Water Basis of Design Report

Sereno Canyon Phase 4

Update Parcel E

EXPIRES 12/31/24

prepared for:

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March 2022

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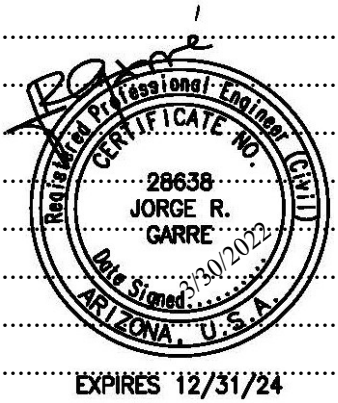

LIST OF EXHIBITS

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1.0 Introduction

This Water Basis of Design Report update has been prepared to support the Sereno Canyon Phase 4 Parcel E development.

1.1 Project Location

Parcel E Sereno Canyon is located in Section 11, Township 4 North, Range 5 East of the Gila and Salt River Baseline and Meridian, Maricopa County, Arizona. It is bound on the north by Sereno Canyon Phase 1 and Phase 3, west by 124th Street, south by Future Parcel F of Sereno Canyon Phase 4, on the East by Asteria Highlands development.
See Figure 1, Vicinity Map.

1.2 Property Description

The project is located within the City of Scottsdale, Arizona. Sereno Canyon Phase 4, Preliminary Plat (16-PP-2017) consists of 268 residential units and 29 Resort Casitas, totaling 297 units. Development of Parcel E as proposed will consist of six paired Villas and four estate lots. Therefore, Phase 4 will contain 261 residential units and 25 Resort Casitas, totaling 286. The property is located on rolling terrain. The property slope to the north and to the east. The site is within the elevation range from 2740 to 2826.

1.3 Purpose

This report updates the Water Basis of Design Report, Sereno Canyon Ph-4 (6082-19-12) approved by City of Scottsdale in March 2020 to support re-lotting of Sereno Canyon Phase 4 Parcel E property. This report provides design calculations to determine the amount of water this project is expected to use both during Average Day, Maximum Day, Peak Hour and Maximum Day with Fire Flow. This property is located within Quarter Section map 45-58. Water Basis of Design Report, Sereno Canyon Ph-4 dated March 2020 and Water Master Plan is used as the basis for the proposed this update. This report was prepared in accordance with the City of Scottsdale Design Standards & Policies Manual, 2018 (Reference 1).

2.0 Description of Existing Conditions

2.1 On-Site Current Conditions

The Phase 4 consists of desert land and has been rezoned as R-4R (ESL), for development of Parcels A-G and a Resort Club House and 25 Resort Casitas. The development is to be supplied from existing City water system adjacent to the property. Based on Figure 6.1-3, Pressure Zone Map of the City of Scottsdale Design Standards and Policies Manual the project is located in pressure Zone 13 and a small portion in pressure Zone 14. The majority of the property is within pressure Zone 13 with the remaining site within pressure Zone 14. *See Figure 2- Water Distribution Plan*.

2.2 Site 143 Service Area Water Source

The existing 3.0 million gallon Zone 12 (T-143) reservoir and Zone 13 BPS locates near 114th Street and Dixeleta Drive (Site 143) will serve as the water source for the service area. Zone 13 lower elevation is 2,700 and upper elevation is 2,830, range 130 feet. Hydraulic grade line for Zone 13 is 2,965 feet. The existing booster station (Site 145) will be required to be in operation for this development to be serviced by the city. See Appendix A for analysis results.

3.0 Proposed Water Distribution Plan

3.1 Design Criteria

As per the City of Scottsdale this Basis of Water Design Report was prepared according to Design Standards & Policies Manual, 2018. The following is a summary of the design criteria upon which this study is based.

Basis of Water Design

- The project is located within pressure Zones 13 and 14 according to figure 6.1-3 pressure zone map
- The total number of dwelling units = 261
- The total number of rooms for the Resort = 25
- Resort Club Building of 13,099 s.f.
- Average day water demand calculations were analyzing using Figure 6.1-2 Average Day Water Demands in Gallons Per Day.
- Residual pressure between 50psi and 120psi at the highest finished floor level.
- Minimum of 30 psi under design fire flow requirements.

3.2 Proposed Condition

Proposed Changes consist of re-lotting Parcel E to eliminate the cul-de-sac from 124th Street in the southern portion of Parcel E and 10 paired along this cul-de-sac. Six paired Villa will be located on the northerly side of 125th Street east of 124th Street. The existing four Estate Lots on the eastern side of 125th Street will be re-lotted along the east side of 125th Street. An 8 inch water line will be extended from the existing 12" line in 125th Street into a new cul-de-sac serving the 6 new paired Villas. The 4 Estate Lots will be served from the existing 12" water line in 125th Street.

Fire protection for the development shall follow the Design Standards & Policies Manual, 2018 under section 6-1.500. Fire hydrants are to be used within the subdivision for fire protection. Fire sprinklers will be required for all dwelling units.

Domestic flow was calculated as follows:

Total residential units 3-7.9 du/ac = 261 @ 248.2 gallon/unit = 64,731 gallons per day
Total residential units <2 du/ac = 4 @ 486 gallons/unit = 1944 gallons per day
Total Resort Rooms = 25 @ 446.3 gallon/room = 11,158 gallons per day
Total Resort Spa = 13099 sf @ 1.3 = 17,029 gallons per day
Total Average Day Flow (Phase 4) = 65.3 gpm
Total Average Day Flow (Phase 1-3) = 32.8 gpm
Total Model Domestic Flows: Includes Phases 1-4 onsite and offsite demands.
Total average day Flow = 197.8 gpm
Maximum day Demand = 2.0 x 197.8 = 395.6 gpm
Peak hour Flow = 3.5 x 197.8 = 692.4 gpm

4.0 Existing Basis of Design Reports

The Design Concept Report for Sereno Canyon, Zone 13 Pump Station at Site 145, Scottsdale, Arizona prepared by Wood Patel, dated December 20, 2005, WP#052484. The Design Concept report was used to determine the existing conditions for the water area water system. Also, the Sereno Canyon Amended Master Water Report, prepared by LVA, dated February 18, 2014 was used to aid in the development of the water model.

5.0 Water Model

The system was modeled using the "EPANET" software and meet the design criteria noted above in section 3.1. The existing Booster Station Site 145 pump curves were supplied by Scott Anderson from the City of Scottsdale and were used to perform the water modeling. The elevation of the existing booster station is 2719.9. See Appendix A for the pump curves used for the modeling of the development. There are four pumps used at the booster site 145. Three 50 horsepower pumps are utilized for the average day, maximum day and the peak hour flows. The fourth pump is a 150 horsepower fire flow pump. During the Average Day demands, pump 1 is used. The remaining pumps are not used. Because of the horsepower size of pump 1, the pressures at the lower elevations of pressure zone 12 are above the 120 psi limit. An individual pressure reducing valve will be installed on all units within the development. The pumps at the booster station have variable frequency drives (VFD) set at 103 psi to control the pressures in zones 14, 13 and zone 12. "EPANET" modeling results indicate it will be necessary to adjust pressure controls on (VFD) to 107 psi to achieve a zone 13 HGL of 2965. Individual dwelling unit jockey pump will be provided for dwelling units and resort casitas that do not meet the required pressures. Water model indicates units with a lowest floor elevation over 2849.5 will require a jockey pump to meet minimum pressure of 50psi.

See Appendix A-E for analysis results. The booster Site 145 is specifically designed to provide the area and the Sereno Canyon development with required pressures and flows. Without this booster station, the development would not be able to meet the city's requirements for pressure and flow.

The following summarizes the modeling parameters used:

- Hazen Williams 'C' Coefficient: 130
- Water Source for Zone 13: Site T-143
- Static Modeled Hydraulic Grade Line, Zone 13: 2965 feet
- Fire Flow Demand Residential 1000 gpm
- Fire Flow Demand Resort 1500 gpm
- Per Fire Flow Pump curve at 20 PSI 2800+ gpm

The Average Day hydraulic model analysis is in Appendix B. The Maximum Day hydraulic model analysis is in Appendix C. The Peak Hour hydraulic model analysis is in Appendix D. The Maximum Day plus fire flow hydraulic model analysis was completed for each junction node nearest fire hydrants adjacent lots within Parcel E, results are found in Appendix E. Each Input file will list the junction node being analyzed for fire flow. Table 1 summarizes the junction nodes and pipes with critical parameters that achieve compliance with the design criteria in Section 3.1.

Scenario	Flow (gpm)	Pressure (psig)				Maximum Velocity (fps)	Pipe ID
		Minimum	Node	Maximum	Node		
Average Day	197.83	46.72	J-45	123.0	J-122	0.61	PRV
Maximum Day	395.65	46.59	J-45	122.9	J-122	1.23	PRV
Peak Hour	692.39	46.25	J-45	122.65	J-122	2.15	PRV
Max Day + Fire Flow (1,000 gpm)	1395.65	45.04	J-45	NA	NA	NA	NA

Table 1-Results of EPA net Hydraulic Analysis

6.0 Conclusions

- The water system is to be designed, operation and pressures will be in accordance with the City of Scottsdale Design Standards and Policies.
- All dwelling units are to use fire sprinkler systems.
- The booster station site 145 is required to be in operation for the development.

7.0 References

1. City of Scottsdale Design Standards & Policies Manual, *2018.*
2. *Design Concept Report for Sereno Canyon Zone 13 Pump Station at Site 145, prepared by Wood Patel, dated 12-20-05. WP#052484.*
3. *Sereno Canyon Amended Master Water Report. Prepared by LVA, dated February 18, 2014.*

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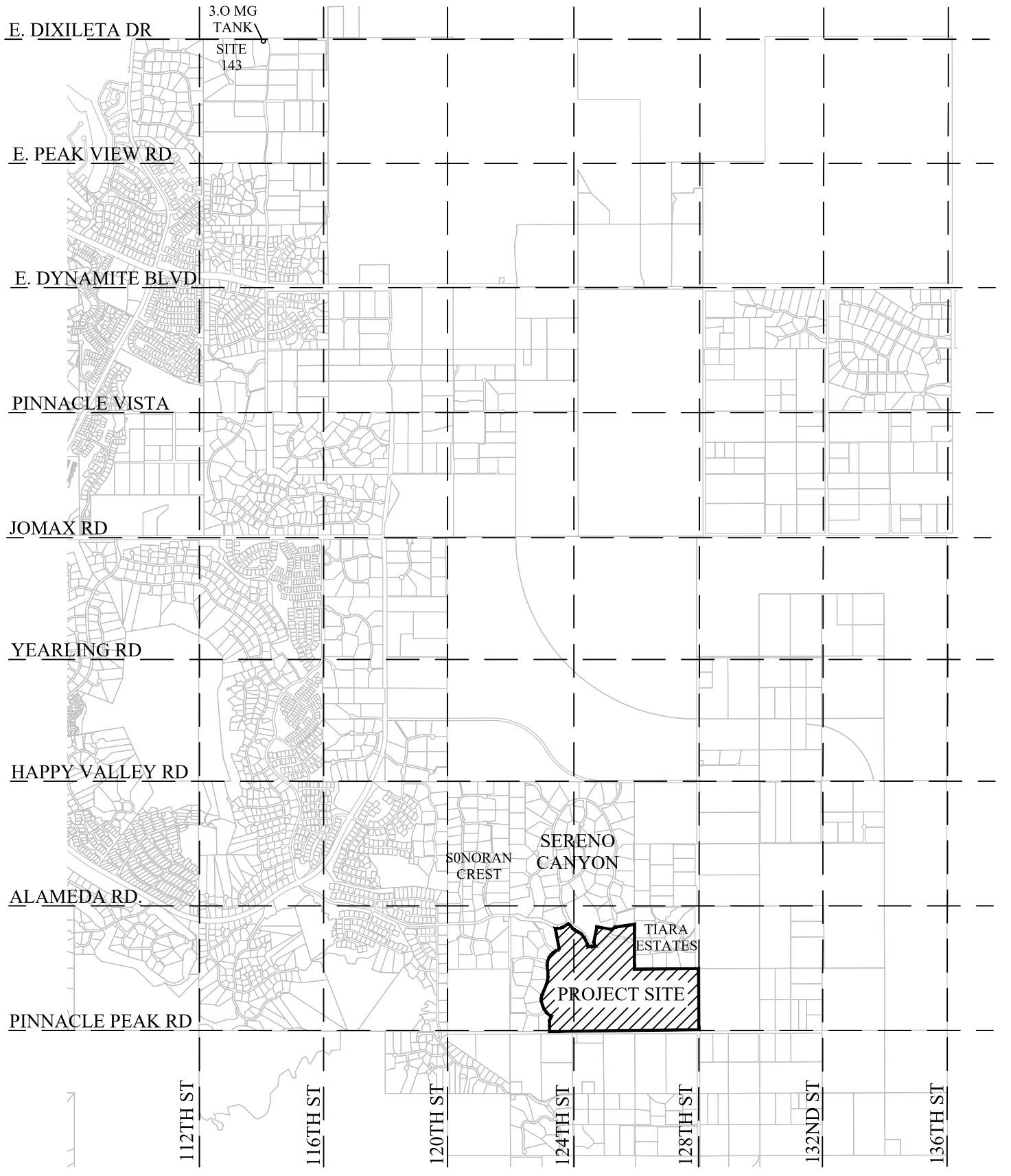
Figure 1: Vicinity Map



SERENO CANYON
PHASE 4
SCOTTSDALE, AZ

VICINITY MAP
FIGURE 1

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Figure 2: Water Distribution Map

SCALE:1=200'

PHASE 1

PHASE 3

ZONE 12
2700

ZONE 13

PARCEL E
255

E. RANCH GATE RD

E. CHAMA RD

E. WHISPERING WIND DR.

E. DESERT VISTA DR

E. ALAMEDA RD

N. 120TH PLACE

N. 121TH PLACE

N. 124TH PL

N. 125TH ST.

N. 128TH ST.

SITE 145

PRV-1
PUMP-1
PUMP-2
PUMP-3
R-1
PUMP-4

MATCH LINE

SEE SHEET 2 OF 2

NOTE

1. LOT NUMBERING ON THIS MAP IS TO AID IN FLOW DEMAND CALCULATIONS. THEY DO NOT MATCH THE PRELIMINARY PLAT OR FINAL PLAT LOT NUMBERING.
2. OFFSITE JUNCTION ELEVATIONS WERE DETERMINED FROM C.O.S. QUARTER SECTION MAPS.

SITE DATA

PHASE	UNITS
Phase 1	57
Phase 2	22
Phase 3	18
Phase 4	261
Resort	25
Offsite	296
TOTAL	679

REGISTERED PROFESSIONAL ENGINEER (CIVIL)
CERTIFICATE NO.
28638
JORGE R. GARRE
Date Signed 3/22/2022
ARIZONA, U.S.A.

