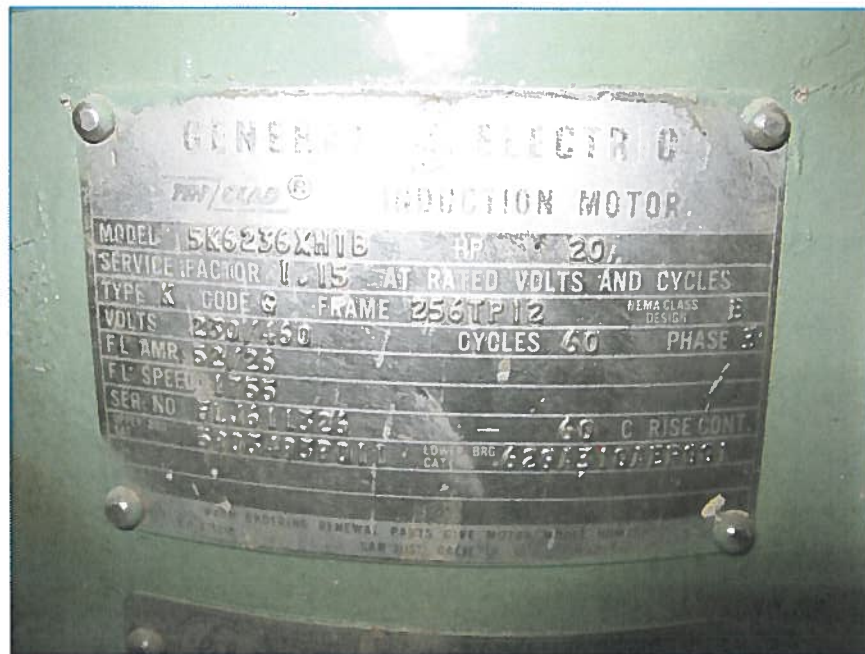


Figure 16: Motor tag.

Sweetwood



Figure 17: Pump tag.



Figure 18: Pump house.

Venice



Figure 19: 40-hp vertical pump and plumbing.



Figure 20: Plumbing and flowmeter.

Venice



Figure 21: Control panel.

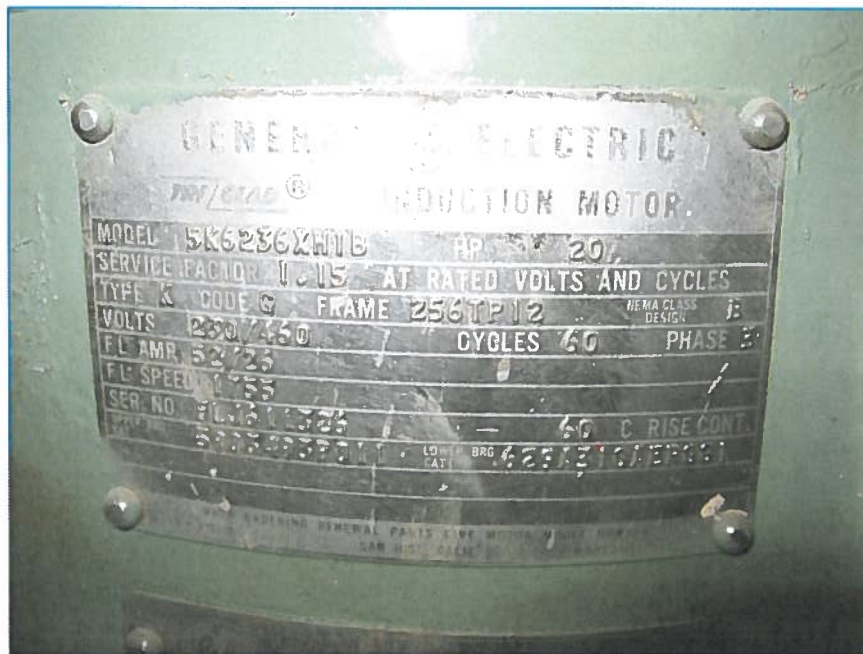


Figure 22: Motor tag.

Juniper



Figure 27: Control panel.



Figure 28: Motor tag.

Juniper



Figure 25: 25-hp submersible pump.



Figure 26: Plumbing and flowmeter.

Juniper



Figure 29: Pump house

Young



Figure 23: 20-hp submersible pump.



Figure 24: Plumbing and flowmeter.

ATTACHMENT E
OTHER WATER RIGHTS

Other water rights with the same place of use
(Non-potable only)

63-2449
63-2450
63-2484
63-2780
63-2787
63-2943
63-3257
63-5257
63-7003
63-7708
63-7954
63-8312
63-9853
63-9889
63-10319
63-11511
63-11894
63-12322
63-31504
63-31598
63-31949
63-31961
63-32179
63-32337

ATTACHMENT F
FLOW MEASUREMENT RECORDS

1. Measurement Equipment

Well No.	Well Name	Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calibration Date
1	Meadowbrook I	In-line flow meter	Propeller	McCrometer		05-07878	6-inch	unknown
2	Meadowbrook II	In-line flow meter	Propeller	McCrometer		06-3994	6-inch	unknown
3	Boone	In-line flow meter	Propeller	McCrometer		06-11778	4-inch	unknown
4	Winther	In-line flow meter	Propeller	Water Specialties		892081	4-inch	unknown
5	Sweetwood	In-line flow meter	Propeller	Rockwell		unknown	6-inch	unknown
6	Venice	In-line flow meter	Propeller	Water Specialties		920542	6-inch	unknown
7	Young	In-line flow meter	Propeller	Rockwell		24654	4-inch	unknown
8	Juniper	In-line flow meter	Propeller	McCrometer		06-11777	4-inch	unknown

2. Measurements

Well No.	Well Name	Begin Total (gallons)		End Total (gallons)	Time	GPM		
1	Meadowbrook I	18,814,000		18,817,400	9.71	350		
2	Meadowbrook II	shut off						
3	Boone	shut off						
4	Winther	shut off						
5	Sweetwood	827,471,300		827,472,800	9.34	161		
6	Venice	676,679,500		676,683,500	9.46	423		
7	Young	shut off						
8	Juniper	shut off						

ATTACHMENT G

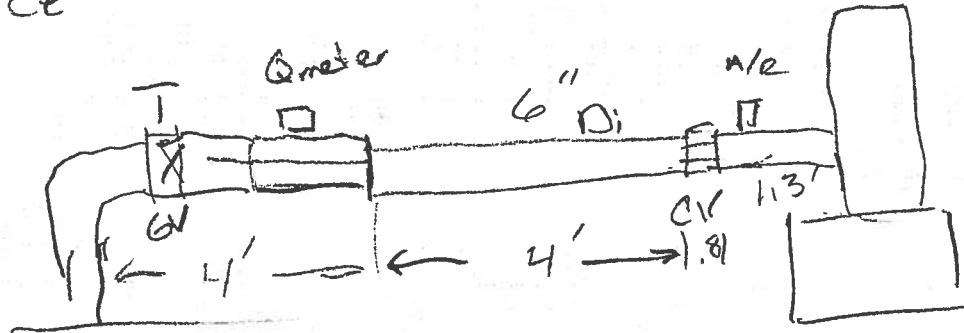
PUMPING SYSTEM DIAGRAMS



SPF WATER
ENGINEERING, LLC

By S. King Date 6/9/14 Client City of Nampa Sheet 1 of 4
Chkd By _____ Description 63-10211 BUE Job No 270.0200

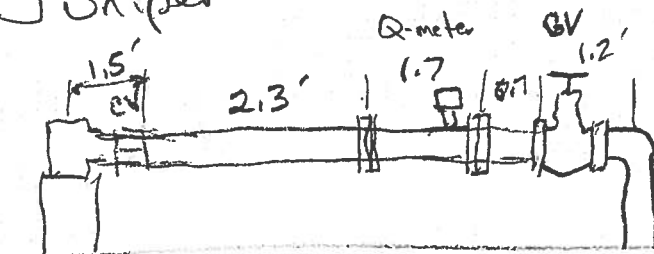
Yenice



No Drive
75 psi

Set - on @ 55
off @ 78

Juniper



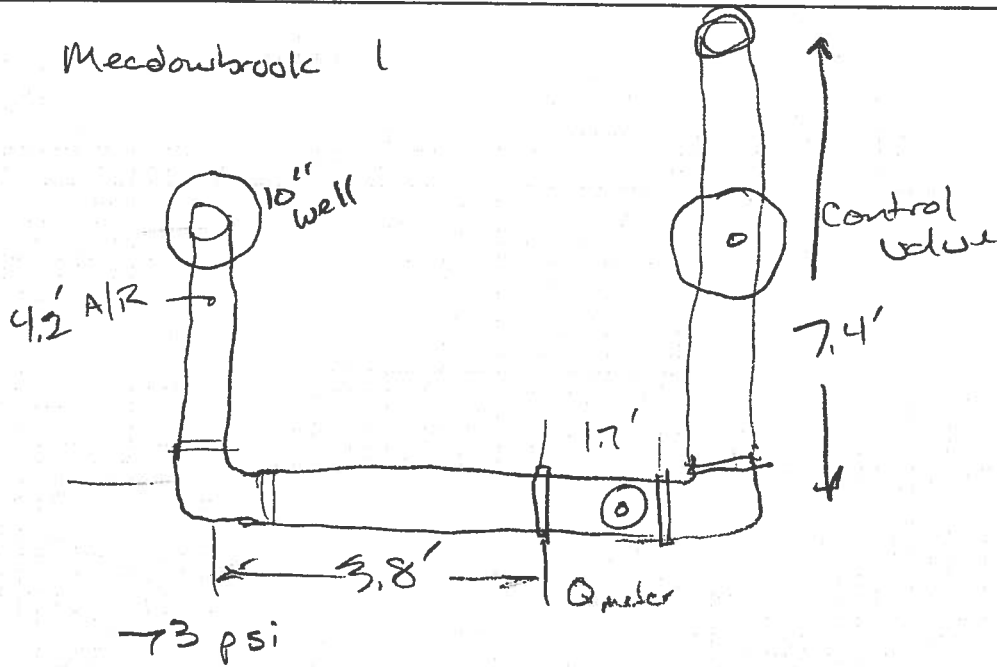
8" ϕ Well



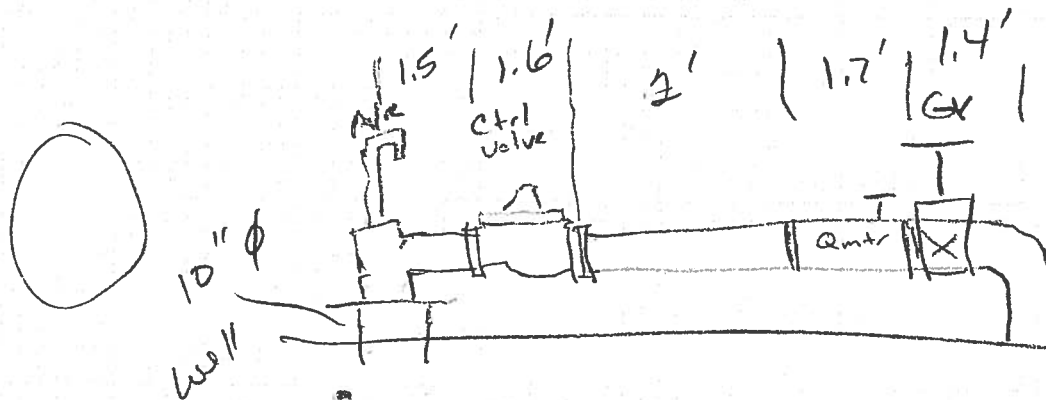
SPF WATER
ENGINEERING, LLC

By S.K. Date 6/9/14 Client City of Nampa Sheet 2 of 4
Chkd By _____ Description BUFE Job No 270.0300

Meadowbrook I



Meadowbrook II

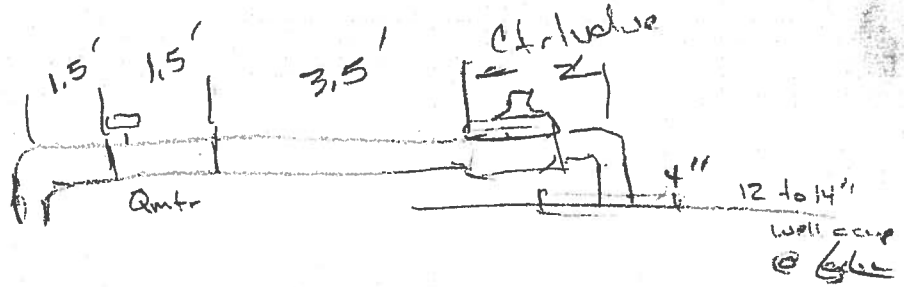




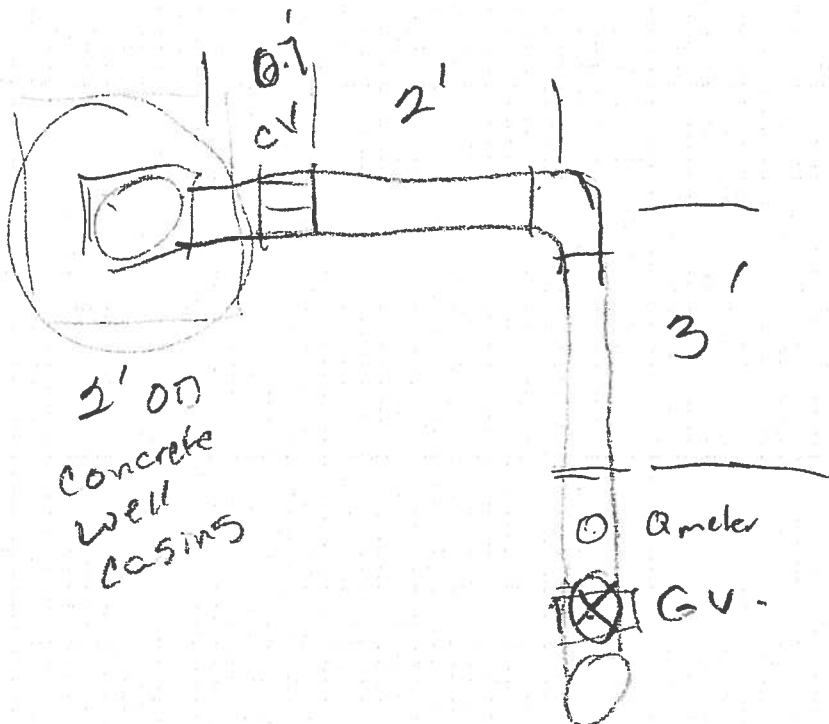
SPF WATER
ENGINEERING, LLC

By SIC Date 6/9/14 Client Nampa Sheet 3 of 4
Chkd By _____ Description 63-10211 Job No 270.0200

Young



Sweet wood

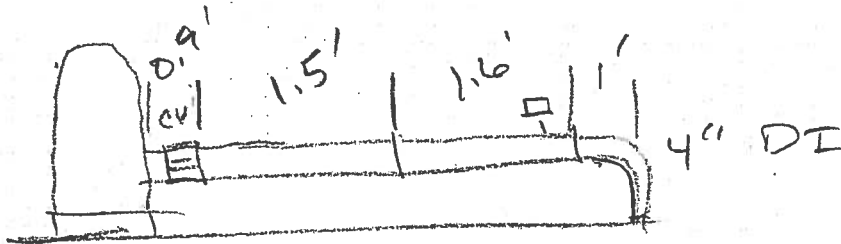




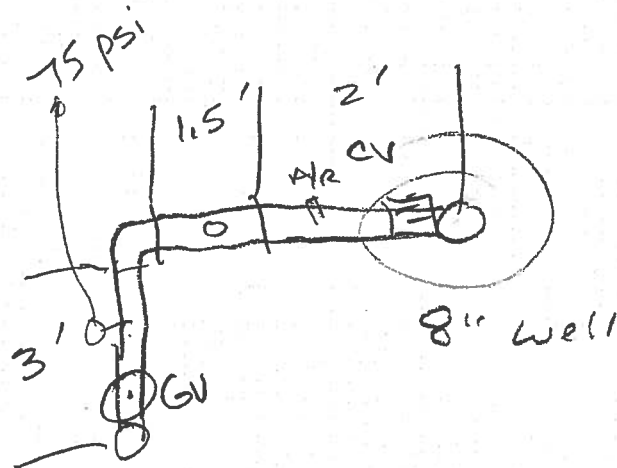
SPF WATER
ENGINEERING, LLC

By S King Date 6/9/14 Client Nape Sheet 4 of 41
Chkd By _____ Description 63-10211 Job No 270.0200

Boone



Wenther



ATTACHMENT H
PUMP CAPACITIES

Well No.	Well Name	Capacity (gpm)	Capacity (cfs)	Source of Capacity
1	Meadowbrook I	500	1.11	Note 1
2	Meadowbrook II	300	0.67	Note 1
3	Boone	400	0.89	Note 1
4	Winther	300	0.67	Note 1
5	Sweetwood	300	0.67	Note 1
6	Venice	591	1.32	Note 2
7	Young	250	0.56	Note 1
8	Juniper	200	0.45	Note 1
TOTAL		2,841	6.33	
Note 1. "Pressure Irrigation System Master Plan Update", J-U-B Engineers, October 2008				
Note 2. "Pressurized Irrigation System Evaluation", SPF Water Engineering, February 25, 2013				

Table 14. Summary of capacities and allocations by water right.

Irrigation District Name/Water Right No.	Capacity of All Stations for Source	Seasonal Allocation (ac-ft)	Percent Of Allocation	Peak Instantaneous Allocation (gpm)	Percent Of Allocation
63-10211	2,591			3,911	66
63-11511	0			675	0
63-11894	450			230	196
63-12322	600			378	159
63-2449	400			360	111
63-2450	0			450	0
63-2484	500			729	69
63-2780	500			1,125	44
63-2787	7,550			13,500	56
63-2943	800			783	102
63-31504	1,097			1,679	65
63-31598	275			90	306
63-31949	1,363			1,530	89
63-31961, 63-32179	2,000			765	261
63-32337	2,411			2,250	107
63-5257	250			135	185
63-7003	1,384			3,456	40
63-7708	350			180	194
63-8312	300			225	133
63-9853	450			450	100
63-9889	750			675	111
TOTAL GROUNDWATER	24,021			33,575	72
63-7954	0			801	0
Nampa & Meridian	26,771			41,241	65
Pioneer	12,399			24,989	50
TOTAL SURFACE WATER	39,170			67,031	58
TOTAL	63,191			100,606	63
Boise-Kuna*	510	1,285	40		

*capacity represented as a volume (ac-ft)

Table 15. Stations located in the Boise-Kuna irrigation district.

Station	2012 Production (gal)	2012 Production (ac-ft)
Raintree	88,181,000	271
Carriage Hill*	77,960,200	239
Bayhill	0	0
Total	166,141,200	510

*Reported value is 10 times higher, but is not believed to be correct

A bar chart displaying groundwater and surface water station capacities and allocations is provided in Figure 10. This bar chart displays graphically the information presented in Table 14. The capacities only include those stations that are in service and does not include surface water stations in the BKID. This bar chart graphically demonstrates that the City's pumping capacity for groundwater and surface water is consistently less than the rate allowed by right.

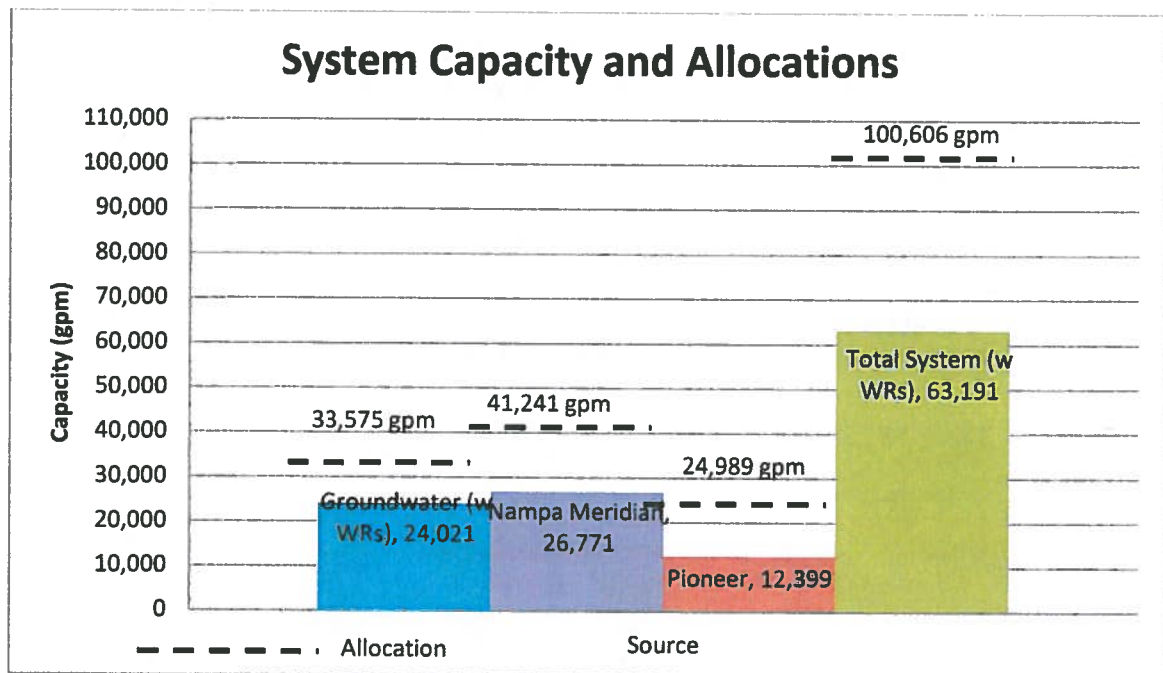


Figure 10. Bar chart of system capacity and allocations.

6.4. Station Production versus Volume Allocation

The City's use of irrigation district water can be examined on a volume basis rather than instantaneous diversion rate. This was done for stations pumping BKID water in Section 6.3, where it was concluded that the City was pumping 40% of the volume assessed by the BKID. This conclusion assumes that the volume of water produced by Carriage Hill is 10 times lower than the reported amount.

Pioneer assessed the City for a total of 2,784 acres in 2012. Assuming delivery of 0.02 cfs per acre and a continuous delivery between April 15 and October 15 (183 days), the total volume delivered to the City per the assessed acres is 20,209 acre-feet. According to the City production records for 2012, stations in Pioneer pumped a total of 3,434 acre-feet during the 2012 irrigation season. This total does not include production from the Karcher Interchange pump station, which does not have a flow meter, but does include production from Brandts. Using the reported values and assuming continuous delivery, the City pumped 17% of the total volume of water that the City was delivered based on the assessment. This information is summarized in Table 16.

The NMID assessed the City for a total of 41,241 gpm in 2012. Assuming continuous delivery between April 15 and October 15 (183 days), the total volume delivered to the City per the assessed flow rate is 33,352 acre-feet. According to the City production records for 2012, stations in the NMID pumped a total of 10,763 acre-feet during the

2012 irrigation season. Using these reported values and assuming continuous delivery, the City pumped 32% of the total volume of water that the City was delivered based on the assessment. This information is summarized in Table 16.

Note that the standard Pioneer delivery of 0.020 cfs/ac (1 miner's inch per acre) for the 183-day irrigation season is the theoretical maximum volume of diversion. This likely overestimates the actual delivery, however, as it results in 7.25 acre feet per acre. The NMID delivery for 183 days, assuming 0.0125 cfs/ac standard NMID delivery rate (5/8ths miner's inch per acre), results in 4.5 acre feet per acre which is a more typical annual diversion volume for southwest Idaho.

Table 16. Summary of surface water production and assessed volume.

Irrigation District	Acres Assessed	Flow Assessed (gpm)	# Irrigation Days	Volume Assessed (ac-ft)	2012 Station Production (ac-ft)	Percent of Allocation
Pioneer	2,784	24,989	183	20,209	3,434	17
Nampa & Meridian	---	41,241	183	33,352	10,763	32
Boise-Kuna	342.74	---	---	1,285	510	40

The City's groundwater stations pumped a total volume of 10,936 acre-feet during the 2012 irrigation season. Of this total, 9,952 acre-feet was pumped by stations with water rights and 984 acre-feet was pumped by stations not listed as points of diversion on any City water right. Groundwater stations supplying the main City PI system pumped 10,200 acre-feet compared to 737 acre-feet from station supplying isolated systems. Production data are summarized in Table 17.

Table 17. Summary of groundwater production.

Source	2012 Production (acre-feet)		
	Main System	Isolated Systems	Total
Groundwater	9,247	705	9,952
Groundwater (unknown rights)	952	32	984
Total	10,200	737	10,936

7. PUMPING TRENDS

7.1. Seasonal Pumping Trends

For the 19 irrigation stations where season-long data collection occurred, the total daily maximum flow, total daily average flow, and total daily minimum flow can be calculated throughout the irrigation season to identify pumping trends. Seasonal flows from the 19 stations are plotted in Figure 11. The plot begins on June 22 because that is the date when dataloggers at all 19 stations were installed and collecting data.

In 2012, the day with the highest total maximum flow was July 13 (27,930 gpm). If a seven-day running average is calculated, the week with the highest average total maximum flow occurred between July 9 and July 15, where the flow was 25,926 gpm. Figure 12 and Figure 13 show the total measured flow for these 19 irrigation stations for the week of July 9, 2012 through July 16, 2012 and the day of July 13, 2012, respectively, along with a

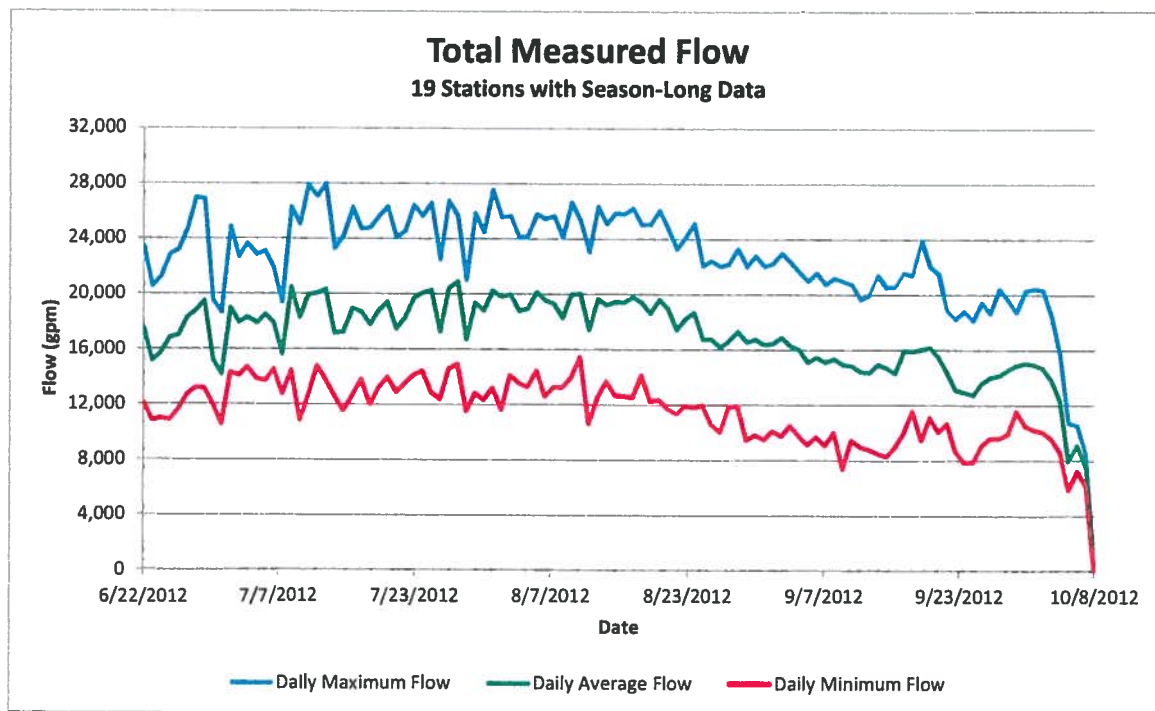


Figure 11. Total measured flow from stations with data collection for 2012 season.

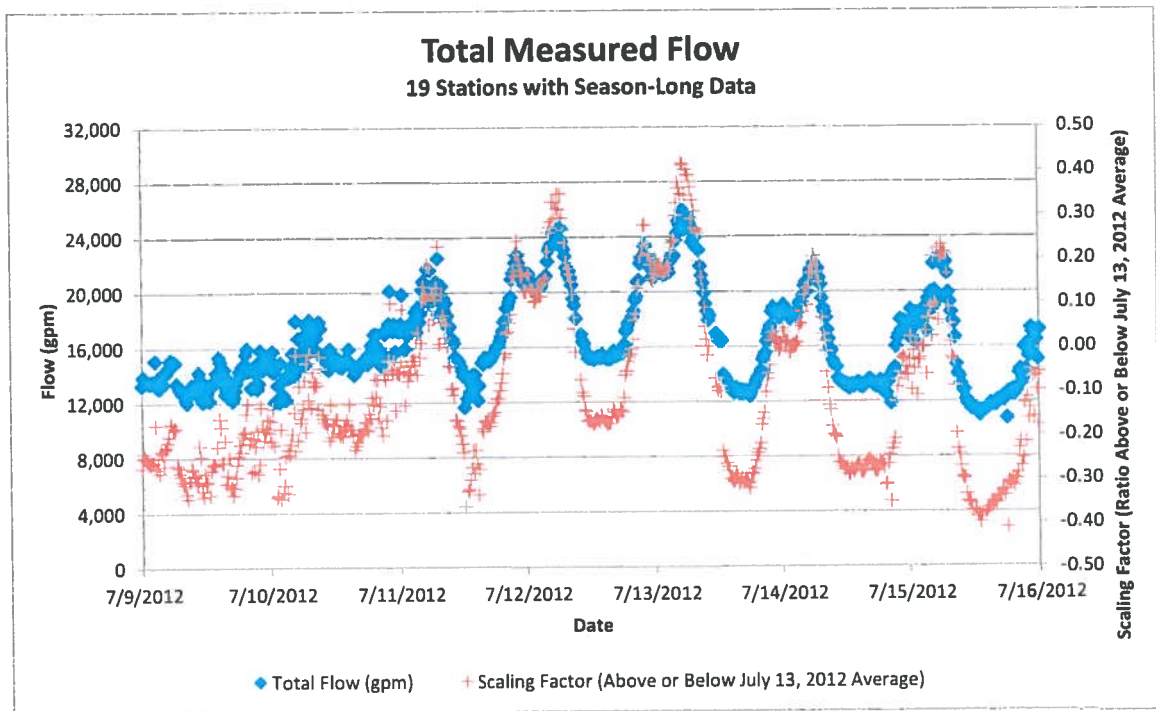


Figure 12. Total measured flow from stations with data collection for July 9, 2012 through July 16, 2012.

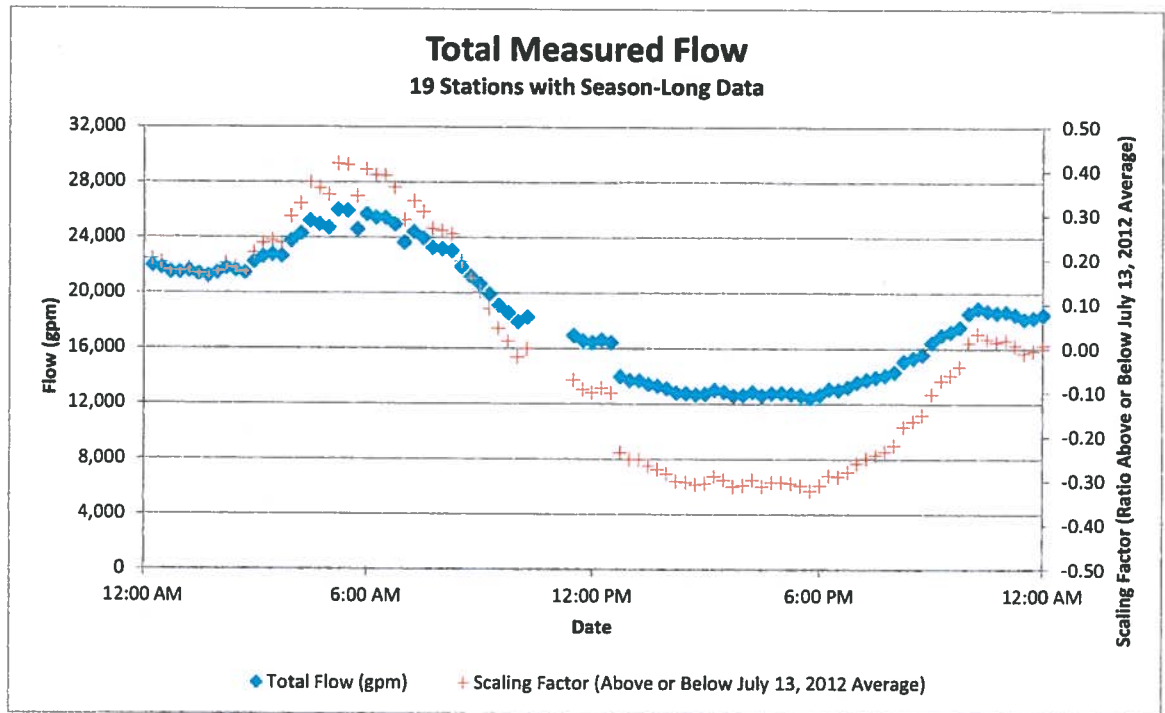


Figure 13. Total measured flow from stations with data collection for July 13, 2012.

7.2. Daily Pumping Trends

For the 19 irrigation stations where season-long data collection occurred, pumping rates can be examined over a shorter period of time to identify daily trends. For this study, the week with the highest average total maximum flow was selected as the time interval, as this is likely to provide the “worst-case” scenario for system operation. This week occurred between July 9 and July 15. Although this particular week was chosen for discussion here, any period of time could be selected given the extensive season-long data collected at these 19 stations.

The 19 irrigation stations where season-long data collection occurred includes 12 surface water stations and seven groundwater stations. For each of these stations, the flow data collected (at 15 minute intervals) was analyzed to produce daily maximum flows, daily average flows, and daily maximum to average peaking factors for the period of time between July 9 and July 15. The flow from each of these stations was plotted between July 9 and July 15 and these are included in Appendix C.

The average daily maximum flow, the average daily flow, and peaking factors (ratio of average daily maximum flow to average daily flow) for the 19 irrigation stations are summarized in Table 18. Observations from these data are noted below:

- The peaking factors for surface water stations varied between 1.03 and 2.48, with an average of 1.49.
- Raintree and Copper River both had peaking factors greater than 2, indicating high pumping variability throughout the day. Both of these stations are equipped with VFDs but are normally, or are often, operated in hand mode.
- If Raintree and Copper River are excluded, the average peaking factor for the surface water stations is 1.31.
- The surface water stations with the smallest peaking factors were Parkridge and Chestnut II, with values of 1.04 and 1.03, respectively. Both of these stations do not have automatic controls and therefore run continuously when on. The peaking factors suggest minimal variability in pumping rate throughout the day at these stations.
- The peaking factors for groundwater stations varied between 1.12 and 1.63, with an average of 1.34.
- The groundwater station with the largest peaking factor was South Valley, a station which operates based on system pressure. The station with the smallest peaking factor was 19th Ave S, a station which also operates based on system pressure.
- If Raintree and Copper River are excluded, the surface water and groundwater stations have very similar average peaking factors, 1.31 and 1.34, respectively.
- The surface water stations had an average daily maximum flow of nearly 1,700 gpm, compared to approximately 1,000 gpm from the groundwater stations.

Table 18. Flow data for 19 irrigation stations.

Station	Source	Average Daily Maximum Flow (gpm)	Average Daily Flow (gpm)	Peaking Factor
Raintree	surface water	1,381	621	2.32
Parkridge	surface water	891	860	1.04
Oakhurst	surface water	2,460	2,098	1.17
Midland Park	surface water	1,788	1,269	1.41
Islands	surface water	1,187	1,006	1.18
Horton	surface water	2,082	1,781	1.17
Colter Bay	surface water	999	546	1.83
Kensington II	surface water	2,116	1,432	1.48
Chestnut II	surface water	1,572	1,527	1.03
Copper River	surface water	2,013	832	2.48
Orchard Heights	surface water	1,514	1,084	1.57

Station	Source	Average Daily Maximum Flow (gpm)	Average Daily Flow (gpm)	Peaking Factor
Lava Springs	surface water	2,321	1,858	1.25
Birdseye	groundwater	1,420	1,218	1.17
Indian Creek	groundwater	363	315	1.16
Maple	groundwater	632	453	1.41
19th Ave S	groundwater	744	662	1.12
Happy Valley	groundwater	2,146	1,392	1.54
South Valley	groundwater	467	288	1.63
Vista Ridge	groundwater	1,154	868	1.33

8. SNAPSHOT OF SYSTEM OPERATION

The data collected during the 2012 irrigation season allows for flow and pressure to be examined throughout the system at a particular point in time. This provides a "snapshot" of available information and provides valuable insight into system operation and data for system modeling calibration. In addition to the 19 stations where season-long data were collected, additional pressure loggers were placed at 5 stations that were known to be off for the season starting around September 18 and ending when the system was shut down around October 7. These additional loggers were used to measure system pressure, not station discharge pressure. An example of the type of system examination is included in Figure 14. This figure displays flow and pressure at 23 stations as recorded on September 20, at 4:00 am.

