

ORIGINAL



0000127504

BEFORE THE ARIZONA CORPORATION C
RECEIVED

COMMISSIONERS

GARY PIERCE, Chairman
BOB STUMP
SANDRA D. KENNEDY
PAUL NEWMAN
BRENDA BURNS

2011 JUL 13 P 3:38

AZ CORP COMMISSION
DOCKET CONTROL

IN THE MATTER OF THE APPLICATION OF
INDIADA WATER COMPANY, INC., FOR
APPROVAL OF A PERMANENT INCREASE IN
ITS WATER RATES.

DOCKET NO. W-02031A-10-0168

IN THE MATTER OF THE APPLICATION OF
ANTELOPE RUN WATER COMPANY FOR
APPROVAL OF A PERMANENT INCREASE IN
ITS WATER RATES.

DOCKET NO. W-02327A-10-0169

IN THE MATTER OF THE APPLICATION OF
BOB B. WATKINS DBA EAST SLOPE WATER
COMPANY FOR APPROVAL OF A
PERMANENT INCREASE IN ITS WATER
RATES.

DOCKET NO. W-01906A-10-0170

IN THE MATTER OF THE APPLICATIONS OF
BOB B. WATKINS DBA EAST SLOPE WATER
COMPANY, INDIADA WATER COMPANY,
INC., AND ANTELOPE RUN WATER COMPANY
FOR APPROVAL OF A TRANSFER OF ASSETS
AND CERTIFICATES OF CONVENIENCE AND
NECESSITY.

DOCKET NO. W-01906A-10-0171
DOCKET NO. W-02031A-10-0171
DOCKET NO. W-02327A-10-0171

IN THE MATTER OF THE APPLICATION OF
BOB B. WATKINS DBA EAST SLOPE WATER
COMPANY FOR AUTHORITY TO INCUR
LONG-TERM DEBT.

DOCKET NO. W-01906A-10-0183

IN THE MATTER OF THE APPLICATION OF
INDIADA WATER COMPANY, INC. FOR
AUTHORITY TO INCUR LONG-TERM DEBT.

DOCKET NO. W-02031A-10-0184

IN THE MATTER OF THE APPLICATION OF
ANTELOPE RUN WATER COMPANY FOR
AUTHORITY TO INCUR LONG-TERM DEBT.

DOCKET NO. W-02327A-10-0185

**STAFF NOTICE OF FILING DIRECT
TESTIMONY**

The Utilities Division ("Staff") of the Arizona Corporation Commission ("ACC") hereby files
the Direct Testimony of Staff Witness Katrin Stukov in the above-referenced matter.

...
...
...
...

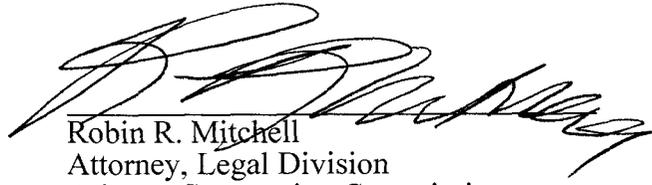
Arizona Corporation Commission
DOCKETED

JUL 13 2011

DOCKETED BY

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

RESPECTFULLY SUBMITTED this 13th day of July, 2011.



Robin R. Mitchell
Attorney, Legal Division
Arizona Corporation Commission
1200 West Washington Street
Phoenix, Arizona 85007
(602) 542-3402

Original and thirteen (13) copies
of the foregoing were filed this
13th day of July, 2011 with:

Docket Control
Arizona Corporation Commission
1200 West Washington Street
Phoenix, Arizona 85007

Copies of the foregoing were mailed
this 13th day of July, 2011 to:

Steve Wene, Esq.
MOYES STOREY, LTD
1850 North Central Avenue, Suite 1100
Phoenix, Arizona 85004



BEFORE THE ARIZONA CORPORATION COMMISSION

GARY PIERCE

Chairman

BOB STUMP

Commissioner

SANDRA D. KENNEDY

Commissioner

PAUL NEWMAN

Commissioner

BRENDA BURNS

Commissioner

<u>IN THE MATTER OF THE APPLICATION OF)</u> <u>INDIADA WATER COMPANY, INC., FOR)</u> <u>APPROVAL OF A PERMANENT INCREASE IN)</u> <u>ITS WATER RATES.)</u>	DOCKET NO. W-02031A-10-0168
<u>IN THE MATTER OF THE APPLICATION OF)</u> <u>ANTELOPE RUN WATER COMPANY FOR)</u> <u>APPROVAL OF A PERMANENT INCREASE IN)</u> <u>ITS WATER RATES.)</u>	DOCKET NO. W-02327A-10-0169
<u>IN THE MATTER OF THE APPLICATION OF)</u> <u>BOB B. WATKINS DBA EAST SLOPE WATER)</u> <u>COMPANY FOR APPROVAL OF A PERMANENT)</u> <u>INCREASE IN ITS WATER RATES.)</u>	DOCKET NO. W-01906A-10-0170
<u>IN THE MATTER OF THE APPLICATION OF)</u> <u>BOB B. WATKINS DBA EAST SLOPE WATER)</u> <u>COMPANY, INDIADA WATER COMPANY, INC.,)</u> <u>AND ANTELOPE RUN WATER COMPANY FOR)</u> <u>APPROVAL OF A TRANSFER OF ASSETS AND)</u> <u>CERTIFICATES OF CONVENIENCE AND)</u> <u>NECESSITY.)</u>	DOCKET NOS. W-01906A-10-0171 W-02031A-10-0171 W-02327A-10-0171
<u>IN THE MATTER OF THE APPLICATION OF)</u> <u>BOB B. WATKINS DBA EAST SLOPE WATER)</u> <u>COMPANY FOR AUTHORITY TO INCUR LONG-))</u> <u>TERM DEBT.)</u>	DOCKET NO. W-01906A-10-0183
<u>IN THE MATTER OF THE APPLICATION OF)</u> <u>INDIADA WATER COMPANY, INC., FOR)</u> <u>AUTHORITY TO INCUR LONG-TERM DEBT.)</u>	DOCKET NO. W-02031A-10-0184
<u>IN THE MATTER OF THE APPLICATION OF)</u> <u>ANTELOPE RUN WATER COMPANY FOR)</u> <u>AUTHORITY TO INCUR LONG-TERM DEBT)</u>	DOCKET NO. W-02327A-10-0185

DIRECT
TESTIMONY
OF
KATRIN STUKOV
UTILITIES ENGINEER
ARIZONA CORPORATION COMMISSION
UTILITIES DIVISION

JUNE 13, 2011

TABLE OF CONTENTS

	<u>PAGE</u>
INTRODUCTION	1
PURPOSE OF TESTIMONY.....	2
ENGINEERING REPORT	2

EXHIBITS

Engineering Reports.....	Exhibit KS
Companies Pre-Design Report.....	Exhibit A

1 **INTRODUCTION**

2 **Q. Please state your name, place of employment and job title.**

3 A. My name is Katrin Stukov. My place of employment is the Arizona Corporation
4 Commission (“Commission”), Utilities Division, 1200 West Washington Street, Phoenix,
5 Arizona 85007. My job title is Utilities Engineer.

6
7 **Q. How long have you been employed by the Commission?**

8 A. I have been employed by the Commission since June 2006.

9
10 **Q. Please list your duties and responsibilities.**

11 A. As a Utilities Engineer, specializing in water and wastewater engineering, I inspect and
12 evaluate water and wastewater systems; obtain data, prepare reports; suggest corrective
13 action, provide technical recommendations on water and wastewater system deficiencies;
14 and provide written and oral testimony on rate and other cases before the Commission.

15
16 **Q. How many cases have you analyzed for the Utilities Division?**

17 A. I have analyzed over 70 cases covering various responsibilities for the Utilities Division.

18
19 **Q. What is your educational background?**

20 A. I graduated from the Moscow University of Civil Engineering with a Bachelor of Science
21 degree in Civil Engineering with a concentration in water and wastewater systems.

22
23 **Q. Briefly describe your pertinent work experience.**

24 A. Prior to my employment with the Commission, I was a design review environmental
25 engineer with the Arizona Department of Environmental Quality (“ADEQ”) for twenty
26 years. My responsibilities with ADEQ included review of projects for the construction of
27 water and wastewater facilities. Prior to that, I worked as a civil engineer in several

1 engineering and consulting firms, including Bechtel, Inc. and Brown & Root, Inc., in
2 Houston, Texas.

3
4 **PURPOSE OF TESTIMONY**

5 **Q. Were you assigned to provide the Utilities Division Staff's ("Staff") engineering**
6 **analysis and recommendations in this consolidated proceeding?**

7 A. Yes. I reviewed East Slope Water Company, Antelope Run Water Company and Indiada
8 Water Company (collectively the "Companies") applications and responses to data
9 requests, and I visited the Companies' water systems. This testimony and its attachment
10 present Staff's engineering evaluation.

11
12 **ENGINEERING REPORT**

13 **Q. Please describe the attached Engineering Report, Exhibit KS.**

14 A. Exhibit KS presents the Companies' water system details and Staff's analysis and
15 findings, and is attached to this direct testimony. Exhibit KS contains the following major
16 topics: (1) a description and analysis of the water system, (2) water use, (3) growth, (4)
17 compliance with the rules of the ADEQ and Arizona Department of Water Resources, (5)
18 depreciation rates and (6) Staff's conclusions and recommendations.

19
20 **Q. Did you provide summaries for each water company contained in the Engineering**
21 **Reports?**

22 A. Yes, these summaries contain Staff's engineering conclusions at the beginning of each
23 Exhibit.

24
25 **Q. Does this conclude your direct testimony?**

26 A. Yes, it does.

Engineering Reports

For

East Slope Water Company, Inc;

Antelope Run Water Company, Inc;

Indiada Water Company, Inc.

INTRODUCTION AND LOCATION

On April 30, 2010, East Slope Water Company (“ESWC” or “Company”), Antelope Run Water Company (“ARWC” or “Company”), and Indiada Water Company (“IWC” or “Company”) filed consolidated rate application with the Arizona Corporation Commission (“ACC” or “Commission”).

On April 30, 2010, ESWC, ARWC and IWC (collectively the “Companies”) filed a joint application for the transfer of ARWC’s and IWC’s assets and Certificates of Convenience and Necessity to ESWC and consolidation of rates.

On May 7, 2010 ESWC, ARWC and IWC filed consolidated application for authority to incur long term debt.

On August 27, 2010, ESWC, ARWC and IWC filed simultaneously amended separate rate applications. The Commission Utilities Division Staff (“Staff”) engineering review and analysis of the amended applications is presented in these reports.

Bob B. Watkins operates three separate water systems (East Slope, Antelope Run and Indiada) that serve approximately 1,000 customers south of Sierra Vista, in Cochise County. A northern portion of the Indiada system’s service area is adjacent to the Antelope Run system’s service area and the two systems have an emergency interconnection. Both systems are on the west side of Arizona Route 92. The East Slope system is on the east side of Arizona Route 92 and approximately one mile east of the other two systems. The East Slope system is not physically interconnected with the two other systems.

The plant facilities were visited on May 11, 2011, by Katrin Stukov, Staff Utilities Engineer, accompanied by Company representatives Keith Dojaquez and Gary Newman, and Company’s Engineer James D. Downing, P.E.

Figure 1 shows the location of ESWC, ARWC and IWC within Cochise County. Figure 2 delineates certificated areas by company, as follows: approximately 2.5 square-miles or 1,583 acres for ESWC, approximately 1.1 square-miles or 706 acres for ARWC and approximately 0.25 square-miles or 159 acres for IWC, totaling approximately 3.8 square-miles or 2,448 acres for all three companies. Figure 3 shows water systems schematic.