EXPIRES 12/31/24

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SERENO CANYON PHASE 4

FIGURE 2
WATER DISTRIBUTION PLAN

Designed by	Drawn by	
Date 1/5/2022	Job No.	Sheet 1 of 2

PHASE 1

MATCH LINE
SEE SHEET 1 OF 2

PHASE 2

PHASE 4

PARCEL A
PARCEL B1
PARCEL B2
PARCEL C
PARCEL D
PARCEL E
PARCEL F
PARCEL G
PARCEL H
PARCEL I
PARCEL J

CLUB/RESORT
FF 2824.0
RESORT

ASTERIA HIGHLANDS

E. MARIPOSA GRANDE DR
E. TROON VISTA DR
E. ALAMEDA RD.
N. 122ND ST
N. 124TH ST
N. 125TH ST
128TH STREET

PUMP-41
R-1

J-1 J-2 J-3 J-4 J-5 J-6 J-7 J-8 J-10 J-11 J-12 J-13 J-14 J-15 J-16 J-17 J-18 J-19 J-20 J-21 J-22 J-24 J-25 J-27 J-28 J-29 J-30 J-31 J-32 J-33 J-34 J-35 J-36 J-37 J-38 J-39 J-40 J-41 J-42 J-44 J-45 J-103 J-104 J-123 J-304 J-305

P-1 P-2 P-3 P-4 P-5 P-6 P-7 P-8 P-9 P-10 P-11 P-12 P-13 P-14 P-15 P-16 P-17 P-19 P-20 P-22 P-23 P-24 P-25 P-26 P-27 P-28 P-29 P-30 P-31 P-32 P-33 P-34 P-36 P-37 P-48 P-53 P-54 P-56 P-57 P-79 P-80 P-81 P-82 P-84 P-92 P-93 P-94 P-95 P-96 P-97 P-98

ZONE 14

ZONE 13, 2830

SCALE:1=120'

EXPIRES 12/31/24

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SERENO CANYON PHASE 4

FIGURE 2
WATER DISTRIBUTION PLAN

Designed by	Drawn by	
Date 3/22/2022	Job No.	Sheet 2 of 2

Appendix A

Table 1. - Domestic Water Demand Analysis

Project: Sereno Canyon Phase 4
Location: Scottsdale AZ

Water Node	Elevation	Land Use	Phase	Total Units	ADD/UNIT (GPD)	Average Day Demand (GPD)	Average Day Demand (GPM)	Maximum Day Demand (GPD)	Maximum Day Demand (GPM)	Peak Hr. Demand (GPD)	Peak Hr. Demand (GPM)	Minimum PSI at Fire Flow
J-1	2777	Residential	4	0	248.2	0.00	0.00	0.00	0.00	0.00	0.00	79.77
J-2	2779	Residential	4	0	248.2	0.00	0.00	0.00	0.00	0.00	0.00	78.87
J-3	2794.6	Residential	4	0	248.2	0.00	0.00	0.00	0.00	0.00	0.00	72.09
J-4	2792.5	Residential	4	5	248.2	1241.00	0.86	2482.00	1.72	4,343.50	3.02	72.99
J-5	2789	Residential	4	8	248.2	1985.60	1.38	3971.20	2.76	6,949.60	4.83	74.50
J-6	2788	Residential	4	6	248.2	1489.20	1.03	2978.40	2.07	5,212.20	3.62	74.93
J-7	2766	Residential	4	10	248.2	2482.00	1.72	4964.00	3.45	8,687.00	6.03	84.76
J-8	2756	Residential	4	12	248.2	2978.40	2.07	5956.80	4.14	10,424.40	7.24	88.79
J-9	2747	Residential	4	0	248.2	0.00	0.00	0.00	0.00	0.00	0.00	92.86
J-10	2731	Residential	offsite	71	485.6	34477.60	23.94	68955.20	47.89	120,671.60	83.80	99.61
J-11	2767	Residential	4	10	248.2	2482.00	1.72	4964.00	3.45	8,687.00	6.03	84.02
J-12	2781	Residential	offsite	74	485.6	35934.40	24.95	71868.80	49.91	125,770.40	87.34	77.95
J-13	2742	Residential	4	12	248.2	2978.40	2.07	5956.80	4.14	10,424.40	7.24	94.86
J-14	2783	Residential	4	18	248.2	4467.60	3.10	8935.20	6.21	15,636.60	10.86	77.09
J-15	2807.5	Residential	4	10	248.2	2482.00	1.72	4964.00	3.45	8,687.00	6.03	66.48
J-16	2818	Residential	4	6	248.2	1489.20	1.03	2978.40	2.07	5,212.20	3.62	61.93
J-17	2759	Residential	4	9	248.2	2233.80	1.55	4467.60	3.10	7,818.30	5.43	87.50
J-18	2773	Residential	4	5	248.2	1241.00	0.86	2482.00	1.72	4,343.50	3.02	81.44
J-19	2807	Residential	4	10	248.2	2482.00	1.72	4964.00	3.45	8,687.00	6.03	66.71
J-20	2824.5	Resort		0	446.3	0.00	0.00	0.00	0.00	0.00	0.00	61.08
J-21	2824.5	Resort		0	446.3	0.00	0.00	0.00	0.00	0.00	0.00	58.48
J-22	2826	Resort		3	446.3	1338.90	0.93	2677.80	1.86	4,686.15	3.25	56.31
J-23	2831	Resort		8	446.3	3570.40	2.48	7140.80	4.96	12,496.40	8.68	55.01
J-24	2831	Resort		8	446.3	3570.40	2.48	7140.80	4.96	12,496.40	8.68	56.95
J-25	2835.5	Residential	4	16	248.2	3971.20	2.76	7942.40	5.52	13,899.20	9.65	50.68
J-27	2788	Residential	4	6	248.2	1489.20	1.03	2978.40	2.07	5,212.20	3.62	75.30
J-28	2761	Residential	4	10	248.2	2482.00	1.72	4964.00	3.45	8,687.00	6.03	87.00
J-29	2780.5	Residential	4	8	248.2	1985.60	1.38	3971.20	2.76	6,949.60	4.83	78.67
J-30	2770.5	Residential	2	1	486	486.00	0.34	972.00	0.68	1,701.00	1.18	83.26
J-31	2776	Residential	2	1	486	486.00	0.34	972.00	0.68	1,701.00	1.18	81.01
J-32	2791	Residential	2	2	486	972.00	0.68	1944.00	1.35	3,402.00	2.36	74.53
J-33	2803	Residential	4	10	248.2	2482.00	1.72	4964.00	3.45	8,687.00	6.03	69.33
J-34	2808	Residential	2	2	486	972.00	0.68	1944.00	1.35	3,402.00	2.36	67.17
J-35	2821	Residential	2	2	486	972.00	0.68	1944.00	1.35	3,402.00	2.36	61.55
J-36	2827	Residential	4	14	248.2	3474.80	2.41	6949.60	4.83	12,161.80	8.45	58.64
J-37	2835	Residential	4	3	248.2	744.60	0.52	1489.20	1.03	2,606.10	1.81	49.32
J-38	2809	Residential	4	16	248.2	3971.20	2.76	7942.40	5.52	13,899.20	9.65	66.46
J-39	2794	Residential	4	13	248.2	3226.60	2.24	6453.20	4.48	11,293.10	7.84	72.91
J-40	2794.5	Residential	4	4	248.2	992.80	0.69	1985.60	1.38	3,474.80	2.41	72.69
J-41	2790.2	Residential	4	18	248.2	4467.60	3.10	8935.20	6.21	15,636.60	10.86	73.99
J-42	2769	Residential	4	12	248.2	2978.40	2.07	5956.80	4.14	10,424.40	7.24	86.96
J-43	2810	Resort		0	446.3	0.00	0.00	0.00	0.00	0.00	0.00	65.41
J-44	2824.5	Resort Bldg		13099	1.3	17028.70	11.83	34057.40	23.65	59,600.45	41.39	59.99
J-45	2826	Resort		6	446.3	2677.80	1.86	5355.60	3.72	9,372.30	6.51	45.04
J-100	2719	Residential	1	0	486	0.00	0.00	0.00	0.00	0.00	0.00	106.33
J-101	2733.5	Residential	2	5	486	2430.00	1.69	4860.00	3.38	8,505.00	5.91	99.61

Table 1. - Domestic Water Demand Analysis

Project: Sereno Canyon Phase 4
Location: Scottsdale AZ

Water Node	Elevation	Land Use	Phase	Total Units	ADD/UNIT (GPD)	Average Day Demand (GPD)	Average Day Demand (GPM)	Maximum Day Demand (GPD)	Maximum Day Demand (GPM)	Peak Hr. Demand (GPD)	Peak Hr. Demand (GPM)	Minimum PSI at Fire Flow
J-102	2765	Residential	1	4	486	1944.00	1.35	3888.00	2.70	6,804.00	4.73	85.42
J-103	2747	Residential	2	4	486	1944.00	1.35	3888.00	2.70	6,804.00	4.73	93.75
J-104	2802	Residential	2	3	486	1458.00	1.01	2916.00	2.03	5,103.00	3.54	69.84
J-105	2747	Residential	1	5	486	2430.00	1.69	4860.00	3.38	8,505.00	5.91	93.22
J-106	2729	Residential	1	5	486	2430.00	1.69	4860.00	3.38	8,505.00	5.91	101.02
J-107	2736	Residential	1	7	486	3402.00	2.36	6804.00	4.73	11,907.00	8.27	97.99
J-108	2748	Residential	1	3	486	1458.00	1.01	2916.00	2.03	5,103.00	3.54	92.79
J-109	2750	Residential	1	3	486	1458.00	1.01	2916.00	2.03	5,103.00	3.54	91.92
J-110	2747	Residential	1	6	486	2916.00	2.03	5832.00	4.05	10,206.00	7.09	93.22
J-111	2729	Residential	1	6	486	2916.00	2.03	5832.00	4.05	10,206.00	7.09	101.02
J-112	2709	Residential	1	2	486	972.00	0.68	1944.00	1.35	3,402.00	2.36	109.60
J-113	2711	Residential	1	2	486	972.00	0.68	1944.00	1.35	3,402.00	2.36	108.73
J-114	2706	Residential	1	2	486	972.00	0.68	1944.00	1.35	3,402.00	2.36	110.86
J-115	2703	Residential	1	2	486	972.00	0.68	1944.00	1.35	3,402.00	2.36	110.82
J-116	2704	Residential	1	1	486	486.00	0.34	972.00	0.68	1,701.00	1.18	111.69
J-117	2713	Residential	1	4	486	1944.00	1.35	3888.00	2.70	6,804.00	4.73	107.82
J-118	2702	Residential	1	2	486	972.00	0.68	1944.00	1.35	3,402.00	2.36	112.52
J-119	2693	Residential	1	0	486	0.00	0.00	0.00	0.00	0.00	0.00	115.56
J-120	2683	Residential	1	3	486	1458.00	1.01	2916.00	2.03	5,103.00	3.54	118.29
J-121	2683	Residential	1	0	486	0.00	0.00	0.00	0.00	0.00	0.00	118.38
J-122	2677	Residential	offsite	68	486	33048.00	22.95	66096.00	45.90	115,668.00	80.33	121.63
J-123	2784	Residential	2	2	486	972.00	0.68	1944.00	1.35	3,402.00	2.36	77.57
J-200	2709	Residential	offsite	11	486	5346.00	3.71	10692.00	7.43	18,711.00	12.99	110.67
J-201	2685	Residential	offsite	3	486	1458.00	1.01	2916.00	2.03	5,103.00	3.54	118.79
J-202	2728	Residential	offsite	15	486	7290.00	5.06	14580.00	10.13	25,515.00	17.72	102.32
J-203	2719	Residential	offsite	19	486	9234.00	6.41	18468.00	12.83	32,319.00	22.44	105.91
J-204	2701	Residential	offsite	4	486	1944.00	1.35	3888.00	2.70	6,804.00	4.73	111.65
J-205	2720	Residential	offsite	4	486	1944.00	1.35	3888.00	2.70	6,804.00	4.73	105.15
J-206	2685	Residential	offsite	1	486	486.00	0.34	972.00	0.68	1,701.00	1.18	118.43
J-207	2735	Residential	offsite	4	486	1944.00	1.35	3888.00	2.70	6,804.00	4.73	98.46
J-208	2729	Residential	offsite	1	486	486.00	0.34	972.00	0.68	1,701.00	1.18	101.06
J-209	2686	Residential	offsite	1	486	486.00	0.34	972.00	0.68	1,701.00	1.18	117.99
J-210	2681	Residential	offsite	3	486	1458.00	1.01	2916.00	2.03	5,103.00	3.54	121.45
J-211	2727	Residential	offsite	0	486	0.00	0.00	0.00	0.00	0.00	0.00	102.53
J-300	2727	Residential	3	11	486	5346.00	3.71	10692.00	7.43	18,711.00	12.99	101.31
J-301	2729	Residential	3	3	486	1458.00	1.01	2916.00	2.03	5,103.00	3.54	100.44
J-302	2745	Residential	3	4	486	1944.00	1.35	3888.00	2.70	6,804.00	4.73	93.34
J-303	2764	Residential	offsite	17	486	8262.00	5.74	16524.00	11.48	28,917.00	20.08	95.51
J-304	2767	Residential	4	4	486	1944.00	1.35	3888.00	2.70	6,804.00	4.73	83.79
J-305	2759	Residential	4	6	248.2	1489.20	1.03	2978.40	2.07	5,212.20	3.62	82.49
TOTAL				679		284,857.60	197.82	569,715.20	395.64	997,001.60	692.36	

Table 1. - Domestic Water Demand Analysis

Project: Sereno Canyon Phase 4
Location: Scottsdale AZ

Water Node	Elevation	Land Use	Phase	Total Units	ADD/UNIT (GPD)	Average Day Demand (GPD)	Average Day Demand (GPM)	Maximum Day Demand (GPD)	Maximum Day Demand (GPM)	Peak Hr. Demand (GPD)	Peak Hr. Demand (GPM)	Minimum PSI at Fire Flow
REV 143	2965	3.0 mg tank										
S145	2719.9	PUMP SITE										
PUMP1	2719.9											
PUMP2	2719.9											
PUMP3	2719.9											
PUMP4	2719.9											
						Ave. Day (GPD)	Ave. Day (GPM)	Max. Day (GPD)	Max. Day (GPM)	Peak Hr. (GPD)	Peak Hr. (GPM)	
Phase 1	57					27,702	19.24	55,404	38.48	96,957	67.33	
Phase 2	22					10,692	7.43	21,384	14.85	37,422	25.99	
Phase 3	18					8,748	6.08	17,496	12.15	30,618	21.26	
Phase 4	261					65,731	45.65	131,463	91.29	230,060	159.76	
Resort	25					28,186	19.57	56,372	39.15	98,652	68.51	
Offsite	296					143,798	99.86	287,596	199.72	503,293	349.51	
	679					284,858	197.82	569,715	395.64	997,002	692.36	

Average Daily Water Use (indoor and outdoor), <2 DU/acre = 486 gpd/DU
Average Daily Water Use (indoor and outdoor), <3-7.9 DU/acre = 248.2 gpd/DU
Maximum Day Demand Multiplier = 2.0 x Avg. Day
Peak Hour Demand Multiplier = 3.5 x Avg. Day
Residential Fire Flow Demand = 1000 gpm
Resort Fire Flow Demand = 1500 gpm
Resort Building flow demand = building SF x 1.3

