

Water Basis of Design Report

Sereno Canyon Phase 4

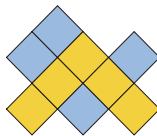


prepared for:

Toll Brothers Inc.

8767 E. Via de Ventura, Suite 390
Scottsdale, Arizona 85258
480 951 0782

prepared by:



ARGUS CONSULTING

A CIVIL ENGINEERING COMPANY, PC

10115 E. Bell Road, Suite 107 - #104
Scottsdale, Arizona 85260
480 596 1131

April 2018

FINAL Basis of Design Report

- APPROVED
- APPROVED AS NOTED
- REVISE AND RESUBMIT



Disclaimer: If approved; the approval is granted under the condition that the final construction documents submitted for city review will match the information herein. Any subsequent changes in the water or sewer design that materially impact design criteria or standards will require re-analysis, re-submittal, and approval of a revised basis of design report prior to the plan review submission.; this approval is not a guarantee of construction document acceptance. For questions or clarifications contact the Water Resources Planning and Engineering Department at 480-312-5685.

BY scan

DATE 6/27/2018

TABLE OF CONTENTS

1.0 Introduction..... 2
 1.1 Project Location 2
 1.2 Property Description 2
 1.3 Purpose..... 2
2.0 Description of Existing Conditions..... 3
 2.1 On-Site Current Conditions 3
 2.2 Site 143 Service Area Water Source..... 4
3.0 Proposed Water Distribution Plan 4
 3.1 Design Criteria 4
 3.2 Proposed Condition..... 4
4.0 Existing Basis of Design Reports 5
5.0 Water Model 5
6.0 Conclusions..... 7
7.0 References..... 7

LIST OF EXHIBITS

- FIGURE 1: VICINITY MAP
- FIGURE 2: WATER DISTRIBUTION MAP
- APPENDIX A: DEMAND ANALYSIS, EXISTING BOOSTER PUMP CURVE
- APPENDIX B: AVERAGE DAY HYDRAULIC MODEL ANALYSIS
- APPENDIX C: MAXIMUM DAY HYDRAULIC MODEL ANALYSIS
- APPENDIX D: PEAK HOUR HYDRAULIC MODEL ANALYSIS
- APPENDIX E: MAXIMUM DAY PLUS FIRE FLOW HYDRAULIC MODEL ANALYSIS



1.0 Introduction

This Water Basis of Design Report has been prepared for the Sereno Canyon Phase 4, a single family residential and Resort Casita development, which is being developed by Toll Brothers, an Arizona Corporation. This is the final phase of the Sereno Canyon Development that was developed by Crown Development in 2005. The development was to be subdivided into four phases. Phase 1 improvements have been completed. Phase 2 and Phase 3 will be completed in the future.

1.1 Project Location

The project 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 south by Pinnacle Peak Road Alignment, on the west by 122nd Street and Phase 2 of Sereno Canyon, on the north by Phase 1 and Phase 3 of Sereno Canyon, and on the east by N. 128th Street and rural residential parcels. *See Figure 1, Vicinity Map.*

1.2 Property Description

The project is located within the City of Scottsdale, Arizona. Phase 4 of the project is approximately 121.65 acres with a total of 268 residential dwelling units and 29 Resort Casitas. The property is located on rolling terrain. The southern and western portions of the property slope to the north and to the east. The southeast portion of the property slope to the northeast and to the east. The site is within the elevation range from 2688 to 2855.

1.3 Purpose

This Report has been prepared to satisfy the City of Scottsdale requirements for the Preliminary Plat submittal process for Sereno Canyon Phase 4. 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. The city of Scottsdale Water Resources Department approved a Water Basis of Design Report for the project in 2005. The property has been rezoned for more units and an amendment to the Master Water Report for Sereno Canyon was prepared at the time. The Master Water Report for Sereno Canyon was prepared by Wood Patel and Associates, Inc. The amendment to the Master Water report for the Rezoning Basis of Design on Feb. 18, 2014, prepared by LD Team. This property is located within Quarter Section map 45-57, and 45-58. These reports were used as a reference for the proposed Sereno Canyon Phase 4 development. This report was prepared in accordance with the City of Scottsdale Design Standards & Policies Manual, January 2010 (Reference 1).

The Sereno Canyon development is part of a Facility Payback Agreement (Agreement No. 2010-168-COS). First Administrative Amendment to the Facility Payback Agreement (Agreement No. 2010-168-COS-A1), Paragraph 9, states: “... *Developer has water system capacity reserved in the pump station at Site 145 for 397 EDUs.*” The agreement states that the Pump Station at Site 145 has a capacity to provide maximum day service to 1,106 single family residential lots or equivalent dwelling units (EDUs) while simultaneously providing fire flow at 1,500 gallons per minute. 397 EDUs are reserved for Sereno Canyon Phase 1-4 and 709 EDUs capacity will be allocated on a first-come-first-serve basis and reserved upon payment of the applicable Water Facility Payback fees. Sereno Canyon allocation of EDUs to the Pump Station at Site 145 is as follows:

Phase 1 = 56 EDUs

Phase 2 = 14 EDUs

Phase 3 = 19 EDUs

Phase 4 = 268 EDUs

Resort = 29 EDUs

Total = 386 EDUs

Based on this, the total EDUs from Sereno Canyon for the Pump Station at Site 145 is **below** the ‘reserved’ capacity of 397 EDUs. Therefore, Agreement No. 210-168-COS-A1 “**does not**” affect this development and water service “**does not**” need to be secured beyond the capacity of the Water Pump Facility at Site 145.

2.0 Description of Existing Conditions

2.1 On-Site Current Conditions

Phase 4 site is currently undeveloped desert land and has been rezoned as single family residential dwelling units, and 29 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. A Zone 13, 12-inch transmission line, is located within East Alameda Road and the existing 124th Street. The 12 inch line connects to the north to a 12 inch line in East La Junta Road Alignment. This 12 inch line continues to the west to the section line, then continues to the north to East Ranch Gate Road. From this point the system continues to the 3 million gallon tank and booster station located at site 143. The existing booster station site (145) is located at the East Alameda Road entrance to the

Sereno Canyon development. It is located south and adjacent to the E. Alameda Rd alignment. 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 Dixileta 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 Design Standards & Policies Manual, dated January 2010. The following is a summary of the design criteria upon which this study is based.

Basis of Water Design

- The project is located in Zones 13 and 14 according to figure 6.1-3 pressure zone map
- The total number of dwelling units = 268
- The total number of rooms for the Resort = 29
- 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

The development will consist of single family residential dwellings and a 29 casita Resort. The proposed distribution system will be 8-inch water pipes within development streets with a 12 inch distribution line in the proposed collector street that traverses the site from the west to the east starting at the 124th Street and East Mariposa Grande Drive intersection continuing to the east and ending at the 128th Street alignment. The existing booster station at site 145 will provide the needed flow and pressures for the development. This booster station is located south of the E. Alameda Road along the western boundary of the Sereno Canyon Phase 1 and Phase 2. This booster station has four pumps servicing this area. The first three pumps are for the average day, maximum day and peak hour flows and the fourth pump is the fire flow pump. See Appendix A for the pump curves supplied by Scott

Anderson with the City of Scottsdale. Pumps 1-3 are 50 horsepower and pump 4 (fire flow pump) is 150 horsepower. Phase 4 water lines will connect to the existing lines in Phase 1, 2 and 3. An 8 inch line will need to be constructed within the 125th Street alignment in Phase 3 of Sereno Canyon to loop the system. The water lines are existing within Phases 1 and 2 of Sereno Canyon.

Fire protection for the development shall follow the Design Standards & Policies Manual, dated January 2010 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 and the Resort.

Domestic flow was calculated as follows:

Total residential units 3-7.9 du/ac = 261 x 248.2 gallon/unit = 64,780 gallons per day

Total residential units <2 du/ac = 7 x 486 gallons/unit = 3402 gallons per day

Total Resort Rooms = 29 x 446.3 gallon/room = 12,943 gallons per day

Total Resort Spa = 14500 sf x 1.3 = 18,850 gallons per day

Total Average Day Flow (Phase 4) = 69.43 gpm

Total Average Day Flow (Phase 1-3) = 32.40 gpm

Total Model Domestic Flows: Includes Phases 1-4 onsite and offsite demands.

Total average day Flow = 201.69 gpm

Peak hour Flow = 3.5 * 201.69 = 705.90 gpm

Maximum day Demand = 2.0 * 201.69 = 403.37 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 2715. 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 constructed for each home that has pressures greater than 120 psi. 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. 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: 2717 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 for Phase 4 of the development and 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.

Table 1-Results of EPAnet Hydraulic Analysis

| Scenario | Flow (gpm) | Pressure (psig) | | | | Maximum Velocity (fps) | Pipe ID |
|---------------------------------|------------|-----------------|------|---------|-------|------------------------|---------|
| | | Minimum | Node | Maximum | Node | | |
| Average Day | 210.25 | 50.73 | J-25 | 119.5 | J-122 | 0.60 | PRV |
| Maximum Day | 420.50 | 50.60 | J-25 | 119.32 | J-122 | 1.19 | PRV |
| Peak Hour | 735.80 | 50.93 | J-37 | 126.06 | J-122 | 2.09 | PRV |
| Max Day + Fire Flow (1,500 gpm) | 1917.42 | 43.22 | J-23 | NA | NA | NA | NA |

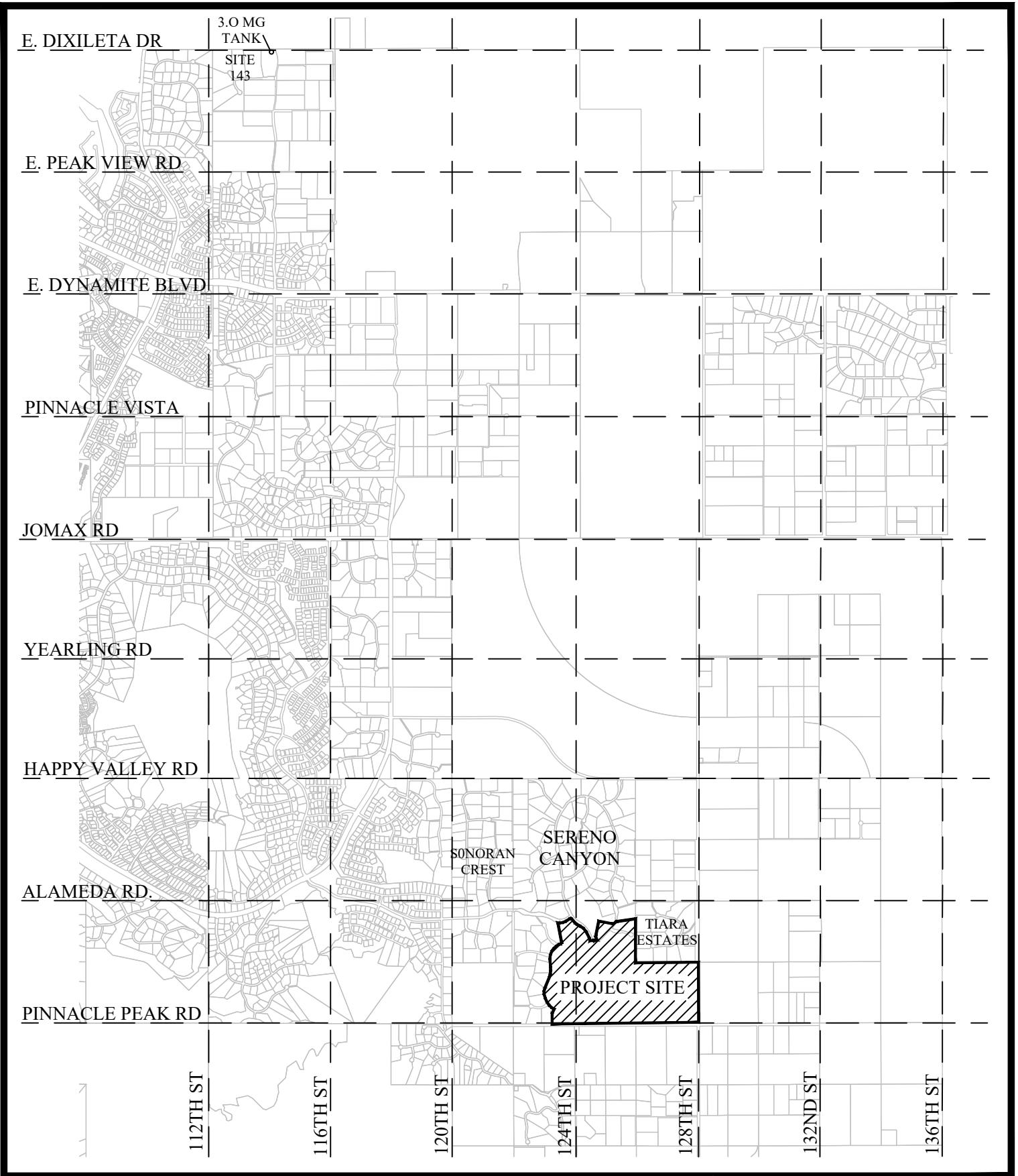
6.0 Conclusions

- 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, *January 2010*.
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.*

Figure 1: Vicinity Map



SERENO CANYON
 PHASE 4
 SCOTTSDALE, AZ

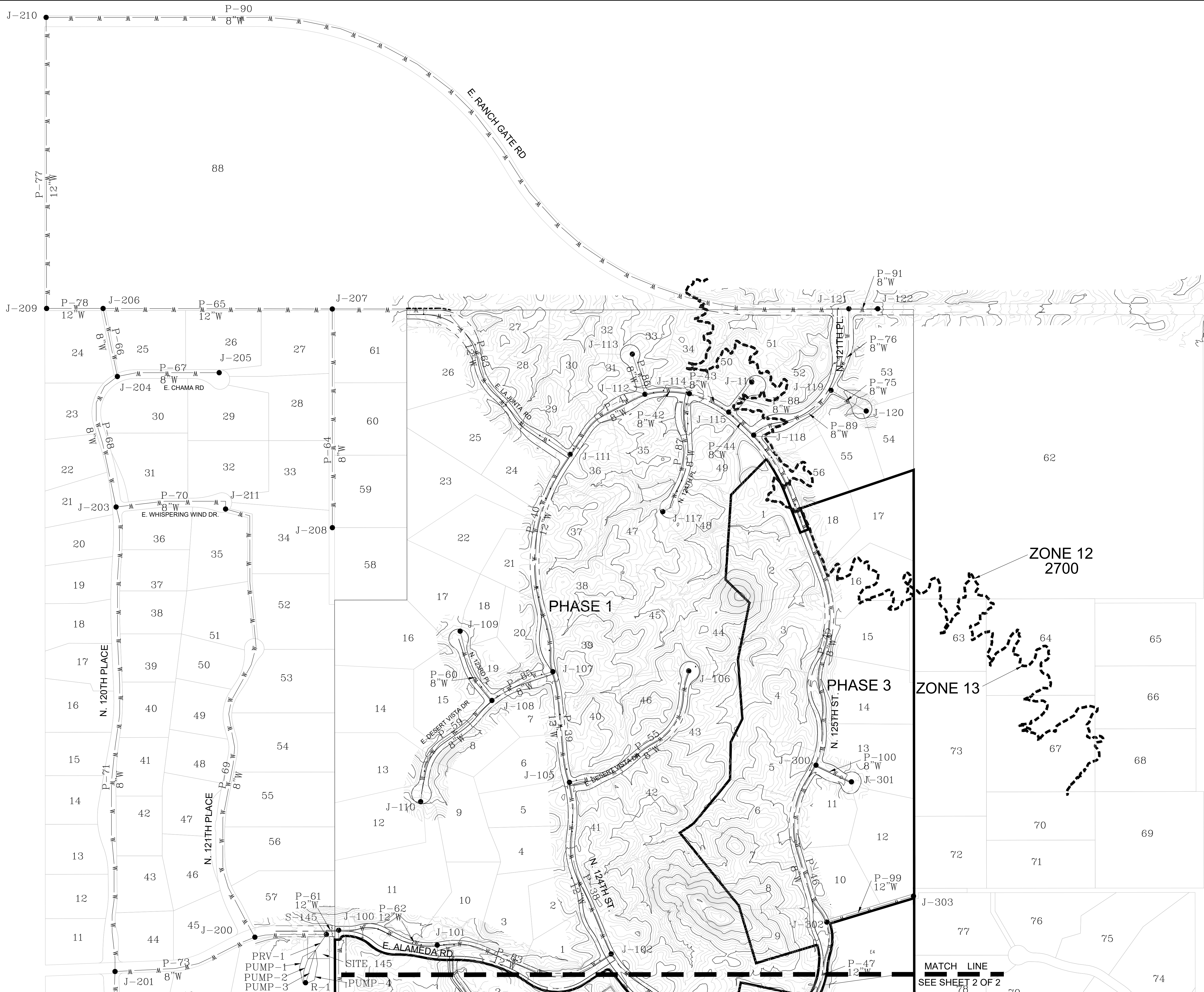
VICINITY MAP
 FIGURE 1




ARGUS CONSULTING
 A CIVIL ENGINEERING COMPANY, P.C.

10115 E. Bell Road, Suite 107 - #104
 Scottsdale, Arizona 85260 480-596-1131

Figure 2: Water Distribution Map




 SCALE: 1=200'


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 | 56 |
| Phase 2 | 22 |
| Phase 3 | 18 |
| Phase 4 | 268 |
| offsite | 296 |
| Resort | 29 |
| TOTAL | 689 |





ARGUS CONSULTING
A CIVIL ENGINEERING COMPANY, P.C.
10115 E. Bell Road, Suite 107 - #104
Scottsdale, Arizona 85260 480-596-1131

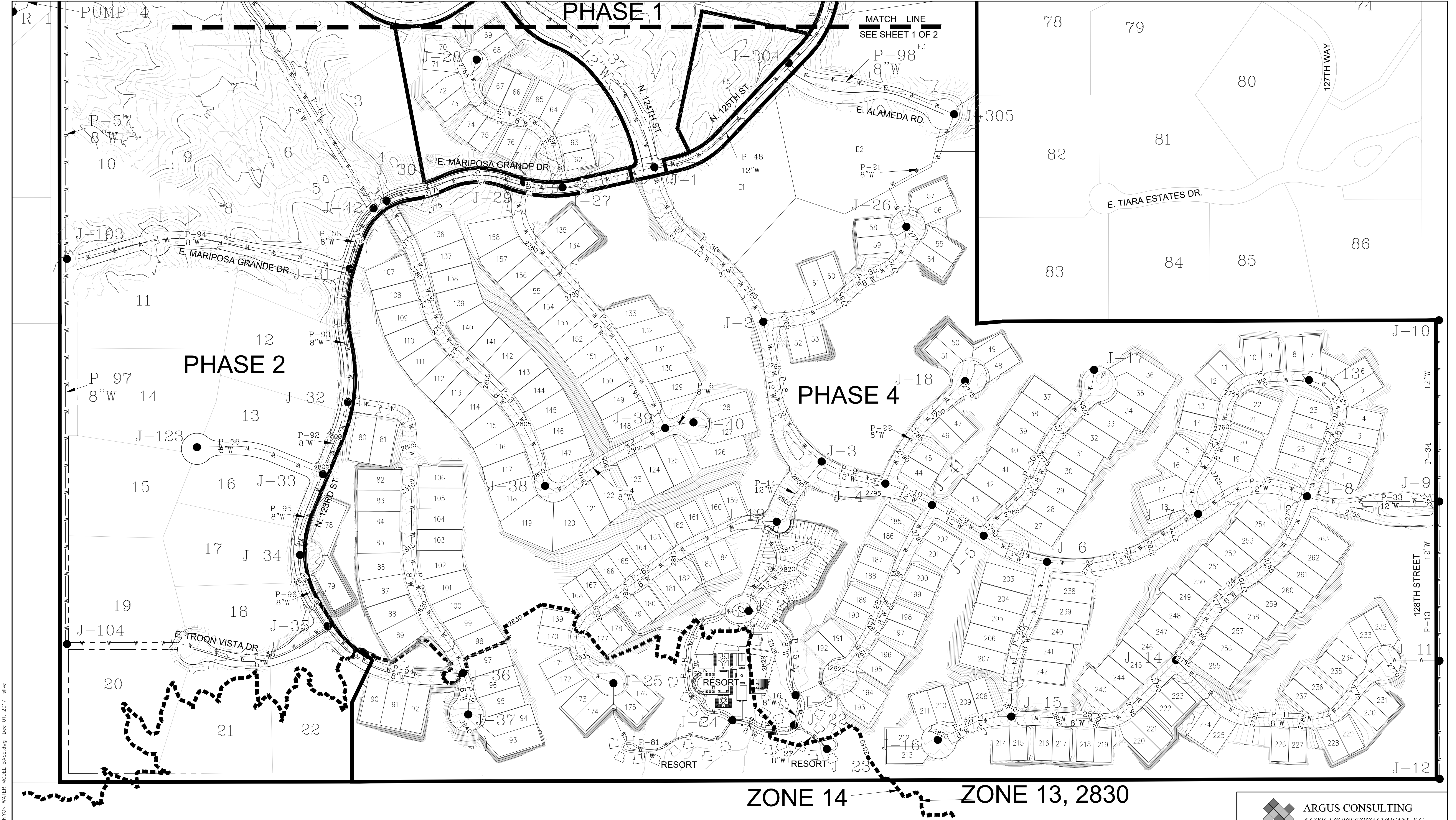
SERENO CANYON PHASE 4

FIGURE 2
WATER DISTRIBUTION PLAN

| | |
|-------------|--------------|
| Designed by | Drawn by |
| Date 6-2017 | Job No. |
| | Sheet 1 of 2 |

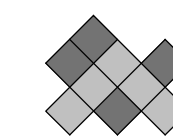
F:\Civil\3D\Argus\Sereno Canyon\SERENO CANYON WATER MODEL BASE.dwg Dec 01, 2017 silve

MATCH LINE
SEE SHEET 2 OF 2



ZONE 14 — ZONE 13, 2830

SCALE:1=120'

 ARGUS CONSULTING
A CIVIL ENGINEERING COMPANY, P.C.

10115 E. Bell Road, Suite 107 - #104
Scottsdale, Arizona 85260 480-596-1131

SERENO CANYON PHASE 4

FIGURE 2
WATER DISTRIBUTION PLAN



| | |
|-------------|--------------|
| Designed by | Drawn by |
| Date 6-2017 | Job No. |
| | Sheet 2 of 2 |

F:\Civil\3D\Argus\Sereno Canyon\SERENO CANYON WATER MODEL BASE.dwg Dec 01, 2017 silve

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 Hour Demand (GPD) | Peak Hour 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 | 95.19 |
| J-2 | 2779 | Residential | 4 | 4 | 248.2 | 992.80 | 0.69 | 1985.60 | 1.38 | 3,474.80 | 2.41 | 93.75 |
| J-3 | 2794.6 | Residential | 4 | 0 | 248.2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 86.24 |
| J-4 | 2792.5 | Residential | 4 | 4 | 248.2 | 992.80 | 0.69 | 1985.60 | 1.38 | 3,474.80 | 2.41 | 86.97 |
| J-5 | 2789 | Residential | 4 | 8 | 248.2 | 1985.60 | 1.38 | 3971.20 | 2.76 | 6,949.60 | 4.83 | 88.16 |
| J-6 | 2788 | Residential | 4 | 6 | 248.2 | 1489.20 | 1.03 | 2978.40 | 2.07 | 5,212.20 | 3.62 | 88.29 |
| J-7 | 2766 | Residential | 4 | 12 | 248.2 | 2978.40 | 2.07 | 5956.80 | 4.14 | 10,424.40 | 7.24 | 97.46 |
| J-8 | 2756 | Residential | 4 | 11 | 248.2 | 2730.20 | 1.90 | 5460.40 | 3.79 | 9,555.70 | 6.64 | 101.60 |
| J-9 | 2747 | Residential | 4 | 0 | 248.2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 105.02 |
| J-10 | 2731 | Residential | offsite | 71 | 485.6 | 34477.60 | 23.94 | 68955.20 | 47.89 | 120,671.60 | 83.80 | 113.28 |
| J-11 | 2767 | Residential | 4 | 12 | 248.2 | 2978.40 | 2.07 | 5956.80 | 4.14 | 10,424.40 | 7.24 | 96.25 |
| J-12 | 2781 | Residential | offsite | 74 | 485.6 | 35934.40 | 24.95 | 71868.80 | 49.91 | 125,770.40 | 87.34 | 91.65 |
| J-13 | 2742 | Residential | 4 | 10 | 248.2 | 2482.00 | 1.72 | 4964.00 | 3.45 | 8,687.00 | 6.03 | 106.74 |
| J-14 | 2783 | Residential | 4 | 20 | 248.2 | 4964.00 | 3.45 | 9928.00 | 6.89 | 17,374.00 | 12.07 | 89.43 |
| J-15 | 2807.5 | Residential | 4 | 10 | 248.2 | 2482.00 | 1.72 | 4964.00 | 3.45 | 8,687.00 | 6.03 | 78.50 |
| J-16 | 2818 | Residential | 4 | 6 | 248.2 | 1489.20 | 1.03 | 2978.40 | 2.07 | 5,212.20 | 3.62 | 72.12 |
| J-17 | 2759 | Residential | 4 | 9 | 248.2 | 2233.80 | 1.55 | 4467.60 | 3.10 | 7,818.30 | 5.43 | 96.52 |
| J-18 | 2773 | Residential | 4 | 4 | 248.2 | 992.80 | 0.69 | 1985.60 | 1.38 | 3,474.80 | 2.41 | 92.42 |
| J-19 | 2807 | Residential | 4 | 10 | 248.2 | 2482.00 | 1.72 | 4964.00 | 3.45 | 8,687.00 | 6.03 | 79.99 |
| J-20 | 2825.5 | Resort Building | | 14500 | 1.3 | 18950.00 | 13.09 | 37700.00 | 26.18 | 65,975.00 | 45.82 | 68.67 |
| J-21 | 2825.5 | Resort | | 0 | 446.3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 48.36 |
| J-22 | 2826 | Resort | | 8 | 446.3 | 3570.40 | 2.48 | 7140.80 | 4.96 | 12,496.40 | 8.68 | 47.21 |
| J-23 | 2831 | Resort | | 8 | 446.3 | 3570.40 | 2.48 | 7140.80 | 4.96 | 12,496.40 | 8.68 | 43.22 |
| J-24 | 2831 | Resort | | 13 | 446.3 | 5801.90 | 4.03 | 11603.80 | 8.06 | 20,306.65 | 14.10 | 56.95 |
| J-25 | 2835.5 | Residential | 4 | 16 | 248.2 | 3971.20 | 2.76 | 7942.40 | 5.52 | 13,899.20 | 9.65 | 66.01 |
| J-26 | 2766 | Residential | 4 | 6 | 248.2 | 1489.20 | 1.03 | 2978.40 | 2.07 | 5,212.20 | 3.62 | 98.18 |
| J-27 | 2788 | Residential | 4 | 6 | 248.2 | 1489.20 | 1.03 | 2978.40 | 2.07 | 5,212.20 | 3.62 | 90.07 |
| J-28 | 2761 | Residential | 4 | 10 | 248.2 | 2482.00 | 1.72 | 4964.00 | 3.45 | 8,687.00 | 6.03 | 97.81 |
| J-29 | 2780.5 | Residential | 4 | 8 | 248.2 | 1985.60 | 1.38 | 3971.20 | 2.76 | 6,949.60 | 4.83 | 93.34 |
| J-30 | 2770.5 | Residential | 4 | 13 | 248.2 | 3226.60 | 2.24 | 6453.20 | 4.48 | 11,293.10 | 7.84 | 97.95 |
| J-31 | 2776 | Residential | 4 | 0 | 248.2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 95.09 |
| J-32 | 2791 | Residential | 4 | 10 | 248.2 | 2482.00 | 1.72 | 4964.00 | 3.45 | 8,687.00 | 6.03 | 87.25 |
| J-33 | 2803 | Residential | 4 | 0 | 248.2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 81.29 |
| J-34 | 2808 | Residential | 4 | 2 | 248.2 | 496.40 | 0.34 | 992.80 | 0.69 | 1,737.40 | 1.21 | 79.00 |
| J-35 | 2821 | Residential | 4 | 0 | 248.2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 73.53 |
| J-36 | 2827 | Residential | 4 | 11 | 248.2 | 2730.20 | 1.90 | 5460.40 | 3.79 | 9,555.70 | 6.64 | 70.24 |
| J-37 | 2835 | Residential | 4 | 5 | 248.2 | 1241.00 | 0.86 | 2482.00 | 1.72 | 4,343.50 | 3.02 | 65.73 |
| J-38 | 2809 | Residential | 4 | 16 | 248.2 | 3971.20 | 2.76 | 7942.40 | 5.52 | 13,899.20 | 9.65 | 79.02 |
| J-39 | 2794 | Residential | 4 | 10 | 248.2 | 2482.00 | 1.72 | 4964.00 | 3.45 | 8,687.00 | 6.03 | 85.49 |
| J-40 | 2794.5 | Residential | 4 | 6 | 248.2 | 1489.20 | 1.03 | 2978.40 | 2.07 | 5,212.20 | 3.62 | 84.56 |
| J-41 | 2790.2 | Residential | 4 | 16 | 248.2 | 3971.20 | 2.76 | 7942.40 | 5.52 | 13,899.20 | 9.65 | 87.98 |
| J-42 | 2769 | Residential | 4 | 0 | 248.2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 98.52 |
| J-100 | 2719 | Residential | 1 | 0 | 486 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 121.73 |
| J-101 | 2733.5 | Residential | 2 | 7 | 486 | 3402.00 | 2.36 | 6804.00 | 4.73 | 11,907.00 | 8.27 | 115.07 |
| J-102 | 2765 | Residential | 1 | 4 | 486 | 1944.00 | 1.35 | 3888.00 | 2.70 | 6,804.00 | 4.73 | 100.78 |
| J-103 | 2747 | Residential | 2 | 5 | 486 | 2430.00 | 1.69 | 4860.00 | 3.38 | 8,505.00 | 5.91 | 107.48 |