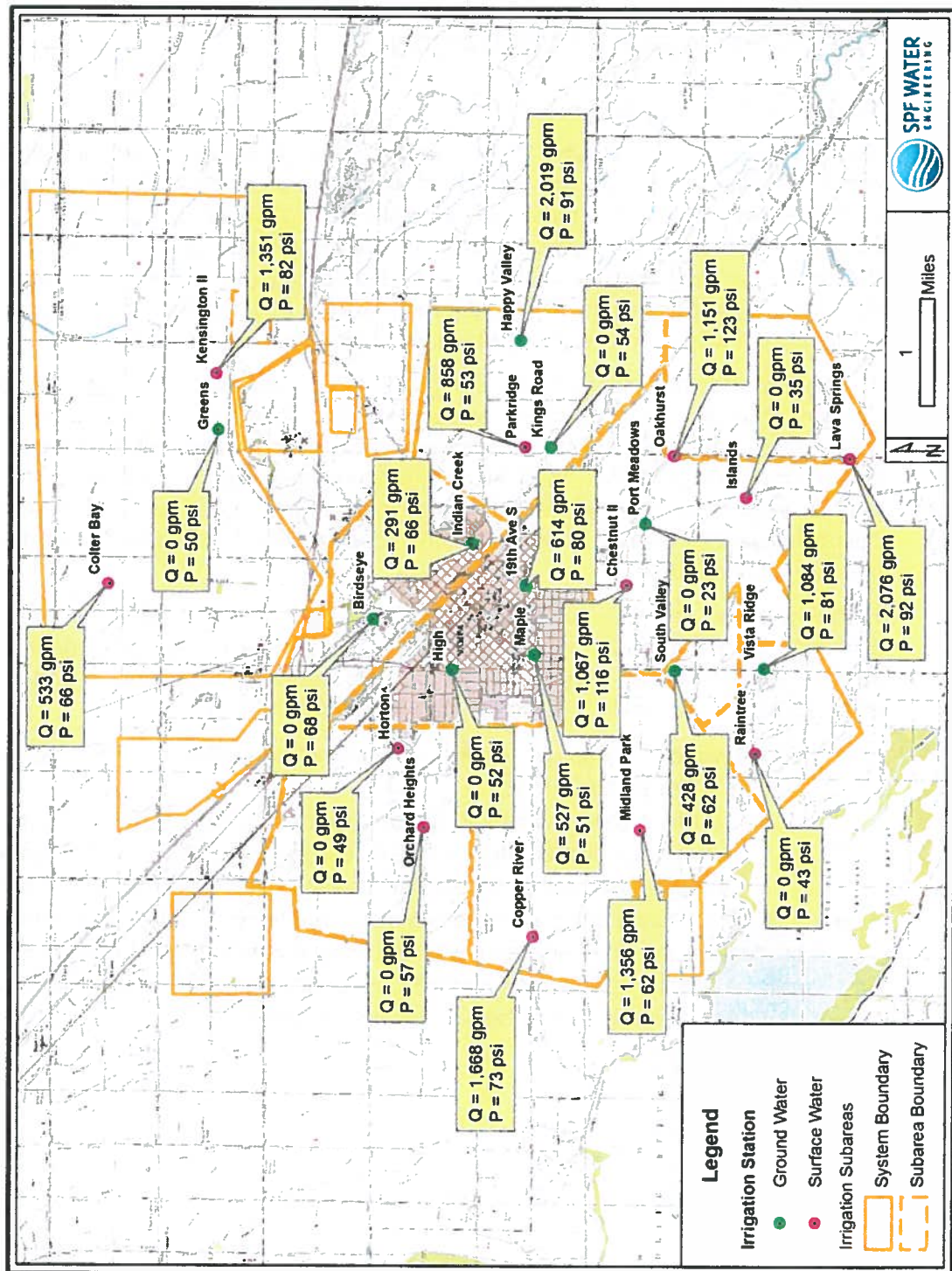


Figure 14. Station flow and pressure on September 20, 2012, 4:00 am.

9. STATION EFFICIENCY EVALUATION

9.1. Efficiency Ratios by Source

To evaluate station efficiency, the amount of power and associated estimated cost required to pump water at each of the PI stations was calculated. This evaluation was performed for every station that produced water during the 2012 irrigation season that also had power records. Power records from 2012 provided by the City were used to determine the total amount of power in kilowatt-hours (kWh) used by each station during the irrigation season. Production records from 2012 for each station were used to identify the total gallons produced by each station during the irrigation season.

To quantify efficiency at a particular station, a ratio of total production (gallons) to total energy use (kWh) was calculated for each station. This ratio is considered to be a good, easily calculable indicator of efficiency (i.e. higher ratios correspond to more gallons produced per kWh). With this information, those stations that are very efficient may be used preferentially over those stations that are determined to be inefficient. This analysis may also be used to identify those stations that are inefficient due to a need for controls (VFD).

Efficiency ratios for each station are summarized in Table 19, and are graphically displayed for groundwater stations in Figure 15 and surface water stations in Figure 16. Efficiency ratios are plotted against total production for groundwater and surface water stations in Figure 17. These results demonstrate that:

- Groundwater stations had a slightly higher average efficiency ratio (0.99) than surface water stations (0.96).
 - Surface water stations would be expected to have higher efficiencies than groundwater stations due to less pumping lift. However, these results indicate that groundwater stations are slightly more efficient.
- For surface water stations, there is a more pronounced relationship between production and efficiency ratio, with efficiency increasing with production. This may be related to fewer pump on/off cycles with increased production. For groundwater stations, this relationship is less obvious.

Table 19. Efficiency ratios for irrigation stations.

Station	Source	Operation	Total Production (gal)	Irrigation Season Total Power Use (kWh)	Efficiency Ratio (gal/kWh/1000)
Happy Valley	Groundwater	Auto-Variable	243,485,000	307,760	0.79
Farm & City	Groundwater	Hand-Variable	229,760,000	260,292	0.88
Vista Ridge	Groundwater	Auto-Variable	203,098,000	295,680	0.69
Amity	Groundwater	Auto-Variable	187,220,000	195,626	0.96
Kings Road	Groundwater	Hand-Constant	134,419,000	117,799	1.14
Birdseye	Groundwater	Auto-Constant	127,137,000	147,167	0.86
Kurtz	Groundwater	Auto-Constant	123,335,000	114,075	1.08
Mayors	Groundwater	Hand-Constant	122,616,700	63,156	1.94
Fern	Groundwater	Auto-Constant	116,830,100	117,000	1.00
14th Avenue S	Groundwater	Auto-Constant	115,655,500	97,211	1.19
Venice	Groundwater	Auto-Constant	114,354,000	99,881	1.14
Maple	Groundwater	Auto-Constant	109,141,000	105,126	1.04
4th St S	Groundwater	Auto-Constant	105,973,000	125,671	0.84
Cemetery	Groundwater	Hand-Constant	104,250,000	88,018	1.18
Grange Park	Groundwater	Auto-Constant	97,542,000	102,604	0.95
19th Ave S	Groundwater	Auto-Constant	87,959,000	106,764	0.82
Lakeview	Groundwater	Hand-Constant	87,086,900	70,401	1.24
Meadowbrook I	Groundwater	Auto-Constant	82,115,900	80,356	1.02
6th St S	Groundwater	Auto-Constant	78,445,800	75,069	1.04
Sugar Manor	Groundwater	Auto-Constant	77,159,000	75,682	1.02
State St	Groundwater	Hand-Constant	71,443,000	80,995	0.88
Indian Creek	Groundwater	Auto-Constant	56,847,000	62,133	0.91
Hudson	Groundwater	Auto-Constant	55,702,000	49,702	1.12
5th & Phyllis	Groundwater	Hand-Constant	52,454,600	56,673	0.93
13th Ave N	Groundwater	Auto-Constant	51,463,000	52,918	0.97
Boone	Groundwater	Auto-Constant	44,122,100	40,793	1.08
Canterbury	Groundwater	Hand-Variable	40,368,600	45,843	0.88
High St	Groundwater	Auto-Constant	39,654,900	37,285	1.06
Birch	Groundwater	Hand-Constant	33,503,000	55,906	0.60
Idaho Center I	Groundwater	Auto-Constant	6,196,000	8,276	0.75
Pheasant Hollow	Groundwater	Hand-Constant	4,172,000	5,227	0.80
Average Groundwater					0.99
Carriage Hill ¹	Surface Water	Hand-Variable	77,960,200	88,751	0.88
Lonestar	Surface Water	Hand-Variable	417,975,000	300,080	1.39
Oakhurst	Surface Water	Hand-Constant	384,276,000	415,080	0.93
Copper River	Surface Water	Hand-Variable	366,903,000	378,480	0.97
Lava Springs	Surface Water	Auto-Variable	352,281,000	380,940	0.92
Creekside	Surface Water	Hand-Variable	308,926,000	235,900	1.31
Kensington II	Surface Water	Auto-Variable	276,040,000	254,746	1.08

Station	Source	Operation	Total Production (gal)	Irrigation Season Total Power Use (kWh)	Efficiency Ratio (gal/kWh/1000)
Midland Park	Surface Water	Hand-Variable	257,806,000	251,080	1.03
Parkridge	Surface Water	Hand-Constant	249,297,000	191,697	1.30
Islands	Surface Water	Hand-Constant	219,476,000	217,294	1.01
Horton	Surface Water	Auto-Constant	215,058,000	160,100	1.34
Georgia	Surface Water	Hand-Variable	212,778,000	209,420	1.02
Chestnut II	Surface Water	Hand-Constant	203,200,000	236,520	0.86
Heron	Surface Water	Hand-Variable	192,807,000	200,440	0.96
Sunset Oaks	Surface Water	Auto-Constant	144,637,000	163,028	0.89
Sunnyridge	Surface Water	Auto-Variable	116,484,000	96,087	1.21
Costco	Surface Water	Auto-Variable	96,040,000	160,200	0.60
Orchard Heights	Surface Water	Hand-Variable	90,076,000	105,520	0.85
Raintree	Surface Water	Hand-Variable	88,181,000	82,816	1.06
Skyview	Surface Water	Hand-Constant	87,495,000	81,605	1.07
Brandts	Surface Water	Hand-Constant	58,203,000	55,229	1.05
Crestwood	Surface Water	Hand-Constant	56,865,100	118,861	0.48
South Canyon	Surface Water	Hand-Constant	45,791,000	46,704	0.98
Asbury Park	Surface Water	Hand-Constant	29,462,000	60,692	0.49
Sugar St	Surface Water	Hand-Constant	17,763,000	18,530	0.96
Maplewood	Surface Water	Auto-Constant	10,688,000	14,202	0.75
Wildflower	Surface Water	Hand-Constant	2,152,000	3,432	0.63
Average Surface Water					0.96

1 - Production value is 10 times lower than reported

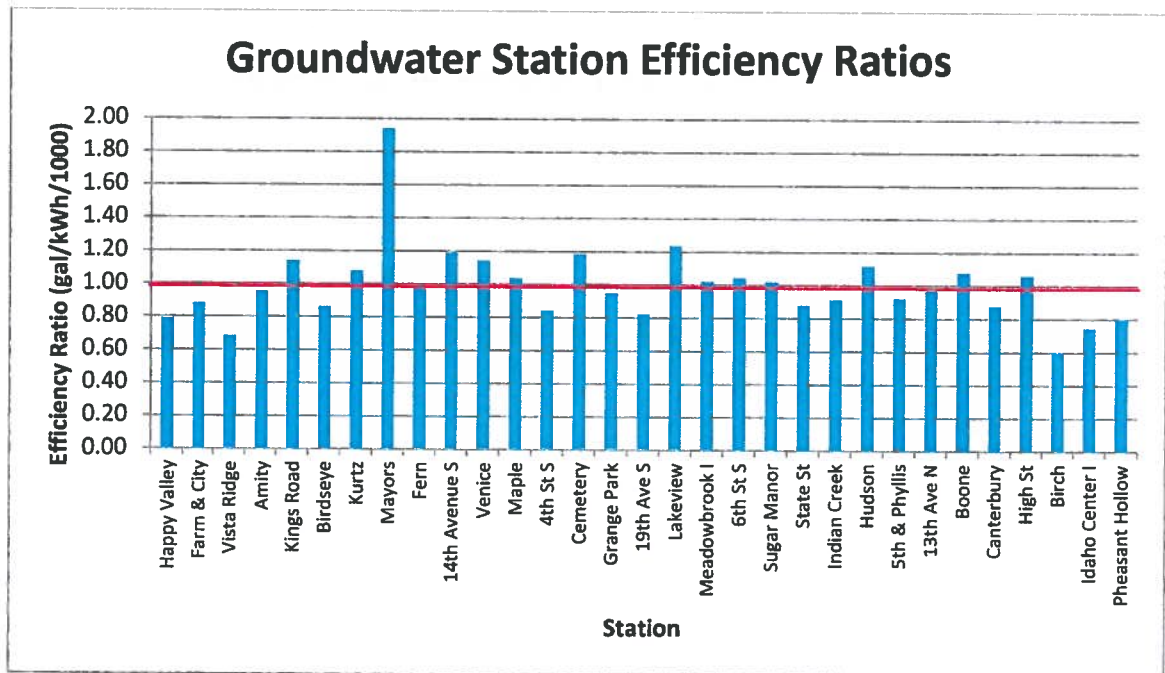


Figure 15. Groundwater station efficiency ratios.

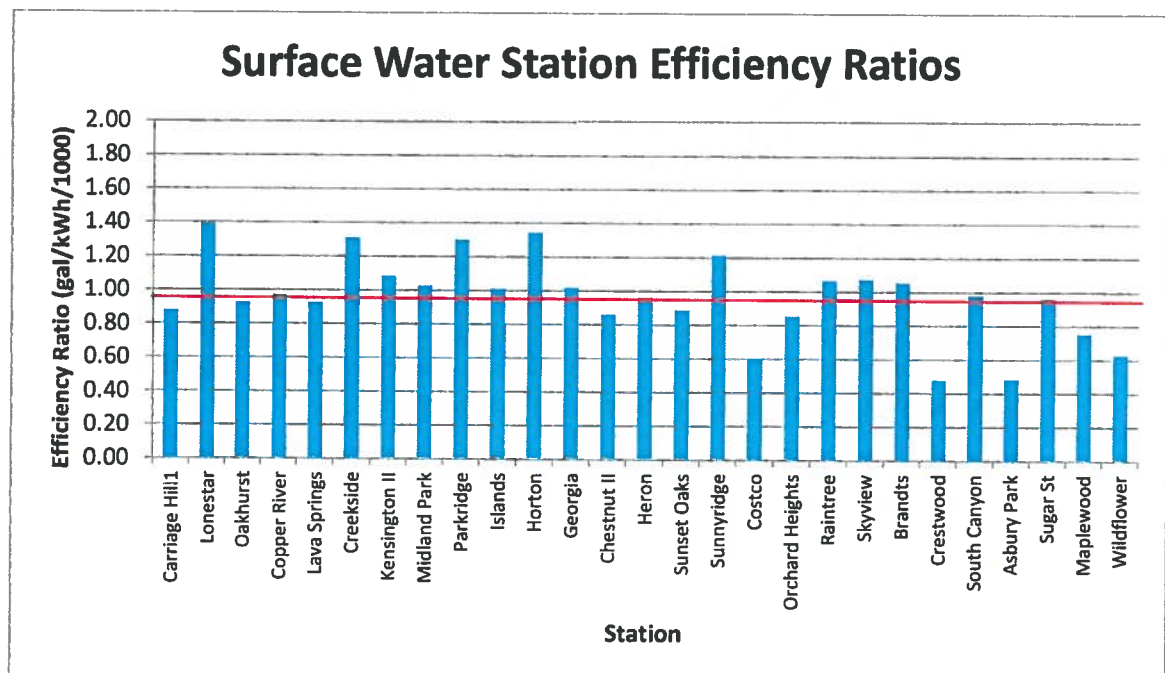


Figure 16. Surface water station efficiency ratios.

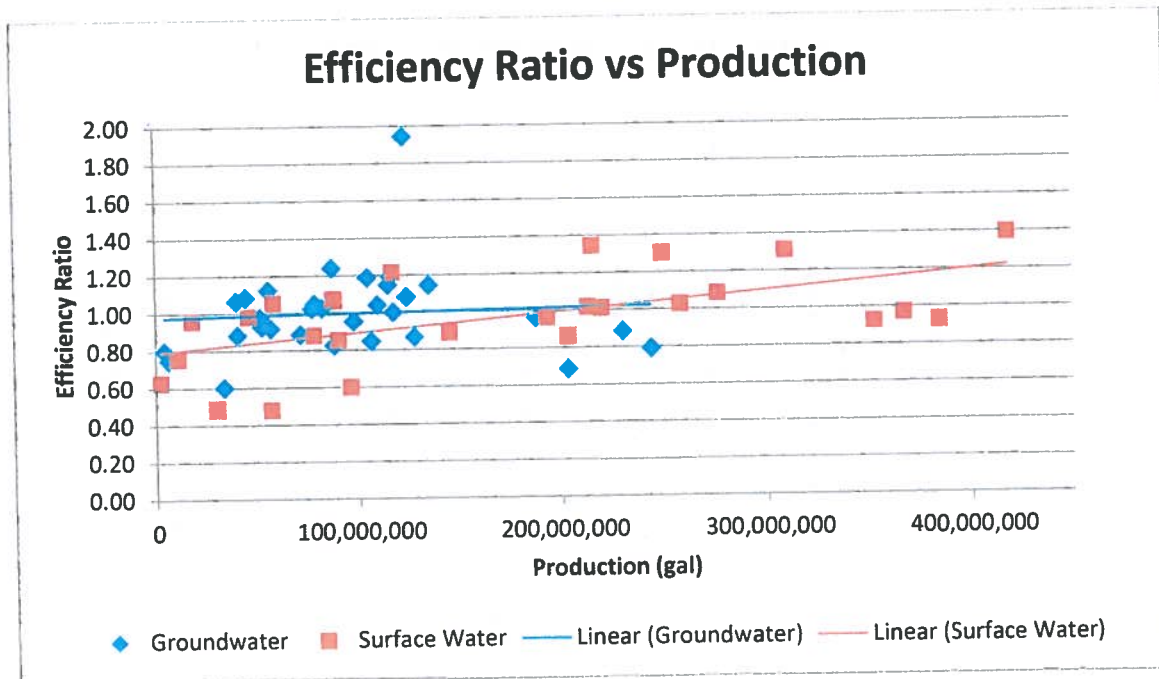


Figure 17. Efficiency ratio versus production.

9.2. Efficiency Ratios by Operation

To determine if station operation had any effect on station efficiency, station efficiencies for those groundwater and surface water stations operated similarly were averaged and compared. There are four categories of operation: (1) automatic off of system pressure for constant speed stations (auto-constant), (2) automatic off of system pressure for variable speed stations (auto-variable), (3) hand control for constant speed stations (hand-constant), and (4) hand control for variable speed stations (hand-variable). For this comparison, those stations identified as outliers were not included. An outlier was defined as being outside a confidence interval of $\pm$ one standard deviation from the mean. There were five¹⁶ groundwater stations considered to be outliers and nine¹⁷ surface water stations.

Results are presented graphically in Figure 18. General observations on these results are described below:

¹⁶ Vista Ridge, Mayors, Lakeview, Birch, Idaho Center I

¹⁷ Lonestar, Creekside, Parkridge, Horton, Sunnyridge, Costco, Crestwood, Asbury Park, Wildflower

- For groundwater stations, the auto-constant stations were the most efficient, followed closely by the hand-constant stations. The auto-variable and hand-variable stations were less efficient.
- Stations with automatic controls would be expected to be more efficient than those operated by hand, but results for groundwater stations apparently do not support this.
- For surface water stations, the auto-variable stations were the most efficient. The hand-constant and hand-variable stations were slightly less efficient, while the auto-constant stations were markedly less efficient.
- It is not surprising that auto-variable surface water stations appear to be most efficient, but the difference between auto-variable and hand operated stations is not as significant as anticipated.
- This approach based on calculating efficiency ratios is a fairly simplistic method for evaluating station efficiencies. A more detailed efficiency examination focusing on specific stations of interest is recommended.

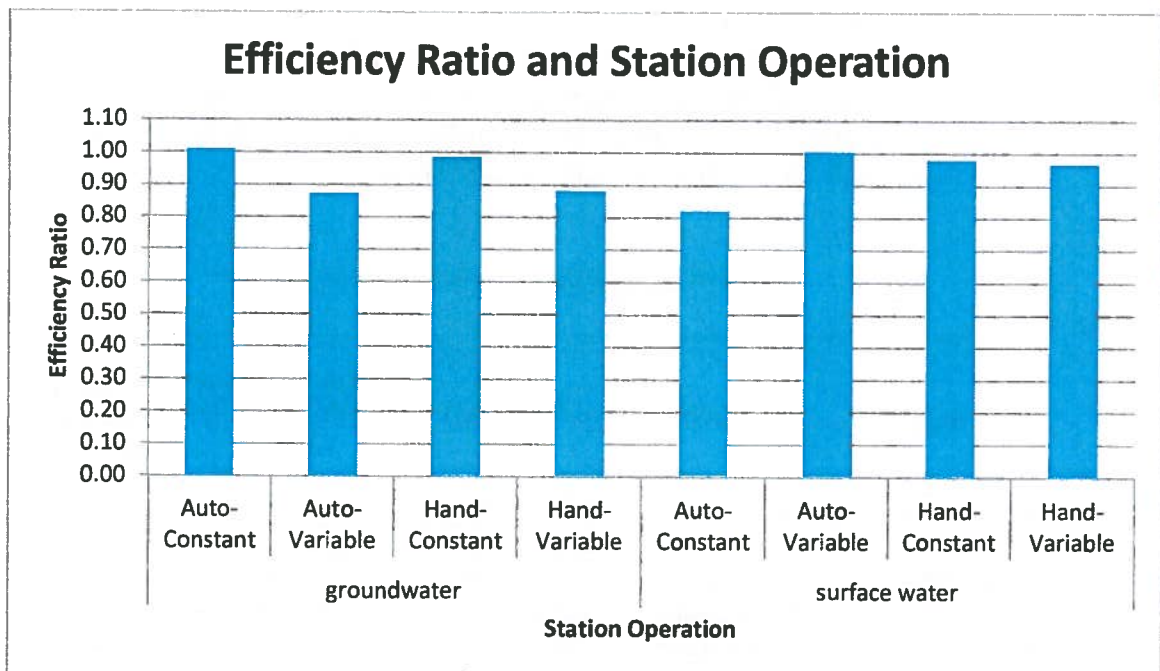


Figure 18. Efficiency ratio based on station operation.

9.3. Pumping Costs

The energy cost to pump water at irrigation stations was calculated using power and production records from 2012. Costs were calculated per million gallons pumped,

assuming \$0.05 per kWh. Results were generated for each irrigation station that produced water during the 2012 irrigation season that also had power records. These results are summarized in Table 20 and Figure 19 for groundwater stations and Figure 20 for surface water stations.

These results demonstrate that:

- The average energy cost to pump groundwater is about \$53 per million gallons, while the cost to pump surface water is about \$56 per million gallons.
- The groundwater station with the highest pumping cost was Birch, at about \$83 per million gallons. Birch is a low priority source, pumping only about 33.5 million gallons during 2012. Birch is constant speed, operated in hand. The groundwater station with the cheapest pumping costs was Mayor's, at about \$26 per million gallons. It seems likely that power use records are inaccurate for this station.
- The surface water station with the highest pumping cost was Crestwood, at about \$105 per million gallons. Crestwood is a constant speed station operated in hand. Lowest pumping costs were \$36 per million gallons at Lonestar. This is a variable speed station operated in hand. It is possible that power use records are inaccurate for this station.
- If stations identified as outliers are not included, the average energy cost to pump groundwater is about \$51 per million gallons, while the cost to pump surface water is about \$53 per million gallons.

Table 20. Pumping costs for irrigation stations.

Station	Source	Total Production (gal)	Irrigation Season Total Power Use (kWh)	Cost per Million Gallons ¹ (\$)
Happy Valley	Groundwater	243,485,000	307,760	63
Farm & City	Groundwater	229,760,000	260,292	57
Vista Ridge	Groundwater	203,098,000	295,680	73
Amity	Groundwater	187,220,000	195,626	52
Kings Road	Groundwater	134,419,000	117,799	44
Birdseye	Groundwater	127,137,000	147,167	58
Kurtz	Groundwater	123,335,000	114,075	46
Mayors	Groundwater	122,616,700	63,156	26
Fern	Groundwater	116,830,100	117,000	50
14th Avenue S	Groundwater	115,655,500	97,211	42
Venice	Groundwater	114,354,000	99,881	44
Maple	Groundwater	109,141,000	105,126	48

Station	Source	Total Production (gal)	Irrigation Season Total Power Use (kWh)	Cost per Million Gallons ¹ (\$)
4th St S	Groundwater	105,973,000	125,671	59
Cemetery	Groundwater	104,250,000	88,018	42
Grange Park	Groundwater	97,542,000	102,604	53
19th Ave S	Groundwater	87,959,000	106,764	61
Lakeview	Groundwater	87,086,900	70,401	40
Meadowbrook I	Groundwater	82,115,900	80,356	49
6th St S	Groundwater	78,445,800	75,069	48
Sugar Manor	Groundwater	77,159,000	75,682	49
State St	Groundwater	71,443,000	80,995	57
Indian Creek	Groundwater	56,847,000	62,133	55
Hudson	Groundwater	55,702,000	49,702	45
5th & Phyllis	Groundwater	52,454,600	56,673	54
13th Ave N	Groundwater	51,463,000	52,918	51
Boone	Groundwater	44,122,100	40,793	46
Canterbury	Groundwater	40,368,600	45,843	57
High St	Groundwater	39,654,900	37,285	47
Birch	Groundwater	33,503,000	55,906	83
Idaho Center I	Groundwater	6,196,000	8,276	67
Pheasant Hollow	Groundwater	4,172,000	5,227	63
Average Groundwater				53
Carriage Hill	Surface Water	77,960,200	88,751	57
Lonestar	Surface Water	417,975,000	300,080	36
Oakhurst	Surface Water	384,276,000	415,080	54
Copper River	Surface Water	366,903,000	378,480	52
Lava Springs	Surface Water	352,281,000	380,940	54
Creekside	Surface Water	308,926,000	235,900	38
Kensington II	Surface Water	276,040,000	254,746	46
Midland Park	Surface Water	257,806,000	251,080	49
Parkridge	Surface Water	249,297,000	191,697	38
Islands	Surface Water	219,476,000	217,294	50
Horton	Surface Water	215,058,000	160,100	37
Georgia	Surface Water	212,778,000	209,420	49
Chestnut II	Surface Water	203,200,000	236,520	58
Heron	Surface Water	192,807,000	200,440	52
Sunset Oaks	Surface Water	144,637,000	163,028	56
Sunnyridge	Surface Water	116,484,000	96,087	41
Costco	Surface Water	96,040,000	160,200	83
Orchard Heights	Surface Water	90,076,000	105,520	59
Raintree	Surface Water	88,181,000	82,816	47
Skyview	Surface Water	87,495,000	81,605	47

Station	Source	Total Production (gal)	Irrigation Season Total Power Use (kWh)	Cost per Million Gallons ¹ (\$)
Brandts	Surface Water	58,203,000	55,229	47
Crestwood	Surface Water	56,865,100	118,861	105
South Canyon	Surface Water	45,791,000	46,704	51
Asbury Park	Surface Water	29,462,000	60,692	103
Sugar St	Surface Water	17,763,000	18,530	52
Maplewood	Surface Water	10,688,000	14,202	66
Wildflower	Surface Water	2,152,000	3,432	80
Average Surface Water				56

1 - Assumes \$0.05 per kWh

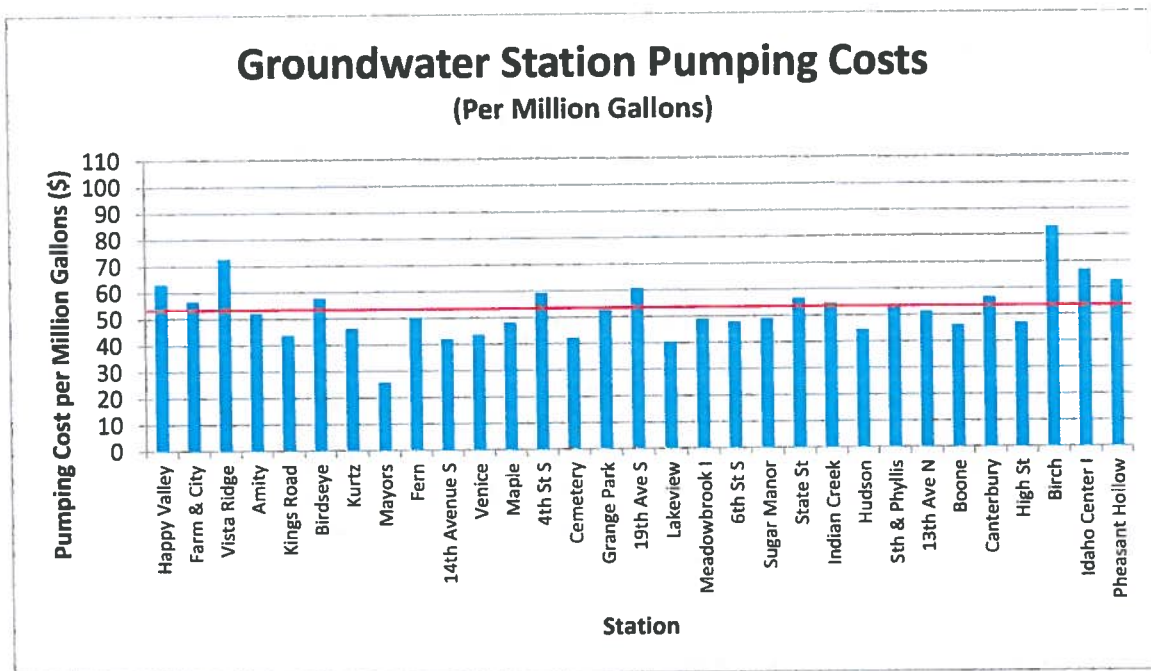


Figure 19. Groundwater pumping costs.

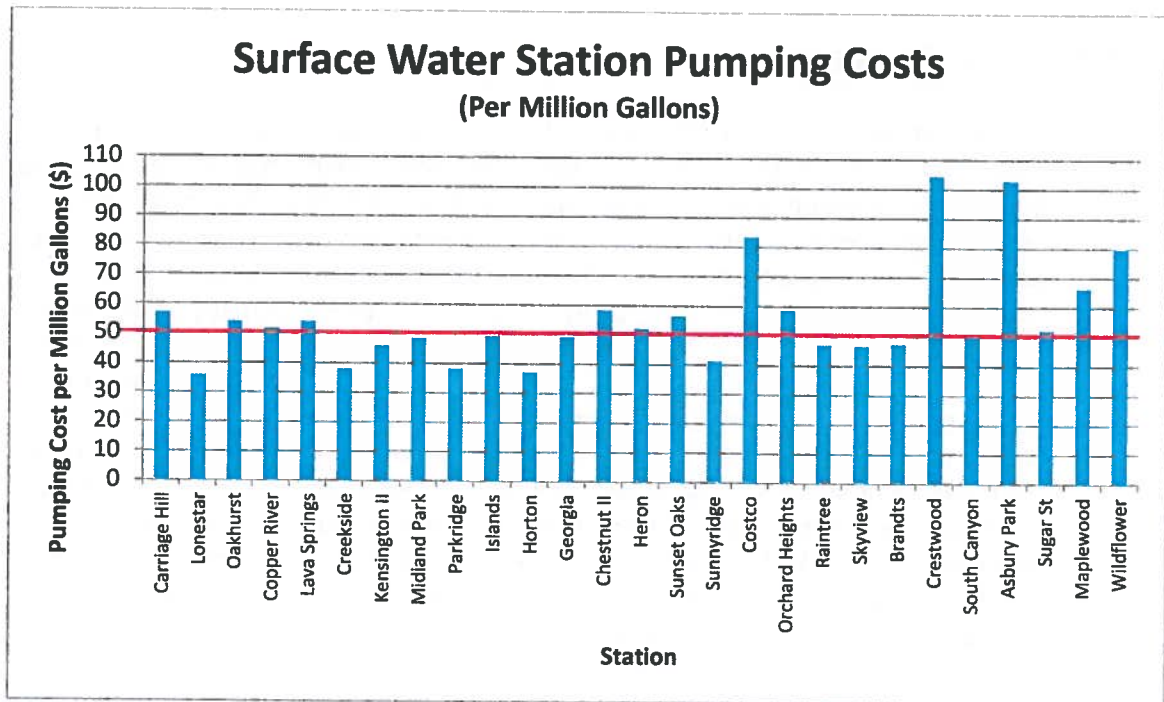


Figure 20. Surface water pumping costs.

10. PUMP CURVES

For the 31 stations where flow and pressure data (season-long or week-long) were collected, it is possible to either (1) verify the correct manufacturer's pump curve for those stations where a pump curve was available or (2) develop a pump curve using measurements of flow and head. Of the 31 stations with data collection, manufacturer pump curves were obtained from the City or pump manufacturer for 22 of them. However, there was some uncertainty as to the accuracy of many of these curves. Therefore one of the secondary objectives of this study was to verify the appropriate curve to be used in the City PI model. For these stations, flow and head measurements were compared with the curve believed to be correct. If the measurements agreed with the curve, then the curve was considered to be correct. If the measurements did not agree with the curve, then those measurements were used to select the right curve (often the same pump model but a different impeller diameter). For the 9 stations where no manufacturer curve was available, a curve was developed using flow and head measurements. To calculate total head, measurements of discharge pressure were used, along with reasonable assumptions for lift and friction losses. For wells, pumping water level was calculated using values of specific capacity obtained from test pumping as recorded on the drillers report. Driller's reports were not available for every well. Where one was not available, a nearby well with a driller's report was used.

Once the correct pump curve was identified, this curve was compared with the pump curve used in the current version of the City's PI model. This comparison provides the City with guidance as to which model curves may need to be replaced with the recommended pump curve. The 2008 City of Nampa Pressure Irrigation System Master Plan Update (Table 2-1) references test pumping during October 2000 at many of the irrigation stations. It is believed that this test pumping consisted of recording flow and discharge pressure at these stations to develop pressure/flow curves, but not true head/flow curves as pumping water level (lift) was not taken into account. The recommended pump curves can also be compared with this test pumping data.

Plots of manufacturer curves, flow and head measurements, model curves, and test pumping data for the 22 stations with curves are included in Appendix D. For those stations where flow was not directly measured but predicted from the pump curve, head, and motor operation, the predicted flow values are also plotted against calculated head to provide an indication of the accuracy of the predicted values against measured data. For all stations, flow and head values are provided for the recommended curve.

Also included in Appendix D are pump curves developed from flow and pressure data at the 9 stations where pump curves had previously been unavailable. General observations are described below:

- Pump curves were developed for nine stations where manufacturer curves were not available: Birdseye, Chestnut II, Kensington II, Oakhurst, Parkridge, Skyview, South Canyon, Sugar St, and Venice.
- For 21 of the remaining 22 stations, the measured flow and pressure were used to determine the correct pump curve for the station.
- For one of the remaining 22 stations (Islands), the measured data did not appear to match the manufacturer curve (or different impeller or number of stages). The recommended curve is that developed from the measured flow and pressure.
- Four stations had model curves that were the same as the recommended curve: Creekside, Heron, Lava Springs, and Lonestar. For the remaining 27 stations, the model curve was different than the recommended curve.

11. STATION CONTROL AND OPERATION

Irrigation station controls are summarized in Table 21 for the 31 stations where flow and pressure data (season-long or week-long) were collected. This table includes the type of controls for the station: VFD, constant speed, or no controls. No controls means that the station does not automatically operate off system pressure (constant pressure or on/off pressure setpoints), but is operated in hand and is either on or off. Operation refers to how the station was operated throughout the 2012 irrigation season: automatic off of system pressure or in hand. System operation was derived from data collected throughout the season. For example, plotting head versus flow can be used to determine if a VFD station was operating automatically to maintain a constant pressure or in hand at different motor speeds. On/off pressure setpoints for constant speed stations were determined using pressure and station on/off status, such that the pressure when the station turns off was considered to be the off setpoint and the pressure when the stations turns on was considered to be the on setpoint.

There are several stations that do not have any automatic controls, including Oakhurst, South Canyon, Parkridge, Sugar St, Chestnut II, Islands, and Skyview. Oakhurst, Parkridge, Chestnut II, and Islands are considered to be major stations, while South Canyon, Sugar St, and Skyview are considered to be minor stations. Also of note there are a number of stations that have VFDs that are operated mostly or entirely in hand, these include Orchard Heights, Copper River, Creekside, Georgia, Midland Park, Lonestar, Heron, and Raintree.

Table 21. Summary of station operation.

Station	Controls	Operation	Operational Notes
Lava Springs	VFD	Automatic	
Oakhurst	None	Hand	No controls
S Canyon	None	Hand	No controls
South Valley	Constant Speed	Automatic	
Sunnyridge	VFD	Automatic	VFD failed after 3 days
14th Ave S	Constant Speed	Automatic	
19th Ave S	Constant Speed	Automatic	
Fern	Constant Speed	Automatic	
Holly	Constant Speed	Automatic	
Maple	Constant Speed	Automatic	
Happy Valley	VFD	Mostly Auto, Some Hand	
Parkridge	None	Hand	No controls
Birdseye	Constant Speed	Automatic	
Indian Creek	Constant Speed	Automatic	
Sugar St	None	Hand	No controls

Station	Controls	Operation	Operational Notes
Venice	Constant Speed	Automatic	
Horton	Constant Speed	Automatic	
Orchard Heights	VFD	Hand	Operated in hand
Chestnut II	None	Hand	No controls
Islands	None	Hand	No controls
Skyview	None	Hand	No controls
Copper River	VFD	Hand	Operated in hand
Creekside	VFD	Hand	Operated in hand
Georgia	VFD	Hand	Operated in hand
Midland Park	VFD	Mostly Hand, Some Auto	Mostly operated in hand
Lonestar	VFD	Hand	Operated in hand
Colter Bay	VFD	Mostly Auto, Some Hand	No sleep mode on VFD
Kensington II	VFD	Mostly Auto, Some Hand	
Heron	VFD	Mostly Hand, Some Auto	Mostly operated in hand
Raintree	VFD	Automatic and Hand	Operated auto and hand
Vista Ridge	VFD	Automatic	

For those stations that are controlled off of system pressure, on/off setpoints (constant speed) and constant pressure setpoints (VFDs) can be calculated or estimated from the pressure data collected. These values are summarized in Table 22.

Table 22. Summary of station pressure setpoints.

Station	Controls	Constant Pressure Set Point	On Set Point	Off Set Point	Notes
South Valley	Constant Speed	---	63	74	Setpoints calculated from data
14th Ave S	Constant Speed	---	40	80	Setpoints estimated from data
19th Ave S	Constant Speed	---	61	84	Setpoints calculated from data
Fern	Constant Speed	---	40	80	Setpoints estimated from data
Holly	Constant Speed	---	52	71	Setpoints calculated from data
Maple	Constant Speed	---	20	81	Setpoints estimated from data
Birdseye	Constant Speed	---	64	81	Setpoints calculated from data
Indian Creek	Constant Speed	---	43	87	Setpoints estimated from data
Venice	Constant Speed	---	40	75	Setpoints estimated from data
Horton	Constant Speed	---	49	73	Setpoints calculated from data
Lava Springs	VFD	88-92	---	---	
Sunnyridge	VFD	76	---	---	VFD failed after 3 days of data
Happy Valley	VFD	89-91	---	---	

Station	Controls	Constant Pressure Set Point	On Set Point	Off Set Point	Notes
Midland Park	VFD	75	---	---	Station mostly operated in hand
Colter Bay	VFD	59-68	---	---	No sleep mode on VFD
Kensington II	VFD	70-82	---	---	
Heron	VFD	76-81	---	---	Station mostly operated in hand
Raintree	VFD	65-72	---	---	Station operated auto and hand
Vista Ridge	VFD	76-86	---	---	

12. FLOW METER CALIBRATION

At every station where the portable ultrasonic flow meter was installed, the average flow from the portable meter totalizer can be compared with the average flow calculated using the station flow meter totalizer. A comparison of portable meter average flow to station flow meter average flow can be used to develop a correction factor for the station meter. The correction factor is calculated by dividing the average portable meter flow by the average station meter flow. The station meter can then be multiplied by this correction factor to produce a corrected flow value. This method assumes that the portable meter is more accurate than the station meter. Because most of the station meters are propeller meters and the portable meter is an ultrasonic-type meter, this assumption is considered to be valid. Correction factors are summarized in Table 23.