S-145 P 1-3

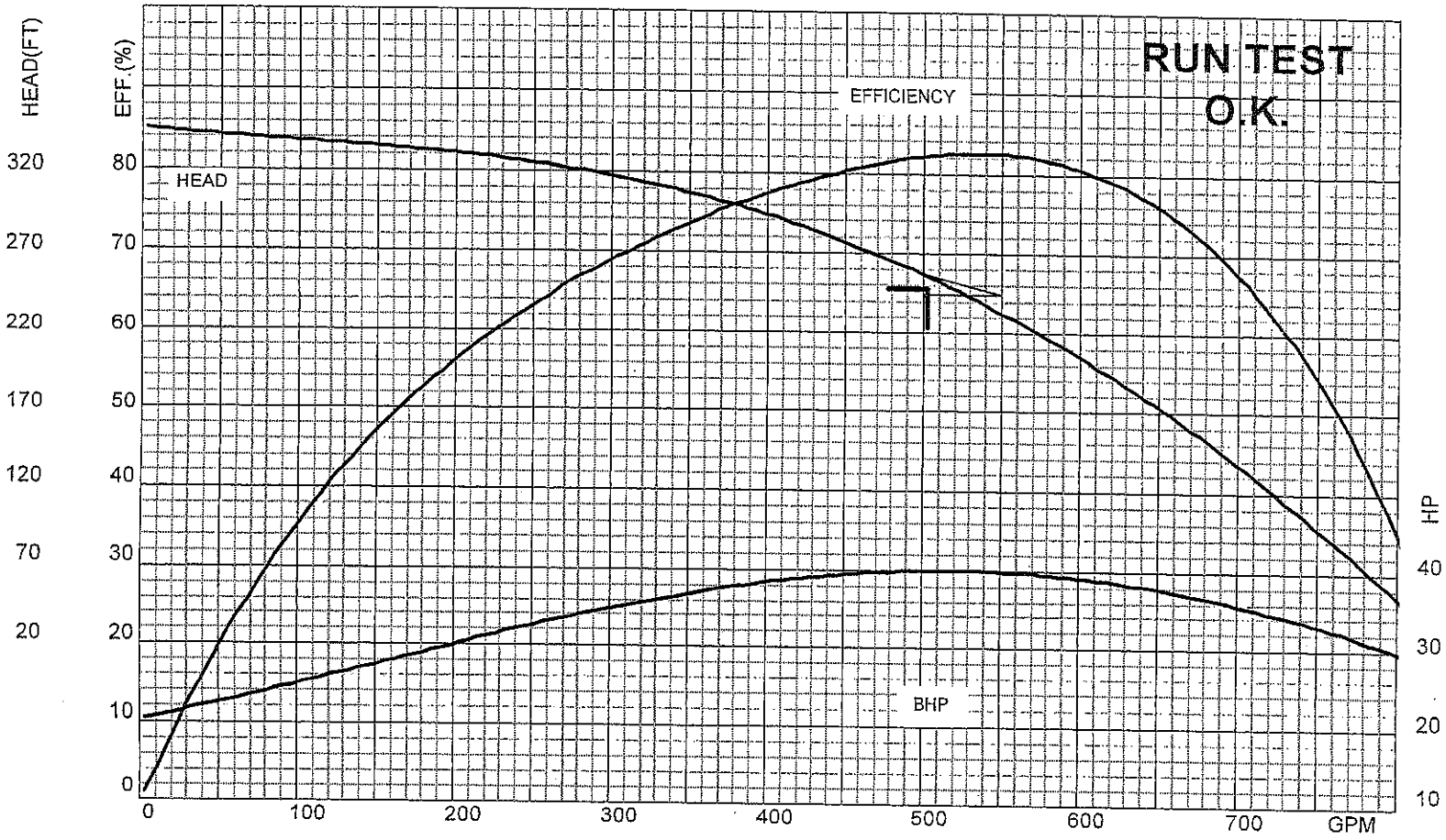
HYDRAULIC PERFORMANCE WARRANTY
GUARANTEED AT DESIGNED POINT ONLY AND IS CONTINGENT ON:
1.PROPER NPSH OR SUBMERGENCE AVAILABLE.
2.PROPER AND ADEQUATE FLOW TO PUMP SUCTION.
3.FLUID FREE OF GAS, AIR, AND ABRASIVE MATTER.
4.IMPELLER WITH PROPER LATERAL ADJUSTMENT (VERTICAL PUMP ONLY).

PEERLESS PUMPS

TEST SITE: Lubbock TX
BY: TH
DATE: 9/15/2008
CUSTOMER: P.E.C. PUMP

PUMP:	10MA
IMP. NO.:	T84363
SHOP ORDER:	747272B-2
STAGES:	8
IMP. DIA1:	1 @ 6.75 X 6.75
IMP. DIA2:	2-8 @ 6.88 X 6.88
IMP. DIA3:	0

Rated GPM:	500.00
Rated Hd(ft):	245.00
Rated RPM:	1782
Rated HP	36.97
Rated Eff %	81.40
Spec. Gravity:	1.000



CERTIFIED BOWL PERFORMANCE TEST CURVE

S-145

P-5

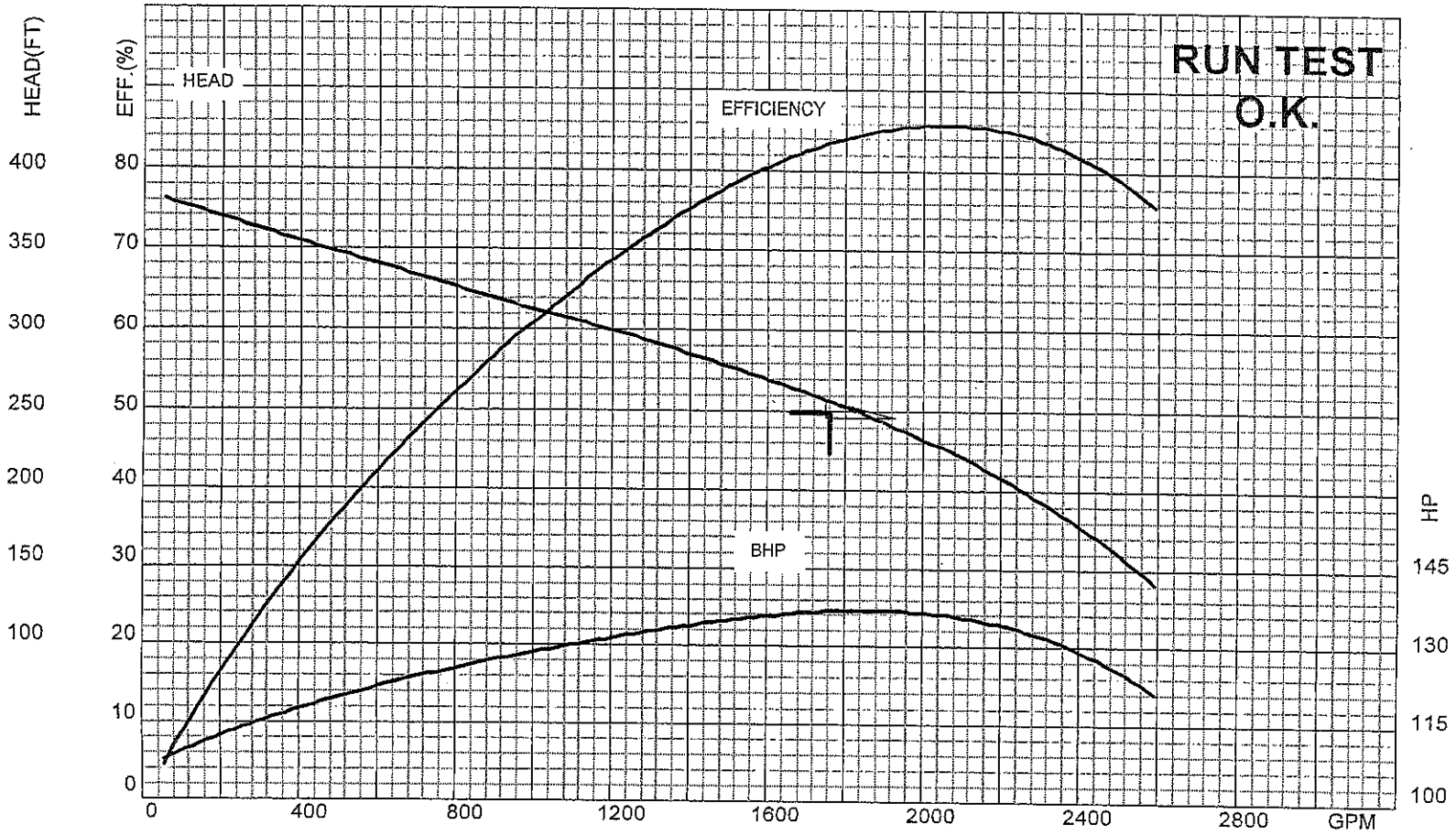
HYDRAULIC PERFORMANCE WARRANTY
GUARANTEED AT DESIGNED POINT ONLY AND IS CONTINGENT ON:
1.PROPER NPSH OR SUBMERGENCE AVAILABLE.
2.PROPER AND ADEQUATE FLOW TO PUMP SUCTION.
3.FLUID FREE OF GAS, AIR, AND ABRASIVE MATTER.
4.IMPELLER WITH PROPER LATERAL ADJUSTMENT (VERTICAL PUMP ONLY).

PEERLESS PUMPS

TEST SITE: Lubbock TX
BY: TH
DATE: 9/18/2008
CUSTOMER: P.E.C. PUMP

PUMP:	M14HXB
IMP. NO.:	V4399
SHOP ORDER:	747310A-1
STAGES:	4
IMP. DIA1:	1-3 @ 9.16 X 10.44
IMP. DIA2:	4 @8.66 X 9.94
IMP. DIA3:	0

Rated GPM:	1750.00
Rated Hd(ft):	245.00
Rated RPM:	1782
Rated HP	134.90
Rated Eff %	82.30
Spec. Gravity:	1.000



CERTIFIED BOWL PERFORMANCE TEST CURVE

Site #145

Address 12199 E. Alameda Rd
Elevation 2719.9 Ft.
Service Region
Station Number BPS-145
RTU Load last modified 01/14/2014

Booster Information

Firm station =
Total station =

Pump Name	Station Nam	Type	HP	Flow Hig	Schematic II	HydId	Status	Amps
BPS-145-P01	BPS-145	VS	50	500	BPS-145-1	BPS-145-1	Inactive	195
BPS-145-P02	BPS-145	VS	50	500	BPS-145-2	BPS-145-2	Inactive	195
BPS-145-P03	BPS-145	VS	50	500	BPS-145-3	BPS-145-3	Inactive	195
BPS-145-P04	BPS-145	VS	150	1750	BPS-145-4	BPS-145-4	Inactive	N/A

Generator 594 KVA, 475 KW, 714 Amps, 480 Volts, 636 HP Engine, # of pumps generator can run is N/A. But the 50 HP pumps are 195 Amps each.
Hydro pneumatic tank and air compressor.