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 Hour Demand (GPD) | Peak Hour Demand (GPM) | Minimum PSI at Fire Flow |
|--------------|-----------|-------------|---------|-------------|----------------|--------------------------|--------------------------|--------------------------|--------------------------|------------------------|------------------------|--------------------------|
| J-104 | 2802 | Residential | 2 | 5 | 486 | 2430.00 | 1.69 | 4860.00 | 3.38 | 8,505.00 | 5.91 | 81.41 |
| J-105 | 2747 | Residential | 1 | 5 | 486 | 2430.00 | 1.69 | 4860.00 | 3.38 | 8,505.00 | 5.91 | 108.15 |
| J-106 | 2729 | Residential | 1 | 5 | 486 | 2430.00 | 1.69 | 4860.00 | 3.38 | 8,505.00 | 5.91 | 109.61 |
| J-107 | 2736 | Residential | 1 | 7 | 486 | 3402.00 | 2.36 | 6804.00 | 4.73 | 11,907.00 | 8.27 | 112.78 |
| J-108 | 2748 | Residential | 1 | 3 | 486 | 1458.00 | 1.01 | 2916.00 | 2.03 | 5,103.00 | 3.54 | 107.58 |
| J-109 | 2750 | Residential | 1 | 3 | 486 | 1458.00 | 1.01 | 2916.00 | 2.03 | 5,103.00 | 3.54 | 101.35 |
| J-110 | 2747 | Residential | 1 | 6 | 486 | 2916.00 | 2.03 | 5832.00 | 4.05 | 10,206.00 | 7.09 | 100.81 |
| J-111 | 2729 | Residential | 1 | 6 | 486 | 2916.00 | 2.03 | 5832.00 | 4.05 | 10,206.00 | 7.09 | 115.55 |
| J-112 | 2709 | Residential | 1 | 2 | 486 | 972.00 | 0.68 | 1944.00 | 1.35 | 3,402.00 | 2.36 | 122.76 |
| J-113 | 2711 | Residential | 1 | 2 | 486 | 972.00 | 0.68 | 1944.00 | 1.35 | 3,402.00 | 2.36 | 120.38 |
| J-114 | 2706 | Residential | 1 | 2 | 486 | 972.00 | 0.68 | 1944.00 | 1.35 | 3,402.00 | 2.36 | 123.78 |
| J-115 | 2703 | Residential | 1 | 2 | 486 | 972.00 | 0.68 | 1944.00 | 1.35 | 3,402.00 | 2.36 | 124.95 |
| J-116 | 2704 | Residential | 1 | 1 | 486 | 486.00 | 0.34 | 972.00 | 0.68 | 1,701.00 | 1.18 | 123.12 |
| J-117 | 2713 | Residential | 1 | 3 | 486 | 1458.00 | 1.01 | 2916.00 | 2.03 | 5,103.00 | 3.54 | 116.23 |
| J-118 | 2702 | Residential | 1 | 2 | 486 | 972.00 | 0.68 | 1944.00 | 1.35 | 3,402.00 | 2.36 | 125.37 |
| J-119 | 2693 | Residential | 1 | 0 | 486 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 127.60 |
| J-120 | 2683 | Residential | 1 | 3 | 486 | 1458.00 | 1.01 | 2916.00 | 2.03 | 5,103.00 | 3.54 | 130.55 |
| J-121 | 2683 | Residential | 1 | 0 | 486 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 130.83 |
| J-122 | 2677 | Residential | offsite | 68 | 486 | 33048.00 | 22.95 | 66096.00 | 45.90 | 115,668.00 | 80.33 | |
| J-123 | 2784 | Residential | 2 | 5 | 486 | 2430.00 | 1.69 | 4860.00 | 3.38 | 8,505.00 | 5.91 | 86.69 |
| J-200 | 2709 | Residential | offsite | 11 | 486 | 5346.00 | 3.71 | 10692.00 | 7.43 | 18,711.00 | 12.99 | |
| J-201 | 2685 | Residential | offsite | 3 | 486 | 1458.00 | 1.01 | 2916.00 | 2.03 | 5,103.00 | 3.54 | |
| J-202 | 2728 | Residential | offsite | 15 | 486 | 7290.00 | 5.06 | 14580.00 | 10.13 | 25,515.00 | 17.72 | |
| J-203 | 2719 | Residential | offsite | 19 | 486 | 9234.00 | 6.41 | 18468.00 | 12.83 | 32,319.00 | 22.44 | |
| J-204 | 2701 | Residential | offsite | 4 | 486 | 1944.00 | 1.35 | 3888.00 | 2.70 | 6,804.00 | 4.73 | |
| J-205 | 2720 | Residential | offsite | 4 | 486 | 1944.00 | 1.35 | 3888.00 | 2.70 | 6,804.00 | 4.73 | |
| J-206 | 2685 | Residential | offsite | 1 | 486 | 486.00 | 0.34 | 972.00 | 0.68 | 1,701.00 | 1.18 | |
| J-207 | 2735 | Residential | offsite | 4 | 486 | 1944.00 | 1.35 | 3888.00 | 2.70 | 6,804.00 | 4.73 | |
| J-208 | 2729 | Residential | offsite | 1 | 486 | 486.00 | 0.34 | 972.00 | 0.68 | 1,701.00 | 1.18 | |
| J-209 | 2686 | Residential | offsite | 1 | 486 | 486.00 | 0.34 | 972.00 | 0.68 | 1,701.00 | 1.18 | |
| J-210 | 2681 | Residential | offsite | 3 | 486 | 1458.00 | 1.01 | 2916.00 | 2.03 | 5,103.00 | 3.54 | |
| J-211 | 2727 | Residential | offsite | 0 | 486 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| J-300 | 2727 | Residential | 3 | 11 | 486 | 5346.00 | 3.71 | 10692.00 | 7.43 | 18,711.00 | 12.99 | 114.36 |
| J-301 | 2729 | Residential | 3 | 3 | 486 | 1458.00 | 1.01 | 2916.00 | 2.03 | 5,103.00 | 3.54 | 111.87 |
| J-302 | 2745 | Residential | 3 | 4 | 486 | 1944.00 | 1.35 | 3888.00 | 2.70 | 6,804.00 | 4.73 | 108.45 |
| J-303 | 2740 | Residential | offsite | 17 | 486 | 8262.00 | 5.74 | 16524.00 | 11.48 | 28,917.00 | 20.08 | 110.47 |
| J-304 | 2761 | Residential | 4 | 4 | 486 | 1944.00 | 1.35 | 3888.00 | 2.70 | 6,804.00 | 4.73 | 101.81 |
| J-305 | 2759 | Residential | 4 | 3 | 486 | 1458.00 | 1.01 | 2916.00 | 2.03 | 5,103.00 | 3.54 | 101.27 |
| TOTAL | | | | 689 | | 290,428.90 | 201.69 | 580,857.80 | 403.37 | 1,016,501.15 | 705.90 | |

REV 143 2965 3.0 mg tank
 S145 2715 PUMP SITE
 PUMP1 2715
 PUMP2 2715
 PUMP3 2715
 PUMP4 2715

| | | | | |
|---------|------------|---------------|---------------|---------------|
| Phase 1 | 56 | 18.90 | 37.80 | 66.15 |
| Phase 2 | 22 | 7.43 | 14.85 | 25.99 |
| Phase 3 | 18 | 6.08 | 12.15 | 21.26 |
| Phase 4 | 268 | 47.35 | 94.70 | 165.72 |
| offsite | 296 | 99.86 | 199.72 | 349.51 |
| Resort | 29 | 22.08 | 44.16 | 77.27 |
| | 689 | 201.69 | 403.37 | 705.90 |

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

Site #145

Address 12199 E. Alameda Rd
Elevation 2717 Ft.
Service Region
Station Number BPS-145
RTU Load last modified 01/14/2014

Booster Information

Firm station =
Total station =

| Pump Name | Station Name | Type | HP | Flow High | Schematic ID | 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

S-145

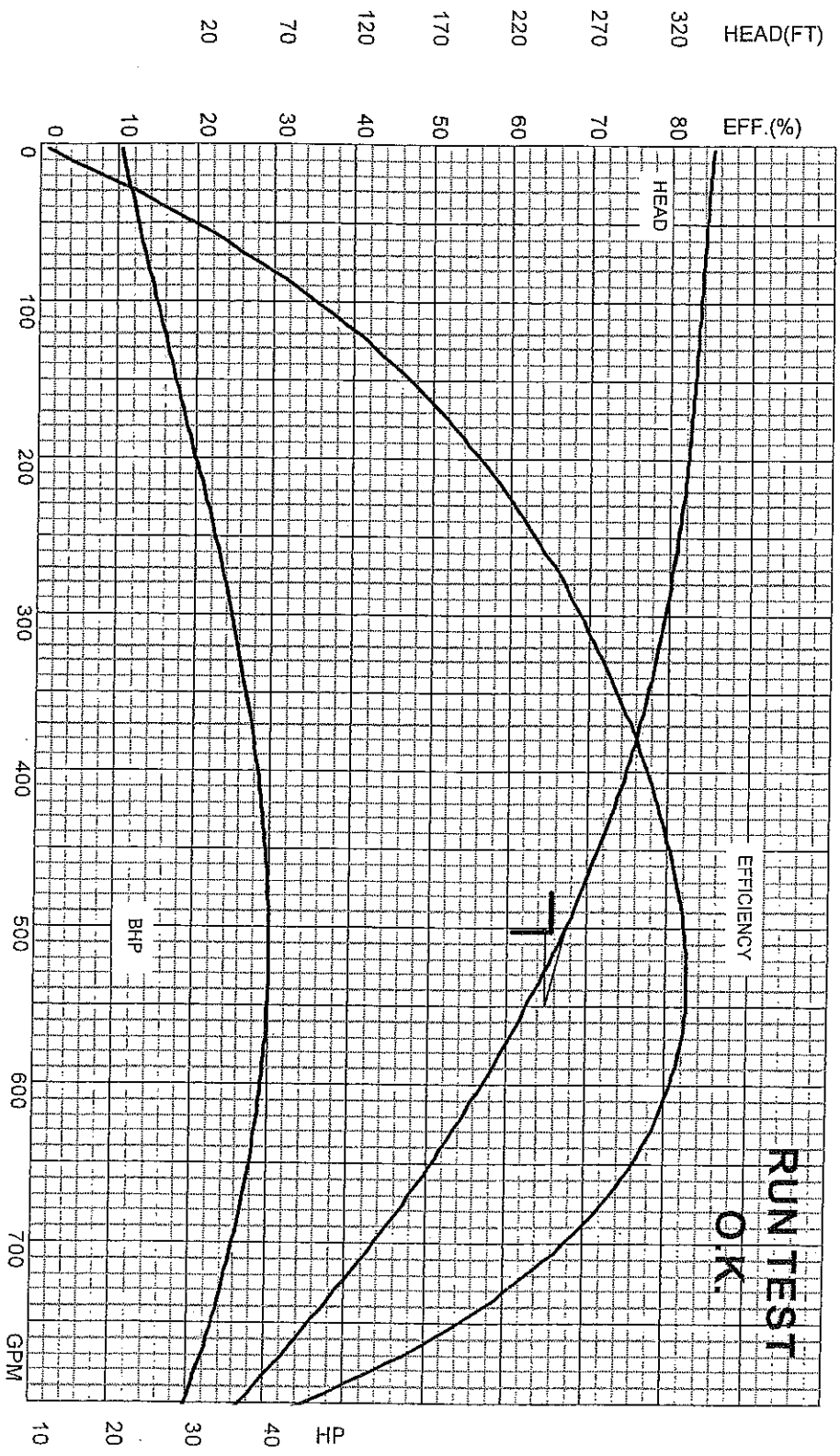
P 1-3

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.: T94363
 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: 38.97
 Rated Eff %: 81.40
 Spec. Gravity: 1.000



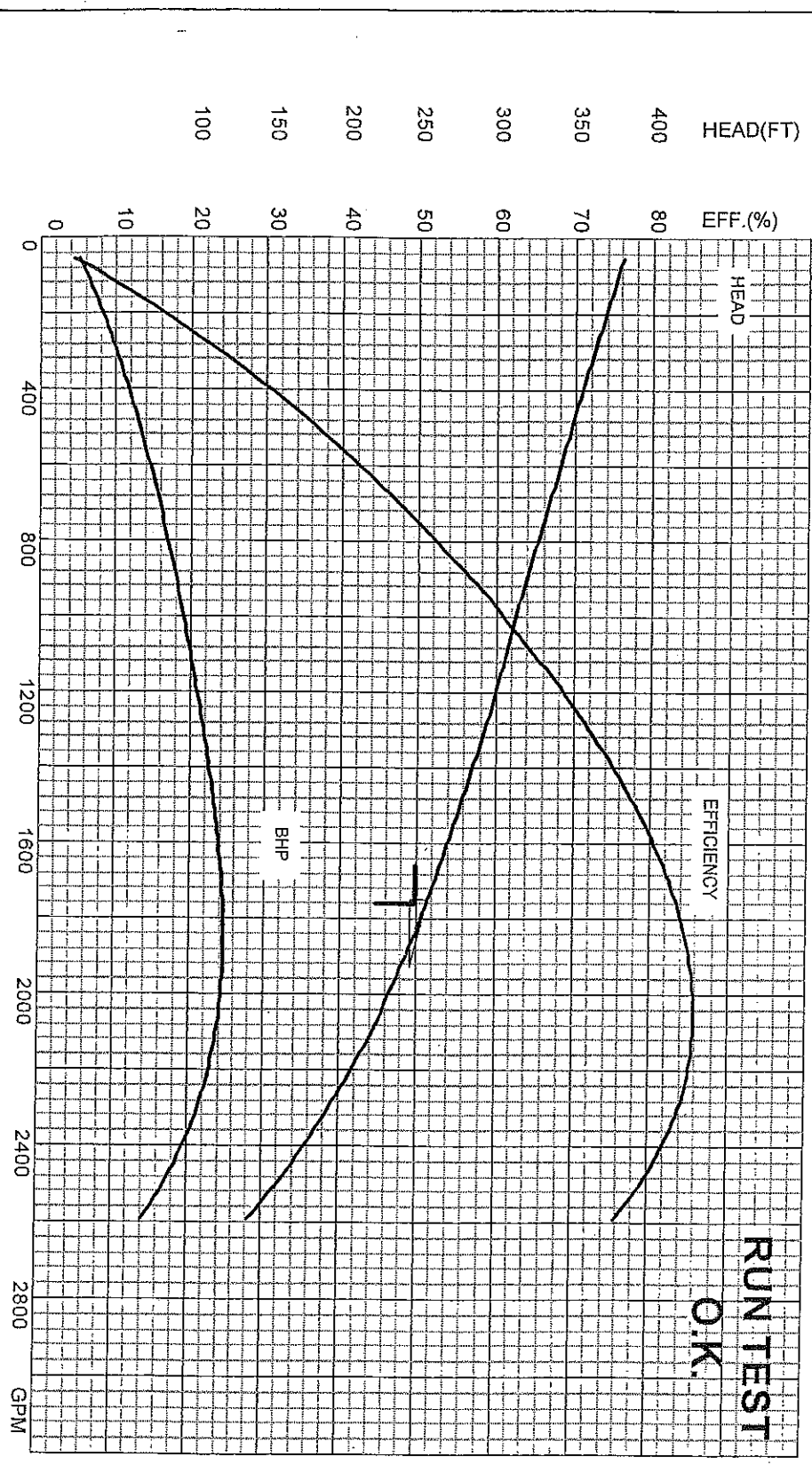
CERTIFIED BOWL PERFORMANCE TEST CURVE

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 | | PUMP: M14HXB | Rated GPM: | 1750.00 |
| TEST SITE: Lubbock TX | IMP. NO.: V4399 | SHOP ORDER: 747310A-1 | Rated Hd(ft): | 245.00 |
| BY: TH | STAGES: 4 | IMP. DIA1: 1-3 @ 9.16 X 10.44 | Rated RPM: | 1782 |
| DATE: 9/18/2008 | IMP. DIA2: 4 @ 8.66 X 9.94 | IMP. DIA3: 0 | Rated HP | 134.90 |
| CUSTOMER: P.E.C. PUMP | | | Spec. Gravity: | 1.000 |



CERTIFIED BOWL PERFORMANCE TEST CURVE

Appendix B

Sereno Canyon Phase 4 Average Day with PRV

Page 1

12/2/2017 10:09:28 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality                 *
*                               Analysis for Pipe Networks                   *
*                               Version 2.0                                 *
*****
```

Input File: Sereno Canyon Phase 4 Average Day with PRV.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 12 |
| P-20 | J-5 | J-17 | 587.4 | 8 |
| P-22 | J-18 | J-4 | 378.4 | 8 |
| P-23 | J-7 | J-13 | 601.7 | 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 |

Sereno Canyon Phase 4 Average Day with PRV

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Average Day with PRV

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Average Day with PRV

| | | | | | | |
|-------|--------|-------|---------|-------|-------|------|
| PUMP1 | 100.00 | 75.00 | 1377.60 | 17.38 | 17.38 | 0.00 |
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 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 | 1.72 | 2952.66 | 70.05 | 0.00 |
| J-36 | 1.90 | 2952.66 | 54.45 | 0.00 |
| J-37 | 0.86 | 2952.66 | 50.98 | 0.00 |
| J-30 | 2.24 | 2952.65 | 78.93 | 0.00 |
| J-38 | 2.76 | 2952.65 | 62.24 | 0.00 |
| J-39 | 1.72 | 2952.65 | 68.74 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 1.38 | 2952.64 | 74.59 | 0.00 |
| J-40 | 1.03 | 2952.65 | 68.52 | 0.00 |
| J-28 | 1.72 | 2952.64 | 83.04 | 0.00 |
| J-27 | 1.03 | 2952.64 | 71.34 | 0.00 |
| J-2 | 0.69 | 2952.61 | 75.23 | 0.00 |
| J-3 | 0.00 | 2952.59 | 68.46 | 0.00 |
| J-4 | 0.69 | 2952.59 | 69.37 | 0.00 |
| J-41 | 2.76 | 2952.59 | 70.36 | 0.00 |
| J-14 | 3.45 | 2952.57 | 73.48 | 0.00 |
| J-11 | 2.07 | 2952.57 | 80.41 | 0.00 |
| J-12 | 24.95 | 2952.57 | 74.34 | 0.00 |
| J-9 | 0.00 | 2952.57 | 89.07 | 0.00 |
| J-6 | 1.03 | 2952.58 | 71.31 | 0.00 |
| J-19 | 1.72 | 2952.59 | 63.08 | 0.00 |
| J-24 | 1.72 | 2952.59 | 63.08 | 0.00 |
| J-20 | 15.50 | 2952.59 | 55.07 | 0.00 |
| J-21 | 6.20 | 2952.59 | 55.07 | 0.00 |
| J-22 | 1.55 | 2952.59 | 54.85 | 0.00 |
| J-5 | 1.38 | 2952.58 | 70.88 | 0.00 |
| J-17 | 1.55 | 2952.58 | 83.88 | 0.00 |

Sereno Canyon Phase 4 Average Day with PRV

| | | | | |
|-------|-------|---------|--------|------|
| J-18 | 0.69 | 2952.59 | 77.82 | 0.00 |
| J-7 | 2.07 | 2952.58 | 80.84 | 0.00 |
| J-13 | 1.72 | 2952.58 | 91.24 | 0.00 |
| J-8 | 1.90 | 2952.57 | 85.18 | 0.00 |
| J-15 | 1.72 | 2952.58 | 62.86 | 0.00 |
| J-16 | 1.03 | 2952.58 | 58.31 | 0.00 |
| J-23 | 4.65 | 2952.59 | 52.68 | 0.00 |
| J-303 | 5.74 | 2952.62 | 92.13 | 0.00 |
| J-301 | 1.01 | 2952.62 | 96.90 | 0.00 |
| J-10 | 23.94 | 2952.57 | 96.01 | 0.00 |
| J-26 | 1.03 | 2952.61 | 80.86 | 0.00 |
| J-1 | 0.00 | 2952.63 | 76.10 | 0.00 |
| J-102 | 1.35 | 2952.64 | 81.31 | 0.00 |
| J-105 | 1.69 | 2952.64 | 89.10 | 0.00 |
| J-107 | 2.36 | 2952.64 | 93.87 | 0.00 |
| J-111 | 2.03 | 2952.64 | 96.90 | 0.00 |
| J-112 | 0.68 | 2952.63 | 105.57 | 0.00 |
| J-114 | 0.68 | 2952.63 | 106.86 | 0.00 |
| J-115 | 0.68 | 2952.63 | 108.16 | 0.00 |
| J-118 | 0.68 | 2952.63 | 108.60 | 0.00 |
| J-300 | 3.71 | 2952.62 | 97.76 | 0.00 |
| J-302 | 1.35 | 2952.62 | 89.96 | 0.00 |
| J-304 | 1.01 | 2952.62 | 83.03 | 0.00 |
| J-42 | 0.00 | 2952.66 | 79.58 | 0.00 |
| J-31 | 0.00 | 2952.66 | 76.55 | 0.00 |
| J-35 | 0.00 | 2952.66 | 57.05 | 0.00 |
| J-101 | 2.36 | 2952.68 | 94.97 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 1.69 | 2952.64 | 96.90 | 0.00 |
| J-33 | 0.00 | 2952.66 | 64.85 | 0.00 |
| J-123 | 1.69 | 2952.66 | 73.08 | 0.00 |
| J-100 | 0.00 | 2952.70 | 101.26 | 0.00 |
| J-103 | 1.69 | 2952.67 | 89.12 | 0.00 |
| J-104 | 1.69 | 2952.67 | 65.28 | 0.00 |
| J-117 | 1.01 | 2952.63 | 103.83 | 0.00 |
| J-110 | 2.03 | 2952.64 | 89.10 | 0.00 |
| J-108 | 1.01 | 2952.64 | 88.67 | 0.00 |
| J-109 | 1.01 | 2952.64 | 87.80 | 0.00 |
| J-305 | 0.68 | 2952.62 | 83.90 | 0.00 |
| S145 | 0.00 | 2952.71 | 103.00 | 0.00 |
| J-207 | 1.35 | 2952.64 | 94.30 | 0.00 |

Sereno Canyon Phase 4 Average Day with PRV

| | | | | |
|-------|---------|---------|--------|----------------|
| J-208 | 0.34 | 2952.64 | 96.90 | 0.00 |
| J-206 | 0.34 | 2952.64 | 115.97 | 0.00 |
| J-204 | 1.35 | 2952.65 | 109.04 | 0.00 |
| J-205 | 1.35 | 2952.65 | 100.81 | 0.00 |
| J-203 | 6.41 | 2952.66 | 101.25 | 0.00 |
| J-200 | 3.71 | 2952.69 | 105.59 | 0.00 |
| J-211 | 0.00 | 2952.67 | 97.78 | 0.00 |
| J-201 | 1.69 | 2952.68 | 115.99 | 0.00 |
| J-202 | 5.06 | 2952.68 | 97.35 | 0.00 |
| J-119 | 0.00 | 2952.62 | 112.49 | 0.00 |
| J-120 | 1.01 | 2952.62 | 116.83 | 0.00 |
| J-121 | 0.00 | 2952.62 | 116.83 | 0.00 |
| J-122 | 22.95 | 2952.62 | 119.43 | 0.00 |
| J-210 | 2.03 | 2952.64 | 117.70 | 0.00 |
| J-209 | 0.34 | 2952.64 | 115.54 | 0.00 |
| J-113 | 0.68 | 2952.63 | 104.70 | 0.00 |
| J-116 | 0.34 | 2952.63 | 107.73 | 0.00 |
| J-25 | 2.76 | 2952.59 | 50.73 | 0.00 |
| J-34 | 0.34 | 2952.66 | 62.68 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -210.25 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -2.58 | 0.02 | 0.00 | Open |
| P-2 | 0.86 | 0.01 | 0.00 | Open |
| P-3 | 15.11 | 0.10 | 0.01 | Open |
| P-4 | 12.35 | 0.08 | 0.01 | Open |
| P-5 | 9.60 | 0.06 | 0.00 | Open |
| P-6 | 1.03 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -1.72 | 0.01 | 0.00 | Open |
| P-8 | 105.05 | 0.30 | 0.04 | Open |
| P-9 | 64.17 | 0.18 | 0.02 | Open |
| P-10 | 62.79 | 0.18 | 0.01 | Open |
| P-11 | 9.97 | 0.06 | 0.00 | Open |
| P-12 | -24.95 | 0.07 | 0.00 | Open |
| P-13 | -17.05 | 0.05 | 0.00 | Open |

Sereno Canyon Phase 4 Average Day with PRV

| | | | | |
|------|--------|------|------|------|
| P-14 | 40.88 | 0.12 | 0.01 | Open |
| P-15 | 10.67 | 0.07 | 0.00 | Open |
| P-16 | -2.31 | 0.01 | 0.00 | Open |
| P-17 | -8.51 | 0.05 | 0.00 | Open |
| P-18 | -6.05 | 0.04 | 0.00 | Open |
| P-19 | -32.22 | 0.09 | 0.00 | Open |
| P-20 | 1.55 | 0.01 | 0.00 | Open |
| P-22 | -0.69 | 0.00 | 0.00 | Open |
| P-23 | 7.94 | 0.05 | 0.00 | Open |
| P-24 | 1.24 | 0.01 | 0.00 | Open |
| P-25 | -12.18 | 0.08 | 0.00 | Open |
| P-26 | 1.03 | 0.01 | 0.00 | Open |
| P-27 | 4.65 | 0.03 | 0.00 | Open |
| P-28 | 6.78 | 0.04 | 0.00 | Open |
| P-29 | 66.81 | 0.19 | 0.02 | Open |
| P-30 | 63.88 | 0.18 | 0.02 | Open |
| P-31 | 47.92 | 0.14 | 0.01 | Open |
| P-32 | 37.92 | 0.11 | 0.01 | Open |
| P-33 | 40.99 | 0.12 | 0.01 | Open |
| P-34 | 23.94 | 0.07 | 0.00 | Open |
| P-35 | 16.39 | 0.10 | 0.01 | Open |
| P-36 | -89.35 | 0.25 | 0.03 | Open |
| P-37 | -79.03 | 0.22 | 0.02 | Open |
| P-38 | 24.12 | 0.07 | 0.00 | Open |
| P-39 | 20.74 | 0.06 | 0.00 | Open |
| P-40 | 14.33 | 0.04 | 0.00 | Open |
| P-41 | 21.96 | 0.14 | 0.02 | Open |
| P-42 | 20.60 | 0.13 | 0.01 | Open |
| P-43 | 18.91 | 0.12 | 0.01 | Open |
| P-44 | 17.89 | 0.11 | 0.01 | Open |
| P-45 | 4.35 | 0.03 | 0.00 | Open |
| P-46 | -0.37 | 0.00 | 0.00 | Open |
| P-47 | -7.46 | 0.02 | 0.00 | Open |
| P-48 | -26.57 | 0.08 | 0.00 | Open |
| P-49 | -36.90 | 0.24 | 0.04 | Open |
| P-50 | -39.65 | 0.25 | 0.05 | Open |
| P-51 | -31.43 | 0.20 | 0.03 | Open |
| P-52 | -48.78 | 0.31 | 0.07 | Open |
| P-53 | -23.35 | 0.15 | 0.02 | Open |
| P-54 | 5.34 | 0.03 | 0.00 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Average Day with PRV

| | | | | |
|-------|--------|------|------|------|
| P-55 | -1.69 | 0.01 | 0.00 | Open |
| P-56 | 1.69 | 0.01 | 0.00 | Open |
| P-57 | 33.24 | 0.21 | 0.03 | Open |
| P-58 | 11.38 | 0.07 | 0.00 | Open |
| P-59 | -2.03 | 0.01 | 0.00 | Open |
| P-60 | 1.01 | 0.01 | 0.00 | Open |
| P-61 | 165.53 | 0.47 | 0.09 | Open |
| P-62 | 132.29 | 0.38 | 0.06 | Open |
| P-63 | -9.66 | 0.03 | 0.00 | Open |
| P-64 | 0.34 | 0.00 | 0.00 | Open |
| P-65 | -11.35 | 0.03 | 0.00 | Open |
| P-66 | -25.15 | 0.16 | 0.02 | Open |
| P-67 | -1.35 | 0.01 | 0.00 | Open |
| P-68 | -27.85 | 0.18 | 0.02 | Open |
| P-69 | 18.31 | 0.12 | 0.01 | Open |
| P-70 | 18.31 | 0.12 | 0.01 | Open |
| P-71 | -15.96 | 0.10 | 0.01 | Open |
| P-72 | 44.72 | 0.29 | 0.06 | Open |
| P-73 | 22.71 | 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 | 11.86 | 0.08 | 0.01 | Open |
| P-77 | -13.12 | 0.04 | 0.00 | Open |
| P-78 | -13.46 | 0.04 | 0.00 | Open |
| P-79 | 6.22 | 0.04 | 0.00 | Open |
| P-80 | 14.93 | 0.10 | 0.01 | Open |
| P-81 | -4.18 | 0.03 | 0.00 | Open |
| P-82 | 6.94 | 0.04 | 0.00 | Open |
| P-83 | 104.50 | 0.30 | 0.04 | Open |
| P-84 | 25.43 | 0.16 | 0.02 | Open |
| P-85 | -4.05 | 0.03 | 0.00 | Open |
| P-86 | -0.68 | 0.00 | 0.00 | Open |
| P-87 | -1.01 | 0.01 | 0.00 | Open |
| P-88 | -0.34 | 0.00 | 0.00 | Open |
| P-89 | -12.87 | 0.08 | 0.01 | Open |
| P-90 | -11.09 | 0.07 | 0.00 | Open |
| P-91 | 22.95 | 0.15 | 0.02 | Open |
| P-92 | -4.01 | 0.03 | 0.00 | Open |
| P-93 | -4.87 | 0.03 | 0.00 | Open |
| P-94 | 18.48 | 0.12 | 0.01 | Open |
| P-95 | -5.70 | 0.04 | 0.00 | Open |
| P-96 | -6.04 | 0.04 | 0.00 | Open |
| P-97 | 13.07 | 0.08 | 0.01 | Open |
| P-98 | -18.10 | 0.12 | 0.01 | Open |
| P-99 | -5.74 | 0.02 | 0.00 | Open |
| P-100 | -1.01 | 0.01 | 0.00 | Open |
| P-101 | 210.25 | 0.15 | 0.00 | Open |

Sereno Canyon Phase 4 Average Day with PRV



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------------|
| P-21 | -17.42 | 0.11 | 0.01 | Open |
| PUMP1 | 210.25 | 0.00 | -328.87 | Open Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 0.00 | 0.00 | 0.00 | Closed Pump |
| 1 | 210.25 | 0.60 | 93.16 | Active Valve |

Appendix C

Sereno Canyon Phase 4 Maximum Day with PRV

Page 1

12/2/2017 10:15:07 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality              *
*                               Analysis for Pipe Networks                *
*                               Version 2.0                              *
*****
```