General observations from the data presented in Table 23 are described below:

- At 12 of the 30 stations, the percent difference between the portable meter average flow and the station meter average flow is less than 5%. The flow meters at these stations are considered to be very accurate.
- At 12 of the 30 stations, the percent difference varies between 5 and 10%. At these stations, the flow meters are considered to be reasonably accurate.
- At six stations, the percent difference is greater than 10%. The accuracy of the flow meters at these stations is considered to be questionable and the meters should be inspected for problems.

Table 23. Summary of correction factors for station flow meters.

Station	Year Calibrated	Average Station Meter Flow*** (gpm)	Average Portable Meter Flow (gpm)	Percent Difference	Correction Factor*
Birdseye	2012	775	751	3.2	0.969
14th Ave S	2012	480	467	2.8	0.972
19th Ave S	2012	220	257	-15.5	1.168
Chestnut II	2012	1,162	1,122	3.5	0.966
Colter Bay	2012	500	438	13.2	0.876
Copper River	2012	1,968	1,902	3.4	0.967
Creekside	2012	1,870	1,714	8.7	0.917
Georgia	2012	701	656	6.6	0.936
Happy Valley**	2011	1,075	1,077	-0.2	1.002
Heron	2012	801	788	1.6	0.984
Holly	2012	638	611	4.3	0.958

Station	Year Calibrated	Average Station Meter Flow*** (gpm)	Average Portable Meter Flow (gpm)	Percent Difference	Correction Factor*
Horton	2012	1,500	1,464	2.4	0.976
Indian Creek	2012	278	239	14.8	0.863
Islands	2011	1,417	1,346	5.2	0.950
Kensington II	2012	1,135	1,061	6.7	0.935
Lava Springs	2012	1,363	1,251	8.6	0.918
Maple	2012	250	267	-6.5	1.067
Midland Park	2012	850	802	5.8	0.944
Oakhurst	2011	1,774	1,664	6.4	0.938
Orchard Heights	2012	1,142	1,097	4.0	0.961
Parkridge	2012	989	842	16.0	0.852
Raintree	2012	310	280	9.9	0.905
Skyview	2012	461	438	5.1	0.950
S Canyon	2012	134	133	0.8	0.992
South Valley	2012	261	276	-5.8	1.060
Sugar St	2012	311	259	18.1	0.834
Sunnyridge	2012	437	426	2.4	0.977
Venice	2012	539	513	4.9	0.952
Vista Ridge	2012	788	718	9.3	0.911
Amity	2011	754	678	10.6	0.899

*Correction factor equal to average portable meter flow divided by average facility meter flow

**Calibrated using instantaneous measurements

***Every station other than Happy Valley (magnetic flow meter) has a propeller meter

13. SUMMARY

The major results of the data collection effort are listed below:

13.1. Pressure Irrigation Pump System Capacities

- The City's PI system has the capacity to pump a total of 71,578 gpm, from a total of 92 pumping stations.
- Of this total, 28,354 gpm is supplied by 53 groundwater stations and 43,224 gpm is supplied by 39 surface water stations
- The ten stations that are not in service account for a total capacity of 2,450 gpm.
- The primary source of supply in the City center is groundwater, while surface water dominates in the outlying areas of the City.
- The existing PI system groundwater capacity (excluding stations not in service) is 27,754 gpm. The vast majority (87%) is provided by stations with water rights. The remaining 13% is supplied by 11 stations that cannot be identified as points of diversion for any of the City's water rights.
- The existing PI system surface water capacity (excluding stations not in service) is 41,374 gpm, of which 65% comes from NMID, 30% comes from Pioneer, and 5% comes from BKID.

13.2. Capacities vs. Groundwater Rights

- There are 29 groundwater stations with capacities that are less than their allowable water diversion rate, 11 groundwater stations with capacities that exceed their allowable water diversion rate, and two groundwater stations that are not in service but have water rights.
- The City's groundwater rights allow for a total maximum allowable diversion rate of 33,575 gpm. The City's total existing groundwater capacity is 27,754 gpm, meaning that the City has the existing capability to pump 83% of the allowable rate. If groundwater stations not in service are included, the capacity increases to 28,354 gpm, or 84% of the allowable rate. If only those stations with water rights and that are in service are included, the capacity drops to 24,021 gpm, or 72% of the allowable rate.
- While 11 individual groundwater stations have capacities that exceed their allowable diversion rates, as a whole the City has an excess of groundwater rights that could be modified to provide those stations with sufficient water. In addition those rights may be modified to add those stations that are not currently identified as points of diversion for any of the City water rights.
- Groundwater stations in the Generally Valved Off East and Main-Southwest subareas have capacities that exceed allocations. The capacities exceed allocations by percentages ranging from 159 to 196%.

- The City has two groundwater rights with points of diversion that are not in service. The City may want to explore options to guarantee that these rights are not forfeited due to non-use.

13.3. Capacities vs. Surface Water Rights

- There are 15 surface water stations with capacities that exceed their assessed (NMID) or ordered (Pioneer and BKID) flows. Two of these are in the BKID, four are in NMID, and 10 are in Pioneer. Three stations in NMID are not in service but are assessed water. There are 18 surface water stations with capacities that are less than their assessed or ordered flows.
- The City was assessed for a total of 41,241 gpm by NMID in 2012. The total existing capacity of surface water stations in NMID is 26,771 gpm, equal to 65% of the assessment. If NMID stations not in service are added to the total, the capacity increases to 28,071 gpm, equal to 68% of the total.
- There are four stations in the NMID that have capacities that exceed their allocations. However, the City appears to have adequate NMID water to transfer to these stations to increase their allocations. This "excess" water includes water assessed to the City for three stations that are not in service.
- Pioneer assessed the City for 2,784 acres in 2012, equal to 24,989 gpm assuming delivery of an inch per acre. The City has the existing capacity to pump 12,399 gpm from Pioneer, equal to 50% of the total assessed flow. All of the stations in Pioneer are in service, so capacity cannot be increased by simply providing power to a station not in service.
- A comparison of Pioneer water orders to station capacity indicates that station capacity exceeds the order at 10 of the 12 stations, a number that includes Brandts that is located in Pioneer but does not have water ordered. The City appears to have sufficient water from Pioneer based on the assessed acres to adequately supply these stations with water.
- The City receives water from the BKID based on a volume, not an instantaneous rate. The City was assessed for 342.74 acres in 2011, equal to 1,285 acre-feet assuming delivery of 3.75 acre-feet per acre. In 2012, the two stations located in the BKID with recorded production pumped a total volume of 510 acre-feet, or 40% of the assessed volume.
- The capacity at both of the BKID stations that supply the City PI system exceeded the amount of water ordered. However, based on production from these stations and the volume assessed, the City appears to have adequate water to supply these stations.
- Surface water stations in the Main-East subarea have capacities that are 117% of the associated allocations.

- The City owns one surface water right on the Elijah Drain. The station associated with this right is not in service. The City may want to explore options to protect this right from non-use forfeiture.
- In 2012, the City's groundwater stations pumped a total volume of 10,936 acre-feet, of which 9,952 acre-feet came from stations with water rights and 984 acre-feet came from stations without water rights.

13.4. Demand Variations

- Season-long data collection at 19 stations revealed that the day with the greatest demand was July 13, 2012, when these stations pumped a total of 27,930 gpm. The seven-day period with the greatest average demand occurred between July 9 and July 15.
- An analysis of flow data collected from the 19 stations between July 9 and July 15 showed that peaking factors (daily maximum to daily average flows) varied between 1.03 and 2.48 for surface water stations and between 1.12 and 1.63 for groundwater stations.

13.5. Pump Station Efficiencies

- A simple efficiency ratio (production versus power use) indicated that groundwater stations were slightly more efficient than surface water stations. For surface water stations, efficiency generally increased with production.
- For groundwater stations, the auto-constant stations were the most efficient, while auto-variable surface water stations were the most efficient. There was not a substantial difference between stations with automatic controls and stations controlled by hand.
- Calculating efficiency ratios is a fairly simplistic method for evaluating station efficiencies and a more detailed efficiency examination focusing on specific stations of interest is recommended.
- The average energy cost to pump groundwater is about \$53 per million gallons, while the cost to pump surface water is about \$56 per million gallons.

13.6. Pump Curves

- Flow and pressure data collected were used to develop pump curves for nine stations where manufacturer curves were unavailable and determine the correct manufacturer curve for an additional 21 stations.

13.7. Operational and Control Patterns

- Flow, pressure, and motor data were used to identify operational and control patterns for 31 irrigation stations and to determine pressure setpoints. There are seven

stations that do not have any automatic controls, they operate as on/off only. There are eight stations that have VFDs that are operated mostly or entirely in hand.

13.8. Flow Meter Calibration

- At 30 stations the accuracy of the installed meter was evaluated and flow correction factors developed by comparing flow readings with those from an ultrasonic portable flow meter. The accuracy of six station flow meters is considered to be questionable and the meters should be inspected for problems.

14. CONCLUSIONS

This study had four major objectives. These objectives are listed below, followed by a brief explanation of how this study addressed each of these objectives.

1. *Document that water deliveries from the various irrigation districts within the non-potable water system service area are being properly utilized in accordance with state law and irrigation district policy.*

The primary irrigation district policies considered are (1) the water delivered by each irrigation district must be utilized within the respective irrigation district and (2) that diversion rates should not exceed authorized allocations.

- a. Pumping capacities within Nampa & Meridian Irrigation District (NMID), Pioneer Irrigation District (Pioneer), and Boise-Kuna Irrigation District (BKID) are equal to 65%, 50%, and 72%, respectively, of the authorized diversion rates for these water sources. As a result, the City is not capable of diverting in excess of the aggregate water right diversion rates from these sources.
- b. Groundwater sources provide 40% of the in-service pumping capacity within the City pressurized irrigation system. Diversion of groundwater is one method to ensure that the pumped NMID, Pioneer, and BKID water is used within the respective irrigation district boundaries. In other words, given that (1) the irrigation district pumping capacities are only 50% to 72% of the authorized diversion rates, and (2) groundwater is providing for approximately 40% of the demand within the City system, it is logical to assume that all of the diverted NMID, Pioneer, and BKID water (instantaneous rates and annual volumes) can be utilized entirely on lands within NMID, Pioneer, and BKID, respectively.
- c. On a more local basis, or a station specific basis, conclusions a. and b., above, are more tenuous.
 - i. Some pump stations (both within the interconnected system and for isolated systems) are capable of diverting in excess of the reported allocation at the pump station site.
 - ii. Some subareas include lands within two irrigation districts, but may not be utilizing water from both districts. For example:
 - The Main-Northwest has lands within both Pioneer and NMID, but has only Pioneer surface water sources which provide 65% of the subarea capacity. Groundwater provides the remaining 35% of the subarea capacity. It is likely that groundwater supply is adequate to cover all NMID lands within the Main-Northwest.

- Main-Southwest is in both BKID and NMID, yet has only NMID surface water sources. Groundwater sources provide only 4 percent of the subarea capacity. We don't know if the P.I. system is serving BKID lands in this area.

The study did not investigate the irrigation district acreage currently served within each subarea.

2. *Determine the actual capacity of the existing non-potable groundwater sources and the existing and potential groundwater demand to support acquisition of additional ground water rights, if needed.*

To obtain approval of additional groundwater rights, the City will need to demonstrate (1) capacity to divert existing rights and (2) demand for additional rights.

- a. In-service groundwater capacity is 83 percent of the rate authorized under the City groundwater rights. Therefore, in the aggregate, the City is not exceeding the diversion rate allowed under current ground-water rights, nor can the City demonstrate current capacity divert existing rights. Note, however:
 - i. station capacities exceed authorized water rights for 11 of the City's 21 water rights, and
 - ii. the City has eleven wells without recorded water rights. Approximately 8 of these wells appear to be in operation with a total capacity of 3,733 gpm (8.32 cfs).

Existing groundwater rights should be modified through transfer or other means to properly authorize existing groundwater uses.

- b. Groundwater use and groundwater rights are concentrated within the Main-North, Main-Central, and Main-East subareas. As a result, other subareas could benefit from additional groundwater rights and groundwater capacity to supplement surface water supplies.

3. *Determine the actual use of irrigation district water as a percentage of authorized or reported irrigation district delivery.*

Pumping capacities within Nampa & Meridian Irrigation District (NMID), Pioneer Irrigation District (Pioneer), and Boise-Kuna Irrigation District (BKID) are equal to 65%, 50%, and 72%, respectively, of the authorized diversion rates for these water sources.

Daily peaking factors for monitored surface water stations averaged 1.49. For example, a station producing 1,000 gpm would have an average daily use of 671 gpm, suggesting that

at least 33 percent of the available water delivery during peak demand periods is not utilized.

Assuming a continuous delivery for a 183-day irrigation season, the annual delivery of surface water from NMID and Pioneer was 33,352 acre feet and 20,209 acre feet respectively. City 2012 pumping records suggest that 32% (10,763 af) of the NMID delivery was pumped and 17% (3,434 af) of the Pioneer delivery was pumped. Estimated BKID diversion was 510 af in 2012, which was 40% of the 1,285 af assessed volume.

4. Identify means to improve and optimize the efficiency and functionality of the non-potable water system.

Means to improve and optimize the efficiency and functionality of the non-potable water system include the following.

1. Adjust irrigation deliveries/allocations to more closely match pump station capacities. There are many pump stations that are either (1) pumping in excess of their individual allocations or (2) not operated at full capacity to avoid exceeding the current allocation, while other pump stations sites do not have capacity to pump their current surface water deliveries.
2. Daily peaking factors result in wasted surface water deliveries. Both existing pumping capacity and irrigation district allocations could be better utilized by reducing the peaking factor through customer education and incentives.
3. Increased automation of pump stations can allow surface water pumps to continue to operate even if deliveries are variable. For example, surface water pumps equipped with wet well transducers can be operated to reduce pumping rates in the event of low wet well water levels, extending pumps' useful life and helping to avoid wasting delivered water.
4. To the extent possible, utilize the most efficient pumping systems (as determined in Section 8) preferentially.
5. Utilize findings from the City's hydraulic model to identify areas needing pump or piping upgrades, or areas that would benefit from alternative system operation.
6. Other means to improve and optimize the efficiency and functionality of the non-potable water system are also included in the recommendations shown on the following page.

15. RECOMMENDATIONS

1. Conduct additional data collection to identify station capacities and control setpoints at those stations where data collection has not occurred.
2. Add operational controls at stations without controls to improve system function and increase station efficiency.
3. Add systemwide supervisory control and data acquisition (SCADA) to monitor, control, and record station operation.
4. Identify improvements to move water from areas of the system where pumping rates exceed allocations (over-allocated) to areas of the system where pumping rates are less than allocations (under-allocated).
5. Increase pumping capacities to divert additional water from NMID and PID at a volume or rate that is closer to the assessed volume or rate as necessary to meet system demands.
6. Investigate opportunities for reducing peak demands on the system by implementing irrigation rotations in the City, and consider opportunities for operational or equalization storage.
7. Complete water rights work to move surface water from stations that do not have adequate pumping capacity or are not active to those stations where pumping capacity exceeds the surface water assessed.
8. Evaluate ground water rights and look at combining all rights for multiple points of diversion to balance out allocations and pumping rates.
9. The flow meter at Carriage Hill should be checked to verify that the totalizer readings being recorded are correct.
10. Inspect the flow meters at those 6 stations where calibration results indicate questionable accuracy.
11. Compare station pumping efficiency with station water rights and move excess water rights to most efficient stations, where excess capacity is also available.

12. Estimate existing irrigation demand based on irrigable area, estimate future irrigation demand based on future land use, and input demand allocations into pressure irrigation system hydraulic model to accurately simulate demand distribution within the system.
13. Identify capital improvements which improve system hydraulics for the delivery of non-potable water to points of use.
14. Review pressure irrigation system revenue sources and compare to existing and projected operation, maintenance, and capital improvements for management of the pressure irrigation system as a long-term, sustainable enterprise utility.



Appendix A
2011/2012 Nampa PI System Data

Appendix B

Irrigation District Assessments

NAMPA & MERIDIAN IRRIGATION DISTRICT
1503 FIRST STREET SOUTH, NAMPA, ID 83651-4395
Assessment Number Report

Assessment #
5000 X - -

MailTo: CITY OF NAMPA-ACCTG DPT
 224 11TH AVE SOUTH
 NAMPA ID 83651

Deeded_1: CITY OF NAMPA

Canyon County Parcel #:
 This is a City Association

Legal Description:
 NAMPA CITY INCLUSIONS PER CONTRACT

Status:	Active	Actual Acres:	3,418.00	<u>Tax Roll 2012</u>	
Roll:	Tax_Roll	District Land:	No	Assessment Expense:	13.00
Tax Group:	Regular	Urban Irrigation:		District Drainage:	11,446.08
TCCA:	No	Pending Segregation:	No	Ridenbaugh Maintenance:	106,913.71
LID:		Pending Exclusion:	No	Project Maintenance:	3,873.40
Bankruptcy:	No	Tax Deed:	No	Urban Irrigation:	0.00
Delinquent:	No				

Unpaid Receivables:

Description	Tax	Penalty	Interest	Fees/Costs	Other	Total
Tax Roll 2012 1st Half	61,123.10					61,123.10
Tax Roll 2012 2nd Half	61,123.09					61,123.09

TOTAL DUE 19-Oct-2012	\$122,246.19
------------------------------	---------------------

Paid Receivables:

Till Date	Pmt Amt	Description	Tax	Penalty	Interest	Fees/ Costs	Other	Total	Status
22-Feb-2012	249,284.72	Project O&M 2012	249,284.72					249,284.72	Paid
12-Dec-2011	114,343.67	Tax Roll 2011	114,343.67					114,343.67	Paid
29-Mar-2011	249,105.02	Project O&M 2011	249,105.02					249,105.02	Paid
03-Nov-2010	113,160.53	Tax Roll 2010	113,160.53					113,160.53	Paid
23-Feb-2010	257,399.94	Project O&M 2010	257,399.94					257,399.94	Paid
17-Nov-2009	122,146.44	Tax Roll 2009	122,146.44					122,146.44	Paid
17-Feb-2009	236,542.28	Project O&M 2009	236,542.28					236,542.28	Paid
10-Nov-2008	102,238.85	Tax Roll 2008	102,238.85					102,238.85	Paid
02-Sep-2008	191,997.88	Project O&M 2008	191,997.88					191,997.88	Paid
29-Oct-2007	279,536.28	Tax Roll 2007	279,536.28					279,536.28	Paid
29-Nov-2006	85,233.06	Tax Roll 2006	85,233.06					85,233.06	Paid
07-Mar-2006	156,250.76	Project O&M 2006	156,250.76					156,250.76	Paid
29-Nov-2005	82,954.78	Tax Roll 2005	82,954.78					82,954.78	Paid
30-Mar-2005	142,205.82	Project O&M 2005	142,205.82					142,205.82	Paid
24-Nov-2004	67,344.78	Tax Roll 2004	67,344.78					67,344.78	Paid
21-Apr-2004	131,366.87	Project O&M 2004	131,366.87					131,366.87	Paid
17-Dec-2003	67,196.36	Tax Roll 2003	67,196.36					67,196.36	Paid
30-May-2003	32,847.76	Tax Roll 2002 2nd Half	32,847.76					32,847.76	Paid
25-Mar-2003	126,707.35	Project O&M 2003	126,707.35					126,707.35	Paid
20-Dec-2002	32,847.77	Tax Roll 2002 1st Half	32,847.77					32,847.77	Paid
25-Mar-2002	30,692.27	Tax Roll 2001 2nd Half	30,692.28					30,692.28	Paid
25-Mar-2002	99,688.57	Project O&M 2002	99,688.57					99,688.57	Paid
12-Dec-2001	30,692.30	Tax Roll 2001 1st Half	30,692.29					30,692.29	Paid
30-May-2001	30,832.21	Tax Roll 2000 2nd Half	30,832.21					30,832.21	Paid
27-Mar-2001	95,178.01	Project O&M 2001	95,178.01					95,178.01	Paid
14-Dec-2000	30,832.23	Tax Roll 2000 1st Half	30,832.23					30,832.23	Paid

NAMPA & MERIDIAN IRRIGATION DISTRICT
1503 FIRST STREET SOUTH, NAMPA, ID 83651-4395
Assessment Number Report

Assessment #
5000 X - -

Extended Project O&M/Excess:

Description	Tax
Project O&M 2007	183,389.83

Water and Drainage Rights:

Ridenbaugh Miner's Inches:	1,649.96	Ridenbaugh Drainage Acres:	2,460.13	Ridenbaugh Acre Feet:	799.74
Ridenbaugh Acres:	2,459.01	Project Drainage Acres:	4,693.67	Project Acre Feet:	7,100.79
Project Miner's Inches:	2,939.66	Settlers Drainage Acres:		Arrowrock Acre Feet:	153.79
Project Acres:	4,693.67	New York Drainage Acres:			

Water Delivery:

Delivery Agent	Lateral	Tap	Rotate	RMI	RA	PMI	PA
NMID	BRAY	1988	No	148.38	216.49	18.62	29.78
NMID	CONY	1775	No	32.87	49.88	56.13	89.79
NMID	DEWY	10797	No	6.49	9.12	68.51	109.63
NMID	DEWY	12985	No			28.49	45.59
NMID	DEWY	13744	No			0.05	0.08
NMID	DEWY	14956	No			0.15	0.25
NMID	DEWY	16184	No	18.37	29.68	37.72	60.13
NMID	DUVA	5839	No	99.79	159.89	46.31	74.10
NMID	EAGL	3686	No	5.69	8.99	10.80	17.28
NMID	EDWA	26817	No	82.21	108.15	117.79	188.47
NMID	EDWA	38944	No			0.13	0.21
NMID	EDWA	38945	No	81.23	126.44	252.77	404.44
NMID	EGBT	3066	No			0.47	0.76
NMID	HERR	13670	No	34.05	55.31	49.95	79.90
NMID	HERR	19406	No	146.40	209.05	187.60	300.12
NMID	KURT	10	No	5.54	8.64	17.57	28.09
NMID	KURT	11	No	60.03	90.62	93.07	148.86
NMID	LANG	4835	No			0.69	1.10
NMID	LANG	11131	No			0.06	0.09
NMID	LANG	11140	No			0.36	0.57
NMID	LONE	920	No	95.97	150.44	238.03	373.61
NMID	MELL	606	No			47.95	76.73
NMID	NONA	17344	No	100.25	145.96	33.75	53.92
NMID	NONA	21326	No	34.59	49.69	10.41	16.66
NMID	PART	5824	No	42.30	68.22	124.70	199.51
NMID	PETE	2000	No	27.06	42.22	28.94	46.27
NMID	PETE	2668	No			0.37	0.59
NMID	PLEA	1045	No	0.21	0.26		
NMID	PLEA	2436	No	0.27	0.36		
NMID	PLEA	4117	No	25.20	34.72	8.80	14.09
NMID	RID6	196196	No	114.67	179.45	107.33	171.66
NMID	RID7	201824	No	92.00	125.15	258.00	408.16
NMID	SAVA	4373	No	35.33	57.93	76.97	123.13
NMID	SAVA	8238	No			0.22	0.35
NMID	SHER	2001	No	21.76	26.69	201.24	321.97
NMID	SHER	3297	No	22.42	36.95	111.58	178.51
NMID	SHER	3360	No			1.52	2.44
NMID	SHER	5200	No	96.12	132.89	237.88	383.24
NMID	SHER	5202	No			0.27	0.45
NMID	SHOT	8939	No			0.88	1.41
NMID	SHOT	10240	No			3.06	4.90
NMID	SHOT	10248	No			13.99	22.43
NMID	SONA	9315	No	58.02	94.50	163.98	262.24
NMID	SONA	13529	No	70.51	111.17	129.49	207.28
NMID	SONA	13540	No			0.26	0.42

**NAMPA & MERIDIAN IRRIGATION DISTRICT
1503 FIRST STREET SOUTH, NAMPA, ID 83651-4395**

Assessment Number Report

Assessment #

5000 X - -

NMID	SONA	13541	No			0.03	0.05
NMID	SONA	14157	No	92.23	130.15	152.77	244.41

Lateral	Rider Name	Primary Phone	Secondary Phone
BRAY	Brian Hamilton	461-2176	
CONY	Brian Hamilton	461-2176	
DEWY	Dean Wallin	888-2952	
DUVA	Dean Wallin	888-2952	
EAGL	Dean Wallin	888-2952	
EDWA	Brian Hamilton	461-2176	
EGBT	Dean Wallin	888-2952	
HERR	Brian Hamilton	461-2176	
KURT	Martin Franco	466-9456	
LANG	Martin Franco	466-9456	
LONE	Brian Hamilton	461-2176	
MELL	Dean Wallin	888-2952	
NONA	Martin Franco	466-9456	
PART	Brian Hamilton	461-2176	
PETE	Brian Hamilton	461-2176	
PLEA	Brian Hamilton	461-2176	
RID6	Martin Franco	466-9456	
RID7	Brian Hamilton	461-2176	
SAVA	Martin Franco	466-9456	
SHER	Brian Hamilton	461-2176	
SHOT	Martin Franco	466-9456	
SONA	Martin Franco	466-9456	

Comments:

WATER FROM WESTMIESTER ANNEX 1772'S 1-24-07

Notice Mailed to:

2012	CITY OF NAMPA-ACCTG DPT 224 11TH AVE SOUTH NAMPA ID 83651
2011	CITY OF NAMPA-ACCTG DPT 224 11TH AVE SOUTH NAMPA ID 83651
2010	CITY OF NAMPA-ACCTG DPT 224 11TH AVE SOUTH NAMPA ID 83651
2009	CITY OF NAMPA-ACCTG DPT 224 11TH AVE SOUTH NAMPA ID 83651
2008	CITY OF NAMPA-ACCTG DPT 224 11TH AVE SOUTH NAMPA ID 83651
2007	CITY OF NAMPA-ACCTG DPT 224 11TH AVE SOUTH NAMPA ID 83651
2006	CITY OF NAMPA-ACCTG DPT 224 11TH AVE SOUTH NAMPA ID 83651
2005	CITY OF NAMPA-ACCTG DPT 224 11TH AVE SOUTH NAMPA ID 83651
2004	CITY OF NAMPA-ACCTG DPT 224 11TH AVE SOUTH NAMPA ID 83651

**NAMPA & MERIDIAN IRRIGATION DISTRICT
1503 FIRST STREET SOUTH, NAMPA, ID 83651-4395**

**Assessment #
5000 X - -**

Assessment Number Report

2003 CITY OF NAMPA-ACCTG DPT
224 11TH AVE SOUTH
NAMPA ID 83651
2002 CITY OF NAMPA-ACCTG DPT
224 11TH AVE SOUTH
NAMPA ID 83651
2001 CITY OF NAMPA
411 3RD ST S
NAMPA ID 83651
2000 CITY OF NAMPA
411 3RD ST S
NAMPA ID 83651

History Log:

44. Update (25-Jul-2012 09:45 AM pholsinger)

Changed From:

Delivery:

Modified:

Delivery Agent: NMID Lateral: KURT Tap: 11 Rotate: N
RMI: 60.03 RA: 90.62 PMI: 121.56 PA: 194.45

43. Update (11-Mar-2011 08:01 AM shewlett)

Changed From:

Delivery:

Modified:

Delivery Agent: NMID Lateral: SAVA Tap: 8736 Rotate: N
RMI: 0 RA: 0 PMI: 0.22 PA: 0.35

42. Update (09-Mar-2011 06:50 PM shewlett)

Changed From:

Delivery:

Modified:

Delivery Agent: NMID Lateral: NONA Tap: 21105 Rotate: N
RMI: 34.59 RA: 49.69 PMI: 10.41 PA: 16.66

41. Update (09-Mar-2011 06:32 PM shewlett)

Changed From:

Delivery:

Modified:

Delivery Agent: NMID Lateral: KURT Tap: 10 Rotate: N
RMI: 5.54 RA: 8.64 PMI: 13.34 PA: 21.32

Deleted:

Delivery Agent: NMID Lateral: POWR Tap: 168 Rotate: N
RMI: 0 RA: 0 PMI: 4.23 PA: 6.77

40. Update (19-Mar-2010 03:00 PM shewlett)

Changed From:

Delivery:

**NAMPA & MERIDIAN IRRIGATION DISTRICT
1503 FIRST STREET SOUTH, NAMPA, ID 83651-4395**

Assessment Number Report

Assessment #

5000 X - -

Modified:

Delivery Agent: NMID Lateral: RID7 Tap: 196196 Rotate: N
RMI: 114.67 RA: 179.45 PMI: 107.33 PA: 171.66

39. Update (19-Jan-2010 10:19 AM shewlett)

Changed From:

Receivable:

Deleted:

Description: CLEAR SPRINGS SUB NO 2
Fund: 00-0000 - UNDESIGNATED
GL Number: 5093 - OTHER
Amount: \$1,785.81

38. Update (23-Jul-2009 03:30 PM mbess)

Changed From:

Delivery:

Modified:

Delivery Agent: NMID Lateral: KURT Tap: 11 Rotate: N
RMI: 51.03 RA: 76.01 PMI: 67.71 PA: 108.37

Deleted:

Delivery Agent: NMID Lateral: DEWY Tap: 14957 Rotate: N
RMI: 9 RA: 14.61 PMI: 38.98 PA: 62.3

37. Update (28-May-2009 03:12 PM shewlett)

Changed From:

Delivery:

Modified:

Delivery Agent: NMID Lateral: DEWY Tap: 10800 Rotate: N
RMI: 0 RA: 0 PMI: 6.14 PA: 9.81

Delivery Agent: NMID Lateral: KURT Tap: 11 Rotate: N
RMI: 13.81 RA: 17.64 PMI: 11.52 PA: 18.41

Delivery Agent: NMID Lateral: PETE Tap: 2000 Rotate: N
RMI: 27.06 RA: 42.22 PMI: 28.94 PA: 46.27

Delivery Agent: NMID Lateral: RID7 Tap: 201824 Rotate: N
RMI: 73.17 RA: 99.68 PMI: 240.06 PA: 379.49

Deleted:

Delivery Agent: NMID Lateral: BRAY Tap: 9404 Rotate: N
RMI: 0 RA: 0 PMI: 0.73 PA: 1.17

Delivery Agent: NMID Lateral: DEWY Tap: 9073 Rotate: N
RMI: 0 RA: 0 PMI: 15.62 PA: 25

Delivery Agent: NMID Lateral: DEWY Tap: 10830 Rotate: N
RMI: 0 RA: 0 PMI: 10 PA: 16.01

NAMPA & MERIDIAN IRRIGATION DISTRICT
1503 FIRST STREET SOUTH, NAMPA, ID 83651-4395
Assessment Number Report

Assessment #
5000 X - -

Delivery Agent: NMID Lateral: DEWY Tap: 10840 Rotate: N
RMI: 0 RA: 0 PMI: 20.79 PA: 33.27

Delivery Agent: NMID Lateral: DEWY Tap: 11940 Rotate: N
RMI: 0 RA: 0 PMI: 10.78 PA: 17.25

Delivery Agent: NMID Lateral: DEWY Tap: 19952 Rotate: N
RMI: 0 RA: 0 PMI: 0.52 PA: 0.83

Delivery Agent: NMID Lateral: DUVA Tap: 5604 Rotate: N
RMI: 6.49 RA: 9.12 PMI: 0 PA: 0

Delivery Agent: NMID Lateral: EDWA Tap: 7271 Rotate: N
RMI: 0 RA: 0 PMI: 11.33 PA: 18.13

Delivery Agent: NMID Lateral: EDWA Tap: 13363 Rotate: N
RMI: 11.36 RA: 17.94 PMI: 4.76 PA: 7.58

Delivery Agent: NMID Lateral: EDWA Tap: 30501 Rotate: N
RMI: 0 RA: 0 PMI: 0.58 PA: 0.93

Delivery Agent: NMID Lateral: EDWA Tap: 32086 Rotate: N
RMI: 6.46 RA: 6.04 PMI: 0 PA: 0

Delivery Agent: NMID Lateral: EDWA Tap: 36976 Rotate: N
RMI: 0 RA: 0 PMI: 5.2 PA: 8.32

Delivery Agent: NMID Lateral: EDWA Tap: 38944 Rotate: N
RMI: 11.08 RA: 17.4 PMI: 0 PA: 0

Delivery Agent: NMID Lateral: HERR Tap: 17918 Rotate: N
RMI: 0 RA: 0 PMI: 0.37 PA: 0.6

Delivery Agent: NMID Lateral: HERR Tap: 18740 Rotate: N
RMI: 0 RA: 0 PMI: 7.31 PA: 11.69

Delivery Agent: NMID Lateral: HERR Tap: 19610 Rotate: N
RMI: 0.56 RA: 0.75 PMI: 11.51 PA: 18.41

Delivery Agent: NMID Lateral: LANG Tap: 11131 Rotate: N
RMI: 0 RA: 0 PMI: 3.42 PA: 5.48

Delivery Agent: NMID Lateral: LONE Tap: 928 Rotate: N
RMI: 0 RA: 0 PMI: 8.1 PA: 12.96

Delivery Agent: NMID Lateral: NONA Tap: 11072 Rotate: N
RMI: 0.01 RA: 0.03 PMI: 0 PA: 0

Delivery Agent: NMID Lateral: NONA Tap: 11081 Rotate: N
RMI: 0.18 RA: 0.25 PMI: 0 PA: 0

Delivery Agent: NMID Lateral: NONA Tap: 16236 Rotate: N
RMI: 0 RA: 0 PMI: 3.27 PA: 5.24

**NAMPA & MERIDIAN IRRIGATION DISTRICT
1503 FIRST STREET SOUTH, NAMPA, ID 83651-4395**

Assessment Number Report

Assessment #

5000 X - -

Delivery Agent: NMID Lateral: NONA Tap: 16239 Rotate: N
RMI: 1.95 RA: 3.12 PMI: 0.38 PA: 0.61

Delivery Agent: NMID Lateral: NONA Tap: 17367 Rotate: N
RMI: 2.31 RA: 3.16 PMI: 0 PA: 0

Delivery Agent: NMID Lateral: NONA Tap: 19068 Rotate: N
RMI: 0 RA: 0 PMI: 0.39 PA: 0.62

Delivery Agent: NMI

36. Update (03-Apr-2009 12:27 PM pbecker)

Changed From:

Comments: WE NEED TO HAVE A DELIVERY FOR 1888E-- FROM NONA 19068

Delivery:

Modified:

Delivery Agent: NMID Lateral: KURT Tap: 10 Rotate: N
RMI: 5.54 RA: 8.64 PMI: 10.03 PA: 16.04

Deleted:

Delivery Agent: Pioneer Lateral: (none) Tap: 0 Rotate: N
RMI: 0 RA: 0 PMI: 3.13 PA: 5

35. Update (29-Jul-2008 02:00 PM shewlett)

Changed From:

Delivery:

Modified:

Delivery Agent: NMID Lateral: KURT Tap: 11 Rotate: N
RMI: 73.17 RA: 99.68 PMI: 240.06 PA: 379.49

34. Update (17-Jul-2008 03:40 PM shewlett)

Changed From:

Delivery:

Modified:

Delivery Agent: NMID Lateral: KURT Tap: 11 Rotate: N
RMI: 71.59 RA: 97.16 PMI: 239.01 PA: 377.81

Deleted:

Delivery Agent: NMID Lateral: NONA Tap: 9824 Rotate: N
RMI: 0.24 RA: 0.39 PMI: 0.22 PA: 0.37

Delivery Agent: NMID Lateral: NONA Tap: 11084 Rotate: N
RMI: 1.34 RA: 2.13 PMI: 0.83 PA: 1.31

33. Update (02-Jun-2008 12:34 PM shewlett)

Changed From:

Comments: THE TRANSFER THAT WAS COMPLETED ON 4-2-08 WAS FOR #1888E--. STILL USING GRAVITY

NAMPA & MERIDIAN IRRIGATION DISTRICT
1503 FIRST STREET SOUTH, NAMPA, ID 83651-4395
Assessment Number Report

Assessment #
5000 X - -

32. Update (23-Apr-2008 03:09 PM shewlett)

Changed From:

Delivery:

Modified:

Delivery Agent: NMID Lateral: KURT Tap: 11 Rotate: N
RMI: 71.59 RA: 97.16 PMI: 237.94 PA: 376.1

Deleted:

Delivery Agent: BoardControl Lateral: (none) Tap: 0 Rotate: N
RMI: 0 RA: 0 PMI: 1.07 PA: 1.71

31. Update (02-Apr-2008 01:15 PM shewlett)

Changed From:

Comments: AFTER DEANNEXING 2063H--. THE WATER RIGHTS ON THE AUG AND SHER 2001 CORRECTED

30. Update (02-Apr-2008 01:14 PM shewlett)

Changed From:

Delivery:

Modified:

Delivery Agent: NMID Lateral: KURT Tap: 11 Rotate: N
RMI: 71.59 RA: 97.16 PMI: 238.33 PA: 376.72

29. Update (24-Jan-2008 04:43 PM JShively)

24-Jan-2008. Exclusion Petition Deleted.