Utility: APS
Meter # P67226
Acct # 9203S72285

Appendix B

Average Day

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**********************************************************************
*                            E P A N E T                             *
*                   Hydraulic and Water Quality                      *
*                   Analysis for Pipe Networks                       *
*                          Version 2.2                               *
**********************************************************************
```

Input File: **Sereno Canyon Phase 4 Average Day Revised 3-22.net**

Sereno Canyon

Link - Node Table:

Link ID	Start Node	End Node	Length ft	Diameter in
P-1	J-33	J-36	740	8
P-2	J-36	J-37	243	8
P-3	J-42	J-38	957.7	8
P-4	J-38	J-39	400	8
P-5	J-39	J-29	841.9	8
P-6	J-39	J-40	20	8
P-7	J-28	J-27	505.5	8
P-8	J-2	J-3	452.1	12
P-9	J-3	J-4	195.3	12
P-10	J-4	J-41	148.7	12
P-11	J-14	J-11	890.1	8
P-12	J-12	J-11	340.4	12
P-13	J-11	J-9	458.8	12
P-14	J-3	J-19	223.6	12
P-16	J-21	J-22	104	8
P-17	J-22	J-24	156	8
P-20	J-5	J-17	587.4	8
P-22	J-18	J-4	378.4	8
P-23	J-7	J-13	706	8
P-24	J-8	J-14	610.4	8
P-25	J-14	J-15	540.4	8
P-26	J-15	J-16	224.8	8
P-27	J-22	J-23	128.3	8
P-28	J-21	J-41	699	8
P-29	J-41	J-5	172.5	12
P-30	J-5	J-6	197.8	12
P-31	J-6	J-7	466.8	12
P-32	J-7	J-8	339.3	12
P-33	J-8	J-9	384	12
P-34	J-9	J-10	522	12
P-36	J-2	J-1	557.4	12
P-37	J-1	J-102	754.8	12
P-38	J-102	J-105	819.5	12
P-39	J-105	J-107	511.2	12
P-40	J-107	J-111	1032	12
P-41	J-111	J-112	449.2	8
P-42	J-112	J-114	204.1	8

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length ft	Diameter in
P-43	J-114	J-115	198.3	8
P-44	J-115	J-118	154.9	8
P-45	J-118	J-300	1588	8
P-46	J-300	J-302	757	8
P-47	J-302	J-304	618	12
P-48	J-304	J-1	358	12
P-49	J-1	J-27	271.1	8
P-50	J-27	J-29	112.3	8
P-51	J-29	J-30	411.1	8
P-52	J-30	J-42	43.31	8
P-53	J-42	J-31	191.5	8
P-54	J-35	J-36	438.3	8
P-55	J-106	J-105	800.8	8
P-56	J-33	J-123	375.5	8
P-57	J-100	J-103	951.8	8
P-58	J-104	J-35	775.1	8
P-59	J-110	J-108	595.1	8
P-60	J-108	J-109	353.1	8
P-62	J-100	J-101	464.5	12
P-63	J-111	J-207	1424	12
P-64	J-207	J-208	997.1	8
P-65	J-207	J-206	1045	12
P-66	J-206	J-204	317.1	8
P-67	J-205	J-204	465.7	8
P-68	J-204	J-203	643.7	8
P-69	J-200	J-211	2106	8
P-70	J-211	J-203	536.3	8
P-71	J-203	J-201	2125	8
P-73	J-200	J-201	667.2	8
P-74	J-201	J-202	1059	8
P-75	J-120	J-119	186.5	8
P-76	J-119	J-121	389	8
P-77	J-210	J-209	1327	12
P-78	J-209	J-206	257.6	12
P-79	J-13	J-8	343	8
P-80	J-6	J-15	462	12
P-82	J-19	J-25	884	8
P-83	J-101	J-102	845.5	12
P-84	J-101	J-42	913.6	8
P-85	J-108	J-107	309.2	8
P-86	J-113	J-112	191.9	8
P-87	J-117	J-114	573.8	8
P-88	J-116	J-115	172.9	8
P-89	J-119	J-118	421	8
P-90	J-121	J-210	4137	8
P-91	J-121	J-122	131.6	8
P-92	J-32	J-33	221	8

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length ft	Diameter in	
P-93	J-31	J-32	387	8	
P-94	J-103	J-31	1000	8	
P-95	J-33	J-34	245	8	
P-96	J-34	J-35	223.9	8	
P-97	J-103	J-104	1106	8	
P-98	J-305	J-304	199	8	
P-99	J-303	J-302	412.7	12	
P-100	J-301	J-300	178.5	8	
P-101	R-1	J-400	10	24	
P-81	J-23	J-45	1000	8	
P-106	J-21	J-20	181	8	
P-104	J-19	J-43	61	12	
P-105	J-20	J-43	271	8	
P-103	J-43	J-44	348	8	
P-107	J-44	J-24	342	8	
P-102	J-44	J-25	277	8	
P-61	J-46	J-100	67.44	12	
P-108	J-47	J-46	10	12	
P-72	J-47	J-200	327.3	8	
PUMP-1	J-400	S145	#N/A	#N/A	Pump
PUMP-2	J-400	S145	#N/A	#N/A	Pump
PUMP-3	J-400	S145	#N/A	#N/A	Pump
PUMP-4	J-400	S145	#N/A	#N/A	Pump
PRV-1	S145	J-47	#N/A	12	Valve

Energy Usage:

Pump	Usage Factor	Avg. Effic.	Kw-hr /Mgal	Avg. Kw	Peak Kw	Cost /day
PUMP-1	100.00	75.00	1383.55	16.36	16.36	0.00
PUMP-2	0.00	0.00	0.00	0.00	0.00	0.00
PUMP-3	0.00	0.00	0.00	0.00	0.00	0.00
PUMP-4	0.00	0.00	0.00	0.00	0.00	0.00
				Demand Charge:		0.00
				Total Cost:		0.00

Node Results:

Node ID	Demand GPM	Head ft	Pressure psi	Quality
J-32	0.34	2964.89	75.35	0.00
J-36	2.41	2964.89	59.75	0.00
J-37	0.52	2964.89	50.13	0.00
J-30	0.17	2964.89	84.23	0.00
J-38	2.76	2964.88	67.54	0.00
J-39	2.24	2964.88	74.04	0.00
J-29	1.38	2964.88	79.89	0.00
J-40	0.69	2964.88	73.83	0.00
J-28	1.72	2964.87	88.34	0.00
J-27	1.03	2964.87	76.64	0.00
J-2	0.00	2964.84	80.53	0.00
J-3	0.00	2964.83	73.76	0.00
J-4	0.86	2964.83	74.67	0.00
J-41	3.10	2964.82	75.66	0.00
J-14	3.10	2964.81	78.78	0.00
J-11	1.72	2964.81	85.71	0.00
J-12	24.95	2964.81	79.64	0.00
J-9	0.00	2964.81	94.38	0.00
J-6	1.03	2964.82	76.62	0.00
J-19	1.72	2964.83	68.39	0.00
J-24	2.48	2964.83	56.69	0.00
J-20	0.00	2964.83	62.75	0.00
J-21	0.93	2964.83	61.89	0.00
J-22	0.93	2964.83	60.15	0.00
J-5	1.38	2964.82	76.18	0.00
J-17	1.55	2964.82	89.18	0.00
J-18	0.86	2964.83	83.12	0.00
J-7	1.72	2964.81	86.15	0.00
J-13	2.07	2964.81	96.54	0.00
J-8	2.07	2964.81	90.48	0.00
J-15	1.72	2964.82	68.17	0.00
J-16	1.03	2964.82	63.62	0.00
J-23	2.48	2964.83	57.99	0.00
J-303	5.74	2964.86	97.43	0.00
J-301	1.01	2964.86	102.20	0.00
J-10	23.94	2964.81	101.31	0.00
J-1	0.00	2964.86	81.40	0.00
J-102	1.35	2964.88	86.61	0.00
J-105	1.69	2964.88	94.41	0.00
J-107	2.36	2964.88	99.17	0.00
J-111	2.03	2964.87	102.20	0.00
J-112	0.68	2964.87	110.87	0.00
J-114	0.68	2964.87	112.17	0.00
J-115	0.68	2964.86	112.17	0.00
J-118	0.68	2964.86	113.90	0.00
J-300	3.71	2964.86	103.07	0.00
J-302	1.35	2964.86	95.27	0.00

Node Results: (continued)

Node ID	Demand GPM	Head ft	Pressure psi	Quality	
J-304	1.35	2964.86	85.73	0.00	
J-42	2.07	2964.89	84.88	0.00	
J-31	0.17	2964.89	81.85	0.00	
J-35	0.00	2964.89	62.35	0.00	
J-101	1.69	2964.91	100.27	0.00	
J-106	1.69	2964.88	102.20	0.00	
J-33	1.72	2964.89	70.15	0.00	
J-123	0.68	2964.89	78.38	0.00	
J-100	0.00	2964.93	106.56	0.00	
J-103	1.35	2964.90	94.42	0.00	
J-104	1.01	2964.90	70.58	0.00	
J-117	1.35	2964.87	109.13	0.00	
J-110	2.03	2964.87	94.41	0.00	
J-108	1.01	2964.87	93.97	0.00	
J-109	1.01	2964.87	93.11	0.00	
J-305	1.03	2964.86	84.43	0.00	
S145	0.00	3045.29	140.99	0.00	
J-207	1.35	2964.88	99.60	0.00	
J-208	0.34	2964.88	102.20	0.00	
J-206	0.34	2964.88	119.54	0.00	
J-204	1.35	2964.88	112.61	0.00	
J-205	1.35	2964.88	106.11	0.00	
J-203	6.41	2964.90	106.55	0.00	
J-200	3.71	2964.92	110.89	0.00	
J-211	0.00	2964.90	103.08	0.00	
J-201	1.01	2964.91	119.12	0.00	
J-202	5.06	2964.91	102.65	0.00	
J-119	0.00	2964.86	116.93	0.00	
J-120	1.01	2964.86	119.66	0.00	
J-121	0.00	2964.86	119.75	0.00	
J-122	22.95	2964.86	122.99	0.00	
J-210	1.01	2964.87	122.57	0.00	
J-209	0.34	2964.88	119.10	0.00	
J-113	0.68	2964.87	110.00	0.00	
J-116	0.34	2964.86	113.03	0.00	
J-25	2.76	2964.83	52.35	0.00	
J-34	0.34	2964.89	67.98	0.00	
J-400	0.00	2715.00	-2.12	0.00	
J-45	1.86	2964.83	46.72	0.00	
J-44	11.83	2964.83	61.67	0.00	
J-43	0.00	2964.83	67.09	0.00	
J-46	0.00	2964.94	107.00	0.00	
J-47	0.00	2964.94	107.00	0.00	
R-1	-197.06	2715.00	0.00	0.00	Reservoir

Link Results:

Link ID	Flow GPM	Velocity fps	Unit Headloss ft/Kft	Status
P-1	-2.17	0.01	0.00	Open
P-2	0.52	0.00	0.00	Open
P-3	15.04	0.10	0.01	Open
P-4	12.28	0.08	0.00	Open
P-5	9.35	0.06	0.00	Open
P-6	0.69	0.00	0.00	Open
P-7	-1.72	0.01	0.00	Open
P-8	96.09	0.27	0.03	Open
P-9	63.21	0.18	0.02	Open
P-10	61.49	0.17	0.01	Open
P-11	10.15	0.06	0.00	Open
P-12	-24.95	0.07	0.00	Open
P-13	-16.52	0.05	0.00	Open
P-14	32.88	0.09	0.00	Open
P-16	2.62	0.02	0.00	Open
P-17	-2.65	0.02	0.00	Open
P-20	1.55	0.01	0.00	Open
P-22	-0.86	0.01	0.00	Open
P-23	7.17	0.05	0.00	Open
P-24	-2.41	0.02	0.00	Open
P-25	-15.66	0.10	0.01	Open
P-26	1.03	0.01	0.00	Open
P-27	4.34	0.03	0.00	Open
P-28	7.89	0.05	0.00	Open
P-29	66.28	0.19	0.02	Open
P-30	63.35	0.18	0.02	Open
P-31	43.91	0.12	0.01	Open
P-32	35.02	0.10	0.01	Open
P-33	40.46	0.11	0.01	Open
P-34	23.94	0.07	0.00	Open
P-36	-96.09	0.27	0.03	Open
P-37	-73.31	0.21	0.02	Open
P-38	22.43	0.06	0.00	Open
P-39	19.05	0.05	0.00	Open
P-40	12.64	0.04	0.00	Open
P-41	20.63	0.13	0.01	Open
P-42	19.27	0.12	0.01	Open
P-43	17.24	0.11	0.01	Open
P-44	16.22	0.10	0.01	Open
P-45	2.29	0.01	0.00	Open
P-46	-2.43	0.02	0.00	Open
P-47	-9.52	0.03	0.00	Open
P-48	-11.90	0.03	0.00	Open
P-49	-34.68	0.22	0.04	Open
P-50	-37.43	0.24	0.04	Open
P-51	-29.47	0.19	0.03	Open
P-52	-29.64	0.19	0.02	Open

Link Results: (continued)

Link ID	Flow GPM	Velocity fps	Unit Headloss ft/Kft	Status
P-53	-22.47	0.14	0.02	Open
P-54	5.10	0.03	0.00	Open
P-55	-1.69	0.01	0.00	Open
P-56	0.68	0.00	0.00	Open
P-57	31.01	0.20	0.03	Open
P-58	11.06	0.07	0.00	Open
P-59	-2.03	0.01	0.00	Open
P-60	1.01	0.01	0.00	Open
P-62	123.04	0.35	0.05	Open
P-63	-10.02	0.03	0.00	Open
P-64	0.34	0.00	0.00	Open
P-65	-11.71	0.03	0.00	Open
P-66	-24.11	0.15	0.02	Open
P-67	-1.35	0.01	0.00	Open
P-68	-26.81	0.17	0.02	Open
P-69	17.68	0.11	0.01	Open
P-70	17.68	0.11	0.01	Open
P-71	-15.54	0.10	0.01	Open
P-73	21.61	0.14	0.02	Open
P-74	5.06	0.03	0.00	Open
P-75	-1.01	0.01	0.00	Open
P-76	12.24	0.08	0.01	Open
P-77	-11.72	0.03	0.00	Open
P-78	-12.06	0.03	0.00	Open
P-79	5.10	0.03	0.00	Open
P-80	18.41	0.05	0.00	Open
P-82	7.41	0.05	0.00	Open
P-83	97.09	0.28	0.03	Open
P-84	24.27	0.15	0.02	Open
P-85	-4.05	0.03	0.00	Open
P-86	-0.68	0.00	0.00	Open
P-87	-1.35	0.01	0.00	Open
P-88	-0.34	0.00	0.00	Open
P-89	-13.25	0.08	0.01	Open
P-90	-10.71	0.07	0.00	Open
P-91	22.95	0.15	0.02	Open
P-92	-5.39	0.03	0.00	Open
P-93	-5.05	0.03	0.00	Open
P-94	17.60	0.11	0.01	Open
P-95	-5.61	0.04	0.00	Open
P-96	-5.95	0.04	0.00	Open
P-97	12.07	0.08	0.01	Open
P-98	-1.03	0.01	0.00	Open
P-99	-5.74	0.02	0.00	Open
P-100	-1.01	0.01	0.00	Open
P-101	197.06	0.14	0.00	Open
P-81	1.86	0.01	0.00	Open

Link Results: (continued)

Link ID	Flow GPM	Velocity fps	Unit Headloss ft/Kft	Status
P-106	-11.44	0.07	0.01	Open
P-104	23.75	0.07	0.00	Open
P-105	-11.44	0.07	0.00	Open
P-103	12.31	0.08	0.00	Open
P-107	5.13	0.03	0.00	Open
P-102	-4.65	0.03	0.00	Open
P-61	154.06	0.44	0.12	Open
P-108	154.06	0.44	0.34	Open
P-72	43.00	0.27	0.06	Open
PUMP-1	197.06	0.00	-330.29	Open Pump
PUMP-2	0.00	0.00	0.00	Closed Pump
PUMP-3	0.00	0.00	0.00	Closed Pump
PUMP-4	0.00	0.00	0.00	Closed Pump
PRV-1	197.06	0.56	80.35	Active Valve

Appendix C

Maximum Day