Input File: Sereno Canyon Phase 4 Maximum Day with PRV.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 12 |
| P-20 | J-5 | J-17 | 587.4 | 8 |
| P-22 | J-18 | J-4 | 378.4 | 8 |
| P-23 | J-7 | J-13 | 601.7 | 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 |

Sereno Canyon Phase 4 Maximum Day with PRV

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Maximum Day with PRV

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Maximum Day with PRV

| PUMP1 | 100.00 | 75.00 | 1198.13 | 30.23 | 30.23 | 0.00 |
|----------------|--------|-------|---------|-------|-------|------|
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 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 | 3.44 | 2952.53 | 69.99 | 0.00 |
| J-36 | 3.80 | 2952.53 | 54.39 | 0.00 |
| J-37 | 1.72 | 2952.53 | 50.93 | 0.00 |
| J-30 | 4.48 | 2952.51 | 78.86 | 0.00 |
| J-38 | 5.52 | 2952.48 | 62.17 | 0.00 |
| J-39 | 3.44 | 2952.47 | 68.67 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2952.46 | 74.51 | 0.00 |
| J-40 | 2.06 | 2952.47 | 68.45 | 0.00 |
| J-28 | 3.44 | 2952.44 | 82.95 | 0.00 |
| J-27 | 2.06 | 2952.44 | 71.25 | 0.00 |
| J-2 | 1.38 | 2952.35 | 75.11 | 0.00 |
| J-3 | 0.00 | 2952.28 | 68.32 | 0.00 |
| J-4 | 1.38 | 2952.27 | 69.23 | 0.00 |
| J-41 | 5.52 | 2952.26 | 70.22 | 0.00 |
| J-14 | 6.90 | 2952.22 | 73.32 | 0.00 |
| J-11 | 4.14 | 2952.21 | 80.25 | 0.00 |
| J-12 | 49.90 | 2952.20 | 74.18 | 0.00 |
| J-9 | 0.00 | 2952.21 | 88.92 | 0.00 |
| J-6 | 2.06 | 2952.24 | 71.17 | 0.00 |
| J-19 | 3.44 | 2952.28 | 62.95 | 0.00 |
| J-24 | 3.44 | 2952.27 | 62.95 | 0.00 |
| J-20 | 31.00 | 2952.27 | 54.93 | 0.00 |
| J-21 | 12.40 | 2952.27 | 54.93 | 0.00 |
| J-22 | 3.10 | 2952.27 | 54.71 | 0.00 |
| J-5 | 2.76 | 2952.25 | 70.74 | 0.00 |
| J-17 | 3.10 | 2952.25 | 83.74 | 0.00 |

Sereno Canyon Phase 4 Maximum Day with PRV

| | | | | |
|-------|-------|---------|--------|------|
| J-18 | 1.38 | 2952.27 | 77.68 | 0.00 |
| J-7 | 4.14 | 2952.23 | 80.69 | 0.00 |
| J-13 | 3.44 | 2952.22 | 91.09 | 0.00 |
| J-8 | 3.80 | 2952.22 | 85.02 | 0.00 |
| J-15 | 3.44 | 2952.23 | 62.71 | 0.00 |
| J-16 | 2.06 | 2952.23 | 58.16 | 0.00 |
| J-23 | 9.30 | 2952.27 | 52.55 | 0.00 |
| J-303 | 11.48 | 2952.40 | 92.03 | 0.00 |
| J-301 | 2.02 | 2952.40 | 96.80 | 0.00 |
| J-10 | 47.88 | 2952.21 | 95.85 | 0.00 |
| J-26 | 2.06 | 2952.36 | 80.75 | 0.00 |
| J-1 | 0.00 | 2952.41 | 76.00 | 0.00 |
| J-102 | 2.70 | 2952.47 | 81.23 | 0.00 |
| J-105 | 3.38 | 2952.46 | 89.03 | 0.00 |
| J-107 | 4.72 | 2952.46 | 93.79 | 0.00 |
| J-111 | 4.06 | 2952.45 | 96.82 | 0.00 |
| J-112 | 1.36 | 2952.43 | 105.48 | 0.00 |
| J-114 | 1.36 | 2952.42 | 106.77 | 0.00 |
| J-115 | 1.36 | 2952.41 | 108.07 | 0.00 |
| J-118 | 1.36 | 2952.40 | 108.50 | 0.00 |
| J-300 | 7.42 | 2952.40 | 97.67 | 0.00 |
| J-302 | 2.70 | 2952.40 | 89.87 | 0.00 |
| J-304 | 2.02 | 2952.40 | 82.93 | 0.00 |
| J-42 | 0.00 | 2952.52 | 79.52 | 0.00 |
| J-31 | 0.00 | 2952.53 | 76.49 | 0.00 |
| J-35 | 0.00 | 2952.53 | 56.99 | 0.00 |
| J-101 | 4.72 | 2952.59 | 94.93 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2952.46 | 96.83 | 0.00 |
| J-33 | 0.00 | 2952.53 | 64.79 | 0.00 |
| J-123 | 3.38 | 2952.53 | 73.03 | 0.00 |
| J-100 | 0.00 | 2952.69 | 101.26 | 0.00 |
| J-103 | 3.38 | 2952.57 | 89.07 | 0.00 |
| J-104 | 3.38 | 2952.55 | 65.23 | 0.00 |
| J-117 | 2.02 | 2952.42 | 103.74 | 0.00 |
| J-110 | 4.06 | 2952.46 | 89.02 | 0.00 |
| J-108 | 2.02 | 2952.46 | 88.59 | 0.00 |
| J-109 | 2.02 | 2952.46 | 87.72 | 0.00 |
| J-305 | 1.36 | 2952.38 | 83.79 | 0.00 |
| S145 | 0.00 | 2952.71 | 103.00 | 0.00 |
| J-207 | 2.70 | 2952.46 | 94.22 | 0.00 |

Sereno Canyon Phase 4 Maximum Day with PRV

| | | | | |
|-------|---------|---------|--------|----------------|
| J-208 | 0.68 | 2952.46 | 96.82 | 0.00 |
| J-206 | 0.68 | 2952.46 | 115.89 | 0.00 |
| J-204 | 2.70 | 2952.48 | 108.97 | 0.00 |
| J-205 | 2.70 | 2952.48 | 100.73 | 0.00 |
| J-203 | 12.82 | 2952.54 | 101.19 | 0.00 |
| J-200 | 7.42 | 2952.64 | 105.57 | 0.00 |
| J-211 | 0.00 | 2952.56 | 97.73 | 0.00 |
| J-201 | 3.38 | 2952.60 | 115.95 | 0.00 |
| J-202 | 10.12 | 2952.60 | 97.32 | 0.00 |
| J-119 | 0.00 | 2952.39 | 112.40 | 0.00 |
| J-120 | 2.02 | 2952.39 | 116.73 | 0.00 |
| J-121 | 0.00 | 2952.39 | 116.73 | 0.00 |
| J-122 | 45.90 | 2952.38 | 119.32 | 0.00 |
| J-210 | 4.06 | 2952.45 | 117.62 | 0.00 |
| J-209 | 0.68 | 2952.46 | 115.46 | 0.00 |
| J-113 | 1.36 | 2952.43 | 104.61 | 0.00 |
| J-116 | 0.68 | 2952.41 | 107.64 | 0.00 |
| J-25 | 5.52 | 2952.27 | 50.60 | 0.00 |
| J-34 | 0.68 | 2952.53 | 62.63 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -420.50 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -5.16 | 0.03 | 0.00 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 30.22 | 0.19 | 0.03 | Open |
| P-4 | 24.70 | 0.16 | 0.02 | Open |
| P-5 | 19.20 | 0.12 | 0.01 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.44 | 0.02 | 0.00 | Open |
| P-8 | 210.10 | 0.60 | 0.14 | Open |
| P-9 | 128.33 | 0.36 | 0.06 | Open |
| P-10 | 125.57 | 0.36 | 0.05 | Open |
| P-11 | 19.94 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -34.10 | 0.10 | 0.01 | Open |

Sereno Canyon Phase 4 Maximum Day with PRV

| | | | | |
|------|---------|------|------|------|
| P-14 | 81.77 | 0.23 | 0.03 | Open |
| P-15 | 21.35 | 0.14 | 0.01 | Open |
| P-16 | -4.62 | 0.03 | 0.00 | Open |
| P-17 | -17.02 | 0.11 | 0.01 | Open |
| P-18 | -12.09 | 0.08 | 0.00 | Open |
| P-19 | -64.44 | 0.18 | 0.02 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.48 | 0.02 | 0.00 | Open |
| P-25 | -24.35 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | 13.57 | 0.09 | 0.01 | Open |
| P-29 | 133.62 | 0.38 | 0.06 | Open |
| P-30 | 127.76 | 0.36 | 0.06 | Open |
| P-31 | 95.85 | 0.27 | 0.03 | Open |
| P-32 | 75.83 | 0.22 | 0.02 | Open |
| P-33 | 81.98 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 32.78 | 0.21 | 0.03 | Open |
| P-36 | -178.70 | 0.51 | 0.10 | Open |
| P-37 | -158.05 | 0.45 | 0.08 | Open |
| P-38 | 48.25 | 0.14 | 0.01 | Open |
| P-39 | 41.49 | 0.12 | 0.01 | Open |
| P-40 | 28.67 | 0.08 | 0.00 | Open |
| P-41 | 43.93 | 0.28 | 0.06 | Open |
| P-42 | 41.21 | 0.26 | 0.05 | Open |
| P-43 | 37.83 | 0.24 | 0.04 | Open |
| P-44 | 35.79 | 0.23 | 0.04 | Open |
| P-45 | 8.69 | 0.06 | 0.00 | Open |
| P-46 | -0.75 | 0.00 | 0.00 | Open |
| P-47 | -14.93 | 0.04 | 0.00 | Open |
| P-48 | -53.14 | 0.15 | 0.01 | Open |
| P-49 | -73.79 | 0.47 | 0.15 | Open |
| P-50 | -79.29 | 0.51 | 0.17 | Open |
| P-51 | -62.86 | 0.40 | 0.11 | Open |
| P-52 | -97.55 | 0.62 | 0.24 | Open |
| P-53 | -46.70 | 0.30 | 0.06 | Open |
| P-54 | 10.68 | 0.07 | 0.00 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Maximum Day with PRV

| | | | | |
|-------|--------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 66.48 | 0.42 | 0.12 | Open |
| P-58 | 22.76 | 0.15 | 0.02 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 331.05 | 0.94 | 0.33 | Open |
| P-62 | 264.58 | 0.75 | 0.22 | Open |
| P-63 | -19.32 | 0.05 | 0.00 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -22.70 | 0.06 | 0.00 | Open |
| P-66 | -50.31 | 0.32 | 0.07 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -55.71 | 0.36 | 0.09 | Open |
| P-69 | 36.61 | 0.23 | 0.04 | Open |
| P-70 | 36.61 | 0.23 | 0.04 | Open |
| P-71 | -31.91 | 0.20 | 0.03 | Open |
| P-72 | 89.45 | 0.57 | 0.21 | Open |
| P-73 | 45.41 | 0.29 | 0.06 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | 23.71 | 0.15 | 0.02 | Open |
| P-77 | -26.25 | 0.07 | 0.00 | Open |
| P-78 | -26.93 | 0.08 | 0.00 | Open |
| P-79 | 12.44 | 0.08 | 0.01 | Open |
| P-80 | 29.85 | 0.19 | 0.03 | Open |
| P-81 | -8.37 | 0.05 | 0.00 | Open |
| P-82 | 13.89 | 0.09 | 0.01 | Open |
| P-83 | 209.00 | 0.59 | 0.14 | Open |
| P-84 | 50.86 | 0.32 | 0.07 | Open |
| P-85 | -8.10 | 0.05 | 0.00 | Open |
| P-86 | -1.36 | 0.01 | 0.00 | Open |
| P-87 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | -25.73 | 0.16 | 0.02 | Open |
| P-90 | -22.19 | 0.14 | 0.02 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -8.02 | 0.05 | 0.00 | Open |
| P-93 | -9.74 | 0.06 | 0.00 | Open |
| P-94 | 36.96 | 0.24 | 0.04 | Open |
| P-95 | -11.40 | 0.07 | 0.00 | Open |
| P-96 | -12.08 | 0.08 | 0.00 | Open |
| P-97 | 26.14 | 0.17 | 0.02 | Open |
| P-98 | -36.20 | 0.23 | 0.04 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 420.50 | 0.30 | 0.02 | Open |

Sereno Canyon Phase 4 Maximum Day with PRV



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------------|
| P-21 | -34.84 | 0.22 | 0.04 | Open |
| PUMP1 | 420.50 | 0.00 | -286.03 | Open Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 0.00 | 0.00 | 0.00 | Closed Pump |
| 1 | 420.50 | 1.19 | 50.32 | Active Valve |