Petition Created: 06-Aug-2004

Petition Printed: 06-Aug-2004

Petition Received:

Petitioner 1: CITY OF NAMPA-ACCTG DPT

Petitioner 2:

28. Update (13-Jul-2007 03:34 PM shewlett)

Changed From:

Delivery:

Modified:

Delivery Agent: NMID Lateral: BRAY Tap: 5555 Rotate: N
RMI: 4.48 RA: 7.39 PMI: 9.38 PA: 15

Delivery Agent: NMID Lateral: CONY Tap: 6318 Rotate: N
RMI: 4.49 RA: 7.39 PMI: 7.01 PA: 11.21

Delivery Agent: NMID Lateral: DEWY Tap: 16184 Rotate: N
RMI: 7.33 RA: 11.18 PMI: 3.58 PA: 5.68

Delivery Agent: NMID Lateral: DUVA Tap: 5839 Rotate: N
RMI: 85.97 RA: 137.78 PMI: 39.59 PA: 63.35

Delivery Agent: NMID Lateral: EDWA Tap: 38945 Rotate: N

NAMPA & MERIDIAN IRRIGATION DISTRICT
1503 FIRST STREET SOUTH, NAMPA, ID 83651-4395

Assessment Number Report

Assessment #

5000 X - -

RMI: 0 RA: 0 PMI: 9.82 PA: 15.72

Delivery Agent: NMID Lateral: EGBT Tap: 1695 Rotate: N

RMI: 4.48 RA: 7.39 PMI: 0.31 PA: 0.5

Delivery Agent: NMID Lateral: IIERR Tap: 13670 Rotate: N

RMI: 12.22 RA: 19.76 PMI: 18.83 PA: 30.13

Delivery Agent: NMID Lateral: HERR Tap: 13682 Rotate: N

RMI: 9.48 RA: 15.39 PMI: 13.64 PA: 21.82

Delivery Agent: NMID Lateral: KURT Tap: 11 Rotate: N

RMI: 154.16 RA: 208.76 PMI: 446.9 PA: 705.57

Delivery Agent: NMID Lateral: LONE Tap: 920 Rotate: N

RMI: 4.8 RA: 7.68 PMI: 14.47 PA: 23.17

Delivery Agent: NMID Lateral: NONA Tap: 21101 Rotate: N

RMI: 14.48 RA: 23.39 PMI: 1.35 PA: 2.16

Delivery Agent: NMID Lateral: NONA Tap: 21174 Rotate: N

RMI: 10.08 RA: 16.34 PMI: 5.78 PA: 9.24

Delivery Agent: NMID Lateral: PART Tap: 5824 Rotate: N

RMI: 22.78 RA: 37.1 PMI: 37.24 PA: 59.6

Delivery Agent: NMID Lateral: PETE Tap: 2000 Rotate: N

RMI: 0 RA: 0 PMI: 18.29 PA: 29.25

Delivery Agent: NMID Lateral: PLEA Tap: 4117 Rotate: N

RMI: 22.32 RA: 35.71 PMI: 89.03 PA: 142.46

Delivery Agent: NMID Lateral: RID7 Tap: 206764 Rotate: N

RMI: 20.34 RA: 30.37 PMI: 22.65 PA: 36.25

Delivery Agent: NMID Lateral: SAVA Tap: 4373 Rotate: N

RMI: 4.49 RA: 7.39 PMI: 43.62 PA: 69.8

Delivery Agent: NMID Lateral: SHER Tap: 2001 Rotate: N

RMI: 7.55 RA: 11.91 PMI: 58.96 PA: 94.35

Delivery Agent: NMID Lateral: SHER Tap: 2018 Rotate: N

RMI: 0 RA: 0 PMI: 14.75 PA: 23.6

Delivery Agent: NMID Lateral: SHER Tap: 6448 Rotate: N

RMI: 0 RA: 0 PMI: 11.73 PA: 18.77

Delivery Agent: NMID Lateral: SONA Tap: 9315 Rotate: N

RMI: 4.48 RA: 7.4 PMI: 17.62 PA: 28.19

Delivery Agent: NMID Lateral: SONA Tap: 13538 Rotate: N

RMI: 4.67 RA: 7.39 PMI: 4.07 PA: 6.53

Delivery Agent: NMID Lateral: SONA Tap: 14166 Rotate: N

RMI: 4.48 RA: 7.39 PMI: 4.31 PA: 6.89

NAMPA & MERIDIAN IRRIGATION DISTRICT
1503 FIRST STREET SOUTH, NAMPA, ID 83651-4395
Assessment Number Report

Assessment #
5000 X - -

Deleted:

Delivery Agent: NMID Lateral: AGUS Tap: 27244 Rotate: N
RMI: 4.48 RA: 7.39 PMI: 36.55 PA: 58.47

Delivery Agent: NMID Lateral: BRAY Tap: 6461 Rotate: N
RMI: 4.48 RA: 7.39 PMI: 4.59 PA: 7.36

Delivery Agent: NMID Lateral: BRAY Tap: 6471 Rotate: N
RMI: 4.49 RA: 7.39 PMI: 16.32 PA: 26.11

Delivery Agent: NMID Lateral: BRAY Tap: 7621 Rotate: N
RMI: 4.48 RA: 7.4 PMI: 3.61 PA: 5.77

Deli

27. Update (10-May-2007 10:28 AM shewlett)

Changed From:

Comments: Pioneer Delivery changed for deanneation of 2000-14

Delivery:

Modified:

Delivery Agent: NMID Lateral: AGUS Tap: 27244 Rotate: N
RMI: 4.48 RA: 7.39 PMI: 31.2 PA: 49.92

Delivery Agent: NMID Lateral: SHER Tap: 2001 Rotate: N
RMI: 7.55 RA: 11.91 PMI: 61.84 PA: 98.94

26. RemovedFromAssociation (10-May-2007 10:21 AM pbecker)

Members Removed:

2063H--

25. Update (16-Apr-2007 04:52 PM shewlett)

Changed From:

Delivery:

Modified:

Delivery Agent: NMID Lateral: DEWY Tap: 10818 Rotate: N
RMI: 4.49 RA: 7.39 PMI: 6.31 PA: 10.1

24. Update (25-Jan-2007 12:44 PM shewlett)

Changed From:

Delivery:

Modified:

Delivery Agent: NMID Lateral: SHER Tap: 6450 Rotate: N
RMI: 0 RA: 0 PMI: 11.53 PA: 18.45

23. Update (25-Jan-2007 12:13 PM shewlett)

Changed From:

NAMPA & MERIDIAN IRRIGATION DISTRICT
1503 FIRST STREET SOUTH, NAMPA, ID 83651-4395
Assessment Number Report

Assessment #
5000 X - -

Delivery:

Modified:

Delivery Agent: NMID Lateral: EDWA Tap: 38944 Rotate: N
RMI: 0 RA: 0 PMI: 23.78 PA: 38.05

Deleted:

Delivery Agent: Pioneer Lateral: (none) Tap: 0 Rotate: N
RMI: 0 RA: 0 PMI: 5.52 PA: 8.86

22. Update (24-Jan-2007 10:39 AM pbecker)

Changed From:

Delivery:

Modified:

Delivery Agent: Pioneer Lateral: (none) Tap: 0 Rotate: N
RMI: 0 RA: 0 PMI: 5.33 PA: 8.55

Delivery Agent: NMID Lateral: AGUS Tap: 27244 Rotate: N
RMI: 4.48 RA: 7.39 PMI: 36.74 PA: 58.78

21. RemovedFromAssociation (24-Jan-2007 09:54 AM pbecker)

Members Removed:

2000--14A

20. RemovedFromAssociation (23-Jan-2007 11:46 AM pbecker)

Members Removed:

2033--

19. Update (23-Jan-2007 11:44 AM pbecker)

Changed From:

Delivery:

Modified:

Delivery Agent: Pioneer Lateral: (none) Tap: 0 Rotate: N
RMI: 0 RA: 0 PMI: 5.52 PA: 8.86

Delivery Agent: NMID Lateral: FOX Tap: 2492 Rotate: N
RMI: 13.46 RA: 21.54 PMI: 6.73 PA: 10.73

18. Update (15-Sep-2006 02:38 PM shewlett)

Changed From:

Delivery:

Modified:

Delivery Agent: NMID Lateral: EDWA Tap: 9233 Rotate: N
RMI: 2.21 RA: 3.51 PMI: 6.66 PA: 10.66

17. RemovedFromAssociation (20-Apr-2006 03:46 PM pbecker)

**NAMPA & MERIDIAN IRRIGATION DISTRICT
1503 FIRST STREET SOUTH, NAMPA, ID 83651-4395**

Assessment Number Report

Assessment #

5000 X - -

Members Removed:

2000--14A

16. RemovedFromAssociation (20-Apr-2006 03:46 PM pbecker)

Members Removed:

2071A--5A

15. RemovedFromAssociation (20-Apr-2006 02:29 PM pbecker)

Members Removed:

2050BA-1-1, 2050BA-3-3, 2050BA-3-4, 2050BA-3-5, 2050BA-3-6, 2050BA-3-7, 2050BA-3-8, 2050BA-3-9, 2050BA-3-10,
2050BA-3-11, 2050BA-3-13, 2050BA-3-14, 2050BA-3-15, 2050BA-3-16, 2050BA-3-17, 2050BA-3-18, 2050BA-3-19,
2050BA-3-20, 2050BA-3-21, 2050BA-3-22, 2050BA-3-23, 2050BA-3-25, 2050BA-3-26, 2050BA-3-27, 2050BA-3-28,
2050BA-3-29, 2050BA-3-30, 2050BA-3-31, 2050BA-3-32, 2050BA-3-33, 2050BA-3-35, 2050BA-3-36, 2050BA-3-37,
2050BA-3-38, 2050BA-3-39, 2050BA-3-40, 2050BA-3-41, 2050BA-3-42, 2050BA-3-43, 2050BA-4-1, 2050BA-4-2,
2050BA-4-3, 2050BA-4-4, 2050BA-4-5, 2050BA-4-7, 2050BA-4-8, 2050BA-4-9, 2050BA-4-10, 2050BA-4-11, 2050BA-4-12,
2050BA-4-13, 2050BA-4-14, 2050BA-4-15, 2050BA-4-16, 2050BA-4-17, 2050BA-4-18, 2050BA-4-19, 2050BA-4-20,
2050BA-4-21, 2050BA-4-22, 2050BA-4-23

14. Update (06-Apr-2006 04:11 PM shewlett)

Changed From:

Delivery:

Modified:

Delivery Agent: NMID Lateral: SAVA Tap: 4377 Rotate: N

RMI: 4.49 RA: 7.39 PMI: 32.44 PA: 51.91

13. RemovedFromAssociation (06-Apr-2006 02:18 PM pbecker)

Members Removed:

1921--3

12. Migrated (02-Sep-2004 12:00 AM Migrated)

Userbase reason for legal change: Changed by a Segregation.

NAMPA CITY INCLUSIONS PER CONTRACT

11. Segregated (02-Sep-2004 12:00 AM Migrated)

Userbase Segregation Transaction #: PAB1060

Canceled:

Remaining In: 5000X--

New: 1888J--, 2092--1, 2092--7A

Remaining-In Parcel

10. Segregated (14-Aug-2003 12:00 AM Migrated)

Userbase Segregation Transaction #: PAB0931

Canceled:

Remaining In: 5000X--

New: 1892--, 1952BA--, 2075UA--

Remaining-In Parcel

9. Migrated (14-Aug-2003 12:00 AM Migrated)

Userbase reason for legal change: Changed by a Segregation.

**NAMPA & MERIDIAN IRRIGATION DISTRICT
1503 FIRST STREET SOUTH, NAMPA, ID 83651-4395**

Assessment Number Report

Assessment #

5000 X - -

NAMPA CITY INCLUSIONS PER CONTRACT

8. Migrated (04-Jun-2001 12:00 AM Migrated)

Userbase reason for legal change: Changed by a Segregation.

NAMPA CITY ANNEXATIONS PER CONTRACT

7. Segregated (04-Jun-2001 12:00 AM Migrated)

Userbase Segregation Transaction #: PAB0602

Canceled:

Remaining In: 5000X--

New: 1896A--, 1896T--

Remaining-In Parcel

6. Migrated (24-Apr-2001 12:00 AM Migrated)

Userbase reason for legal change: Legal Description Updated.

NAMPA CITY INCLUSIONS PER CONTRACT

5. Migrated (20-Sep-2000 12:00 AM Migrated)

Userbase reason for legal change: Changed by a Segregation.

NAMPA CITY INCLUSIONS PER CONTRACT

4. Segregated (20-Sep-2000 12:00 AM Migrated)

Userbase Segregation Transaction #: PAB0548

Canceled:

Remaining In: 5000X--

New: 2156D--

Remaining-In Parcel

3. Migrated (29-Sep-1997 12:00 AM Migrated)

Userbase reason for legal change: Changed by a Segregation.

NAMPA CITY INCLUSIONS PER CONTRACT

2. Segregated (29-Sep-1997 12:00 AM Migrated)

Userbase Segregation Transaction #: BFW0257

Canceled:

Remaining In: 5000X--

New: 2020--, 2020B--, 2020C--, 2020D--, 2020E--

Remaining-In Parcel

1. Segregated (13-Jul-1995 12:00 AM Migrated)

Userbase Segregation Transaction #: BFW0204

Canceled:

Remaining In: 2086A--, 5000X--

New: 2075G--

Remaining-In Parcel

Pioneer Acct #:	Physical Location:	Acres:	Pioneer's Delivery Point:	Gate #:	Notes:
0280-107	N. Black Butte Ct.	5.64	1.7 West Lateral	18	Black Butte Business Park
0443-28	16409 11th Ave. North	1.33	9.8 Lateral	3	
0448-2	16680 11th Ave. North	12.21	Korn Well	543	Optimist Park - This property was annexed to Nampa on 5/7/12 Ord #4016, will fall under acct #7777 now.
0495	Madison Ave.	2.74	13.3 Center Lateral	5	
0514	654 Carol Ave.	1.24	6.0 Lateral	3A	
0515	Carol Ave.	2.09	6.0 Lateral	4	
0818-2	0 W. Orchard Ave.	0.55	Bitlesen Pump		
0865	1st St. South	12	Phyllis	1C	
-3	0 Northside Blvd.	0.49	D Frost Well	32, 33, 35	
1371	14255 Midway Rd.	52.479	Reinemer Pump	68	
7777	City of Nampa Annexed Acres	2,693.22			

PIONEER IRRIGATION DISTRICT

PO Box 426

Caldwell, ID 83606

(208) 459-3617 - www.pioneerirrigation.com

Annual Irrigation Tax Billing Statement

Billing Date: 10/2/2012

City of Nampa
411 3rd Street South
Nampa, ID 83651

Acct. No.: 0280-107
Acres: 5.64
Property Address: N. Black Butte Ct.

Legal Description: Section 8, T3N, R2W
Ditchrider: 3

Long Legal Description: Block 2, Lot 1 - Black Butte Business Park #1 trails

2012 Assessment:

Assessment Expense	20.00
Operation & Maintenance	372.24
Total 2012 Assessment	<u>392.24</u>

Grand Total Due	<u>392.24</u>
------------------------	----------------------

Please direct questions to the office at 459-3617. Please mail your payment to the address above.

ALL DELINQUENCIES must be paid before the current year's assessments can be accepted. This means any payments made will be applied to the oldest tax balance first. Per Idaho Code, a penalty of 2% is added to any delinquent amount, plus interest of 1% per month (12% per annum) until paid. NO FURTHER STATEMENTS WILL BE MAILED.

Use these two coupons if paying in halves.

Use this coupon if paying in full.

First Half Payment 2012

Due December 20, 2012

Acct. No.: 0280-107
Name: City of Nampa
Amount: 196.12

Delinquent if not paid by:
December 20, 2012
Pioneer Irrigation District

Second Half Payment 2012

Due June 20, 2013

Acct. No.: 0280-107
Name: City of Nampa
Amount: 196.12

Delinquent if not paid by:
June 20, 2013
Pioneer Irrigation District

Full Payment 2012

Due December 20, 2012

Acct. No.: 0280-107
Name: City of Nampa
Amount: 392.24

Delinquent if not paid by:
December 20, 2012
Pioneer Irrigation District

PIONEER IRRIGATION DISTRICT

PO Box 426

Caldwell, ID 83606

(208) 459-3617 - www.pioneerirrigation.com

Annual Irrigation Tax Billing Statement

Billing Date: 10/2/2012

City of Nampa
411 3rd Street South
Nampa, ID 83651

Acct. No.: 0443-28
Acres: 1.33
Property Address: 16409 11th Ave. North
Legal Description: Section 11, T3N, R2W
Ditchrider: 2

Long Legal Description: Lot 15, Block 2, Yellow Fern

2012 Assessment:

Assessment Expense	20.00
Operation & Maintenance	87.78
Total 2012 Assessment	<u>107.78</u>

Grand Total Due 107.78

Please direct questions to the office at 459-3617. Please mail your payment to the address above.

ALL DELINQUENCIES must be paid before the current year's assessments can be accepted. This means any payments made will be applied to the oldest tax balance first. Per Idaho Code, a penalty of 2% is added to any delinquent amount, plus interest of 1% per month (12% per annum) until paid. NO FURTHER STATEMENTS WILL BE MAILED.

Use these two coupons if paying in halves.

First Half Payment 2012

Due December 20, 2012

Acct. No.: 0443-28
Name: City of Nampa
Amount: 53.89

Delinquent if not paid by:
December 20, 2012
Pioneer Irrigation District

Second Half Payment 2012

Due June 20, 2013

Acct. No.: 0443-28
Name: City of Nampa
Amount: 53.89

Delinquent if not paid by:
June 20, 2013
Pioneer Irrigation District

Use this coupon if paying in full.

Full Payment 2012

Due December 20, 2012

Acct. No.: 0443-28
Name: City of Nampa
Amount: 107.78

Delinquent if not paid by:
December 20, 2012
Pioneer Irrigation District

PIONEER IRRIGATION DISTRICT

PO Box 426

Caldwell, ID 83606

(208) 459-3617 - www.pioneerirrigation.com

Annual Irrigation Tax Billing Statement

Billing Date: 10/2/2012

City of Nampa
City Clerk
411 3rd Street South
Nampa, ID 83651

Acct. No.: 0495
Acres: 2.74
Property Address: Madison Ave.

Legal Description: Section 15, T3N, R2W
Ditchrider: 3

Long Legal Description: Part Lot 6, Frazers Acp, Tracts lying W of pid lateral 13.3

2012 Assessment:

Assessment Expense	20.00
Operation & Maintenance	180.84
Total 2012 Assessment	<u>200.84</u>

Grand Total Due	<u><u>200.84</u></u>
------------------------	----------------------

Please direct questions to the office at 459-3617. Please mail your payment to the address above.

ALL DELINQUENCIES must be paid before the current year's assessments can be accepted. This means any payments made will be applied to the oldest tax balance first. Per Idaho Code, a penalty of 2% is added to any delinquent amount, plus interest of 1% per month (12% per annum) until paid. NO FURTHER STATEMENTS WILL BE MAILED.

Use these two coupons if paying in halves.

Use this coupon if paying in full.

First Half Payment 2012

Due December 20, 2012

Acct. No.: 0495
Name: City of Nampa
Amount: 100.42

Delinquent if not paid by:
December 20, 2012
Pioneer Irrigation District

Second Half Payment 2012

Due June 20, 2013

Acct. No.: 0495
Name: City of Nampa
Amount: 100.42

Delinquent if not paid by:
June 20, 2013
Pioneer Irrigation District

Full Payment 2012

Due December 20, 2012

Acct. No.: 0495
Name: City of Nampa
Amount: 200.84

Delinquent if not paid by:
December 20, 2012
Pioneer Irrigation District

PIONEER IRRIGATION DISTRICT

PO Box 426

Caldwell, ID 83606

(208) 459-3617 - www.pioneerirrigation.com

Annual Irrigation Tax Billing Statement

Billing Date: 10/2/2012

City of Nampa
411 3rd St. South
Nampa, ID 83651

Acct. No.: 0514
Acres: 1.24
Property Address: 654 Carol Ave.

Legal Description: Section 15, T3N, R2W
Ditchrider: 3

Long Legal Description: Nampa City Acres4, Comm SE cor of SW1/4, NW1/4, N132.51, W65, S240, E265, N107.4
9 pob, excpt piece Sw cor 80'x120 cont .22 acre

2012 Assessment:

Assessment Expense	20.00
Operation & Maintenance	81.84
Total 2012 Assessment	<u>101.84</u>

Grand Total Due 101.84

Please direct questions to the office at 459-3617. Please mail your payment to the address above.

ALL DELINQUENCIES must be paid before the current year's assessments can be accepted. This means any payments made will be applied to the oldest tax balance first. Per Idaho Code, a penalty of 2% is added to any delinquent amount plus interest of 1% per month (12% per annum) until paid. NO FURTHER STATEMENTS WILL BE MAILED.

Use these two coupons if paying in halves.

Use this coupon if paying in full.

First Half Payment 2012

Due December 20, 2012

Acct. No.: 0514
Name: City of Nampa
Amount: 50.92

Delinquent if not paid by:
December 20, 2012
Pioneer Irrigation District

Second Half Payment 2012

Due June 20, 2013

Acct. No.: 0514
Name: City of Nampa
Amount: 50.92

Delinquent if not paid by:
June 20, 2013
Pioneer Irrigation District

Full Payment 2012

Due December 20, 2012

Acct. No.: 0514
Name: City of Nampa
Amount: 101.84

Delinquent if not paid by:
December 20, 2012
Pioneer Irrigation District

PIONEER IRRIGATION DISTRICT

PO Box 426

Caldwell, ID 83606

(208) 459-3617 - www.pioneerirrigation.com

Annual Irrigation Tax Billing Statement

Billing Date: 10/2/2012

City of Nampa
City Clerk
411 Third Street South
Nampa, ID 83651

Acct. No.: 0515
Acres: 2.09
Property Address: Carol Ave.

Legal Description: Section 15, T3N, R2W
Ditchrider: 3

Long Legal Description: Nampa City Acres4, Comm SE cor SW1/4, NW1/4, N132.51, W265, S120 pob, E80, S120, W80, N120 pob

2012 Assessment:

Assessment Expense	20.00
Operation & Maintenance	137.94
Total 2012 Assessment	<u>157.94</u>

Grand Total Due 157.94

Please direct questions to the office at 459-3617. Please mail your payment to the address above.

ALL DELINQUENCIES must be paid before the current year's assessments can be accepted. This means any payments made will be applied to the oldest tax balance first. Per Idaho Code, a penalty of 2% is added to any delinquent amount, plus interest of 1% per month (12% per annum) until paid. NO FURTHER STATEMENTS WILL BE MAILED.

Use these two coupons if paying in halves.

Use this coupon if paying in full.

First Half Payment 2012

Due December 20, 2012

Acct. No.: 0515
Name: City of Nampa
Amount: 78.97

Delinquent if not paid by:
December 20, 2012
Pioneer Irrigation District

Second Half Payment 2012

Due June 20, 2013

Acct. No.: 0515
Name: City of Nampa
Amount: 78.97

Delinquent if not paid by:
June 20, 2013
Pioneer Irrigation District

Full Payment 2012

Due December 20, 2012

Acct. No.: 0515
Name: City of Nampa
Amount: 157.94

Delinquent if not paid by:
December 20, 2012
Pioneer Irrigation District

PIONEER IRRIGATION DISTRICT

PO Box 426

Caldwell, ID 83606

(208) 459-3617 - www.pioneerirrigation.com

Annual Irrigation Tax Billing Statement

Billing Date: 10/2/2012

City of Nampa
411 3rd St. S.
Nampa, ID 83651

Acct. No.: 0818-2
Acres: 0.55
Property Address: 0 W Orchard Ave.

Legal Description: Section 20, T3N, R2W
Ditchrider: 4

Long Legal Description: Comm. NW corner NE1/4; th. E 240' to Elijah Drain; th SE along drain 500' to POB
; th continuing SE 345', W 172.33', N 300' to POB

2012 Assessment:

Assessment Expense	20.00
Operation & Maintenance	66.00
Total 2012 Assessment	<u>86.00</u>

Grand Total Due 86.00

Please direct questions to the office at 459-3617. Please mail your payment to the address above.

ALL DELINQUENCIES must be paid before the current year's assessments can be accepted. This means any payments made will be applied to the oldest tax balance first. Per Idaho Code, a penalty of 2% is added to any delinquent amount, plus interest of 1% per month (12% per annum) until paid. NO FURTHER STATEMENTS WILL BE MAILED.

Use these two coupons if paying in halves.

Use this coupon if paying in full.

First Half Payment 2012

Due December 20, 2012

Acct. No.: 0818-2
Name: City of Nampa
Amount: 43.00

Delinquent if not paid by:
December 20, 2012
Pioneer Irrigation District

Second Half Payment 2012

Due June 20, 2013

Acct. No.: 0818-2
Name: City of Nampa
Amount: 43.00

Delinquent if not paid by:
June 20, 2013
Pioneer Irrigation District

Full Payment 2012

Due December 20, 2012

Acct. No.: 0818-2
Name: City of Nampa
Amount: 86.00

Delinquent if not paid by:
December 20, 2012
Pioneer Irrigation District

PIONEER IRRIGATION DISTRICT

PO Box 426

Caldwell, ID 83606

(208) 459-3617 - www.pioneerirrigation.com

Annual Irrigation Tax Billing Statement

Billing Date: 10/2/2012

City of Nampa
City Clerk
411 3rd Street South
Nampa, ID 83651

Acct. No.: 0865
Acres: 12
Property Address: 1st St. South

Legal Description: Section 22, T3N, R2W
Ditchrider: 4

Long Legal Description: All NW1/4, NW1/4, lying S&W of OSLRR, all N3/4, W1/2, SE1/4, NW1/4 lying S&W of RR

2012 Assessment:

Assessment Expense	20.00
Operation & Maintenance	792.00
Total 2012 Assessment	<u>812.00</u>

Grand Total Due 812.00

Please direct questions to the office at 459-3617. Please mail your payment to the address above.

ALL DELINQUENCIES must be paid before the current year's assessments can be accepted. This means any payments made will be applied to the oldest tax balance first. Per Idaho Code, a penalty of 2% is added to any delinquent amount, plus interest of 1% per month (12% per annum) until paid. NO FURTHER STATEMENTS WILL BE MAILED.

Use these two coupons if paying in halves.

Use this coupon if paying in full.

First Half Payment 2012

Due December 20, 2012

Acct. No.: 0865
Name: City of Nampa
Amount: 406.00

Delinquent if not paid by:
December 20, 2012
Pioneer Irrigation District

Second Half Payment 2012

Due June 20, 2013

Acct. No.: 0865
Name: City of Nampa
Amount: 406.00

Delinquent if not paid by:
June 20, 2013
Pioneer Irrigation District

Full Payment 2012

Due December 20, 2012

Acct. No.: 0865
Name: City of Nampa
Amount: 812.00

Delinquent if not paid by:
December 20, 2012
Pioneer Irrigation District

PIONEER IRRIGATION DISTRICT

PO Box 426

Caldwell, ID 83606

(208) 459-3617 - www.pioneerirrigation.com

Annual Irrigation Tax Billing Statement

Billing Date: 10/2/2012

City of Nampa
Public Works Department
411 Third Street South
Nampa, ID 83651

Acct. No.: 1093-3
Acres: 0.49
Property Address: 0 Northside Blvd.

Legal Description: Section 34, T4N, R2W
Ditchrider: 2

Long Legal Description: Comm SW cor SW 1/4, E 299' to pob, N 117', E 20', NE 129', E 100', SW 262',
W 63 to pob

2012 Assessment:

Credit Balance	(86.00)
Assessment Expense	20.00
Operation & Maintenance	66.00
Total 2012 Assessment	<u>0.00</u>

Grand Total Due 0.00

Please direct questions to the office at 459-3617. Please mail your payment to the address above.

ALL DELINQUENCIES must be paid before the current year's assessments can be accepted. This means any payments made will be applied to the oldest tax balance first. Per Idaho Code, a penalty of 2% is added to any delinquent amount, plus interest of 1% per month (12% per annum) until paid. NO FURTHER STATEMENTS WILL BE MAILED.

Use these two coupons if paying in halves.

Use this coupon if paying in full.

First Half Payment 2012

Due December 20, 2012

Acct. No.: 1093-3
Name: City of Nampa
Amount: 0.00

Delinquent if not paid by:
December 20, 2012
Pioneer Irrigation District

Second Half Payment 2012

Due June 20, 2013

Acct. No.: 1093-3
Name: City of Nampa
Amount: 0.00

Delinquent if not paid by:
June 20, 2013
Pioneer Irrigation District

Full Payment 2012

Due December 20, 2012

Acct. No.: 1093-3
Name: City of Nampa
Amount: 0.00

Delinquent if not paid by:
December 20, 2012
Pioneer Irrigation District

PIONEER IRRIGATION DISTRICT

PO Box 426

Caldwell, ID 83606

(208) 459-3617 - www.pioneerirrigation.com

Annual Irrigation Tax Billing Statement

Billing Date: 10/2/2012

City of Nampa
131 Constitution Way
Nampa, ID 83686

Acct. No.: 1371
Acres: 52.47999
Property Address: 14255 Midway Rd.

Legal Description: Section 24, T3N, R3W
Ditchrider: 5

Long Legal Description: NE1/4, SE1/4, SW of drain, E3/4, E1/2, NW1/4, SE1/4, expt pid 1371-1, .60 acre N
E1/4, SE1/4

2012 Assessment:

Assessment Expense	20.00
Operation & Maintenance	3,463.68
Total 2012 Assessment	<u>3,483.68</u>

Grand Total Due 3,483.68

Please direct questions to the office at 459-3617. Please mail your payment to the address above.

ALL DELINQUENCIES must be paid before the current year's assessments can be accepted. This means any payments made will be applied to the oldest tax balance first. Per Idaho Code, a penalty of 2% is added to any delinquent amount, plus interest of 1% per month (12% per annum) until paid. NO FURTHER STATEMENTS WILL BE MAILED.

Use these two coupons if paying in halves.

Use this coupon if paying in full.

First Half Payment 2012

Due December 20, 2012

Acct. No.: 1371
Name: City of Nampa
Amount: 1,741.84

Delinquent if not paid by:
December 20, 2012
Pioneer Irrigation District

Second Half Payment 2012

Due June 20, 2013

Acct. No.: 1371
Name: City of Nampa
Amount: 1,741.84

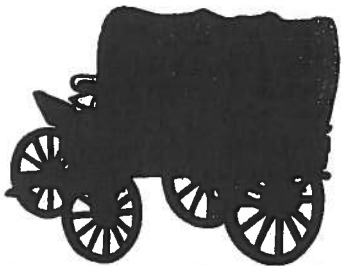
Delinquent if not paid by:
June 20, 2013
Pioneer Irrigation District

Full Payment 2012

Due December 20, 2012

Acct. No.: 1371
Name: City of Nampa
Amount: 3,483.68

Delinquent if not paid by:
December 20, 2012
Pioneer Irrigation District



Pioneer Irrigation District

P.O. BOX 426 • CALDWELL, IDAHO 83606
(208) 459-3617
www.pioneerirrigation.com

October 5, 2012

Nampa Municipal Irrigation District - City of Nampa
Attention: Accounts Payable
224 11th Avenue South
Nampa, Id 83651
Fax: 465-2248 & 468-5731

RE: 2012 Irrigation Assessments – Pioneer Account #7777

Please be advised that the Nampa Municipal Irrigation District is being assessed as follows:

2012 irrigation assessment on 100 acres at 2/3 of regular rate (\$66.00 per acre x 2/3 = \$43.99 per acre)	\$4,399.00
--	------------

2011 irrigation assessment on previous annexations of 2575.15 acres at \$66.00 per acre	\$169,959.90
---	--------------

Annexations since 2011 billing

Ordinance #4029	Dated 8/6/2012	1.54 acres
Ordinance #4030	Dated 8/6/2012	0.673 acres
Ordinance #4016	Dated 5/7/2012	16.34 acres
Ordinance #3995	Dated 12/5/2011	<u>0.86 acres</u>
		18.07 acres

2012 irrigation assessment on current annexations of 18.07 acres at \$66.00 per acre	\$1,192.62
--	------------

I HEREBY CERTIFY THE AMOUNT OF **\$175,551.52** IS NOW DUE AND PAYABLE. If you have questions regarding this billing, please do not hesitate to call me.

Sincerely,

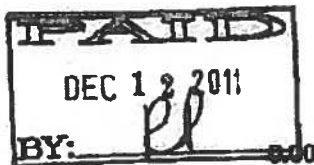
Dawn Fowler
Secretary/Treasurer

Boise-Kuna Irrigation District

P.O. Box 330
129 North School Ave
Kuna, ID 83634 (208) 922-5608

November 08, 2011

City of Nampa
224 11th Ave S
Nampa, ID 83651-0000



Delinquencies

Delinquency (Must be paid in Full)	0.00
Filing Fees	0.00
Interest due as of 12/20/2011	0.00
Total, Delinquencies:	0.00

Fall Assessment

2010 - Unpaid Excess	0.00
2011 - Unpaid Toll	0.00
2011 - PUIS 275.00 per acre	0.00
2011 - District Assessment 2.00 per acre	685.48
2011 - Assessment Expense Fund 10.00 per acre	10.00
Total, Fall Assessment:	695.48

2011

Spring Assessment

2011 - Excess @ \$ 14.00 per acre ft.	6.00
2012 - Toll @ \$ 60.00 per acre	20,564.40
**** Power Credit \$ 17.00 per acre	-5,826.58
Total, Spring Assessment:	14,737.82

2012

TOTAL AMOUNT DUE: 15,433.30

A penalty of 2% is added to the delinquent amount and the total amount bears interest of 1% per month (12% per annum) until paid. NO WATER DELIVERY WILL BE MADE UNTIL PAID IN FULL. NO FURTHER NOTICE OF AMOUNT DUE WILL BE SENT. Checks accepted only subject to final payment thereof.

Thank You!

Lauren S. Boehlke
Secretary-Treasurer

Acct. No.: 480 B

Acres: 342.74

Address:

224 11th Ave S
Nampa, ID 83651-0000

Legal Description:

See Comments
Sec. 3, 4, 9 2N 2W
Sec. 31, 32, 33 3N 2W

Delinquent Payment

Acct. No.: 480 B
Name: City of Nampa
Date Due: Dec 20, 2011
Amount: 0.00
Boise-Kuna Irrigation District

Fall Payment

Acct. No.: 480 B
Name: City of Nampa
Date Due: Dec 20, 2011
Amount: 695.48
First half becomes delinquent if not paid on or before December 20th

Boise-Kuna Irrigation District

Spring Payment

Acct. No.: 480 B
Name: City of Nampa
Amount: 14,737.82

Due 7 days prior to ordering water
Boise-Kuna Irrigation District

Total Payment

Acct. No.: 480 B
Name: City of Nampa

Delq. Amt: 0.00
Fall Amt: 695.48
Spring Amt: 14,737.82
Total Due: 15,433.30

Boise-Kuna Irrigation District

Appendix C
Flow Data for 19 Irrigation Stations
Between July 9 and July 16

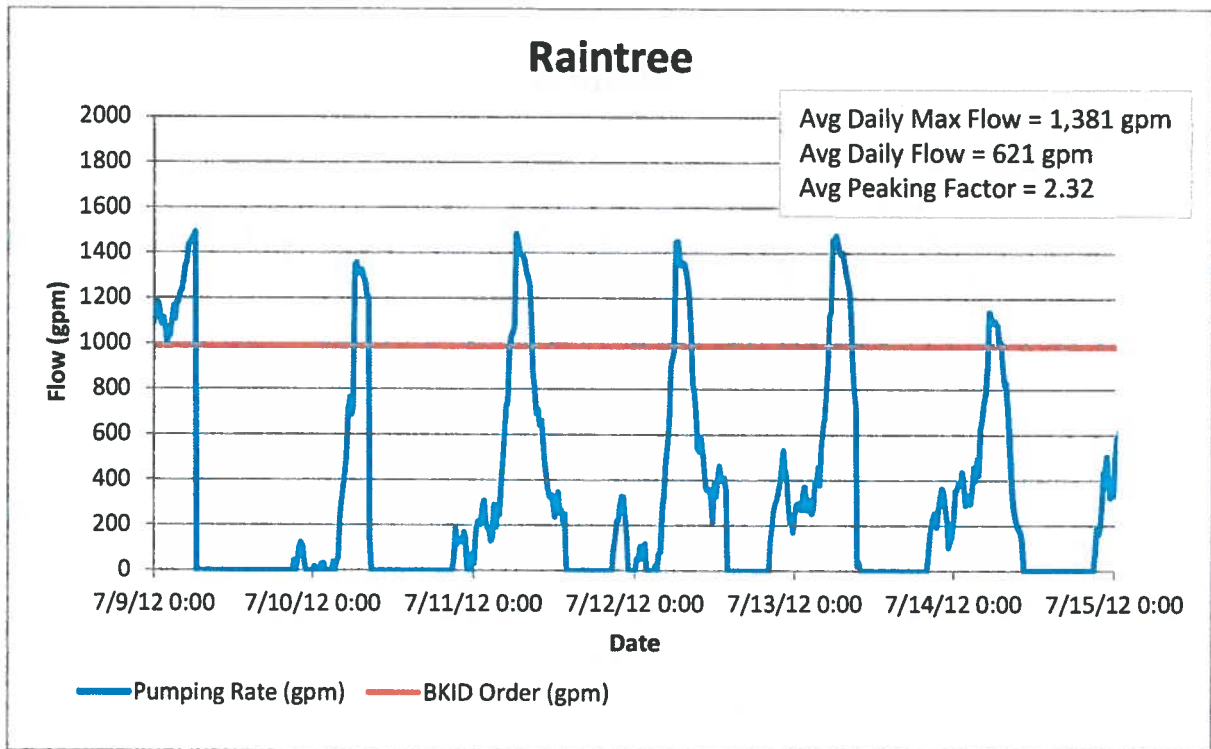


Figure C-1. Raintree flow data.