Figure 1

COCHISE COUNTY

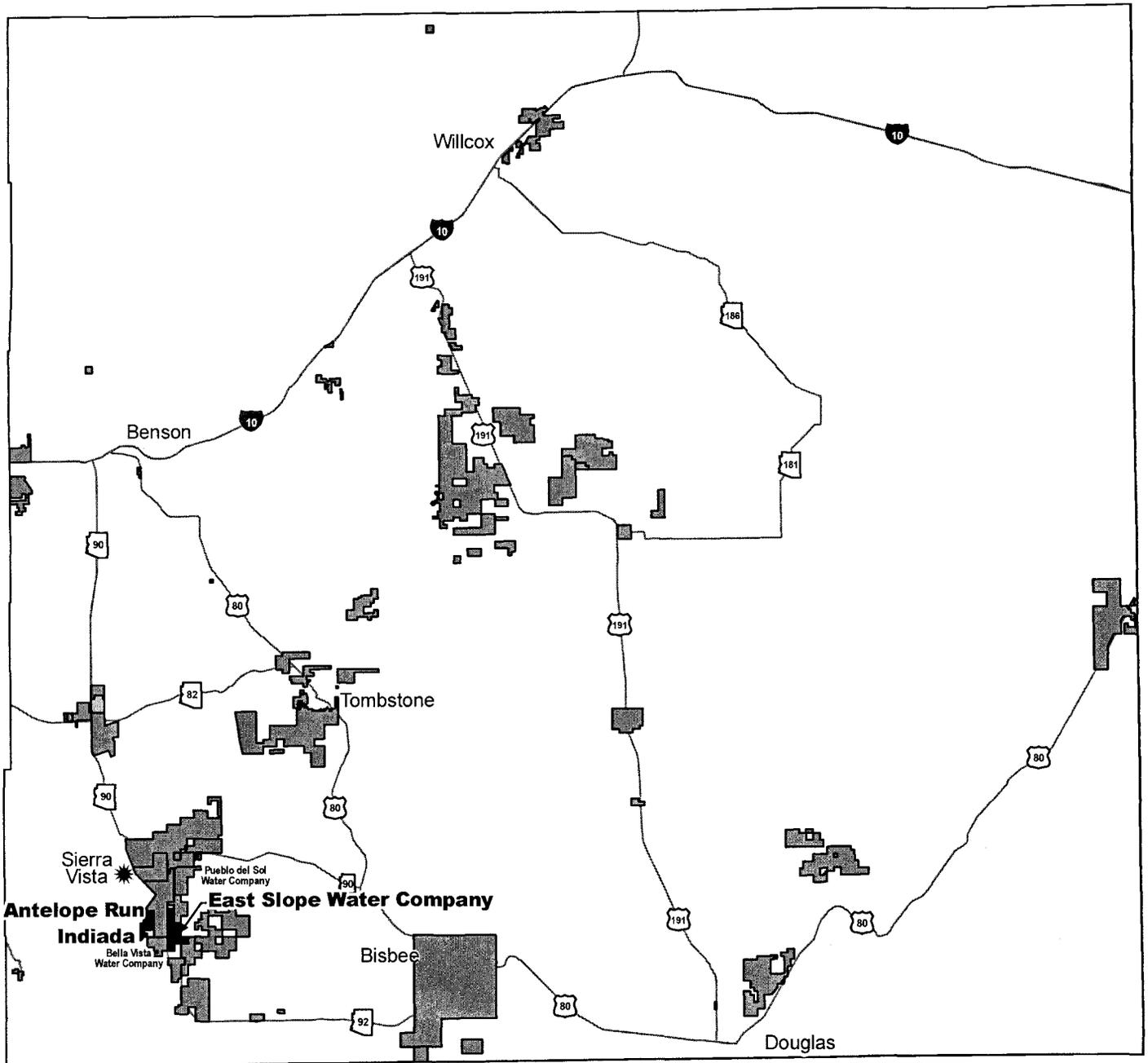


Figure 2

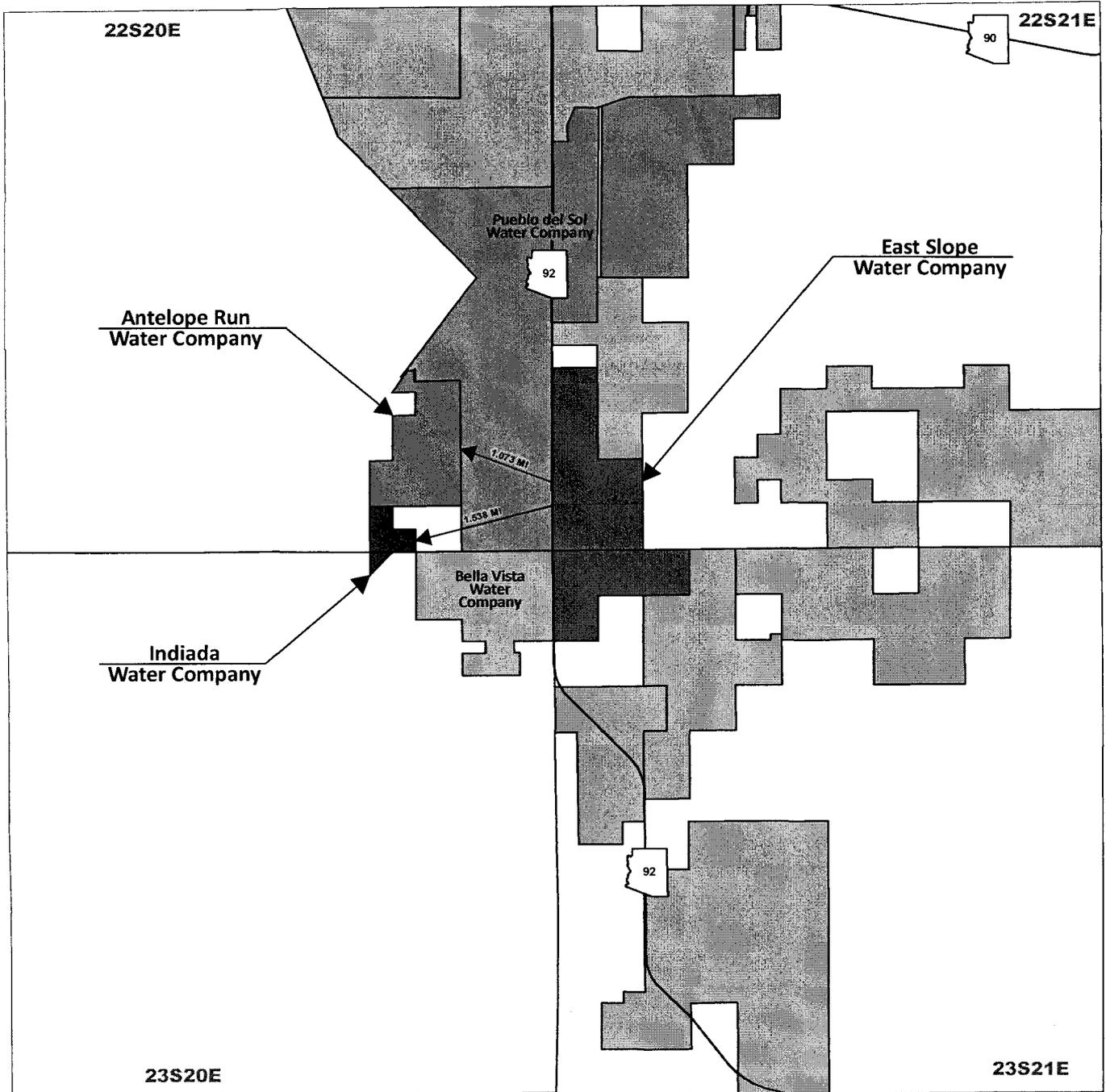
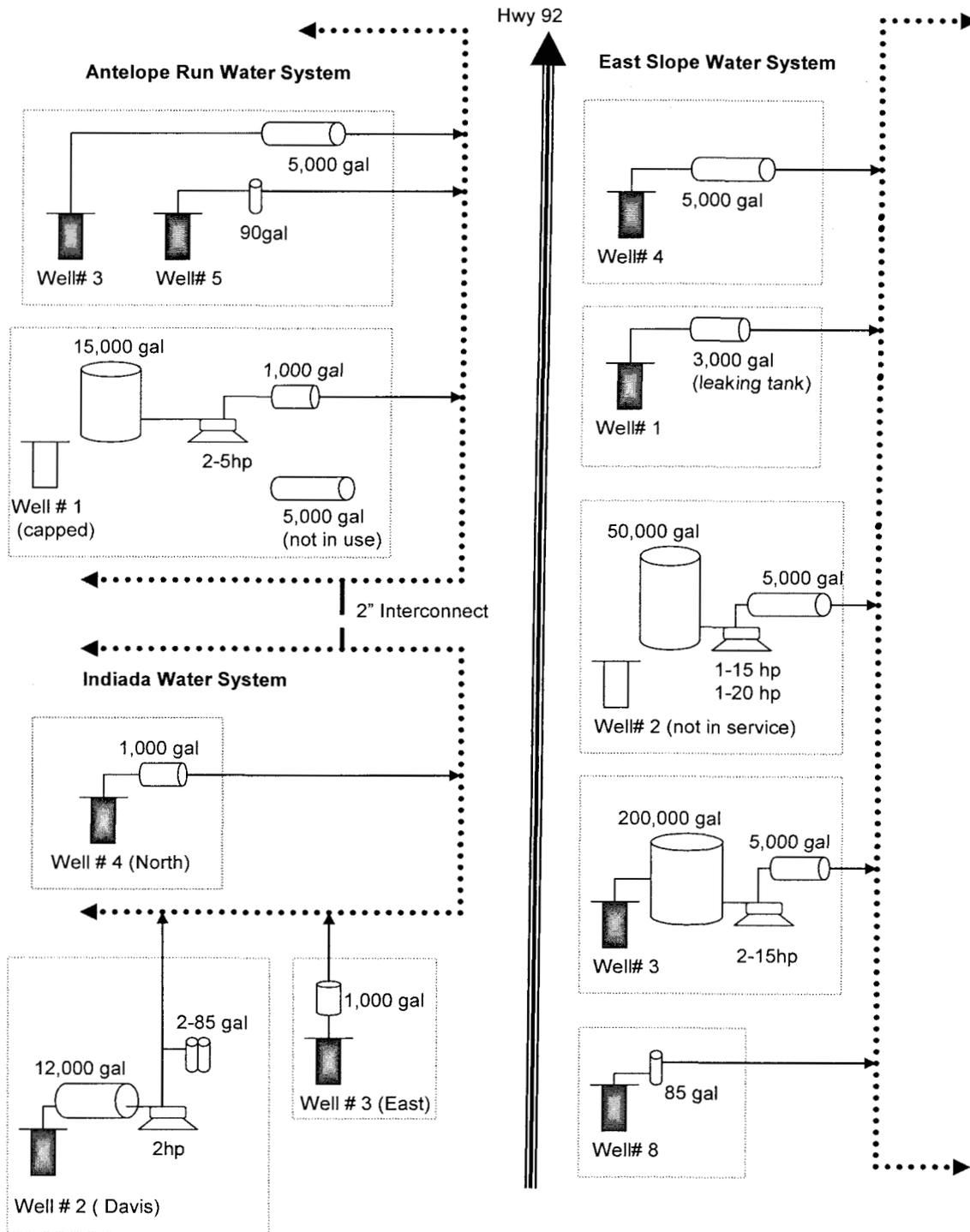
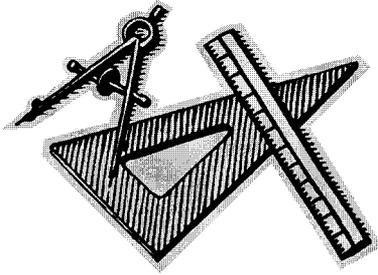


Figure 3 Water Systems Schematic



Engineering Report
For
East Slope Water Company, Inc



Engineering Report For

**East Slope Water Company, Inc.
("ESWC" or "Company")**

Docket No. W-01906A-10-0170 (Rates)

Docket No. W-01906A-10-0183 (Finance)

June 16, 2011

SUMMARY

Conclusions

1. The Arizona Department of Environmental Quality ("ADEQ") has reported that East Slope water system ("East Slope") has no deficiencies and the system is currently delivering water that meets water quality standards required by Arizona Administrative Code, Title 18, and Chapter 4 and the water system is in compliance with ADEQ requirements.
2. East Slope has adequate well production and storage capacities to serve the present customer base and a reasonable level of growth.
3. East Slope operates at 8 percent water loss. This percentage is within Staff's recommended limit of 10 percent.
4. East Slope service territory is not located in an Arizona Department of Water Resources ("ADWR") designated Active Management Area. The ADWR has determined that East Slope is currently in compliance with ADWR requirements governing water providers and/or community water systems.
5. A check with Utilities Division Compliance Section showed that there are currently no delinquent compliance items for ESWC.
6. East Slope has an approved curtailment plan tariff.
7. East Slope has an approved backflow prevention tariff.
8. East Slope does not have any approved Best Management Practices ("BMPs") tariffs.

9. The proposed capital improvement project and estimated costs totaling \$1,611,936, as delineated in Table C of the Engineering Report, appear to be reasonable and appropriate. No “used and useful” determination of the proposed project items were made and no particular treatment should be inferred for rate making or rate base purposes in the future.

Recommendations

1. Staff recommends acceptance of ESWC’s annual water testing expense of \$3,980 for this proceeding.
2. Staff recommends that the Company use depreciation rates by individual NARUC plant category, as delineated in Table A.
3. Staff recommends acceptance of the Company’s proposed separate service line and meter installation charges listed in Table B under the Column heading labeled “Staff’s Recommendation”.
4. Staff recommends that ESWC be required to report accurate Plant Description Data in its future Annual Reports and rate case filings beginning with its 2011 Annual Report filed in 2012.
5. Staff recommends that ESWC be required to file with Docket Control, as a compliance item in this docket, within 90 days of the effective date of this Decision, at least five “BMPs” in the form of tariffs that substantially conform to the templates created by Staff, available at the Commission’s website, for the Commission’s review and consideration. A maximum of two of these BMPs may come from the “Public Awareness/Public Relations” or “Education and Training” categories of the BMP’s. The Company may request cost recovery of actual costs associated with the BMPs implemented in its next general rate application.
6. Staff recommends that ESWS be ordered to repair or replace a leaking pressure tank at ESWS well no.1, within 30 days of Decision in this matter.
7. Staff recommends that ESWC be required to file with Docket Control, as a compliance item in this docket, within 18 months of the effective date of this Decision, copies of the Approvals of Construction (“AOC”) for each of the proposed improvement projects, as delineated in Table C of the Engineering Report.

TABLE OF CONTENTS

	Page
I. EAST SLOPE WATER SYSTEM (PWS No. 02-028)	10
A. System Description	10
B. Water Use.....	11
C. System Analysis.....	12
D. Growth	12
II. ADEQ COMPLIANCE	13
Compliance	13
Water Testing Expense	13
III. ADWR COMPLIANCE	13
IV. ACC COMPLIANCE	13
V. DEPRECIATION RATES.....	13
TABLE A.....	14
VI. OTHER ISSUES	15
1. Service Line and Meter Installation Charges.....	15
TABLE B.....	15
2. Curtailment Plan Tariff.....	15
3. Backflow Prevention Tariff	15
4. Best Management Practices (“BMPs”).....	15
VII. FINANCING.....	16
TABLE C.....	17

I. EAST SLOPE WATER SYSTEM (PWS No. 02-028)

A. System Description

The East Slope system includes four (see Footnote no.2) active wells, two storage tanks, four booster pumps, five pressure tanks (see Footnote no.3) and a distribution system serving approximately 781 connections as of December 2009. A water system schematic is shown in Figure 3 and a plant facilities summary¹ is tabulated below:

Wells

ESWC Well ID	ADWR Well ID	Pump (HP)	Well Yield (GPM)	Casing Depth (feet)	Casing Diameter (inches)	Meter Size (inches)	Year Drilled
no.4	55-805789	75	225	802	10	4	1977
no.1	55-805786	20	80	549	8	3	1964
no.2 ²	55-805787	-	-	560	8	3	1963
no.3	55-805788	7.5	60	620	12	2	1971
no.8	55-551665	2	5	300	6	1	1995
Total			370				

Storage Tanks		Pressure Tanks		Booster Pumps	
Capacity (gallons)	Quantity	Capacity (gallons)	Quantity	Capacity (HP)	Quantity
200,000	1	5,000	3	15	3
50,000	1	3,000	1 ³	20	1
		85	1		
Total	250,000				

Mains			Customer Meters		Fire Hydrants	
Size (inches)	Material	Length (feet)	Size (inches)	Quantity	Quantity Standard	Quantity Other
2	PVC	28,000	5/8x3/4	792	4	1
3	AC	16,000	1	15		
4	AC/PVC	97,000	1-1/2	10		
6	AC/PVC	10,000	2	3		

Treatment Equipment	Structures
5 Chlorinators	Chain link fence around all sites

¹ Per Company's Amended Application, responses to Data Requests and site visit.

² Well no.2 has been out of service since April 2011 due to collapsed casing. The well pump (20 hp) was pulled and re-installed in Well no.1.

³ 3,000 gallon pressure tank at Well no.1 site is leaking.

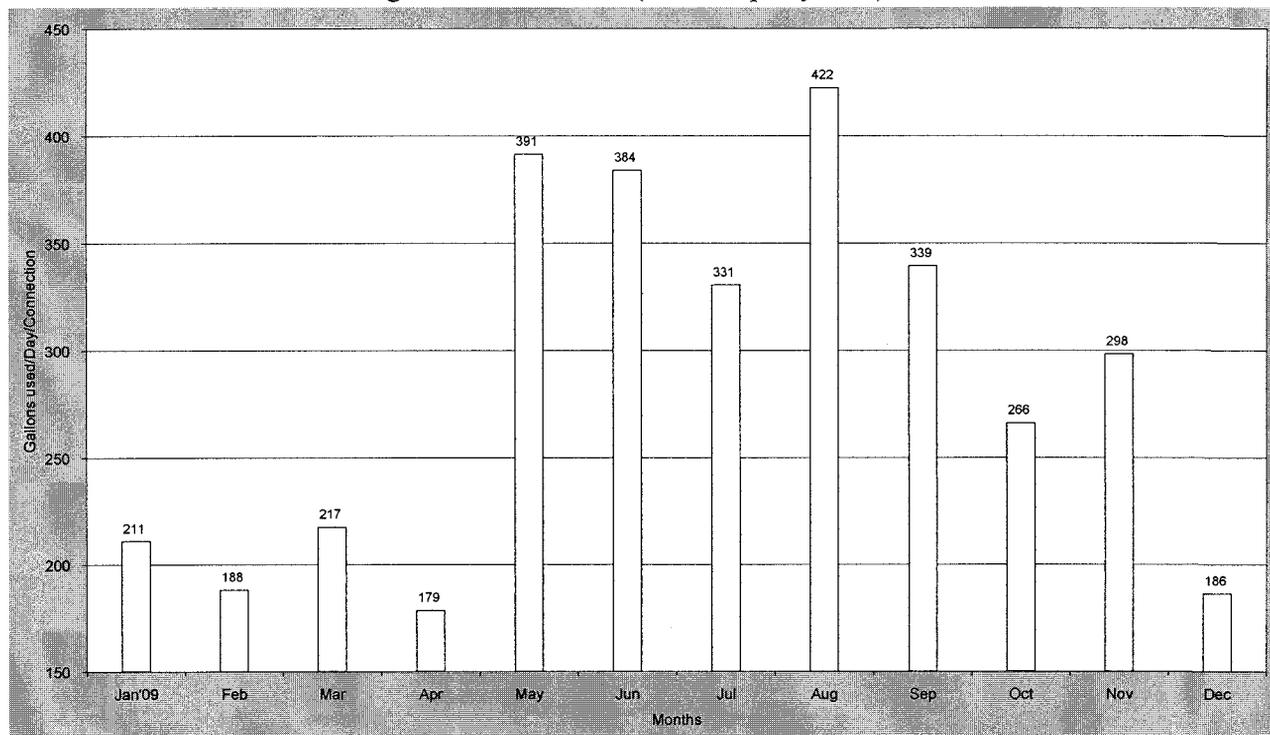
Staff notes that the plant data sheet provided by the Company in its 2009 Annual Report does not match the plant data in its Rate Application. Staff recommends that the Company be required to report accurate plant data in its future Annual Report and rate case filings beginning with its 2011 Annual Report filed in 2012. Staff further recommends that ESWS be ordered to repair or replace a leaking pressure tank at ESWS well no.1 site, within 30 days of Decision in this matter.

B. Water Use

Water Sold

Figure 4 represents the water consumption data provided by ESWC in its water use data sheet for the test year ending December 31, 2009 in amended rate application. Customer consumption included a high monthly water use of 422 gallons per day (“GPD”) per connection in August, and the low water use was 179 GPD per connection in April. The average annual use was 284 GPD per connection.

Figure 4 Water Use (East Slope system)



Non-account Water

Non-account water should be 10 percent or less, and never more than 15 percent. It is important to be able to reconcile the difference between water sold and the water produced by the source. A water balance will allow a company to identify water and revenue losses due to leakage, theft and flushing.

The ESWC reported 88,997,000 gallons pumped and 81,841,000 gallons sold for the test year, resulting in a non-account water of 8 percent. This percentage is within acceptable limit of 10 percent.

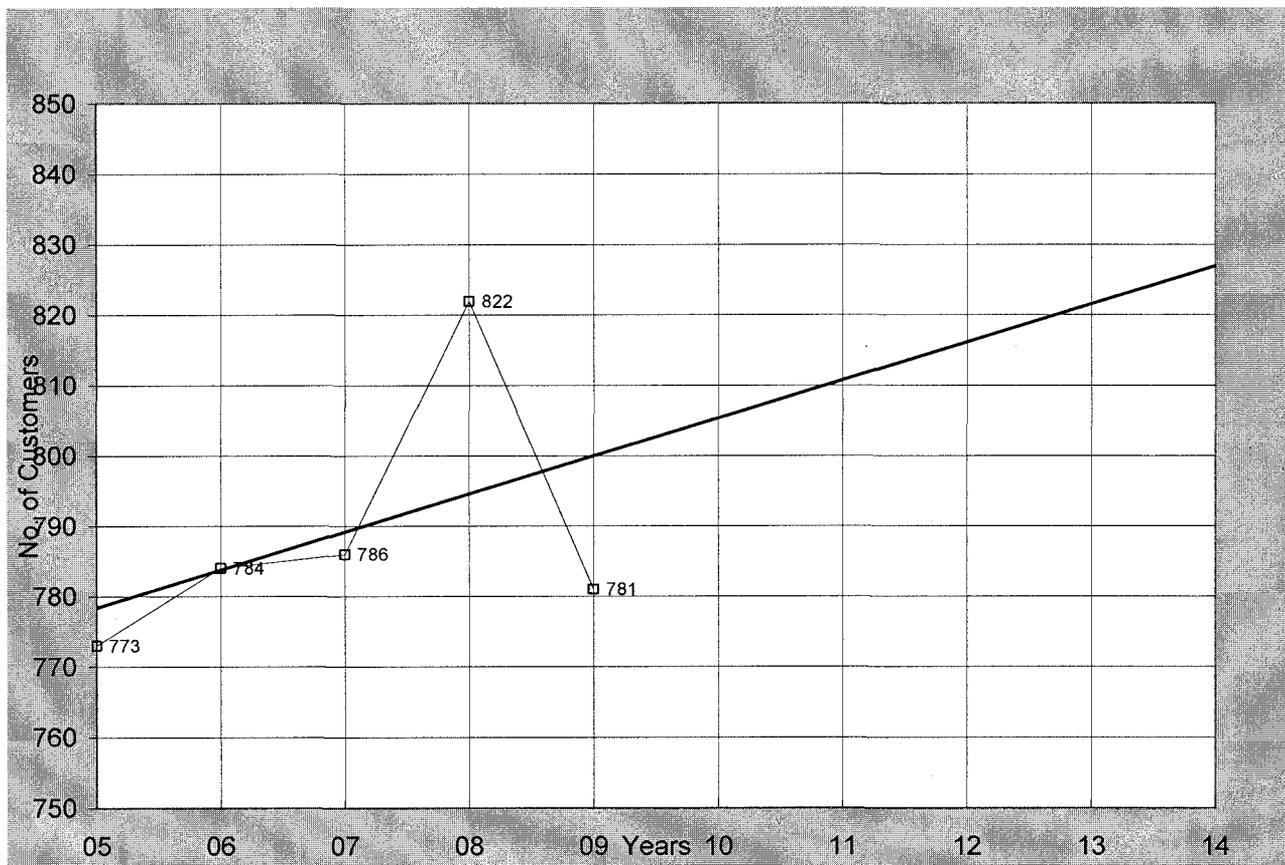
C. System Analysis

Based on the water use data provided by the ESWC for the Test Year, Staff concludes that the East Slope system's total well production capacity of 370 GPM and storage capacity of 250,000 gallons is adequate to serve the present customer base and reasonable growth.

D. Growth

Based on customer data obtained from the ESWC's Annual Reports, it is projected that the East Slope system could have over 825 connections by 2014. Figure 5 depicts actual growth from 2005 to 2009 and projects an estimated growth for the next five years using linear regression analysis.

Figure 5 Growth Projection (East Slope system)



II. ADEQ COMPLIANCE

Compliance

The Arizona Department of Environmental Quality (“ADEQ”) has reported that East Slope water system has no deficiencies and the system is currently delivering water that meets water quality standards required by Arizona Administrative Code, Title 18, and Chapter 4 and the water system is in compliance with ADEQ requirements.⁴

Water Testing Expense

Participation in the ADEQ Monitoring Assistance Program (“MAP”) is mandatory for water systems which serve less than 10,000 persons (approximately 3,300 service connections).

For the test year, ESWC reported its water testing expense at \$3,980 with participation in the MAP⁵. Staff has reviewed the Company’s reported expense amount and recommends acceptance of ESWC’s annual water testing expense of \$3,980 for this proceeding.

III. ADWR COMPLIANCE

The East Slope’s service territory is not located in an ADWR designated Active Management Area. The ADWR has determined that the East Slope is currently in compliance with ADWR requirements governing water providers and/or community water systems⁶.

IV. ACC COMPLIANCE

A check with Utilities Division Compliance Section showed that there are currently no delinquent compliance items for the Company.⁷

V. DEPRECIATION RATES

The Company has been using a depreciation rate of 5.00 percent in every National Association of Regulatory Utility Commissioners (“NARUC”) plant category. In recent orders, the Commission has been adopting Staff’s typical and customary depreciation rates which vary by NARUC plant category. These rates are presented in Table A and it is recommended that the Company use these depreciation rates by individual NARUC plant category.