Appendix D

Sereno Canyon Phase 4 Peak Hour with PRV

Page 1

12/2/2017 10:16:35 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality                 *
*                               Analysis for Pipe Networks                   *
*                               Version 2.0                                 *
*****
```

Input File: Sereno Canyon Phase 4 Peak Hour with PRV.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 12 |
| P-20 | J-5 | J-17 | 587.4 | 8 |
| P-22 | J-18 | J-4 | 378.4 | 8 |
| P-23 | J-7 | J-13 | 601.7 | 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 |

Sereno Canyon Phase 4 Peak Hour with PRV

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Peak Hour with PRV

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Peak Hour with PRV

| PUMP1 | 100.00 | 75.00 | 1262.29 | 27.86 | 27.86 | 0.00 |
|-------|--------|-------|---------|-------|----------------|------|
| PUMP2 | 100.00 | 75.00 | 1262.29 | 27.86 | 27.86 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 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 | 6.02 | 2968.36 | 76.85 | 0.00 |
| J-36 | 6.65 | 2968.37 | 61.25 | 0.00 |
| J-37 | 3.01 | 2968.37 | 50.42 | 0.00 |
| J-30 | 7.84 | 2968.30 | 85.70 | 0.00 |
| J-38 | 9.66 | 2968.22 | 68.99 | 0.00 |
| J-39 | 6.02 | 2968.20 | 75.48 | 0.00 |



Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 4.83 | 2968.17 | 81.32 | 0.00 |
| J-40 | 3.61 | 2968.20 | 75.26 | 0.00 |
| J-28 | 6.02 | 2968.12 | 89.74 | 0.00 |
| J-27 | 3.61 | 2968.12 | 78.04 | 0.00 |
| J-2 | 2.41 | 2967.84 | 81.82 | 0.00 |
| J-3 | 0.00 | 2967.66 | 74.99 | 0.00 |
| J-4 | 2.41 | 2967.63 | 75.88 | 0.00 |
| J-41 | 9.66 | 2967.61 | 76.87 | 0.00 |
| J-14 | 12.07 | 2967.48 | 79.94 | 0.00 |
| J-11 | 7.24 | 2967.45 | 86.85 | 0.00 |
| J-12 | 87.33 | 2967.44 | 80.78 | 0.00 |
| J-9 | 0.00 | 2967.46 | 95.52 | 0.00 |
| J-6 | 3.61 | 2967.55 | 77.80 | 0.00 |
| J-19 | 6.02 | 2967.65 | 69.61 | 0.00 |
| J-24 | 6.02 | 2967.63 | 69.60 | 0.00 |
| J-20 | 54.25 | 2967.63 | 61.59 | 0.00 |
| J-21 | 21.70 | 2967.62 | 61.58 | 0.00 |
| J-22 | 5.42 | 2967.62 | 61.36 | 0.00 |
| J-5 | 4.83 | 2967.58 | 77.38 | 0.00 |
| J-17 | 5.42 | 2967.58 | 90.38 | 0.00 |

| | Sereno | Canyon | Phase 4 | Peak | Hour | with | PRV |
|-------|--------|---------|---------|------|------|------|-----|
| J-18 | 2.41 | 2967.63 | 84.33 | 0.00 | | | |
| J-7 | 7.24 | 2967.50 | 87.31 | 0.00 | | | |
| J-13 | 6.02 | 2967.49 | 97.70 | 0.00 | | | |
| J-8 | 6.65 | 2967.48 | 91.64 | 0.00 | | | |
| J-15 | 6.02 | 2967.51 | 69.33 | 0.00 | | | |
| J-16 | 3.61 | 2967.51 | 64.78 | 0.00 | | | |
| J-23 | 16.27 | 2967.62 | 59.20 | 0.00 | | | |
| J-303 | 20.09 | 2967.99 | 98.79 | 0.00 | | | |
| J-301 | 3.53 | 2967.99 | 103.55 | 0.00 | | | |
| J-10 | 83.79 | 2967.44 | 102.45 | 0.00 | | | |
| J-26 | 3.61 | 2967.89 | 87.48 | 0.00 | | | |
| J-1 | 0.00 | 2968.00 | 82.76 | 0.00 | | | |
| J-102 | 4.72 | 2968.18 | 88.04 | 0.00 | | | |
| J-105 | 5.91 | 2968.16 | 95.83 | 0.00 | | | |
| J-107 | 8.26 | 2968.15 | 100.59 | 0.00 | | | |
| J-111 | 7.11 | 2968.14 | 103.62 | 0.00 | | | |
| J-112 | 2.38 | 2968.07 | 112.25 | 0.00 | | | |
| J-114 | 2.38 | 2968.04 | 113.54 | 0.00 | | | |
| J-115 | 2.38 | 2968.02 | 114.83 | 0.00 | | | |
| J-118 | 2.38 | 2968.00 | 115.26 | 0.00 | | | |
| J-300 | 12.99 | 2967.99 | 104.42 | 0.00 | | | |
| J-302 | 4.72 | 2967.99 | 96.62 | 0.00 | | | |
| J-304 | 3.53 | 2967.99 | 89.69 | 0.00 | | | |
| J-42 | 0.00 | 2968.33 | 86.37 | 0.00 | | | |
| J-31 | 0.00 | 2968.36 | 83.35 | 0.00 | | | |
| J-35 | 0.00 | 2968.37 | 63.86 | 0.00 | | | |
| J-101 | 8.26 | 2968.51 | 101.83 | 0.00 | | | |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 5.91 | 2968.16 | 103.63 | 0.00 |
| J-33 | 0.00 | 2968.36 | 71.65 | 0.00 |
| J-123 | 5.91 | 2968.36 | 79.88 | 0.00 |
| J-100 | 0.00 | 2968.80 | 108.24 | 0.00 |
| J-103 | 5.91 | 2968.47 | 95.96 | 0.00 |
| J-104 | 5.91 | 2968.41 | 72.10 | 0.00 |
| J-117 | 3.53 | 2968.04 | 110.51 | 0.00 |
| J-110 | 7.11 | 2968.15 | 95.82 | 0.00 |
| J-108 | 3.53 | 2968.15 | 95.39 | 0.00 |
| J-109 | 3.53 | 2968.15 | 94.52 | 0.00 |
| J-305 | 2.38 | 2967.93 | 90.53 | 0.00 |
| S145 | 0.00 | 2968.87 | 110.00 | 0.00 |
| J-207 | 4.72 | 2968.15 | 101.02 | 0.00 |

| | Sereno | Canyon | Phase 4 | Peak | Hour | with | PRV |
|-------|---------|---------|---------|------|-----------|------|-----|
| J-208 | 1.19 | 2968.15 | 103.62 | 0.00 | | | |
| J-206 | 1.19 | 2968.15 | 122.69 | 0.00 | | | |
| J-204 | 4.72 | 2968.22 | 115.79 | 0.00 | | | |
| J-205 | 4.72 | 2968.22 | 107.55 | 0.00 | | | |
| J-203 | 22.43 | 2968.38 | 108.05 | 0.00 | | | |
| J-200 | 12.99 | 2968.67 | 112.52 | 0.00 | | | |
| J-211 | 0.00 | 2968.44 | 104.61 | 0.00 | | | |
| J-201 | 5.91 | 2968.56 | 122.87 | 0.00 | | | |
| J-202 | 17.71 | 2968.55 | 104.23 | 0.00 | | | |
| J-119 | 0.00 | 2967.98 | 119.15 | 0.00 | | | |
| J-120 | 3.53 | 2967.98 | 123.48 | 0.00 | | | |
| J-121 | 0.00 | 2967.96 | 123.47 | 0.00 | | | |
| J-122 | 80.33 | 2967.93 | 126.06 | 0.00 | | | |
| J-210 | 7.11 | 2968.14 | 124.42 | 0.00 | | | |
| J-209 | 1.19 | 2968.15 | 122.26 | 0.00 | | | |
| J-113 | 2.38 | 2968.07 | 111.39 | 0.00 | | | |
| J-116 | 1.19 | 2968.02 | 114.40 | 0.00 | | | |
| J-25 | 9.66 | 2967.63 | 57.25 | 0.00 | | | |
| J-34 | 1.19 | 2968.37 | 69.49 | 0.00 | | | |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 | | | |
| R-1 | -735.80 | 2717.00 | 0.00 | 0.00 | Reservoir | | |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -9.04 | 0.06 | 0.00 | Open |
| P-2 | 3.01 | 0.02 | 0.00 | Open |
| P-3 | 52.88 | 0.34 | 0.08 | Open |
| P-4 | 43.22 | 0.28 | 0.05 | Open |
| P-5 | 33.59 | 0.21 | 0.03 | Open |
| P-6 | 3.61 | 0.02 | 0.00 | Open |



Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -6.02 | 0.04 | 0.00 | Open |
| P-8 | 367.65 | 1.04 | 0.40 | Open |
| P-9 | 224.57 | 0.64 | 0.16 | Open |
| P-10 | 219.75 | 0.62 | 0.15 | Open |
| P-11 | 34.89 | 0.22 | 0.04 | Open |
| P-12 | -87.33 | 0.25 | 0.03 | Open |
| P-13 | -59.68 | 0.17 | 0.01 | Open |

| | Sereno | Canyon | Phase 4 | Peak | Hour | with | PRV |
|------|---------|--------|---------|------|------|------|-----|
| P-14 | 143.08 | 0.41 | 0.07 | Open | | | |
| P-15 | 37.36 | 0.24 | 0.04 | Open | | | |
| P-16 | -8.09 | 0.05 | 0.00 | Open | | | |
| P-17 | -29.78 | 0.19 | 0.03 | Open | | | |
| P-18 | -21.16 | 0.14 | 0.01 | Open | | | |
| P-19 | -112.76 | 0.32 | 0.04 | Open | | | |
| P-20 | 5.42 | 0.03 | 0.00 | Open | | | |
| P-22 | -2.41 | 0.02 | 0.00 | Open | | | |
| P-23 | 27.78 | 0.18 | 0.02 | Open | | | |
| P-24 | 4.35 | 0.03 | 0.00 | Open | | | |
| P-25 | -42.61 | 0.27 | 0.05 | Open | | | |
| P-26 | 3.61 | 0.02 | 0.00 | Open | | | |
| P-27 | 16.27 | 0.10 | 0.01 | Open | | | |
| P-28 | 23.74 | 0.15 | 0.02 | Open | | | |
| P-29 | 233.83 | 0.66 | 0.17 | Open | | | |
| P-30 | 223.58 | 0.63 | 0.16 | Open | | | |
| P-31 | 167.73 | 0.48 | 0.09 | Open | | | |
| P-32 | 132.71 | 0.38 | 0.06 | Open | | | |
| P-33 | 143.47 | 0.41 | 0.07 | Open | | | |
| P-34 | 83.79 | 0.24 | 0.03 | Open | | | |
| P-35 | 57.36 | 0.37 | 0.09 | Open | | | |
| P-36 | -312.70 | 0.89 | 0.29 | Open | | | |
| P-37 | -276.57 | 0.78 | 0.23 | Open | | | |
| P-38 | 84.42 | 0.24 | 0.03 | Open | | | |
| P-39 | 72.60 | 0.21 | 0.02 | Open | | | |
| P-40 | 50.17 | 0.14 | 0.01 | Open | | | |
| P-41 | 76.87 | 0.49 | 0.16 | Open | | | |
| P-42 | 72.11 | 0.46 | 0.14 | Open | | | |
| P-43 | 66.20 | 0.42 | 0.12 | Open | | | |
| P-44 | 62.63 | 0.40 | 0.11 | Open | | | |
| P-45 | 15.21 | 0.10 | 0.01 | Open | | | |
| P-46 | -1.31 | 0.01 | 0.00 | Open | | | |
| P-47 | -26.12 | 0.07 | 0.00 | Open | | | |
| P-48 | -92.99 | 0.26 | 0.03 | Open | | | |
| P-49 | -129.12 | 0.82 | 0.41 | Open | | | |
| P-50 | -138.75 | 0.89 | 0.47 | Open | | | |
| P-51 | -110.00 | 0.70 | 0.31 | Open | | | |
| P-52 | -170.71 | 1.09 | 0.69 | Open | | | |
| P-53 | -81.72 | 0.52 | 0.18 | Open | | | |
| P-54 | 18.70 | 0.12 | 0.01 | Open | | | |



| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

| | Sereno | Canyon | Phase 4 | Peak | Hour | with | PRV |
|-------|--------|--------|---------|------|------|------|-----|
| P-55 | -5.91 | 0.04 | 0.00 | 0.00 | Open | | |
| P-56 | 5.91 | 0.04 | 0.00 | 0.00 | Open | | |
| P-57 | 116.32 | 0.74 | 0.34 | 0.34 | Open | | |
| P-58 | 39.83 | 0.25 | 0.05 | 0.05 | Open | | |
| P-59 | -7.11 | 0.05 | 0.00 | 0.00 | Open | | |
| P-60 | 3.53 | 0.02 | 0.00 | 0.00 | Open | | |
| P-61 | 579.28 | 1.64 | 0.92 | 0.92 | Open | | |
| P-62 | 462.96 | 1.31 | 0.61 | 0.61 | Open | | |
| P-63 | -33.81 | 0.10 | 0.00 | 0.00 | Open | | |
| P-64 | 1.19 | 0.01 | 0.00 | 0.00 | Open | | |
| P-65 | -39.72 | 0.11 | 0.01 | 0.01 | Open | | |
| P-66 | -88.04 | 0.56 | 0.20 | 0.20 | Open | | |
| P-67 | -4.72 | 0.03 | 0.00 | 0.00 | Open | | |
| P-68 | -97.48 | 0.62 | 0.25 | 0.25 | Open | | |
| P-69 | 64.06 | 0.41 | 0.11 | 0.11 | Open | | |
| P-70 | 64.06 | 0.41 | 0.11 | 0.11 | Open | | |
| P-71 | -55.84 | 0.36 | 0.09 | 0.09 | Open | | |
| P-72 | 156.52 | 1.00 | 0.59 | 0.59 | Open | | |
| P-73 | 79.46 | 0.51 | 0.17 | 0.17 | Open | | |
| P-74 | 17.71 | 0.11 | 0.01 | 0.01 | Open | | |
| P-75 | -3.53 | 0.02 | 0.00 | 0.00 | Open | | |
| P-76 | 41.50 | 0.26 | 0.05 | 0.05 | Open | | |
| P-77 | -45.94 | 0.13 | 0.01 | 0.01 | Open | | |
| P-78 | -47.13 | 0.13 | 0.01 | 0.01 | Open | | |
| P-79 | 21.76 | 0.14 | 0.01 | 0.01 | Open | | |
| P-80 | 52.24 | 0.33 | 0.08 | 0.08 | Open | | |
| P-81 | -14.64 | 0.09 | 0.01 | 0.01 | Open | | |
| P-82 | 24.30 | 0.16 | 0.02 | 0.02 | Open | | |
| P-83 | 365.71 | 1.04 | 0.39 | 0.39 | Open | | |
| P-84 | 88.99 | 0.57 | 0.21 | 0.21 | Open | | |
| P-85 | -14.17 | 0.09 | 0.01 | 0.01 | Open | | |
| P-86 | -2.38 | 0.02 | 0.00 | 0.00 | Open | | |
| P-87 | -3.53 | 0.02 | 0.00 | 0.00 | Open | | |
| P-88 | -1.19 | 0.01 | 0.00 | 0.00 | Open | | |
| P-89 | -45.03 | 0.29 | 0.06 | 0.06 | Open | | |
| P-90 | -38.83 | 0.25 | 0.04 | 0.04 | Open | | |
| P-91 | 80.33 | 0.51 | 0.17 | 0.17 | Open | | |
| P-92 | -14.03 | 0.09 | 0.01 | 0.01 | Open | | |
| P-93 | -17.05 | 0.11 | 0.01 | 0.01 | Open | | |
| P-94 | 64.67 | 0.41 | 0.11 | 0.11 | Open | | |
| P-95 | -19.94 | 0.13 | 0.01 | 0.01 | Open | | |
| P-96 | -21.13 | 0.13 | 0.01 | 0.01 | Open | | |
| P-97 | 45.74 | 0.29 | 0.06 | 0.06 | Open | | |
| P-98 | -63.35 | 0.40 | 0.11 | 0.11 | Open | | |
| P-99 | -20.09 | 0.06 | 0.00 | 0.00 | Open | | |
| P-100 | -3.53 | 0.02 | 0.00 | 0.00 | Open | | |
| P-101 | 735.80 | 0.52 | 0.05 | 0.05 | Open | | |

Sereno Canyon Phase 4 Peak Hour with PRV



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------------|
| P-21 | -60.97 | 0.39 | 0.10 | Open |
| PUMP1 | 367.90 | 0.00 | -301.35 | Open Pump |
| PUMP2 | 367.90 | 0.00 | -301.35 | Open Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 0.00 | 0.00 | 0.00 | Closed Pump |
| 1 | 735.80 | 2.09 | 49.48 | Active Valve |

Appendix E

Sereno Canyon Phase 4 Max Day fire flow J1

Page 1

12/2/2017 10:21:09 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality                *
*                               Analysis for Pipe Networks                  *
*                               Version 2.0                                *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J1.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J1

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J1

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J1

| | | | | | | |
|-------|--------|-------|---------|--------|--------|------|
| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1187.38 | 101.20 | 101.20 | 0.00 |

Demand Charge: 0.00
 Total Cost: 0.00

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-32 | 3.44 | 2998.72 | 90.01 | 0.00 |
| J-36 | 3.80 | 2998.75 | 74.42 | 0.00 |
| J-37 | 1.72 | 2998.75 | 70.95 | 0.00 |
| J-30 | 4.48 | 2998.36 | 98.73 | 0.00 |
| J-38 | 5.52 | 2998.06 | 81.92 | 0.00 |
| J-39 | 3.44 | 2997.94 | 88.37 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2997.72 | 94.12 | 0.00 |
| J-40 | 2.06 | 2997.94 | 88.15 | 0.00 |
| J-28 | 3.44 | 2997.41 | 102.44 | 0.00 |
| J-27 | 2.06 | 2997.41 | 90.74 | 0.00 |
| J-2 | 1.38 | 2996.63 | 94.30 | 0.00 |
| J-3 | 0.00 | 2996.57 | 87.51 | 0.00 |
| J-4 | 1.38 | 2996.55 | 88.41 | 0.00 |
| J-41 | 5.52 | 2996.54 | 89.41 | 0.00 |
| J-14 | 6.90 | 2996.49 | 92.51 | 0.00 |
| J-11 | 4.14 | 2996.48 | 99.43 | 0.00 |
| J-12 | 49.90 | 2996.48 | 93.37 | 0.00 |
| J-9 | 0.00 | 2996.48 | 108.10 | 0.00 |
| J-6 | 2.06 | 2996.52 | 90.35 | 0.00 |
| J-19 | 3.44 | 2996.55 | 82.13 | 0.00 |
| J-24 | 3.44 | 2996.53 | 82.13 | 0.00 |
| J-20 | 31.00 | 2996.53 | 74.11 | 0.00 |
| J-21 | 12.40 | 2996.53 | 74.11 | 0.00 |
| J-22 | 3.10 | 2996.53 | 73.89 | 0.00 |
| J-5 | 2.76 | 2996.53 | 89.92 | 0.00 |
| J-17 | 3.10 | 2996.53 | 102.92 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J1

| | | | | |
|-------|---------|---------|--------|------|
| J-18 | 1.38 | 2996.55 | 96.86 | 0.00 |
| J-7 | 4.14 | 2996.50 | 99.88 | 0.00 |
| J-13 | 3.44 | 2996.50 | 110.27 | 0.00 |
| J-8 | 3.80 | 2996.49 | 104.21 | 0.00 |
| J-15 | 3.44 | 2996.50 | 81.90 | 0.00 |
| J-16 | 2.06 | 2996.50 | 77.35 | 0.00 |
| J-23 | 9.30 | 2996.53 | 71.73 | 0.00 |
| J-303 | 11.48 | 2996.71 | 111.23 | 0.00 |
| J-301 | 2.02 | 2996.95 | 116.10 | 0.00 |
| J-10 | 47.88 | 2996.48 | 115.03 | 0.00 |
| J-26 | 2.06 | 2996.65 | 99.94 | 0.00 |
| J-1 | 1000.00 | 2996.69 | 95.19 | 0.00 |
| J-102 | 2.70 | 2997.85 | 100.89 | 0.00 |
| J-105 | 3.38 | 2997.85 | 108.69 | 0.00 |
| J-107 | 4.72 | 2997.85 | 113.46 | 0.00 |
| J-111 | 4.06 | 2997.85 | 116.49 | 0.00 |
| J-112 | 1.36 | 2997.70 | 125.09 | 0.00 |
| J-114 | 1.36 | 2997.63 | 126.37 | 0.00 |
| J-115 | 1.36 | 2997.57 | 127.64 | 0.00 |
| J-118 | 1.36 | 2997.53 | 128.05 | 0.00 |
| J-300 | 7.42 | 2996.95 | 116.97 | 0.00 |
| J-302 | 2.70 | 2996.71 | 109.06 | 0.00 |
| J-304 | 2.02 | 2996.69 | 102.13 | 0.00 |
| J-42 | 0.00 | 2998.49 | 99.44 | 0.00 |
| J-31 | 0.00 | 2998.67 | 96.48 | 0.00 |
| J-35 | 0.00 | 2998.77 | 77.03 | 0.00 |
| J-101 | 4.72 | 2999.15 | 115.11 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2997.85 | 116.49 | 0.00 |
| J-33 | 0.00 | 2998.74 | 84.81 | 0.00 |
| J-123 | 3.38 | 2998.74 | 93.05 | 0.00 |
| J-100 | 0.00 | 3000.21 | 121.85 | 0.00 |
| J-103 | 3.38 | 2999.12 | 109.24 | 0.00 |
| J-104 | 3.38 | 2998.91 | 85.32 | 0.00 |
| J-117 | 2.02 | 2997.63 | 123.33 | 0.00 |
| J-110 | 4.06 | 2997.85 | 108.69 | 0.00 |
| J-108 | 2.02 | 2997.85 | 108.26 | 0.00 |
| J-109 | 2.02 | 2997.85 | 107.39 | 0.00 |
| J-305 | 1.36 | 2996.67 | 102.98 | 0.00 |
| S145 | 0.00 | 3000.46 | 123.69 | 0.00 |
| J-207 | 2.70 | 2997.95 | 113.93 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J1

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2997.95 | 116.53 | 0.00 |
| J-206 | 0.68 | 2998.02 | 135.63 | 0.00 |
| J-204 | 2.70 | 2998.35 | 128.84 | 0.00 |
| J-205 | 2.70 | 2998.35 | 120.61 | 0.00 |
| J-203 | 12.82 | 2999.05 | 121.35 | 0.00 |
| J-200 | 7.42 | 2999.99 | 126.09 | 0.00 |
| J-211 | 0.00 | 2999.25 | 117.96 | 0.00 |
| J-201 | 3.38 | 2999.73 | 136.37 | 0.00 |
| J-202 | 10.12 | 2999.73 | 117.74 | 0.00 |
| J-119 | 0.00 | 2997.53 | 131.95 | 0.00 |
| J-120 | 2.02 | 2997.53 | 136.29 | 0.00 |
| J-121 | 0.00 | 2997.54 | 136.29 | 0.00 |
| J-122 | 45.90 | 2997.53 | 138.88 | 0.00 |
| J-210 | 4.06 | 2997.99 | 137.35 | 0.00 |
| J-209 | 0.68 | 2998.01 | 135.20 | 0.00 |
| J-113 | 1.36 | 2997.70 | 124.23 | 0.00 |
| J-116 | 0.68 | 2997.57 | 127.21 | 0.00 |
| J-25 | 5.52 | 2996.54 | 69.78 | 0.00 |
| J-34 | 0.68 | 2998.75 | 82.65 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1420.50 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -29.57 | 0.19 | 0.03 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 111.51 | 0.71 | 0.31 | Open |
| P-4 | 105.99 | 0.68 | 0.29 | Open |
| P-5 | 100.49 | 0.64 | 0.26 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.44 | 0.02 | 0.00 | Open |
| P-8 | 210.10 | 0.60 | 0.14 | Open |
| P-9 | 154.32 | 0.44 | 0.08 | Open |
| P-10 | 151.56 | 0.43 | 0.08 | Open |
| P-11 | 19.94 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -34.10 | 0.10 | 0.00 | Open |

Sereno Canyon Phase 4 Max Day fire flow J1

| | | | | |
|------|---------|------|------|------|
| P-14 | 55.78 | 0.36 | 0.09 | Open |
| P-15 | 5.06 | 0.03 | 0.00 | Open |
| P-16 | 5.08 | 0.03 | 0.00 | Open |
| P-17 | -7.32 | 0.05 | 0.00 | Open |
| P-18 | 0.70 | 0.00 | 0.00 | Open |
| P-19 | -35.36 | 0.23 | 0.04 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.48 | 0.02 | 0.00 | Open |
| P-25 | -24.35 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | -12.42 | 0.08 | 0.01 | Open |
| P-29 | 133.62 | 0.38 | 0.06 | Open |
| P-30 | 127.76 | 0.36 | 0.06 | Open |
| P-31 | 95.85 | 0.27 | 0.03 | Open |
| P-32 | 75.83 | 0.22 | 0.02 | Open |
| P-33 | 81.98 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 36.08 | 0.23 | 0.04 | Open |
| P-36 | -175.40 | 0.50 | 0.10 | Open |
| P-37 | -763.95 | 2.17 | 1.54 | Open |
| P-38 | -2.17 | 0.01 | 0.00 | Open |
| P-39 | -8.93 | 0.03 | 0.00 | Open |
| P-40 | -21.75 | 0.06 | 0.00 | Open |
| P-41 | 115.32 | 0.74 | 0.33 | Open |
| P-42 | 112.60 | 0.72 | 0.32 | Open |
| P-43 | 109.22 | 0.70 | 0.30 | Open |
| P-44 | 107.18 | 0.68 | 0.29 | Open |
| P-45 | 121.23 | 0.77 | 0.37 | Open |
| P-46 | 111.79 | 0.71 | 0.32 | Open |
| P-47 | 97.61 | 0.28 | 0.03 | Open |
| P-48 | 56.09 | 0.16 | 0.01 | Open |
| P-49 | -355.37 | 2.27 | 2.69 | Open |
| P-50 | -360.87 | 2.30 | 2.77 | Open |
| P-51 | -263.14 | 1.68 | 1.54 | Open |
| P-52 | -379.13 | 2.42 | 3.03 | Open |
| P-53 | -204.21 | 1.30 | 0.96 | Open |
| P-54 | 35.09 | 0.22 | 0.04 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J1

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 223.99 | 1.43 | 1.14 | Open |
| P-58 | 82.49 | 0.53 | 0.18 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1168.10 | 3.31 | 3.38 | Open |
| P-62 | 944.11 | 2.68 | 2.28 | Open |
| P-63 | -141.14 | 0.40 | 0.07 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -144.52 | 0.41 | 0.07 | Open |
| P-66 | -213.26 | 1.36 | 1.04 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -218.66 | 1.40 | 1.09 | Open |
| P-69 | 119.16 | 0.76 | 0.36 | Open |
| P-70 | 119.16 | 0.76 | 0.36 | Open |
| P-71 | -112.32 | 0.72 | 0.32 | Open |
| P-72 | 252.40 | 1.61 | 1.43 | Open |
| P-73 | 125.82 | 0.80 | 0.39 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -17.42 | 0.11 | 0.01 | Open |
| P-77 | -67.38 | 0.19 | 0.02 | Open |
| P-78 | -68.06 | 0.19 | 0.02 | Open |
| P-79 | 12.44 | 0.08 | 0.01 | Open |
| P-80 | 29.85 | 0.19 | 0.03 | Open |
| P-81 | -11.46 | 0.07 | 0.00 | Open |
| P-82 | 16.98 | 0.11 | 0.01 | Open |
| P-83 | 764.47 | 2.17 | 1.54 | Open |
| P-84 | 174.91 | 1.12 | 0.72 | Open |
| P-85 | -8.10 | 0.05 | 0.00 | Open |
| P-86 | -1.36 | 0.01 | 0.00 | Open |
| P-87 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 15.40 | 0.10 | 0.01 | Open |
| P-90 | -63.32 | 0.40 | 0.11 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -43.35 | 0.28 | 0.06 | Open |
| P-93 | -69.47 | 0.44 | 0.13 | Open |
| P-94 | 134.74 | 0.86 | 0.45 | Open |
| P-95 | -46.73 | 0.30 | 0.06 | Open |
| P-96 | -47.41 | 0.30 | 0.06 | Open |
| P-97 | 85.87 | 0.55 | 0.19 | Open |
| P-98 | -39.50 | 0.25 | 0.05 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1420.50 | 1.01 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J1



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -38.14 | 0.24 | 0.04 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1420.51 | 0.00 | -283.46 | Open Pump |
| 1 | 1420.50 | 4.03 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J2

Page 1

12/2/2017 10:24:50 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality                 *
*                               Analysis for Pipe Networks                   *
*                               Version 2.0                                 *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J2.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J2

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J2

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J2

| | | | | | | |
|-------|--------|-------|---------|--------|--------|------|
| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1187.82 | 101.14 | 101.14 | 0.00 |

Demand Charge: 0.00
 Total Cost: 0.00

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-32 | 3.44 | 2998.83 | 90.05 | 0.00 |
| J-36 | 3.80 | 2998.86 | 74.47 | 0.00 |
| J-37 | 1.72 | 2998.86 | 71.00 | 0.00 |
| J-30 | 4.48 | 2998.47 | 98.78 | 0.00 |
| J-38 | 5.52 | 2998.17 | 81.97 | 0.00 |
| J-39 | 3.44 | 2998.05 | 88.42 | 0.00 |



Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2997.84 | 94.17 | 0.00 |
| J-40 | 2.06 | 2998.05 | 88.20 | 0.00 |
| J-28 | 3.44 | 2997.53 | 102.49 | 0.00 |
| J-27 | 2.06 | 2997.53 | 90.79 | 0.00 |
| J-2 | 1000.00 | 2995.37 | 93.75 | 0.00 |
| J-3 | 0.00 | 2995.30 | 86.96 | 0.00 |
| J-4 | 1.38 | 2995.29 | 87.87 | 0.00 |
| J-41 | 5.52 | 2995.28 | 88.86 | 0.00 |
| J-14 | 6.90 | 2995.23 | 91.96 | 0.00 |
| J-11 | 4.14 | 2995.22 | 98.89 | 0.00 |
| J-12 | 49.90 | 2995.22 | 92.82 | 0.00 |
| J-9 | 0.00 | 2995.22 | 107.55 | 0.00 |
| J-6 | 2.06 | 2995.25 | 89.80 | 0.00 |
| J-19 | 3.44 | 2995.28 | 81.58 | 0.00 |
| J-24 | 3.44 | 2995.27 | 81.58 | 0.00 |
| J-20 | 31.00 | 2995.27 | 73.56 | 0.00 |
| J-21 | 12.40 | 2995.27 | 73.56 | 0.00 |
| J-22 | 3.10 | 2995.27 | 73.35 | 0.00 |
| J-5 | 2.76 | 2995.26 | 89.37 | 0.00 |
| J-17 | 3.10 | 2995.26 | 102.37 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J2

| | | | | |
|-------|-------|---------|--------|------|
| J-18 | 1.38 | 2995.29 | 96.32 | 0.00 |
| J-7 | 4.14 | 2995.24 | 99.33 | 0.00 |
| J-13 | 3.44 | 2995.23 | 109.73 | 0.00 |
| J-8 | 3.80 | 2995.23 | 103.66 | 0.00 |
| J-15 | 3.44 | 2995.24 | 81.35 | 0.00 |
| J-16 | 2.06 | 2995.24 | 76.80 | 0.00 |
| J-23 | 9.30 | 2995.27 | 71.18 | 0.00 |
| J-303 | 11.48 | 2996.79 | 111.27 | 0.00 |
| J-301 | 2.02 | 2997.04 | 116.14 | 0.00 |
| J-10 | 47.88 | 2995.22 | 114.49 | 0.00 |
| J-26 | 2.06 | 2995.87 | 99.60 | 0.00 |
| J-1 | 0.00 | 2996.80 | 95.24 | 0.00 |
| J-102 | 2.70 | 2997.96 | 100.94 | 0.00 |
| J-105 | 3.38 | 2997.96 | 108.74 | 0.00 |
| J-107 | 4.72 | 2997.96 | 113.51 | 0.00 |
| J-111 | 4.06 | 2997.96 | 116.54 | 0.00 |
| J-112 | 1.36 | 2997.80 | 125.14 | 0.00 |
| J-114 | 1.36 | 2997.74 | 126.41 | 0.00 |
| J-115 | 1.36 | 2997.68 | 127.68 | 0.00 |
| J-118 | 1.36 | 2997.63 | 128.10 | 0.00 |
| J-300 | 7.42 | 2997.04 | 117.01 | 0.00 |
| J-302 | 2.70 | 2996.79 | 109.10 | 0.00 |
| J-304 | 2.02 | 2996.78 | 102.16 | 0.00 |
| J-42 | 0.00 | 2998.60 | 99.48 | 0.00 |
| J-31 | 0.00 | 2998.78 | 96.53 | 0.00 |
| J-35 | 0.00 | 2998.87 | 77.07 | 0.00 |
| J-101 | 4.72 | 2999.26 | 115.15 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2997.95 | 116.54 | 0.00 |
| J-33 | 0.00 | 2998.84 | 84.86 | 0.00 |
| J-123 | 3.38 | 2998.84 | 93.09 | 0.00 |
| J-100 | 0.00 | 3000.31 | 121.89 | 0.00 |
| J-103 | 3.38 | 2999.23 | 109.29 | 0.00 |
| J-104 | 3.38 | 2999.01 | 85.37 | 0.00 |
| J-117 | 2.02 | 2997.74 | 123.38 | 0.00 |
| J-110 | 4.06 | 2997.95 | 108.74 | 0.00 |
| J-108 | 2.02 | 2997.95 | 108.31 | 0.00 |
| J-109 | 2.02 | 2997.95 | 107.44 | 0.00 |
| J-305 | 1.36 | 2996.28 | 102.81 | 0.00 |
| S145 | 0.00 | 3000.56 | 123.73 | 0.00 |
| J-207 | 2.70 | 2998.05 | 113.98 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J2

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2998.05 | 116.58 | 0.00 |
| J-206 | 0.68 | 2998.13 | 135.68 | 0.00 |
| J-204 | 2.70 | 2998.46 | 128.89 | 0.00 |
| J-205 | 2.70 | 2998.46 | 120.66 | 0.00 |
| J-203 | 12.82 | 2999.16 | 121.39 | 0.00 |
| J-200 | 7.42 | 3000.10 | 126.13 | 0.00 |
| J-211 | 0.00 | 2999.35 | 118.01 | 0.00 |
| J-201 | 3.38 | 2999.84 | 136.42 | 0.00 |
| J-202 | 10.12 | 2999.83 | 117.78 | 0.00 |
| J-119 | 0.00 | 2997.64 | 132.00 | 0.00 |
| J-120 | 2.02 | 2997.64 | 136.33 | 0.00 |
| J-121 | 0.00 | 2997.64 | 136.33 | 0.00 |
| J-122 | 45.90 | 2997.63 | 138.93 | 0.00 |
| J-210 | 4.06 | 2998.10 | 137.40 | 0.00 |
| J-209 | 0.68 | 2998.12 | 135.24 | 0.00 |