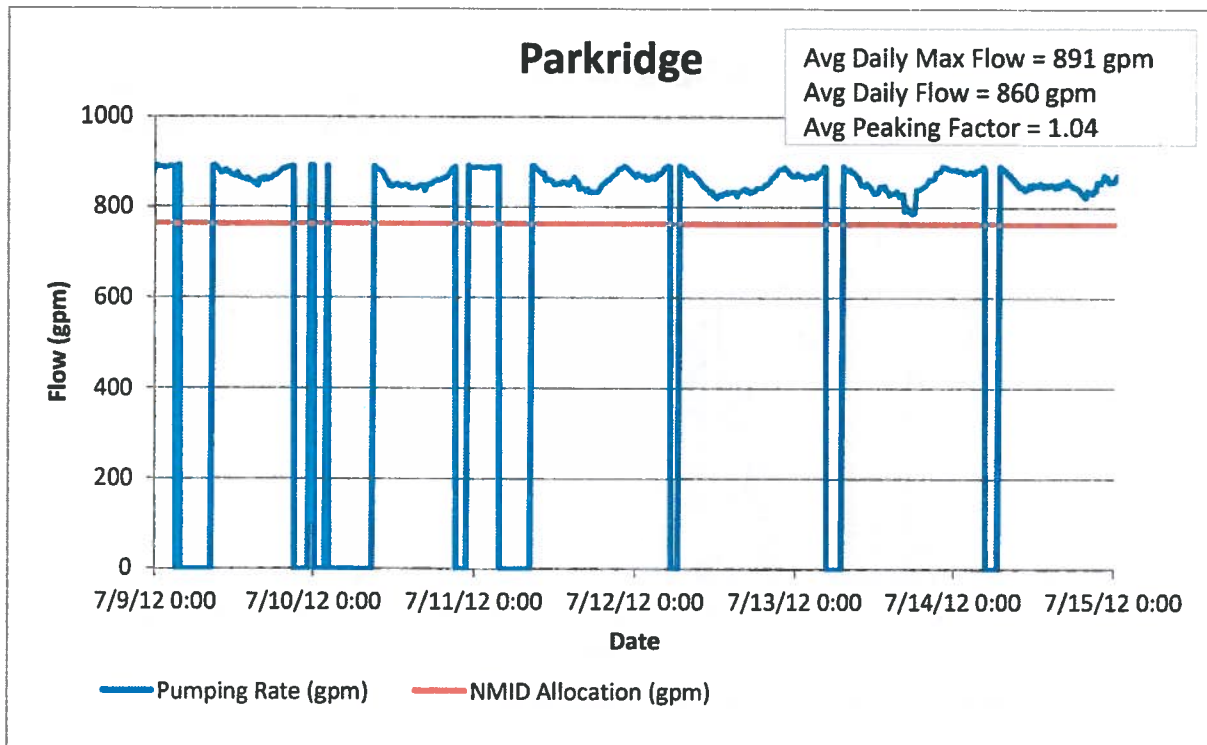


Figure C-2. Parkridge flow data.

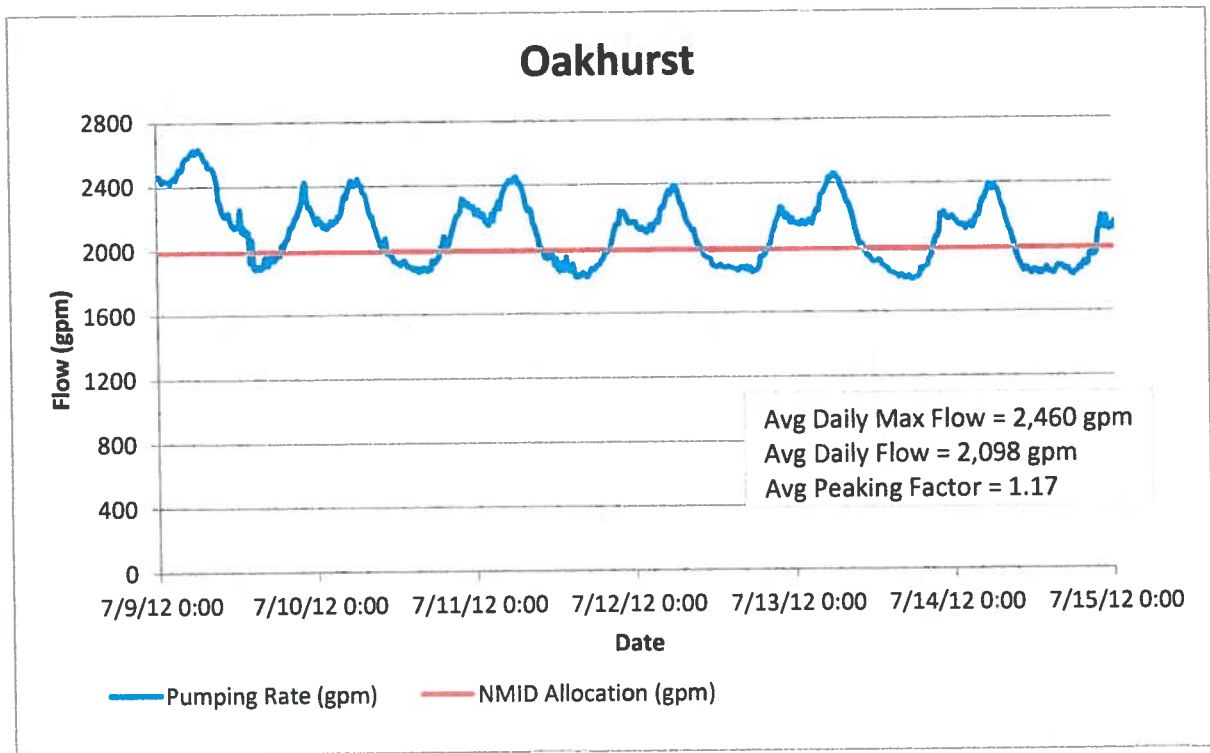


Figure C-3. Oakhurst flow data.

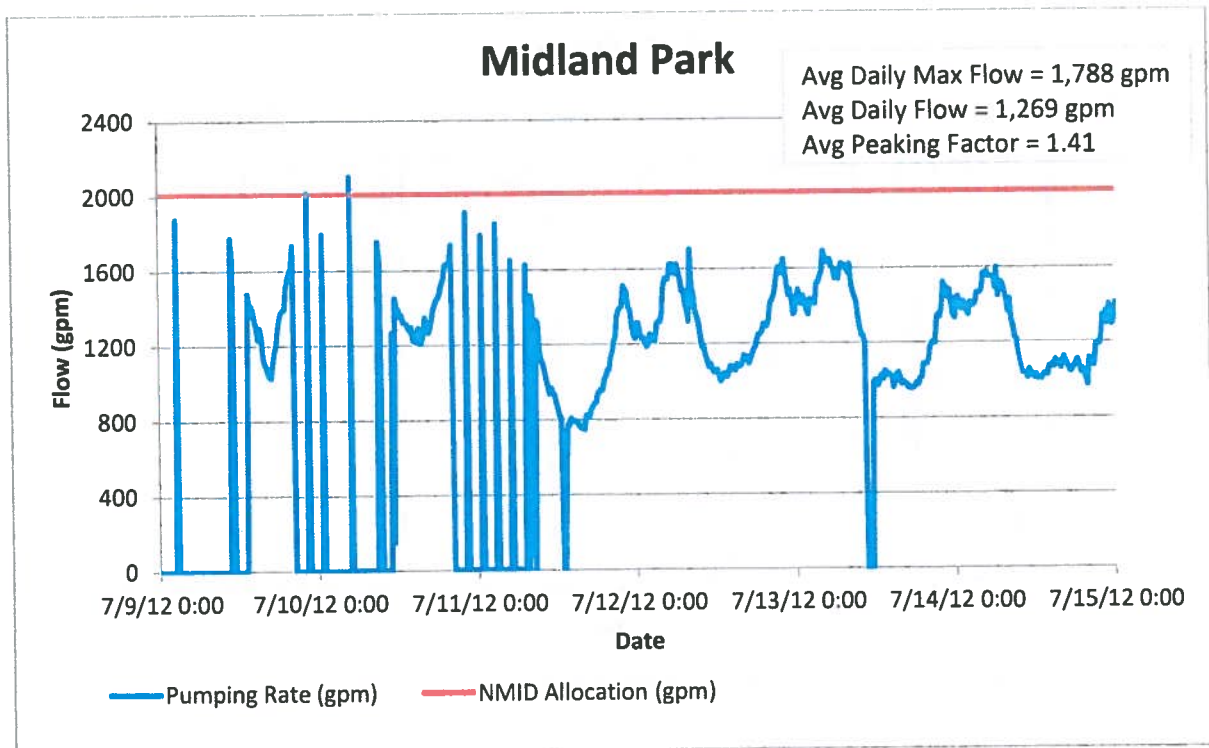


Figure C-4. Midland Park flow data.

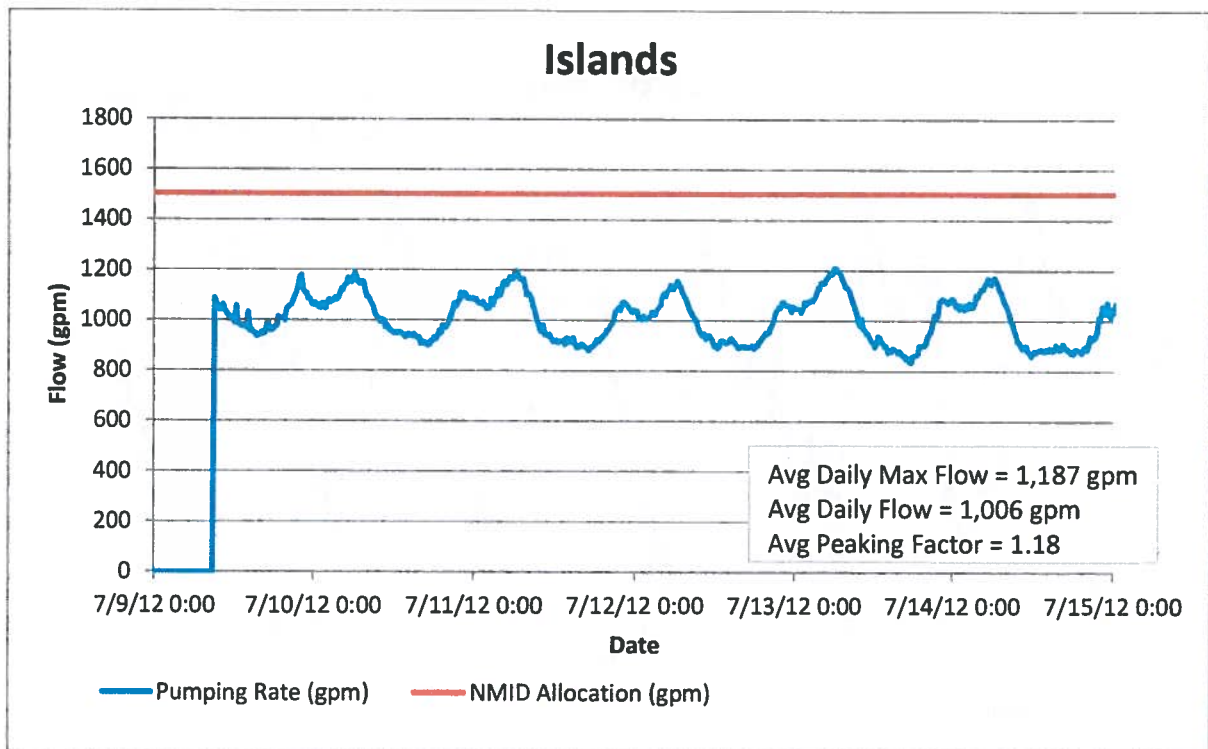


Figure C-5. Islands flow data.

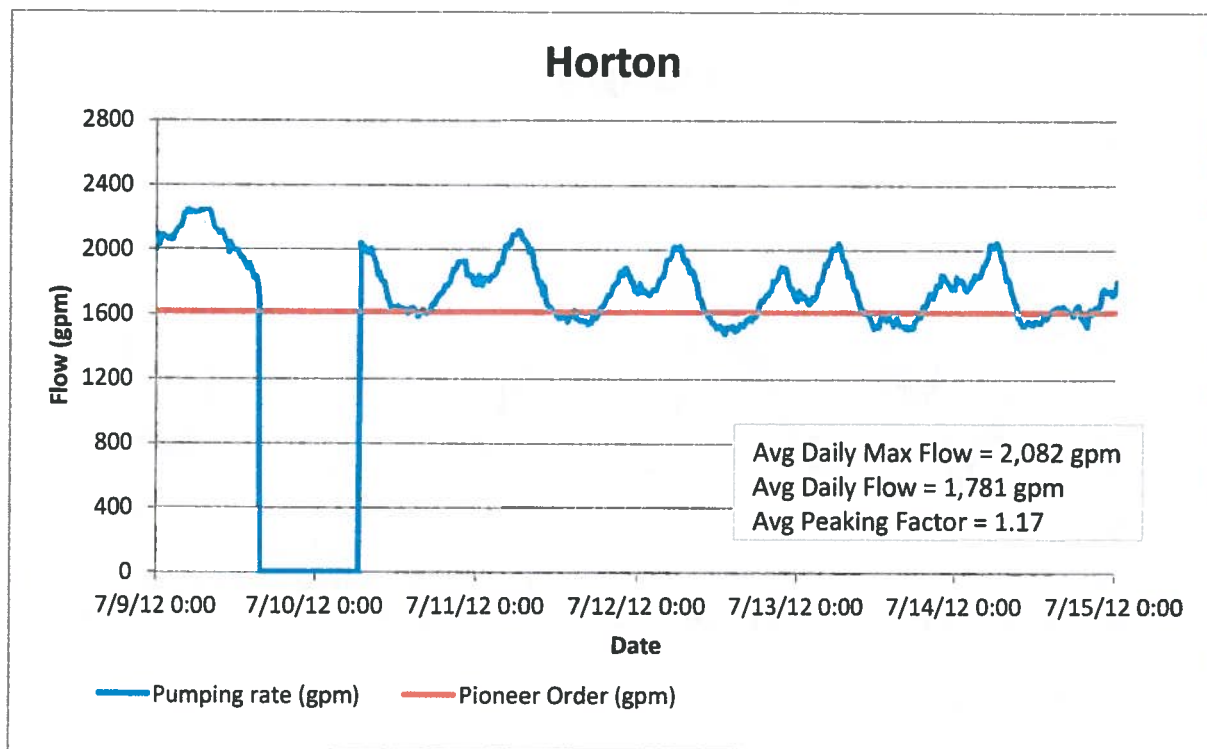


Figure C-6. Horton flow data.

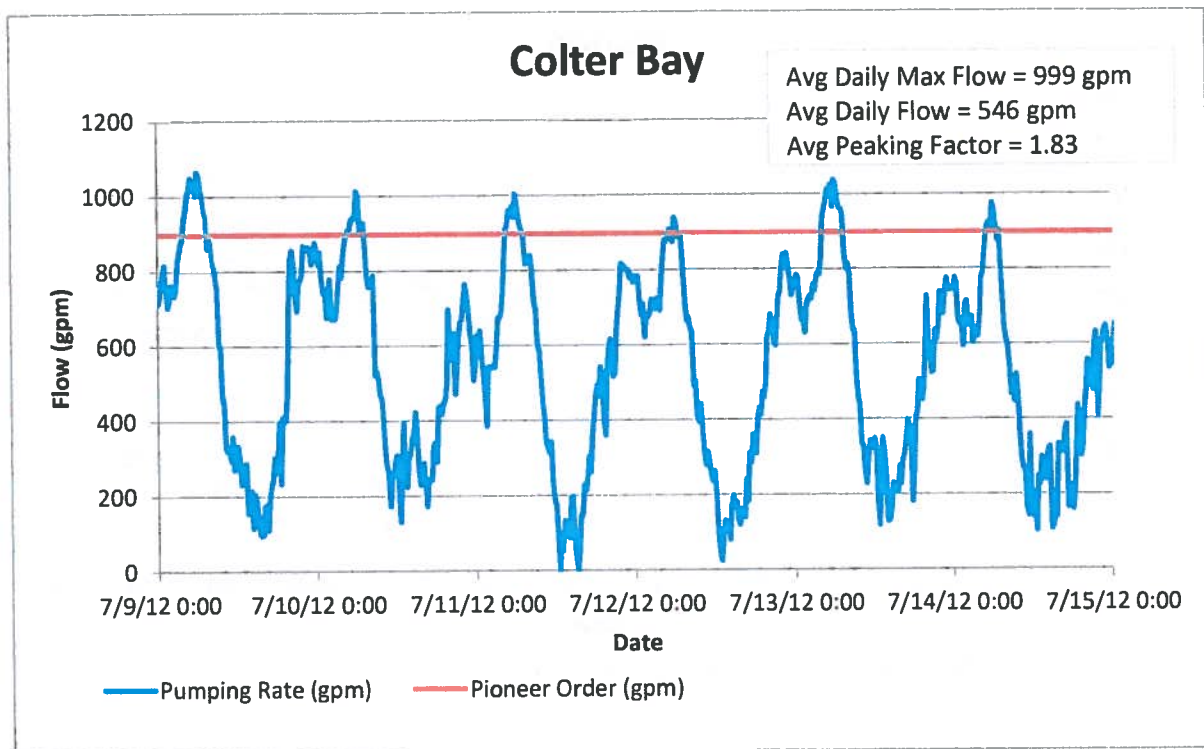


Figure C-7. Colter Bay flow data.

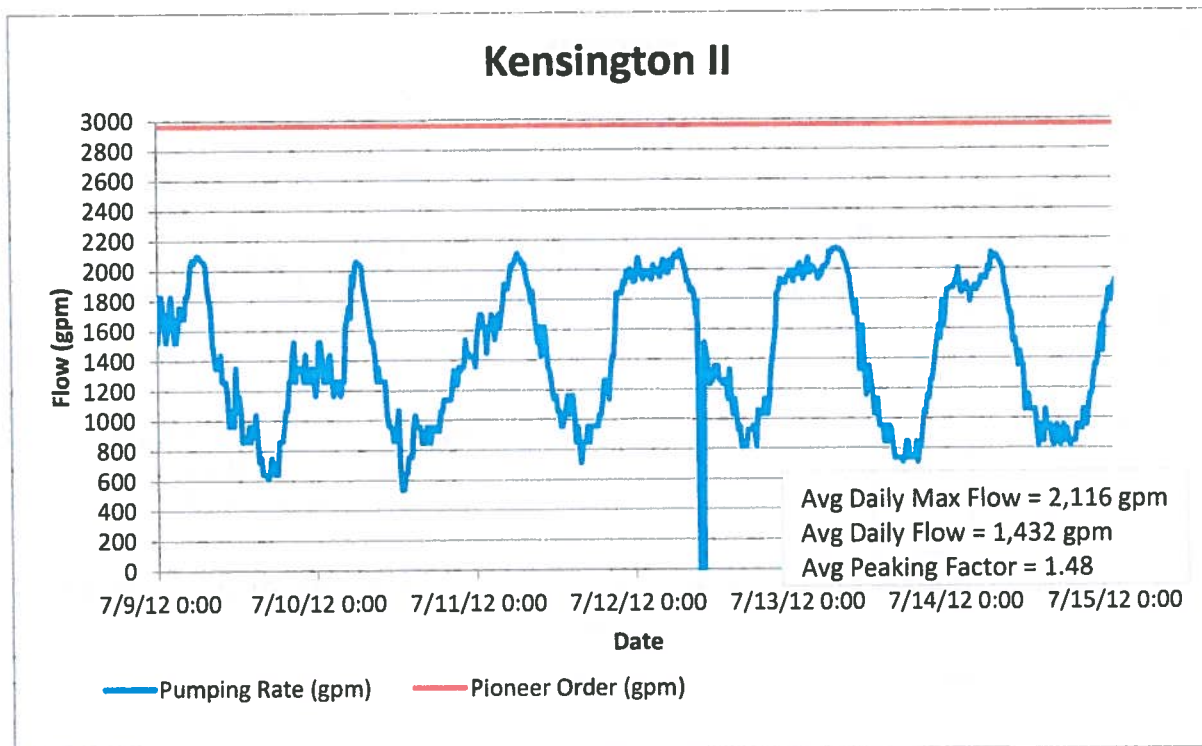


Figure C-8. Kensington II flow data.

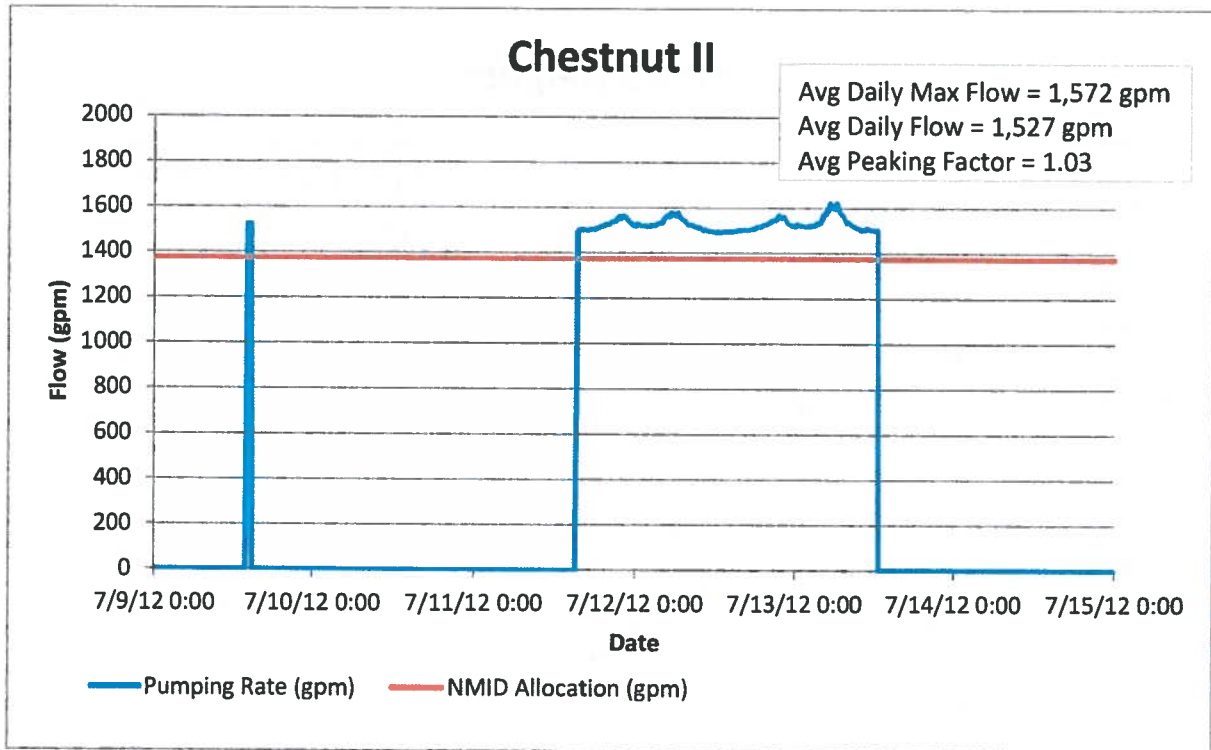


Figure C-9. Chestnut II flow data.

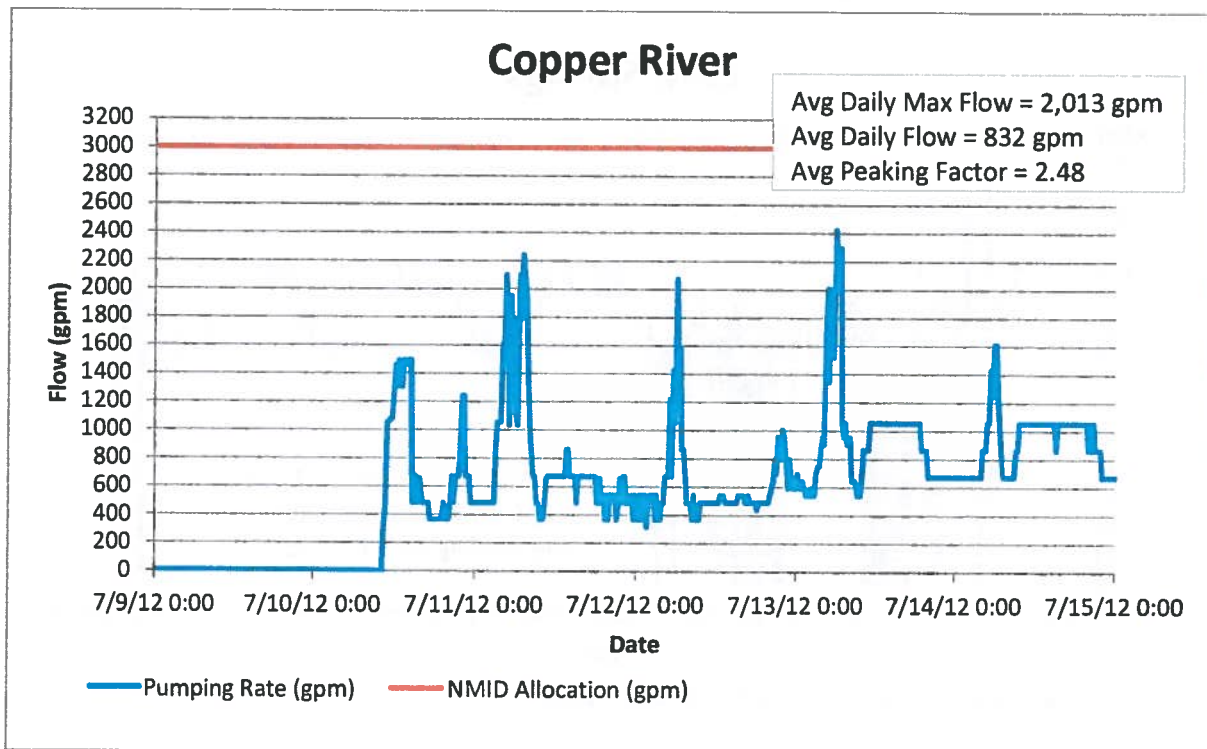


Figure C-10. Copper River flow data.

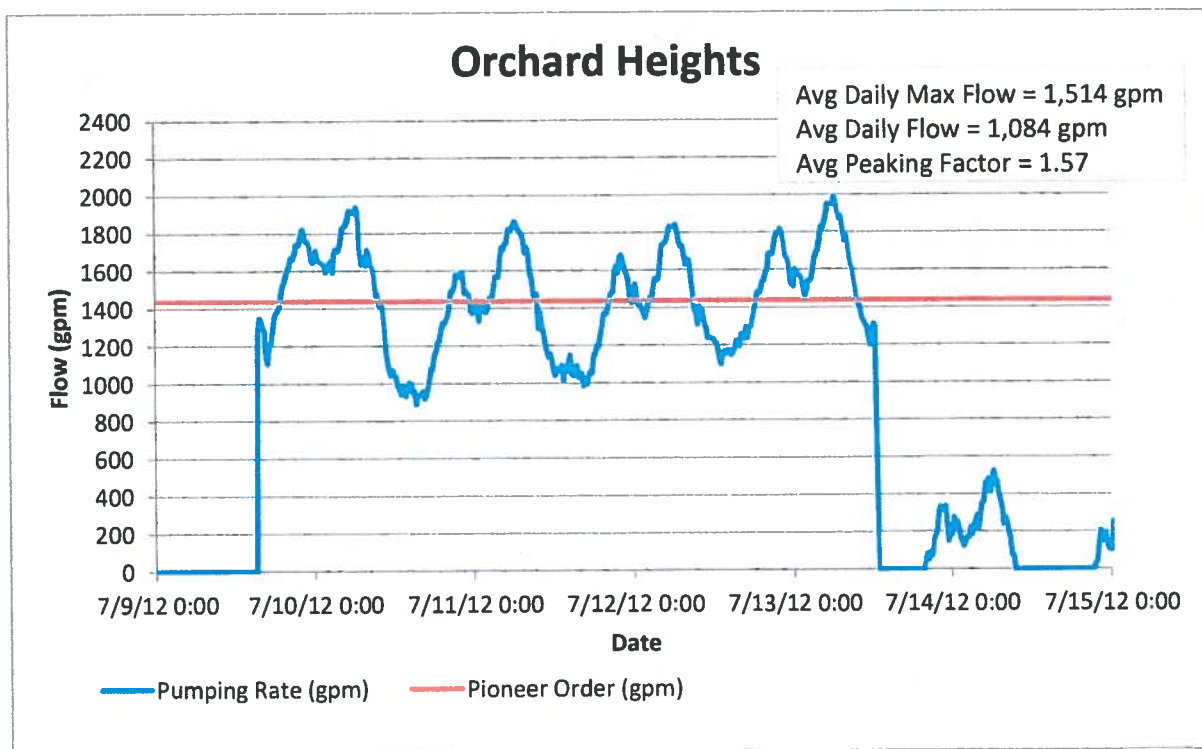


Figure C-11. Orchard Heights flow data.

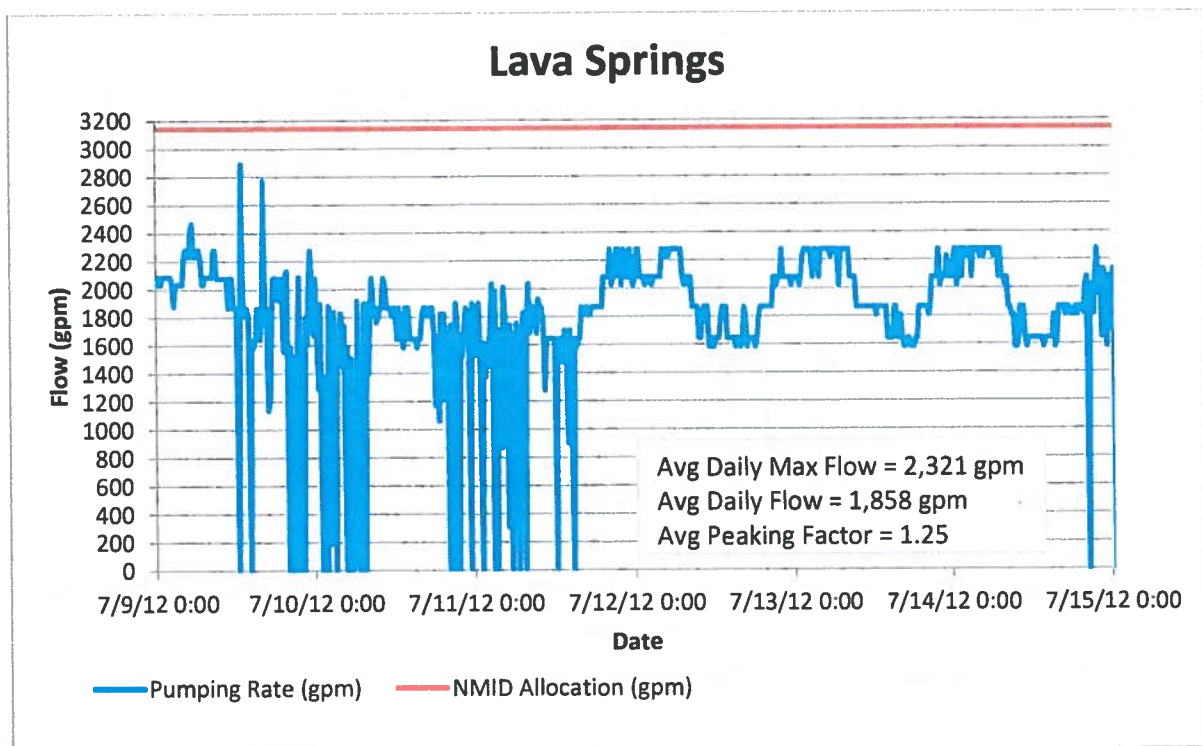


Figure C-12. Lava Springs flow data.

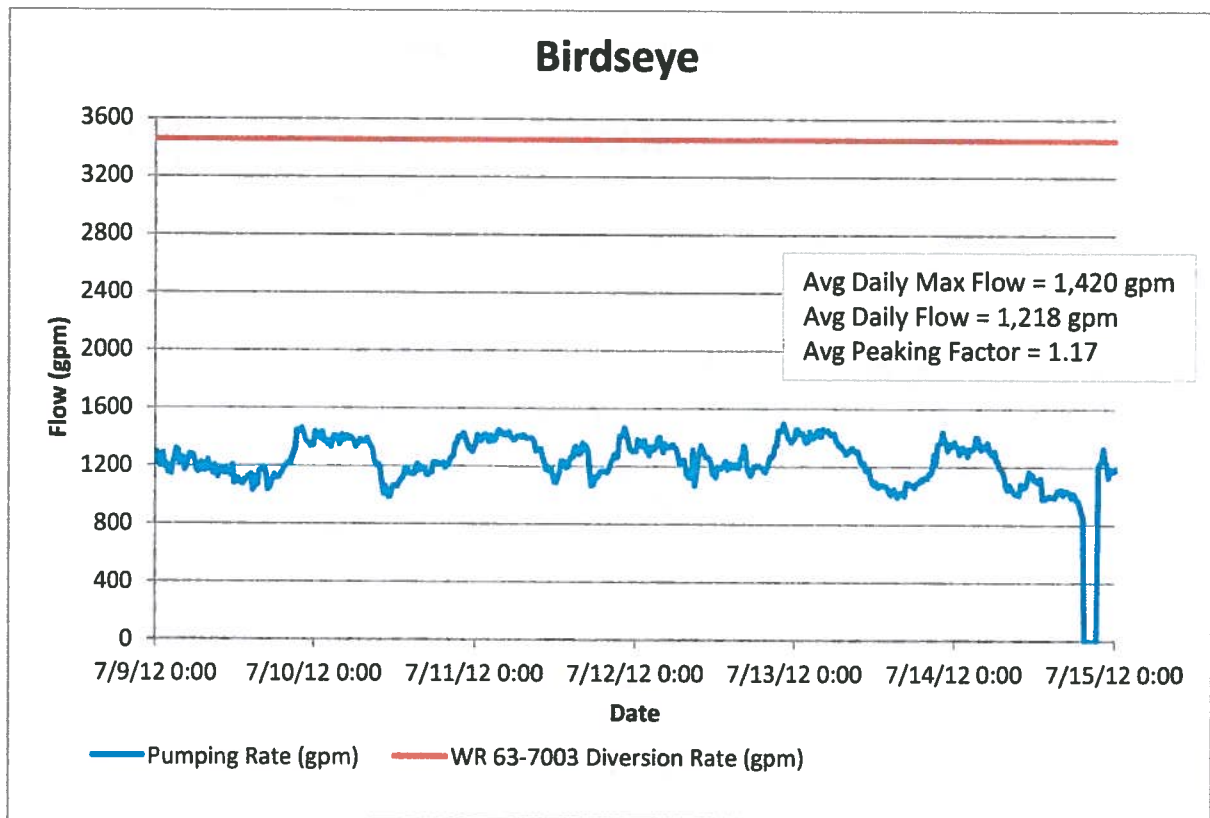


Figure C-13. Birdseye flow data.

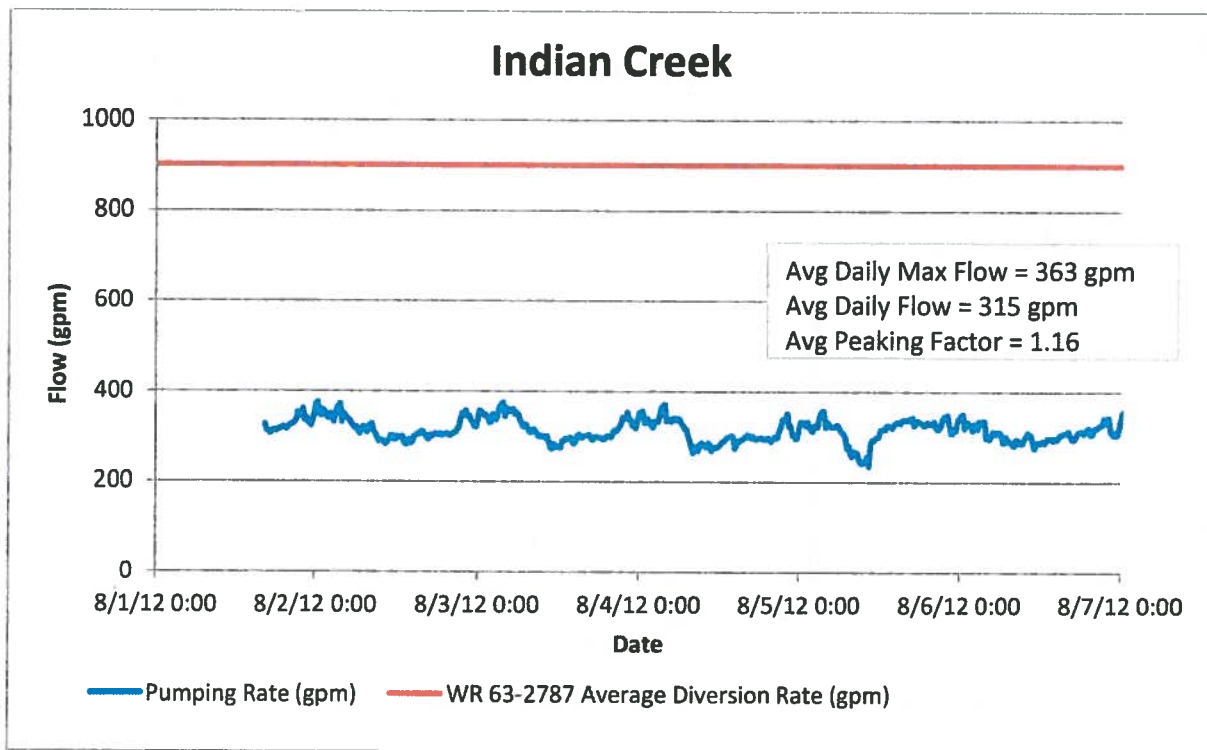


Figure C-14. Indian Creek flow data.

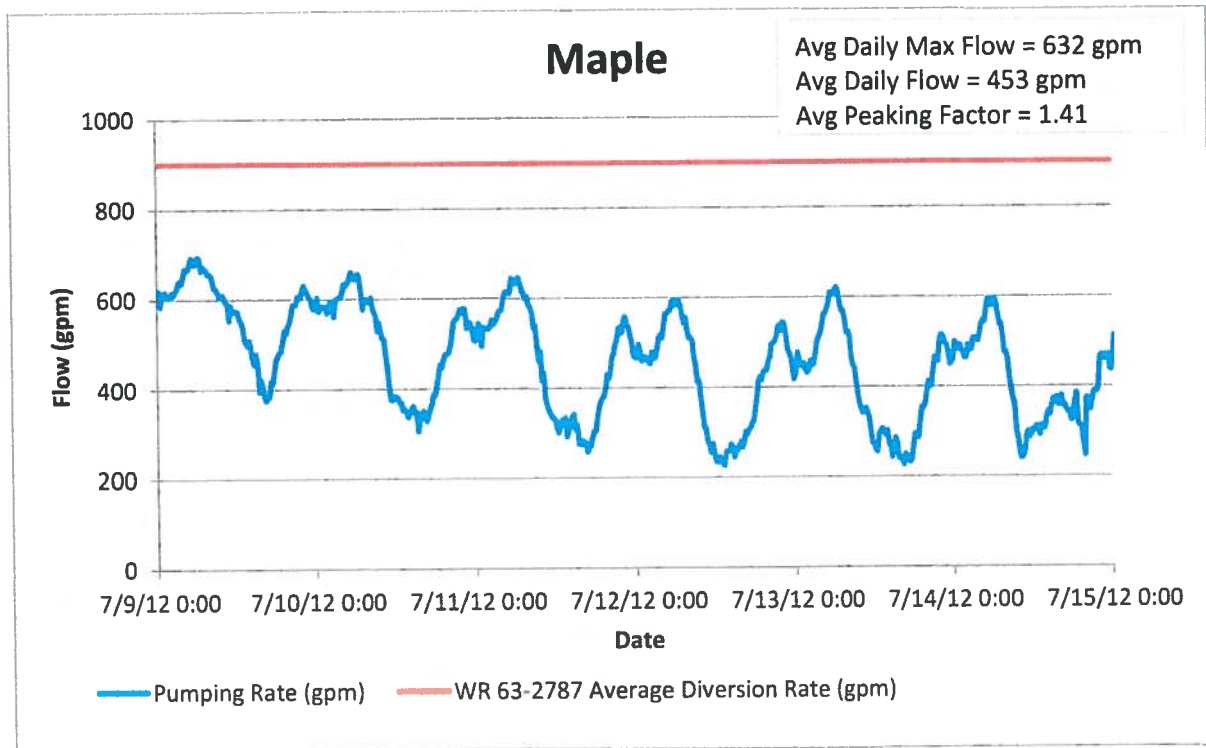


Figure C-15. Maple flow data.