⁴ Per ADEQ Compliance Status Reports dated May 19, 2011.

⁵ The ADEQ MAP invoice for the 2009 Calendar Year was \$2,365, rounded.

⁶ Per ADWR Compliance Status Report dated April 21, 2011.

⁷ Per ACC Compliance status check dated April 29, 2011.

TABLE A

DEPRECIATION RATE TABLE FOR WATER COMPANIES

NARUC Account No.	Depreciable Plant	Average Service Life (Years)	Annual Accrual Rate (%)
304	Structures & Improvements	30	3.33
305	Collecting & Impounding Reservoirs	40	2.50
306	Lake, River, Canal Intakes	40	2.50
307	Wells & Springs	30	3.33
308	Infiltration Galleries	15	6.67
309	Raw Water Supply Mains	50	2.00
310	Power Generation Equipment	20	5.00
311	Pumping Equipment	8	12.5
320	Water Treatment Equipment		
320.1	Water Treatment Plants	30	3.33
320.2	Solution Chemical Feeders	5	20.0
330	Distribution Reservoirs & Standpipes		
330.1	Storage Tanks	45	2.22
330.2	Pressure Tanks	20	5.00
331	Transmission & Distribution Mains	50	2.00
333	Services	30	3.33
334	Meters	12	8.33
335	Hydrants	50	2.00
336	Backflow Prevention Devices	15	6.67
339	Other Plant & Misc Equipment	15	6.67
340	Office Furniture & Equipment	15	6.67
340.1	Computers & Software	5	20.00
341	Transportation Equipment	5	20.00
342	Stores Equipment	25	4.00
343	Tools, Shop & Garage Equipment	20	5.00
344	Laboratory Equipment	10	10.00
345	Power Operated Equipment	20	5.00
346	Communication Equipment	10	10.00
347	Miscellaneous Equipment	10	10.00
348	Other Tangible Plant	----	----

VI. OTHER ISSUES

1. Service Line and Meter Installation Charges

In its application the ESWC has requested changes to its present service line and meter installation charges. These charges are refundable advances and the Company’s proposed charges are within Staff’s recommended range for these charges. Therefore, Staff recommends the acceptance of the Company’s proposed separate service line and meter installation charges listed in Table B under the Column heading labeled “Staff’s Recommendation”.

TABLE B
SERVICE LINE AND METER INSTALLATION CHARGES

Meter Size	ESWC’s Present Charges	Staff’s Recommendations		
		Service Line	Meter	Total Charges
5/8”x 3/4”	\$275	\$430	\$130	\$560
3/4”	\$300	\$430	\$230	\$660
1”	\$325	\$480	\$290	\$770
1-1/2”	\$475	\$535	\$500	\$1,035
2”-Turbine	\$650	\$815	\$1,020	\$1,835
2”-Compound	-	\$815	\$1,865	\$2,680
3”-Turbine	-	\$1,030	\$1,645	\$2,675
3”-Compound	-	\$1,150	\$2,545	\$3,695
4”-Turbine	-	\$1,460	\$2,620	\$4,080
4”-Compound	-	\$1,640	\$3,595	\$5,235
6”-Turbine	-	\$2,180	\$4,975	\$7,155
6”-Compound	-	\$2,300	\$6,870	\$9,170

2. Curtailment Plan Tariff

The Company has an approved curtailment plan tariff.

3. Backflow Prevention Tariff

The Company has an approved backflow prevention tariff.

4. Best Management Practices (“BMPs”)

The Company does not have any approved BMP tariffs. Staff recommends that ESWC be required to file with Docket Control, as a compliance item in this docket, within 90 days of the effective date of this Decision, at least five BMPs in the form of tariffs that substantially conform to the templates created by Staff, available at the Commission’s website, for the Commission’s review and consideration. A maximum of two of these BMPs may come from the “Public

Awareness/Public Relations” or “Education and Training” categories of the BMP’s. The Company may request cost recovery of actual costs associated with the BMPs implemented in its next general rate application.

VII. FINANCING

On May 7, 2010, ESWC, ARWC and IWC submitted a consolidated finance application to incur long term debt requesting the Commission’s approval to borrow \$3,000,000 from the Water Infrastructure and Financing Authority (“WIFA”) to fund capital improvements to the three water systems, such as East Slope interconnection with Antelope Run and Indiada and other improvements. Due to the fact that Companies’ request lacked an engineering evaluation and adequate support, in its first set of data request, dated May 24, 2010⁸, Staff requested the Company provide a report prepared by the Company’s Engineer, including a map showing a layout of existing plant by system and proposed improvements, analysis of each system deficiencies and recommendations of the most efficient and appropriate improvements with detailed description of the proposed construction cost and timeline.

On May 2, 2011, the Company responded by submitting a Pre-Design Report for Capital Improvement Project for ARWC, ESWC and IWC, prepared by the Company’s Engineer James D. Downing, P.E. (“Report”). Staff noted that the Water Use Data and Plant Description Data used in preparation of the Report were inconsistent. Staff further noted that the Report did not address the proposed construction timeline. During the site inspection, on May 11, 2011, and in Staff’s second set of data requests, dated May 17, 2011, Staff requested the Company provide a revised Report based on correct data and complete information.

On May 28, 2011, the Company e-mailed a revised Report⁹, as part of its responses to Staff’s second set of data requests. The Report for the East Slope system outlines the proposed capital improvements and costs¹⁰. Well no.1 site has no storage capacity and water from the well is pumped directly into a pressure tank with no booster pumps, causing frequent pump failures. According to the Company, adding storage into which the well discharges will save costs in well replacement and pump repairs. Also, the Report indicates that replacement of existing booster pumps and pressure tanks with variable frequency drive pumps (VFD) will improve system’s pressure. The scope of proposed major improvements includes replacement of collapsed well no.2, replacement of well pumps, addition of a new 50,000 gallon storage tank, refurbishment of existing storage tanks, replacement of existing booster pumps and pressure tanks with VFD pumps, and water main additions/replacements. These improvement projects are estimated at a total cost of \$ 1,611,935, as summarized in Table C below:

⁸ In order to expedite the review of the Company’s application, Staff requested this information again on September 27, 2010 (Second Letter of Deficiency), on November 30, 2010 (during a meeting with the Company), on March 3, 2011(Letter of Sufficiency) and on April 21, 2011 (during a Procedural Conference).

⁹ Attached as Exhibit ‘A’

¹⁰ The Report does not propose East Slope interconnection with Antelope Run and Indiada.

TABLE C
PROPOSED CAPITAL IMPROVEMENT PROJECTS AND COSTS
EAST SLOPE

Site	Item Description	Quantity	Unit Cost	Cost Installed
ES Well no.1	Install new storage tank	1-50,000 gal	\$2/gal	\$100,000
	Replace well pump	1-10hp	\$1,000/hp	\$10,000
	Install VFD Pump	2x15hp	\$700/hp	\$21,000
	Eliminate pressure tank	1-3,000 gal	\$1/gal	\$3,000
	Fencing			\$2,000
	Security lighting			\$1,000
	Generator	1-40hp	\$200/hp	\$8,000
	Utility relocation			\$10,000
				Total site cost
ES Well no.2	Replace collapse well	8 inch, 800 ft casing	\$50/ft	\$40,000
	New well pump	1-10hp	\$1,000/hp	\$10,000
	Refurbish existing storage tank	1-50,000 gal	\$0.5/gal	\$25,000
	Install VFD Pump	2x35hp	\$200/hp	\$7,000
	Eliminate pressure tank	1-5,000 gal	\$1/gal	\$5,000
	Fencing			\$2,000
	Security lighting			\$1,000
	Generator	1-45hp	\$200/hp	\$9,000
	Utility relocation			\$10,000
			Total site cost	\$109,000
ES Well no.3	Replace well pump	1-5hp	\$1,000/hp	\$5,000
	Install VFD Pump	2x30hp	\$200/hp	\$6,000
	Eliminate pressure tank	1-5,000 gal	\$1/gal	\$5,000
	Fencing			\$2,000
	Security lighting			\$1,000
	Generator	1-35hp	\$200/hp	\$7,000
				Total site cost
ES Well no.4	Install VFD Pump	1-75hp	\$200/hp	\$15,000
	Eliminate pressure tank	1-5,000 gal	\$1/gal	\$5,000
	Fencing			\$2,000
	Security lighting			\$1,000
	Generator	1-75hp	\$200/hp	\$15,000
	Utility relocation			\$10,000
				Total site cost
			Sub-Total	\$338,000
Water main addition and replacements		20,500 lf	\$40/ft	\$820,000
			Sub-Total	\$1,158,000
Administrative and legal fees		2%		\$23,160
Engineering fees		8%		\$92,640
Survey, geotechnical, etc		2%		\$23,160
Inspections and approvals		4%		\$46,320
			Sub-Total	\$1,343,280
Contingencies		20%		\$268,656

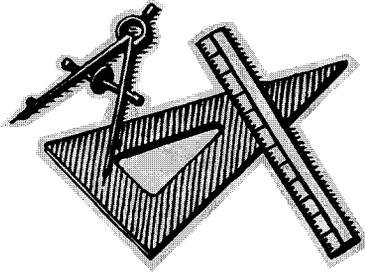
		Total	\$1,611,936
--	--	--------------	--------------------

Staff concludes the proposed capital improvements and estimated costs totaling \$1,611,936 for East Slope system appear to be reasonable and appropriate. No "used and useful" determination of the proposed plant was made, and no conclusions should be inferred for rate making or rate base purposes.

Engineering Report

For

Antelope Run Water Company, Inc



Engineering Report For

Antelope Run Water Company, Inc.
("ARWC" or "Company")

Docket No. W-02327A-10-0169 (Rates)
Docket No. W-02327A-10-0185 (Finance)

June 16, 2011

SUMMARY

Conclusions

1. The Arizona Department of Environmental Quality ("ADEQ") has reported that Antelope Run water system ("Antelope Run") has no deficiencies and the system is currently delivering water that meets water quality standards required by Arizona Administrative Code, Title 18, and Chapter 4 and the water system is in compliance with ADEQ requirements.
2. Based on the Company's water use data sheet for the test year in the amended rate application, Antelope Run well production capacity is adequate to serve its present customer base and reasonable growth. The system's storage capacity is inadequate to serve its current customers.
3. Based on the Company's water use data sheet for the test year in the amended rate application, Antelope Run operates at 4.3 percent water loss. This percentage is within Staff's recommended limit of 10 percent.
4. Antelope Run's service territory is not located in an Arizona Department of Water Resources ("ADWR") designated Active Management Area. The ADWR has determined that the Antelope Run is currently in compliance with ADWR requirements governing water providers and/or community water systems.
5. A check with Utilities Division Compliance Section showed that there are currently no delinquent compliance items for ARWC.
6. Antelope Run has an approved curtailment plan tariff.
7. Antelope Run has an approved backflow prevention tariff.
8. Antelope Run does not have any approved Best Management Practices ("BMPs") tariffs.

9. Staff concludes the proposed capital improvements and estimated costs totaling \$1,136,568, as delineated in Table C of the Engineering Report, for combined Antelope Run and Indiada systems appear to be reasonable and appropriate. No "used and useful" determination of the proposed plant was made, and no conclusions should be inferred for rate making or rate base purposes.

Recommendations

1. Staff recommends acceptance of ARWC's annual water testing expense of \$1,899 for this proceeding.
2. Staff recommends that the Company use depreciation rates by individual NARUC plant category, as delineated in Table A.
3. Staff recommends acceptance of the Company's proposed separate service line and meter installation charges listed in Table B under the Column heading labeled "Staff's Recommendation".
4. Staff recommends that ARWC be required to report accurate water usage data and plant data in its future Annual Reports and rate case filings beginning with its 2011 Annual Report filed in 2012.
5. Staff recommends that ARWC be ordered to post a correct ADWR WELL ID Number signage for its well no.5 at the well site, within 30 days of Decision in this matter.
6. Staff recommends that ARWC be required to file with Docket Control, as a compliance item in this docket, within 90 days of the effective date of this Decision, at least five "BMPs" in the form of tariffs that substantially conform to the templates created by Staff, available at the Commission's website, for the Commission's review and consideration. A maximum of two of these BMPs may come from the "Public Awareness/Public Relations" or "Education and Training" categories of the BMP's. The Company may request cost recovery of actual costs associated with the BMPs implemented in its next general rate application.
7. Staff recommends that ARWC be required to file with Docket Control, as a compliance item in this docket, within 18 months of the effective date of this Decision, copies of the Approvals of Construction ("AOC") for each of the proposed improvement projects, as delineated in Table C of the Engineering Report.

TABLE OF CONTENTS

	Page
I. ANTELOPE RUN WATER SYSTEM (PWS No. 02-0940)	23
A. System Description	23
B. Water Use.....	24
C. System Analysis.....	25
D. Growth	26
II. ADEQ COMPLIANCE	27
Compliance	27
Water Testing Expense	27
III. ADWR COMPLIANCE	27
IV. ACC COMPLIANCE	27
V. DEPRECIATION RATES.....	27
TABLE A.....	28
VI. OTHER ISSUES.....	29
1. Service Line and Meter Installation Charges.....	29
TABLE B.....	29
2. Curtailment Plan Tariff.....	29
3. Backflow Prevention Tariff	29
4. Best Management Practices (“BMPs”).....	29
VII. FINANCING.....	30
TABLE C.....	31

I. ANTELOPE RUN WATER SYSTEM (PWS No. 02-0940)

A. System Description

The Antelope Run system includes two active well, a storage tank, two booster pumps, three pressure tanks (see Footnote no.12) and a distribution system serving approximately 168 connections as of December 2009. The system has an emergency interconnection with Indiada system by a 2-inch master-meter¹¹. A water system schematic is shown in Figure 3 and a plant facilities summary¹² is tabulated below:

Active Wells

ARWC Well ID	ADWR Well ID	Pump (HP)	Well Yield (GPM)	Casing Depth (feet)	Casing Diameter (inches)	Meter Size (inches)	Year Drilled
no.3 ¹³	55-632904	20	125	180	6	3	1979
no.5	55-208555 ¹⁴	20 ¹⁵	60	330	8	3	2005
no.1/capped	55-632906	-	-			-	
Total 185							

Storage Tanks		Pressure Tanks		Booster Pumps	
Capacity (gallons)	Quantity	Capacity (gallons)	Quantity	Capacity (HP)	Quantity
15,000	1	5,000	2 ¹⁶	5	2
		1,000	1		
		90	1		

Mains			Customer Meters		Fire Hydrants
Size (inches)	Material	Length (feet)	Size (inches)	Quantity	Quantity
2	PVC	1,000	5/8x3/4	163	none
4	PVC	13,500	1	4	
6	PVC	15,500	2	1	
8	PVC	100			

Treatment Equipment	Structures
2 Chlorinators	Chain link fence around all sites

¹¹ All active metered customers should be included in the water use data sheet. However, the ARWS provided conflicting responses to whether the number of customers reported in the water use data sheet includes a 2-inch meter for the IWC interconnection.

¹² Per Company's Amended Application, responses to Data Requests and site visit

¹³ According to the Company's Engineer, Well no.3 has collapsed at 180 feet.

¹⁴ The Company does not post ADWR WELL ID number signage for Well no. 5 at the well site, therefore, Staff was unable to verify this number during the site visit

¹⁵ According to the Company's Engineer, the pump in Well no.5 requires replacement often due to sediment passage.

¹⁶ 5,000 gallon Pressure Tank at well site no.1 has not been in use.

Staff notes that the plant data sheet provided by the Company in its 2009 Annual Report does not match the plant data in its Amended Rate Application. Staff recommends that ARWC be required to report accurate plant data in its future Annual Report and rate case filings beginning with its 2011 Annual Report filed in 2012. Staff further recommends that ARWC be ordered to post a correct ADWR WELL ID Number signage for its well no.5 at the well site, within 30 days of Decision in this matter.

B. Water Use

Staff notes that the water use data sheet provided by ARWC in its 2009 Annual Report does not match the water use data in its Amended Rate Application¹⁷. Staff recommends that the Company be required to report accurate water use data in its future Annual Report and rate case filings beginning with its 2011 Annual Report filed in 2012. Staff analysis in this case is based on the Company's water use data sheet for the test year ending December 31, 2009, filed in the amended rate application.

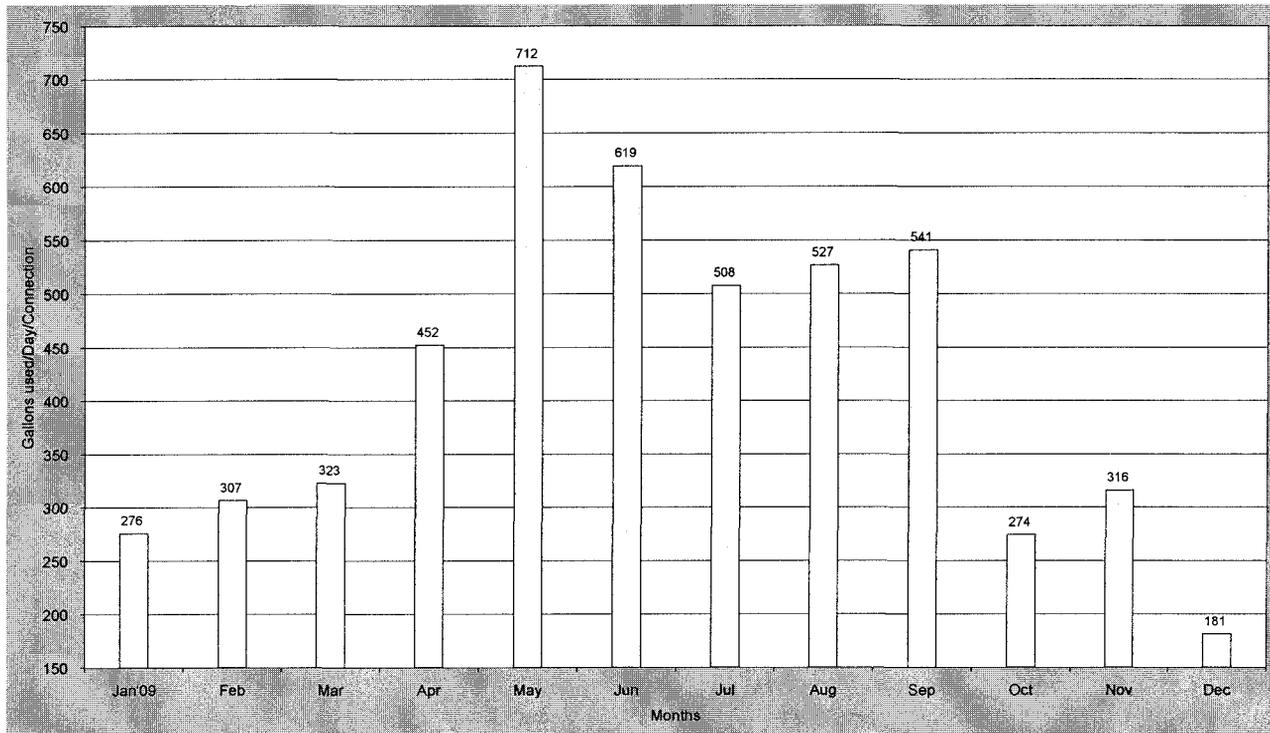
Water Sold

Figure 6 represents the water consumption data provided by the ARWC in its water use data sheet for the test year ending December 31, 2009, in the amended rate application. Customer consumption included a high monthly water use of 712 GPD¹⁸ in May, and the low water use was 181 GPD per connection in December. The average annual use was 420 GPD per connection.