```
*************************************************************************
*                            E P A N E T                                *
*                     Hydraulic and Water Quality                       *
*                     Analysis for Pipe Networks                        *
*                          Version 2.2                                  *
*************************************************************************
```

Input File: **Sereno Canyon Phase 4 Max Day Revised 3-22.net**

Sereno Canyon

Link - Node Table:

Link ID	Start Node	End Node	Length ft	Diameter in
P-1	J-33	J-36	740	8
P-2	J-36	J-37	243	8
P-3	J-42	J-38	957.7	8
P-4	J-38	J-39	400	8
P-5	J-39	J-29	841.9	8
P-6	J-39	J-40	20	8
P-7	J-28	J-27	505.5	8
P-8	J-2	J-3	452.1	12
P-9	J-3	J-4	195.3	12
P-10	J-4	J-41	148.7	12
P-11	J-14	J-11	890.1	8
P-12	J-12	J-11	340.4	12
P-13	J-11	J-9	458.8	12
P-14	J-3	J-19	223.6	12
P-16	J-21	J-22	104	8
P-17	J-22	J-24	156	8
P-20	J-5	J-17	587.4	8
P-22	J-18	J-4	378.4	8
P-23	J-7	J-13	706	8
P-24	J-8	J-14	610.4	8
P-25	J-14	J-15	540.4	8
P-26	J-15	J-16	224.8	8
P-27	J-22	J-23	128.3	8
P-28	J-21	J-41	699	8
P-29	J-41	J-5	172.5	12
P-30	J-5	J-6	197.8	12
P-31	J-6	J-7	466.8	12
P-32	J-7	J-8	339.3	12
P-33	J-8	J-9	384	12
P-34	J-9	J-10	522	12
P-36	J-2	J-1	557.4	12
P-37	J-1	J-102	754.8	12
P-38	J-102	J-105	819.5	12
P-39	J-105	J-107	511.2	12
P-40	J-107	J-111	1032	12
P-41	J-111	J-112	449.2	8
P-42	J-112	J-114	204.1	8

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length ft	Diameter in
P-43	J-114	J-115	198.3	8
P-44	J-115	J-118	154.9	8
P-45	J-118	J-300	1588	8
P-46	J-300	J-302	757	8
P-47	J-302	J-304	618	12
P-48	J-304	J-1	358	12
P-49	J-1	J-27	271.1	8
P-50	J-27	J-29	112.3	8
P-51	J-29	J-30	411.1	8
P-52	J-30	J-42	43.31	8
P-53	J-42	J-31	191.5	8
P-54	J-35	J-36	438.3	8
P-55	J-106	J-105	800.8	8
P-56	J-33	J-123	375.5	8
P-57	J-100	J-103	951.8	8
P-58	J-104	J-35	775.1	8
P-59	J-110	J-108	595.1	8
P-60	J-108	J-109	353.1	8
P-62	J-100	J-101	464.5	12
P-63	J-111	J-207	1424	12
P-64	J-207	J-208	997.1	8
P-65	J-207	J-206	1045	12
P-66	J-206	J-204	317.1	8
P-67	J-205	J-204	465.7	8
P-68	J-204	J-203	643.7	8
P-69	J-200	J-211	2106	8
P-70	J-211	J-203	536.3	8
P-71	J-203	J-201	2125	8
P-73	J-200	J-201	667.2	8
P-74	J-201	J-202	1059	8
P-75	J-120	J-119	186.5	8
P-76	J-119	J-121	389	8
P-77	J-210	J-209	1327	12
P-78	J-209	J-206	257.6	12
P-79	J-13	J-8	343	8
P-80	J-6	J-15	462	12
P-82	J-19	J-25	884	8
P-83	J-101	J-102	845.5	12
P-84	J-101	J-42	913.6	8
P-85	J-108	J-107	309.2	8
P-86	J-113	J-112	191.9	8
P-87	J-117	J-114	573.8	8
P-88	J-116	J-115	172.9	8
P-89	J-119	J-118	421	8
P-90	J-121	J-210	4137	8
P-91	J-121	J-122	131.6	8
P-92	J-32	J-33	221	8

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length ft	Diameter in	
P-93	J-31	J-32	387	8	
P-94	J-103	J-31	1000	8	
P-95	J-33	J-34	245	8	
P-96	J-34	J-35	223.9	8	
P-97	J-103	J-104	1106	8	
P-98	J-305	J-304	199	8	
P-99	J-303	J-302	412.7	12	
P-100	J-301	J-300	178.5	8	
P-101	R-1	J-400	10	24	
P-81	J-23	J-45	1000	8	
P-106	J-21	J-20	181	8	
P-104	J-19	J-43	61	12	
P-105	J-20	J-43	271	8	
P-103	J-43	J-44	348	8	
P-107	J-44	J-24	342	8	
P-102	J-44	J-25	277	8	
P-61	J-46	J-100	67.44	12	
P-108	J-47	J-46	10	12	
P-72	J-47	J-200	327.3	8	
PUMP-1	J-400	S145	#N/A	#N/A	Pump
PUMP-2	J-400	S145	#N/A	#N/A	Pump
PUMP-3	J-400	S145	#N/A	#N/A	Pump
PUMP-4	J-400	S145	#N/A	#N/A	Pump
PRV-1	S145	J-47	#N/A	12	Valve

Energy Usage:

Pump	Usage Factor	Avg. Effic.	Kw-hr /Mgal	Avg. Kw	Peak Kw	Cost /day
PUMP-1	100.00	75.00	1235.02	29.12	29.12	0.00
PUMP-2	0.00	0.00	0.00	0.00	0.00	0.00
PUMP-3	0.00	0.00	0.00	0.00	0.00	0.00
PUMP-4	0.00	0.00	0.00	0.00	0.00	0.00
				Demand Charge:		0.00
				Total Cost:		0.00

Node Results:

Node ID	Demand GPM	Head ft	Pressure psi	Quality
J-32	0.68	2964.76	75.29	0.00
J-36	4.82	2964.76	59.69	0.00
J-37	1.04	2964.76	50.07	0.00
J-30	0.34	2964.75	84.17	0.00
J-38	5.52	2964.72	67.48	0.00
J-39	4.48	2964.72	73.97	0.00
J-29	2.76	2964.71	79.82	0.00
J-40	1.38	2964.72	73.75	0.00
J-28	3.44	2964.69	88.26	0.00
J-27	2.06	2964.69	76.56	0.00
J-2	0.00	2964.59	80.42	0.00
J-3	0.00	2964.54	73.63	0.00
J-4	1.72	2964.53	74.54	0.00
J-41	6.20	2964.52	75.53	0.00
J-14	6.20	2964.48	78.63	0.00
J-11	3.44	2964.47	85.56	0.00
J-12	49.90	2964.46	79.49	0.00
J-9	0.00	2964.47	94.23	0.00
J-6	2.06	2964.50	76.48	0.00
J-19	3.44	2964.53	68.26	0.00
J-24	4.96	2964.53	56.56	0.00
J-20	0.00	2964.53	62.62	0.00
J-21	0.00	2964.53	61.76	0.00
J-22	1.86	2964.53	60.02	0.00
J-5	2.76	2964.51	76.05	0.00
J-17	3.10	2964.51	89.05	0.00
J-18	1.72	2964.53	82.99	0.00
J-7	3.44	2964.48	86.00	0.00
J-13	4.14	2964.48	96.40	0.00
J-8	4.14	2964.48	90.33	0.00
J-15	3.44	2964.50	68.03	0.00
J-16	2.06	2964.50	63.48	0.00
J-23	4.96	2964.52	57.86	0.00
J-303	11.48	2964.65	97.34	0.00
J-301	2.02	2964.65	102.11	0.00
J-10	47.88	2964.46	101.16	0.00
J-1	0.00	2964.66	81.31	0.00
J-102	2.70	2964.71	86.53	0.00
J-105	3.38	2964.70	94.33	0.00
J-107	4.72	2964.70	99.10	0.00
J-111	4.06	2964.70	102.13	0.00
J-112	1.36	2964.68	110.78	0.00
J-114	1.36	2964.67	112.08	0.00
J-115	1.36	2964.66	112.08	0.00
J-118	1.36	2964.65	113.81	0.00
J-300	7.42	2964.65	102.98	0.00
J-302	2.70	2964.65	95.18	0.00

Node Results: (continued)

Node ID	Demand GPM	Head ft	Pressure psi	Quality	
J-304	2.70	2964.66	85.64	0.00	
J-42	4.14	2964.75	84.82	0.00	
J-31	0.34	2964.76	81.79	0.00	
J-35	0.68	2964.77	62.29	0.00	
J-101	3.38	2964.81	100.23	0.00	
J-106	3.38	2964.70	102.13	0.00	
J-33	3.44	2964.76	70.09	0.00	
J-123	1.36	2964.76	78.32	0.00	
J-100	0.00	2964.90	106.55	0.00	
J-103	2.70	2964.80	94.37	0.00	
J-104	2.02	2964.78	70.53	0.00	
J-117	2.70	2964.67	109.05	0.00	
J-110	4.06	2964.70	94.33	0.00	
J-108	2.02	2964.70	93.90	0.00	
J-109	2.02	2964.70	93.03	0.00	
J-305	2.06	2964.66	84.34	0.00	
S145	0.00	3009.83	125.63	0.00	
J-207	2.70	2964.70	99.53	0.00	
J-208	0.68	2964.70	102.13	0.00	
J-206	0.68	2964.70	119.46	0.00	
J-204	2.70	2964.72	112.54	0.00	
J-205	2.70	2964.72	106.04	0.00	
J-203	12.82	2964.78	106.49	0.00	
J-200	7.42	2964.87	110.87	0.00	
J-211	0.00	2964.80	103.04	0.00	
J-201	2.02	2964.84	119.09	0.00	
J-202	10.12	2964.83	102.62	0.00	
J-119	0.00	2964.65	116.84	0.00	
J-120	2.02	2964.65	119.57	0.00	
J-121	0.00	2964.64	119.65	0.00	
J-122	45.90	2964.63	122.90	0.00	
J-210	2.02	2964.70	122.49	0.00	
J-209	0.68	2964.70	119.03	0.00	
J-113	1.36	2964.68	109.92	0.00	
J-116	0.68	2964.66	112.94	0.00	
J-25	5.52	2964.53	52.22	0.00	
J-34	0.68	2964.76	67.93	0.00	
J-400	0.00	2715.00	-2.12	0.00	
J-45	3.72	2964.52	46.59	0.00	
J-44	23.66	2964.53	61.54	0.00	
J-43	0.00	2964.53	66.96	0.00	
J-46	0.00	2964.93	106.99	0.00	
J-47	0.00	2964.94	107.00	0.00	
R-1	-392.94	2715.00	0.00	0.00	Reservoir

Link Results:

Link ID	Flow GPM	Velocity fps	Unit Headloss ft/Kft	Status
P-1	-4.10	0.03	0.00	Open
P-2	1.04	0.01	0.00	Open
P-3	29.85	0.19	0.03	Open
P-4	24.33	0.16	0.02	Open
P-5	18.47	0.12	0.01	Open
P-6	1.38	0.01	0.00	Open
P-7	-3.44	0.02	0.00	Open
P-8	190.32	0.54	0.12	Open
P-9	125.86	0.36	0.05	Open
P-10	122.42	0.35	0.05	Open
P-11	20.30	0.13	0.01	Open
P-12	-49.90	0.14	0.01	Open
P-13	-33.04	0.09	0.00	Open
P-14	64.46	0.18	0.02	Open
P-16	5.84	0.04	0.00	Open
P-17	-4.70	0.03	0.00	Open
P-20	3.10	0.02	0.00	Open
P-22	-1.72	0.01	0.00	Open
P-23	14.34	0.09	0.01	Open
P-24	-4.83	0.03	0.00	Open
P-25	-31.32	0.20	0.03	Open
P-26	2.06	0.01	0.00	Open
P-27	8.68	0.06	0.00	Open
P-28	16.34	0.10	0.01	Open
P-29	132.56	0.38	0.06	Open
P-30	126.70	0.36	0.06	Open
P-31	87.82	0.25	0.03	Open
P-32	70.04	0.20	0.02	Open
P-33	80.92	0.23	0.02	Open
P-34	47.88	0.14	0.01	Open
P-36	-190.32	0.54	0.12	Open
P-37	-145.70	0.41	0.07	Open
P-38	44.71	0.13	0.01	Open
P-39	37.95	0.11	0.01	Open
P-40	25.13	0.07	0.00	Open
P-41	41.10	0.26	0.05	Open
P-42	38.38	0.24	0.04	Open
P-43	34.32	0.22	0.04	Open
P-44	32.28	0.21	0.03	Open
P-45	4.37	0.03	0.00	Open
P-46	-5.07	0.03	0.00	Open
P-47	-19.25	0.05	0.00	Open
P-48	-24.01	0.07	0.00	Open
P-49	-68.63	0.44	0.13	Open
P-50	-74.13	0.47	0.15	Open
P-51	-58.42	0.37	0.10	Open
P-52	-58.76	0.38	0.10	Open

Link Results: (continued)

Link ID	Flow GPM	Velocity fps	Unit Headloss ft/Kft	Status
P-53	-44.22	0.28	0.06	Open
P-54	9.96	0.06	0.00	Open
P-55	-3.38	0.02	0.00	Open
P-56	1.36	0.01	0.00	Open
P-57	61.98	0.40	0.11	Open
P-58	22.17	0.14	0.02	Open
P-59	-4.06	0.03	0.00	Open
P-60	2.02	0.01	0.00	Open
P-62	245.02	0.70	0.19	Open
P-63	-20.03	0.06	0.00	Open
P-64	0.68	0.00	0.00	Open
P-65	-23.41	0.07	0.00	Open
P-66	-48.16	0.31	0.07	Open
P-67	-2.70	0.02	0.00	Open
P-68	-53.56	0.34	0.08	Open
P-69	35.32	0.23	0.04	Open
P-70	35.32	0.23	0.04	Open
P-71	-31.05	0.20	0.03	Open
P-73	43.19	0.28	0.05	Open
P-74	10.12	0.06	0.00	Open
P-75	-2.02	0.01	0.00	Open
P-76	24.53	0.16	0.02	Open
P-77	-23.39	0.07	0.00	Open
P-78	-24.07	0.07	0.00	Open
P-79	10.20	0.07	0.00	Open
P-80	36.82	0.10	0.01	Open
P-82	14.61	0.09	0.01	Open
P-83	193.11	0.55	0.12	Open
P-84	48.54	0.31	0.07	Open
P-85	-8.10	0.05	0.00	Open
P-86	-1.36	0.01	0.00	Open
P-87	-2.70	0.02	0.00	Open
P-88	-0.68	0.00	0.00	Open
P-89	-26.55	0.17	0.02	Open
P-90	-21.37	0.14	0.01	Open
P-91	45.90	0.29	0.06	Open
P-92	-10.15	0.06	0.00	Open
P-93	-9.47	0.06	0.00	Open
P-94	35.08	0.22	0.04	Open
P-95	-10.85	0.07	0.00	Open
P-96	-11.53	0.07	0.01	Open
P-97	24.19	0.15	0.02	Open
P-98	-2.06	0.01	0.00	Open
P-99	-11.48	0.03	0.00	Open
P-100	-2.02	0.01	0.00	Open
P-101	392.94	0.28	0.02	Open
P-81	3.72	0.02	0.00	Open

Link Results: (continued)

Link ID	Flow GPM	Velocity fps	Unit Headloss ft/Kft	Status
P-106	-22.18	0.14	0.02	Open
P-104	46.40	0.13	0.01	Open
P-105	-22.18	0.14	0.02	Open
P-103	24.23	0.15	0.02	Open
P-107	9.66	0.06	0.00	Open
P-102	-9.09	0.06	0.00	Open
P-61	307.00	0.87	0.44	Open
P-108	307.00	0.87	1.34	Open
P-72	85.94	0.55	0.21	Open
PUMP-1	392.94	0.00	-294.83	Open Pump
PUMP-2	0.00	0.00	0.00	Closed Pump
PUMP-3	0.00	0.00	0.00	Closed Pump
PUMP-4	0.00	0.00	0.00	Closed Pump
PRV-1	392.94	1.11	44.89	Active Valve

Appendix D

Peak Hour