| J-113 | 1.36 | 2997.80 | 124.27 | 0.00 |
| J-116 | 0.68 | 2997.68 | 127.25 | 0.00 |
| J-25 | 5.52 | 2995.27 | 69.23 | 0.00 |
| J-34 | 0.68 | 2998.86 | 82.70 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1419.12 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -29.52 | 0.19 | 0.03 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 111.34 | 0.71 | 0.31 | Open |
| P-4 | 105.82 | 0.68 | 0.29 | Open |
| P-5 | 100.32 | 0.64 | 0.26 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.44 | 0.02 | 0.00 | Open |
| P-8 | 210.10 | 0.60 | 0.14 | Open |
| P-9 | 154.32 | 0.44 | 0.08 | Open |
| P-10 | 151.56 | 0.43 | 0.08 | Open |
| P-11 | 19.94 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -34.10 | 0.10 | 0.00 | Open |

Sereno Canyon Phase 4 Max Day fire flow J2

| | | | | |
|------|----------|------|------|------|
| P-14 | 55.78 | 0.36 | 0.09 | Open |
| P-15 | 5.06 | 0.03 | 0.00 | Open |
| P-16 | 5.08 | 0.03 | 0.00 | Open |
| P-17 | -7.32 | 0.05 | 0.00 | Open |
| P-18 | 0.70 | 0.00 | 0.00 | Open |
| P-19 | -35.36 | 0.23 | 0.04 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.48 | 0.02 | 0.00 | Open |
| P-25 | -24.35 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | -12.42 | 0.08 | 0.01 | Open |
| P-29 | 133.62 | 0.38 | 0.06 | Open |
| P-30 | 127.76 | 0.36 | 0.06 | Open |
| P-31 | 95.85 | 0.27 | 0.03 | Open |
| P-32 | 75.83 | 0.22 | 0.02 | Open |
| P-33 | 81.98 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 202.43 | 1.29 | 0.95 | Open |
| P-36 | -1007.67 | 2.86 | 2.57 | Open |
| P-37 | -761.94 | 2.16 | 1.53 | Open |
| P-38 | -0.80 | 0.00 | 0.00 | Open |
| P-39 | -7.56 | 0.02 | 0.00 | Open |
| P-40 | -20.38 | 0.06 | 0.00 | Open |
| P-41 | 116.27 | 0.74 | 0.34 | Open |
| P-42 | 113.55 | 0.72 | 0.32 | Open |
| P-43 | 110.17 | 0.70 | 0.31 | Open |
| P-44 | 108.13 | 0.69 | 0.30 | Open |
| P-45 | 122.44 | 0.78 | 0.37 | Open |
| P-46 | 113.00 | 0.72 | 0.32 | Open |
| P-47 | 98.82 | 0.28 | 0.03 | Open |
| P-48 | -109.05 | 0.31 | 0.04 | Open |
| P-49 | -354.77 | 2.26 | 2.68 | Open |
| P-50 | -360.27 | 2.30 | 2.76 | Open |
| P-51 | -262.72 | 1.68 | 1.54 | Open |
| P-52 | -378.53 | 2.42 | 3.02 | Open |
| P-53 | -203.93 | 1.30 | 0.96 | Open |
| P-54 | 35.04 | 0.22 | 0.04 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J2

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 223.71 | 1.43 | 1.14 | Open |
| P-58 | 82.39 | 0.53 | 0.18 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1166.88 | 3.31 | 3.37 | Open |
| P-62 | 943.17 | 2.68 | 2.27 | Open |
| P-63 | -140.70 | 0.40 | 0.07 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -144.08 | 0.41 | 0.07 | Open |
| P-66 | -213.10 | 1.36 | 1.04 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -218.50 | 1.39 | 1.09 | Open |
| P-69 | 119.08 | 0.76 | 0.35 | Open |
| P-70 | 119.08 | 0.76 | 0.36 | Open |
| P-71 | -112.24 | 0.72 | 0.32 | Open |
| P-72 | 252.24 | 1.61 | 1.42 | Open |
| P-73 | 125.74 | 0.80 | 0.39 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -17.70 | 0.11 | 0.01 | Open |
| P-77 | -67.66 | 0.19 | 0.02 | Open |
| P-78 | -68.34 | 0.19 | 0.02 | Open |
| P-79 | 12.44 | 0.08 | 0.00 | Open |
| P-80 | 29.85 | 0.19 | 0.03 | Open |
| P-81 | -11.46 | 0.07 | 0.00 | Open |
| P-82 | 16.98 | 0.11 | 0.01 | Open |
| P-83 | 763.85 | 2.17 | 1.54 | Open |
| P-84 | 174.60 | 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 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 15.68 | 0.10 | 0.01 | Open |
| P-90 | -63.60 | 0.41 | 0.11 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -43.28 | 0.28 | 0.05 | Open |
| P-93 | -69.37 | 0.44 | 0.13 | Open |
| P-94 | 134.56 | 0.86 | 0.45 | Open |
| P-95 | -46.66 | 0.30 | 0.06 | Open |
| P-96 | -47.34 | 0.30 | 0.06 | Open |
| P-97 | 85.77 | 0.55 | 0.19 | Open |
| P-98 | -205.85 | 1.31 | 0.98 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1419.12 | 1.01 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J2



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -204.49 | 1.31 | 0.97 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1419.13 | 0.00 | -283.57 | Open Pump |
| 1 | 1419.12 | 4.03 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J3

Page 1

12/2/2017 10:25:49 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality              *
*                               Analysis for Pipe Networks                *
*                               Version 2.0                              *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J3.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J3

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J3

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J3

| | | | | | | |
|-------|--------|-------|---------|--------|--------|------|
| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1187.38 | 101.20 | 101.20 | 0.00 |

Demand Charge: 0.00
 Total Cost: 0.00

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-3 | 1000.00 | 2993.62 | 86.24 | 0.00 |
| J-32 | 3.44 | 2998.73 | 90.01 | 0.00 |
| J-36 | 3.80 | 2998.75 | 74.42 | 0.00 |
| J-37 | 1.72 | 2998.75 | 70.95 | 0.00 |
| J-30 | 4.48 | 2998.36 | 98.73 | 0.00 |
| J-38 | 5.52 | 2998.06 | 81.92 | 0.00 |
| J-39 | 3.44 | 2997.94 | 88.37 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2997.73 | 94.12 | 0.00 |
| J-40 | 2.06 | 2997.94 | 88.15 | 0.00 |
| J-28 | 3.44 | 2997.42 | 102.44 | 0.00 |
| J-27 | 2.06 | 2997.42 | 90.74 | 0.00 |
| J-2 | 1.38 | 2995.25 | 93.70 | 0.00 |
| J-4 | 1.38 | 2993.61 | 87.14 | 0.00 |
| J-41 | 5.52 | 2993.59 | 88.13 | 0.00 |
| J-14 | 6.90 | 2993.55 | 91.23 | 0.00 |
| J-11 | 4.14 | 2993.54 | 98.16 | 0.00 |
| J-12 | 49.90 | 2993.53 | 92.09 | 0.00 |
| J-9 | 0.00 | 2993.54 | 106.83 | 0.00 |
| J-6 | 2.06 | 2993.57 | 89.07 | 0.00 |
| J-19 | 3.44 | 2993.60 | 80.85 | 0.00 |
| J-24 | 3.44 | 2993.59 | 80.85 | 0.00 |
| J-20 | 31.00 | 2993.59 | 72.83 | 0.00 |
| J-21 | 12.40 | 2993.59 | 72.83 | 0.00 |
| J-22 | 3.10 | 2993.59 | 72.62 | 0.00 |
| J-5 | 2.76 | 2993.58 | 88.65 | 0.00 |
| J-17 | 3.10 | 2993.58 | 101.64 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J3

| | | | | |
|-------|-------|---------|--------|------|
| J-18 | 1.38 | 2993.61 | 95.59 | 0.00 |
| J-7 | 4.14 | 2993.56 | 98.60 | 0.00 |
| J-13 | 3.44 | 2993.55 | 109.00 | 0.00 |
| J-8 | 3.80 | 2993.55 | 102.93 | 0.00 |
| J-15 | 3.44 | 2993.56 | 80.62 | 0.00 |
| J-16 | 2.06 | 2993.56 | 76.07 | 0.00 |
| J-23 | 9.30 | 2993.59 | 70.45 | 0.00 |
| J-303 | 11.48 | 2996.68 | 111.22 | 0.00 |
| J-301 | 2.02 | 2996.93 | 116.09 | 0.00 |
| J-10 | 47.88 | 2993.54 | 113.76 | 0.00 |
| J-26 | 2.06 | 2995.76 | 99.55 | 0.00 |
| J-1 | 0.00 | 2996.69 | 95.19 | 0.00 |
| J-102 | 2.70 | 2997.85 | 100.89 | 0.00 |
| J-105 | 3.38 | 2997.85 | 108.69 | 0.00 |
| J-107 | 4.72 | 2997.85 | 113.46 | 0.00 |
| J-111 | 4.06 | 2997.85 | 116.49 | 0.00 |
| J-112 | 1.36 | 2997.70 | 125.09 | 0.00 |
| J-114 | 1.36 | 2997.63 | 126.36 | 0.00 |
| J-115 | 1.36 | 2997.57 | 127.64 | 0.00 |
| J-118 | 1.36 | 2997.52 | 128.05 | 0.00 |
| J-300 | 7.42 | 2996.93 | 116.96 | 0.00 |
| J-302 | 2.70 | 2996.68 | 109.05 | 0.00 |
| J-304 | 2.02 | 2996.67 | 102.11 | 0.00 |
| J-42 | 0.00 | 2998.49 | 99.44 | 0.00 |
| J-31 | 0.00 | 2998.68 | 96.49 | 0.00 |
| J-35 | 0.00 | 2998.77 | 77.03 | 0.00 |
| J-101 | 4.72 | 2999.15 | 115.11 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2997.85 | 116.49 | 0.00 |
| J-33 | 0.00 | 2998.74 | 84.81 | 0.00 |
| J-123 | 3.38 | 2998.74 | 93.05 | 0.00 |
| J-100 | 0.00 | 3000.21 | 121.85 | 0.00 |
| J-103 | 3.38 | 2999.12 | 109.24 | 0.00 |
| J-104 | 3.38 | 2998.91 | 85.32 | 0.00 |
| J-117 | 2.02 | 2997.63 | 123.33 | 0.00 |
| J-110 | 4.06 | 2997.85 | 108.69 | 0.00 |
| J-108 | 2.02 | 2997.85 | 108.26 | 0.00 |
| J-109 | 2.02 | 2997.85 | 107.39 | 0.00 |
| J-305 | 1.36 | 2996.17 | 102.77 | 0.00 |
| S145 | 0.00 | 3000.46 | 123.69 | 0.00 |
| J-207 | 2.70 | 2997.94 | 113.93 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J3

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2997.94 | 116.53 | 0.00 |
| J-206 | 0.68 | 2998.02 | 135.63 | 0.00 |
| J-204 | 2.70 | 2998.35 | 128.84 | 0.00 |
| J-205 | 2.70 | 2998.35 | 120.61 | 0.00 |
| J-203 | 12.82 | 2999.05 | 121.35 | 0.00 |
| J-200 | 7.42 | 2999.99 | 126.09 | 0.00 |
| J-211 | 0.00 | 2999.24 | 117.96 | 0.00 |
| J-201 | 3.38 | 2999.73 | 136.37 | 0.00 |
| J-202 | 10.12 | 2999.73 | 117.74 | 0.00 |
| J-119 | 0.00 | 2997.53 | 131.95 | 0.00 |
| J-120 | 2.02 | 2997.53 | 136.28 | 0.00 |
| J-121 | 0.00 | 2997.53 | 136.29 | 0.00 |
| J-122 | 45.90 | 2997.52 | 138.88 | 0.00 |
| J-210 | 4.06 | 2997.99 | 137.35 | 0.00 |
| J-209 | 0.68 | 2998.01 | 135.20 | 0.00 |
| J-113 | 1.36 | 2997.70 | 124.23 | 0.00 |
| J-116 | 0.68 | 2997.57 | 127.20 | 0.00 |
| J-25 | 5.52 | 2993.59 | 68.50 | 0.00 |
| J-34 | 0.68 | 2998.75 | 82.65 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1420.50 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -29.56 | 0.19 | 0.03 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 111.45 | 0.71 | 0.31 | Open |
| P-4 | 105.93 | 0.68 | 0.29 | Open |
| P-5 | 100.43 | 0.64 | 0.26 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.44 | 0.02 | 0.00 | Open |
| P-8 | 1210.10 | 3.43 | 3.61 | Open |
| P-9 | 154.32 | 0.44 | 0.08 | Open |
| P-10 | 151.56 | 0.43 | 0.08 | Open |
| P-11 | 19.94 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -34.10 | 0.10 | 0.00 | Open |

Sereno Canyon Phase 4 Max Day fire flow J3

| | | | | |
|------|----------|------|------|------|
| P-14 | 55.78 | 0.36 | 0.09 | Open |
| P-15 | 5.06 | 0.03 | 0.00 | Open |
| P-16 | 5.08 | 0.03 | 0.00 | Open |
| P-17 | -7.32 | 0.05 | 0.00 | Open |
| P-18 | 0.70 | 0.00 | 0.00 | Open |
| P-19 | -35.36 | 0.23 | 0.04 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.48 | 0.02 | 0.00 | Open |
| P-25 | -24.35 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | -12.42 | 0.08 | 0.01 | Open |
| P-29 | 133.62 | 0.38 | 0.06 | Open |
| P-30 | 127.76 | 0.36 | 0.06 | Open |
| P-31 | 95.85 | 0.27 | 0.03 | Open |
| P-32 | 75.83 | 0.22 | 0.02 | Open |
| P-33 | 81.98 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 202.67 | 1.29 | 0.95 | Open |
| P-36 | -1008.81 | 2.86 | 2.58 | Open |
| P-37 | -762.79 | 2.16 | 1.54 | Open |
| P-38 | -0.88 | 0.00 | 0.00 | Open |
| P-39 | -7.64 | 0.02 | 0.00 | Open |
| P-40 | -20.46 | 0.06 | 0.00 | Open |
| P-41 | 116.36 | 0.74 | 0.34 | Open |
| P-42 | 113.64 | 0.73 | 0.33 | Open |
| P-43 | 110.26 | 0.70 | 0.31 | Open |
| P-44 | 108.22 | 0.69 | 0.30 | Open |
| P-45 | 122.59 | 0.78 | 0.37 | Open |
| P-46 | 113.15 | 0.72 | 0.32 | Open |
| P-47 | 98.97 | 0.28 | 0.03 | Open |
| P-48 | -109.14 | 0.31 | 0.04 | Open |
| P-49 | -355.16 | 2.27 | 2.69 | Open |
| P-50 | -360.66 | 2.30 | 2.76 | Open |
| P-51 | -262.99 | 1.68 | 1.54 | Open |
| P-52 | -378.92 | 2.42 | 3.03 | Open |
| P-53 | -204.15 | 1.30 | 0.96 | Open |
| P-54 | 35.08 | 0.22 | 0.04 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J3

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 223.93 | 1.43 | 1.14 | Open |
| P-58 | 82.47 | 0.53 | 0.18 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1168.04 | 3.31 | 3.38 | Open |
| P-62 | 944.11 | 2.68 | 2.28 | Open |
| P-63 | -140.87 | 0.40 | 0.07 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -144.25 | 0.41 | 0.07 | Open |
| P-66 | -213.32 | 1.36 | 1.04 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -218.72 | 1.40 | 1.09 | Open |
| P-69 | 119.20 | 0.76 | 0.36 | Open |
| P-70 | 119.20 | 0.76 | 0.36 | Open |
| P-71 | -112.35 | 0.72 | 0.32 | Open |
| P-72 | 252.46 | 1.61 | 1.43 | Open |
| P-73 | 125.85 | 0.80 | 0.39 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -17.75 | 0.11 | 0.01 | Open |
| P-77 | -67.71 | 0.19 | 0.02 | Open |
| P-78 | -68.39 | 0.19 | 0.02 | Open |
| P-79 | 12.44 | 0.08 | 0.01 | Open |
| P-80 | 29.85 | 0.19 | 0.03 | Open |
| P-81 | -11.46 | 0.07 | 0.00 | Open |
| P-82 | 16.98 | 0.11 | 0.01 | Open |
| P-83 | 764.61 | 2.17 | 1.54 | Open |
| P-84 | 174.77 | 1.12 | 0.72 | Open |
| P-85 | -8.10 | 0.05 | 0.00 | Open |
| P-86 | -1.36 | 0.01 | 0.00 | Open |
| P-87 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 15.73 | 0.10 | 0.01 | Open |
| P-90 | -63.65 | 0.41 | 0.11 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -43.33 | 0.28 | 0.05 | Open |
| P-93 | -69.45 | 0.44 | 0.13 | Open |
| P-94 | 134.70 | 0.86 | 0.45 | Open |
| P-95 | -46.71 | 0.30 | 0.06 | Open |
| P-96 | -47.39 | 0.30 | 0.06 | Open |
| P-97 | 85.85 | 0.55 | 0.19 | Open |
| P-98 | -206.09 | 1.32 | 0.98 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1420.50 | 1.01 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J3



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -204.73 | 1.31 | 0.97 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1420.51 | 0.00 | -283.46 | Open Pump |
| 1 | 1420.50 | 4.03 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J4

Page 1

12/2/2017 10:26:07 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality              *
*                               Analysis for Pipe Networks                *
*                               Version 2.0                              *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J4.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J4

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J4

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J4

| | | | | | | |
|-------|--------|-------|---------|--------|--------|------|
| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1187.82 | 101.14 | 101.14 | 0.00 |

Demand Charge: 0.00
Total Cost: 0.00

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-4 | 1000.00 | 2993.21 | 86.97 | 0.00 |
| J-32 | 3.44 | 2998.83 | 90.05 | 0.00 |
| J-36 | 3.80 | 2998.86 | 74.47 | 0.00 |
| J-37 | 1.72 | 2998.86 | 71.00 | 0.00 |
| J-30 | 4.48 | 2998.47 | 98.78 | 0.00 |
| J-38 | 5.52 | 2998.17 | 81.97 | 0.00 |
| J-39 | 3.44 | 2998.05 | 88.42 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2997.84 | 94.17 | 0.00 |
| J-40 | 2.06 | 2998.05 | 88.20 | 0.00 |
| J-28 | 3.44 | 2997.53 | 102.49 | 0.00 |
| J-27 | 2.06 | 2997.53 | 90.79 | 0.00 |
| J-2 | 1.38 | 2995.37 | 93.75 | 0.00 |
| J-3 | 0.00 | 2993.74 | 86.29 | 0.00 |
| J-41 | 5.52 | 2993.21 | 87.97 | 0.00 |
| J-14 | 6.90 | 2993.17 | 91.07 | 0.00 |
| J-11 | 4.14 | 2993.16 | 97.99 | 0.00 |
| J-12 | 49.90 | 2993.15 | 91.93 | 0.00 |
| J-9 | 0.00 | 2993.16 | 106.66 | 0.00 |
| J-6 | 2.06 | 2993.19 | 88.91 | 0.00 |
| J-19 | 3.44 | 2993.57 | 80.84 | 0.00 |
| J-24 | 3.44 | 2993.46 | 80.79 | 0.00 |
| J-20 | 31.00 | 2993.47 | 72.78 | 0.00 |
| J-21 | 12.40 | 2993.43 | 72.76 | 0.00 |
| J-22 | 3.10 | 2993.44 | 72.55 | 0.00 |
| J-5 | 2.76 | 2993.20 | 88.48 | 0.00 |
| J-17 | 3.10 | 2993.20 | 101.48 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J4

| | | | | |
|-------|-------|---------|--------|------|
| J-18 | 1.38 | 2993.21 | 95.42 | 0.00 |
| J-7 | 4.14 | 2993.18 | 98.44 | 0.00 |
| J-13 | 3.44 | 2993.17 | 108.83 | 0.00 |
| J-8 | 3.80 | 2993.17 | 102.77 | 0.00 |
| J-15 | 3.44 | 2993.18 | 80.46 | 0.00 |
| J-16 | 2.06 | 2993.18 | 75.91 | 0.00 |
| J-23 | 9.30 | 2993.44 | 70.38 | 0.00 |
| J-303 | 11.48 | 2996.79 | 111.27 | 0.00 |
| J-301 | 2.02 | 2997.04 | 116.14 | 0.00 |
| J-10 | 47.88 | 2993.16 | 113.59 | 0.00 |
| J-26 | 2.06 | 2995.87 | 99.60 | 0.00 |
| J-1 | 0.00 | 2996.80 | 95.24 | 0.00 |
| J-102 | 2.70 | 2997.96 | 100.94 | 0.00 |
| J-105 | 3.38 | 2997.96 | 108.74 | 0.00 |
| J-107 | 4.72 | 2997.96 | 113.51 | 0.00 |
| J-111 | 4.06 | 2997.96 | 116.54 | 0.00 |
| J-112 | 1.36 | 2997.80 | 125.14 | 0.00 |
| J-114 | 1.36 | 2997.74 | 126.41 | 0.00 |
| J-115 | 1.36 | 2997.68 | 127.68 | 0.00 |
| J-118 | 1.36 | 2997.63 | 128.10 | 0.00 |
| J-300 | 7.42 | 2997.04 | 117.01 | 0.00 |
| J-302 | 2.70 | 2996.79 | 109.10 | 0.00 |
| J-304 | 2.02 | 2996.78 | 102.16 | 0.00 |
| J-42 | 0.00 | 2998.60 | 99.48 | 0.00 |
| J-31 | 0.00 | 2998.78 | 96.53 | 0.00 |
| J-35 | 0.00 | 2998.87 | 77.07 | 0.00 |
| J-101 | 4.72 | 2999.26 | 115.15 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2997.95 | 116.54 | 0.00 |
| J-33 | 0.00 | 2998.84 | 84.86 | 0.00 |
| J-123 | 3.38 | 2998.84 | 93.09 | 0.00 |
| J-100 | 0.00 | 3000.31 | 121.89 | 0.00 |
| J-103 | 3.38 | 2999.23 | 109.29 | 0.00 |
| J-104 | 3.38 | 2999.01 | 85.37 | 0.00 |
| J-117 | 2.02 | 2997.74 | 123.38 | 0.00 |
| J-110 | 4.06 | 2997.95 | 108.74 | 0.00 |
| J-108 | 2.02 | 2997.95 | 108.31 | 0.00 |
| J-109 | 2.02 | 2997.95 | 107.44 | 0.00 |
| J-305 | 1.36 | 2996.28 | 102.81 | 0.00 |
| S145 | 0.00 | 3000.56 | 123.73 | 0.00 |
| J-207 | 2.70 | 2998.05 | 113.98 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J4

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2998.05 | 116.58 | 0.00 |
| J-206 | 0.68 | 2998.13 | 135.68 | 0.00 |
| J-204 | 2.70 | 2998.46 | 128.89 | 0.00 |
| J-205 | 2.70 | 2998.46 | 120.66 | 0.00 |
| J-203 | 12.82 | 2999.16 | 121.39 | 0.00 |
| J-200 | 7.42 | 3000.10 | 126.13 | 0.00 |
| J-211 | 0.00 | 2999.35 | 118.01 | 0.00 |
| J-201 | 3.38 | 2999.84 | 136.42 | 0.00 |
| J-202 | 10.12 | 2999.83 | 117.78 | 0.00 |
| J-119 | 0.00 | 2997.64 | 132.00 | 0.00 |
| J-120 | 2.02 | 2997.64 | 136.33 | 0.00 |
| J-121 | 0.00 | 2997.64 | 136.33 | 0.00 |
| J-122 | 45.90 | 2997.63 | 138.93 | 0.00 |
| J-210 | 4.06 | 2998.10 | 137.40 | 0.00 |
| J-209 | 0.68 | 2998.12 | 135.24 | 0.00 |
| J-113 | 1.36 | 2997.80 | 124.27 | 0.00 |
| J-116 | 0.68 | 2997.68 | 127.25 | 0.00 |
| J-25 | 5.52 | 2993.50 | 68.46 | 0.00 |
| J-34 | 0.68 | 2998.86 | 82.70 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1419.12 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -29.52 | 0.19 | 0.03 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 111.34 | 0.71 | 0.31 | Open |
| P-4 | 105.82 | 0.68 | 0.29 | Open |
| P-5 | 100.32 | 0.64 | 0.26 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.44 | 0.02 | 0.00 | Open |
| P-8 | 1208.72 | 3.43 | 3.60 | Open |
| P-9 | 1030.72 | 2.92 | 2.68 | Open |
| P-10 | 29.34 | 0.08 | 0.00 | Open |
| P-11 | 19.96 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -34.08 | 0.10 | 0.00 | Open |

Sereno Canyon Phase 4 Max Day fire flow J4

| | | | | |
|------|----------|------|------|------|
| P-14 | 178.00 | 1.14 | 0.75 | Open |
| P-15 | 67.64 | 0.43 | 0.13 | Open |
| P-16 | -54.56 | 0.35 | 0.08 | Open |
| P-17 | -66.96 | 0.43 | 0.12 | Open |
| P-18 | -20.97 | 0.13 | 0.01 | Open |
| P-19 | -119.61 | 0.76 | 0.36 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.52 | 0.02 | 0.00 | Open |
| P-25 | -24.34 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | 109.80 | 0.70 | 0.31 | Open |
| P-29 | 133.62 | 0.38 | 0.06 | Open |
| P-30 | 127.76 | 0.36 | 0.06 | Open |
| P-31 | 95.86 | 0.27 | 0.03 | Open |
| P-32 | 75.84 | 0.22 | 0.02 | Open |
| P-33 | 81.96 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 202.43 | 1.29 | 0.95 | Open |
| P-36 | -1007.67 | 2.86 | 2.57 | Open |
| P-37 | -761.94 | 2.16 | 1.53 | Open |
| P-38 | -0.80 | 0.00 | 0.00 | Open |
| P-39 | -7.56 | 0.02 | 0.00 | Open |
| P-40 | -20.38 | 0.06 | 0.00 | Open |
| P-41 | 116.27 | 0.74 | 0.34 | Open |
| P-42 | 113.55 | 0.72 | 0.32 | Open |
| P-43 | 110.17 | 0.70 | 0.31 | Open |
| P-44 | 108.13 | 0.69 | 0.30 | Open |
| P-45 | 122.44 | 0.78 | 0.37 | Open |
| P-46 | 113.00 | 0.72 | 0.32 | Open |
| P-47 | 98.82 | 0.28 | 0.03 | Open |
| P-48 | -109.05 | 0.31 | 0.04 | Open |
| P-49 | -354.77 | 2.26 | 2.68 | Open |
| P-50 | -360.27 | 2.30 | 2.76 | Open |
| P-51 | -262.72 | 1.68 | 1.54 | Open |
| P-52 | -378.53 | 2.42 | 3.02 | Open |
| P-53 | -203.93 | 1.30 | 0.96 | Open |
| P-54 | 35.04 | 0.22 | 0.04 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J4

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 223.71 | 1.43 | 1.14 | Open |
| P-58 | 82.39 | 0.53 | 0.18 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1166.88 | 3.31 | 3.37 | Open |
| P-62 | 943.17 | 2.68 | 2.27 | Open |
| P-63 | -140.70 | 0.40 | 0.07 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -144.08 | 0.41 | 0.07 | Open |
| P-66 | -213.10 | 1.36 | 1.04 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -218.50 | 1.39 | 1.09 | Open |
| P-69 | 119.08 | 0.76 | 0.35 | Open |
| P-70 | 119.08 | 0.76 | 0.36 | Open |
| P-71 | -112.24 | 0.72 | 0.32 | Open |
| P-72 | 252.24 | 1.61 | 1.43 | Open |
| P-73 | 125.74 | 0.80 | 0.39 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -17.70 | 0.11 | 0.01 | Open |
| P-77 | -67.66 | 0.19 | 0.02 | Open |
| P-78 | -68.34 | 0.19 | 0.02 | Open |
| P-79 | 12.44 | 0.08 | 0.00 | Open |
| P-80 | 29.84 | 0.19 | 0.03 | Open |
| P-81 | -49.43 | 0.32 | 0.07 | Open |
| P-82 | 54.95 | 0.35 | 0.08 | Open |
| P-83 | 763.85 | 2.17 | 1.54 | Open |
| P-84 | 174.60 | 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 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 15.68 | 0.10 | 0.01 | Open |
| P-90 | -63.60 | 0.41 | 0.11 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -43.28 | 0.28 | 0.05 | Open |
| P-93 | -69.37 | 0.44 | 0.13 | Open |
| P-94 | 134.56 | 0.86 | 0.45 | Open |
| P-95 | -46.66 | 0.30 | 0.06 | Open |
| P-96 | -47.34 | 0.30 | 0.06 | Open |
| P-97 | 85.77 | 0.55 | 0.19 | Open |
| P-98 | -205.85 | 1.31 | 0.98 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1419.12 | 1.01 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J4



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -204.49 | 1.31 | 0.97 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1419.13 | 0.00 | -283.57 | Open Pump |
| 1 | 1419.12 | 4.03 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J5

Page 1

12/2/2017 10:26:20 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality              *
*                               Analysis for Pipe Networks                *
*                               Version 2.0                              *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J5.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J5

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J5

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J5

| | | | | | | |
|-------|--------|-------|---------|--------|--------|------|
| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1188.25 | 101.08 | 101.08 | 0.00 |

Demand Charge: 0.00
 Total Cost: 0.00

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-5 | 1000.00 | 2992.46 | 88.16 | 0.00 |
| J-32 | 3.44 | 2998.94 | 90.10 | 0.00 |
| J-36 | 3.80 | 2998.96 | 74.51 | 0.00 |
| J-37 | 1.72 | 2998.96 | 71.05 | 0.00 |
| J-30 | 4.48 | 2998.57 | 98.82 | 0.00 |
| J-38 | 5.52 | 2998.27 | 82.01 | 0.00 |
| J-39 | 3.44 | 2998.16 | 88.46 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2997.94 | 94.22 | 0.00 |
| J-40 | 2.06 | 2998.16 | 88.25 | 0.00 |
| J-28 | 3.44 | 2997.63 | 102.53 | 0.00 |
| J-27 | 2.06 | 2997.63 | 90.83 | 0.00 |
| J-2 | 1.38 | 2995.48 | 93.80 | 0.00 |
| J-3 | 0.00 | 2993.86 | 86.34 | 0.00 |
| J-4 | 1.38 | 2993.37 | 87.04 | 0.00 |
| J-41 | 5.52 | 2993.00 | 87.88 | 0.00 |
| J-14 | 6.90 | 2992.42 | 90.74 | 0.00 |
| J-11 | 4.14 | 2992.41 | 97.67 | 0.00 |
| J-12 | 49.90 | 2992.41 | 91.60 | 0.00 |
| J-9 | 0.00 | 2992.41 | 106.34 | 0.00 |
| J-6 | 2.06 | 2992.44 | 88.59 | 0.00 |
| J-19 | 3.44 | 2993.61 | 80.86 | 0.00 |
| J-24 | 3.44 | 2993.44 | 80.79 | 0.00 |
| J-20 | 31.00 | 2993.45 | 72.77 | 0.00 |
| J-21 | 12.40 | 2993.39 | 72.75 | 0.00 |
| J-22 | 3.10 | 2993.40 | 72.54 | 0.00 |
| J-17 | 3.10 | 2992.46 | 101.16 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J5

| | | | | |
|-------|-------|---------|--------|------|
| J-18 | 1.38 | 2993.37 | 95.49 | 0.00 |
| J-7 | 4.14 | 2992.43 | 98.11 | 0.00 |
| J-13 | 3.44 | 2992.42 | 108.51 | 0.00 |
| J-8 | 3.80 | 2992.42 | 102.44 | 0.00 |
| J-15 | 3.44 | 2992.43 | 80.13 | 0.00 |
| J-16 | 2.06 | 2992.43 | 75.58 | 0.00 |
| J-23 | 9.30 | 2993.40 | 70.37 | 0.00 |
| J-303 | 11.48 | 2996.90 | 111.32 | 0.00 |
| J-301 | 2.02 | 2997.15 | 116.19 | 0.00 |
| J-10 | 47.88 | 2992.41 | 113.27 | 0.00 |
| J-26 | 2.06 | 2995.98 | 99.65 | 0.00 |
| J-1 | 0.00 | 2996.91 | 95.29 | 0.00 |
| J-102 | 2.70 | 2998.06 | 100.99 | 0.00 |