¹⁷ Per Item no.11 in Letter of Deficiency dated May 28, 2010.

¹⁸ High consumption pattern in Antelope Run system could be explain by the fact that many of its customers have properties with big lots, horses and pools.

Figure 6 Water Use (Antelope Run)



Non-account Water:

In its Water Use Data sheet for the test year in the amended rate application, the ARWC reported 26,626,000 gallons pumped and 25,481,000¹⁹ gallons sold for the test year, resulting in a water loss of 4.3 percent. This percentage is within acceptable limit of 10 percent.

C. System Analysis

Based on the water use data provided by the ARWC for the Test Year, Staff concludes that the Antelope Run system’s total well production capacity of 185 GPM is adequate to serve the present customer base and reasonable growth.

The system’s storage capacity of 15,000 gallons is inadequate to serve its current customers. Since Antelope Run and Indiada systems are interconnected, ARWC and IWC are currently evaluating options to resolve Antelope Run and Indiada systems storage capacity inadequacies and improve reliability in both systems. The scope of the proposed improvements includes the addition of a new 80,000 gallon storage tank at the Antelope Run wells nos. 3 & 5 well site, replacement of collapsed Antelope Run Well no.3, addition of two new 20,000 gallon storage tanks at Indiada wells nos. 3 & 4 well sites, replacement of existing booster pumps and pressure tanks with variable frequency drive pumps (VFD), and water main

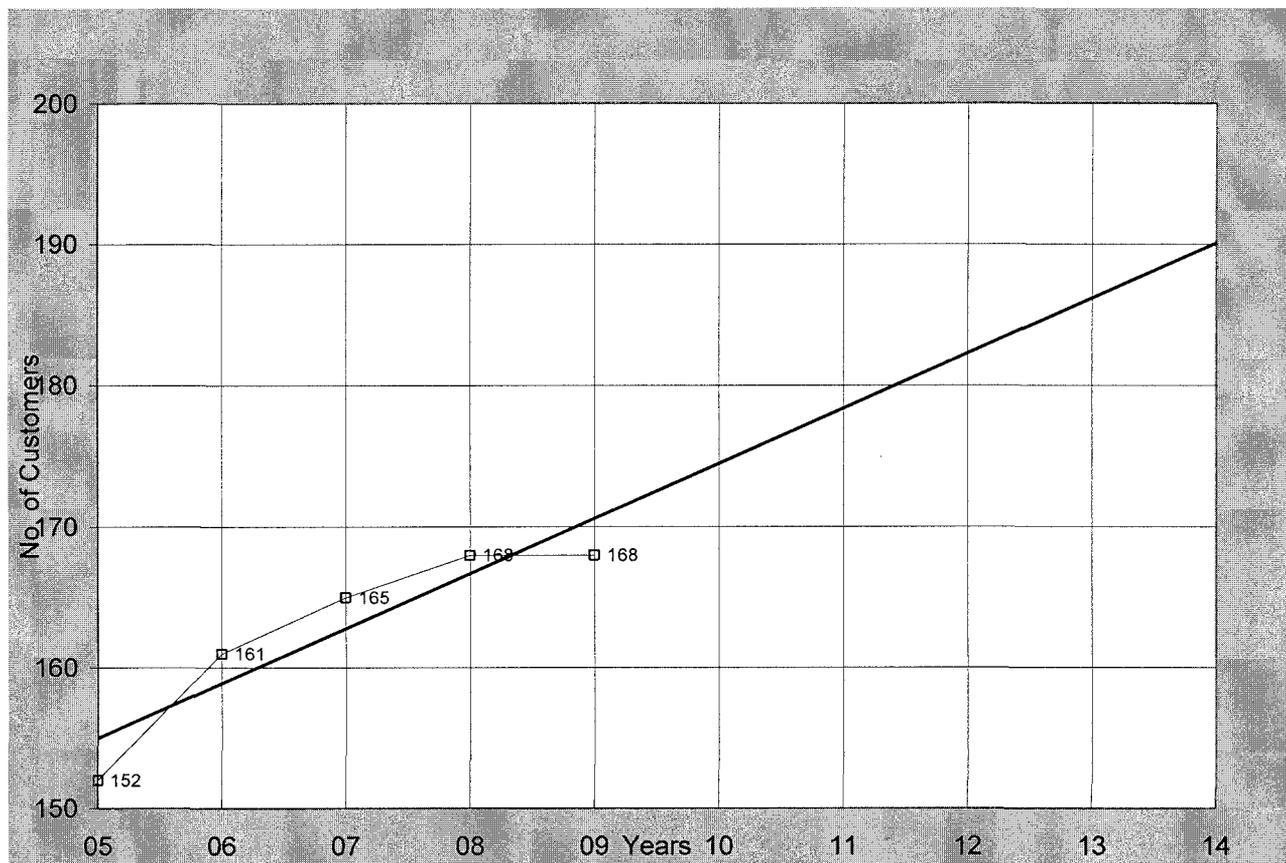
¹⁹ All gallons pumped and sold by the system should be included in the water use data sheet. However, the ARWS provided conflicting responses to whether the reported 25,481,000 gallons sold include 334,000 gallons sold to IWC.

additions/replacements, plus other improvements.²⁰ It is anticipated that with these improvements the combined system would have reliable production and adequate storage capacity to serve the present customer base and reasonable growth.

D. Growth

Based on customer data obtained from the ARWC's Annual Reports, it is projected that the Antelope Run system could have approximately 190 connections by 2014. Figure 7 depicts actual growth from 2005 to 2009 and projects an estimated growth for the next five years using linear regression analysis.

Figure 7 Growth Projection



²⁰ See Section VII (Financing) in this report for more details.

II. ADEQ COMPLIANCE

Compliance

The Arizona Department of Environmental Quality ("ADEQ") has reported that Antelope Run has no deficiencies and the system is currently delivering water that meets water quality standards required by Arizona Administrative Code, Title 18, and Chapter 4 and the water system is in compliance with ADEQ requirements.²¹

Water Testing Expense

Participation in the ADEQ Monitoring Assistance Program ("MAP") is mandatory for water systems which serve less than 10,000 persons (approximately 3,300 service connections).

For the test year, ARWC reported its water testing expense at \$1,899 with participation in the MAP.²²

Staff has reviewed the Company's reported expense amount and recommends acceptance of ARWC's annual water testing expense of \$1,899 for this proceeding.

III. ADWR COMPLIANCE

The Antelope Run's service territory is not located in an ADWR designated Active Management Area. The ADWR has determined that the Antelope Run is currently in compliance with ADWR requirements governing water providers and/or community water systems.²³

IV. ACC COMPLIANCE

A check with Utilities Division Compliance Section showed that there are currently no delinquent compliance items for the Company.²⁴

V. DEPRECIATION RATES

The Company has been using a depreciation rate of 5.00 percent in every National Association of Regulatory Utility Commissioners ("NARUC") plant category. In recent orders, the Commission has been adopting Staff's typical and customary depreciation rates which vary by NARUC plant category. These rates are presented in Table A and it is recommended that the Company use these depreciation rates by individual NARUC plant category.

²¹ Per ADEQ Compliance Status Reports dated May 19, 2011.

²² The ADEQ MAP invoice for the 2009 Calendar Year was \$684, rounded.

²³ Per ADWR Compliance Status Report dated April 21, 2010.

²⁴ Per ACC Compliance status check dated April 26, 2011.

TABLE A

DEPRECIATION RATE TABLE FOR WATER COMPANIES

NARUC Account No.	Depreciable Plant	Average Service Life (Years)	Annual Accrual Rate (%)
304	Structures & Improvements	30	3.33
305	Collecting & Impounding Reservoirs	40	2.50
306	Lake, River, Canal Intakes	40	2.50
307	Wells & Springs	30	3.33
308	Infiltration Galleries	15	6.67
309	Raw Water Supply Mains	50	2.00
310	Power Generation Equipment	20	5.00
311	Pumping Equipment	8	12.5
320	Water Treatment Equipment		
320.1	Water Treatment Plants	30	3.33
320.2	Solution Chemical Feeders	5	20.0
330	Distribution Reservoirs & Standpipes		
330.1	Storage Tanks	45	2.22
330.2	Pressure Tanks	20	5.00
331	Transmission & Distribution Mains	50	2.00
333	Services	30	3.33
334	Meters	12	8.33
335	Hydrants	50	2.00
336	Backflow Prevention Devices	15	6.67
339	Other Plant & Misc Equipment	15	6.67
340	Office Furniture & Equipment	15	6.67
340.1	Computers & Software	5	20.00
341	Transportation Equipment	5	20.00
342	Stores Equipment	25	4.00
343	Tools, Shop & Garage Equipment	20	5.00
344	Laboratory Equipment	10	10.00
345	Power Operated Equipment	20	5.00
346	Communication Equipment	10	10.00
347	Miscellaneous Equipment	10	10.00
348	Other Tangible Plant	----	----

VI. OTHER ISSUES

1. Service Line and Meter Installation Charges

In its application the Company has requested changes to its present service line and meter installation charges. These charges are refundable advances and the Company’s proposed charges are within Staff’s recommended range for these charges. Therefore, Staff recommends the acceptance of the Company’s proposed separate service line and meter installation charges listed in Table B under the Column heading labeled “Staff’s Recommendation”.

TABLE B
SERVICE LINE AND METER INSTALLATION CHARGES

Meter Size	ARWC’s Present Charges	Staff’s Recommendation		
		Service Line	Meter	Total Charges
5/8”x 3/4”	\$175	\$430	\$130	\$560
3/4”	\$220	\$430	\$230	\$660
1”	\$250	\$480	\$290	\$770
1-1/2”	\$275	\$535	\$500	\$1,035
2”-Turbine	\$500	\$815	\$1,020	\$1,835
2”-Compound	-	\$815	\$1,865	\$2,680
3”-Turbine	\$700	\$1,030	\$1,645	\$2,675
3”-Compound	-	\$1,150	\$2,545	\$3,695
4”-Turbine	\$1,300	\$1,460	\$2,620	\$4,080
4”-Compound	-	\$1,640	\$3,595	\$5,235
6”-Turbine	\$2,800	\$2,180	\$4,975	\$7,155
6”-Compound	-	\$2,300	\$6,870	\$9,170

2. Curtailment Plan Tariff

The Company has an approved curtailment plan tariff.

3. Backflow Prevention Tariff

The Company has an approved backflow prevention tariff.

4. Best Management Practices (“BMPs”)

The Company does not have any approved BMP tariffs. Staff recommends that ARWC be required to file with Docket Control, as a compliance item in this docket, within 90 days of the effective date of this Decision, at least five BMPs in the form of tariffs that substantially conform to the templates created by Staff, available at the Commission’s website, for the Commission’s review and consideration. A maximum of two of these BMPs may come from the “Public Awareness/Public Relations” or “Education and Training” categories of the BMP’s. The

Company may request cost recovery of actual costs associated with the BMPs implemented in its next general rate application.

VII. FINANCING

On May 7, 2010, ESWC, ARWC and IWC submitted a consolidated finance application to incur long term debt requesting the Commission's approval to borrow \$3,000,000 from the Water Infrastructure and Financing Authority ("WIFA") to fund capital improvements to three water systems, such as East Slope interconnection with Antelope Run and Indiada and other improvements. Due to the fact that Companies' request lacked an engineering evaluation and adequate support, Staff requested (in its first set of data request, dated May 24, 2010²⁵) the Company provide a report prepared by the Company's Engineer, including a map showing a layout of existing plant by system and proposed improvements, analysis of each system deficiencies and recommendations of the most efficient and appropriate improvements with detailed description of the proposed construction cost and timeline.

On May 2, 2011, the Company responded by submitting a Pre-Design Report for Capital Improvement Project for ARWC, ESWC and IWC, prepared by the Company's Engineer James D. Downing, P.E. ("Report"). Staff noted that the Water Use Data and Plant Description Data used in preparation of the Report were inconsistent. For example, for combined Antelope Run and Indiada systems, the Report is based on 356 connections and 41,000,000 annual gallon pumped. However, based on Water Use Data sheet for the test year in the amended rate applications, the ARWC and IWC reported 223 connections and 32,782,000 annual gallons pumped for both systems (combined). Staff further noted that the Report did not address the proposed construction timeline. During the site inspection, on May 11, 2011, and in Staff's second set of data requests, dated May 17, 2011, Staff requested the Company provide a revised Report based on correct data and complete information.

On May 28, 2011, the Company e-mailed a revised Report²⁶, as part of its responses to Staff's second set of data requests. The Report for combined Antelope Run and Indiada systems outlines the proposed capital improvements and costs. The Antelope Run wells nos. 3 & 5 well site and the Indiada wells no. 3 & 4 well sites have no storage capacity and water from wells is pumped directly into pressure tanks with no booster pumps, causing frequent pump failures. According to the Company, adding storage into which the well discharges will save costs in well replacement and pump repairs. Also, the Report indicates that replacement of exiting booster pumps and pressure tanks with VFD pumps will improve system's pressure. The scope of proposed major improvements includes replacement of the Antelope Run collapsed wells no. 3, replacement of well pump, addition of a new 80,000 gallon storage tank at Antelope Run wells nos. 3 & 5 well site and two new 20,000 gallon storage tanks at Indiada wells nos. 3 & 4 well sites, refurbishment of existing storage tanks, replacement of existing booster pumps and pressure tanks with VFD pumps, and water main additions/replacements. These improvement projects are estimated at a total cost of \$ 1,611,935, as summarized in Table C below:

²⁵ In order to expedite the review of the Company's application, Staff requested this information again on September 27, 2010 (Second Letter of Deficiency), on November 30, 2010 (during a meeting with the Company), on March 3, 2011 (Letter of Sufficiency) and on April 21, 2011 (during a Procedural Conference).

²⁶ Attached as Exhibit 'A'

TABLE C
PROPOSED CAPITAL IMPROVEMENT PROJECTS AND COSTS
ANTELOPE RUN AND INDIADA SYSTEMS COMBINED

Site	Item Description	Quantity	Unit Cost	Cost Installed
Indiada Well no.2	Replace well pump	1-0.5hp		\$2,500
	Refurbish existing storage tank	1-12,000 gal	\$0.5/gal	\$6,000
	Install VFD Pump	2x5hp	\$700/hp	\$7,000
	Eliminate pressure tank	1-1,000 gal	\$1/gal	\$1,000
	Fencing			\$2,000
	Security lighting			\$1,000
	Generator	1-10.5hp	\$200/hp	\$2,100
	Utility relocation			\$10,000
			Total site cost	\$31,600
Indiada Well no.3	Replace well pump	1-3hp	\$1,000/hp	\$3,000
	Install new storage tank	1-20,000 gal	\$2/gal	\$40,000
	Install VFD Pump	2x5hp	\$700/hp	\$7,000
	Eliminate pressure tank	1-1,000 gal	\$1/gal	\$1,000
	Fencing			\$2,000
	Security lighting			\$1,000
	Generator	1-13hp	\$200/hp	\$2,600
	Utility relocation			\$10,000
			Total site cost	\$66,000
Indiada Well no.4	Replace well pump	1-3hp	\$1,000/hp	\$3,000
	Install new storage tank	1-20,000 gal	\$2/gal	\$40,000
	Install VFD Pump	2x5hp	\$700/hp	\$7,000
	Eliminate pressure tank	1-1,000 gal	\$1/gal	\$1,000
	Fencing			\$2,000
	Security lighting			\$1,000
	Generator	1-13hp	\$200/hp	\$2,600
	Utility relocation			\$10,000
			Total site cost	\$66,000
AR Well no.1	Refurbish existing storage tank	1-15,000 gal	\$0.5/gal	\$7,500
	Install VFD Pump	2x10hp	\$700/hp	\$14,000
	Eliminate pressure tank	1-1,000 gal	\$1/gal	\$1,000
	Fencing			\$2,000
	Security lighting			\$1,000
	Generator	1-20hp	\$200/hp	\$4,000
				Total site cost
AR Well no.3&5	Replace collapsed well no.3	8 inch, 800 ft casing	\$50/ft	\$40,000
	Install new well pumps	2-3hp	\$1,000/hp	\$6,000
	Install new storage tank	1-80,000 gal	\$2/gal	\$160,000
	Install VFD Pump	2x15hp	\$700/hp	\$21,000
	Eliminate pressure tank	1-5,000 gal	\$1/gal	\$5,000

	Fencing			\$2,000
	Security lighting			\$1,000
	Generator	1-36hp	\$200/hp	\$7,200
			Total site cost	\$242,200
Water main additions and replacements	9,500 lf		\$40/lf	\$380,000
			Sub-Total	\$816,000
Administrative and legal fees	2%			\$16,330
Engineering fees	8%			\$65,320
Survey, geotechnical, etc	2%			\$16,330
Inspections and approvals	4%			\$32,660
			Sub-Total	\$947,140
Contingencies	20%			\$189,428
			Total	\$1,136,568²⁷

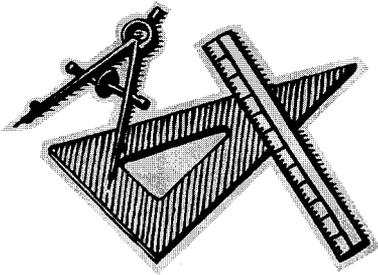
Staff concludes the proposed capital improvements and estimated costs totaling \$1,136,568 for combined Antelope Run and Indiada systems appear to be reasonable and appropriate. No "used and useful" determination of the proposed plant was made, and no conclusions should be inferred for rate making or rate base purposes.

²⁷ According to the Report, if Antelope Run and Indiada systems are not combined, the needed improvement projects separate for Antelope Run are estimated at a total cost of \$899,510 and at \$251,674 for Indiada (totaling \$1,151,184)

Engineering Report

For

Indiada Water Company, Inc



Engineering Report For

**Indiada Water Company, Inc.
("IWC" or "Company")**

**Docket No. W-02031A-10-0168 (Rates).
Docket No. W-02031A-10-0184 (Finance)**

June 16, 2011

SUMMARY

Conclusions

1. The Arizona Department of Environmental Quality ("ADEQ") has reported that Indiada water system ("Indiada") has no deficiencies and its currently delivering water that meets water quality standards required by Arizona Administrative Code, Title 18, and Chapter 4 and the water system is in compliance with ADEQ requirements.
2. Based on the Company's water use data sheet for the test year in the amended rate application, with water obtained from the Antelope Run system, Indiada has adequate water supply capacity, but inadequate storage capacity to serve the present customer base.
3. Based on the Company's water use data sheet for the test year in the amended rate application, Indiada operates at 9.8 percent water loss. This percentage is within Staff's recommended limit of 10 percent.
4. Indiada's service territory is not located in an Arizona Department of Water Resources ("ADWR") designated Active Management Area. The ADWR has determined that Indiada is currently in compliance with ADWR requirements governing water providers and/or community water systems.
5. A check with Utilities Division Compliance Section showed that the Company 2009 Annual Report Water Use Data was not accurate and IWC is therefore delinquent and has not met compliance on Decision No. 71321 requirement for reporting accurate water usage data in the 2009 Annual Report.
6. Indiada has an approved curtailment plan tariff.
7. Indiada has an approved backflow prevention tariff.
8. Indiada does not have any approved Best Management Practices ("BMPs") tariffs.