```
******************************************************************
*                          E P A N E T                           *
*                  Hydraulic and Water Quality                   *
*                  Analysis for Pipe Networks                    *
*                        Version 2.2                             *
******************************************************************
```

Input File: **Sereno Canyon Phase 4 Peak Hour Revised 3-22.net**

Sereno Canyon

Link - Node Table:

Link ID	Start Node	End Node	Length ft	Diameter in
P-1	J-33	J-36	740	8
P-2	J-36	J-37	243	8
P-3	J-42	J-38	957.7	8
P-4	J-38	J-39	400	8
P-5	J-39	J-29	841.9	8
P-6	J-39	J-40	20	8
P-7	J-28	J-27	505.5	8
P-8	J-2	J-3	452.1	12
P-9	J-3	J-4	195.3	12
P-10	J-4	J-41	148.7	12
P-11	J-14	J-11	890.1	8
P-12	J-12	J-11	340.4	12
P-13	J-11	J-9	458.8	12
P-14	J-3	J-19	223.6	12
P-16	J-21	J-22	104	8
P-17	J-22	J-24	156	8
P-20	J-5	J-17	587.4	8
P-22	J-18	J-4	378.4	8
P-23	J-7	J-13	706	8
P-24	J-8	J-14	610.4	8
P-25	J-14	J-15	540.4	8
P-26	J-15	J-16	224.8	8
P-27	J-22	J-23	128.3	8
P-28	J-21	J-41	699	8
P-29	J-41	J-5	172.5	12
P-30	J-5	J-6	197.8	12
P-31	J-6	J-7	466.8	12
P-32	J-7	J-8	339.3	12
P-33	J-8	J-9	384	12
P-34	J-9	J-10	522	12
P-36	J-2	J-1	557.4	12
P-37	J-1	J-102	754.8	12
P-38	J-102	J-105	819.5	12
P-39	J-105	J-107	511.2	12
P-40	J-107	J-111	1032	12
P-41	J-111	J-112	449.2	8
P-42	J-112	J-114	204.1	8

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length ft	Diameter in
P-43	J-114	J-115	198.3	8
P-44	J-115	J-118	154.9	8
P-45	J-118	J-300	1588	8
P-46	J-300	J-302	757	8
P-47	J-302	J-304	618	12
P-48	J-304	J-1	358	12
P-49	J-1	J-27	271.1	8
P-50	J-27	J-29	112.3	8
P-51	J-29	J-30	411.1	8
P-52	J-30	J-42	43.31	8
P-53	J-42	J-31	191.5	8
P-54	J-35	J-36	438.3	8
P-55	J-106	J-105	800.8	8
P-56	J-33	J-123	375.5	8
P-57	J-100	J-103	951.8	8
P-58	J-104	J-35	775.1	8
P-59	J-110	J-108	595.1	8
P-60	J-108	J-109	353.1	8
P-62	J-100	J-101	464.5	12
P-63	J-111	J-207	1424	12
P-64	J-207	J-208	997.1	8
P-65	J-207	J-206	1045	12
P-66	J-206	J-204	317.1	8
P-67	J-205	J-204	465.7	8
P-68	J-204	J-203	643.7	8
P-69	J-200	J-211	2106	8
P-70	J-211	J-203	536.3	8
P-71	J-203	J-201	2125	8
P-73	J-200	J-201	667.2	8
P-74	J-201	J-202	1059	8
P-75	J-120	J-119	186.5	8
P-76	J-119	J-121	389	8
P-77	J-210	J-209	1327	12
P-78	J-209	J-206	257.6	12
P-79	J-13	J-8	243	8
P-80	J-6	J-15	462	12
P-82	J-19	J-25	884	8
P-83	J-101	J-102	845.5	12
P-84	J-101	J-42	913.6	8
P-85	J-108	J-107	309.2	8
P-86	J-113	J-112	191.9	8
P-87	J-117	J-114	573.8	8
P-88	J-116	J-115	172.9	8
P-89	J-119	J-118	421	8
P-90	J-121	J-210	4137	8
P-91	J-121	J-122	131.6	8
P-92	J-32	J-33	221	8

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length ft	Diameter in	
P-93	J-31	J-32	387	8	
P-94	J-103	J-31	1000	8	
P-95	J-33	J-34	245	8	
P-96	J-34	J-35	223.9	8	
P-97	J-103	J-104	1106	8	
P-98	J-305	J-304	199	8	
P-99	J-303	J-302	412.7	12	
P-100	J-301	J-300	178.5	8	
P-101	R-1	J-400	10	24	
P-81	J-23	J-45	1000	8	
P-106	J-21	J-20	181	8	
P-104	J-19	J-43	61	12	
P-105	J-20	J-43	271	8	
P-103	J-43	J-44	348	8	
P-107	J-44	J-24	342	8	
P-102	J-44	J-25	277	8	
P-61	J-46	J-100	67.44	12	
P-108	J-47	J-46	10	12	
P-72	J-47	J-200	327.3	8	
PUMP-1	J-400	S145	#N/A	#N/A	Pump
PUMP-2	J-400	S145	#N/A	#N/A	Pump
PUMP-3	J-400	S145	#N/A	#N/A	Pump
PUMP-4	J-400	S145	#N/A	#N/A	Pump
PRV-1	S145	J-47	#N/A	12	Valve

Energy Usage:

Pump	Usage Factor	Avg. Effic.	Kw-hr /Mgal	Avg. Kw	Peak Kw	Cost /day
PUMP-1	100.00	75.00	1288.52	26.58	26.58	0.00
PUMP-2	100.00	75.00	1288.52	26.58	26.58	0.00
PUMP-3	0.00	0.00	0.00	0.00	0.00	0.00
PUMP-4	0.00	0.00	0.00	0.00	0.00	0.00
				Demand Charge:		0.00
				Total Cost:		0.00

Node Results:

Node ID	Demand GPM	Head ft	Pressure psi	Quality
J-32	1.19	2964.43	75.15	0.00
J-36	8.43	2964.43	59.55	0.00
J-37	1.82	2964.43	49.93	0.00
J-30	0.59	2964.39	84.01	0.00
J-38	9.66	2964.32	67.30	0.00
J-39	7.84	2964.30	73.79	0.00
J-29	4.83	2964.28	79.63	0.00
J-40	2.41	2964.30	73.58	0.00
J-28	6.02	2964.23	88.06	0.00
J-27	3.61	2964.23	76.36	0.00
J-2	0.00	2963.95	80.14	0.00
J-3	0.00	2963.80	73.31	0.00
J-4	3.01	2963.77	74.21	0.00
J-41	10.85	2963.75	75.20	0.00
J-14	10.85	2963.63	78.27	0.00
J-11	6.02	2963.60	85.19	0.00
J-12	87.32	2963.59	79.12	0.00
J-9	0.00	2963.60	93.85	0.00
J-6	3.61	2963.69	76.12	0.00
J-19	6.02	2963.79	67.94	0.00
J-24	8.68	2963.76	56.23	0.00
J-20	0.00	2963.77	62.30	0.00
J-21	0.00	2963.76	61.43	0.00
J-22	3.26	2963.76	59.69	0.00
J-5	4.83	2963.72	75.70	0.00
J-17	5.43	2963.72	88.70	0.00
J-18	3.01	2963.77	82.66	0.00
J-7	6.02	2963.65	85.64	0.00
J-13	7.24	2963.63	96.03	0.00
J-8	7.24	2963.63	89.97	0.00
J-15	6.02	2963.68	67.67	0.00
J-16	3.61	2963.68	63.12	0.00
J-23	8.68	2963.76	57.53	0.00
J-303	20.09	2964.12	97.11	0.00
J-301	3.53	2964.12	101.88	0.00
J-10	83.79	2963.59	100.78	0.00
J-1	0.00	2964.13	81.08	0.00
J-102	4.73	2964.28	86.35	0.00
J-105	5.91	2964.26	94.14	0.00
J-107	8.26	2964.26	98.90	0.00
J-111	7.11	2964.25	101.93	0.00
J-112	2.38	2964.19	110.57	0.00
J-114	2.38	2964.16	111.86	0.00
J-115	2.38	2964.14	111.85	0.00
J-118	2.38	2964.13	113.58	0.00
J-300	12.98	2964.12	102.75	0.00
J-302	4.73	2964.13	94.95	0.00

Node Results: (continued)

Node ID	Demand GPM	Head ft	Pressure psi	Quality	
J-304	4.73	2964.13	85.42	0.00	
J-42	7.24	2964.40	84.67	0.00	
J-31	0.59	2964.43	81.65	0.00	
J-35	1.19	2964.44	62.15	0.00	
J-101	5.91	2964.57	100.12	0.00	
J-106	5.91	2964.26	101.94	0.00	
J-33	6.02	2964.43	69.95	0.00	
J-123	2.38	2964.43	78.18	0.00	
J-100	0.00	2964.82	106.51	0.00	
J-103	4.73	2964.53	94.26	0.00	
J-104	3.53	2964.47	70.40	0.00	
J-117	4.73	2964.16	108.83	0.00	
J-110	7.11	2964.25	94.14	0.00	
J-108	3.53	2964.25	93.70	0.00	
J-109	3.53	2964.25	92.84	0.00	
J-305	3.61	2964.13	84.12	0.00	
S145	0.00	3022.61	131.16	0.00	
J-207	4.73	2964.26	99.34	0.00	
J-208	1.19	2964.26	101.94	0.00	
J-206	1.19	2964.26	119.27	0.00	
J-204	4.73	2964.32	112.36	0.00	
J-205	4.73	2964.32	105.86	0.00	
J-203	22.43	2964.47	106.36	0.00	
J-200	12.98	2964.75	110.82	0.00	
J-211	0.00	2964.53	102.92	0.00	
J-201	3.53	2964.65	119.00	0.00	
J-202	17.71	2964.64	102.53	0.00	
J-119	0.00	2964.10	116.60	0.00	
J-120	3.53	2964.10	119.33	0.00	
J-121	0.00	2964.08	119.41	0.00	
J-122	80.33	2964.06	122.65	0.00	
J-210	3.53	2964.25	122.30	0.00	
J-209	1.19	2964.26	118.84	0.00	
J-113	2.38	2964.19	109.71	0.00	
J-116	1.19	2964.14	112.72	0.00	
J-25	9.66	2963.77	51.90	0.00	
J-34	1.19	2964.44	67.78	0.00	
J-400	0.00	2715.00	-2.12	0.00	
J-45	6.51	2963.76	46.26	0.00	
J-44	41.40	2963.77	61.21	0.00	
J-43	0.00	2963.78	66.64	0.00	
J-46	0.00	2964.90	106.98	0.00	
J-47	0.00	2964.94	107.00	0.00	
R-1	-687.65	2715.00	0.00	0.00	Reservoir

Link Results:

Link ID	Flow GPM	Velocity fps	Unit Headloss ft/Kft	Status
P-1	-7.17	0.05	0.00	Open
P-2	1.82	0.01	0.00	Open
P-3	52.22	0.33	0.08	Open
P-4	42.56	0.27	0.05	Open
P-5	32.30	0.21	0.03	Open
P-6	2.41	0.02	0.00	Open
P-7	-6.02	0.04	0.00	Open
P-8	333.06	0.94	0.33	Open
P-9	220.33	0.63	0.15	Open
P-10	214.31	0.61	0.15	Open
P-11	35.50	0.23	0.04	Open
P-12	-87.32	0.25	0.03	Open
P-13	-57.84	0.16	0.01	Open
P-14	112.73	0.32	0.04	Open
P-16	10.19	0.07	0.00	Open
P-17	-8.26	0.05	0.00	Open
P-20	5.43	0.03	0.00	Open
P-22	-3.01	0.02	0.00	Open
P-23	25.77	0.16	0.02	Open
P-24	-8.41	0.05	0.00	Open
P-25	-54.76	0.35	0.08	Open
P-26	3.61	0.02	0.00	Open
P-27	15.19	0.10	0.01	Open
P-28	28.52	0.18	0.03	Open
P-29	231.98	0.66	0.17	Open
P-30	221.72	0.63	0.16	Open
P-31	153.73	0.44	0.08	Open
P-32	121.95	0.35	0.05	Open
P-33	141.63	0.40	0.07	Open
P-34	83.79	0.24	0.03	Open
P-36	-333.06	0.94	0.33	Open
P-37	-254.98	0.72	0.20	Open
P-38	78.02	0.22	0.02	Open
P-39	66.19	0.19	0.02	Open
P-40	43.76	0.12	0.01	Open
P-41	71.96	0.46	0.14	Open
P-42	67.20	0.43	0.12	Open
P-43	60.09	0.38	0.10	Open
P-44	56.52	0.36	0.09	Open
P-45	7.71	0.05	0.00	Open
P-46	-8.81	0.06	0.00	Open
P-47	-33.63	0.10	0.00	Open
P-48	-41.96	0.12	0.01	Open
P-49	-120.04	0.77	0.36	Open
P-50	-129.67	0.83	0.42	Open
P-51	-102.19	0.65	0.27	Open
P-52	-102.79	0.66	0.27	Open

Link Results: (continued)

Link ID	Flow GPM	Velocity fps	Unit Headloss ft/Kft	Status
P-53	-77.34	0.49	0.16	Open
P-54	17.42	0.11	0.01	Open
P-55	-5.91	0.04	0.00	Open
P-56	2.38	0.02	0.00	Open
P-57	108.42	0.69	0.30	Open
P-58	38.79	0.25	0.04	Open
P-59	-7.11	0.05	0.00	Open
P-60	3.53	0.02	0.00	Open
P-62	428.55	1.22	0.53	Open
P-63	-35.30	0.10	0.01	Open
P-64	1.19	0.01	0.00	Open
P-65	-41.22	0.12	0.01	Open
P-66	-84.56	0.54	0.19	Open
P-67	-4.73	0.03	0.00	Open
P-68	-94.01	0.60	0.23	Open
P-69	61.96	0.40	0.11	Open
P-70	61.96	0.40	0.11	Open
P-71	-54.48	0.35	0.08	Open
P-73	75.73	0.48	0.15	Open
P-74	17.71	0.11	0.01	Open
P-75	-3.53	0.02	0.00	Open
P-76	42.90	0.27	0.05	Open
P-77	-40.96	0.12	0.01	Open
P-78	-42.15	0.12	0.01	Open
P-79	18.52	0.12	0.01	Open
P-80	64.39	0.18	0.02	Open
P-82	25.61	0.16	0.02	Open
P-83	337.72	0.96	0.34	Open
P-84	84.92	0.54	0.19	Open
P-85	-14.18	0.09	0.01	Open
P-86	-2.38	0.02	0.00	Open
P-87	-4.73	0.03	0.00	Open
P-88	-1.19	0.01	0.00	Open
P-89	-46.43	0.30	0.06	Open
P-90	-37.43	0.24	0.04	Open
P-91	80.33	0.51	0.17	Open
P-92	-17.75	0.11	0.01	Open
P-93	-16.56	0.11	0.01	Open
P-94	61.37	0.39	0.10	Open
P-95	-18.99	0.12	0.01	Open
P-96	-20.18	0.13	0.01	Open
P-97	42.32	0.27	0.05	Open
P-98	-3.61	0.02	0.00	Open
P-99	-20.09	0.06	0.00	Open
P-100	-3.53	0.02	0.00	Open
P-101	687.65	0.49	0.05	Open
P-81	6.51	0.04	0.00	Open

Link Results: (continued)

Link ID	Flow GPM	Velocity fps	Unit Headloss ft/Kft	Status
P-106	-38.71	0.25	0.05	Open
P-104	81.10	0.23	0.03	Open
P-105	-38.71	0.25	0.05	Open
P-103	42.39	0.27	0.05	Open
P-107	16.94	0.11	0.01	Open
P-102	-15.95	0.10	0.01	Open
P-61	536.97	1.52	1.28	Open
P-108	536.97	1.52	4.05	Open
P-72	150.67	0.96	0.59	Open
PUMP-1	343.82	0.00	-307.61	Open Pump
PUMP-2	343.82	0.00	-307.61	Open Pump
PUMP-3	0.00	0.00	0.00	Closed Pump
PUMP-4	0.00	0.00	0.00	Closed Pump
PRV-1	687.65	1.95	57.66	Active Valve

Appendix E

Maximum Day with Fire Flow