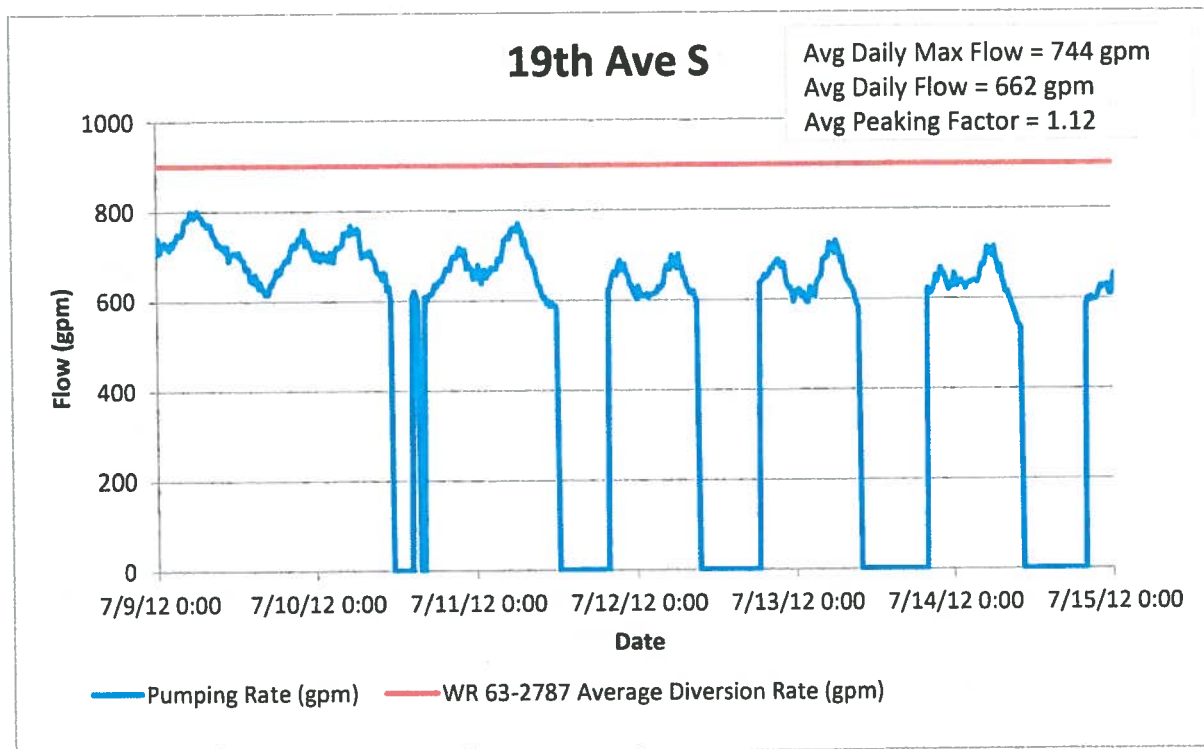


Figure C-16. 19th Ave S flow data.

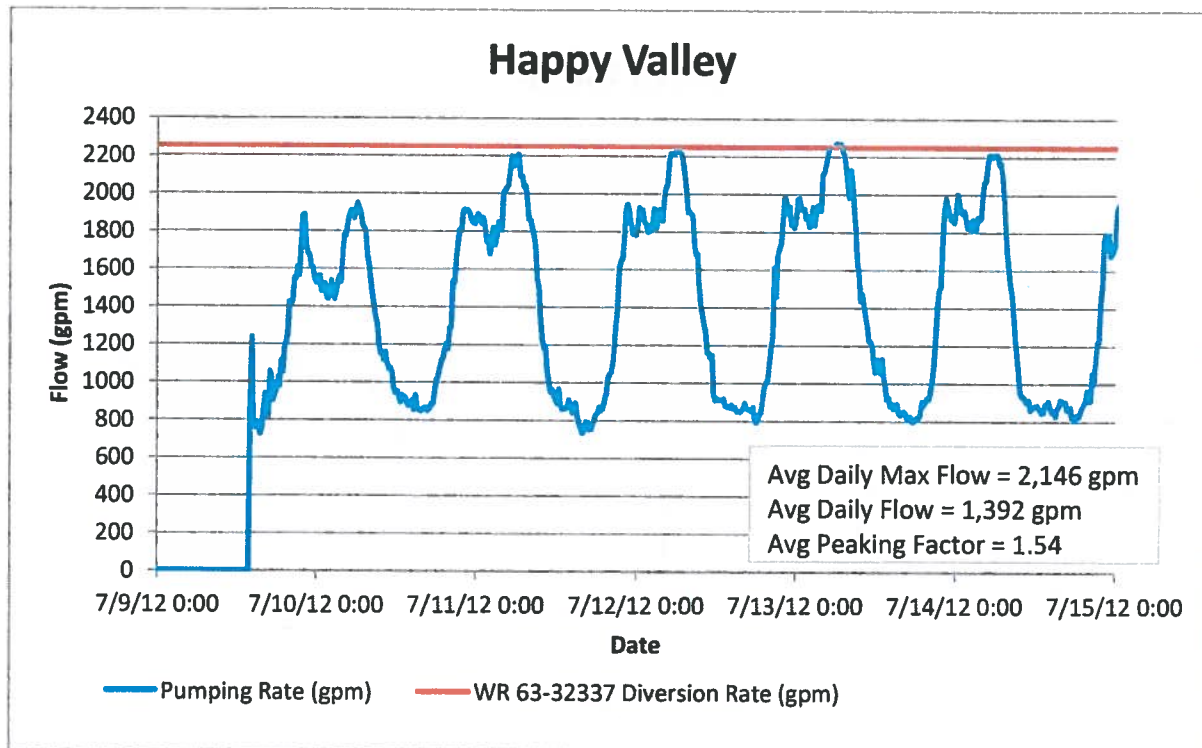


Figure C-17. Happy Valley flow data.

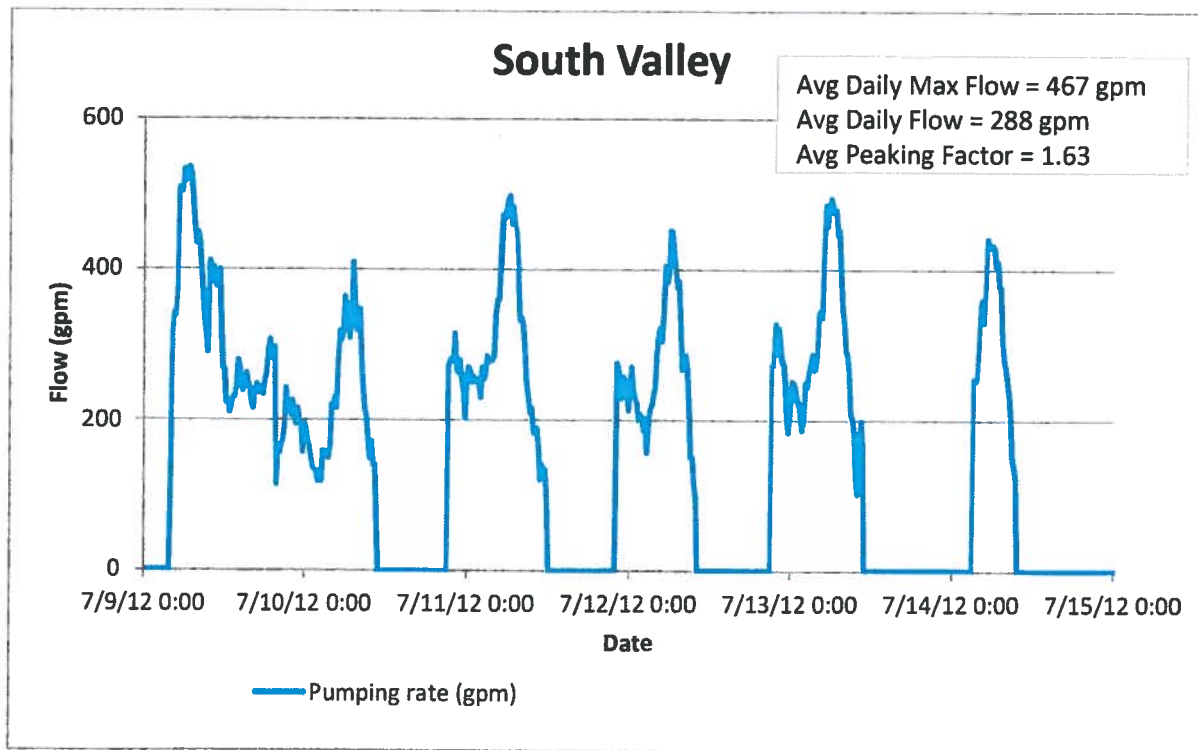


Figure C-18. South Valley flow data.

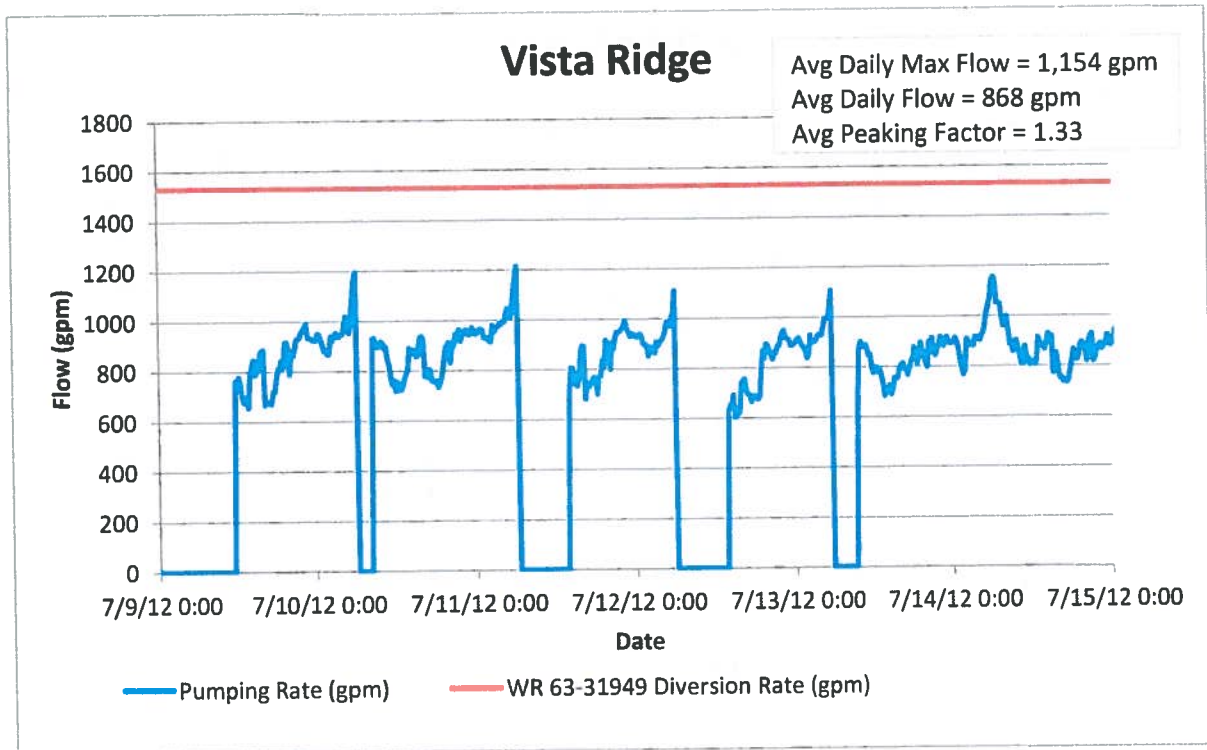


Figure C-19. Vista Ridge flow data.

Appendix D
Pump Curves for 22 Irrigation Stations

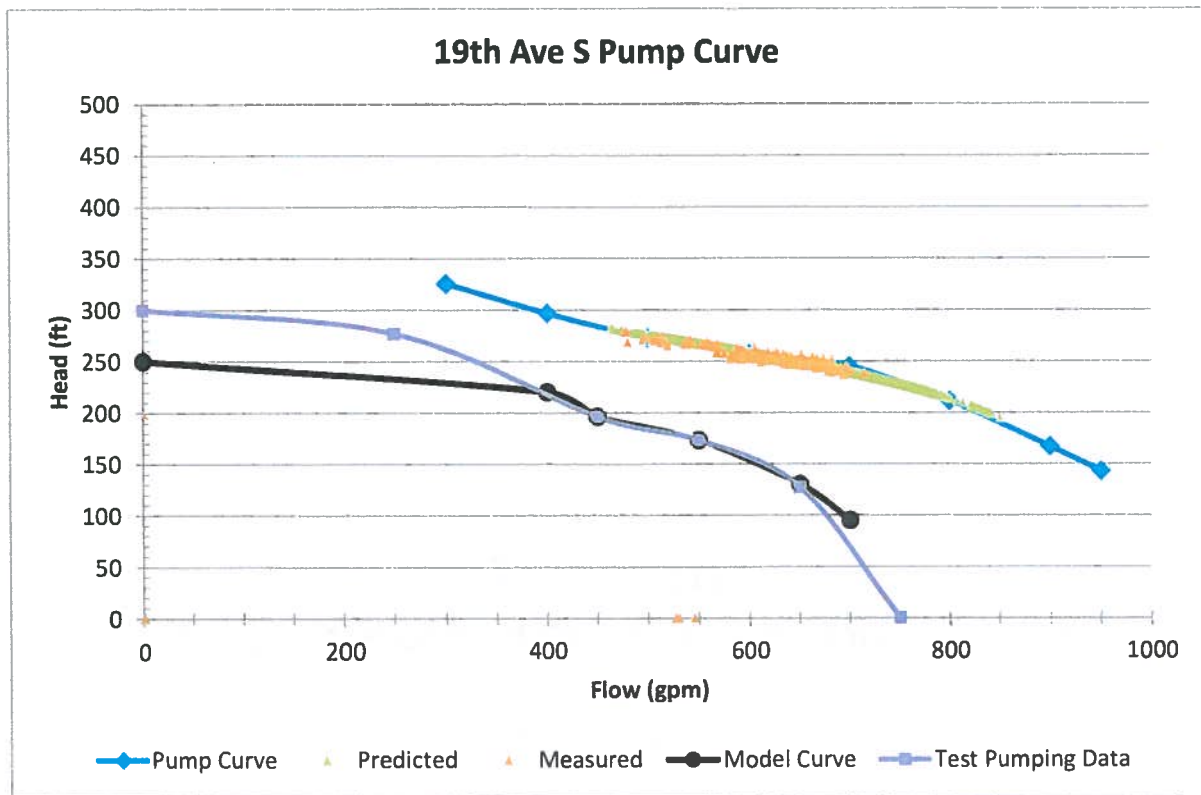


Figure D-1. 19th Ave S pump curve, model curve, and test pumping data.

Table D-1. Recommended 19th Ave S pump curve.

Q (gpm)	Head (ft)
300	326
400	297
500	273
600	257
700	245
800	211
900	167
950	143

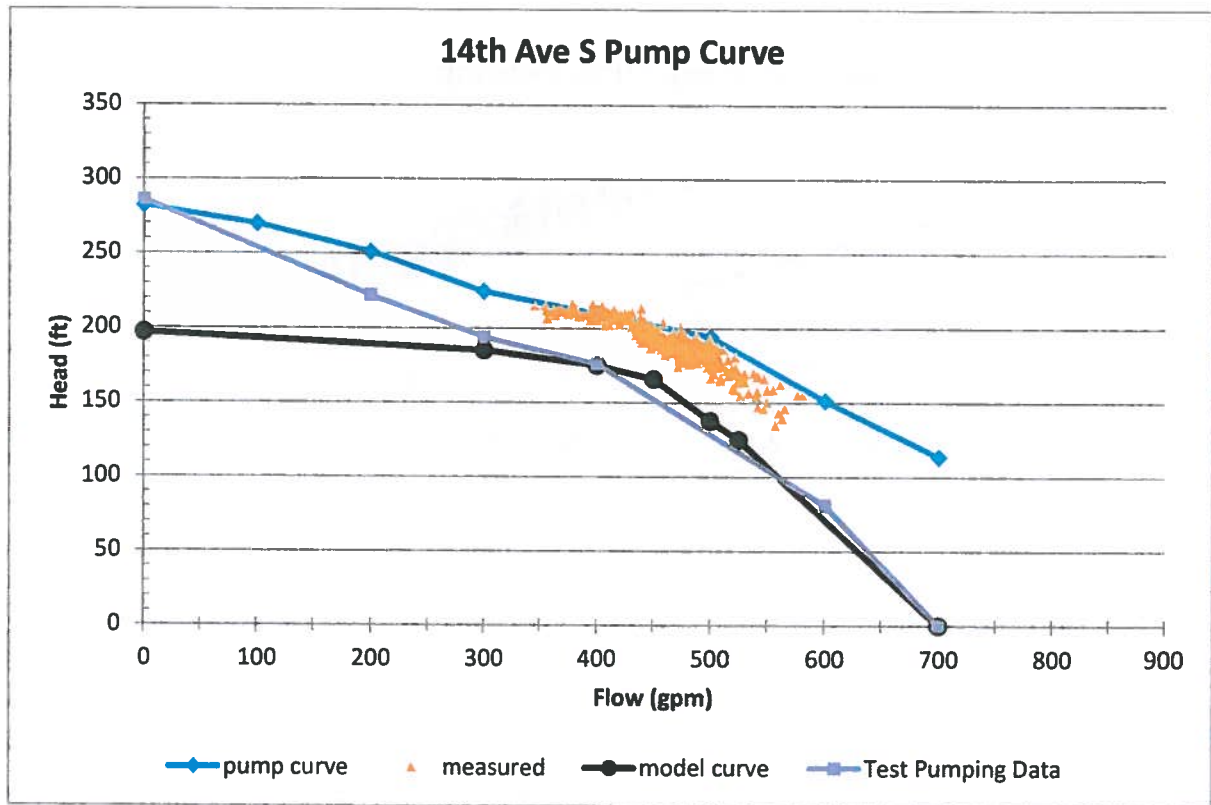


Figure D-2. 14th Ave S pump curve, model curve, and test pumping data.

Table D-2. Recommended 14th Ave S pump curve.

Q (gpm)	Head (ft)
0	282
100	270
200	251
300	225
400	210
500	194
600	151
700	114

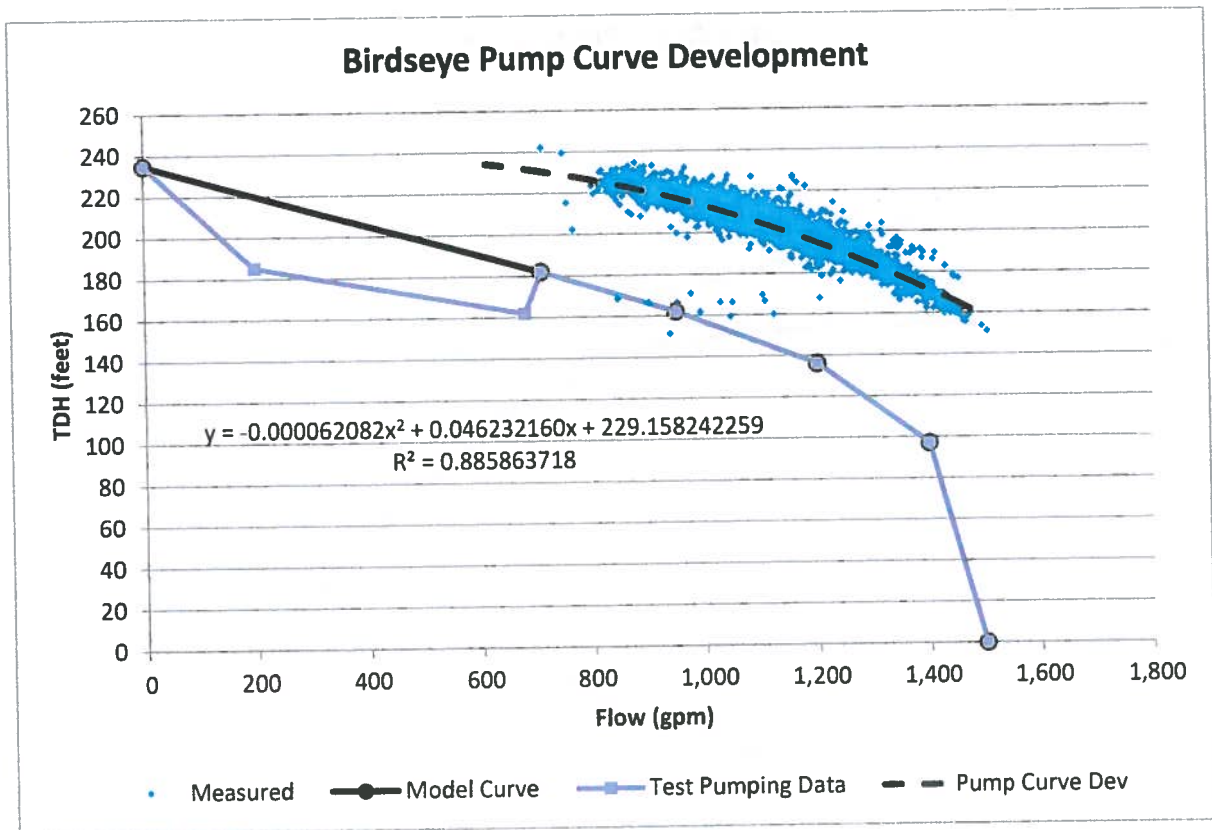


Figure D-3. Birdseye developed pump curve, model curve, and test pumping data.

Table D-3. Recommended Birsdeye pump curve.

Q (gpm)	Head (ft)
700	231
800	226
900	220
1000	213
1100	205
1200	195
1300	184
1400	172
1500	159
1600	144

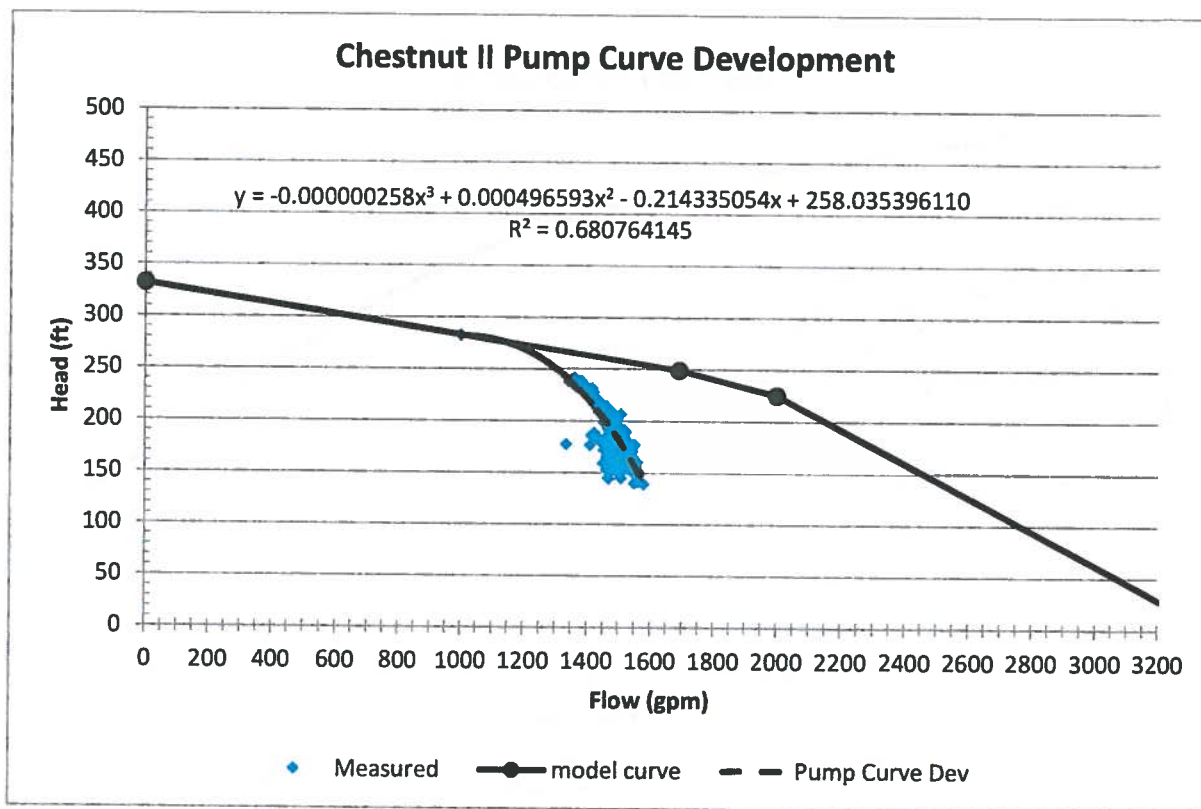


Figure D-4. Chestnut II developed pump curve and model curve.

Table D-4. Recommended Chestnut II pump curve.

Q (gpm)	Head (ft)
1600	130
1500	183
1400	223
1300	252
1200	270
1100	280
1000	282
900	279
800	272

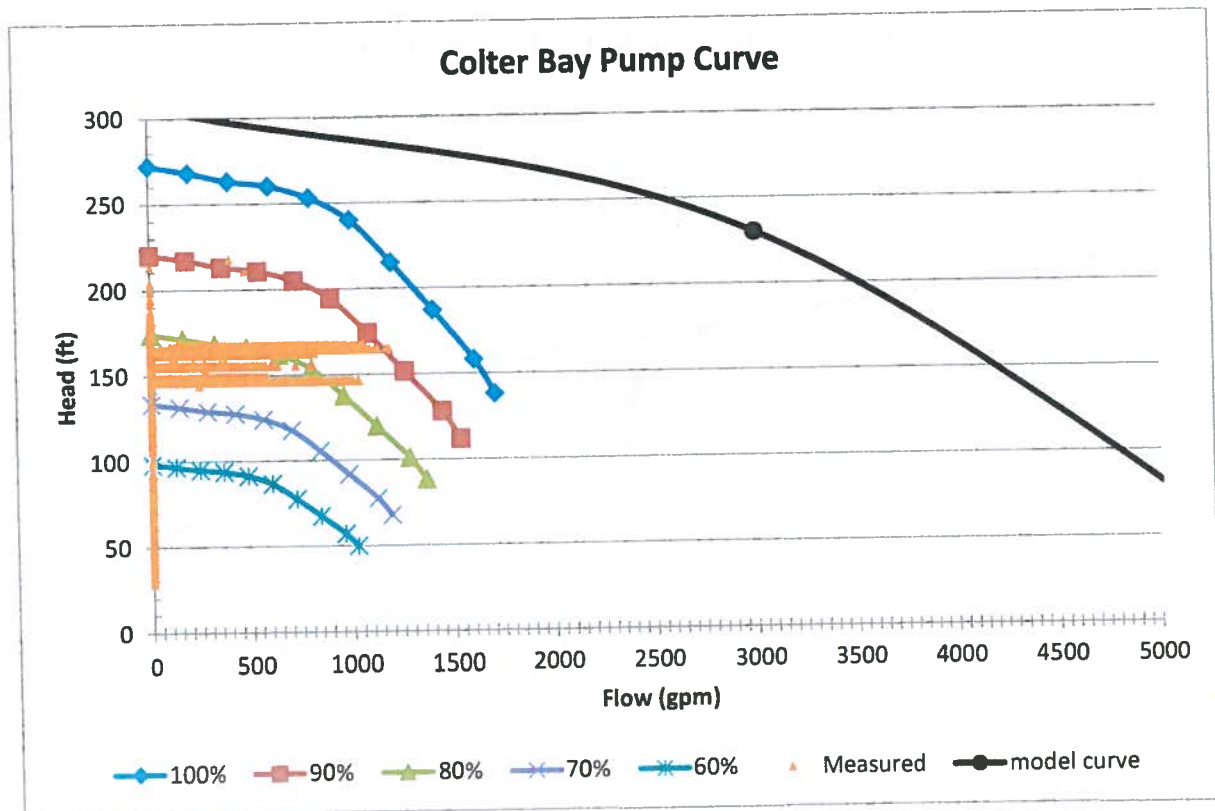


Figure D-5. Colter Bay pump curve and model curve.

Table D-5. Recommended Colter Bay pump curve.

Flow (gpm)	Head (ft)
0	272
200	268
400	263
600	260
800	253
1000	240
1200	215
1400	187
1600	158
1700	138

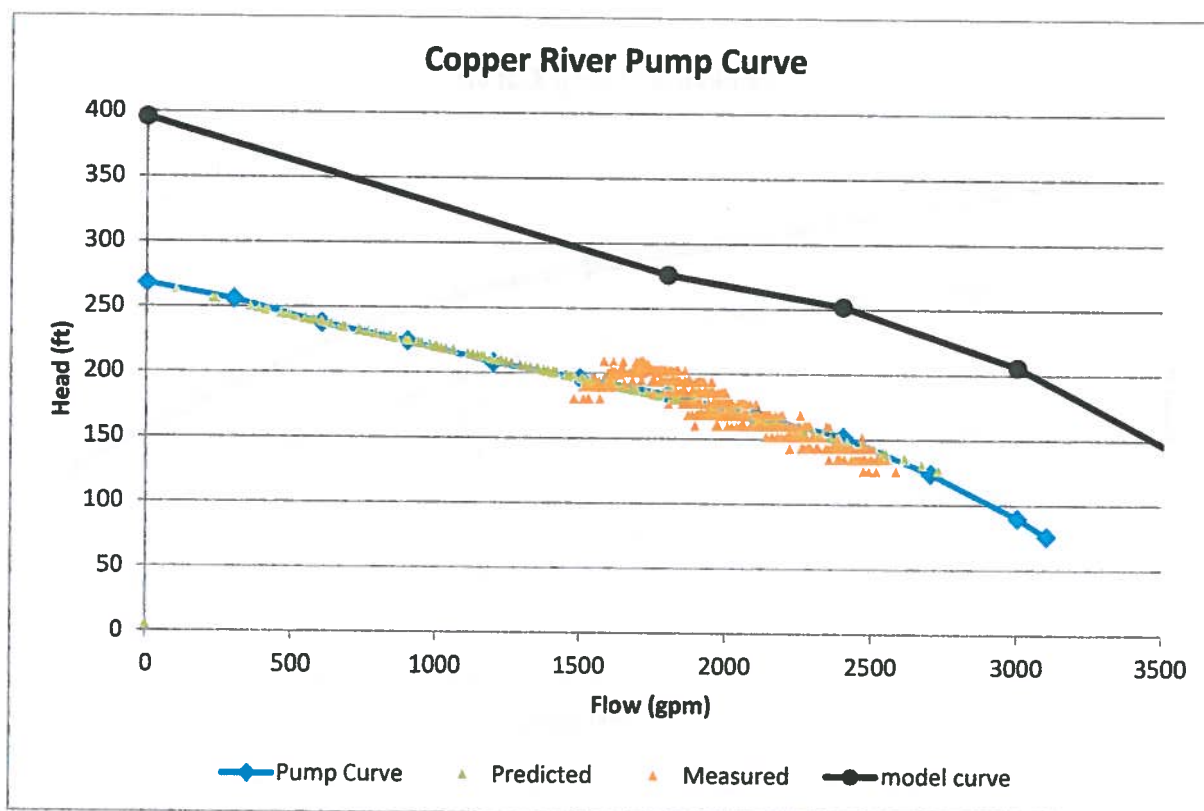


Figure D-6. Copper River pump curve and model curve.

Table D-6. Recommended Copper River pump curve.

Flow (gpm)	Head (ft)
0	268
300	256
600	238
900	224
1200	208
1500	196
1800	184
2100	168
2400	152
2700	124
3000	90
3100	76

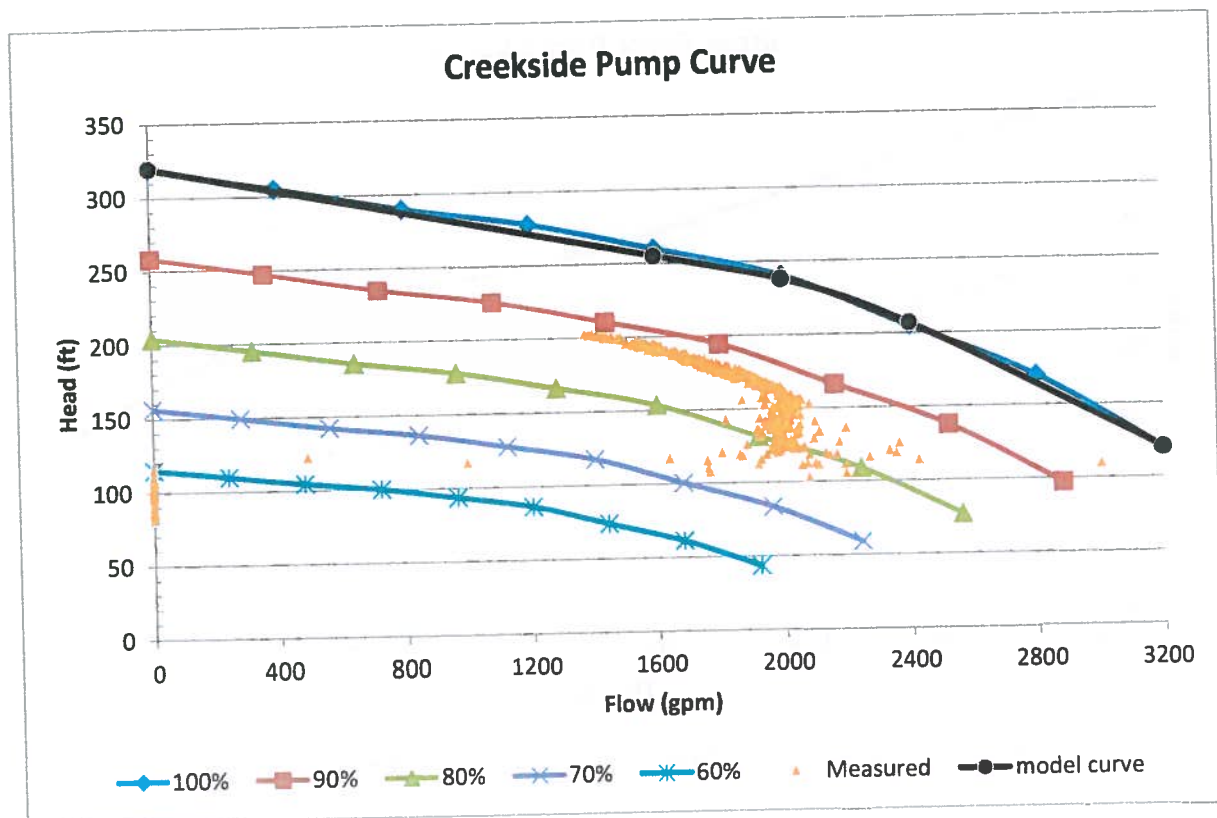


Figure D-7. Creekside pump curve and model curve.

Table D-7. Recommended Creekside pump curve.

Flow (gpm)	Head (ft)
0	319
400	305
800	290
1200	278
1600	260
2000	240
2400	205
2800	170
3200	120

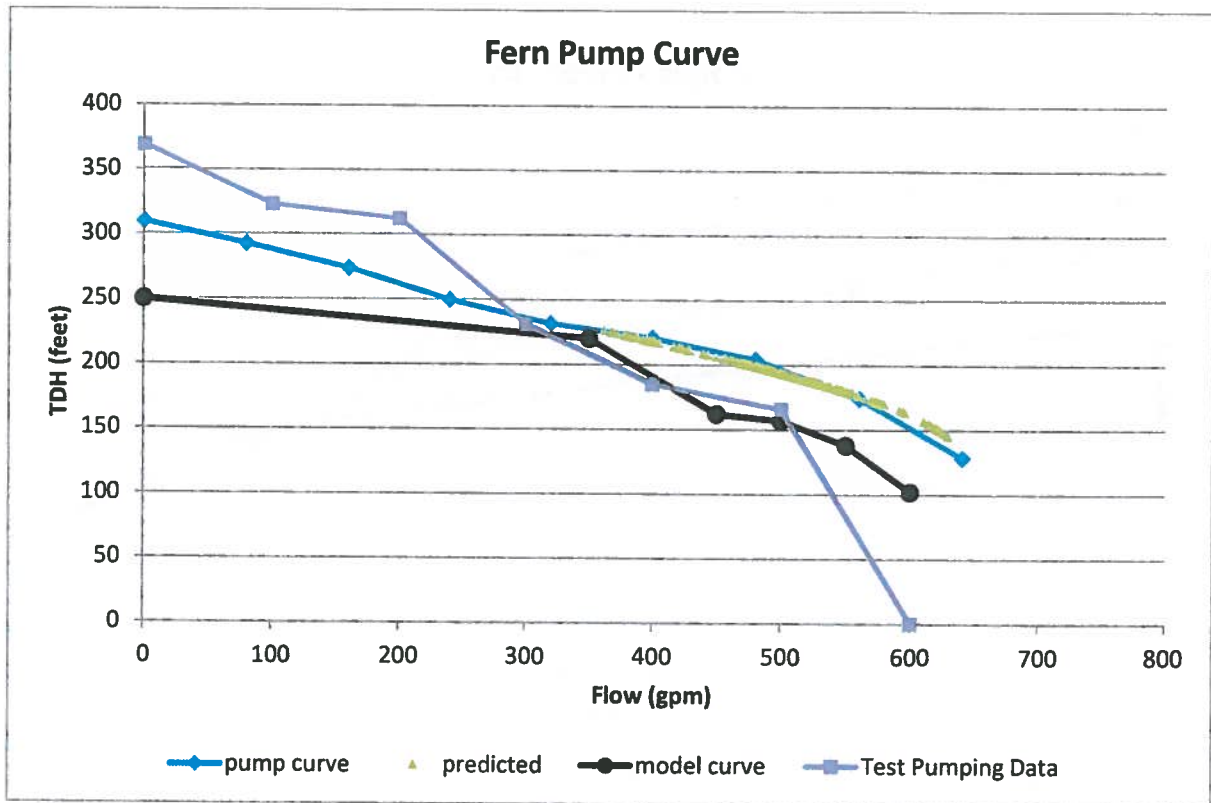


Figure D-8. Fern pump curve, model curve, and test pumping data.