| J-105 | 3.38 | 2998.06 | 108.79 | 0.00 |
| J-107 | 4.72 | 2998.06 | 113.55 | 0.00 |
| J-111 | 4.06 | 2998.07 | 116.59 | 0.00 |
| J-112 | 1.36 | 2997.91 | 125.19 | 0.00 |
| J-114 | 1.36 | 2997.85 | 126.46 | 0.00 |
| J-115 | 1.36 | 2997.79 | 127.73 | 0.00 |
| J-118 | 1.36 | 2997.74 | 128.14 | 0.00 |
| J-300 | 7.42 | 2997.15 | 117.06 | 0.00 |
| J-302 | 2.70 | 2996.91 | 109.15 | 0.00 |
| J-304 | 2.02 | 2996.89 | 102.21 | 0.00 |
| J-42 | 0.00 | 2998.70 | 99.53 | 0.00 |
| J-31 | 0.00 | 2998.89 | 96.58 | 0.00 |
| J-35 | 0.00 | 2998.98 | 77.12 | 0.00 |
| J-101 | 4.72 | 2999.36 | 115.20 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2998.06 | 116.58 | 0.00 |
| J-33 | 0.00 | 2998.95 | 84.91 | 0.00 |
| J-123 | 3.38 | 2998.95 | 93.14 | 0.00 |
| J-100 | 0.00 | 3000.42 | 121.94 | 0.00 |
| J-103 | 3.38 | 2999.33 | 109.34 | 0.00 |
| J-104 | 3.38 | 2999.12 | 85.41 | 0.00 |
| J-117 | 2.02 | 2997.85 | 123.42 | 0.00 |
| J-110 | 4.06 | 2998.06 | 108.79 | 0.00 |
| J-108 | 2.02 | 2998.06 | 108.35 | 0.00 |
| J-109 | 2.02 | 2998.06 | 107.49 | 0.00 |
| J-305 | 1.36 | 2996.39 | 102.86 | 0.00 |
| S145 | 0.00 | 3000.67 | 123.78 | 0.00 |
| J-207 | 2.70 | 2998.16 | 114.03 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J5

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2998.16 | 116.63 | 0.00 |
| J-206 | 0.68 | 2998.23 | 135.72 | 0.00 |
| J-204 | 2.70 | 2998.56 | 128.93 | 0.00 |
| J-205 | 2.70 | 2998.56 | 120.70 | 0.00 |
| J-203 | 12.82 | 2999.27 | 121.44 | 0.00 |
| J-200 | 7.42 | 3000.20 | 126.18 | 0.00 |
| J-211 | 0.00 | 2999.46 | 118.06 | 0.00 |
| J-201 | 3.38 | 2999.94 | 136.46 | 0.00 |
| J-202 | 10.12 | 2999.94 | 117.83 | 0.00 |
| J-119 | 0.00 | 2997.74 | 132.05 | 0.00 |
| J-120 | 2.02 | 2997.74 | 136.38 | 0.00 |
| J-121 | 0.00 | 2997.75 | 136.38 | 0.00 |
| J-122 | 45.90 | 2997.74 | 138.98 | 0.00 |
| J-210 | 4.06 | 2998.21 | 137.45 | 0.00 |
| J-209 | 0.68 | 2998.23 | 135.29 | 0.00 |
| J-113 | 1.36 | 2997.91 | 124.32 | 0.00 |
| J-116 | 0.68 | 2997.79 | 127.30 | 0.00 |
| J-25 | 5.52 | 2993.50 | 68.46 | 0.00 |
| J-34 | 0.68 | 2998.97 | 82.75 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1417.74 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -29.49 | 0.19 | 0.03 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 111.22 | 0.71 | 0.31 | Open |
| P-4 | 105.70 | 0.67 | 0.28 | Open |
| P-5 | 100.20 | 0.64 | 0.26 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.44 | 0.02 | 0.00 | Open |
| P-8 | 1207.34 | 3.42 | 3.59 | Open |
| P-9 | 988.10 | 2.80 | 2.48 | Open |
| P-10 | 985.34 | 2.80 | 2.47 | Open |
| P-11 | 19.96 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -34.08 | 0.10 | 0.00 | Open |

Sereno Canyon Phase 4 Max Day fire flow J5

| | | | | |
|------|----------|------|------|------|
| P-14 | 219.24 | 1.40 | 1.10 | Open |
| P-15 | 89.05 | 0.57 | 0.21 | Open |
| P-16 | -74.39 | 0.47 | 0.15 | Open |
| P-17 | -86.79 | 0.55 | 0.20 | Open |
| P-18 | -27.91 | 0.18 | 0.02 | Open |
| P-19 | -147.96 | 0.94 | 0.53 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.52 | 0.02 | 0.00 | Open |
| P-25 | -24.34 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | 151.04 | 0.96 | 0.55 | Open |
| P-29 | 1130.86 | 3.21 | 3.18 | Open |
| P-30 | 127.76 | 0.36 | 0.06 | Open |
| P-31 | 95.86 | 0.27 | 0.03 | Open |
| P-32 | 75.84 | 0.22 | 0.02 | Open |
| P-33 | 81.96 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 202.20 | 1.29 | 0.95 | Open |
| P-36 | -1006.52 | 2.86 | 2.57 | Open |
| P-37 | -761.10 | 2.16 | 1.53 | Open |
| P-38 | -0.72 | 0.00 | 0.00 | Open |
| P-39 | -7.48 | 0.02 | 0.00 | Open |
| P-40 | -20.30 | 0.06 | 0.00 | Open |
| P-41 | 116.18 | 0.74 | 0.34 | Open |
| P-42 | 113.46 | 0.72 | 0.33 | Open |
| P-43 | 110.08 | 0.70 | 0.31 | Open |
| P-44 | 108.04 | 0.69 | 0.30 | Open |
| P-45 | 122.30 | 0.78 | 0.37 | Open |
| P-46 | 112.86 | 0.72 | 0.32 | Open |
| P-47 | 98.68 | 0.28 | 0.03 | Open |
| P-48 | -108.96 | 0.31 | 0.04 | Open |
| P-49 | -354.38 | 2.26 | 2.67 | Open |
| P-50 | -359.88 | 2.30 | 2.75 | Open |
| P-51 | -262.44 | 1.68 | 1.53 | Open |
| P-52 | -378.14 | 2.41 | 3.02 | Open |
| P-53 | -203.71 | 1.30 | 0.96 | Open |
| P-54 | 35.01 | 0.22 | 0.04 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J5

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 223.49 | 1.43 | 1.14 | Open |
| P-58 | 82.31 | 0.53 | 0.18 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1165.73 | 3.31 | 3.37 | Open |
| P-62 | 942.23 | 2.67 | 2.27 | Open |
| P-63 | -140.54 | 0.40 | 0.07 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -143.92 | 0.41 | 0.07 | Open |
| P-66 | -212.87 | 1.36 | 1.04 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -218.27 | 1.39 | 1.09 | Open |
| P-69 | 118.97 | 0.76 | 0.35 | Open |
| P-70 | 118.97 | 0.76 | 0.35 | Open |
| P-71 | -112.13 | 0.72 | 0.32 | Open |
| P-72 | 252.01 | 1.61 | 1.42 | Open |
| P-73 | 125.63 | 0.80 | 0.39 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -17.64 | 0.11 | 0.01 | Open |
| P-77 | -67.60 | 0.19 | 0.02 | Open |
| P-78 | -68.28 | 0.19 | 0.02 | Open |
| P-79 | 12.44 | 0.08 | 0.01 | Open |
| P-80 | 29.84 | 0.19 | 0.03 | Open |
| P-81 | -62.31 | 0.40 | 0.11 | Open |
| P-82 | 67.83 | 0.43 | 0.13 | Open |
| P-83 | 763.08 | 2.16 | 1.54 | Open |
| P-84 | 174.43 | 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 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 15.62 | 0.10 | 0.01 | Open |
| P-90 | -63.54 | 0.41 | 0.11 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -43.23 | 0.28 | 0.05 | Open |
| P-93 | -69.29 | 0.44 | 0.13 | Open |
| P-94 | 134.43 | 0.86 | 0.44 | Open |
| P-95 | -46.61 | 0.30 | 0.06 | Open |
| P-96 | -47.29 | 0.30 | 0.06 | Open |
| P-97 | 85.69 | 0.55 | 0.19 | Open |
| P-98 | -205.62 | 1.31 | 0.98 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1417.74 | 1.01 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J5



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -204.26 | 1.30 | 0.96 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1417.75 | 0.00 | -283.67 | Open Pump |
| 1 | 1417.74 | 4.02 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J6

Page 1

12/2/2017 10:26:45 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality              *
*                               Analysis for Pipe Networks                *
*                               Version 2.0                              *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J6.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J6

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J6

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J6

| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|-------|--------|-------|---------|--------|----------------|------|
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1188.03 | 101.11 | 101.11 | 0.00 |
| | | | | | Demand Charge: | 0.00 |
| | | | | | Total Cost: | 0.00 |

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-6 | 1000.00 | 2991.77 | 88.29 | 0.00 |
| J-32 | 3.44 | 2998.88 | 90.08 | 0.00 |
| J-36 | 3.80 | 2998.91 | 74.49 | 0.00 |
| J-37 | 1.72 | 2998.91 | 71.02 | 0.00 |
| J-30 | 4.48 | 2998.52 | 98.80 | 0.00 |
| J-38 | 5.52 | 2998.22 | 81.99 | 0.00 |
| J-39 | 3.44 | 2998.11 | 88.44 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2997.89 | 94.19 | 0.00 |
| J-40 | 2.06 | 2998.11 | 88.22 | 0.00 |
| J-28 | 3.44 | 2997.58 | 102.51 | 0.00 |
| J-27 | 2.06 | 2997.58 | 90.81 | 0.00 |
| J-2 | 1.38 | 2995.42 | 93.78 | 0.00 |
| J-3 | 0.00 | 2993.80 | 86.31 | 0.00 |
| J-4 | 1.38 | 2993.31 | 87.01 | 0.00 |
| J-41 | 5.52 | 2992.94 | 87.85 | 0.00 |
| J-14 | 6.90 | 2991.75 | 90.45 | 0.00 |
| J-11 | 4.14 | 2991.74 | 97.38 | 0.00 |
| J-12 | 49.90 | 2991.73 | 91.31 | 0.00 |
| J-9 | 0.00 | 2991.74 | 106.04 | 0.00 |
| J-19 | 3.44 | 2993.55 | 80.83 | 0.00 |
| J-24 | 3.44 | 2993.38 | 80.76 | 0.00 |
| J-20 | 31.00 | 2993.39 | 72.75 | 0.00 |
| J-21 | 12.40 | 2993.33 | 72.72 | 0.00 |
| J-22 | 3.10 | 2993.34 | 72.51 | 0.00 |
| J-5 | 2.76 | 2992.39 | 88.13 | 0.00 |
| J-17 | 3.10 | 2992.39 | 101.13 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J6

| | | | | |
|-------|-------|---------|--------|------|
| J-18 | 1.38 | 2993.31 | 95.46 | 0.00 |
| J-7 | 4.14 | 2991.75 | 97.82 | 0.00 |
| J-13 | 3.44 | 2991.75 | 108.22 | 0.00 |
| J-8 | 3.80 | 2991.75 | 102.15 | 0.00 |
| J-15 | 3.44 | 2991.76 | 79.84 | 0.00 |
| J-16 | 2.06 | 2991.76 | 75.29 | 0.00 |
| J-23 | 9.30 | 2993.34 | 70.34 | 0.00 |
| J-303 | 11.48 | 2996.85 | 111.29 | 0.00 |
| J-301 | 2.02 | 2997.09 | 116.16 | 0.00 |
| J-10 | 47.88 | 2991.73 | 112.98 | 0.00 |
| J-26 | 2.06 | 2995.93 | 99.63 | 0.00 |
| J-1 | 0.00 | 2996.85 | 95.26 | 0.00 |
| J-102 | 2.70 | 2998.01 | 100.96 | 0.00 |
| J-105 | 3.38 | 2998.01 | 108.76 | 0.00 |
| J-107 | 4.72 | 2998.01 | 113.53 | 0.00 |
| J-111 | 4.06 | 2998.01 | 116.56 | 0.00 |
| J-112 | 1.36 | 2997.86 | 125.16 | 0.00 |
| J-114 | 1.36 | 2997.79 | 126.43 | 0.00 |
| J-115 | 1.36 | 2997.73 | 127.71 | 0.00 |
| J-118 | 1.36 | 2997.69 | 128.12 | 0.00 |
| J-300 | 7.42 | 2997.09 | 117.03 | 0.00 |
| J-302 | 2.70 | 2996.85 | 109.13 | 0.00 |
| J-304 | 2.02 | 2996.83 | 102.19 | 0.00 |
| J-42 | 0.00 | 2998.65 | 99.51 | 0.00 |
| J-31 | 0.00 | 2998.83 | 96.55 | 0.00 |
| J-35 | 0.00 | 2998.93 | 77.10 | 0.00 |
| J-101 | 4.72 | 2999.31 | 115.17 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2998.01 | 116.56 | 0.00 |
| J-33 | 0.00 | 2998.90 | 84.88 | 0.00 |
| J-123 | 3.38 | 2998.90 | 93.11 | 0.00 |
| J-100 | 0.00 | 3000.36 | 121.92 | 0.00 |
| J-103 | 3.38 | 2999.28 | 109.31 | 0.00 |
| J-104 | 3.38 | 2999.07 | 85.39 | 0.00 |
| J-117 | 2.02 | 2997.79 | 123.40 | 0.00 |
| J-110 | 4.06 | 2998.01 | 108.76 | 0.00 |
| J-108 | 2.02 | 2998.01 | 108.33 | 0.00 |
| J-109 | 2.02 | 2998.01 | 107.46 | 0.00 |
| J-305 | 1.36 | 2996.34 | 102.84 | 0.00 |
| S145 | 0.00 | 3000.61 | 123.76 | 0.00 |
| J-207 | 2.70 | 2998.11 | 114.00 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J6

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2998.11 | 116.60 | 0.00 |
| J-206 | 0.68 | 2998.18 | 135.70 | 0.00 |
| J-204 | 2.70 | 2998.51 | 128.91 | 0.00 |
| J-205 | 2.70 | 2998.51 | 120.68 | 0.00 |
| J-203 | 12.82 | 2999.21 | 121.42 | 0.00 |
| J-200 | 7.42 | 3000.15 | 126.15 | 0.00 |
| J-211 | 0.00 | 2999.40 | 118.03 | 0.00 |
| J-201 | 3.38 | 2999.89 | 136.44 | 0.00 |
| J-202 | 10.12 | 2999.88 | 117.81 | 0.00 |
| J-119 | 0.00 | 2997.69 | 132.02 | 0.00 |
| J-120 | 2.02 | 2997.69 | 136.35 | 0.00 |
| J-121 | 0.00 | 2997.69 | 136.36 | 0.00 |
| J-122 | 45.90 | 2997.68 | 138.95 | 0.00 |
| J-210 | 4.06 | 2998.15 | 137.42 | 0.00 |
| J-209 | 0.68 | 2998.17 | 135.27 | 0.00 |
| J-113 | 1.36 | 2997.86 | 124.30 | 0.00 |
| J-116 | 0.68 | 2997.73 | 127.27 | 0.00 |
| J-25 | 5.52 | 2993.44 | 68.44 | 0.00 |
| J-34 | 0.68 | 2998.91 | 82.72 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1418.44 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -29.51 | 0.19 | 0.03 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 111.28 | 0.71 | 0.31 | Open |
| P-4 | 105.76 | 0.68 | 0.29 | Open |
| P-5 | 100.26 | 0.64 | 0.26 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.44 | 0.02 | 0.00 | Open |
| P-8 | 1208.04 | 3.43 | 3.60 | Open |
| P-9 | 988.70 | 2.80 | 2.48 | Open |
| P-10 | 985.94 | 2.80 | 2.47 | Open |
| P-11 | 19.96 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -34.08 | 0.10 | 0.00 | Open |

Sereno Canyon Phase 4 Max Day fire flow J6

| | | | | |
|------|----------|------|------|------|
| P-14 | 219.34 | 1.40 | 1.10 | Open |
| P-15 | 89.11 | 0.57 | 0.21 | Open |
| P-16 | -74.44 | 0.48 | 0.15 | Open |
| P-17 | -86.84 | 0.55 | 0.20 | Open |
| P-18 | -27.93 | 0.18 | 0.02 | Open |
| P-19 | -148.04 | 0.94 | 0.53 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.52 | 0.02 | 0.00 | Open |
| P-25 | -24.34 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | 151.14 | 0.96 | 0.55 | Open |
| P-29 | 1131.56 | 3.21 | 3.19 | Open |
| P-30 | 1125.70 | 3.19 | 3.16 | Open |
| P-31 | 95.86 | 0.27 | 0.03 | Open |
| P-32 | 75.84 | 0.22 | 0.02 | Open |
| P-33 | 81.96 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 202.32 | 1.29 | 0.95 | Open |
| P-36 | -1007.10 | 2.86 | 2.57 | Open |
| P-37 | -761.53 | 2.16 | 1.53 | Open |
| P-38 | -0.76 | 0.00 | 0.00 | Open |
| P-39 | -7.52 | 0.02 | 0.00 | Open |
| P-40 | -20.34 | 0.06 | 0.00 | Open |
| P-41 | 116.22 | 0.74 | 0.34 | Open |
| P-42 | 113.50 | 0.72 | 0.32 | Open |
| P-43 | 110.12 | 0.70 | 0.31 | Open |
| P-44 | 108.08 | 0.69 | 0.30 | Open |
| P-45 | 122.37 | 0.78 | 0.37 | Open |
| P-46 | 112.93 | 0.72 | 0.32 | Open |
| P-47 | 98.75 | 0.28 | 0.03 | Open |
| P-48 | -109.01 | 0.31 | 0.04 | Open |
| P-49 | -354.58 | 2.26 | 2.68 | Open |
| P-50 | -360.08 | 2.30 | 2.75 | Open |
| P-51 | -262.58 | 1.68 | 1.54 | Open |
| P-52 | -378.34 | 2.41 | 3.02 | Open |
| P-53 | -203.82 | 1.30 | 0.96 | Open |
| P-54 | 35.03 | 0.22 | 0.04 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J6

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 223.60 | 1.43 | 1.14 | Open |
| P-58 | 82.35 | 0.53 | 0.18 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1166.31 | 3.31 | 3.37 | Open |
| P-62 | 942.71 | 2.67 | 2.27 | Open |
| P-63 | -140.62 | 0.40 | 0.07 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -144.00 | 0.41 | 0.07 | Open |
| P-66 | -212.99 | 1.36 | 1.04 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -218.39 | 1.39 | 1.09 | Open |
| P-69 | 119.03 | 0.76 | 0.35 | Open |
| P-70 | 119.03 | 0.76 | 0.35 | Open |
| P-71 | -112.18 | 0.72 | 0.32 | Open |
| P-72 | 252.13 | 1.61 | 1.42 | Open |
| P-73 | 125.68 | 0.80 | 0.39 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -17.67 | 0.11 | 0.01 | Open |
| P-77 | -67.63 | 0.19 | 0.02 | Open |
| P-78 | -68.31 | 0.19 | 0.02 | Open |
| P-79 | 12.44 | 0.08 | 0.00 | Open |
| P-80 | 29.84 | 0.19 | 0.03 | Open |
| P-81 | -62.35 | 0.40 | 0.11 | Open |
| P-82 | 67.87 | 0.43 | 0.13 | Open |
| P-83 | 763.47 | 2.17 | 1.54 | Open |
| P-84 | 174.52 | 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 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 15.65 | 0.10 | 0.01 | Open |
| P-90 | -63.57 | 0.41 | 0.11 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -43.26 | 0.28 | 0.05 | Open |
| P-93 | -69.33 | 0.44 | 0.13 | Open |
| P-94 | 134.50 | 0.86 | 0.44 | Open |
| P-95 | -46.64 | 0.30 | 0.06 | Open |
| P-96 | -47.32 | 0.30 | 0.06 | Open |
| P-97 | 85.73 | 0.55 | 0.19 | Open |
| P-98 | -205.74 | 1.31 | 0.98 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1418.44 | 1.01 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J6



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -204.38 | 1.30 | 0.97 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1418.45 | 0.00 | -283.62 | Open Pump |
| 1 | 1418.44 | 4.02 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J7

Page 1

12/2/2017 10:27:24 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality              *
*                               Analysis for Pipe Networks                *
*                               Version 2.0                              *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J7.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J7

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J7

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J7

| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|----------------|--------|-------|---------|--------|--------|------|
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1188.68 | 101.02 | 101.02 | 0.00 |
| Demand Charge: | | | | | | 0.00 |
| Total Cost: | | | | | | 0.00 |

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-7 | 1000.00 | 2990.93 | 97.46 | 0.00 |
| J-32 | 3.44 | 2999.04 | 90.15 | 0.00 |
| J-36 | 3.80 | 2999.07 | 74.56 | 0.00 |
| J-37 | 1.72 | 2999.07 | 71.09 | 0.00 |
| J-30 | 4.48 | 2998.68 | 98.87 | 0.00 |
| J-38 | 5.52 | 2998.38 | 82.06 | 0.00 |
| J-39 | 3.44 | 2998.27 | 88.51 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2998.05 | 94.27 | 0.00 |
| J-40 | 2.06 | 2998.27 | 88.29 | 0.00 |
| J-28 | 3.44 | 2997.74 | 102.58 | 0.00 |
| J-27 | 2.06 | 2997.74 | 90.88 | 0.00 |
| J-2 | 1.38 | 2995.59 | 93.85 | 0.00 |
| J-3 | 0.00 | 2993.97 | 86.39 | 0.00 |
| J-4 | 1.38 | 2993.49 | 87.09 | 0.00 |
| J-41 | 5.52 | 2993.12 | 87.93 | 0.00 |
| J-14 | 6.90 | 2991.09 | 90.17 | 0.00 |
| J-11 | 4.14 | 2990.93 | 97.03 | 0.00 |
| J-12 | 49.90 | 2990.93 | 90.96 | 0.00 |
| J-9 | 0.00 | 2990.93 | 105.69 | 0.00 |
| J-6 | 2.07 | 2991.95 | 88.37 | 0.00 |
| J-19 | 3.44 | 2993.73 | 80.91 | 0.00 |
| J-24 | 3.44 | 2993.56 | 80.84 | 0.00 |
| J-20 | 31.00 | 2993.57 | 72.83 | 0.00 |
| J-21 | 12.40 | 2993.51 | 72.80 | 0.00 |
| J-22 | 3.10 | 2993.52 | 72.59 | 0.00 |
| J-5 | 2.76 | 2992.57 | 88.21 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J7

| | | | | |
|-------|-------|---------|--------|------|
| J-17 | 3.10 | 2992.57 | 101.21 | 0.00 |
| J-18 | 1.38 | 2993.49 | 95.54 | 0.00 |
| J-13 | 3.44 | 2990.93 | 107.86 | 0.00 |
| J-8 | 3.80 | 2990.93 | 101.80 | 0.00 |
| J-15 | 3.44 | 2991.54 | 79.75 | 0.00 |
| J-16 | 2.06 | 2991.54 | 75.20 | 0.00 |
| J-23 | 9.30 | 2993.52 | 70.42 | 0.00 |
| J-303 | 11.48 | 2997.01 | 111.36 | 0.00 |
| J-301 | 2.02 | 2997.26 | 116.24 | 0.00 |
| J-10 | 47.88 | 2990.93 | 112.63 | 0.00 |
| J-26 | 2.06 | 2996.09 | 99.70 | 0.00 |
| J-1 | 0.00 | 2997.02 | 95.33 | 0.00 |
| J-102 | 2.70 | 2998.17 | 101.03 | 0.00 |
| J-105 | 3.38 | 2998.17 | 108.83 | 0.00 |
| J-107 | 4.72 | 2998.17 | 113.60 | 0.00 |
| J-111 | 4.06 | 2998.17 | 116.63 | 0.00 |
| J-112 | 1.36 | 2998.02 | 125.23 | 0.00 |
| J-114 | 1.36 | 2997.95 | 126.50 | 0.00 |
| J-115 | 1.36 | 2997.89 | 127.78 | 0.00 |
| J-118 | 1.36 | 2997.85 | 128.19 | 0.00 |
| J-300 | 7.42 | 2997.26 | 117.10 | 0.00 |
| J-302 | 2.70 | 2997.01 | 109.20 | 0.00 |
| J-304 | 2.02 | 2997.00 | 102.26 | 0.00 |
| J-42 | 0.00 | 2998.81 | 99.58 | 0.00 |
| J-31 | 0.00 | 2998.99 | 96.62 | 0.00 |
| J-35 | 0.00 | 2999.09 | 77.16 | 0.00 |
| J-101 | 4.72 | 2999.47 | 115.24 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2998.17 | 116.63 | 0.00 |
| J-33 | 0.00 | 2999.06 | 84.95 | 0.00 |
| J-123 | 3.38 | 2999.06 | 93.18 | 0.00 |
| J-100 | 0.00 | 3000.52 | 121.98 | 0.00 |
| J-103 | 3.38 | 2999.44 | 109.38 | 0.00 |
| J-104 | 3.38 | 2999.22 | 85.46 | 0.00 |
| J-117 | 2.02 | 2997.95 | 123.47 | 0.00 |
| J-110 | 4.06 | 2998.17 | 108.83 | 0.00 |
| J-108 | 2.02 | 2998.17 | 108.40 | 0.00 |
| J-109 | 2.02 | 2998.17 | 107.53 | 0.00 |
| J-305 | 1.36 | 2996.50 | 102.91 | 0.00 |
| S145 | 0.00 | 3000.77 | 123.82 | 0.00 |
| J-207 | 2.70 | 2998.27 | 114.07 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J7

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2998.27 | 116.67 | 0.00 |
| J-206 | 0.68 | 2998.34 | 135.77 | 0.00 |
| J-204 | 2.70 | 2998.67 | 128.98 | 0.00 |
| J-205 | 2.70 | 2998.67 | 120.75 | 0.00 |
| J-203 | 12.82 | 2999.37 | 121.48 | 0.00 |
| J-200 | 7.42 | 3000.31 | 126.22 | 0.00 |
| J-211 | 0.00 | 2999.56 | 118.10 | 0.00 |
| J-201 | 3.38 | 3000.04 | 136.51 | 0.00 |
| J-202 | 10.12 | 3000.04 | 117.88 | 0.00 |
| J-119 | 0.00 | 2997.85 | 132.09 | 0.00 |
| J-120 | 2.02 | 2997.85 | 136.43 | 0.00 |
| J-121 | 0.00 | 2997.86 | 136.43 | 0.00 |
| J-122 | 45.90 | 2997.85 | 139.02 | 0.00 |
| J-210 | 4.06 | 2998.31 | 137.49 | 0.00 |
| J-209 | 0.68 | 2998.34 | 135.34 | 0.00 |
| J-113 | 1.36 | 2998.02 | 124.37 | 0.00 |
| J-116 | 0.68 | 2997.89 | 127.34 | 0.00 |
| J-25 | 5.52 | 2993.62 | 68.51 | 0.00 |
| J-34 | 0.68 | 2999.07 | 82.79 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1416.37 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -29.46 | 0.19 | 0.03 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 111.11 | 0.71 | 0.31 | Open |
| P-4 | 105.59 | 0.67 | 0.28 | Open |
| P-5 | 100.09 | 0.64 | 0.26 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.44 | 0.02 | 0.00 | Open |
| P-8 | 1205.97 | 3.42 | 3.59 | Open |
| P-9 | 986.94 | 2.80 | 2.47 | Open |
| P-10 | 984.18 | 2.79 | 2.46 | Open |
| P-11 | 81.95 | 0.52 | 0.18 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | 27.91 | 0.08 | 0.00 | Open |

Sereno Canyon Phase 4 Max Day fire flow J7

| | | | | |
|------|----------|------|------|------|
| P-14 | 219.03 | 1.40 | 1.10 | Open |
| P-15 | 88.94 | 0.57 | 0.21 | Open |
| P-16 | -74.28 | 0.47 | 0.15 | Open |
| P-17 | -86.68 | 0.55 | 0.20 | Open |
| P-18 | -27.88 | 0.18 | 0.02 | Open |
| P-19 | -147.82 | 0.94 | 0.53 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | -11.32 | 0.07 | 0.00 | Open |
| P-24 | -100.76 | 0.64 | 0.26 | Open |
| P-25 | -189.61 | 1.21 | 0.84 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | 150.83 | 0.96 | 0.55 | Open |
| P-29 | 1129.49 | 3.20 | 3.18 | Open |
| P-30 | 1123.63 | 3.19 | 3.14 | Open |
| P-31 | 926.45 | 2.63 | 2.20 | Open |
| P-32 | -62.24 | 0.18 | 0.02 | Open |
| P-33 | 19.97 | 0.06 | 0.00 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 201.97 | 1.29 | 0.94 | Open |
| P-36 | -1005.38 | 2.85 | 2.56 | Open |
| P-37 | -760.26 | 2.16 | 1.53 | Open |
| P-38 | -0.64 | 0.00 | 0.00 | Open |
| P-39 | -7.40 | 0.02 | 0.00 | Open |
| P-40 | -20.22 | 0.06 | 0.00 | Open |
| P-41 | 116.09 | 0.74 | 0.34 | Open |
| P-42 | 113.37 | 0.72 | 0.32 | Open |
| P-43 | 109.99 | 0.70 | 0.31 | Open |
| P-44 | 107.95 | 0.69 | 0.29 | Open |
| P-45 | 122.15 | 0.78 | 0.37 | Open |
| P-46 | 112.71 | 0.72 | 0.32 | Open |
| P-47 | 98.53 | 0.28 | 0.03 | Open |
| P-48 | -108.88 | 0.31 | 0.04 | Open |
| P-49 | -354.00 | 2.26 | 2.67 | Open |
| P-50 | -359.50 | 2.29 | 2.75 | Open |
| P-51 | -262.16 | 1.67 | 1.53 | Open |
| P-52 | -377.76 | 2.41 | 3.01 | Open |
| P-53 | -203.50 | 1.30 | 0.96 | Open |
| P-54 | 34.98 | 0.22 | 0.04 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J7

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 223.28 | 1.43 | 1.14 | Open |
| P-58 | 82.22 | 0.52 | 0.18 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1164.58 | 3.30 | 3.36 | Open |
| P-62 | 941.30 | 2.67 | 2.27 | Open |
| P-63 | -140.37 | 0.40 | 0.07 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -143.75 | 0.41 | 0.07 | Open |
| P-66 | -212.65 | 1.36 | 1.04 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -218.05 | 1.39 | 1.09 | Open |
| P-69 | 118.85 | 0.76 | 0.35 | Open |
| P-70 | 118.85 | 0.76 | 0.35 | Open |
| P-71 | -112.02 | 0.71 | 0.32 | Open |
| P-72 | 251.79 | 1.61 | 1.42 | Open |
| P-73 | 125.52 | 0.80 | 0.39 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -17.58 | 0.11 | 0.01 | Open |
| P-77 | -67.54 | 0.19 | 0.02 | Open |
| P-78 | -68.22 | 0.19 | 0.02 | Open |
| P-79 | -14.76 | 0.09 | 0.01 | Open |
| P-80 | 195.11 | 1.25 | 0.89 | Open |
| P-81 | -62.25 | 0.40 | 0.11 | Open |
| P-82 | 67.77 | 0.43 | 0.12 | Open |
| P-83 | 762.32 | 2.16 | 1.53 | Open |
| P-84 | 174.26 | 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 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 15.56 | 0.10 | 0.01 | Open |
| P-90 | -63.48 | 0.41 | 0.11 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -43.19 | 0.28 | 0.06 | Open |
| P-93 | -69.20 | 0.44 | 0.13 | Open |
| P-94 | 134.29 | 0.86 | 0.44 | Open |
| P-95 | -46.57 | 0.30 | 0.06 | Open |
| P-96 | -47.25 | 0.30 | 0.06 | Open |
| P-97 | 85.60 | 0.55 | 0.19 | Open |
| P-98 | -205.39 | 1.31 | 0.97 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1416.37 | 1.00 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J7



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -204.03 | 1.30 | 0.96 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1416.38 | 0.00 | -283.77 | Open Pump |
| 1 | 1416.37 | 4.02 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J8

Page 1

12/2/2017 10:27:36 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality              *
*                               Analysis for Pipe Networks                *
*                               Version 2.0                              *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J8.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J8