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**********************************************************************
*                           E P A N E T                              *
*                  Hydraulic and Water Quality                       *
*                  Analysis for Pipe Networks                        *
*                         Version 2.2                                *
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Input File: **Sereno Canyon Phase 4 Max Day (Fire Flow) Revised 3-22.net**

Sereno Canyon **J-1**

Link - Node Table:

Link ID	Start Node	End Node	Length ft	Diameter in
P-1	J-33	J-36	740	8
P-2	J-36	J-37	243	8
P-3	J-42	J-38	957.7	8
P-4	J-38	J-39	400	8
P-5	J-39	J-29	841.9	8
P-6	J-39	J-40	20	8
P-7	J-28	J-27	505.5	8
P-8	J-2	J-3	452.1	12
P-9	J-3	J-4	195.3	12
P-10	J-4	J-41	148.7	12
P-11	J-14	J-11	890.1	8
P-12	J-12	J-11	340.4	12
P-13	J-11	J-9	458.8	12
P-14	J-3	J-19	223.6	12
P-16	J-21	J-22	104	8
P-17	J-22	J-24	156	8
P-20	J-5	J-17	587.4	8
P-22	J-18	J-4	378.4	8
P-23	J-7	J-13	706	8
P-24	J-8	J-14	610.4	8
P-25	J-14	J-15	540.4	8
P-26	J-15	J-16	224.8	8
P-27	J-22	J-23	128.3	8
P-28	J-21	J-41	699	8
P-29	J-41	J-5	172.5	12
P-30	J-5	J-6	197.8	12
P-31	J-6	J-7	466.8	12
P-32	J-7	J-8	339.3	12
P-33	J-8	J-9	384	12
P-34	J-9	J-10	522	12
P-36	J-2	J-1	557.4	12
P-37	J-1	J-102	754.8	12
P-38	J-102	J-105	819.5	12
P-39	J-105	J-107	511.2	12
P-40	J-107	J-111	1032	12
P-41	J-111	J-112	449.2	8
P-42	J-112	J-114	204.1	8

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length ft	Diameter in
P-43	J-114	J-115	198.3	8
P-44	J-115	J-118	154.9	8
P-45	J-118	J-300	1588	8
P-46	J-300	J-302	757	8
P-47	J-302	J-304	618	12
P-48	J-304	J-1	358	12
P-49	J-1	J-27	271.1	8
P-50	J-27	J-29	112.3	8
P-51	J-29	J-30	411.1	8
P-52	J-30	J-42	43.31	8
P-53	J-42	J-31	191.5	8
P-54	J-35	J-36	438.3	8
P-55	J-106	J-105	800.8	8
P-56	J-33	J-123	375.5	8
P-57	J-100	J-103	951.8	8
P-58	J-104	J-35	775.1	8
P-59	J-110	J-108	595.1	8
P-60	J-108	J-109	353.1	8
P-62	J-100	J-101	464.5	12
P-63	J-111	J-207	1424	12
P-64	J-207	J-208	997.1	8
P-65	J-207	J-206	1045	12
P-66	J-206	J-204	317.1	8
P-67	J-205	J-204	465.7	8
P-68	J-204	J-203	643.7	8
P-69	J-200	J-211	2106	8
P-70	J-211	J-203	536.3	8
P-71	J-203	J-201	2125	8
P-73	J-200	J-201	667.2	8
P-74	J-201	J-202	1059	8
P-75	J-120	J-119	186.5	8
P-76	J-119	J-121	389	8
P-77	J-210	J-209	1327	12
P-78	J-209	J-206	257.6	12
P-79	J-13	J-8	343	8
P-80	J-6	J-15	462	12
P-82	J-19	J-25	884	8
P-83	J-101	J-102	845.5	12
P-84	J-101	J-42	913.6	8
P-85	J-108	J-107	309.2	8
P-86	J-113	J-112	191.9	8
P-87	J-117	J-114	573.8	8
P-88	J-116	J-115	172.9	8
P-89	J-119	J-118	421	8
P-90	J-121	J-210	4137	8
P-91	J-121	J-122	131.6	8
P-92	J-32	J-33	221	8

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length ft	Diameter in	
P-93	J-31	J-32	387	8	
P-94	J-103	J-31	1000	8	
P-95	J-33	J-34	245	8	
P-96	J-34	J-35	223.9	8	
P-97	J-103	J-104	1106	8	
P-98	J-305	J-304	199	8	
P-99	J-303	J-302	412.7	12	
P-100	J-301	J-300	178.5	8	
P-101	R-1	J-400	10	24	
P-81	J-23	J-45	1000	8	
P-106	J-21	J-20	181	8	
P-104	J-19	J-43	61	12	
P-105	J-20	J-43	271	8	
P-103	J-43	J-44	348	8	
P-107	J-44	J-24	342	8	
P-102	J-44	J-25	277	8	
P-61	J-46	J-100	67.44	12	
P-108	J-47	J-46	10	12	
P-72	J-47	J-200	327.3	8	
PUMP-1	J-400	S145	#N/A	#N/A	Pump
PUMP-2	J-400	S145	#N/A	#N/A	Pump
PUMP-3	J-400	S145	#N/A	#N/A	Pump
PUMP-4	J-400	S145	#N/A	#N/A	Pump
PRV-1	S145	J-47	#N/A	12	Valve

Energy Usage:

Pump	Usage Factor	Avg. Effic.	Kw-hr /Mgal	Avg. Kw	Peak Kw	Cost /day
PUMP-1	100.00	75.00	1298.27	26.08	26.08	0.00
PUMP-2	0.00	0.00	0.00	0.00	0.00	0.00
PUMP-3	0.00	0.00	0.00	0.00	0.00	0.00
PUMP-4	100.00	75.00	1298.27	82.42	82.42	0.00
				Demand Charge:		0.00
				Total Cost:		0.00

Node Results:

Node ID	Demand GPM	Head ft	Pressure psi	Quality
J-32	0.68	2962.97	74.51	0.00
J-36	4.82	2963.01	58.93	0.00
J-37	1.04	2963.01	49.32	0.00
J-30	0.34	2962.68	83.27	0.00
J-38	5.52	2962.42	66.48	0.00
J-39	4.48	2962.30	72.93	0.00
J-29	2.76	2962.07	78.68	0.00
J-40	1.38	2962.30	72.71	0.00
J-28	3.44	2961.77	86.99	0.00
J-27	2.06	2961.77	75.29	0.00
J-2	0.00	2960.99	78.86	0.00
J-3	0.00	2960.94	72.07	0.00
J-4	1.72	2960.92	72.98	0.00
J-41	6.20	2960.92	73.97	0.00
J-14	6.20	2960.88	77.07	0.00
J-11	3.44	2960.86	84.00	0.00
J-12	49.90	2960.86	77.93	0.00
J-9	0.00	2960.87	92.67	0.00
J-6	2.06	2960.90	74.92	0.00
J-19	3.44	2960.93	66.70	0.00
J-24	4.96	2960.92	55.00	0.00
J-20	0.00	2960.93	61.06	0.00
J-21	0.00	2960.92	60.20	0.00
J-22	1.86	2960.92	58.46	0.00
J-5	2.76	2960.91	74.49	0.00
J-17	3.10	2960.91	87.49	0.00
J-18	1.72	2960.92	81.43	0.00
J-7	3.44	2960.88	84.44	0.00
J-13	4.14	2960.88	94.84	0.00
J-8	4.14	2960.88	88.77	0.00
J-15	3.44	2960.89	66.47	0.00
J-16	2.06	2960.89	61.92	0.00
J-23	4.96	2960.92	56.30	0.00
J-303	11.48	2961.08	95.80	0.00
J-301	2.02	2961.31	100.66	0.00
J-10	47.88	2960.86	99.60	0.00
J-1	1000.00	2961.05	79.75	0.00
J-102	2.70	2962.17	85.43	0.00
J-105	3.38	2962.17	93.23	0.00
J-107	4.72	2962.17	98.00	0.00
J-111	4.06	2962.18	101.04	0.00
J-112	1.36	2962.03	109.64	0.00
J-114	1.36	2961.97	110.91	0.00
J-115	1.36	2961.91	110.89	0.00
J-118	1.36	2961.87	112.60	0.00
J-300	7.42	2961.31	101.53	0.00
J-302	2.70	2961.08	93.63	0.00

Node Results: (continued)

Node ID	Demand GPM	Head ft	Pressure psi	Quality	
J-304	2.70	2961.06	84.09	0.00	
J-42	4.14	2962.74	83.95	0.00	
J-31	0.34	2962.92	80.99	0.00	
J-35	0.68	2963.03	61.54	0.00	
J-101	3.38	2963.40	99.62	0.00	
J-106	3.38	2962.17	101.03	0.00	
J-33	3.44	2963.00	69.33	0.00	
J-123	1.36	2963.00	77.56	0.00	
J-100	0.00	2964.40	106.33	0.00	
J-103	2.70	2963.36	93.75	0.00	
J-104	2.02	2963.16	69.83	0.00	
J-117	2.70	2961.97	107.88	0.00	
J-110	4.06	2962.17	93.23	0.00	
J-108	2.02	2962.17	92.80	0.00	
J-109	2.02	2962.17	91.93	0.00	
J-305	2.06	2961.06	82.79	0.00	
S145	0.00	3024.93	132.17	0.00	
J-207	2.70	2962.28	98.48	0.00	
J-208	0.68	2962.28	101.08	0.00	
J-206	0.68	2962.36	118.45	0.00	
J-204	2.70	2962.71	111.67	0.00	
J-205	2.70	2962.71	105.17	0.00	
J-203	12.82	2963.45	105.92	0.00	
J-200	7.42	2964.42	110.68	0.00	
J-211	0.00	2963.65	102.54	0.00	
J-201	2.02	2964.16	118.79	0.00	
J-202	10.12	2964.15	102.32	0.00	
J-119	0.00	2961.87	115.64	0.00	
J-120	2.02	2961.87	118.37	0.00	
J-121	0.00	2961.88	118.45	0.00	
J-122	45.90	2961.87	121.70	0.00	
J-210	2.02	2962.34	121.47	0.00	
J-209	0.68	2962.36	118.01	0.00	
J-113	1.36	2962.03	108.77	0.00	
J-116	0.68	2961.91	111.75	0.00	
J-25	5.52	2960.93	50.66	0.00	
J-34	0.68	2963.01	67.17	0.00	
J-400	0.00	2715.00	-2.12	0.00	
J-45	3.72	2960.92	45.03	0.00	
J-44	23.66	2960.92	59.98	0.00	
J-43	0.00	2960.93	65.40	0.00	
J-46	0.00	2964.76	106.92	0.00	
J-47	0.00	2964.94	107.00	0.00	
R-1	-1392.94	2715.00	0.00	0.00	Reservoir

Link Results:

Link ID	Flow GPM	Velocity fps	Unit Headloss ft/Kft	Status
P-1	-26.43	0.17	0.02	Open
P-2	1.04	0.01	0.00	Open
P-3	114.73	0.73	0.33	Open
P-4	109.21	0.70	0.30	Open
P-5	103.35	0.66	0.27	Open
P-6	1.38	0.01	0.00	Open
P-7	-3.44	0.02	0.00	Open
P-8	190.32	0.54	0.12	Open
P-9	125.86	0.36	0.05	Open
P-10	122.42	0.35	0.05	Open
P-11	20.30	0.13	0.01	Open
P-12	-49.90	0.14	0.01	Open
P-13	-33.04	0.09	0.00	Open
P-14	64.46	0.18	0.02	Open
P-16	5.84	0.04	0.00	Open
P-17	-4.70	0.03	0.00	Open
P-20	3.10	0.02	0.00	Open
P-22	-1.72	0.01	0.00	Open
P-23	14.34	0.09	0.01	Open
P-24	-4.83	0.03	0.00	Open
P-25	-31.32	0.20	0.03	Open
P-26	2.06	0.01	0.00	Open
P-27	8.68	0.06	0.00	Open
P-28	16.34	0.10	0.01	Open
P-29	132.56	0.38	0.06	Open
P-30	126.70	0.36	0.06	Open
P-31	87.82	0.25	0.03	Open
P-32	70.04	0.20	0.02	Open
P-33	80.92	0.23	0.02	Open
P-34	47.88	0.14	0.01	Open
P-36	-190.32	0.54	0.12	Open
P-37	-748.63	2.12	1.48	Open
P-38	-11.63	0.03	0.00	Open
P-39	-18.39	0.05	0.00	Open
P-40	-31.21	0.09	0.00	Open
P-41	113.00	0.72	0.32	Open
P-42	110.28	0.70	0.31	Open
P-43	106.22	0.68	0.29	Open
P-44	104.18	0.66	0.28	Open
P-45	118.50	0.76	0.35	Open
P-46	109.06	0.70	0.30	Open
P-47	94.88	0.27	0.03	Open
P-48	90.12	0.26	0.03	Open
P-49	-351.57	2.24	2.64	Open
P-50	-357.07	2.28	2.71	Open
P-51	-256.48	1.64	1.47	Open
P-52	-256.82	1.64	1.48	Open

Link Results: (continued)

Link ID	Flow GPM	Velocity fps	Unit Headloss ft/Kft	Status
P-53	-201.16	1.28	0.94	Open
P-54	32.29	0.21	0.03	Open
P-55	-3.38	0.02	0.00	Open
P-56	1.36	0.01	0.00	Open
P-57	218.92	1.40	1.10	Open
P-58	80.56	0.51	0.17	Open
P-59	-4.06	0.03	0.00	Open
P-60	2.02	0.01	0.00	Open
P-62	917.60	2.60	2.16	Open
P-63	-148.27	0.42	0.07	Open
P-64	0.68	0.00	0.00	Open
P-65	-151.65	0.43	0.08	Open
P-66	-218.64	1.40	1.09	Open
P-67	-2.70	0.02	0.00	Open
P-68	-224.04	1.43	1.14	Open
P-69	121.71	0.78	0.37	Open
P-70	121.71	0.78	0.37	Open
P-71	-115.14	0.73	0.33	Open
P-73	127.28	0.81	0.40	Open
P-74	10.12	0.06	0.00	Open
P-75	-2.02	0.01	0.00	Open
P-76	-17.71	0.11	0.01	Open
P-77	-65.63	0.19	0.02	Open
P-78	-66.31	0.19	0.02	Open
P-79	10.20	0.07	0.00	Open
P-80	36.82	0.10	0.01	Open
P-82	14.61	0.09	0.01	Open
P-83	739.70	2.10	1.45	Open
P-84	174.53	1.11	0.72	Open
P-85	-8.10	0.05	0.00	Open
P-86	-1.36	0.01	0.00	Open
P-87	-2.70	0.02	0.00	Open
P-88	-0.68	0.00	0.00	Open
P-89	15.69	0.10	0.01	Open
P-90	-63.61	0.41	0.11	Open
P-91	45.90	0.29	0.06	Open
P-92	-68.54	0.44	0.13	Open
P-93	-67.86	0.43	0.12	Open
P-94	133.64	0.85	0.44	Open
P-95	-46.92	0.30	0.06	Open
P-96	-47.60	0.30	0.07	Open
P-97	82.58	0.53	0.18	Open
P-98	-2.06	0.01	0.00	Open
P-99	-11.48	0.03	0.00	Open
P-100	-2.02	0.01	0.00	Open
P-101	1392.94	0.99	0.17	Open
P-81	3.72	0.02	0.00	Open

Link Results: (continued)

Link ID	Flow GPM	Velocity fps	Unit Headloss ft/Kft	Status
P-106	-22.18	0.14	0.02	Open
P-104	46.40	0.13	0.01	Open
P-105	-22.18	0.14	0.02	Open
P-103	24.23	0.15	0.02	Open
P-107	9.66	0.06	0.00	Open
P-102	-9.09	0.06	0.00	Open
P-61	1136.52	3.22	5.37	Open
P-108	1136.52	3.22	17.75	Open
P-72	256.42	1.64	1.58	Open
PUMP-1	334.87	0.00	-309.93	Open Pump
PUMP-2	0.00	0.00	0.00	Closed Pump
PUMP-3	0.00	0.00	0.00	Closed Pump
PUMP-4	1058.08	0.00	-309.93	Open Pump
PRV-1	1392.94	3.95	59.99	Active Valve