9. Staff concludes the proposed capital improvements and estimated costs totaling \$1,136,568, as delineated in Table C of the Engineering Report, for combined Antelope Run and Indiada systems appear to be reasonable and appropriate. No "used and useful" determination of the proposed plant was made, and no conclusions should be inferred for rate making or rate base purposes.

Recommendations

1. Staff recommends that IWC be required to report accurate water usage data and plant data in its future Annual Reports and rate case filings beginning with its 2011 Annual Report filed in 2012.
2. Staff recommends acceptance of IWC's annual water testing expense of \$2,129 for this proceeding.
3. Staff recommends that the IWC use depreciation rates by individual NARUC plant category, as delineated in Table A.
4. Staff recommends acceptance of the Company's proposed separate service line and meter installation charges listed in Table B under the Column heading labeled "Staff's Recommendation".
5. Staff recommends that IWC be required to file with Docket Control, as a compliance item in this docket, within 90 days of the effective date of this Decision, at least five "BMPs" in the form of tariffs that substantially conform to the templates created by Staff, available at the Commission's website, for the Commission's review and consideration. A maximum of two of these BMPs may come from the "Public Awareness/Public Relations" or "Education and Training" categories of the BMP's. The Company may request cost recovery of actual costs associated with the BMPs implemented in its next general rate application.
6. Staff recommends that IWC be required to file with Docket Control, as a compliance item in this docket, within 18 months of the effective date of this Decision, copies of the Approvals of Construction ("AOC") for each of the proposed improvement projects, as delineated in Table C of the Engineering Report.

TABLE OF CONTENTS

	Page
I. INDIADA WATER SYSTEMS (PWS No. 02-020).....	37
A. System Description.....	37
B. Water Use.....	38
C. System Analysis.....	39
D. Growth.....	39
II. ADEQ COMPLIANCE.....	40
Compliance.....	40
Water Testing Expense.....	40
III. ADWR COMPLIANCE.....	41
IV. ACC COMPLIANCE.....	41
V. DEPRECIATION RATES.....	41
TABLE A.....	42
VI. OTHER ISSUES.....	43
1. Service Line and Meter Installation Charges.....	43
TABLE B.....	43
2. Curtailment Plan Tariff.....	43
3. Backflow Prevention Tariff.....	43
4. Best Management Practices (“BMPs”).....	43
VII. FINANCING.....	44
TABLE C.....	45

I. INDIADA WATER SYSTEMS (PWS No. 02-020)

A. System Description

The Indiada system includes three active wells, a storage tank, a booster pump, four pressure tanks and a distribution system serving approximately 55 service connections as of December 2009. The Indiada system is interconnected with the Antelope Run system and supplements its water supply by purchasing water from the Antelope Run system. A water system schematic is shown in Figure 3 and a plant facilities summary²⁸ is tabulated below:

Active Wells

IWC Well ID	ADWR Well ID	Pump (HP)	Well Yield (GPM) ²⁹	Casing Depth (feet)	Casing Diameter (inches)	Meter Size (inches)	Year Drilled
no.2 (Davis)	55-805790	1	0-12	55	8	1	1970
no.4 (North)	55-805791	1.5	10-20	120	8	2	1966
no.3 (East)	55-805792	1.5	0-20	120	8	1	1967
Total 10-52							

Other Water Source

Description	Meter Size (in inches)	Capacity (GPM)	Gallons Purchased
Antelope Run Emergency Interconnect	2"		334,000

Storage Tanks		Pressure Tanks		Booster Pumps	
Capacity (gallons)	Quantity	Capacity (gallons)	Quantity	Capacity (HP)	Quantity
12,000	1	1,000	2	2	1
		85	2		

Mains			Customer Meters		Fire Hydrants
Size (inches)	Material	Length (feet)	Size (inches)	Quantity	Quantity
2	PVC	1,000	5/8x3/4	56	none
3	AC/PVC	10,000	1	1	
4	AC	2,000			

Treatment Equipment	Structures
2 Chlorinators	Chain link fence around all sites

²⁸ Per Company's Amended Application, responses to Data Requests and site visit

²⁹ See Section 'C' (System Analysis) for more details

Staff notes that the plant data sheet provided by the Company in its 2009 Annual Report does not match the plant data in its Rate Application. Staff recommends that the Company be required to report accurate plant data in its future Annual Report and rate case filings beginning with its 2011 Annual Report filed in 2012. However, Staff analysis is based on the Company's water use data sheet for the test year ending December 31, 2009, filed in the amended rate application.

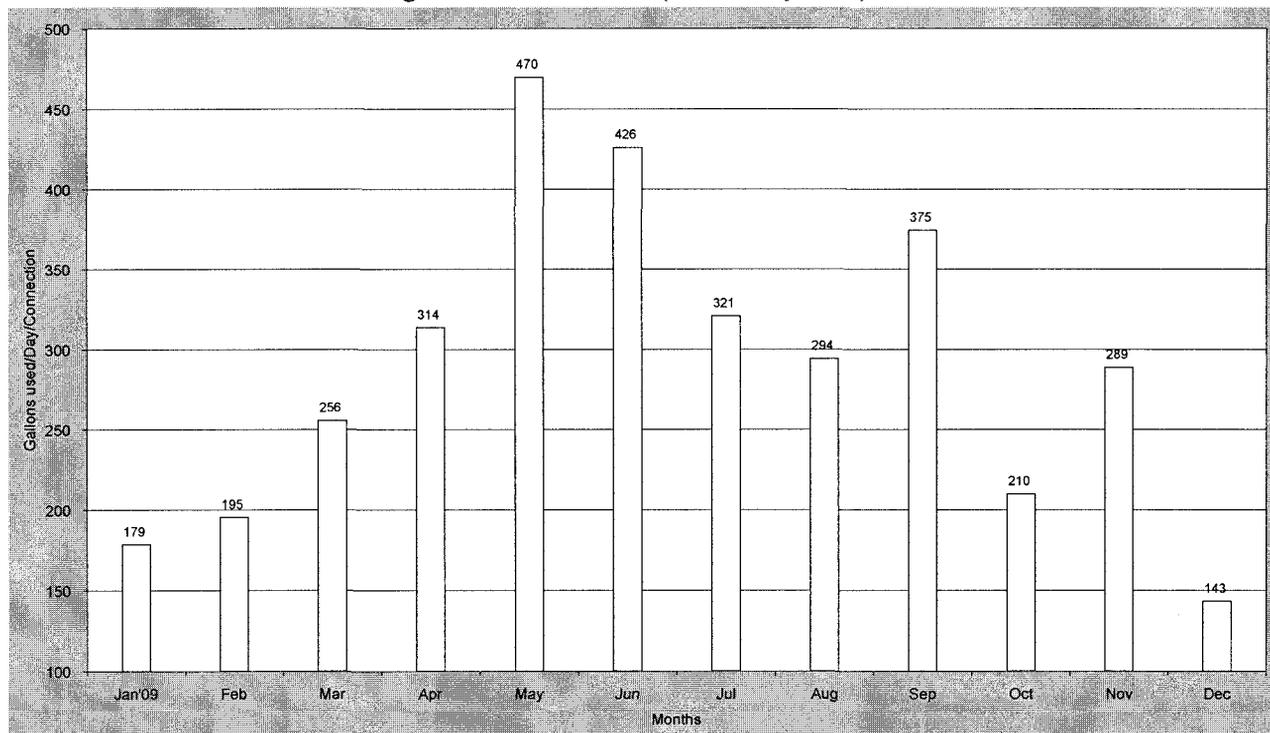
B Water Use

Decision No. 71321, dated October 30, 2009 requires that, beginning with Indiada Water Company's 2009 Annual Report, the Company shall report accurate water usage data. Staff notes that the Water Use Data sheet provided by IWC in its 2009 Annual Report does not match the water use data in its Rate Application³⁰. Staff recommends that the Company be required to report accurate water use data in its future Annual Report and rate case filings beginning with its 2011 Annual Report filed in 2012.

Water Sold

Figure 8 represents the water consumption data provided by IWC in its water use data sheet for the test year ending December 31, 2009 (amended rate application). Customer consumption included a high monthly water use of 470 GPD in May, and the low water use was 143 GPD per connection in December. The average annual use was 289 GPD per connection.

Figure 8 Water Use (Indiada system)



³⁰ Per Item no. 11 in Letter of Deficiency dated May 28, 2010.

Non-account Water:

In its Water Use Data sheet for the test year in the amended rate application, the IWC reported 6,155,000 gallons pumped, 334,000 gallons purchased and 5,850,000 gallons sold for the test year, resulting in a water loss of 9.8 percent. This percentage is within acceptable limit of 10 percent.

C. System Analysis

The Company reported that IWC's well production could vary throughout the year from 10 GPM during drought conditions³¹ to 52 GPM during normal operation.

Staff concludes that Indiada's total well production capacity of 10 GPM, in combination with water obtained from the Antelope Run system, is adequate to serve the present customer base and reasonable growth.

The system's storage capacity of 12,000 gallons is inadequate to serve its current customers. Since Indiada and Antelope Run systems are interconnected, ARWC and IWC are currently evaluating options to resolve Antelope Run and Indiada systems storage capacity inadequacies and improve reliability in both systems. The scope of the proposed improvements includes the addition of a new 80,000 gallon storage tank at the Antelope Run wells nos. 3 & 5 well site, replacement of collapsed Antelope Run Well no.3, addition of two new 20,000 gallon storage tanks at the Indiada Wells nos. 3 & 4 well sites, replacement of existing booster pumps and pressure tanks with variable frequency drive pumps (VFD), water main additions/replacements, plus other improvements.³² It is anticipated that with these improvements the combined systems would have reliable production and adequate storage capacity to serve the present customer base and reasonable growth.

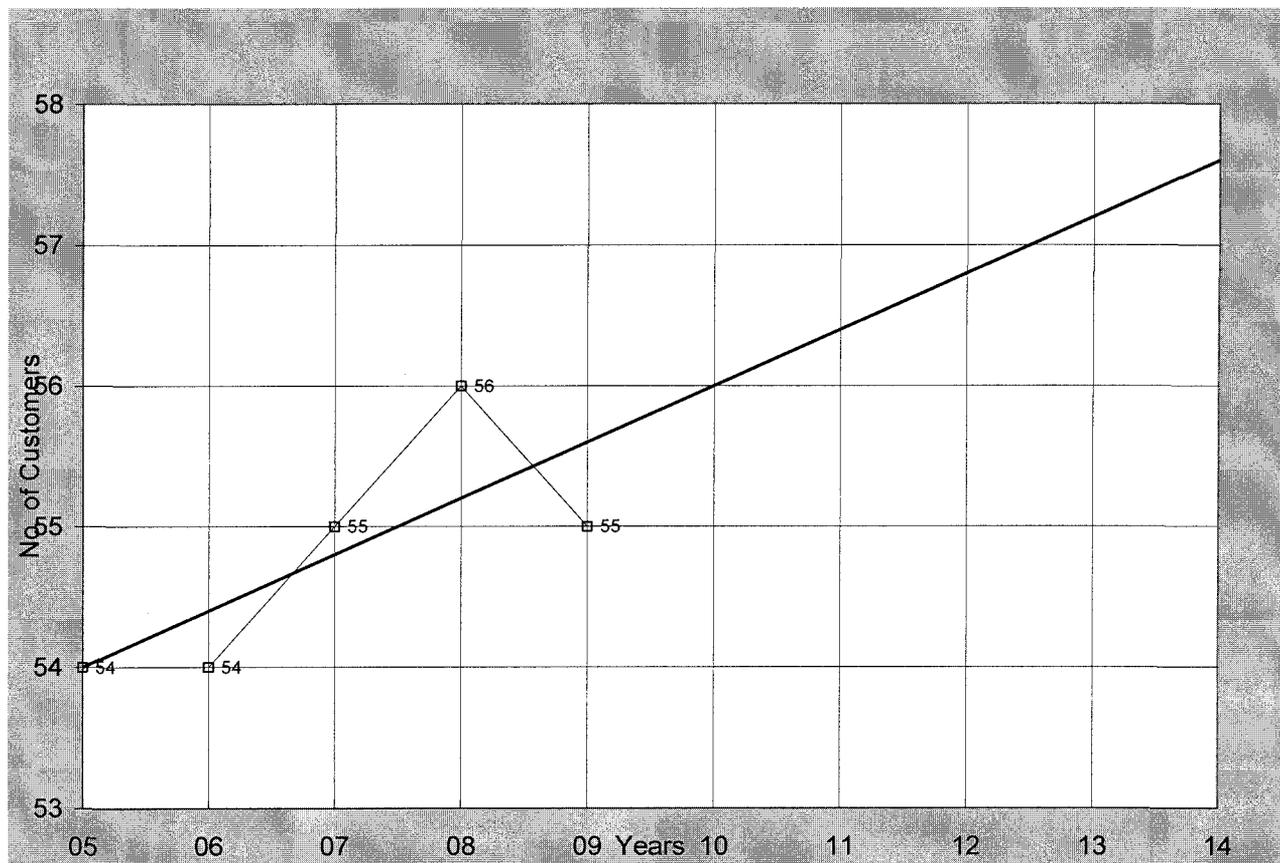
D. Growth

Based on customer data obtained from the IWC's Annual Reports, the Indiada system is expected to experience minimal growth and it is projected that this system could have over 57 connections by 2014. Figure 9 depicts actual growth from 2005 to 2009 and projects an estimated growth for the next five years using linear regression analysis.

³¹ The Company indicates that during drought conditions wells no.2 and no.3 go dry due to declines in the groundwater table.

³² See Section VII (Financing) in this report for more details.

Figure 9 Growth Projection (Indiada system)



II. ADEQ COMPLIANCE

Compliance

The Arizona Department of Environmental Quality (“ADEQ”) has reported that Indiada has no deficiencies and the system is currently delivering water that meets water quality standards required by Arizona Administrative Code, Title 18, and Chapter 4 and the water system is in compliance with ADEQ requirements.³³

Water Testing Expense

Participation in the ADEQ Monitoring Assistance Program (“MAP”) is mandatory for water systems which serve less than 10,000 persons (approximately 3,300 service connections).

For the test year, IWC reported its water testing expense at \$2,129 with participation in the MAP³⁴. Staff has reviewed the Company’s reported expense amount and recommends acceptance of IWC’s water testing expense of \$2,129 for this proceeding.

³³ Per ADEQ Compliance Status Reports dated May 19, 2011.

³⁴ The ADEQ MAP invoice for the 2009 Calendar Year was \$394, rounded.

III. ADWR COMPLIANCE

The Indiada system's service territory is not located in an ADWR designated Active Management Area. The ADWR has determined that the Indiada water system is currently in compliance with ADWR requirements governing water providers and/or community water systems.³⁵

IV. ACC COMPLIANCE

A check with Utilities Division Compliance Section showed that the IWC 2009 Annual Report water usage data was not accurate and the Company is therefore delinquent and has not met compliance on Decision No. 71321 requirement for reporting accurate water usage data in the 2009 Annual Report.³⁶

V. DEPRECIATION RATES

The Company has been using a depreciation rate of 5.00 percent in every National Association of Regulatory Utility Commissioners ("NARUC") plant category. In recent orders, the Commission has been adopting Staff's typical and customary depreciation rates which vary by NARUC plant category. These rates are presented in Table A and it is recommended that the Company use these depreciation rates by individual NARUC plant category.

³⁵ Per ADWR Compliance Status Report dated April 21, 2011.

³⁶ Per ACC Compliance status check dated April 29, 2011.

TABLE A
DEPRECIATION RATE TABLE FOR WATER COMPANIES

NARUC Account No.	Depreciable Plant	Average Service Life (Years)	Annual Accrual Rate (%)
304	Structures & Improvements	30	3.33
305	Collecting & Impounding Reservoirs	40	2.50
306	Lake, River, Canal Intakes	40	2.50
307	Wells & Springs	30	3.33
308	Infiltration Galleries	15	6.67
309	Raw Water Supply Mains	50	2.00
310	Power Generation Equipment	20	5.00
311	Pumping Equipment	8	12.5
320	Water Treatment Equipment		
320.1	Water Treatment Plants	30	3.33
320.2	Solution Chemical Feeders	5	20.0
330	Distribution Reservoirs & Standpipes		
330.1	Storage Tanks	45	2.22
330.2	Pressure Tanks	20	5.00
331	Transmission & Distribution Mains	50	2.00
333	Services	30	3.33
334	Meters	12	8.33
335	Hydrants	50	2.00
336	Backflow Prevention Devices	15	6.67
339	Other Plant & Misc Equipment	15	6.67
340	Office Furniture & Equipment	15	6.67
340.1	Computers & Software	5	20.00
341	Transportation Equipment	5	20.00
342	Stores Equipment	25	4.00
343	Tools, Shop & Garage Equipment	20	5.00
344	Laboratory Equipment	10	10.00
345	Power Operated Equipment	20	5.00
346	Communication Equipment	10	10.00
347	Miscellaneous Equipment	10	10.00
348	Other Tangible Plant	----	----

VI. OTHER ISSUES

1. Service Line and Meter Installation Charges

In its application the Company has requested changes to its present service line and meter installation charges. These charges are refundable advances and the Company’s proposed charges are within Staff’s recommended range for these charges. Therefore, Staff recommends the acceptance of the Company’s proposed separate service line and meter installation charges listed in Table B under the Column heading labeled “Staff’s Recommendation”.

TABLE B
SERVICE LINE AND METER INSTALLATION CHARGES

Meter Size	IWC’s Present Charges	Staff’s Recommendations		
		Service Line	Meter	Total Charges
5/8”x 3/4”	\$100	\$430	\$130	\$560
3/4”	\$120	\$430	\$230	\$660
1”	\$200	\$480	\$290	\$770
1-1/2”	\$300	\$535	\$500	\$1,035
2”-Turbine	\$500	\$815	\$1,020	\$1,835
2”-Compound	-	\$815	\$1,865	\$2,680
3”-Turbine	-	\$1,030	\$1,645	\$2,675
3”-Compound	-	\$1,150	\$2,545	\$3,695
4”-Turbine	-	\$1,460	\$2,620	\$4,080
4”-Compound	-	\$1,640	\$3,595	\$5,235
6”-Turbine	-	\$2,180	\$4,975	\$7,155
6”-Compound	-	\$2,300	\$6,870	\$9,170

2. Curtailment Plan Tariff

The Company has an approved curtailment plan tariff.

3. Backflow Prevention Tariff

The Company has an approved backflow prevention tariff.