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J8

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J8

| | | | | | | |
|-------|--------|-------|---------|--------|--------|------|
| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1188.57 | 101.03 | 101.03 | 0.00 |

Demand Charge: 0.00
Total Cost: 0.00

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-8 | 1000.00 | 2990.48 | 101.60 | 0.00 |
| J-32 | 3.44 | 2999.02 | 90.13 | 0.00 |
| J-36 | 3.80 | 2999.04 | 74.55 | 0.00 |
| J-37 | 1.72 | 2999.04 | 71.08 | 0.00 |
| J-30 | 4.48 | 2998.65 | 98.86 | 0.00 |
| J-38 | 5.52 | 2998.36 | 82.05 | 0.00 |
| J-39 | 3.44 | 2998.24 | 88.50 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2998.02 | 94.25 | 0.00 |
| J-40 | 2.06 | 2998.24 | 88.28 | 0.00 |
| J-28 | 3.44 | 2997.72 | 102.57 | 0.00 |
| J-27 | 2.06 | 2997.72 | 90.87 | 0.00 |
| J-2 | 1.38 | 2995.56 | 93.84 | 0.00 |
| J-3 | 0.00 | 2993.94 | 86.38 | 0.00 |
| J-4 | 1.38 | 2993.46 | 87.08 | 0.00 |
| J-41 | 5.52 | 2993.09 | 87.91 | 0.00 |
| J-14 | 6.90 | 2990.71 | 90.00 | 0.00 |
| J-11 | 4.14 | 2990.48 | 96.84 | 0.00 |
| J-12 | 49.90 | 2990.48 | 90.77 | 0.00 |
| J-9 | 0.00 | 2990.48 | 105.50 | 0.00 |
| J-6 | 2.07 | 2991.92 | 88.36 | 0.00 |
| J-19 | 3.44 | 2993.70 | 80.90 | 0.00 |
| J-24 | 3.44 | 2993.53 | 80.82 | 0.00 |
| J-20 | 31.00 | 2993.54 | 72.81 | 0.00 |
| J-21 | 12.40 | 2993.48 | 72.78 | 0.00 |
| J-22 | 3.10 | 2993.49 | 72.57 | 0.00 |
| J-5 | 2.76 | 2992.55 | 88.20 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J8

| | | | | |
|-------|-------|---------|--------|------|
| J-17 | 3.10 | 2992.54 | 101.20 | 0.00 |
| J-18 | 1.38 | 2993.46 | 95.53 | 0.00 |
| J-7 | 4.14 | 2990.97 | 97.48 | 0.00 |
| J-13 | 3.44 | 2990.67 | 107.75 | 0.00 |
| J-15 | 3.44 | 2991.35 | 79.66 | 0.00 |
| J-16 | 2.06 | 2991.35 | 75.11 | 0.00 |
| J-23 | 9.30 | 2993.49 | 70.41 | 0.00 |
| J-303 | 11.48 | 2996.99 | 111.35 | 0.00 |
| J-301 | 2.02 | 2997.23 | 116.22 | 0.00 |
| J-10 | 47.88 | 2990.48 | 112.43 | 0.00 |
| J-26 | 2.06 | 2996.07 | 99.69 | 0.00 |
| J-1 | 0.00 | 2996.99 | 95.32 | 0.00 |
| J-102 | 2.70 | 2998.14 | 101.02 | 0.00 |
| J-105 | 3.38 | 2998.14 | 108.82 | 0.00 |
| J-107 | 4.72 | 2998.14 | 113.59 | 0.00 |
| J-111 | 4.06 | 2998.15 | 116.62 | 0.00 |
| J-112 | 1.36 | 2997.99 | 125.22 | 0.00 |
| J-114 | 1.36 | 2997.93 | 126.49 | 0.00 |
| J-115 | 1.36 | 2997.87 | 127.77 | 0.00 |
| J-118 | 1.36 | 2997.82 | 128.18 | 0.00 |
| J-300 | 7.42 | 2997.23 | 117.09 | 0.00 |
| J-302 | 2.70 | 2996.99 | 109.19 | 0.00 |
| J-304 | 2.02 | 2996.97 | 102.25 | 0.00 |
| J-42 | 0.00 | 2998.78 | 99.57 | 0.00 |
| J-31 | 0.00 | 2998.97 | 96.61 | 0.00 |
| J-35 | 0.00 | 2999.06 | 77.15 | 0.00 |
| J-101 | 4.72 | 2999.44 | 115.23 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2998.14 | 116.62 | 0.00 |
| J-33 | 0.00 | 2999.03 | 84.94 | 0.00 |
| J-123 | 3.38 | 2999.03 | 93.17 | 0.00 |
| J-100 | 0.00 | 3000.49 | 121.97 | 0.00 |
| J-103 | 3.38 | 2999.41 | 109.37 | 0.00 |
| J-104 | 3.38 | 2999.20 | 85.45 | 0.00 |
| J-117 | 2.02 | 2997.93 | 123.46 | 0.00 |
| J-110 | 4.06 | 2998.14 | 108.82 | 0.00 |
| J-108 | 2.02 | 2998.14 | 108.39 | 0.00 |
| J-109 | 2.02 | 2998.14 | 107.52 | 0.00 |
| J-305 | 1.36 | 2996.48 | 102.90 | 0.00 |
| S145 | 0.00 | 3000.74 | 123.81 | 0.00 |
| J-207 | 2.70 | 2998.24 | 114.06 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J8

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2998.24 | 116.66 | 0.00 |
| J-206 | 0.68 | 2998.31 | 135.76 | 0.00 |
| J-204 | 2.70 | 2998.64 | 128.97 | 0.00 |
| J-205 | 2.70 | 2998.64 | 120.74 | 0.00 |
| J-203 | 12.82 | 2999.34 | 121.47 | 0.00 |
| J-200 | 7.42 | 3000.28 | 126.21 | 0.00 |
| J-211 | 0.00 | 2999.53 | 118.09 | 0.00 |
| J-201 | 3.38 | 3000.02 | 136.50 | 0.00 |
| J-202 | 10.12 | 3000.01 | 117.86 | 0.00 |
| J-119 | 0.00 | 2997.82 | 132.08 | 0.00 |
| J-120 | 2.02 | 2997.82 | 136.41 | 0.00 |
| J-121 | 0.00 | 2997.83 | 136.42 | 0.00 |
| J-122 | 45.90 | 2997.82 | 139.01 | 0.00 |
| J-210 | 4.06 | 2998.29 | 137.48 | 0.00 |
| J-209 | 0.68 | 2998.31 | 135.32 | 0.00 |
| J-113 | 1.36 | 2997.99 | 124.35 | 0.00 |
| J-116 | 0.68 | 2997.87 | 127.33 | 0.00 |
| J-25 | 5.52 | 2993.59 | 68.50 | 0.00 |
| J-34 | 0.68 | 2999.05 | 82.78 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1416.71 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -29.47 | 0.19 | 0.03 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 111.14 | 0.71 | 0.31 | Open |
| P-4 | 105.62 | 0.67 | 0.28 | Open |
| P-5 | 100.12 | 0.64 | 0.26 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.44 | 0.02 | 0.00 | Open |
| P-8 | 1206.31 | 3.42 | 3.59 | Open |
| P-9 | 987.23 | 2.80 | 2.48 | Open |
| P-10 | 984.47 | 2.79 | 2.46 | Open |
| P-11 | 99.04 | 0.63 | 0.25 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | 45.00 | 0.13 | 0.01 | Open |

Sereno Canyon Phase 4 Max Day fire flow J8

| | | | | |
|------|----------|------|------|------|
| P-14 | 219.08 | 1.40 | 1.10 | Open |
| P-15 | 88.97 | 0.57 | 0.21 | Open |
| P-16 | -74.31 | 0.47 | 0.15 | Open |
| P-17 | -86.71 | 0.55 | 0.20 | Open |
| P-18 | -27.88 | 0.18 | 0.02 | Open |
| P-19 | -147.85 | 0.94 | 0.53 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 143.80 | 0.92 | 0.50 | Open |
| P-24 | -122.50 | 0.78 | 0.37 | Open |
| P-25 | -228.44 | 1.46 | 1.19 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | 150.88 | 0.96 | 0.55 | Open |
| P-29 | 1129.83 | 3.21 | 3.18 | Open |
| P-30 | 1123.97 | 3.19 | 3.15 | Open |
| P-31 | 887.96 | 2.52 | 2.03 | Open |
| P-32 | 740.02 | 2.10 | 1.45 | Open |
| P-33 | 2.88 | 0.01 | 0.00 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 202.02 | 1.29 | 0.94 | Open |
| P-36 | -1005.67 | 2.85 | 2.56 | Open |
| P-37 | -760.47 | 2.16 | 1.53 | Open |
| P-38 | -0.66 | 0.00 | 0.00 | Open |
| P-39 | -7.42 | 0.02 | 0.00 | Open |
| P-40 | -20.24 | 0.06 | 0.00 | Open |
| P-41 | 116.11 | 0.74 | 0.34 | Open |
| P-42 | 113.39 | 0.72 | 0.32 | Open |
| P-43 | 110.01 | 0.70 | 0.31 | Open |
| P-44 | 107.97 | 0.69 | 0.30 | Open |
| P-45 | 122.19 | 0.78 | 0.37 | Open |
| P-46 | 112.75 | 0.72 | 0.32 | Open |
| P-47 | 98.57 | 0.28 | 0.03 | Open |
| P-48 | -108.90 | 0.31 | 0.04 | Open |
| P-49 | -354.09 | 2.26 | 2.67 | Open |
| P-50 | -359.59 | 2.30 | 2.75 | Open |
| P-51 | -262.23 | 1.67 | 1.53 | Open |
| P-52 | -377.85 | 2.41 | 3.02 | Open |
| P-53 | -203.55 | 1.30 | 0.96 | Open |
| P-54 | 34.99 | 0.22 | 0.04 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J8

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 223.33 | 1.43 | 1.14 | Open |
| P-58 | 82.24 | 0.52 | 0.18 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1164.86 | 3.30 | 3.36 | Open |
| P-62 | 941.53 | 2.67 | 2.27 | Open |
| P-63 | -140.41 | 0.40 | 0.07 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -143.79 | 0.41 | 0.07 | Open |
| P-66 | -212.71 | 1.36 | 1.04 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -218.11 | 1.39 | 1.09 | Open |
| P-69 | 118.88 | 0.76 | 0.35 | Open |
| P-70 | 118.88 | 0.76 | 0.35 | Open |
| P-71 | -112.04 | 0.72 | 0.32 | Open |
| P-72 | 251.85 | 1.61 | 1.42 | Open |
| P-73 | 125.54 | 0.80 | 0.39 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -17.60 | 0.11 | 0.01 | Open |
| P-77 | -67.56 | 0.19 | 0.02 | Open |
| P-78 | -68.24 | 0.19 | 0.02 | Open |
| P-79 | 140.36 | 0.90 | 0.48 | Open |
| P-80 | 233.94 | 1.49 | 1.24 | Open |
| P-81 | -62.26 | 0.40 | 0.11 | Open |
| P-82 | 67.78 | 0.43 | 0.13 | Open |
| P-83 | 762.51 | 2.16 | 1.53 | Open |
| P-84 | 174.30 | 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 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 15.58 | 0.10 | 0.01 | Open |
| P-90 | -63.50 | 0.41 | 0.11 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -43.20 | 0.28 | 0.05 | Open |
| P-93 | -69.22 | 0.44 | 0.13 | Open |
| P-94 | 134.33 | 0.86 | 0.44 | Open |
| P-95 | -46.58 | 0.30 | 0.06 | Open |
| P-96 | -47.26 | 0.30 | 0.06 | Open |
| P-97 | 85.62 | 0.55 | 0.19 | Open |
| P-98 | -205.44 | 1.31 | 0.97 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1416.71 | 1.00 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J8



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -204.08 | 1.30 | 0.96 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1416.71 | 0.00 | -283.75 | Open Pump |
| 1 | 1416.71 | 4.02 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J9

Page 1

12/2/2017 10:27:49 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality                 *
*                               Analysis for Pipe Networks                   *
*                               Version 2.0                                 *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J9.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J9

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J9

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J9

| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|----------------|--------|-------|---------|--------|--------|------|
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1187.38 | 101.20 | 101.20 | 0.00 |
| Demand Charge: | | | | | | 0.00 |
| Total Cost: | | | | | | 0.00 |

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-9 | 1000.00 | 2989.37 | 105.02 | 0.00 |
| J-32 | 3.44 | 2998.72 | 90.01 | 0.00 |
| J-36 | 3.80 | 2998.75 | 74.42 | 0.00 |
| J-37 | 1.72 | 2998.75 | 70.95 | 0.00 |
| J-30 | 4.48 | 2998.36 | 98.73 | 0.00 |
| J-38 | 5.52 | 2998.06 | 81.92 | 0.00 |
| J-39 | 3.44 | 2997.94 | 88.37 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2997.73 | 94.12 | 0.00 |
| J-40 | 2.06 | 2997.94 | 88.15 | 0.00 |
| J-28 | 3.44 | 2997.42 | 102.44 | 0.00 |
| J-27 | 2.06 | 2997.42 | 90.74 | 0.00 |
| J-2 | 1.38 | 2995.25 | 93.70 | 0.00 |
| J-3 | 0.00 | 2993.62 | 86.24 | 0.00 |
| J-4 | 1.38 | 2993.13 | 86.93 | 0.00 |
| J-41 | 5.52 | 2992.77 | 87.77 | 0.00 |
| J-14 | 6.90 | 2990.21 | 89.78 | 0.00 |
| J-11 | 4.14 | 2989.41 | 96.37 | 0.00 |
| J-12 | 49.90 | 2989.40 | 90.30 | 0.00 |
| J-6 | 2.07 | 2991.59 | 88.21 | 0.00 |
| J-19 | 3.44 | 2993.37 | 80.76 | 0.00 |
| J-24 | 3.44 | 2993.21 | 80.68 | 0.00 |
| J-20 | 31.00 | 2993.22 | 72.67 | 0.00 |
| J-21 | 12.40 | 2993.15 | 72.64 | 0.00 |
| J-22 | 3.10 | 2993.17 | 72.43 | 0.00 |
| J-5 | 2.76 | 2992.21 | 88.05 | 0.00 |
| J-17 | 3.10 | 2992.21 | 101.05 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J9

| | | | | |
|-------|-------|---------|--------|------|
| J-18 | 1.38 | 2993.13 | 95.38 | 0.00 |
| J-7 | 4.14 | 2990.66 | 97.35 | 0.00 |
| J-13 | 3.44 | 2990.37 | 107.62 | 0.00 |
| J-8 | 3.80 | 2990.18 | 101.47 | 0.00 |
| J-15 | 3.44 | 2990.94 | 79.48 | 0.00 |
| J-16 | 2.06 | 2990.94 | 74.93 | 0.00 |
| J-23 | 9.30 | 2993.17 | 70.27 | 0.00 |
| J-303 | 11.48 | 2996.68 | 111.22 | 0.00 |
| J-301 | 2.02 | 2996.93 | 116.09 | 0.00 |
| J-10 | 47.88 | 2989.37 | 111.95 | 0.00 |
| J-26 | 2.06 | 2995.76 | 99.55 | 0.00 |
| J-1 | 0.00 | 2996.69 | 95.19 | 0.00 |
| J-102 | 2.70 | 2997.85 | 100.89 | 0.00 |
| J-105 | 3.38 | 2997.85 | 108.69 | 0.00 |
| J-107 | 4.72 | 2997.85 | 113.46 | 0.00 |
| J-111 | 4.06 | 2997.85 | 116.49 | 0.00 |
| J-112 | 1.36 | 2997.70 | 125.09 | 0.00 |
| J-114 | 1.36 | 2997.63 | 126.36 | 0.00 |
| J-115 | 1.36 | 2997.57 | 127.64 | 0.00 |
| J-118 | 1.36 | 2997.52 | 128.05 | 0.00 |
| J-300 | 7.42 | 2996.93 | 116.96 | 0.00 |
| J-302 | 2.70 | 2996.68 | 109.05 | 0.00 |
| J-304 | 2.02 | 2996.67 | 102.11 | 0.00 |
| J-42 | 0.00 | 2998.49 | 99.44 | 0.00 |
| J-31 | 0.00 | 2998.67 | 96.48 | 0.00 |
| J-35 | 0.00 | 2998.77 | 77.03 | 0.00 |
| J-101 | 4.72 | 2999.15 | 115.11 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2997.85 | 116.49 | 0.00 |
| J-33 | 0.00 | 2998.74 | 84.81 | 0.00 |
| J-123 | 3.38 | 2998.74 | 93.05 | 0.00 |
| J-100 | 0.00 | 3000.21 | 121.85 | 0.00 |
| J-103 | 3.38 | 2999.12 | 109.24 | 0.00 |
| J-104 | 3.38 | 2998.91 | 85.32 | 0.00 |
| J-117 | 2.02 | 2997.63 | 123.33 | 0.00 |
| J-110 | 4.06 | 2997.84 | 108.69 | 0.00 |
| J-108 | 2.02 | 2997.85 | 108.26 | 0.00 |
| J-109 | 2.02 | 2997.85 | 107.39 | 0.00 |
| J-305 | 1.36 | 2996.17 | 102.77 | 0.00 |
| S145 | 0.00 | 3000.46 | 123.69 | 0.00 |
| J-207 | 2.70 | 2997.94 | 113.93 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J9

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2997.94 | 116.53 | 0.00 |
| J-206 | 0.68 | 2998.02 | 135.63 | 0.00 |
| J-204 | 2.70 | 2998.35 | 128.84 | 0.00 |
| J-205 | 2.70 | 2998.35 | 120.61 | 0.00 |
| J-203 | 12.82 | 2999.05 | 121.35 | 0.00 |
| J-200 | 7.42 | 2999.99 | 126.09 | 0.00 |
| J-211 | 0.00 | 2999.24 | 117.96 | 0.00 |
| J-201 | 3.38 | 2999.73 | 136.37 | 0.00 |
| J-202 | 10.12 | 2999.73 | 117.74 | 0.00 |
| J-119 | 0.00 | 2997.53 | 131.95 | 0.00 |
| J-120 | 2.02 | 2997.53 | 136.28 | 0.00 |
| J-121 | 0.00 | 2997.53 | 136.29 | 0.00 |
| J-122 | 45.90 | 2997.52 | 138.88 | 0.00 |
| J-210 | 4.06 | 2997.99 | 137.35 | 0.00 |
| J-209 | 0.68 | 2998.01 | 135.20 | 0.00 |
| J-113 | 1.36 | 2997.70 | 124.23 | 0.00 |
| J-116 | 0.68 | 2997.57 | 127.20 | 0.00 |
| J-25 | 5.52 | 2993.26 | 68.36 | 0.00 |
| J-34 | 0.68 | 2998.75 | 82.65 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1420.51 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -29.56 | 0.19 | 0.03 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 111.45 | 0.71 | 0.31 | Open |
| P-4 | 105.93 | 0.68 | 0.29 | Open |
| P-5 | 100.43 | 0.64 | 0.26 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.44 | 0.02 | 0.00 | Open |
| P-8 | 1210.11 | 3.43 | 3.61 | Open |
| P-9 | 990.45 | 2.81 | 2.49 | Open |
| P-10 | 987.69 | 2.80 | 2.48 | Open |
| P-11 | 197.40 | 1.26 | 0.90 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | 143.36 | 0.41 | 0.07 | Open |

Sereno Canyon Phase 4 Max Day fire flow J9

| | | | | |
|------|----------|------|------|------|
| P-14 | 219.66 | 1.40 | 1.10 | Open |
| P-15 | 89.27 | 0.57 | 0.21 | Open |
| P-16 | -74.59 | 0.48 | 0.15 | Open |
| P-17 | -86.99 | 0.56 | 0.20 | Open |
| P-18 | -27.98 | 0.18 | 0.02 | Open |
| P-19 | -148.25 | 0.95 | 0.53 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 141.80 | 0.91 | 0.49 | Open |
| P-24 | -40.32 | 0.26 | 0.05 | Open |
| P-25 | -244.62 | 1.56 | 1.35 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | 151.46 | 0.97 | 0.55 | Open |
| P-29 | 1133.63 | 3.22 | 3.20 | Open |
| P-30 | 1127.77 | 3.20 | 3.17 | Open |
| P-31 | 875.58 | 2.48 | 1.98 | Open |
| P-32 | 729.64 | 2.07 | 1.41 | Open |
| P-33 | 904.52 | 2.57 | 2.10 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 202.67 | 1.29 | 0.95 | Open |
| P-36 | -1008.82 | 2.86 | 2.58 | Open |
| P-37 | -762.79 | 2.16 | 1.53 | Open |
| P-38 | -0.88 | 0.00 | 0.00 | Open |
| P-39 | -7.64 | 0.02 | 0.00 | Open |
| P-40 | -20.46 | 0.06 | 0.00 | Open |
| P-41 | 116.36 | 0.74 | 0.34 | Open |
| P-42 | 113.64 | 0.73 | 0.33 | Open |
| P-43 | 110.26 | 0.70 | 0.31 | Open |
| P-44 | 108.22 | 0.69 | 0.30 | Open |
| P-45 | 122.59 | 0.78 | 0.37 | Open |
| P-46 | 113.15 | 0.72 | 0.32 | Open |
| P-47 | 98.97 | 0.28 | 0.03 | Open |
| P-48 | -109.14 | 0.31 | 0.04 | Open |
| P-49 | -355.17 | 2.27 | 2.69 | Open |
| P-50 | -360.67 | 2.30 | 2.76 | Open |
| P-51 | -263.00 | 1.68 | 1.54 | Open |
| P-52 | -378.93 | 2.42 | 3.03 | Open |
| P-53 | -204.15 | 1.30 | 0.96 | Open |
| P-54 | 35.08 | 0.22 | 0.04 | Open |



| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J9

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 223.93 | 1.43 | 1.14 | Open |
| P-58 | 82.47 | 0.53 | 0.18 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1168.04 | 3.31 | 3.38 | Open |
| P-62 | 944.11 | 2.68 | 2.28 | Open |
| P-63 | -140.87 | 0.40 | 0.07 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -144.25 | 0.41 | 0.07 | Open |
| P-66 | -213.33 | 1.36 | 1.04 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -218.73 | 1.40 | 1.09 | Open |
| P-69 | 119.20 | 0.76 | 0.36 | Open |
| P-70 | 119.20 | 0.76 | 0.36 | Open |
| P-71 | -112.35 | 0.72 | 0.32 | Open |
| P-72 | 252.47 | 1.61 | 1.43 | Open |
| P-73 | 125.85 | 0.80 | 0.39 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -17.75 | 0.11 | 0.01 | Open |
| P-77 | -67.71 | 0.19 | 0.02 | Open |
| P-78 | -68.39 | 0.19 | 0.02 | Open |
| P-79 | 138.36 | 0.88 | 0.47 | Open |
| P-80 | 250.12 | 1.60 | 1.40 | Open |
| P-81 | -62.45 | 0.40 | 0.11 | Open |
| P-82 | 67.97 | 0.43 | 0.13 | Open |
| P-83 | 764.62 | 2.17 | 1.54 | Open |
| P-84 | 174.78 | 1.12 | 0.72 | Open |
| P-85 | -8.10 | 0.05 | 0.00 | Open |
| P-86 | -1.36 | 0.01 | 0.00 | Open |
| P-87 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 15.73 | 0.10 | 0.01 | Open |
| P-90 | -63.65 | 0.41 | 0.11 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -43.33 | 0.28 | 0.05 | Open |
| P-93 | -69.45 | 0.44 | 0.13 | Open |
| P-94 | 134.70 | 0.86 | 0.45 | Open |
| P-95 | -46.71 | 0.30 | 0.06 | Open |
| P-96 | -47.39 | 0.30 | 0.06 | Open |
| P-97 | 85.85 | 0.55 | 0.19 | Open |
| P-98 | -206.09 | 1.32 | 0.98 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1420.51 | 1.01 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J9



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -204.73 | 1.31 | 0.97 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1420.52 | 0.00 | -283.46 | Open Pump |
| 1 | 1420.51 | 4.03 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J10

Page 1

12/2/2017 10:28:01 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality                 *
*                               Analysis for Pipe Networks                 *
*                               Version 2.0                               *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J10.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J10

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J10

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J10

| | | | | | | |
|-------|--------|-------|---------|-------|-------|------|
| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1202.42 | 99.03 | 99.03 | 0.00 |

Demand Charge: 0.00
Total Cost: 0.00

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-10 | 1000.00 | 2992.44 | 113.28 | 0.00 |
| J-32 | 3.44 | 3002.42 | 91.61 | 0.00 |
| J-36 | 3.80 | 3002.45 | 76.02 | 0.00 |
| J-37 | 1.72 | 3002.45 | 72.55 | 0.00 |
| J-30 | 4.48 | 3002.08 | 100.34 | 0.00 |
| J-38 | 5.52 | 3001.80 | 83.54 | 0.00 |
| J-39 | 3.44 | 3001.69 | 89.99 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 3001.49 | 95.76 | 0.00 |
| J-40 | 2.06 | 3001.69 | 89.78 | 0.00 |
| J-28 | 3.44 | 3001.20 | 104.08 | 0.00 |
| J-27 | 2.06 | 3001.20 | 92.38 | 0.00 |
| J-2 | 1.38 | 2999.19 | 95.41 | 0.00 |
| J-3 | 0.00 | 2997.68 | 87.99 | 0.00 |
| J-4 | 1.38 | 2997.23 | 88.71 | 0.00 |
| J-41 | 5.52 | 2996.89 | 89.56 | 0.00 |
| J-14 | 6.90 | 2994.53 | 91.66 | 0.00 |
| J-11 | 4.14 | 2993.79 | 98.27 | 0.00 |
| J-12 | 49.90 | 2993.79 | 92.20 | 0.00 |
| J-9 | 0.00 | 2993.76 | 106.92 | 0.00 |
| J-6 | 2.07 | 2995.80 | 90.04 | 0.00 |
| J-19 | 3.44 | 2997.45 | 82.52 | 0.00 |
| J-24 | 3.44 | 2997.29 | 82.45 | 0.00 |
| J-20 | 31.00 | 2997.30 | 74.44 | 0.00 |
| J-21 | 12.40 | 2997.24 | 74.42 | 0.00 |
| J-22 | 3.10 | 2997.25 | 74.20 | 0.00 |
| J-5 | 2.76 | 2996.38 | 89.86 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J10

| | | | | |
|-------|-------|---------|--------|------|
| J-17 | 3.10 | 2996.38 | 102.86 | 0.00 |
| J-18 | 1.38 | 2997.23 | 97.16 | 0.00 |
| J-7 | 4.14 | 2994.95 | 99.20 | 0.00 |
| J-13 | 3.44 | 2994.67 | 109.48 | 0.00 |
| J-8 | 3.80 | 2994.50 | 103.34 | 0.00 |
| J-15 | 3.44 | 2995.20 | 81.33 | 0.00 |
| J-16 | 2.06 | 2995.20 | 76.78 | 0.00 |
| J-23 | 9.30 | 2997.25 | 72.04 | 0.00 |
| J-303 | 11.48 | 3000.52 | 112.88 | 0.00 |
| J-301 | 2.02 | 3000.74 | 117.75 | 0.00 |
| J-26 | 2.06 | 2999.66 | 101.24 | 0.00 |
| J-1 | 0.00 | 3000.52 | 96.85 | 0.00 |
| J-102 | 2.70 | 3001.60 | 102.52 | 0.00 |
| J-105 | 3.38 | 3001.60 | 110.32 | 0.00 |
| J-107 | 4.72 | 3001.60 | 115.09 | 0.00 |
| J-111 | 4.06 | 3001.60 | 118.12 | 0.00 |
| J-112 | 1.36 | 3001.46 | 126.72 | 0.00 |
| J-114 | 1.36 | 3001.40 | 127.99 | 0.00 |
| J-115 | 1.36 | 3001.34 | 129.27 | 0.00 |
| J-118 | 1.36 | 3001.29 | 129.68 | 0.00 |
| J-300 | 7.42 | 3000.74 | 118.61 | 0.00 |
| J-302 | 2.70 | 3000.52 | 110.72 | 0.00 |
| J-304 | 2.02 | 3000.50 | 103.78 | 0.00 |
| J-42 | 0.00 | 3002.20 | 101.05 | 0.00 |
| J-31 | 0.00 | 3002.38 | 98.09 | 0.00 |
| J-35 | 0.00 | 3002.46 | 78.63 | 0.00 |
| J-101 | 4.72 | 3002.82 | 116.70 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 3001.60 | 118.12 | 0.00 |
| J-33 | 0.00 | 3002.43 | 86.42 | 0.00 |
| J-123 | 3.38 | 3002.43 | 94.65 | 0.00 |
| J-100 | 0.00 | 3003.82 | 123.41 | 0.00 |
| J-103 | 3.38 | 3002.79 | 110.84 | 0.00 |
| J-104 | 3.38 | 3002.59 | 86.92 | 0.00 |
| J-117 | 2.02 | 3001.40 | 124.96 | 0.00 |
| J-110 | 4.06 | 3001.60 | 110.32 | 0.00 |
| J-108 | 2.02 | 3001.60 | 109.89 | 0.00 |
| J-109 | 2.02 | 3001.60 | 109.02 | 0.00 |
| J-305 | 1.36 | 3000.04 | 104.44 | 0.00 |
| S145 | 0.00 | 3004.05 | 125.25 | 0.00 |
| J-207 | 2.70 | 3001.69 | 115.56 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J10

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 3001.69 | 118.16 | 0.00 |
| J-206 | 0.68 | 3001.76 | 137.25 | 0.00 |
| J-204 | 2.70 | 3002.07 | 130.45 | 0.00 |
| J-205 | 2.70 | 3002.07 | 122.22 | 0.00 |
| J-203 | 12.82 | 3002.73 | 122.94 | 0.00 |
| J-200 | 7.42 | 3003.61 | 127.65 | 0.00 |
| J-211 | 0.00 | 3002.91 | 119.55 | 0.00 |
| J-201 | 3.38 | 3003.36 | 137.95 | 0.00 |
| J-202 | 10.12 | 3003.36 | 119.31 | 0.00 |
| J-119 | 0.00 | 3001.30 | 133.58 | 0.00 |
| J-120 | 2.02 | 3001.30 | 137.92 | 0.00 |
| J-121 | 0.00 | 3001.30 | 137.92 | 0.00 |
| J-122 | 45.90 | 3001.29 | 140.52 | 0.00 |
| J-210 | 4.06 | 3001.73 | 138.97 | 0.00 |
| J-209 | 0.68 | 3001.76 | 136.82 | 0.00 |
| J-113 | 1.36 | 3001.46 | 125.86 | 0.00 |
| J-116 | 0.68 | 3001.34 | 128.84 | 0.00 |
| J-25 | 5.52 | 2997.34 | 70.13 | 0.00 |
| J-34 | 0.68 | 3002.45 | 84.25 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1372.63 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -28.40 | 0.18 | 0.03 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 107.56 | 0.69 | 0.29 | Open |
| P-4 | 102.04 | 0.65 | 0.27 | Open |
| P-5 | 96.54 | 0.62 | 0.24 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.44 | 0.02 | 0.00 | Open |
| P-8 | 1162.23 | 3.30 | 3.35 | Open |
| P-9 | 949.90 | 2.69 | 2.31 | Open |
| P-10 | 947.14 | 2.69 | 2.29 | Open |
| P-11 | 188.89 | 1.21 | 0.83 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | 134.85 | 0.38 | 0.06 | Open |

Sereno Canyon Phase 4 Max Day fire flow J10

| | | | | |
|------|---------|------|------|------|
| P-14 | 212.33 | 1.36 | 1.04 | Open |
| P-15 | 85.46 | 0.55 | 0.19 | Open |
| P-16 | -71.06 | 0.45 | 0.14 | Open |
| P-17 | -83.46 | 0.53 | 0.18 | Open |
| P-18 | -26.75 | 0.17 | 0.02 | Open |
| P-19 | -143.21 | 0.91 | 0.50 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 135.77 | 0.87 | 0.45 | Open |
| P-24 | -38.30 | 0.24 | 0.04 | Open |
| P-25 | -234.09 | 1.49 | 1.24 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | 144.13 | 0.92 | 0.51 | Open |
| P-29 | 1085.75 | 3.08 | 2.95 | Open |
| P-30 | 1079.89 | 3.06 | 2.92 | Open |
| P-31 | 838.23 | 2.38 | 1.83 | Open |
| P-32 | 698.32 | 1.98 | 1.30 | Open |
| P-33 | 865.15 | 2.45 | 1.94 | Open |
| P-34 | 1000.00 | 2.84 | 2.53 | Open |
| P-35 | 194.57 | 1.24 | 0.88 | Open |
| P-36 | -969.04 | 2.75 | 2.39 | Open |
| P-37 | -733.51 | 2.08 | 1.43 | Open |
| P-38 | 1.87 | 0.01 | 0.00 | Open |
| P-39 | -4.89 | 0.01 | 0.00 | Open |
| P-40 | -17.71 | 0.05 | 0.00 | Open |
| P-41 | 113.25 | 0.72 | 0.32 | Open |
| P-42 | 110.53 | 0.71 | 0.31 | Open |
| P-43 | 107.15 | 0.68 | 0.29 | Open |
| P-44 | 105.11 | 0.67 | 0.28 | Open |
| P-45 | 117.51 | 0.75 | 0.35 | Open |
| P-46 | 108.07 | 0.69 | 0.30 | Open |
| P-47 | 93.89 | 0.27 | 0.03 | Open |
| P-48 | -106.12 | 0.30 | 0.04 | Open |
| P-49 | -341.65 | 2.18 | 2.50 | Open |
| P-50 | -347.15 | 2.22 | 2.57 | Open |
| P-51 | -253.37 | 1.62 | 1.44 | Open |
| P-52 | -365.41 | 2.33 | 2.83 | Open |
| P-53 | -196.61 | 1.25 | 0.90 | Open |