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*************************************************************************
*                            E P A N E T                                *
*                     Hydraulic and Water Quality                       *
*                     Analysis for Pipe Networks                        *
*                          Version 2.2                                  *
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Input File: **Sereno Canyon Phase 4 Max Day (Fire Flow) Revised 3-22.net**

Sereno Canyon **J-304**

Link - Node Table:

Link ID	Start Node	End Node	Length ft	Diameter in
P-1	J-33	J-36	740	8
P-2	J-36	J-37	243	8
P-3	J-42	J-38	957.7	8
P-4	J-38	J-39	400	8
P-5	J-39	J-29	841.9	8
P-6	J-39	J-40	20	8
P-7	J-28	J-27	505.5	8
P-8	J-2	J-3	452.1	12
P-9	J-3	J-4	195.3	12
P-10	J-4	J-41	148.7	12
P-11	J-14	J-11	890.1	8
P-12	J-12	J-11	340.4	12
P-13	J-11	J-9	458.8	12
P-14	J-3	J-19	223.6	12
P-16	J-21	J-22	104	8
P-17	J-22	J-24	156	8
P-20	J-5	J-17	587.4	8
P-22	J-18	J-4	378.4	8
P-23	J-7	J-13	706	8
P-24	J-8	J-14	610.4	8
P-25	J-14	J-15	540.4	8
P-26	J-15	J-16	224.8	8
P-27	J-22	J-23	128.3	8
P-28	J-21	J-41	699	8
P-29	J-41	J-5	172.5	12
P-30	J-5	J-6	197.8	12
P-31	J-6	J-7	466.8	12
P-32	J-7	J-8	339.3	12
P-33	J-8	J-9	384	12
P-34	J-9	J-10	522	12
P-36	J-2	J-1	557.4	12
P-37	J-1	J-102	754.8	12
P-38	J-102	J-105	819.5	12
P-39	J-105	J-107	511.2	12
P-40	J-107	J-111	1032	12
P-41	J-111	J-112	449.2	8
P-42	J-112	J-114	204.1	8

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length ft	Diameter in
P-43	J-114	J-115	198.3	8
P-44	J-115	J-118	154.9	8
P-45	J-118	J-300	1588	8
P-46	J-300	J-302	757	8
P-47	J-302	J-304	618	12
P-48	J-304	J-1	358	12
P-49	J-1	J-27	271.1	8
P-50	J-27	J-29	112.3	8
P-51	J-29	J-30	411.1	8
P-52	J-30	J-42	43.31	8
P-53	J-42	J-31	191.5	8
P-54	J-35	J-36	438.3	8
P-55	J-106	J-105	800.8	8
P-56	J-33	J-123	375.5	8
P-57	J-100	J-103	951.8	8
P-58	J-104	J-35	775.1	8
P-59	J-110	J-108	595.1	8
P-60	J-108	J-109	353.1	8
P-62	J-100	J-101	464.5	12
P-63	J-111	J-207	1424	12
P-64	J-207	J-208	997.1	8
P-65	J-207	J-206	1045	12
P-66	J-206	J-204	317.1	8
P-67	J-205	J-204	465.7	8
P-68	J-204	J-203	643.7	8
P-69	J-200	J-211	2106	8
P-70	J-211	J-203	536.3	8
P-71	J-203	J-201	2125	8
P-73	J-200	J-201	667.2	8
P-74	J-201	J-202	1059	8
P-75	J-120	J-119	186.5	8
P-76	J-119	J-121	389	8
P-77	J-210	J-209	1327	12
P-78	J-209	J-206	257.6	12
P-79	J-13	J-8	343	8
P-80	J-6	J-15	462	12
P-82	J-19	J-25	884	8
P-83	J-101	J-102	845.5	12
P-84	J-101	J-42	913.6	8
P-85	J-108	J-107	309.2	8
P-86	J-113	J-112	191.9	8
P-87	J-117	J-114	573.8	8
P-88	J-116	J-115	172.9	8
P-89	J-119	J-118	421	8
P-90	J-121	J-210	4137	8
P-91	J-121	J-122	131.6	8
P-92	J-32	J-33	221	8

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length ft	Diameter in	
P-93	J-31	J-32	387	8	
P-94	J-103	J-31	1000	8	
P-95	J-33	J-34	245	8	
P-96	J-34	J-35	223.9	8	
P-97	J-103	J-104	1106	8	
P-98	J-305	J-304	199	8	
P-99	J-303	J-302	412.7	12	
P-100	J-301	J-300	178.5	8	
P-101	R-1	J-400	10	24	
P-81	J-23	J-45	1000	8	
P-106	J-21	J-20	181	8	
P-104	J-19	J-43	61	12	
P-105	J-20	J-43	271	8	
P-103	J-43	J-44	348	8	
P-107	J-44	J-24	342	8	
P-102	J-44	J-25	277	8	
P-61	J-46	J-100	67.44	12	
P-108	J-47	J-46	10	12	
P-72	J-47	J-200	327.3	8	
PUMP-1	J-400	S145	#N/A	#N/A	Pump
PUMP-2	J-400	S145	#N/A	#N/A	Pump
PUMP-3	J-400	S145	#N/A	#N/A	Pump
PUMP-4	J-400	S145	#N/A	#N/A	Pump
PRV-1	S145	J-47	#N/A	12	Valve

Energy Usage:

Pump	Usage Factor	Avg. Effic.	Kw-hr /Mgal	Avg. Kw	Peak Kw	Cost /day
PUMP-1	100.00	75.00	1298.27	26.08	26.08	0.00
PUMP-2	0.00	0.00	0.00	0.00	0.00	0.00
PUMP-3	0.00	0.00	0.00	0.00	0.00	0.00
PUMP-4	100.00	75.00	1298.27	82.42	82.42	0.00
				Demand Charge:		0.00
				Total Cost:		0.00

Node Results:

Node ID	Demand GPM	Head ft	Pressure psi	Quality
J-32	0.68	2962.99	74.52	0.00
J-36	4.82	2963.03	58.94	0.00
J-37	1.04	2963.03	49.32	0.00
J-30	0.34	2962.70	83.28	0.00
J-38	5.52	2962.46	66.49	0.00
J-39	4.48	2962.34	72.94	0.00
J-29	2.76	2962.11	78.69	0.00
J-40	1.38	2962.34	72.72	0.00
J-28	3.44	2961.82	87.01	0.00
J-27	2.06	2961.82	75.32	0.00
J-2	0.00	2961.06	78.89	0.00
J-3	0.00	2961.00	72.10	0.00
J-4	1.72	2960.99	73.01	0.00
J-41	6.20	2960.99	74.00	0.00
J-14	6.20	2960.95	77.10	0.00
J-11	3.44	2960.93	84.03	0.00
J-12	49.90	2960.93	77.96	0.00
J-9	0.00	2960.94	92.70	0.00
J-6	2.06	2960.96	74.95	0.00
J-19	3.44	2961.00	66.73	0.00
J-24	4.96	2960.99	55.03	0.00
J-20	0.00	2960.99	61.09	0.00
J-21	0.00	2960.99	60.22	0.00
J-22	1.86	2960.99	58.49	0.00
J-5	2.76	2960.97	74.52	0.00
J-17	3.10	2960.97	87.52	0.00
J-18	1.72	2960.99	81.46	0.00
J-7	3.44	2960.95	84.47	0.00
J-13	4.14	2960.95	94.87	0.00
J-8	4.14	2960.94	88.80	0.00
J-15	3.44	2960.96	66.49	0.00
J-16	2.06	2960.96	61.95	0.00
J-23	4.96	2960.99	56.33	0.00
J-303	11.48	2960.45	95.52	0.00
J-301	2.02	2960.82	100.45	0.00
J-10	47.88	2960.93	99.63	0.00
J-1	0.00	2961.12	79.78	0.00
J-102	2.70	2962.16	85.43	0.00
J-105	3.38	2962.16	93.23	0.00
J-107	4.72	2962.16	98.00	0.00
J-111	4.06	2962.16	101.03	0.00
J-112	1.36	2961.95	109.60	0.00
J-114	1.36	2961.86	110.86	0.00
J-115	1.36	2961.77	110.83	0.00
J-118	1.36	2961.71	112.53	0.00
J-300	7.42	2960.82	101.32	0.00
J-302	2.70	2960.45	93.35	0.00

Node Results: (continued)

Node ID	Demand GPM	Head ft	Pressure psi	Quality	
J-304	1002.70	2960.41	83.81	0.00	
J-42	4.14	2962.77	83.96	0.00	
J-31	0.34	2962.94	81.00	0.00	
J-35	0.68	2963.05	61.55	0.00	
J-101	3.38	2963.40	99.62	0.00	
J-106	3.38	2962.16	101.03	0.00	
J-33	3.44	2963.02	69.34	0.00	
J-123	1.36	2963.02	77.57	0.00	
J-100	0.00	2964.40	106.33	0.00	
J-103	2.70	2963.38	93.76	0.00	
J-104	2.02	2963.18	69.84	0.00	
J-117	2.70	2961.86	107.83	0.00	
J-110	4.06	2962.16	93.23	0.00	
J-108	2.02	2962.16	92.80	0.00	
J-109	2.02	2962.16	91.93	0.00	
J-305	2.06	2960.41	82.51	0.00	
S145	0.00	3024.93	132.17	0.00	
J-207	2.70	2962.26	98.47	0.00	
J-208	0.68	2962.26	101.07	0.00	
J-206	0.68	2962.33	118.43	0.00	
J-204	2.70	2962.68	111.65	0.00	
J-205	2.70	2962.68	105.15	0.00	
J-203	12.82	2963.43	105.91	0.00	
J-200	7.42	2964.42	110.67	0.00	
J-211	0.00	2963.63	102.53	0.00	
J-201	2.02	2964.15	118.79	0.00	
J-202	10.12	2964.14	102.32	0.00	
J-119	0.00	2961.72	115.57	0.00	
J-120	2.02	2961.72	118.30	0.00	
J-121	0.00	2961.73	118.39	0.00	
J-122	45.90	2961.72	121.63	0.00	
J-210	2.02	2962.30	121.45	0.00	
J-209	0.68	2962.33	118.00	0.00	
J-113	1.36	2961.95	108.74	0.00	
J-116	0.68	2961.77	111.69	0.00	
J-25	5.52	2960.99	50.69	0.00	
J-34	0.68	2963.03	67.18	0.00	
J-400	0.00	2715.00	-2.12	0.00	
J-45	3.72	2960.99	45.06	0.00	
J-44	23.66	2960.99	60.01	0.00	
J-43	0.00	2961.00	65.43	0.00	
J-46	0.00	2964.77	106.92	0.00	
J-47	0.00	2964.94	107.00	0.00	
R-1	-1392.94	2715.00	0.00	0.00	Reservoir

Link Results:

Link ID	Flow GPM	Velocity fps	Unit Headloss ft/Kft	Status
P-1	-26.20	0.17	0.02	Open
P-2	1.04	0.01	0.00	Open
P-3	113.22	0.72	0.32	Open
P-4	107.70	0.69	0.29	Open
P-5	101.84	0.65	0.27	Open
P-6	1.38	0.01	0.00	Open
P-7	-3.44	0.02	0.00	Open
P-8	190.32	0.54	0.12	Open
P-9	125.86	0.36	0.06	Open
P-10	122.42	0.35	0.05	Open
P-11	20.30	0.13	0.01	Open
P-12	-49.90	0.14	0.01	Open
P-13	-33.04	0.09	0.00	Open
P-14	64.46	0.18	0.02	Open
P-16	5.84	0.04	0.00	Open
P-17	-4.70	0.03	0.00	Open
P-20	3.10	0.02	0.00	Open
P-22	-1.72	0.01	0.00	Open
P-23	14.34	0.09	0.01	Open
P-24	-4.83	0.03	0.00	Open
P-25	-31.32	0.20	0.03	Open
P-26	2.06	0.01	0.00	Open
P-27	8.68	0.06	0.00	Open
P-28	16.34	0.10	0.01	Open
P-29	132.56	0.38	0.06	Open
P-30	126.70	0.36	0.06	Open
P-31	87.82	0.25	0.03	Open
P-32	70.04	0.20	0.02	Open
P-33	80.92	0.23	0.02	Open
P-34	47.88	0.14	0.01	Open
P-36	-190.32	0.54	0.12	Open
P-37	-720.04	2.04	1.38	Open
P-38	20.42	0.06	0.00	Open
P-39	13.66	0.04	0.00	Open
P-40	0.84	0.00	0.00	Open
P-41	138.45	0.88	0.47	Open
P-42	135.73	0.87	0.45	Open
P-43	131.67	0.84	0.43	Open
P-44	129.63	0.83	0.42	Open
P-45	152.13	0.97	0.56	Open
P-46	142.69	0.91	0.50	Open
P-47	128.51	0.36	0.06	Open
P-48	-876.25	2.49	1.98	Open
P-49	-346.53	2.21	2.57	Open
P-50	-352.03	2.25	2.64	Open
P-51	-252.95	1.61	1.43	Open
P-52	-253.29	1.62	1.43	Open

Link Results: (continued)

Link ID	Flow GPM	Velocity fps	Unit Headloss ft/Kft	Status
P-53	-199.52	1.27	0.92	Open
P-54	32.06	0.20	0.03	Open
P-55	-3.38	0.02	0.00	Open
P-56	1.36	0.01	0.00	Open
P-57	217.28	1.39	1.08	Open
P-58	79.96	0.51	0.17	Open
P-59	-4.06	0.03	0.00	Open
P-60	2.02	0.01	0.00	Open
P-62	917.68	2.60	2.16	Open
P-63	-141.66	0.40	0.07	Open
P-64	0.68	0.00	0.00	Open
P-65	-145.04	0.41	0.07	Open
P-66	-220.20	1.41	1.11	Open
P-67	-2.70	0.02	0.00	Open
P-68	-225.60	1.44	1.16	Open
P-69	122.51	0.78	0.37	Open
P-70	122.51	0.78	0.37	Open
P-71	-115.92	0.74	0.34	Open
P-73	128.06	0.82	0.41	Open
P-74	10.12	0.06	0.00	Open
P-75	-2.02	0.01	0.00	Open
P-76	-25.88	0.17	0.02	Open
P-77	-73.80	0.21	0.02	Open
P-78	-74.48	0.21	0.02	Open
P-79	10.20	0.07	0.00	Open
P-80	36.82	0.10	0.01	Open
P-82	14.61	0.09	0.01	Open
P-83	743.17	2.11	1.46	Open
P-84	171.13	1.09	0.69	Open
P-85	-8.10	0.05	0.00	Open
P-86	-1.36	0.01	0.00	Open
P-87	-2.70	0.02	0.00	Open
P-88	-0.68	0.00	0.00	Open
P-89	23.86	0.15	0.02	Open
P-90	-71.78	0.46	0.14	Open
P-91	45.90	0.29	0.06	Open
P-92	-67.94	0.43	0.12	Open
P-93	-67.26	0.43	0.12	Open
P-94	132.61	0.85	0.43	Open
P-95	-46.54	0.30	0.06	Open
P-96	-47.22	0.30	0.06	Open
P-97	81.98	0.52	0.18	Open
P-98	-2.06	0.01	0.00	Open
P-99	-11.48	0.03	0.00	Open
P-100	-2.02	0.01	0.00	Open
P-101	1392.94	0.99	0.17	Open
P-81	3.72	0.02	0.00	Open

Link Results: (continued)

Link ID	Flow GPM	Velocity fps	Unit Headloss ft/Kft	Status
P-106	-22.18	0.14	0.02	Open
P-104	46.40	0.13	0.01	Open
P-105	-22.18	0.14	0.02	Open
P-103	24.23	0.15	0.02	Open
P-107	9.66	0.06	0.00	Open
P-102	-9.09	0.06	0.00	Open
P-61	1134.96	3.22	5.35	Open
P-108	1134.96	3.22	17.70	Open
P-72	257.98	1.65	1.60	Open
PUMP-1	334.87	0.00	-309.93	Open Pump
PUMP-2	0.00	0.00	0.00	Closed Pump
PUMP-3	0.00	0.00	0.00	Closed Pump
PUMP-4	1058.08	0.00	-309.93	Open Pump
PRV-1	1392.94	3.95	59.99	Active Valve