4. Best Management Practices (“BMPs”)

The Company does not have any approved BMP tariffs. Staff recommends that IWC be required to file with Docket Control, as a compliance item in this docket, within 90 days of the effective date of this Decision, at least five BMPs in the form of tariffs that substantially conform to the templates created by Staff, available at the Commission’s website, for the Commission’s review and consideration. A maximum of two of these BMPs may come from the “Public Awareness/Public Relations” or “Education and Training” categories of the BMP’s. The

Company may request cost recovery of actual costs associated with the BMPs implemented in its next general rate application.

VII. FINANCING

On May 7, 2010, ESWC, ARWC and IWC submitted a consolidated finance application to incur long term debt requesting the Commission's approval to borrow \$3,000,000 from the Water Infrastructure and Financing Authority ("WIFA") to fund capital improvements to three water systems, such as East Slope interconnection with Antelope Run and Indiada and other improvements. Due to the fact that Companies' request lacked adequate support, in its first set of data request, dated May 24, 2010³⁷, Staff requested the Company provide a report prepared by the Company's Engineer, including a map showing a layout of existing plant by system and proposed improvements, analysis of each system deficiencies and recommendations of the most efficient and appropriate improvements with detailed description of the proposed construction cost and timeline.

On May 2, 2011, the Company responded by submitting a Pre-Design Report for Capital Improvement Project for ARWC, ESWC and IWC, prepared by the Company's Engineer James D. Downing, P.E. ("Report"). Staff noted that the Water Use Data and Plant Description Data used in preparation of the Report were inconsistent. For example, for combined Antelope Run and Indiada systems, the Report is based on 356 connections and 41,000,000 annual gallon pumped. However, based on Water Use Data sheet for the test year in the amended rate applications, the ARWC and IWC reported 223 connections and 32,782,000 annual gallons pumped for both systems (combined). Staff further noted that the Report did not address the proposed construction timeline. During the site inspection, on May 11, 2011, and in Staff's second set of data requests, dated May 17, 2011, Staff requested the Company provide a revised Report based on correct data and complete information.

On May 28, 2011, the Company e-mailed a revised Report³⁸, as part of its responses to Staff's second set of data requests. The Report for combined Antelope Run and Indiada systems outlines the proposed capital improvements and costs. The Antelope Run wells nos. 3 & 5 well site and the Indiada wells nos. 3 & 4 well sites have no storage capacity and water from wells is pumped directly into pressure tanks with no booster pumps, causing frequent pump failures. According to the Company, adding storage into which the well discharges will save costs in well replacement and pump repairs. Also, the Report indicates that replacement of existing booster pumps and pressure tanks with VFD pumps will improve system's pressure. The scope of proposed major improvements includes replacement of the Antelope Run collapsed well no. 3, replacement of well pump, addition of a new 80,000 gallon storage tank at Antelope Run wells nos. 3 & 5 well site and two new 20,000 gallon storage tanks at Indiada wells nos. 3 & 4 well sites, refurbishment of existing storage tanks, replacement of existing booster pumps and pressure tanks with VFD pumps, and water main additions/replacements. These improvement projects are estimated at a total cost of \$ 1,611,935, as summarized in Table C below:

³⁷ In order to expedite the review of the Company's application, Staff requested this information again on September 27, 2010 (Second Letter of Deficiency), on November 30, 2010 (during a meeting with the Company), on March 3, 2011(Letter of Sufficiency) and on April 21, 2011 (during a Procedural Conference).

³⁸ Attached as Exhibit 'A'

TABLE C
PROPOSED CAPITAL IMPROVEMENT PROJECTS AND COSTS
ANTELOPE RUN AND INDIADA SYSTEMS COMBINED

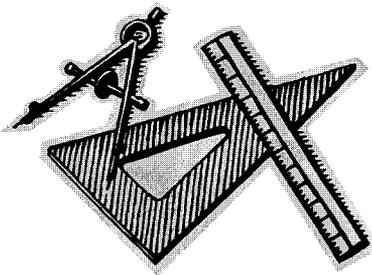
Site	Item Description	Quantity	Unit Cost	Cost Installed
Indiada Well no.2	Replace well pump	1-0.5hp		\$2,500
	Refurbish existing storage tank	1-12,000 gal	\$0.5/gal	\$6,000
	Install VFD Pump	2x5hp	\$700/hp	\$7,000
	Eliminate pressure tank	1-1,000 gal	\$1/gal	\$1,000
	Fencing			\$2,000
	Security lighting			\$1,000
	Generator	1-10.5hp	\$200/hp	\$2,100
	Utility relocation			\$10,000
				Total site cost
Indiada Well no.3	Replace well pump	1-3hp	\$1,000/hp	\$3,000
	Install new storage tank	1-20,000 gal	\$2/gal	\$40,000
	Install VFD Pump	2x5hp	\$700/hp	\$7,000
	Eliminate pressure tank	1-1,000 gal	\$1/gal	\$1,000
	Fencing			\$2,000
	Security lighting			\$1,000
	Generator	1-13hp	\$200/hp	\$2,600
	Utility relocation			\$10,000
				Total site cost
Indiada Well no.4	Replace well pump	1-3hp	\$1,000/hp	\$3,000
	Install new storage tank	1-20,000 gal	\$2/gal	\$40,000
	Install VFD Pump	2x5hp	\$700/hp	\$7,000
	Eliminate pressure tank	1-1,000 gal	\$1/gal	\$1,000
	Fencing			\$2,000
	Security lighting			\$1,000
	Generator	1-13hp	\$200/hp	\$2,600
	Utility relocation			\$10,000
				Total site cost
AR Well no.1	Refurbish existing storage tank	1-15,000 gal	\$0.5/gal	\$7,500
	Install VFD Pump	2x10hp	\$700/hp	\$14,000
	Eliminate pressure tank	1-1,000 gal	\$1/gal	\$1,000
	Fencing			\$2,000
	Security lighting			\$1,000
	Generator	1-20hp	\$200/hp	\$4,000
				Total site cost
AR Well no.'s 3 & 5	Replace collapsed well no.3	8 inch, 800 ft casing	\$50/ft	\$40,000
	Install new well pumps	2-3hp	\$1,000/hp	\$6,000
	Install new storage tank	1-80,000 gal	\$2/gal	\$160,000
	Install VFD Pump	2x15hp	\$700/hp	\$21,000
	Eliminate pressure tank	1-5,000 gal	\$1/gal	\$5,000

	Fencing			\$2,000
	Security lighting			\$1,000
	Generator	1-36hp	\$200/hp	\$7,200
			Total site cost	\$242,200
Water main additions and replacements		9,500 lf	\$40/lf	\$380,000
			Sub-Total	\$816,000
Administrative and legal fees		2%		\$16,330
Engineering fees		8%		\$65,320
Survey, geotechnical, etc		2%		\$16,330
Inspections and approvals		4%		\$32,660
			Sub-Total	\$947,140
Contingencies		20%		\$189,428
			Total	\$1,136,568³⁹

Staff concludes the proposed capital improvements and estimated costs totaling \$1,136,568 for combined Antelope Run and Indiada systems appear to be reasonable and appropriate. No "used and useful" determination of the proposed plant was made, and no conclusions should be inferred for rate making or rate base purposes.

³⁹ According to the Report, if Antelope Run and Indiada systems are not combined, the needed improvement projects separate for Antelope Run are estimated at a total cost of \$899,510 and at \$251,674 for Indiada (totaling \$1,151,184)

Summary
Of
Engineering Reports
For
Consolidate Operations
And
Transfer of Assets
And
Certificates of Convenience & Necessity



**Summary of Engineering Reports for
Consolidate Operations and Transfer of Assets and
Certificates of Convenience & Necessity of Antelope Run
Water Company and Indiada Water Company to East Slope
Water Company (“Companies”)**

Docket No. W-01906A-10-0171

Docket No. W-02327A-10-0171

Docket No. W-02031A-10-0171

June 16, 2011

SUMMARY

Conclusions

1. The Arizona Department of Environmental Quality (“ADEQ”) has reported that East Slope, Antelope Run and Indiada water systems have no deficiencies and all three systems are currently delivering water that meets water quality standards required by Arizona Administrative Code, Title 18, and Chapter 4 and the water system is in compliance with ADEQ requirements.
2. Based on water use data sheet for the test year in the amended rate applications, all three water systems have a water loss below the recommended threshold amount of 10 percent.
3. Based on the Company’s water use data sheet for the test year in the amended rate application, East Slope water system has adequate well production and storage capacities to serve its present customer base and a reasonable level of growth.
4. Based on the Company’s water use data sheet for the test year in the amended rate application, Antelope Run has adequate well production capacity to serve the present customer base and a reasonable level of growth. The system’s storage capacity is inadequate to serve its current customers.
5. Based on the Company’s water use data sheet for the test year in the amended rate application, with water obtained from the Antelope Run system, Indiada’s water supply capacity is adequate to serve the present customer base. The system’s storage capacity is inadequate to serve its current customers.
6. All three water systems’ service territories are not located in an Arizona Department of Water Resources (“ADWR”) designated Active Management Area. The ADWR has determined that all three water systems are currently in compliance with ADWR requirements governing water providers and/or community water systems.

7. A check with Utilities Division Compliance Section showed that there are currently no delinquent compliance items for ESWC and ARWC. However, the IWC 2009 Annual Report water usage data was not accurate and IWC is therefore delinquent and has not met compliance on Decision No. 71321 requirement for reporting accurate water usage data in the 2009 Annual Report.
8. All three water systems have an approved curtailment plan tariff.
9. All three water systems have an approved backflow prevention tariff.
10. All three water systems do not have approved Best Management Practices ("BMPs") tariffs.
11. Staff concludes the proposed capital improvements and estimated costs totaling \$2,748,504, as delineated in Table C of the Engineering Report, for all three systems appear to be reasonable and appropriate. No "used and useful" determination of the proposed plant was made, and no conclusions should be inferred for rate making or rate base purposes.

Recommendations

1. Staff recommends that Companies' reported annual water testing expenses totaling \$8,008⁴⁰ (which includes MAP expenses totaling \$3,443) for all three water systems be accepted for this proceeding.
2. Staff recommends that the Companies use depreciation rates by individual NARUC plant category, as delineated in Table A.
3. Staff recommends acceptance of Companies' proposed separate service line and meter installation charges listed in Table B under the Column heading labeled "Staff's Recommendation".
4. Staff recommends that if Companies' water systems are consolidated for purpose of rate making and accounting, Companies be required to continue reporting the information, including, but not limited to Water Use and Plant Description Data, separately for each of its individual systems by PWS, as defined by ADEQ, in future Annual Reports and rate case filings.
5. Staff recommends that Companies be required to report accurate Water Use Data and Plant Description Data in future Annual Reports and rate case filings beginning with its 2011 Annual Report filed in 2012.
6. Staff recommends that Companies be required to file with Docket Control, as a compliance item in this docket, within 90 days of the effective date of this Decision, at least five BMPs in the form of tariffs that substantially conform to the templates created

⁴⁰This amount include ESWC's expense of \$3980, ARWC's expense of \$1,899 and IWC's expense of \$2,129

by Staff, available at the Commission's website, for the Commission's review and consideration. A maximum of two of these BMPs may come from the "Public Awareness/Public Relations" or "Education and Training" categories of the BMP's. Companies may request cost recovery of actual costs associated with the BMPs implemented in its next general rate application.

7. Staff recommends that ESWS be ordered to repair or replace a leaking pressure tank at ESWS well no.1 site, within 30 days of Decision in this matter.
8. Staff recommends that ARWC be ordered to post a correct ADWR WELL ID Number signage for its well no.5 at the well site, within 30 days of Decision in this matter.
9. Staff recommends that Companies be required to file with Docket Control, as a compliance item in this docket, within 18 months of the effective date of this Decision, copies of the Approvals of Construction ("AOC") for each of the proposed improvement projects, as delineated in Table C of the Engineering Report.

TABLE A
DEPRECIATION RATE TABLE FOR WATER COMPANIES

NARUC Account No.	Depreciable Plant	Average Service Life (Years)	Annual Accrual Rate (%)
304	Structures & Improvements	30	3.33
305	Collecting & Impounding Reservoirs	40	2.50
306	Lake, River, Canal Intakes	40	2.50
307	Wells & Springs	30	3.33
308	Infiltration Galleries	15	6.67
309	Raw Water Supply Mains	50	2.00
310	Power Generation Equipment	20	5.00
311	Pumping Equipment	8	12.5
320	Water Treatment Equipment		
320.1	Water Treatment Plants	30	3.33
320.2	Solution Chemical Feeders	5	20.0
330	Distribution Reservoirs & Standpipes		
330.1	Storage Tanks	45	2.22
330.2	Pressure Tanks	20	5.00
331	Transmission & Distribution Mains	50	2.00
333	Services	30	3.33
334	Meters	12	8.33
335	Hydrants	50	2.00
336	Backflow Prevention Devices	15	6.67
339	Other Plant & Misc Equipment	15	6.67
340	Office Furniture & Equipment	15	6.67
340.1	Computers & Software	5	20.00
341	Transportation Equipment	5	20.00
342	Stores Equipment	25	4.00
343	Tools, Shop & Garage Equipment	20	5.00
344	Laboratory Equipment	10	10.00
345	Power Operated Equipment	20	5.00
346	Communication Equipment	10	10.00
347	Miscellaneous Equipment	10	10.00
348	Other Tangible Plant	----	----

TABLE B
SERVICE LINE AND METER INSTALLATION CHARGES

Meter Size	Staff's Recommendations		
	Service Line	Meter	Total Charges
5/8"x 3/4"	\$430	\$130	\$560
3/4"	\$430	\$230	\$660
1"	\$480	\$290	\$770
1-1/2"	\$535	\$500	\$1,035
2"-Turbine	\$815	\$1,020	\$1,835
2"-Compound	\$815	\$1,865	\$2,680
3"-Turbine	\$1,030	\$1,645	\$2,675
3"-Compound	\$1,150	\$2,545	\$3,695
4"-Turbine	\$1,460	\$2,620	\$4,080
4"-Compound	\$1,640	\$3,595	\$5,235
6"-Turbine	\$2,180	\$4,975	\$7,155
6"-Compound	\$2,300	\$6,870	\$9,170

TABLE C
PROPOSED CAPITAL IMPROVEMENT PROJECTS AND COSTS
3 WATER SYSTEMS

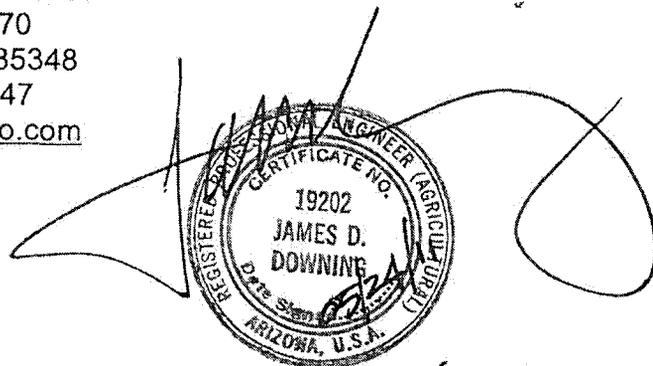
Site	Item Description	Quantity	Unit Cost	Cost Installed
East Slope System				
ES Well no.1	Install new storage tank	1-50,000 gal	\$2/gal	\$100,000
	Replace well pump	1-10hp	\$1,000/hp	\$10,000
	Install VFD Pump	2x15hp	\$700/hp	\$21,000
	Eliminate pressure tank	1-3,000 gal	\$1/gal	\$3,000
	Fencing			\$2,000
	Security lighting			\$1,000
	Generator	1-40hp	\$200/hp	\$8,000
	Utility relocation			\$10,000
				Total site cost
ES Well no.2	Replace collapse well	8 inch, 800 ft casing	\$50/ft	\$40,000
	New well pump	1-10hp	\$1,000/hp	\$10,000
	Refurbish existing storage tank	1-50,000 gal	\$0.5/gal	\$25,000
	Install VFD Pump	2x35hp	\$200/hp	\$7,000
	Eliminate pressure tank	1-5,000 gal	\$1/gal	\$5,000
	Fencing			\$2,000
	Security lighting			\$1,000
	Generator	1-45hp	\$200/hp	\$9,000
	Utility relocation			\$10,000
			Total site cost	\$109,000
ES Well no.3	Replace well pump	1-5hp	\$1,000/hp	\$5,000
	Install VFD Pump	2x30hp	\$200/hp	\$6,000
	Eliminate pressure tank	1-5,000 gal	\$1/gal	\$5,000
	Fencing			\$2,000
	Security lighting			\$1,000
	Generator	1-35hp	\$200/hp	\$7,000
				Total site cost
ES Well no.4	Install VFD Pump	1-75hp	\$200/hp	\$15,000
	Eliminate pressure tank	1-5,000 gal	\$1/gal	\$5,000
	Fencing			\$2,000
	Security lighting			\$1,000
	Generator	1-75hp	\$200/hp	\$15,000
	Utility relocation			\$10,000
				Total site cost
			Sub-Total	\$338,000
Water main addition and replacements		20,500 lf	\$40/ft	\$820,000
			Sub-Total	\$1,158,000
Administrative and legal fees		2%		\$23,160
Engineering fees		8%		\$92,640
Survey, geotechnical, etc		2%		\$23,160
Inspections and approvals		4%		\$46,320
			Sub-Total	\$1,343,280

Contingencies		20%		\$268,656
			Total	\$1,611,936
Antelope Run and Indiada Systems Combined				
Indiada Well no.2	Replace well pump	1-0.5hp		\$2,500
	Refurbish existing storage tank	1-12,000 gal	\$0.5/gal	\$6,000
	Install VFD Pump	2x5hp	\$700/hp	\$7,000
	Eliminate pressure tank	1-1,000 gal	\$1/gal	\$1,000
	Fencing			\$2,000
	Security lighting			\$1,000
	Generator	1-10.5hp	\$200/hp	\$2,100
	Utility relocation			\$10,000
			Total site cost	\$31,600
Indiada Well no.3	Replace well pump	1-3hp	\$1,000/hp	\$3,000
	Install new storage tank	1-20,000 gal	\$2/gal	\$40,000
	Install VFD Pump	2x5hp	\$700/hp	\$7,000
	Eliminate pressure tank	1-1,000 gal	\$1/gal	\$1,000
	Fencing			\$2,000
	Security lighting			\$1,000
	Generator	1-13hp	\$200/hp	\$2,600
	Utility relocation			\$10,000
			Total site cost	\$66,000
Indiada Well no.4	Replace well pump	1-3hp	\$1,000/hp	\$3,000
	Install new storage tank	1-20,000 gal	\$2/gal	\$40,000
	Install VFD Pump	2x5hp	\$700/hp	\$7,000
	Eliminate pressure tank	1-1,000 gal	\$1/gal	\$1,000
	Fencing			\$2,000
	Security lighting			\$1,000
	Generator	1-13hp	\$200/hp	\$2,600
	Utility relocation			\$10,000
			Total site cost	\$66,000
AR Well no.1	Refurbish existing storage tank	1-15,000 gal	\$0.5/gal	\$7,500
	Install VFD Pump	2x10hp	\$700/hp	\$14,000
	Eliminate pressure tank	1-1,000 gal	\$1/gal	\$1,000
	Fencing			\$2,000
	Security lighting			\$1,000
	Generator	1-20hp	\$200/hp	\$4,000
			Total site cost	\$29,500
AR Well no.'s 3 & 5	Replace collapsed well no.3	8 inch, 800 ft casing	\$50/ft	\$40,000
	Install new well pumps	2-3hp	\$1,000/hp	\$6,000
	Install new storage tank	1-80,000 gal	\$2/gal	\$160,000
	Install VFD Pump	2x15hp	\$700/hp	\$21,000
	Eliminate pressure tank	1-5,000 gal	\$1/gal	\$5,000
	Fencing			\$2,000

	Security lighting			\$1,000
	Generator	1-36hp	\$200/hp	\$7,200
			Total site cost	\$242,200
	Water main additions and replacements	9,500 lf	\$40/lf	\$380,000
			Sub-Total	\$816,000
	Administrative and legal fees	2%		\$16,330
	Engineering fees	8%		\$65,320
	Survey, geotechnical, etc	2%		\$16,330
	Inspections and approvals	4%		\$32,660
			Sub-Total	\$947,140
	Contingencies	20%		\$189,428
			Total	\$1,136,568
	Total for all 3 systems			\$2,748,504

RESPONSE
TO
STAFF'S SECOND SET OF DATA REQUESTS
TO
EAST SLOPE WATER CO.
DOCKET NO. W-01906A-10-0183
AND
INDIADA WATER CO.
DOCKET NO. W-02031A-10-0184
AND
ANTELOPE RUN WATER CO.
DOCKET NO. W-02327A-10-0185

PREPARED BY
THE HARCUVAR CO.
P. O. BOX 70
SALOME, AZ 85348
928-859-3647
jim@harcuvarco.com



EXPIRES 09/30/11

STAFF'S SECOND SET OF DATA REQUESTS TO EAST SLOPE, INDIADA AND ANTELOPE RUN
ITEM

- 1 See attached report revised 05/23/11.
- 2a Pressure tanks require pressure ranges. As the pressure range decreases, the required tank volume increases, raising costs. As elevation differences increase, maximum pressures at lower elevations increase as minimum pressures at higher elevations are constant.