Table D-8. Recommended Fern pump curve.

Q (gpm)	Head (ft)
0	310
80	293
160	274
240	249
320	231
400	221
480	204
560	175
640	129

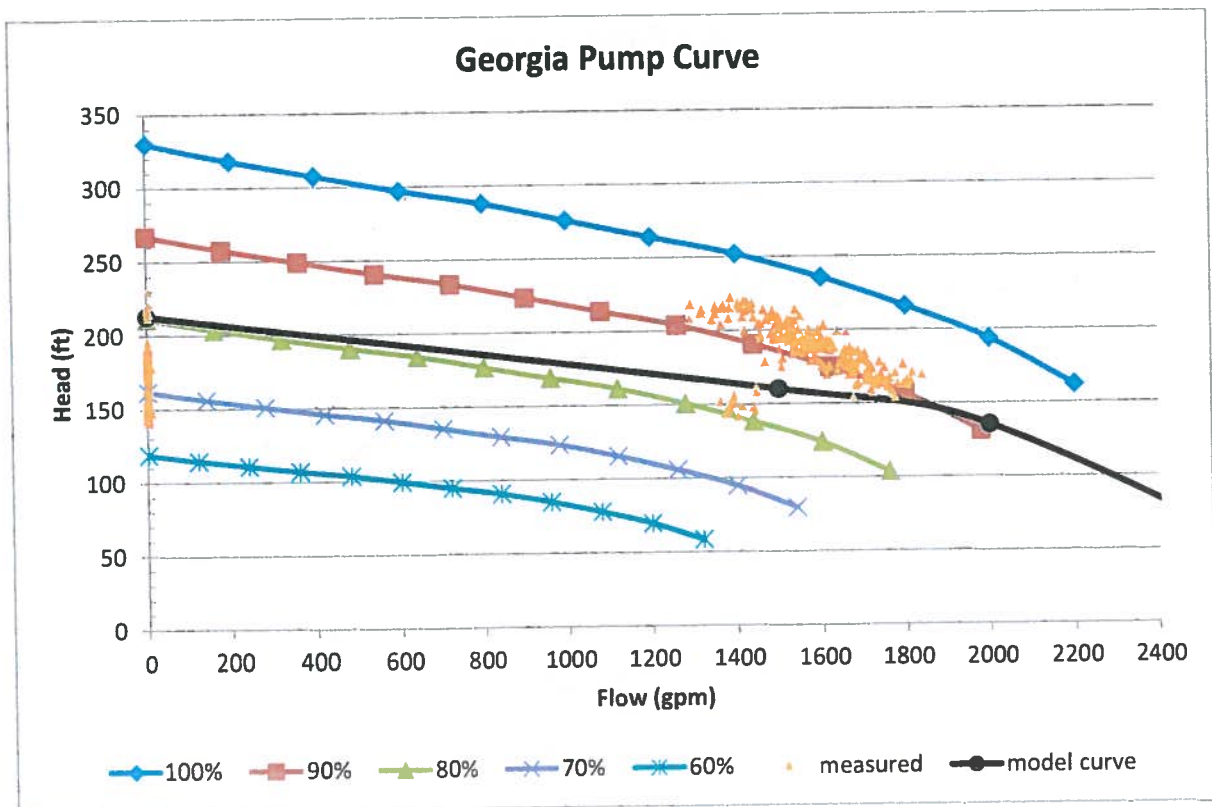


Figure D-9. Georgia pump curve and model curve.

Table D-9. Recommended Georgia pump curve.

Flow (gpm)	Head (ft)
0	330
200	318
400	308
600	297
800	288
1000	276
1200	264
1400	252
1600	236
1800	216
2000	194
2200	162
2400	129

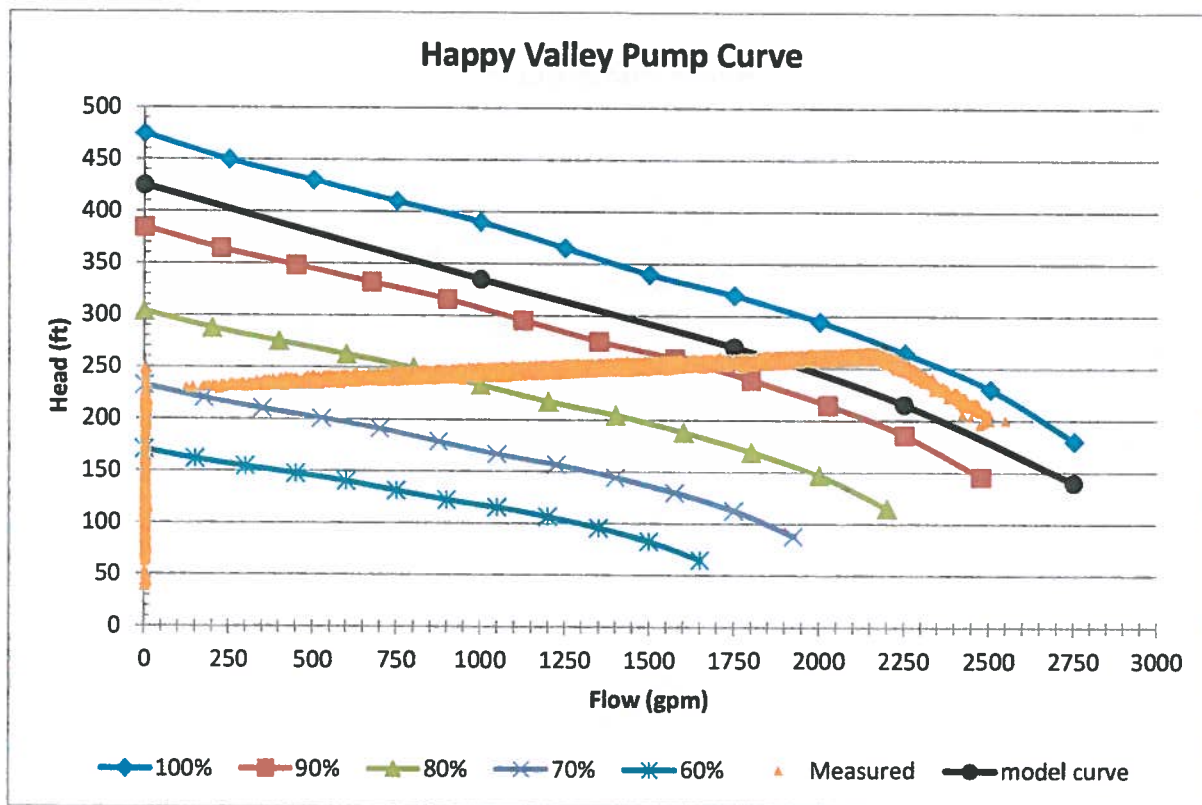


Figure D-10. Happy Valley pump curve and model curve.

Table D-10. Recommended Happy Valley pump curve.

Flow (gpm)	Head (ft)
0	475
250	450
500	430
750	410
1000	390
1250	365
1500	340
1750	320
2000	295
2250	265
2500	230
2750	180

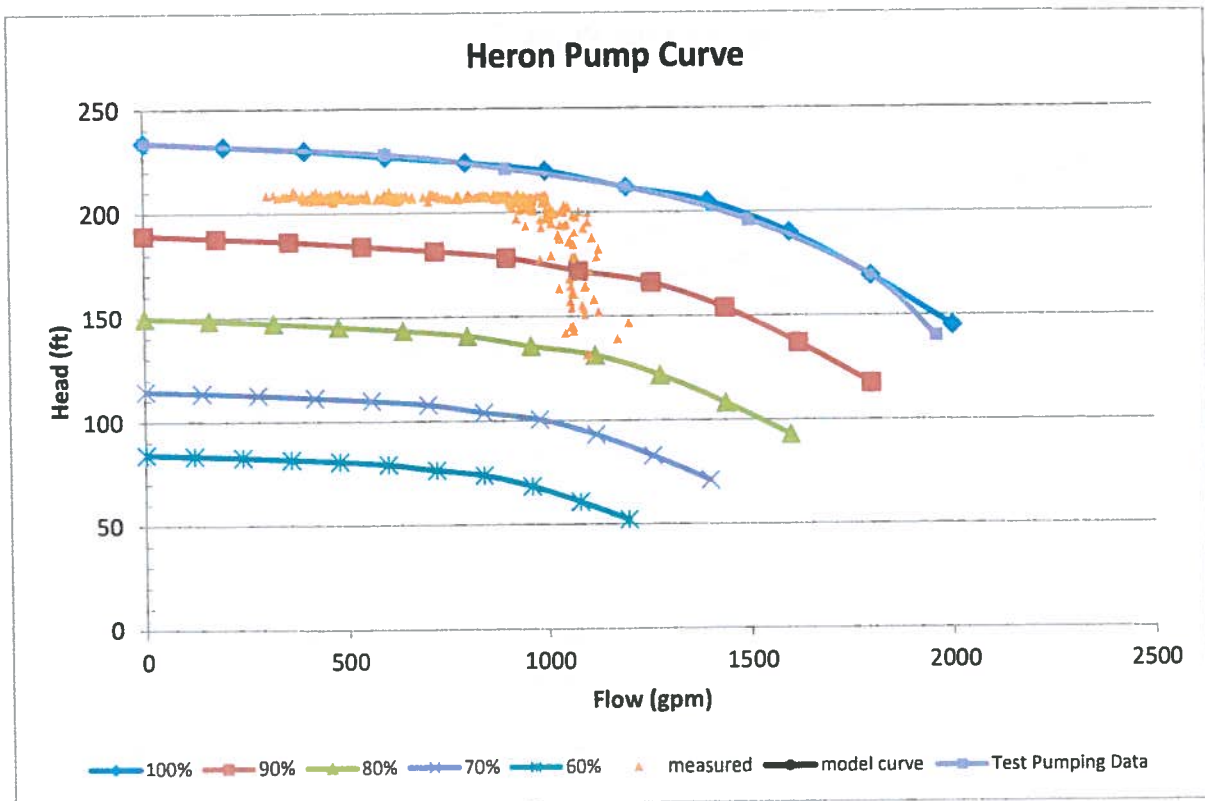


Figure D-11. Heron pump curve, model curve, and test pumping data.

Table D-11. Recommended Heron pump curve.

Flow (gpm)	Head (ft)
0	234
200	232
400	230
600	227
800	224
1000	220
1200	212
1400	205
1600	190
1800	169
2000	145

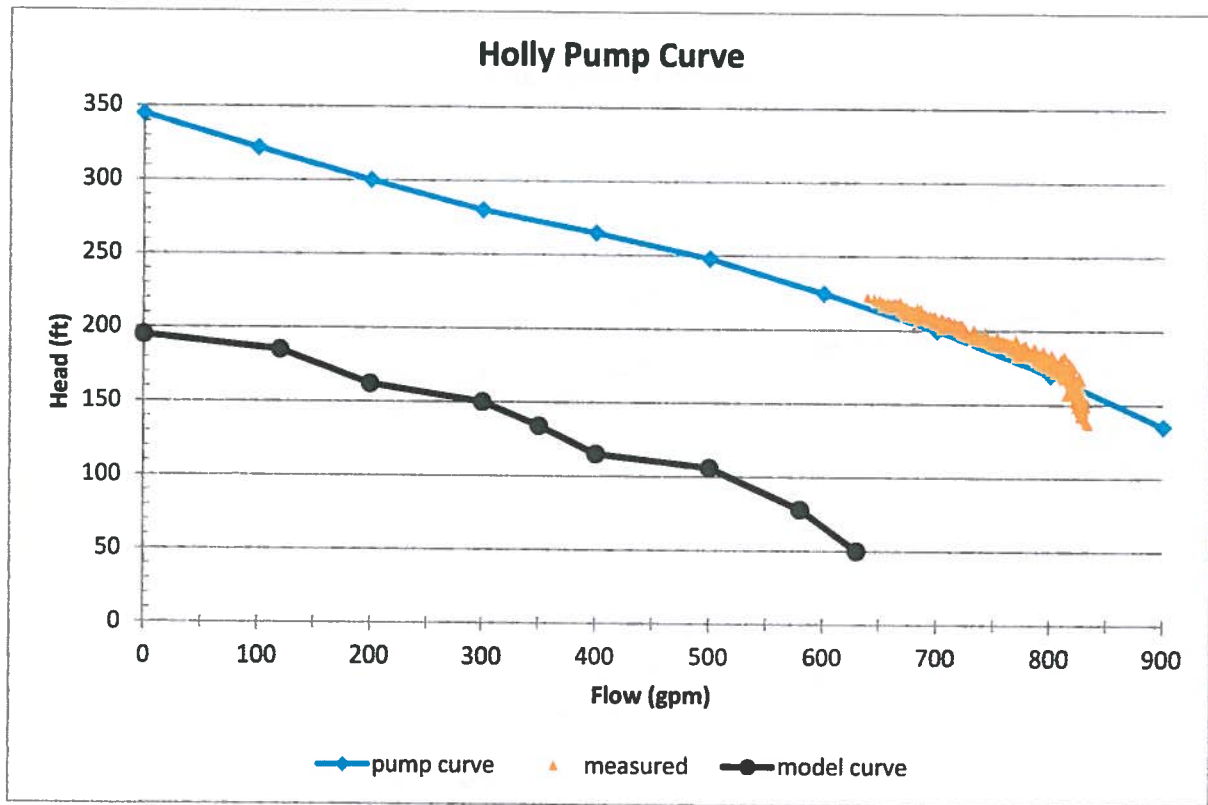


Figure D-12. Holly pump curve and model curve.

Table D-12. Recommended Holly pump curve.

Q (gpm)	Head (ft)
0	345
100	322
200	300
300	280
400	265
500	248
600	225
700	200
800	170
900	135

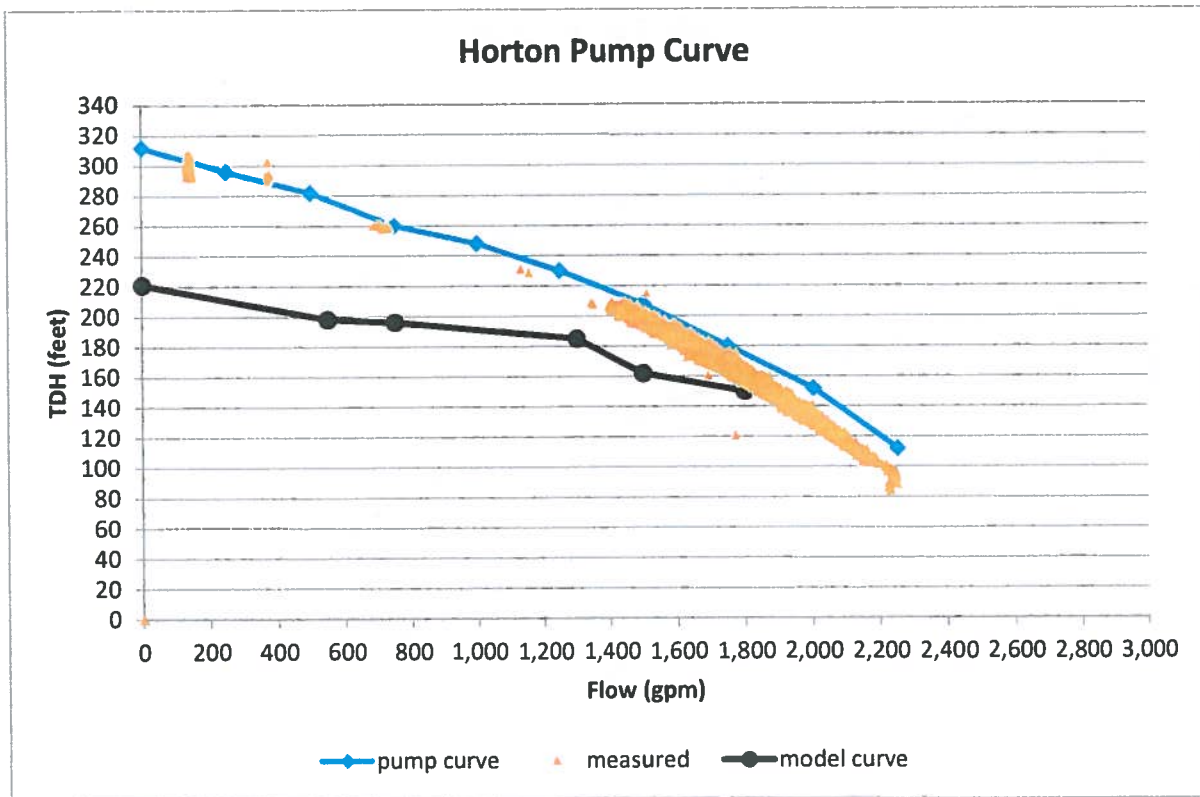


Figure D-13. Horton pump curve and model curve.

Table D-13. Recommended Horton pump curve.

Flow (gpm)	Head (ft)
0	312
250	296
500	282
750	260
1000	248
1250	230
1500	208
1750	180
2000	152
2250	112

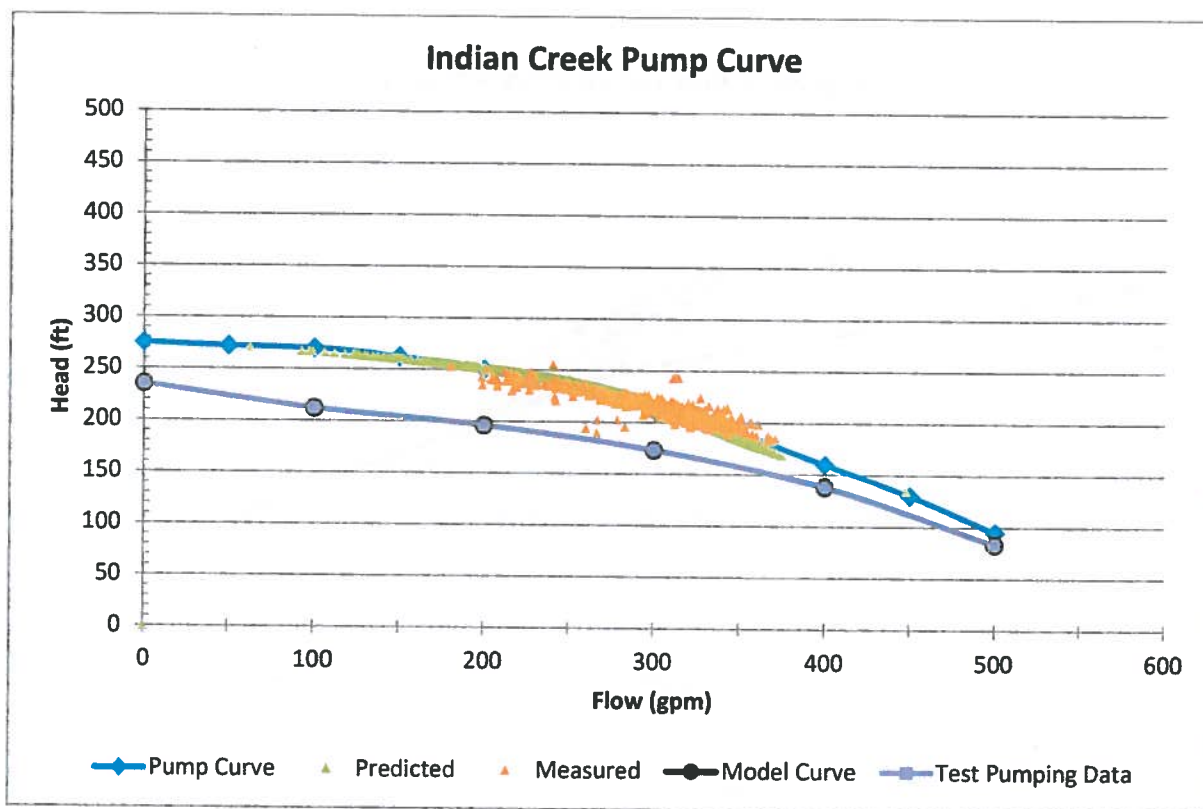


Figure D-14. Indian Creek pump curve, model curve, and test pumping data.

Table D-14. Recommended Indian Creek pump curve.

Q (gpm)	Head (ft)
0	275
50	272
100	270
150	262
200	250
250	235
300	212
350	190
400	160
450	130
500	95

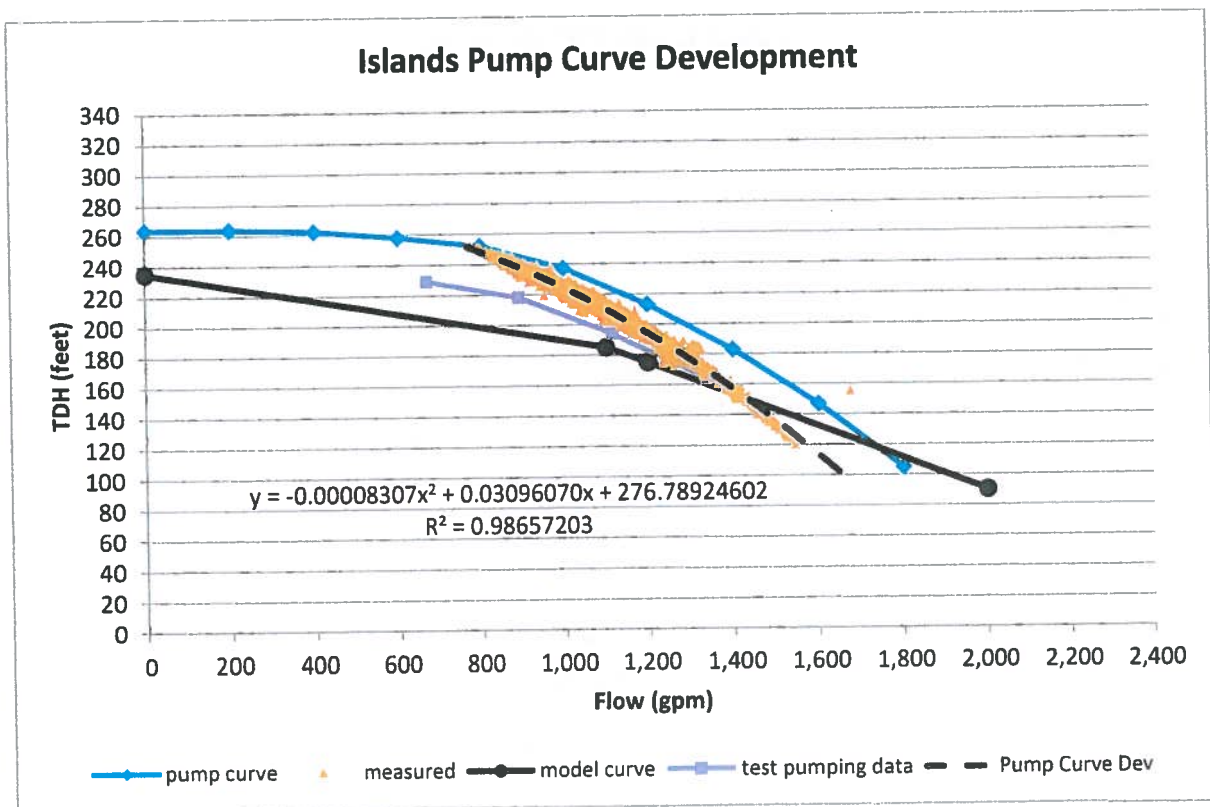


Figure D-15. Islands developed pump curve, model curve, and test pumping data.

Table D-15. Recommended Islands pump curve.

Q (gpm)	Head (ft)
0	277
200	280
400	276
600	265
800	248
1000	225
1200	194
1400	157
1600	114
1800	63

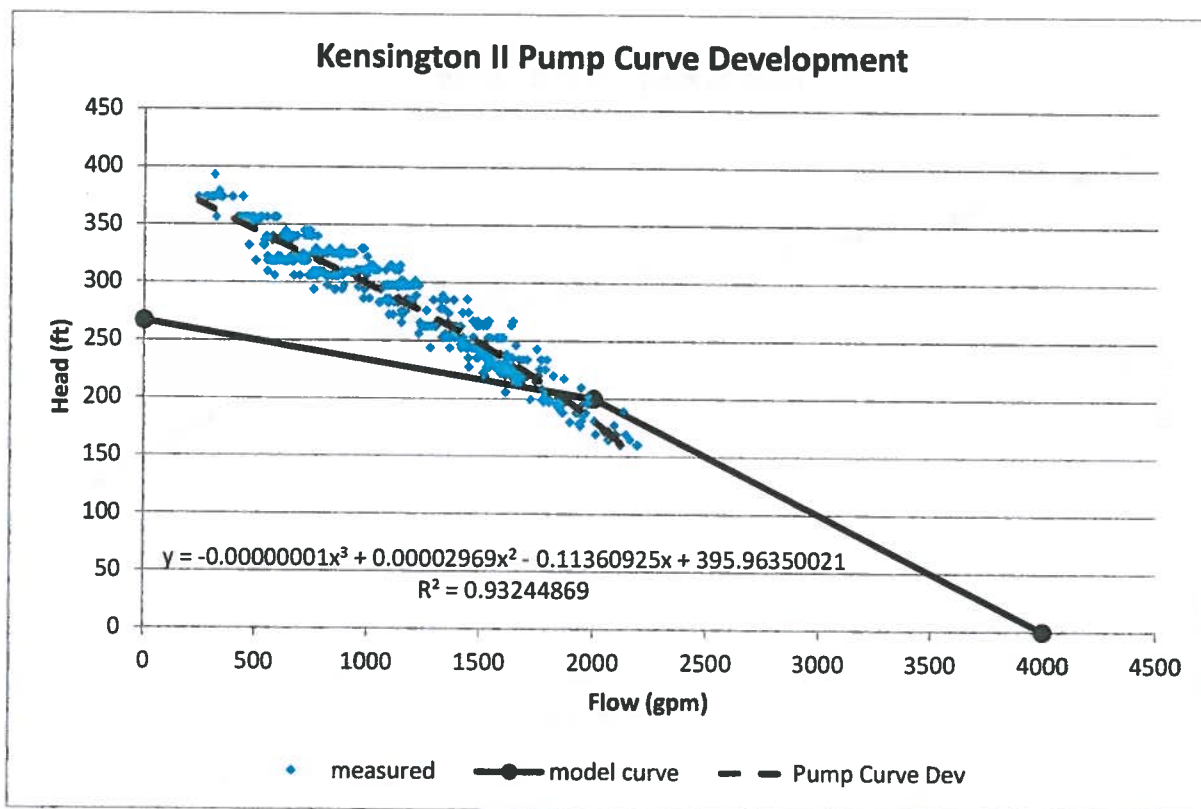


Figure D-16. Kensington II developed pump curve, model curve, and test pumping data.

Table D-16. Recommended Kensington II pump curve.

Q (gpm)	Head (ft)
400	354
600	336
800	317
1000	299
1200	280
1400	259
1600	237
1800	212
2000	183
2200	151

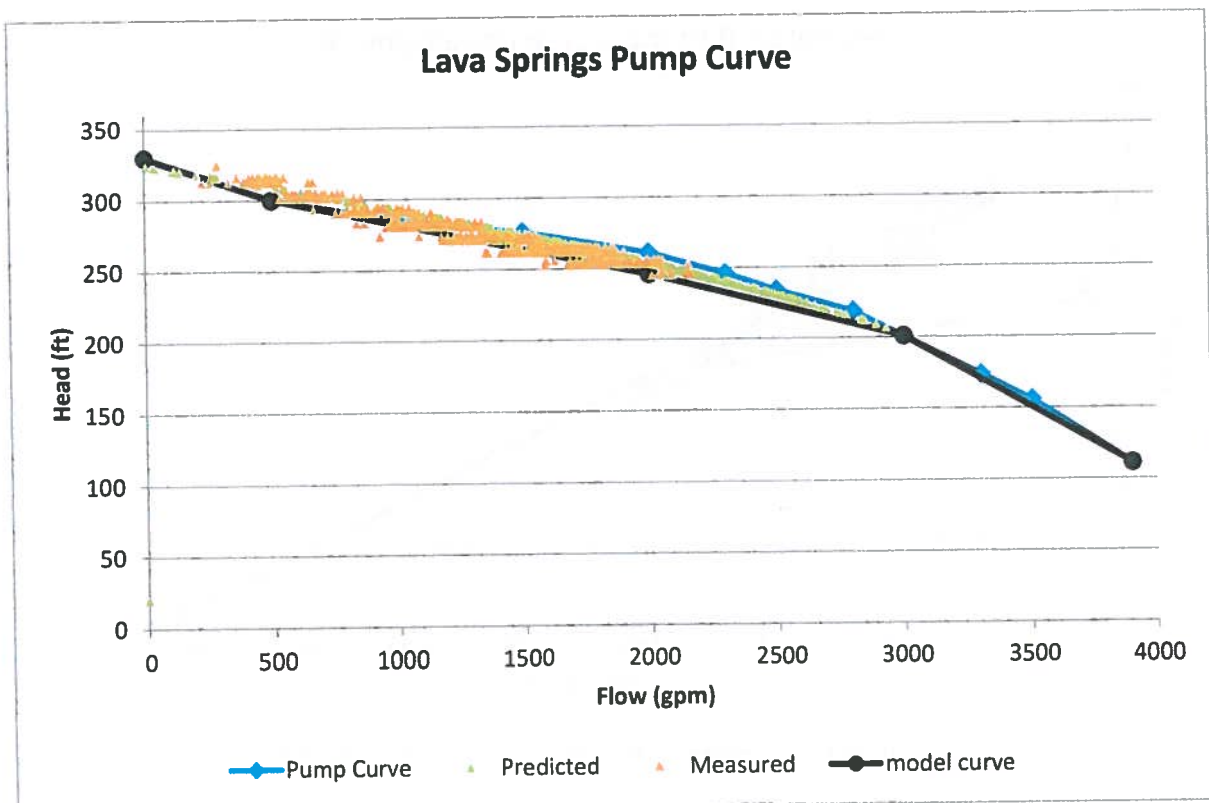


Figure D-17. Lava Springs pump curve and model curve.

Table D-17. Recommended Lava Springs pump curve.

Q (gpm)	Head (ft)
0	330
500	300
1000	285
1500	276
2000	261
2300	246
2500	234
2800	219
3000	201
3300	174
3500	156
3900	111

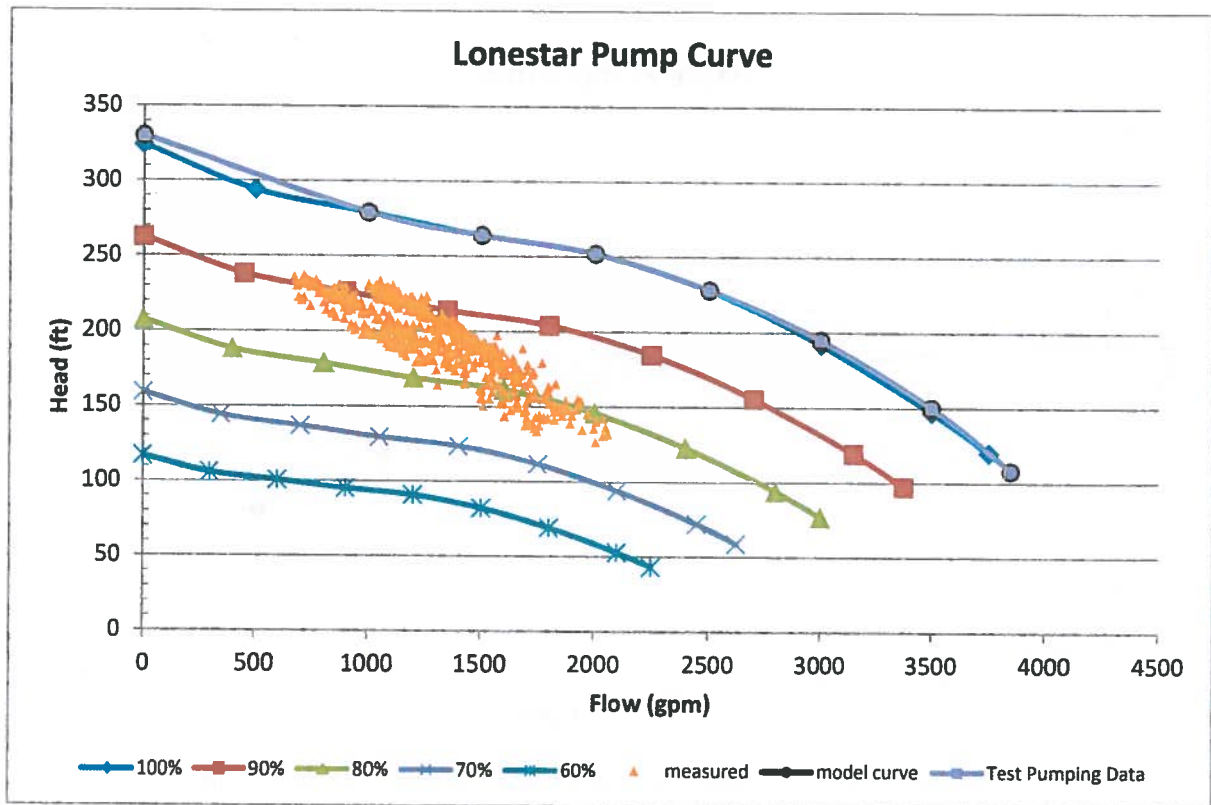


Figure D-18. Lonestar pump curve, model curve, and test pumping data.

Table D-18. Recommended Lonestar pump curve.

Q (gpm)	Head (ft)
0	324
500	294
1000	279
1500	264
2000	252
2500	228
3000	192
3500	147
3750	120

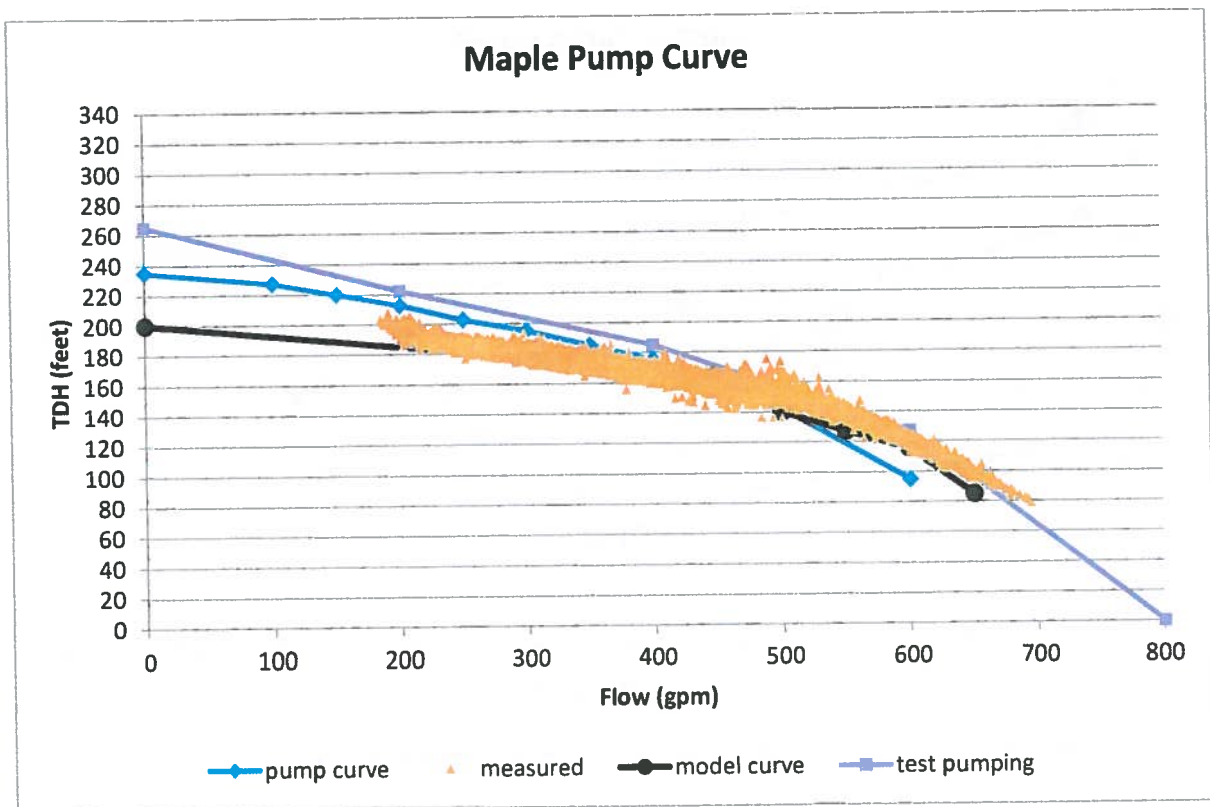


Figure D-19. Maple pump curve, model curve, and test pumping data.

Table D-19. Recommended Maple pump curve.

Q (gpm)	Head (ft)
0	235
100	228
150	220
200	213
250	203
300	195
350	185
400	175
500	143
600	95

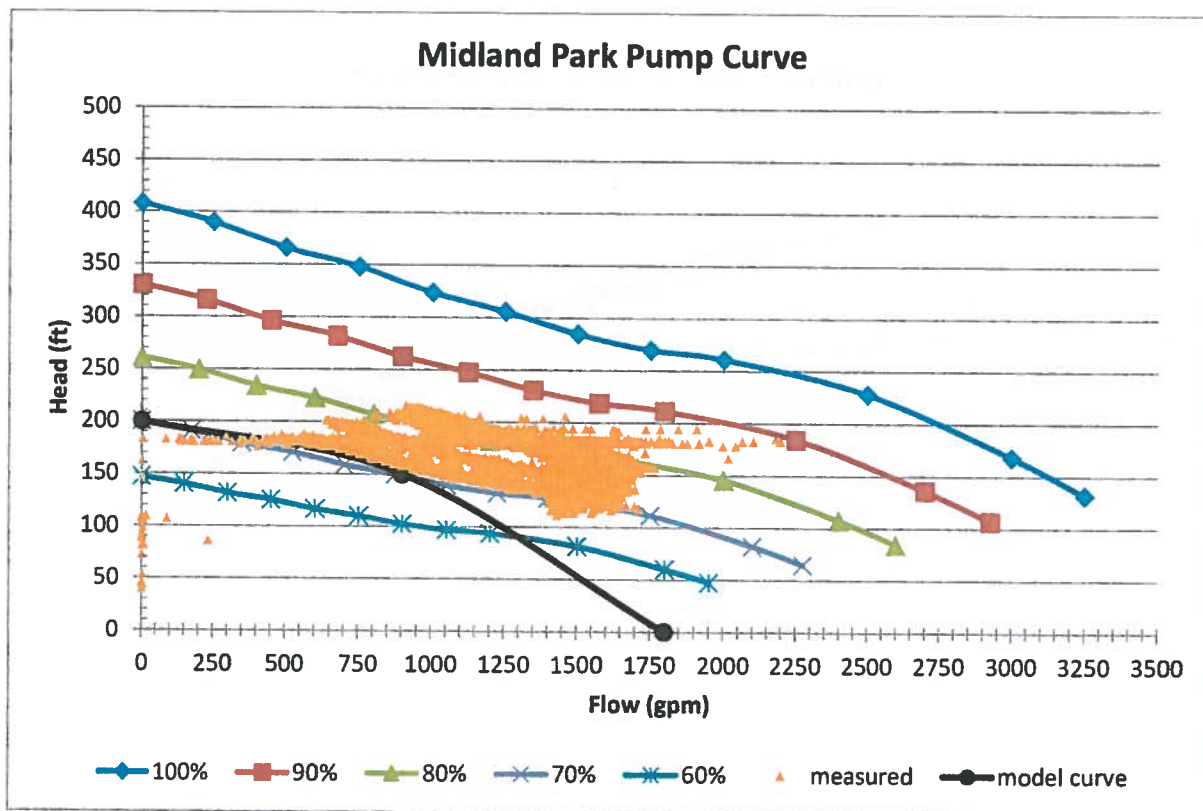


Figure D-20. Midland Park pump curve and model curve.