Elevations and Pressures		ESWC	IWC	ARWC
Pressure reducing valve (PRV) setting	psig	85	85	85
Minimum pressure	psig	40	40	40
Maximum elevation	ft	4,736	5,088	5,000
Hydraulic grade	ft	4,828	5,180	5,092
Minimum elevation	ft	4,608	4,920	4,726
Elevation range	ft	128	168	274
Maximum pressure	psig	95	113	159
PRV maximum elevation	ft	4,632	4,984	4,896
PRV elevation range	ft	24	64	170
Pressure tank pressure range	psig	20	20	20
Minimum pressure	psig	60	60	60
Maximum elevation	ft	4,736	5,088	5,000
Hydraulic grade	ft	4,875	5,227	5,139
Minimum elevation	ft	4,608	4,920	4,726
Maximum pressure	psig	115	133	179
PRV maximum elevation	ft	4,828	5,180	5,092
PRV elevation range	ft	220	260	366

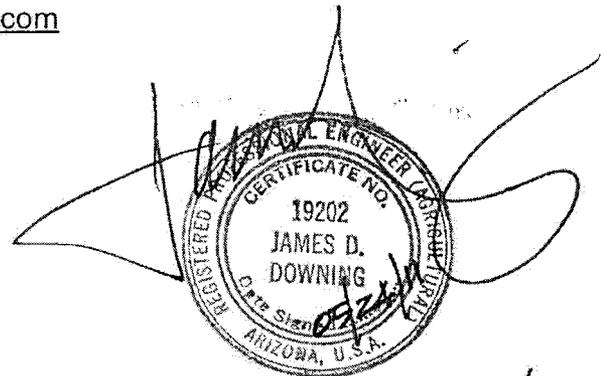
Substituting variable frequency drives (VFD) for pressure tanks reduces the maximum pressures and lowers the cost of PRV's. Additionally, VFD's are also less expensive.

Instantaneous demand	gpm	93	139	186
Pressure tank volume	gal	1,857	2,786	3,714
Tank cost	\$/gal	\$5.00	\$5.00	\$5.00
		\$9,286	\$13,929	\$18,571
Minimum pressure	psig	60	60	60
Pump motor	hp	5.0	7.5	10.0
VFD additional cost	\$/hp	\$200.00	\$200.00	\$200.00
		\$1,000	\$1,500	\$2,000

- See revised report.
- 2b See revised report.
- 2c Most of the wells in the three systems experience water levels at the pumps in the summer. Groundwater levels are declining. If the wells continue to be used to meet system demands, wells will need replacement in the near future. Several wells pump sediment causing pre-mature pump failure. Adding storage into which the wells discharge will save money in well replacement and pump repair.
- 2d With a generator and transfer switch at each site, customers will suffer no loss in service. With portable generators, customers will have no water while the generator is placed into service.
- 2e See revised report.
- 2f See revised report.
- 3 Proposed main additions and replacements result in lower operating pressures. Proposed new pumps are designed for these lower pressures. Therefore the water main improvements need coordination with other improvements. East Slope should be fist with Antelope Run and Indiada following. The entire construction time is estimated at 18 months.

PRE-DESIGN REPORT
FOR
CAPITAL IMPROVEMENT PROJECT
FOR
ANTELOPE RUN WATER CO.
EAST SLOPE WATER CO.
AND
INDIADA WATER CO.
FOR
SOUTHWESTERN UTILITIES MANAGEMENT, INC.

PREPARED BY
THE HARCUIVAR CO.
P. O. BOX 70
SALOME, AZ 85348
928-859-3647
jim@harcuvarco.com



Revision 1 dated 05/23/11

EXPIRES 09/30/11

PRE-DESIGN REPORT FOR ANTELOPE RUN, EAST SLOPE AND INDIADA
CONTENTS

1.0 Introduction, Location and Description 1

2.0 Antelope Run 1

3.0 Indiada 1

4.0 Antelope Run and Indiada Consolidated 1

5.0 East Slope 1

Work Sheets

Antelope Run Sheets 1 - 4

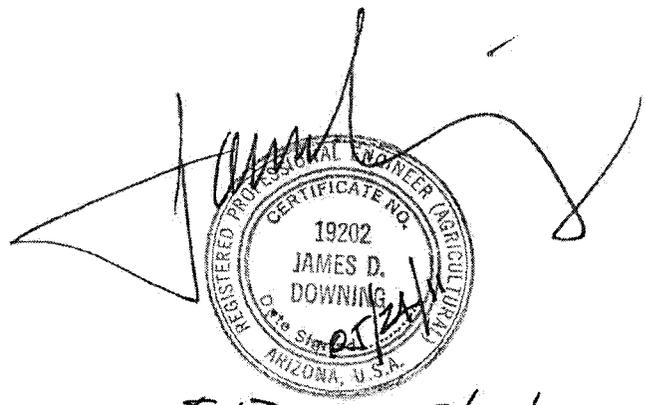
Indiada Sheets 1 - 4

Antelope Run and Indiada Consolidated Sheets 1 - 5

East Slope Sheets 1 - 5

Distribution System Drawings

Sheets 1 - 8



EXPIRES 09/30/11

1.0 Introduction, Location and Description

All three companies are located south of Sierra Vista in Cochise County and are managed by Southwestern Utilities Management, Inc. (SWUM). East Slope (ESWC) is located east of SR92. Antelope Run (ARWC) and Indiada (IWC) are located between the Ft. Huachuca boundary and SR92. IWC is south of and adjacent to ARWC. SWUM proposes a capital improvement project (CIP) including all three systems to correct supply shortages, system pressures, well failures and delivery deficiencies. A pre-design report was submitted to ACC Staff. Staff generated a second set of data requests. This revised report was prepared to respond to those requests. Subsequent to the first report another facility inspection was performed with Ms. Katrin Stukov of the ACC. Several new issues were discovered.

2.0 Antelope Run

Both wells have problems. Well 3 has collapsed at 180 feet. The pump in Well 5 requires replacement often due to sediment passage. See Antelope Run work sheets 1 - 4 for revised design basis, recommended improvements and cost estimates.

3.0 Indiada

See Indiada work sheets 1 - 4 for revised design basis, recommended improvements and cost estimates.

4.0 Antelope Run and Indiada Consolidated

Antelope Run and Indiada are adjacent and should be combined. The combined systems should be subdivided into four pressure zones. See Antelope Run and Indiada consolidated work sheets 1 - 5 for revised design basis, recommended improvements and cost estimates.

5.0 East Slope

Well 2 has collapsed at about 40 feet. See East Slope work sheets 1 - 4 for revised design basis, recommended improvements and cost estimates.

1 ANTELOPE RUN WATER CO.

2 Year ending 12/31/09

3			Pumped			
4	Month	Meters	gal	gpd	gpd/mtr	gpm
5	1	164	1,421,000	46,718	284.9	32.4
6	2	164	1,430,000	47,014	286.7	32.6
7	3	164	1,650,000	54,247	330.8	37.7
8	4	164	2,244,000	73,775	449.8	51.2
9	5	164	3,722,000	122,367	746.1	85.0
10	6	167	3,186,000	104,745	627.2	72.7
11	7	168	2,744,000	90,214	537.0	62.6
12	8	168	2,780,000	91,397	544.0	63.5
13	9	168	2,820,000	92,712	551.9	64.4
14	10	168	1,533,000	50,400	300.0	35.0
15	11	168	1,623,000	53,359	317.6	37.1
16	12	168	1,473,000	48,427	288.3	33.6
17	Total		26,626,000			
18	Average day (ADD)	166	2,218,833	72,948	438.8	50.7
19	Average day peak month (ADPM)		3,328,250	109,422	658.2	76.0
20	Peak day (MDD)		4,437,667	145,896	877.6	101.3
21	Peak hour peak day (PHPD)					177.3
22	Instantaneous demand (ID)					223.2

23						
24	Maximum meters				number	200
25	ADD				gpd	87,757
26					gpm	60.9
27	ADPM				gpd	131,635
28					gpm	91.4
29	MDD				gpd	175,514
30					gpm	121.9
31	PHPD				gpm	213.3
32	ID				gpm	247.9

33						
34	Well site		1	3	5	Total
35	All sites operating					
36	ADD	gpm	20.3	20.3	20.3	60.9
37	ADPM	gpm	30.5	30.5	30.5	91.4
38	MDD	gpm	40.6	40.6	40.6	121.9
39	PHPD	gpm	71.1	71.1	71.1	213.3
40	ID	gpm	82.6	82.6	82.6	247.9
41	Well 5 inoperable					
42	ADD	gpm	20.3	60.9		81.3
43	ADPM	gpm	30.5	91.4		121.9
44	MDD	gpm	40.6	121.9		162.5
45	PHPD	gpm	71.1	71.1	71.1	213.3
46	ID	gpm	82.6	82.6	82.6	247.9

47
48
49
50

1	ANTELOPE RUN WATER CO.		
2	Well Site Improvements		
3	Well Site 1		
4	Well inoperable - only storage and pressure pumps		
5	Repair storage tank.		
6	Replace pressure pumps.		
7	Use VFD's to reduce required PRV's.		
8	Existing storage tank volume	gal	15,000
9	Storage tank capital repair	\$/gal	\$0.50
10			\$7,500
11	ADPM - well discharge	gpm	10.4
12	Supply from sites 3 & 5	gpm	20.1
13	Pressure pump peak discharge	gpm	82.6
14	Pressure	psig	82
15	Total pumps	number	2
16	Operating pumps	number	1
17	Pressure pump peak discharge	gpm each	82.6
18	Pressure pump	hp each	6.1
19		use hp each	7.5
20	Required pressure tank volume	gal	1,653
21	Existing pressure tank	gal	1,000
22	Required additional volume	gal	500
23	Pressure pump installed cost	\$/hp	\$500.00
24			\$7,500
25	Pressure tank installed cost	\$/gal	\$5.00
26			\$2,500
27	Pressure pump and tank installed cost		\$10,000
28	VFD pressure pump installed cost	\$/hp	\$700.00
29			\$10,500
30	Note: Using VFD reduces cost and required PRV's.		
31	Eliminate pressure tank	\$/gal	\$1.00
32			\$1,000
33	Fencing	ls	\$2,000
34	Security lighting	ls	\$1,000
35	Generator	hp	15
36		\$/hp	\$200.00
37			\$3,000
38	Utility relocation	ls	\$0
39	Total site cost		\$25,000
40			
41			
42			
43			
44			
45			
46			
47			
48			
49			
50			

1	ANTELOPE RUN WATER CO.		
2	Well Site Improvements		
3	Well Sites 3 & 5		
4	Replace well 3.		
5	Discharge wells into new storage tank to reduce well discharge and prolong well life.		
6	Use VFD's to reduce required PRV's.		
7	New storage tank volume	gal	100,000
8	Installed cost	\$/gal	\$2.00
9			\$200,000
10	ADPM - well discharge	gpm	69
11	Well discharge	gpm	22
12	New well pump	hp	1.7
13		use hp	3
14	Installed cost each	\$/hp	\$1,000.00
15			\$3,000
16		both	\$6,000
17	New well	casing diameter	inches 8
18		casing depth	ft 800
19		installed cost	\$/ft \$50.00
20			\$40,000
21	Pressure pump peak discharge	gpm	248
22	Pressure	psig	80
23	Total pumps	number	2
24	Operating pumps	number	1
25	Pressure pump peak discharge	gpm each	248
26	Pressure pump	hp each	17.8
27		use hp each	20
28	Required pressure tank volume	gal	4,958
29	Existing pressure tank	gal	5,000
30	Required additional volume	gal	0
31	Pressure pump installed cost	\$/hp	\$500.00
32			\$20,000
33	Pressure tank installed cost	\$/gal	\$5.00
34			\$0
35	Pressure pump and tank installed cost		\$20,000
36	VFD pressure pump installed cost	\$/hp	\$700.00
37			\$28,000
38	Note: Using VFD reduces cost and required PRV's.		
39	Eliminate pressure tank	\$/gal	\$1.00
40			\$5,000
41	Fencing	ls	\$2,000
42	Security lighting	ls	\$1,000
43	Generator	hp	46
44		\$/hp	\$200.00
45			\$9,200
46	Utility relocation (SSVEC)	ls	\$0
47	Total site cost		\$291,200
48			
49			
50			

1	ANTELOPE RUN WATER CO.		
2			
3	Total Estimated Cost		
4	Site 1		\$25,000
5	Site 3 & 5		\$291,200
6	Sub-total		\$316,200
7	Water main additions and replacements	lf	8,250
8		\$/lf	\$40.00
9			\$330,000
10	Sub-total		\$646,200
11	Administration and legal fees	2.00%	\$12,924
12	Engineering fees	8.00%	\$51,696
13	Survey, geotech, etc.	2.00%	\$12,924
14	Inspections and approvals	4.00%	\$25,848
15	Sub-total		\$749,592
16	Contingencies	20.00%	\$149,918
17	Total		\$899,510

18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50

1 INDIADA WATER CO.

2 Year ending 12/31/09

3			Pumped			
4	Month	Meters	gal	gpd	gpd/mtr	gpm
5	1	54	243,000	7,989	147.9	5.5
6	2	55	402,000	13,216	240.3	9.2
7	3	55	505,000	16,603	301.9	11.5
8	4	56	595,000	19,562	349.3	13.6
9	5	55	784,000	25,775	468.6	17.9
10	6	55	676,000	22,225	404.1	15.4
11	7	57	576,000	18,937	332.2	13.2
12	8	56	507,000	16,668	297.7	11.6
13	9	55	629,000	20,679	376.0	14.4
14	10	55	412,000	13,545	246.3	9.4
15	11	56	506,000	16,636	297.1	11.6
16	12	55	320,000	10,521	191.3	7.3
17	Total		6,155,000			
18	Average day (ADD)	55	512,917	16,863	304.8	11.7
19	Average day peak month (ADPM)		769,375	25,295	457.1	17.6
20	Peak day (MDD)		1,025,833	33,726	609.5	23.4
21	Peak hour peak day (PHPD)					41.0
22	Instantaneous demand (ID)					112.4

23						
24	Maximum meters				number	70
25	ADD				gpd	21,333
26					gpm	14.8
27	ADPM				gpd	31,999
28					gpm	22.2
29	MDD				gpd	42,665
30					gpm	29.6
31	PHPD				gpm	51.9
32	ID				gpm	130.9

33			2	3	4	Total
34	Well site					
35	All sites operating					
36	ADD	gpm	4.9	4.9	4.9	14.8
37	ADPM	gpm	7.4	7.4	7.4	22.2
38	MDD	gpm	9.9	9.9	9.9	29.6
39	PHPD	gpm	17.3	17.3	17.3	51.9
40	ID	gpm	43.6	43.6	43.6	130.9
41	Site 4 inoperable					
42	ADD	gpm	7.4	7.4	0.0	14.8
43	ADPM	gpm	11.1	11.1	0.0	22.2
44	MDD	gpm	14.8	14.8	0.0	29.6
45	PHPD	gpm	25.9	25.9	0.0	51.9
46	ID	gpm	65.5	65.5	0.0	130.9

47
48
49
50

1	INDIADA WATER CO.		
2	Well Site Improvements		
3	Well Site 2		
4	Add pressure pumps to meet required demand		
5	Use VFD's to reduce required PRV's.		
6	Existing storage tank volume	gal	12,000
7	Storage tank repair	\$/gal	\$0.50
8			\$6,000
9	ADPM - well discharge	gpm	8.3
10	Well discharge	gpm	3.0
11	New well pump	hp	0.5
12		use hp	0.5
13	Installed cost	\$/hp	na
14			\$2,500
15	Pressure pump peak discharge	gpm	65.5
16	Pressure	psig	40
17	Total pumps	number	2
18	Operating pumps	number	1
19	Pressure pump peak discharge	gpm each	65.5
20	Pressure pump	hp each	2.3
21		use hp each	5
22	Required pressure tank volume	gal	1,309
23	Existing pressure tank	gal	0
24	Required additional volume	gal	1,500
25	Pressure pump installed cost	\$/hp	\$500.00
26			\$5,000
27	Pressure tank installed cost	\$/gal	\$5.00
28			\$7,500
29	Pressure pump and tank installed cost		\$12,500
30	VFD pressure pump installed cost	\$/hp	\$700.00
31			\$7,000
32	VFD savings		\$5,500
33	Note: Using VFD reduces cost and required PRV's.		
34	Eliminate pressure tank	\$/gal	na
35			\$1,000
36	Fencing	ls	\$2,000
37	Security lighting	ls	\$1,000
38	Generator	hp	10.5
39		\$/hp	\$200.00
40			\$2,100
41	Utility relocation (SSVEC)	ls	\$10,000
42	Total site cost		\$31,600
43			
44			
45			
46			
47			
48			
49			
50			

1	INDIADA WATER CO.		
2	Well Site Improvements		
3	Well Sites 3 & 4		
4	Discharge well into new storage tank to reduce well discharge and prolong well life.		
5	Add pressure pumps to meet required demand.		
6	Use VFD's to reduce required PRV's.		
7	New storage tank volume	gal	12,000
8	Installed cost	\$/gal	\$2.00
9			\$24,000
10	ADPM - well discharge	gpm	8.3
11	Well discharge	gpm	3.0
12	New well pump	hp	0.5
13		use hp	0.5
14	Installed cost	\$/hp	na
15			\$2,500
16	Pressure pump peak discharge	gpm	65.5
17	Pressure	psig	58
18	Total pumps	number	2
19	Operating pumps	number	1
20	Pressure pump peak discharge	gpm each	65.5
21	Pressure pump	hp each	3.4
22		use hp each	5
23	Required pressure tank volume	gal	1,309
24	Existing pressure tank	gal	1,000
25	Required additional volume	gal	500
26	Pressure pump installed cost	\$/hp	\$500.00
27			\$5,000
28	Pressure tank installed cost	\$/gal	\$5.00
29			\$2,500
30	Pressure pump and tank installed cost		\$7,500
31	VFD pressure pump installed cost	\$/hp	\$700.00
32			\$7,000
33	VFD savings		\$500
34	Note: Using VFD reduces cost and required PRV's.		
35	Eliminate pressure tank	\$/gal	\$1.00
36			\$1,000
37	Fencing	ls	\$2,000
38	Security lighting	ls	\$1,000
39	Generator	hp	10.5
40		\$/hp	\$200.00
41			\$2,100
42	Utility relocation (SSVEC)	ls	\$10,000
43	Total site cost		\$49,600
44			
45			
46			
47			
48			
49			
50			

1	INDIADA WATER CO.		
2			
3	Total Estimated Cost		
4	Site 2		\$31,600
5	Site 3		\$49,600
6	Site 4		\$49,600
7	Sub-total		\$130,800
8	Water main additions and replacements	If	1,250
9		\$/lf	\$40.00
10			\$50,000
11	Sub-total		\$180,800
12	Administration and legal fees	2.00%	\$3,616
13	Engineering fees	8.00%	\$14,464
14	Survey, geotech, etc.	2.00%	\$3,616
15	Inspections and approvals	4.00%	\$7,232
16	Sub-total		\$209,728
17	Contingencies	20.00%	\$41,946
18	Total		\$251,674

19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50

1 ANTELOPE RUN AND INDIADA CONSOLIDATED WATER CO.
 2 Year ending 12/31/09

3			Pumped				
4	Month	Meters	gal	gpd	gpd/mtr	gpm	
5	1	218	1,664,000	54,707	250.9	38.0	
6	2	219	1,832,000	60,230	275.0	41.8	
7	3	219	2,155,000	70,849	323.5	49.2	
8	4	220	2,839,000	93,337	424.3	64.8	
9	5	219	4,506,000	148,142	676.4	102.9	
10	6	222	3,862,000	126,970	571.9	88.2	
11	7	225	3,320,000	109,151	485.1	75.8	
12	8	224	3,287,000	108,066	482.4	75.0	
13	9	223	3,449,000	113,392	508.5	78.7	
14	10	223	1,945,000	63,945	286.7	44.4	
15	11	224	2,129,000	69,995	312.5	48.6	
16	12	223	1,793,000	58,948	264.3	40.9	
17	Total		32,781,000				
18	Average day (ADD)	222	2,731,750	89,811	405.3	62.4	
19	Average day peak month (ADPM)		4,097,625	134,716	608.0	93.6	
20	Peak day (MDD)		5,463,500	179,622	810.6	124.7	
21	Peak hour peak day (PHPD)					218.3	
22	Instantaneous demand (ID)					263.0	
23							
24	Maximum meters				number	270	
25	ADD				gpd	109,435	
26					gpm	76.0	
27	ADPM				gpd	164,152	
28					gpm	114.0	
29	MDD				gpd	218,870	
30					gpm	152.0	
31	PHPD				gpm	266.0	
32	ID				gpm	296.9	
33							
34	Zone		1	2	3	4	Total
35	Meters		10	72	94	94	270
36	ADD	gpm	2.8	20.3	26.5	26.5	76.0
37	ADPM	gpm	4.2	30.4	39.7	39.7	114.0
38	MDD	gpm	5.6	40.5	52.9	52.9	152.0
39	PHPD	gpm	9.9	70.9	92.6	92.6	266.0
40	ID	gpm	38.9	133.1	156.9	156.9	
41							
42							
43							
44							
45							
46							
47							
48							
49							
50							

1	ANTELOPE RUN AND INDIADA CONSOLIDATED WATER CO.		
2	Well Site Improvements		
3	Zone 1		
4	Well Site Indiada 2		
5	Total site cost		\$31,600
6	Zone 2		
7	Well Sites Indiada 3 & 4		
8	New storage tank volume	gal	20,000
9	Installed cost	\$/gal	\$2.00
10			\$40,000
11	ADPM - well discharge	gpm	13.9
12	Well discharge	gpm	16.5
13	New well pump	hp	2.6
14		use	hp
15	Installed cost		\$1,000.00
16			\$3,000
17	Pressure pump peak discharge	gpm	66.6
18	Pressure	psig	59
19	Total pumps	number	2
20	Operating pumps	number	1
21	Pressure pump peak discharge	gpm each	66.6
22	Pressure pump	hp each	3.5
23		use	hp each
24	Required pressure tank volume	gal	1,331
25	Existing pressure tank	gal	1,000
26	Required additional volume	gal	500
27	Pressure pump installed cost	\$/hp	\$500.00
28			\$5,000
29	Pressure tank installed cost	\$/gal	\$5.00
30			\$2,500
31	Pressure pump and tank installed cost		\$7,500
32	VFD pressure pump installed cost	\$/hp	\$700.00
33			\$7,000
34	Note: Using VFD reduces cost and required PRV's.		
35	Eliminate pressure tank	\$/gal	\$1.00
36			\$1,000
37	Fencing	ls	\$2,000
38	Security lighting	ls	\$1,000
39	Generator	hp	13
40		\$/hp	\$200.00
41			\$2,600
42	Utility relocation (SSVEC)	ls	\$10,000
43	Total site cost		\$66,600
44			
45			
46			
47			
48			
49			
50			

1 ANTELOPE RUN AND INDIADA CONSOLIDATED WATER CO.

2 Well Site Improvements

3 Zone 3

4 Antelope Run Well Site 1

5 Existing storage tank volume gal 15,000

6 Storage tank capital repair \$/gal \$0.50

7 \$7,500

8 ADPM - well discharge gpm 10.4

9 Supply from sites 3 & 5 gpm 29.3

10 Pressure pump peak discharge gpm 156.9

11 Pressure psig 65

12 Total pumps number 2

13 Operating pumps number 1

14 Pressure pump peak discharge gpm each 156.9

15 Pressure pump hp each 9.2

16 use hp each 10

17 Required pressure tank volume gal 3,138

18 Existing pressure tank gal 1,000

19 Required additional volume gal 2,000

20 Pressure pump installed cost \$/hp \$500.00

21 \$10,000

22 Pressure tank installed cost \$/gal \$5.00

23 \$10,000

24 Pressure pump and tank installed cost \$20,000

25 VFD pressure pump installed cost \$/hp \$700.00

26 \$14,000

27 Note: Using VFD reduces cost and required PRV's.

28 Eliminate pressure tank \$/gal \$1.00

29 \$1,000

30 Fencing ls \$2,000

31 Security lighting ls \$1,000

32 Generator hp 20

33 \$/hp \$200.00

34 \$4,000

35 Utility relocation ls \$0

36 Total site cost \$29,500

37

38

39

40

41

42

43

44

45

46

47

48

49

50

1	ANTELOPE RUN AND INDIADA CONSOLIDATED WATER CO.		
2	Well Site Improvements		
3	Zone 4		
4	Well Sites 3 & 5		
5	Replace well 3.		
6	Discharge wells into new storage tank to reduce well discharge and prolong well life.		
7	Use VFD's to reduce required PRV's.		
8	New storage tank volume	gal	80,000
9	Installed cost	\$/gal	\$2.00
10			\$160,000
11	ADPM - well discharge	gpm	56
12	Well discharge	gpm	23.8
13	New well pump	hp	1.9
14		use	hp
15	Installed cost each	\$/hp	\$1,000.00
16			\$3,000
17		both	\$6,000
18	New well	casing diameter	inches
19		casing depth	ft
20		installed cost	\$/ft
21			\$40,000
22	Pressure pump peak discharge	gpm	186
23	Pressure	psig	80.0
24	Total pumps	number	2.0
25	Operating pumps	number	1.0
26	Pressure pump peak discharge	gpm each	186.2
27	Pressure pump	hp each	13.4
28		use	hp each
29	Required pressure tank volume	gal	3,723
30	Existing pressure tank	gal	5,000
31	Required additional volume	gal	0.0
32	Pressure pump installed cost	\$/hp	\$500.00
33			\$15,000
34	Pressure tank installed cost	\$/gal	\$5.00
35			\$0
36	Pressure pump and tank installed cost		\$15,000
37	VFD pressure pump installed cost	\$/hp	\$700.00
38			\$21,000
39	Note: Using VFD reduces cost and required PRV's.		
40	Eliminate pressure tank	\$/gal	\$1.00
41			\$5,000
42	Fencing	ls	\$2,000
43	Security lighting	ls	\$1,000
44	Generator	hp	36
45		\$/hp	\$200.00
46			\$7,200
47	Utility relocation (SSVEC)	ls	\$0
48	Total site cost		\$242,200
49			
50			

1	ANTELOPE RUN AND INDIADA CONSOLIDATED WATER CO.		
2			
3	Total Estimated Cost		
4	Indiada Site 2		\$31,600
5	Indiada Site 3		\$66,600
6	Indiada Site 4		\$66,600
7	Antelope Run Site 1		\$29,500
8	Antelope Run Site 3 & 5		\$242,200
9	Sub-total		\$436,500
10	Water main additions and replacements	If	9,500
11		\$/lf	\$40.00
12			\$380,000
13	Sub-total		\$816,500
14	Administration and legal fees	2.00%	\$16,330
15	Engineering fees	8.00%	\$65,320
16	Survey, geotech, etc.	2.00%	\$16,330
17	Inspections and approvals	4.00%	\$32,660
18	Sub-total		\$947,140
19	Contingencies	20.00%	\$189,428
20	Total		\$1,136,568
21			
22			
23	ANTELOPE RUN WATER CO.	Separate	\$899,510
24	INDIADA WATER CO.	Separate	\$251,674
25	Total		\$1,151,184
26			
27			
28			
29			
30			
31			
32			
33			
34			
35			
36			
37			
38			
39			
40			
41			
42			
43			
44			
45			
46			
47			
48			
49			
50			

1 EAST SLOPE WATER COMPANY
 2 Year ending 12/31/09

3	Pumped						
4	Month	Meters	gal	gpd	gpd/mtr	gpm	
5	1	786	5,279,000	173,556	220.8	120.5	
6	2	788	5,330,000	175,233	222.4	121.7	
7	3	792	5,331,000	175,266	221.3	121.7	
8	4	791	6,659,000	218,926	276.8	152.0	
9	5	785	10,149,000	333,666	425.1	231.7	
10	6	782	9,009,000	296,186	378.8	205.7	
11	7	786	8,334,000	273,995	348.6	190.3	
12	8	789	10,674,000	350,926	444.8	243.7	
13	9	786	8,546,000	280,964	357.5	195.1	
14	10	788	6,847,000	225,107	285.7	156.3	
15	11	787	7,880,000	259,068	329.2	179.9	
16	12	781	4,959,000	163,036	208.8	113.2	
17	Total		88,997,000				
18	Average day (ADD)	787	7,416,417	243,827	309.9	169.3	
19	Average day peak month (ADPM)		11,124,625	365,741	464.9	254.0	
20	Peak day (MDD)		14,832,833	487,655	619.8	338.6	
21	Peak hour peak day (PHPD)					592.6	
22	Instantaneous demand (ID)					658.6	
23							
24	Maximum meters				number	820	
25	ADD				gpd	254,132	
26					gpm	176.5	
27	ADPM				gpd	381,198	
28					gpm	264.7	
29	MDD				gpd	508,264	
30					gpm	353.0	
31	PHPD				gpm	617.7	
32	ID				gpm	681.9	
33							
34	Well site		1	2	3	4	Total
35	All sites operating						
36	ADD	gpm	44.1	44.1	44.1	44.1	176.5
37	ADPM	gpm	66.2	66.2	66.2	66.2	264.7
38	MDD	gpm	88.2	88.2	88.2	88.2	353.0
39	PHPD	gpm	154.4	154.4	154.4	154.4	617.7
40	ID	gpm	170.5	170.5	170.5	170.5	681.9
41	Site 4 inoperable						
42	ADD	gpm	58.8	58.8	58.8	0.0	176.5
43	ADPM	gpm	88.2	88.2	88.2	0.0	264.7
44	MDD	gpm	117.7	117.7	117.7	0.0	353.0
45	PHPD	gpm	205.9	205.9	205.9	0.0	617.7
46	ID	gpm	227.3	227.3	227.3	0.0	681.9
47							
48							
49							
50							

1	EAST SLOPE WATER COMPANY		
2	Well Site Improvements		
3	Well Site 1		
4	Discharge well into new storage tank to reduce well discharge and prolong well life.		
5	Add pressure pumps to meet required demand		
6	New storage tank volume	gal	50,000
7	Installed cost	\$/gal	\$2.00
8			\$100,000
9	ADPM - well discharge	gpm	35
10	Well discharge	gpm	54
11	New well pump	hp	10.0
12		use hp	10.0
13	Installed cost	\$/hp	\$1,000.00
14			\$10,000
15	Pressure pump peak discharge	gpm	227
16	Pressure	psig	68
17	Total pumps	number	2
18	Operating pumps	number	1
19	Pressure pump peak discharge	gpm each	227
20	Pressure pump	hp each	13.8
21		use hp each	15
22	Required pressure tank volume	gal	4,546
23	Existing pressure tank (leaking)	gal	3,000
24	Required additional volume	gal	5,000
25	Pressure pump installed cost	\$/hp	\$500.00
26			\$15,000
27	Pressure tank installed cost	\$/gal	\$5.00
28			\$25,000
29	Pressure pump and tank installed cost		\$40,000
30	VFD pressure pump installed cost	\$/hp	\$700.00
31			\$21,000
32	VFD savings		\$19,000
33	Note: Using VFD reduces cost and required PRV's.		
34	Eliminate pressure tank	\$/gal	\$1.00
35			\$3,000
36	Fencing	ls	\$2,000
37	Security lighting	ls	\$1,000
38	Generator	hp	40
39		\$/hp	\$200.00
40			\$8,000
41	Utility relocation (SSVEC)	ls	\$10,000
42	Total site cost		\$155,000
43			
44			
45			
46			
47			
48			
49			
50			

1	EAST SLOPE WATER COMPANY		
2	Well Site Improvements		
3	Well Site 2		
4	Replace collapsed well.		
5	Install new well pump.		
6	Repair existing storage tank.		
7	Eliminate pressure tank and add VFD to reduce PRV costs.		
8	Storage tank volume	gal	50,000
9	Storage tank capital repair	\$/gal	\$0.50
10			\$25,000
11	ADPM - well discharge	gpm	35
12	Well discharge	gpm	54
13	New well pump	hp	10.0
14		use hp	10.0
15	Installed cost	\$/hp	\$1,000.00
16			\$10,000
17	New well	casing diameter	inches 8
18		casing depth	ft 800
19		installed cost	\$/ft \$50.00
20			\$40,000
21	Pressure pump peak discharge	gpm	227
22	Pressure	psig	50
23	Total pumps	number	2
24	Operating pumps	number	1
25	Pressure pump peak discharge	gpm each	227
26	Pressure pump	hp each	10.1
27		use hp each	15
28	Required pressure tank volume	gal	4,546
29	Existing pressure tank	gal	5,000
30	Notes:		
31	Existing pumps and tank sufficient.		
32	Eliminate pressure tank and add VFD to reduce PRV costs.		
33	Eliminate pressure tank	\$/gal	\$1.00
34			\$5,000
35	VFD installed cost	\$/hp	\$200.00
36		hp	35
37			\$7,000
38	Fencing	ls	\$2,000
39	Security lighting	ls	\$1,000
40	Generator	hp	45
41		\$/hp	\$200.00
42			\$9,000
43	Utility relocation (SSVEC)	ls	\$10,000
44	Total site cost		\$109,000
45			
46			
47			
48			
49			
50			

1	EAST SLOPE WATER COMPANY		
2	Well Site Improvements		
3	Well Site 3		
4	Replace well pump to reduce sand and pump wear.		
5	Eliminate pressure tank and add VFD to reduce PRV costs.		
6	Storage tank volume	gal	200,000
7	ADPM - well discharge	gpm	139
8	Well discharge	gpm	30.0
9	New well pump	hp	4.7
10		use hp	5.0
11	Installed cost	\$/hp	\$1,000.00
12			\$5,000
13	Pressure pump peak discharge	gpm	227
14	Pressure	psig	50
15	Total pumps	number	2
16	Operating pumps	number	1
17	Pressure pump peak discharge	gpm each	227
18	Pressure pump	hp each	10.3
19		use hp each	15
20	Required pressure tank volume	gal	4,546
21	Existing pressure tank	gal	5,000
22	Notes:		
23	Existing pumps and tank sufficient.		
24	Eliminate pressure tank and add VFD to reduce PRV costs.		
25	Eliminate pressure tank	\$/gal	\$1.00
26			\$5,000
27	VFD installed cost	\$/hp	\$200.00
28		hp	30
29			\$6,000
30	Fencing	ls	\$2,000
31	Security lighting	ls	\$1,000
32	Generator	hp	35
33		\$/hp	\$200.00
34			\$7,000
35	Utility relocation	ls	\$0
36	Total site cost		\$26,000
37			
38			
39			
40			
41			
42			
43			
44			
45			
46			
47			
48			
49			
50			

1	EAST SLOPE WATER COMPANY		
2	Well Site Improvements		
3	Well Site 4		
4	Continue well discharge into distribution system.		
5	Add VFD to well pump motor to reduce PRV cost..		
6	Current well discharge	gpm	225
7	Current well motor	hp	75
8	Required pressure tank volume	gal	4,500
9	Existing pressure tank volume	gal	5,000
10	Eliminate pressure tank	\$/gal	\$1.00
11			\$5,000
12	VFD installed cost	\$/hp	\$200.00
13			\$15,000
14	Fencing	ls	\$2,000
15	Security lighting	ls	\$1,000
16	Generator	hp	75
17		\$/hp	\$200.00
18			\$15,000
19	Utility relocation	ls	\$10,000
20	Total site cost		\$48,000
21			
22			
23			
24	Total Estimated Cost		
25	Site 1		\$155,000
26	Site 2		\$109,000
27	Site 3		\$26,000
28	Site 4		\$48,000
29	Sub-total		\$338,000
30	Water main additions and replacements	lf	20,500
31		\$/lf	\$40.00
32			\$820,000
33	Sub-total		\$1,158,000
34	Administration and legal fees	2.00%	\$23,160
35	Engineering fees	8.00%	\$92,640
36	Survey, geotech, etc.	2.00%	\$23,160
37	Inspections and approvals	4.00%	\$46,320
38	Sub-total		\$1,343,280
39	Contingencies	20.00%	\$268,656
40	Total		\$1,611,936
41			
42			
43			
44			
45			
46			
47			
48			
49			
50			