Table D-20. Recommended Midland Park pump curve.

Q (gpm)	Head (ft)
0	408
250	390
500	366
750	348
1000	324
1250	306
1500	285
1750	270
2000	261
2500	228
3000	168
3250	132

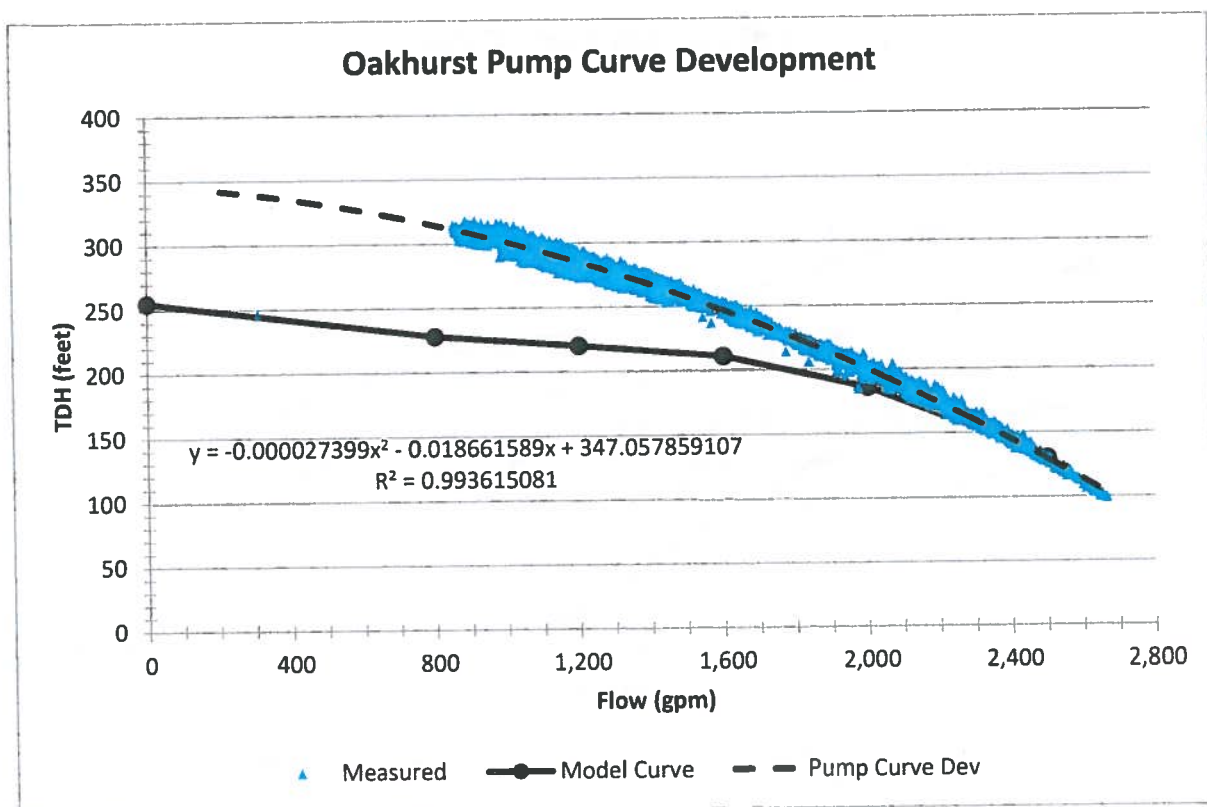


Figure D-21. Oakhurst developed pump curve and model curve.

Table D-21. Recommended Oakhurst pump curve.

Q (gpm)	Head (ft)
400	336
800	318
1200	291
1600	257
2000	216
2400	166
2800	109

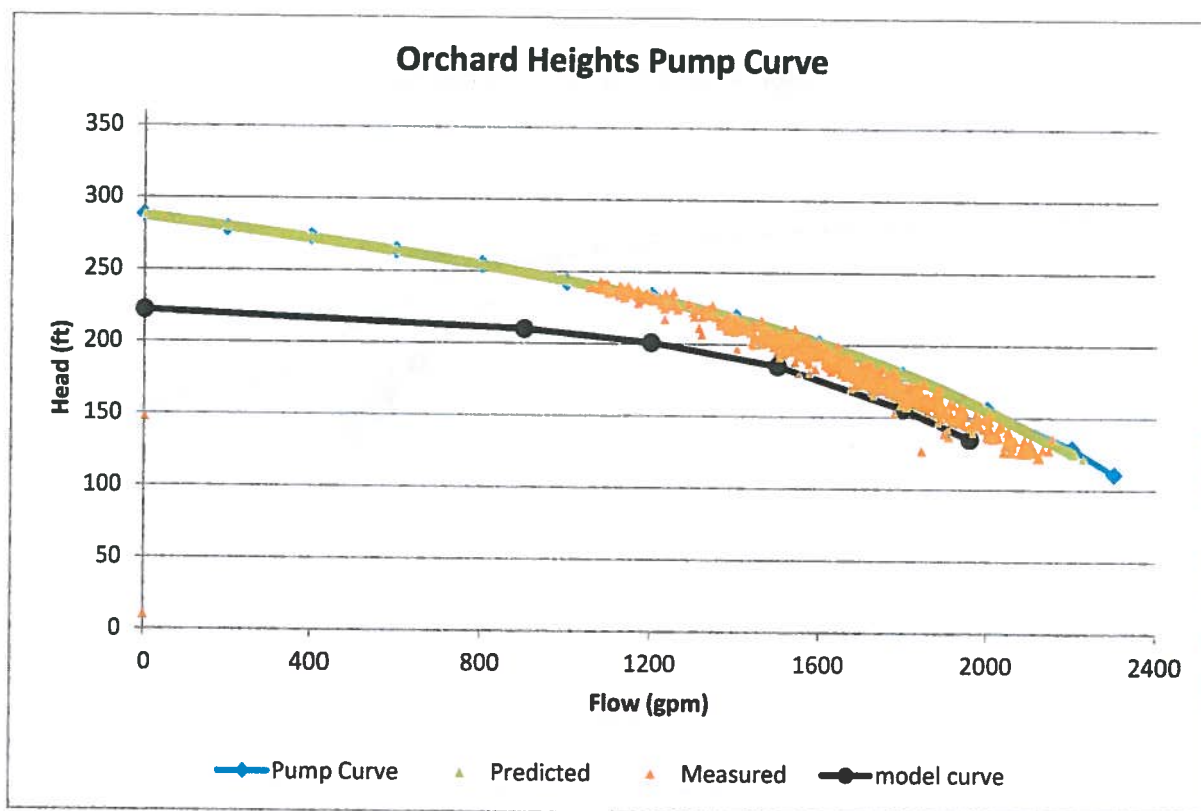


Figure D-22. Orchard Heights pump curve and model curve.

Table D-22. Recommended Orchard Heights pump curve.

Q (gpm)	Head (ft)
0	288
200	279
400	273
600	264
800	255
1000	243
1200	234
1400	219
1600	201
1800	180
2000	156
2200	129
2300	111

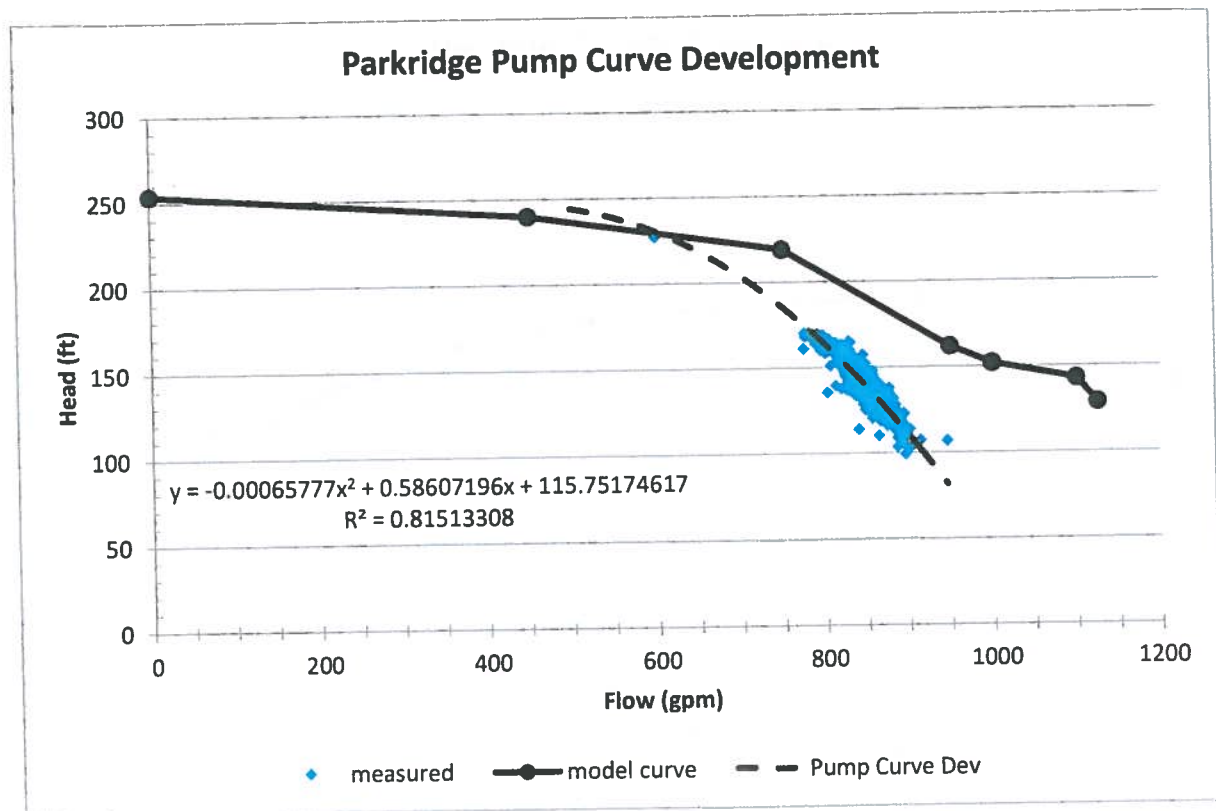


Figure D-23. Parkridge developed pump curve and model curve.

Table D-23. Recommended Parkridge pump curve.

Q (gpm)	Head (ft)
500	244
600	231
700	204
800	164
900	110
950	79

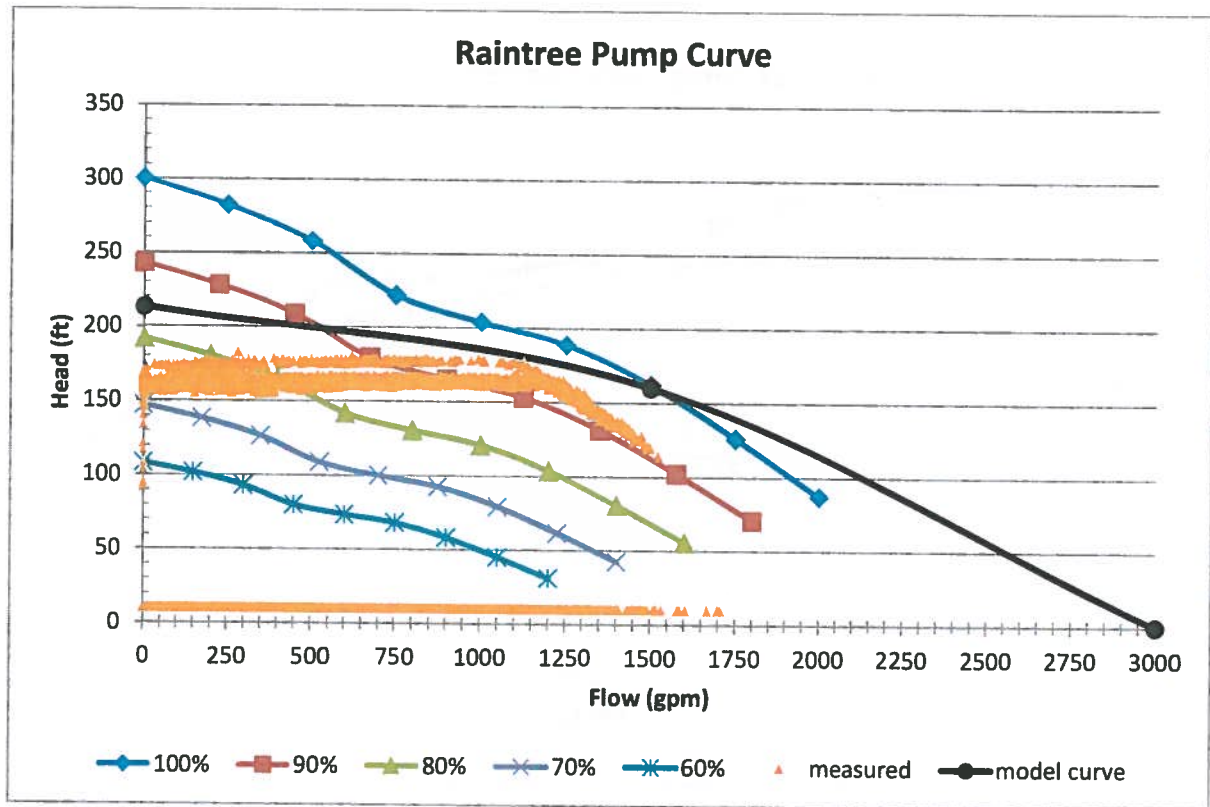


Figure D-24. Raintree pump curve and model curve.

Table D-24. Recommended Raintree pump curve.

Q (gpm)	Head (ft)
0	300
250	282
500	258
750	222
1000	204
1250	189
1500	162
1750	126
2000	87

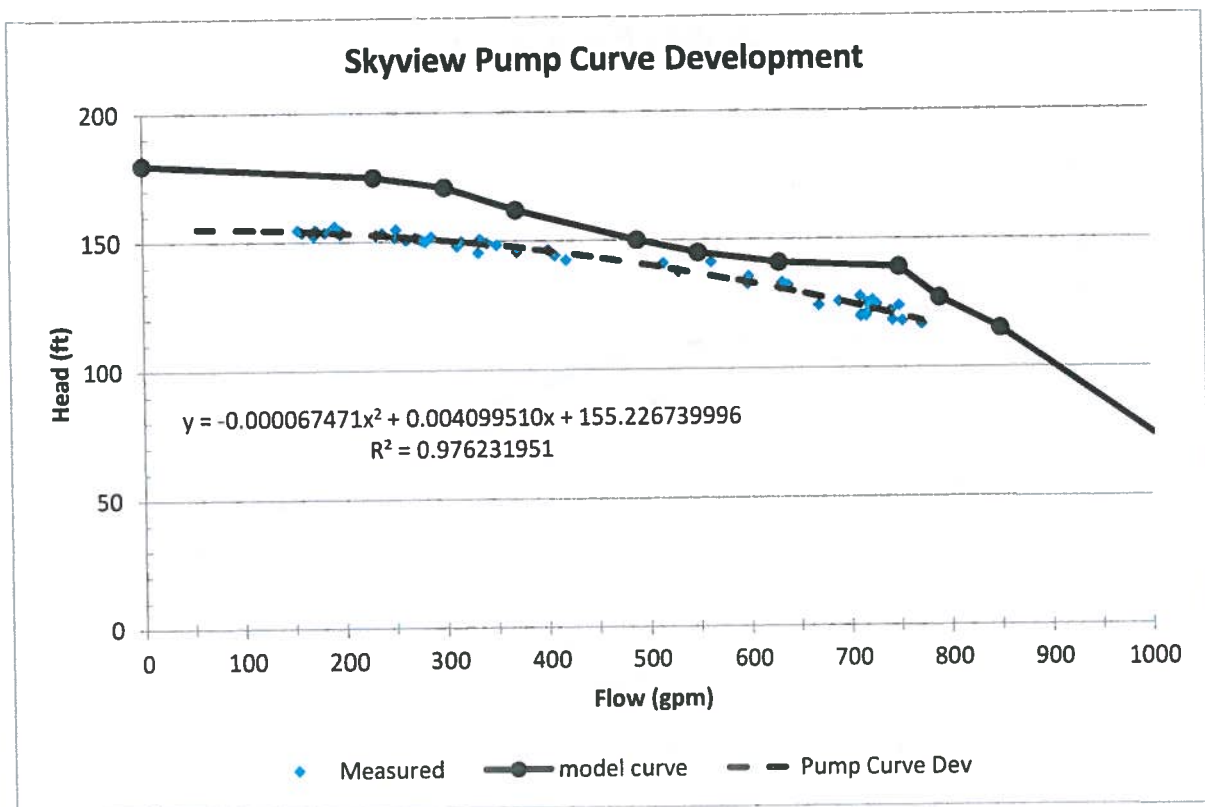


Figure D-25. Skyview developed pump curve and model curve.

Table D-25. Recommended Skyview pump curve.

Q (gpm)	Head (ft)
100	155
200	153
300	150
400	146
500	140
600	133
700	125
800	115

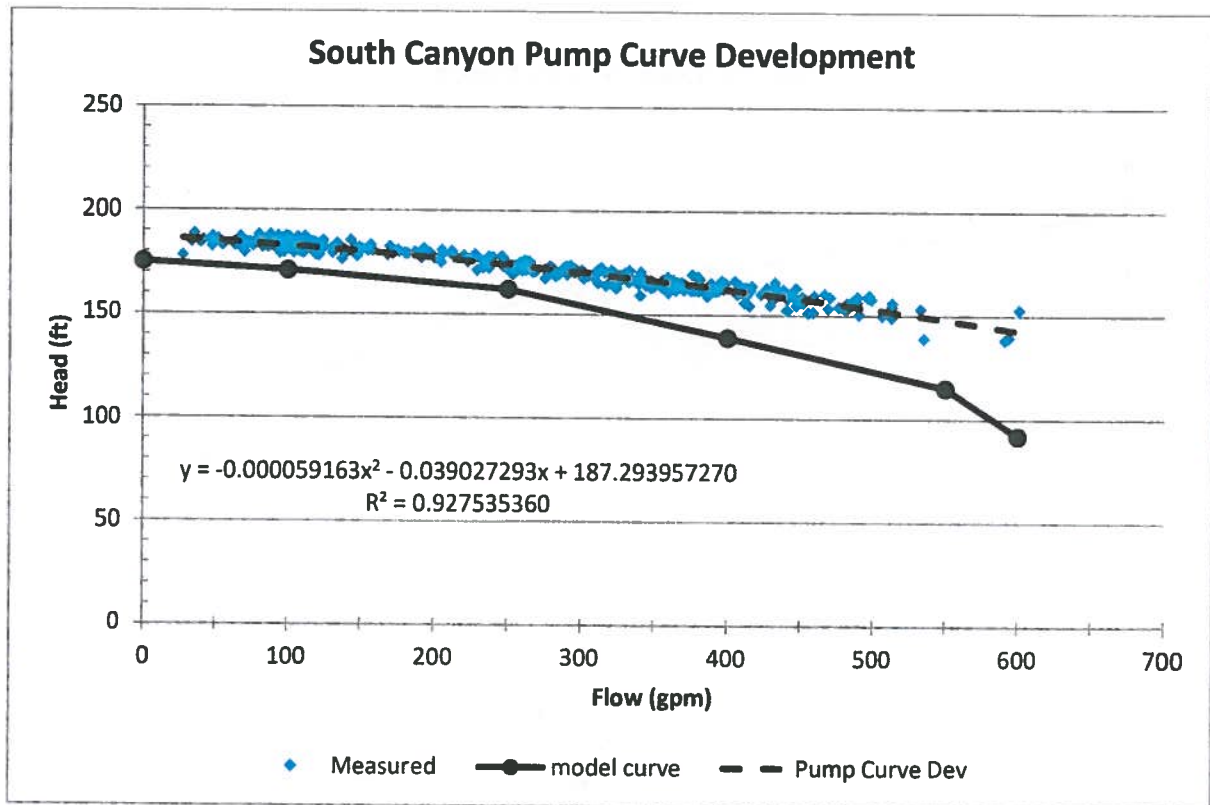


Figure D-26. South Canyon developed pump curve and model curve.

Table D-26. Recommended South Canyon pump curve.

Q (gpm)	Head (ft)
100	183
200	177
300	170
400	162
500	153
600	143

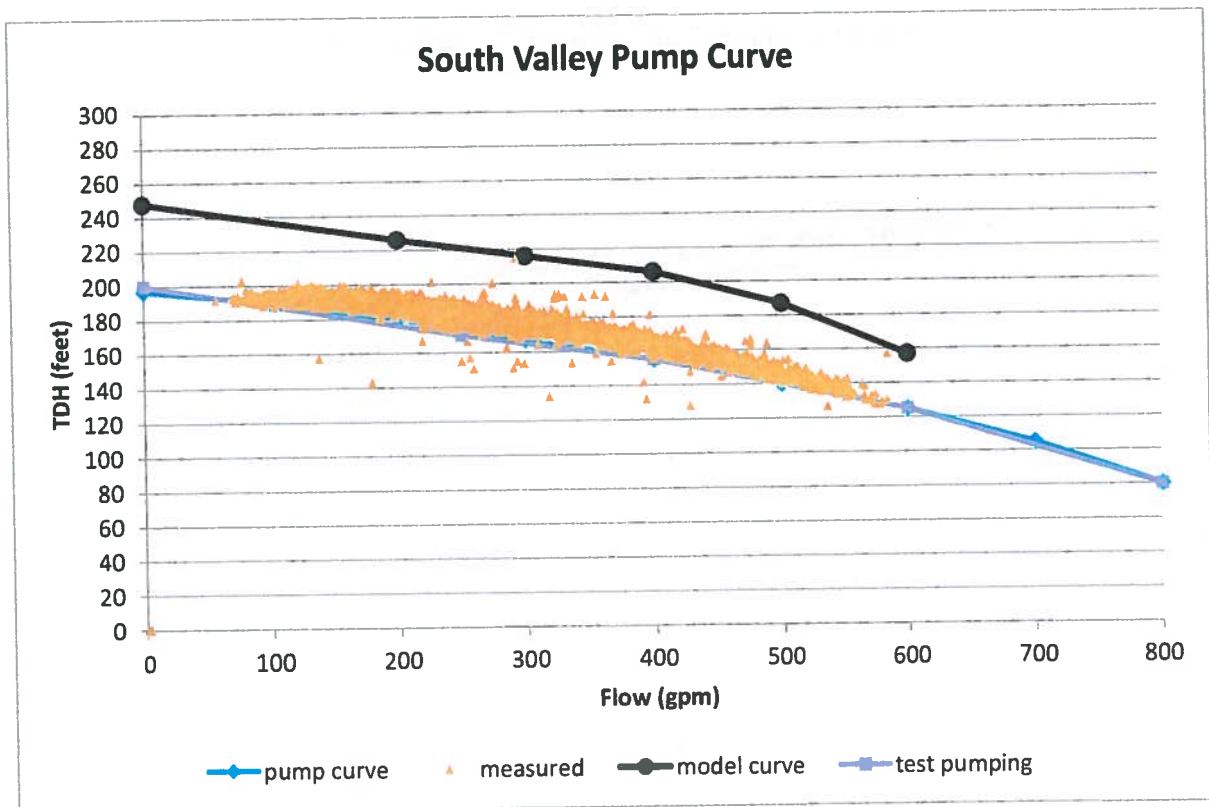


Figure D-27. South Valley pump curve, model curve, and test pumping.

Table D-27. Recommended South Valley pump curve.

Q (gpm)	Head (ft)
0	197
100	190
200	180
300	167
400	155
500	140
600	125
700	105
800	80

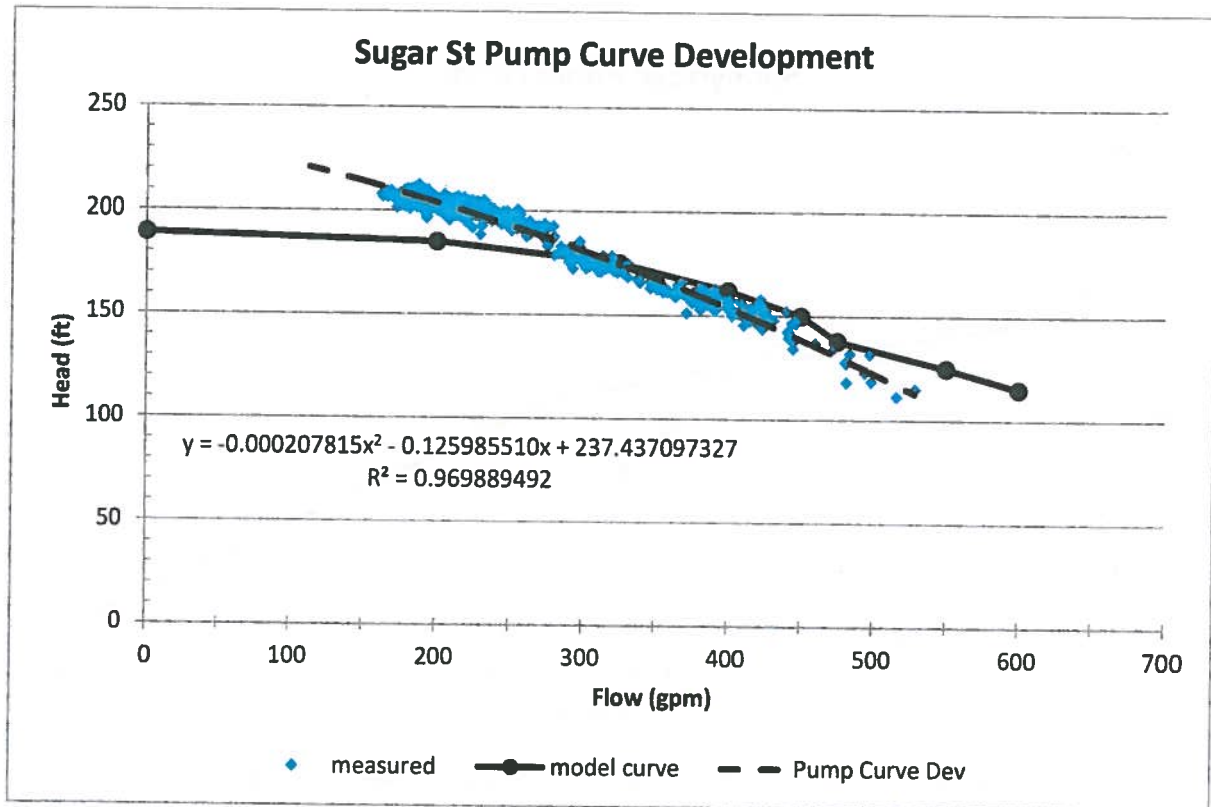


Figure D-28. Sugar St developed pump curve and model curve.

Table D-28. Recommended Sugar St pump curve.

Q (gpm)	Head (ft)
100	223
150	214
200	204
250	193
300	181
350	168
400	154
450	139
500	122
550	105

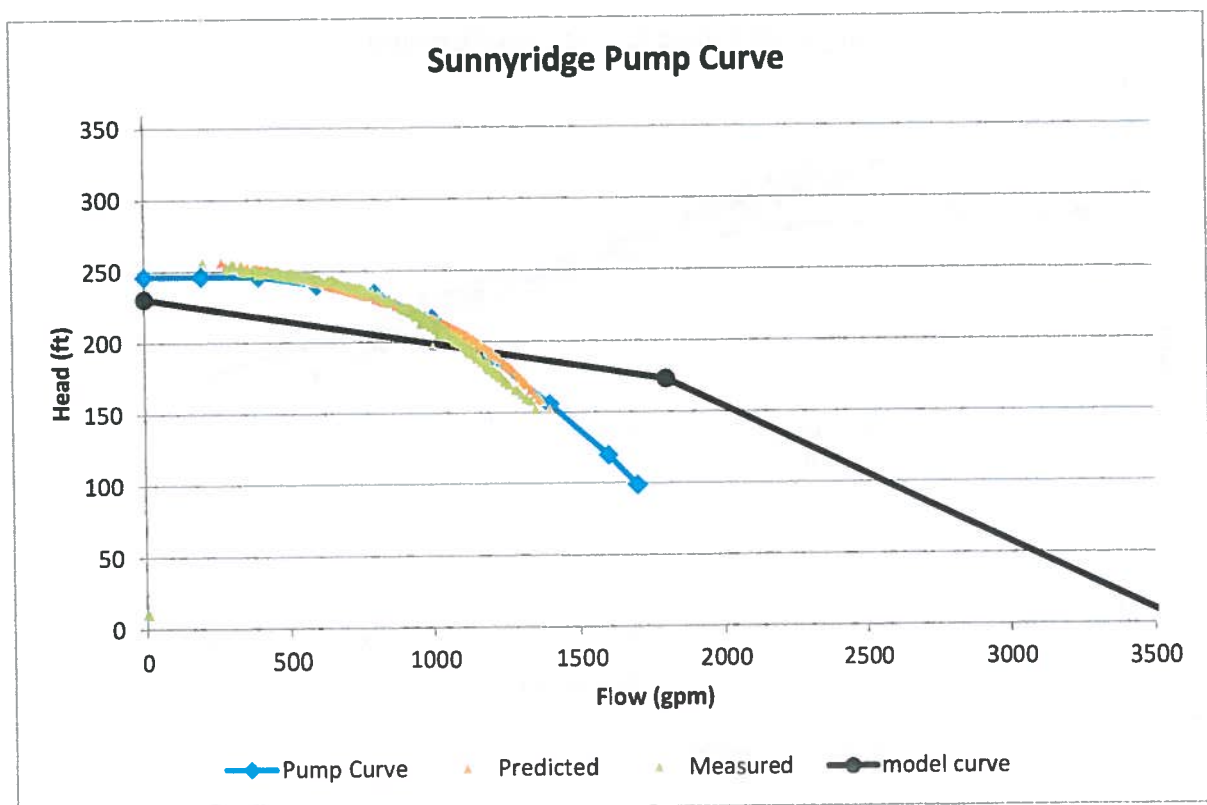


Figure D-29. Sunnyridge pump curve and model curve.

Table D-29. Recommended Sunnyridge pump curve.

Q (gpm)	Head (ft)
0	246
200	246
400	246
600	240
800	234
1000	216
1200	189
1400	156
1600	120
1700	99

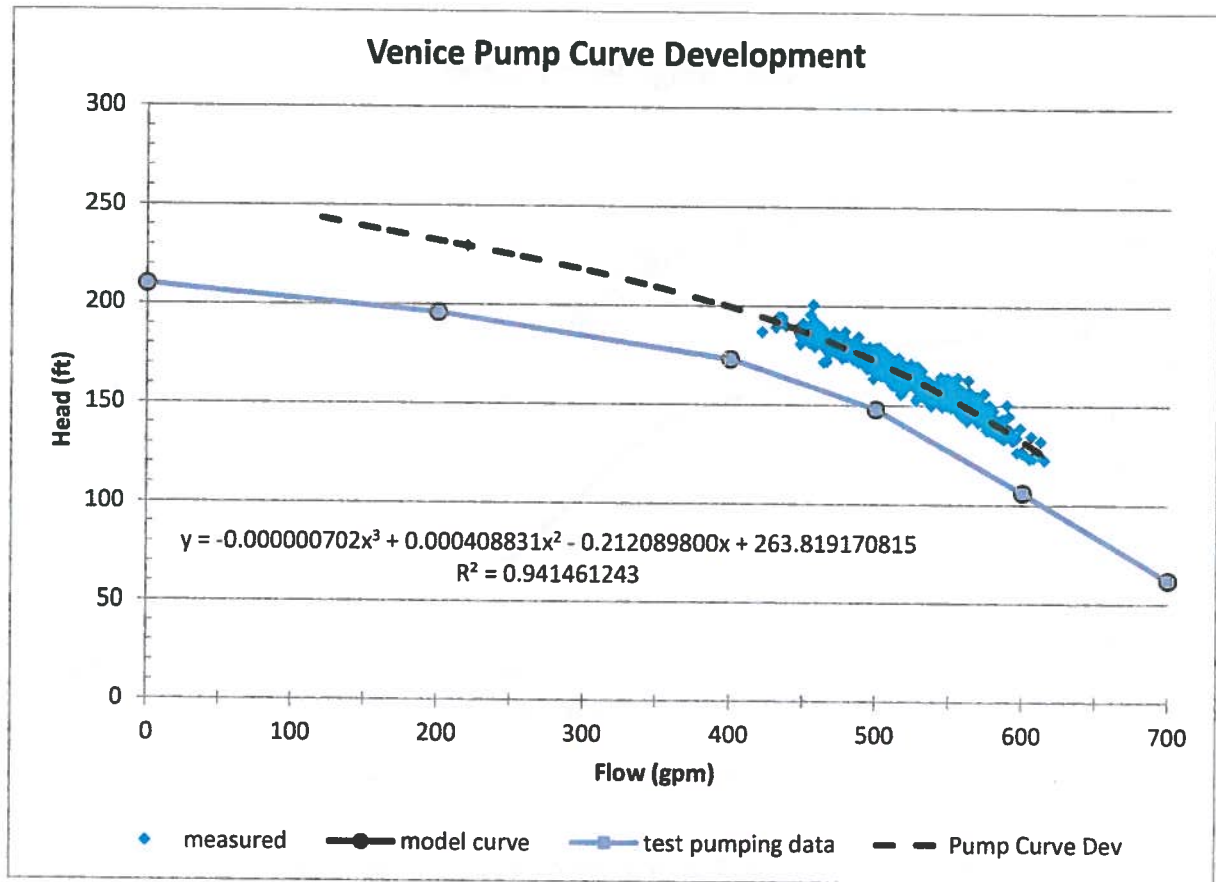


Figure D-30. Venice developed pump curve and model curve.

Table D-30. Recommended Venice pump curve.

Q (gpm)	Head (ft)
100	246
200	232
300	218
400	199
500	172
600	132

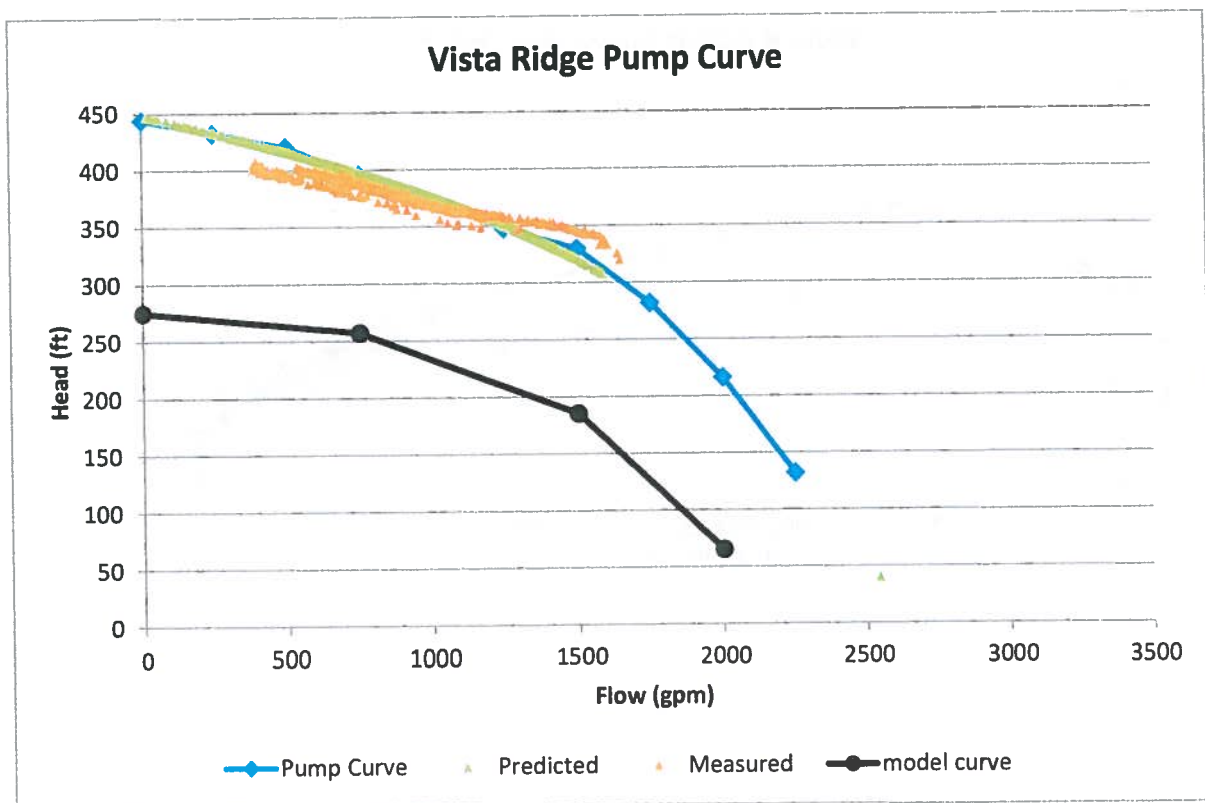


Figure D-31. Vista Ridge pump curve and model curve.

Table D-31. Recommended Vista Ridge pump curve.

Q (gpm)	Head (ft)
0	444
250	432
500	420
750	396
1000	372
1250	348
1500	330
1750	282
2000	216
2250	132