| P-54 | 33.92 | 0.22 | 0.03 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J10

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 216.39 | 1.38 | 1.07 | Open |
| P-58 | 79.62 | 0.51 | 0.17 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1127.98 | 3.20 | 3.17 | Open |
| P-62 | 911.60 | 2.59 | 2.14 | Open |
| P-63 | -135.02 | 0.38 | 0.06 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -138.40 | 0.39 | 0.07 | Open |
| P-66 | -205.51 | 1.31 | 0.97 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -210.91 | 1.35 | 1.02 | Open |
| P-69 | 115.23 | 0.74 | 0.33 | Open |
| P-70 | 115.23 | 0.74 | 0.33 | Open |
| P-71 | -108.50 | 0.69 | 0.30 | Open |
| P-72 | 244.65 | 1.56 | 1.35 | Open |
| P-73 | 122.00 | 0.78 | 0.37 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -15.79 | 0.10 | 0.01 | Open |
| P-77 | -65.75 | 0.19 | 0.02 | Open |
| P-78 | -66.43 | 0.19 | 0.02 | Open |
| P-79 | 132.33 | 0.84 | 0.43 | Open |
| P-80 | 239.59 | 1.53 | 1.30 | Open |
| P-81 | -60.15 | 0.38 | 0.10 | Open |
| P-82 | 65.67 | 0.42 | 0.12 | Open |
| P-83 | 738.08 | 2.09 | 1.44 | Open |
| P-84 | 168.80 | 1.08 | 0.68 | Open |
| P-85 | -8.10 | 0.05 | 0.00 | Open |
| P-86 | -1.36 | 0.01 | 0.00 | Open |
| P-87 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 13.77 | 0.09 | 0.01 | Open |
| P-90 | -61.69 | 0.39 | 0.10 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -41.64 | 0.27 | 0.05 | Open |
| P-93 | -66.60 | 0.43 | 0.12 | Open |
| P-94 | 130.01 | 0.83 | 0.42 | Open |
| P-95 | -45.02 | 0.29 | 0.06 | Open |
| P-96 | -45.70 | 0.29 | 0.06 | Open |
| P-97 | 83.00 | 0.53 | 0.18 | Open |
| P-98 | -197.99 | 1.26 | 0.91 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1372.63 | 0.97 | 0.15 | Open |

Sereno Canyon Phase 4 Max Day fire flow J10



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -196.63 | 1.26 | 0.90 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1372.63 | 0.00 | -287.05 | Open Pump |
| 1 | 1372.63 | 3.89 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J11

Page 1

12/2/2017 10:28:13 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality              *
*                               Analysis for Pipe Networks                *
*                               Version 2.0                              *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J11.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J11

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J11

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
| | | | | | | |

Sereno Canyon Phase 4 Max Day fire flow J11

| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|----------------|--------|-------|---------|--------|--------|------|
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1188.68 | 101.02 | 101.02 | 0.00 |
| Demand Charge: | | | | | | 0.00 |
| Total Cost: | | | | | | 0.00 |

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-11 | 1000.00 | 2989.14 | 96.25 | 0.00 |
| J-32 | 3.44 | 2999.04 | 90.15 | 0.00 |
| J-36 | 3.80 | 2999.07 | 74.56 | 0.00 |
| J-37 | 1.72 | 2999.07 | 71.09 | 0.00 |
| J-30 | 4.48 | 2998.68 | 98.87 | 0.00 |
| J-38 | 5.52 | 2998.38 | 82.06 | 0.00 |
| J-39 | 3.44 | 2998.27 | 88.51 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2998.05 | 94.27 | 0.00 |
| J-40 | 2.06 | 2998.27 | 88.29 | 0.00 |
| J-28 | 3.44 | 2997.74 | 102.58 | 0.00 |
| J-27 | 2.06 | 2997.74 | 90.88 | 0.00 |
| J-2 | 1.38 | 2995.59 | 93.85 | 0.00 |
| J-3 | 0.00 | 2993.97 | 86.39 | 0.00 |
| J-4 | 1.38 | 2993.49 | 87.09 | 0.00 |
| J-41 | 5.52 | 2993.12 | 87.93 | 0.00 |
| J-14 | 6.90 | 2990.55 | 89.93 | 0.00 |
| J-12 | 49.90 | 2989.14 | 90.19 | 0.00 |
| J-9 | 0.00 | 2989.88 | 105.24 | 0.00 |
| J-6 | 2.07 | 2991.95 | 88.37 | 0.00 |
| J-19 | 3.44 | 2993.73 | 80.91 | 0.00 |
| J-24 | 3.44 | 2993.56 | 80.84 | 0.00 |
| J-20 | 31.00 | 2993.57 | 72.83 | 0.00 |
| J-21 | 12.40 | 2993.51 | 72.80 | 0.00 |
| J-22 | 3.10 | 2993.52 | 72.59 | 0.00 |
| J-5 | 2.76 | 2992.57 | 88.21 | 0.00 |
| J-17 | 3.10 | 2992.57 | 101.21 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J11

| | | | | |
|-------|-------|---------|--------|------|
| J-18 | 1.38 | 2993.49 | 95.54 | 0.00 |
| J-7 | 4.14 | 2991.04 | 97.51 | 0.00 |
| J-13 | 3.44 | 2990.75 | 107.78 | 0.00 |
| J-8 | 3.80 | 2990.57 | 101.64 | 0.00 |
| J-15 | 3.44 | 2991.29 | 79.64 | 0.00 |
| J-16 | 2.06 | 2991.29 | 75.09 | 0.00 |
| J-23 | 9.30 | 2993.52 | 70.42 | 0.00 |
| J-303 | 11.48 | 2997.01 | 111.36 | 0.00 |
| J-301 | 2.02 | 2997.26 | 116.24 | 0.00 |
| J-10 | 47.88 | 2989.87 | 112.17 | 0.00 |
| J-26 | 2.06 | 2996.09 | 99.70 | 0.00 |
| J-1 | 0.00 | 2997.02 | 95.33 | 0.00 |
| J-102 | 2.70 | 2998.17 | 101.03 | 0.00 |
| J-105 | 3.38 | 2998.17 | 108.83 | 0.00 |
| J-107 | 4.72 | 2998.17 | 113.60 | 0.00 |
| J-111 | 4.06 | 2998.17 | 116.63 | 0.00 |
| J-112 | 1.36 | 2998.02 | 125.23 | 0.00 |
| J-114 | 1.36 | 2997.95 | 126.50 | 0.00 |
| J-115 | 1.36 | 2997.89 | 127.78 | 0.00 |
| J-118 | 1.36 | 2997.85 | 128.19 | 0.00 |
| J-300 | 7.42 | 2997.26 | 117.10 | 0.00 |
| J-302 | 2.70 | 2997.01 | 109.20 | 0.00 |
| J-304 | 2.02 | 2997.00 | 102.26 | 0.00 |
| J-42 | 0.00 | 2998.81 | 99.58 | 0.00 |
| J-31 | 0.00 | 2998.99 | 96.62 | 0.00 |
| J-35 | 0.00 | 2999.09 | 77.16 | 0.00 |
| J-101 | 4.72 | 2999.47 | 115.24 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2998.17 | 116.63 | 0.00 |
| J-33 | 0.00 | 2999.06 | 84.95 | 0.00 |
| J-123 | 3.38 | 2999.06 | 93.18 | 0.00 |
| J-100 | 0.00 | 3000.52 | 121.98 | 0.00 |
| J-103 | 3.38 | 2999.44 | 109.38 | 0.00 |
| J-104 | 3.38 | 2999.22 | 85.46 | 0.00 |
| J-117 | 2.02 | 2997.95 | 123.47 | 0.00 |
| J-110 | 4.06 | 2998.17 | 108.83 | 0.00 |
| J-108 | 2.02 | 2998.17 | 108.40 | 0.00 |
| J-109 | 2.02 | 2998.17 | 107.53 | 0.00 |
| J-305 | 1.36 | 2996.50 | 102.91 | 0.00 |
| S145 | 0.00 | 3000.77 | 123.82 | 0.00 |
| J-207 | 2.70 | 2998.27 | 114.07 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J11

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2998.27 | 116.67 | 0.00 |
| J-206 | 0.68 | 2998.34 | 135.77 | 0.00 |
| J-204 | 2.70 | 2998.67 | 128.98 | 0.00 |
| J-205 | 2.70 | 2998.67 | 120.75 | 0.00 |
| J-203 | 12.82 | 2999.37 | 121.48 | 0.00 |
| J-200 | 7.42 | 3000.31 | 126.22 | 0.00 |
| J-211 | 0.00 | 2999.56 | 118.10 | 0.00 |
| J-201 | 3.38 | 3000.04 | 136.51 | 0.00 |
| J-202 | 10.12 | 3000.04 | 117.88 | 0.00 |
| J-119 | 0.00 | 2997.85 | 132.09 | 0.00 |
| J-120 | 2.02 | 2997.85 | 136.43 | 0.00 |
| J-121 | 0.00 | 2997.86 | 136.43 | 0.00 |
| J-122 | 45.90 | 2997.85 | 139.02 | 0.00 |
| J-210 | 4.06 | 2998.31 | 137.49 | 0.00 |
| J-209 | 0.68 | 2998.34 | 135.34 | 0.00 |
| J-113 | 1.36 | 2998.02 | 124.37 | 0.00 |
| J-116 | 0.68 | 2997.89 | 127.34 | 0.00 |
| J-25 | 5.52 | 2993.62 | 68.51 | 0.00 |
| J-34 | 0.68 | 2999.07 | 82.79 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1416.37 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -29.46 | 0.19 | 0.03 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 111.11 | 0.71 | 0.31 | Open |
| P-4 | 105.59 | 0.67 | 0.28 | Open |
| P-5 | 100.09 | 0.64 | 0.26 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.44 | 0.02 | 0.00 | Open |
| P-8 | 1205.97 | 3.42 | 3.59 | Open |
| P-9 | 986.94 | 2.80 | 2.47 | Open |
| P-10 | 984.18 | 2.79 | 2.46 | Open |
| P-11 | 267.46 | 1.71 | 1.59 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -782.44 | 2.22 | 1.61 | Open |

Sereno Canyon Phase 4 Max Day fire flow J11

| | | | | |
|------|----------|------|------|------|
| P-14 | 219.03 | 1.40 | 1.10 | Open |
| P-15 | 88.94 | 0.57 | 0.21 | Open |
| P-16 | -74.28 | 0.47 | 0.15 | Open |
| P-17 | -86.68 | 0.55 | 0.20 | Open |
| P-18 | -27.88 | 0.18 | 0.02 | Open |
| P-19 | -147.82 | 0.94 | 0.53 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 140.75 | 0.90 | 0.48 | Open |
| P-24 | 27.40 | 0.17 | 0.02 | Open |
| P-25 | -246.95 | 1.58 | 1.37 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | 150.83 | 0.96 | 0.55 | Open |
| P-29 | 1129.49 | 3.20 | 3.18 | Open |
| P-30 | 1123.63 | 3.19 | 3.14 | Open |
| P-31 | 869.11 | 2.47 | 1.95 | Open |
| P-32 | 724.21 | 2.05 | 1.39 | Open |
| P-33 | 830.32 | 2.36 | 1.80 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 201.97 | 1.29 | 0.94 | Open |
| P-36 | -1005.38 | 2.85 | 2.56 | Open |
| P-37 | -760.26 | 2.16 | 1.53 | Open |
| P-38 | -0.64 | 0.00 | 0.00 | Open |
| P-39 | -7.40 | 0.02 | 0.00 | Open |
| P-40 | -20.22 | 0.06 | 0.00 | Open |
| P-41 | 116.09 | 0.74 | 0.34 | Open |
| P-42 | 113.37 | 0.72 | 0.32 | Open |
| P-43 | 109.99 | 0.70 | 0.31 | Open |
| P-44 | 107.95 | 0.69 | 0.30 | Open |
| P-45 | 122.15 | 0.78 | 0.37 | Open |
| P-46 | 112.71 | 0.72 | 0.32 | Open |
| P-47 | 98.53 | 0.28 | 0.03 | Open |
| P-48 | -108.88 | 0.31 | 0.04 | Open |
| P-49 | -354.00 | 2.26 | 2.67 | Open |
| P-50 | -359.50 | 2.29 | 2.75 | Open |
| P-51 | -262.16 | 1.67 | 1.53 | Open |
| P-52 | -377.76 | 2.41 | 3.01 | Open |
| P-53 | -203.50 | 1.30 | 0.96 | Open |
| P-54 | 34.98 | 0.22 | 0.04 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J11

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 223.28 | 1.43 | 1.14 | Open |
| P-58 | 82.22 | 0.52 | 0.18 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1164.58 | 3.30 | 3.36 | Open |
| P-62 | 941.30 | 2.67 | 2.27 | Open |
| P-63 | -140.37 | 0.40 | 0.07 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -143.75 | 0.41 | 0.07 | Open |
| P-66 | -212.65 | 1.36 | 1.04 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -218.05 | 1.39 | 1.09 | Open |
| P-69 | 118.85 | 0.76 | 0.35 | Open |
| P-70 | 118.85 | 0.76 | 0.35 | Open |
| P-71 | -112.02 | 0.71 | 0.32 | Open |
| P-72 | 251.79 | 1.61 | 1.42 | Open |
| P-73 | 125.52 | 0.80 | 0.39 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -17.58 | 0.11 | 0.01 | Open |
| P-77 | -67.54 | 0.19 | 0.02 | Open |
| P-78 | -68.22 | 0.19 | 0.02 | Open |
| P-79 | 137.31 | 0.88 | 0.46 | Open |
| P-80 | 252.45 | 1.61 | 1.43 | Open |
| P-81 | -62.25 | 0.40 | 0.11 | Open |
| P-82 | 67.77 | 0.43 | 0.12 | Open |
| P-83 | 762.32 | 2.16 | 1.53 | Open |
| P-84 | 174.26 | 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 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 15.56 | 0.10 | 0.01 | Open |
| P-90 | -63.48 | 0.41 | 0.11 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -43.19 | 0.28 | 0.06 | Open |
| P-93 | -69.20 | 0.44 | 0.13 | Open |
| P-94 | 134.29 | 0.86 | 0.44 | Open |
| P-95 | -46.57 | 0.30 | 0.06 | Open |
| P-96 | -47.25 | 0.30 | 0.06 | Open |
| P-97 | 85.60 | 0.55 | 0.19 | Open |
| P-98 | -205.39 | 1.31 | 0.97 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1416.37 | 1.00 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J11



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -204.03 | 1.30 | 0.96 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1416.38 | 0.00 | -283.77 | Open Pump |
| 1 | 1416.37 | 4.02 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J12

Page 1

12/2/2017 10:28:27 AM

 * E P A N E T *
 * Hydraulic and Water Quality *
 * Analysis for Pipe Networks *
 * Version 2.0 *

Input File: Sereno Canyon Phase 4 Max Day fire flow J12.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J12

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J12

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J12

| | | | | | | |
|-------|--------|-------|---------|-------|-------|------|
| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1203.06 | 98.94 | 98.94 | 0.00 |

Demand Charge: 0.00
 Total Cost: 0.00

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-12 | 1000.00 | 2992.51 | 91.65 | 0.00 |
| J-32 | 3.44 | 3002.58 | 91.68 | 0.00 |
| J-36 | 3.80 | 3002.60 | 76.09 | 0.00 |
| J-37 | 1.72 | 3002.60 | 72.62 | 0.00 |
| J-30 | 4.48 | 3002.24 | 100.41 | 0.00 |
| J-38 | 5.52 | 3001.96 | 83.61 | 0.00 |
| J-39 | 3.44 | 3001.85 | 90.06 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 3001.65 | 95.82 | 0.00 |
| J-40 | 2.06 | 3001.85 | 89.85 | 0.00 |
| J-28 | 3.44 | 3001.36 | 104.15 | 0.00 |
| J-27 | 2.06 | 3001.36 | 92.45 | 0.00 |
| J-2 | 1.38 | 2999.36 | 95.48 | 0.00 |
| J-3 | 0.00 | 2997.85 | 88.07 | 0.00 |
| J-4 | 1.38 | 2997.40 | 88.78 | 0.00 |
| J-41 | 5.52 | 2997.06 | 89.63 | 0.00 |
| J-14 | 6.90 | 2994.68 | 91.72 | 0.00 |
| J-11 | 4.14 | 2993.38 | 98.09 | 0.00 |
| J-9 | 0.00 | 2994.06 | 107.05 | 0.00 |
| J-6 | 2.07 | 2995.98 | 90.12 | 0.00 |
| J-19 | 3.44 | 2997.62 | 82.59 | 0.00 |
| J-24 | 3.44 | 2997.46 | 82.53 | 0.00 |
| J-20 | 31.00 | 2997.47 | 74.52 | 0.00 |
| J-21 | 12.40 | 2997.41 | 74.49 | 0.00 |
| J-22 | 3.10 | 2997.42 | 74.28 | 0.00 |
| J-5 | 2.76 | 2996.55 | 89.93 | 0.00 |
| J-17 | 3.10 | 2996.55 | 102.93 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J12

| | | | | |
|-------|-------|---------|--------|------|
| J-18 | 1.38 | 2997.40 | 97.23 | 0.00 |
| J-7 | 4.14 | 2995.13 | 99.28 | 0.00 |
| J-13 | 3.44 | 2994.86 | 109.57 | 0.00 |
| J-8 | 3.80 | 2994.69 | 103.43 | 0.00 |
| J-15 | 3.44 | 2995.37 | 81.40 | 0.00 |
| J-16 | 2.06 | 2995.37 | 76.85 | 0.00 |
| J-23 | 9.30 | 2997.42 | 72.11 | 0.00 |
| J-303 | 11.48 | 3000.68 | 112.95 | 0.00 |
| J-301 | 2.02 | 3000.90 | 117.82 | 0.00 |
| J-10 | 47.88 | 2994.05 | 113.98 | 0.00 |
| J-26 | 2.06 | 2999.82 | 101.32 | 0.00 |
| J-1 | 0.00 | 3000.69 | 96.92 | 0.00 |
| J-102 | 2.70 | 3001.76 | 102.59 | 0.00 |
| J-105 | 3.38 | 3001.76 | 110.39 | 0.00 |
| J-107 | 4.72 | 3001.76 | 115.15 | 0.00 |
| J-111 | 4.06 | 3001.76 | 118.19 | 0.00 |
| J-112 | 1.36 | 3001.62 | 126.79 | 0.00 |
| J-114 | 1.36 | 3001.55 | 128.06 | 0.00 |
| J-115 | 1.36 | 3001.50 | 129.34 | 0.00 |
| J-118 | 1.36 | 3001.45 | 129.75 | 0.00 |
| J-300 | 7.42 | 3000.90 | 118.68 | 0.00 |
| J-302 | 2.70 | 3000.68 | 110.79 | 0.00 |
| J-304 | 2.02 | 3000.67 | 103.85 | 0.00 |
| J-42 | 0.00 | 3002.36 | 101.12 | 0.00 |
| J-31 | 0.00 | 3002.53 | 98.16 | 0.00 |
| J-35 | 0.00 | 3002.62 | 78.70 | 0.00 |
| J-101 | 4.72 | 3002.98 | 116.76 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 3001.76 | 118.19 | 0.00 |
| J-33 | 0.00 | 3002.59 | 86.48 | 0.00 |
| J-123 | 3.38 | 3002.59 | 94.71 | 0.00 |
| J-100 | 0.00 | 3003.97 | 123.48 | 0.00 |
| J-103 | 3.38 | 3002.95 | 110.90 | 0.00 |
| J-104 | 3.38 | 3002.75 | 86.98 | 0.00 |
| J-117 | 2.02 | 3001.55 | 125.03 | 0.00 |
| J-110 | 4.06 | 3001.76 | 110.39 | 0.00 |
| J-108 | 2.02 | 3001.76 | 109.95 | 0.00 |
| J-109 | 2.02 | 3001.76 | 109.09 | 0.00 |
| J-305 | 1.36 | 3000.21 | 104.51 | 0.00 |
| S145 | 0.00 | 3004.20 | 125.31 | 0.00 |
| J-207 | 2.70 | 3001.85 | 115.63 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J12

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 3001.85 | 118.23 | 0.00 |
| J-206 | 0.68 | 3001.92 | 137.32 | 0.00 |
| J-204 | 2.70 | 3002.23 | 130.52 | 0.00 |
| J-205 | 2.70 | 3002.23 | 122.29 | 0.00 |
| J-203 | 12.82 | 3002.88 | 123.01 | 0.00 |
| J-200 | 7.42 | 3003.76 | 127.72 | 0.00 |
| J-211 | 0.00 | 3003.06 | 119.62 | 0.00 |
| J-201 | 3.38 | 3003.52 | 138.01 | 0.00 |
| J-202 | 10.12 | 3003.51 | 119.38 | 0.00 |
| J-119 | 0.00 | 3001.46 | 133.65 | 0.00 |
| J-120 | 2.02 | 3001.46 | 137.99 | 0.00 |
| J-121 | 0.00 | 3001.46 | 137.99 | 0.00 |
| J-122 | 45.90 | 3001.45 | 140.58 | 0.00 |
| J-210 | 4.06 | 3001.89 | 139.04 | 0.00 |
| J-209 | 0.68 | 3001.91 | 136.89 | 0.00 |
| J-113 | 1.36 | 3001.62 | 125.92 | 0.00 |
| J-116 | 0.68 | 3001.50 | 128.91 | 0.00 |
| J-25 | 5.52 | 2997.51 | 70.20 | 0.00 |
| J-34 | 0.68 | 3002.60 | 84.32 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1370.61 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -28.35 | 0.18 | 0.03 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 107.39 | 0.69 | 0.29 | Open |
| P-4 | 101.87 | 0.65 | 0.27 | Open |
| P-5 | 96.37 | 0.62 | 0.24 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.44 | 0.02 | 0.00 | Open |
| P-8 | 1160.21 | 3.29 | 3.34 | Open |
| P-9 | 948.19 | 2.69 | 2.30 | Open |
| P-10 | 945.43 | 2.68 | 2.29 | Open |
| P-11 | 256.05 | 1.63 | 1.47 | Open |
| P-12 | -1000.00 | 2.84 | 2.53 | Open |
| P-13 | -748.09 | 2.12 | 1.48 | Open |

Sereno Canyon Phase 4 Max Day fire flow J12

| | | | | |
|------|---------|------|------|------|
| P-14 | 212.02 | 1.35 | 1.03 | Open |
| P-15 | 85.30 | 0.54 | 0.19 | Open |
| P-16 | -70.92 | 0.45 | 0.14 | Open |
| P-17 | -83.32 | 0.53 | 0.18 | Open |
| P-18 | -26.70 | 0.17 | 0.02 | Open |
| P-19 | -143.00 | 0.91 | 0.50 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 135.02 | 0.86 | 0.45 | Open |
| P-24 | 26.22 | 0.17 | 0.02 | Open |
| P-25 | -236.72 | 1.51 | 1.27 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | 143.82 | 0.92 | 0.50 | Open |
| P-29 | 1083.73 | 3.07 | 2.94 | Open |
| P-30 | 1077.87 | 3.06 | 2.91 | Open |
| P-31 | 833.58 | 2.36 | 1.81 | Open |
| P-32 | 694.42 | 1.97 | 1.29 | Open |
| P-33 | 795.97 | 2.26 | 1.66 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 194.23 | 1.24 | 0.88 | Open |
| P-36 | -967.36 | 2.74 | 2.38 | Open |
| P-37 | -732.28 | 2.08 | 1.42 | Open |
| P-38 | 1.98 | 0.01 | 0.00 | Open |
| P-39 | -4.78 | 0.01 | 0.00 | Open |
| P-40 | -17.60 | 0.05 | 0.00 | Open |
| P-41 | 113.11 | 0.72 | 0.32 | Open |
| P-42 | 110.39 | 0.70 | 0.31 | Open |
| P-43 | 107.01 | 0.68 | 0.29 | Open |
| P-44 | 104.97 | 0.67 | 0.28 | Open |
| P-45 | 117.30 | 0.75 | 0.34 | Open |
| P-46 | 107.86 | 0.69 | 0.30 | Open |
| P-47 | 93.68 | 0.27 | 0.03 | Open |
| P-48 | -105.99 | 0.30 | 0.04 | Open |
| P-49 | -341.08 | 2.18 | 2.49 | Open |
| P-50 | -346.58 | 2.21 | 2.57 | Open |
| P-51 | -252.97 | 1.61 | 1.43 | Open |
| P-52 | -364.84 | 2.33 | 2.82 | Open |
| P-53 | -196.29 | 1.25 | 0.89 | Open |
| P-54 | 33.87 | 0.22 | 0.03 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J12

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 216.07 | 1.38 | 1.07 | Open |
| P-58 | 79.50 | 0.51 | 0.17 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1126.29 | 3.20 | 3.16 | Open |
| P-62 | 910.23 | 2.58 | 2.13 | Open |
| P-63 | -134.77 | 0.38 | 0.06 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -138.15 | 0.39 | 0.06 | Open |
| P-66 | -205.18 | 1.31 | 0.97 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -210.58 | 1.34 | 1.02 | Open |
| P-69 | 115.06 | 0.73 | 0.33 | Open |
| P-70 | 115.06 | 0.73 | 0.33 | Open |
| P-71 | -108.33 | 0.69 | 0.30 | Open |
| P-72 | 244.32 | 1.56 | 1.34 | Open |
| P-73 | 121.83 | 0.78 | 0.37 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -15.70 | 0.10 | 0.01 | Open |
| P-77 | -65.66 | 0.19 | 0.02 | Open |
| P-78 | -66.34 | 0.19 | 0.02 | Open |
| P-79 | 131.58 | 0.84 | 0.43 | Open |
| P-80 | 242.22 | 1.55 | 1.32 | Open |
| P-81 | -60.06 | 0.38 | 0.10 | Open |
| P-82 | 65.58 | 0.42 | 0.12 | Open |
| P-83 | 736.96 | 2.09 | 1.44 | Open |
| P-84 | 168.55 | 1.08 | 0.68 | Open |
| P-85 | -8.10 | 0.05 | 0.00 | Open |
| P-86 | -1.36 | 0.01 | 0.00 | Open |
| P-87 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 13.68 | 0.09 | 0.01 | Open |
| P-90 | -61.60 | 0.39 | 0.10 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -41.57 | 0.27 | 0.05 | Open |
| P-93 | -66.48 | 0.42 | 0.12 | Open |
| P-94 | 129.81 | 0.83 | 0.42 | Open |
| P-95 | -44.95 | 0.29 | 0.06 | Open |
| P-96 | -45.63 | 0.29 | 0.06 | Open |
| P-97 | 82.88 | 0.53 | 0.18 | Open |
| P-98 | -197.65 | 1.26 | 0.91 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1370.61 | 0.97 | 0.15 | Open |

Sereno Canyon Phase 4 Max Day fire flow J12



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -196.29 | 1.25 | 0.90 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1370.62 | 0.00 | -287.20 | Open Pump |
| 1 | 1370.61 | 3.89 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J13

Page 1

12/2/2017 10:29:09 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality                 *
*                               Analysis for Pipe Networks                   *
*                               Version 2.0                                 *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J13.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J13

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J13

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J13

| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|-------|--------|-------|---------|--------|----------------|------|
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1188.46 | 101.05 | 101.05 | 0.00 |
| | | | | | Demand Charge: | 0.00 |
| | | | | | Total Cost: | 0.00 |

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-13 | 1000.00 | 2988.35 | 106.74 | 0.00 |
| J-32 | 3.44 | 2998.99 | 90.12 | 0.00 |
| J-36 | 3.80 | 2999.02 | 74.53 | 0.00 |
| J-37 | 1.72 | 2999.02 | 71.07 | 0.00 |
| J-30 | 4.48 | 2998.63 | 98.85 | 0.00 |
| J-38 | 5.52 | 2998.33 | 82.04 | 0.00 |
| J-39 | 3.44 | 2998.21 | 88.49 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2998.00 | 94.24 | 0.00 |
| J-40 | 2.06 | 2998.21 | 88.27 | 0.00 |
| J-28 | 3.44 | 2997.69 | 102.56 | 0.00 |
| J-27 | 2.06 | 2997.69 | 90.86 | 0.00 |
| J-2 | 1.38 | 2995.53 | 93.82 | 0.00 |
| J-3 | 0.00 | 2993.91 | 86.36 | 0.00 |
| J-4 | 1.38 | 2993.43 | 87.06 | 0.00 |
| J-41 | 5.52 | 2993.06 | 87.90 | 0.00 |
| J-14 | 6.90 | 2990.89 | 90.08 | 0.00 |
| J-11 | 4.14 | 2990.70 | 96.93 | 0.00 |
| J-12 | 49.90 | 2990.70 | 90.86 | 0.00 |
| J-9 | 0.00 | 2990.70 | 105.59 | 0.00 |
| J-6 | 2.07 | 2991.89 | 88.35 | 0.00 |
| J-19 | 3.44 | 2993.67 | 80.88 | 0.00 |
| J-24 | 3.44 | 2993.50 | 80.81 | 0.00 |
| J-20 | 31.00 | 2993.51 | 72.80 | 0.00 |
| J-21 | 12.40 | 2993.45 | 72.77 | 0.00 |
| J-22 | 3.10 | 2993.46 | 72.56 | 0.00 |
| J-5 | 2.76 | 2992.51 | 88.18 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J13

| | | | | |
|-------|-------|---------|--------|------|
| J-17 | 3.10 | 2992.51 | 101.18 | 0.00 |
| J-18 | 1.38 | 2993.43 | 95.51 | 0.00 |
| J-7 | 4.14 | 2990.90 | 97.45 | 0.00 |
| J-8 | 3.80 | 2990.70 | 101.69 | 0.00 |
| J-15 | 3.44 | 2991.42 | 79.69 | 0.00 |
| J-16 | 2.06 | 2991.42 | 75.14 | 0.00 |
| J-23 | 9.30 | 2993.46 | 70.39 | 0.00 |
| J-303 | 11.48 | 2996.96 | 111.34 | 0.00 |
| J-301 | 2.02 | 2997.20 | 116.21 | 0.00 |
| J-10 | 47.88 | 2990.69 | 112.53 | 0.00 |
| J-26 | 2.06 | 2996.04 | 99.68 | 0.00 |
| J-1 | 0.00 | 2996.96 | 95.31 | 0.00 |
| J-102 | 2.70 | 2998.12 | 101.01 | 0.00 |
| J-105 | 3.38 | 2998.12 | 108.81 | 0.00 |
| J-107 | 4.72 | 2998.12 | 113.57 | 0.00 |
| J-111 | 4.06 | 2998.12 | 116.61 | 0.00 |
| J-112 | 1.36 | 2997.97 | 125.21 | 0.00 |
| J-114 | 1.36 | 2997.90 | 126.48 | 0.00 |
| J-115 | 1.36 | 2997.84 | 127.75 | 0.00 |
| J-118 | 1.36 | 2997.79 | 128.17 | 0.00 |
| J-300 | 7.42 | 2997.20 | 117.08 | 0.00 |
| J-302 | 2.70 | 2996.96 | 109.17 | 0.00 |
| J-304 | 2.02 | 2996.94 | 102.23 | 0.00 |
| J-42 | 0.00 | 2998.76 | 99.55 | 0.00 |
| J-31 | 0.00 | 2998.94 | 96.60 | 0.00 |
| J-35 | 0.00 | 2999.03 | 77.14 | 0.00 |
| J-101 | 4.72 | 2999.41 | 115.22 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2998.12 | 116.61 | 0.00 |
| J-33 | 0.00 | 2999.00 | 84.93 | 0.00 |
| J-123 | 3.38 | 2999.00 | 93.16 | 0.00 |
| J-100 | 0.00 | 3000.47 | 121.96 | 0.00 |
| J-103 | 3.38 | 2999.38 | 109.36 | 0.00 |
| J-104 | 3.38 | 2999.17 | 85.43 | 0.00 |
| J-117 | 2.02 | 2997.90 | 123.45 | 0.00 |
| J-110 | 4.06 | 2998.12 | 108.81 | 0.00 |
| J-108 | 2.02 | 2998.12 | 108.38 | 0.00 |
| J-109 | 2.02 | 2998.12 | 107.51 | 0.00 |
| J-305 | 1.36 | 2996.45 | 102.89 | 0.00 |
| S145 | 0.00 | 3000.72 | 123.80 | 0.00 |
| J-207 | 2.70 | 2998.21 | 114.05 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J13

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2998.21 | 116.65 | 0.00 |
| J-206 | 0.68 | 2998.29 | 135.75 | 0.00 |
| J-204 | 2.70 | 2998.62 | 128.96 | 0.00 |
| J-205 | 2.70 | 2998.62 | 120.72 | 0.00 |
| J-203 | 12.82 | 2999.32 | 121.46 | 0.00 |
| J-200 | 7.42 | 3000.25 | 126.20 | 0.00 |
| J-211 | 0.00 | 2999.51 | 118.08 | 0.00 |
| J-201 | 3.38 | 2999.99 | 136.49 | 0.00 |
| J-202 | 10.12 | 2999.99 | 117.85 | 0.00 |
| J-119 | 0.00 | 2997.80 | 132.07 | 0.00 |
| J-120 | 2.02 | 2997.80 | 136.40 | 0.00 |
| J-121 | 0.00 | 2997.80 | 136.40 | 0.00 |
| J-122 | 45.90 | 2997.79 | 139.00 | 0.00 |
| J-210 | 4.06 | 2998.26 | 137.47 | 0.00 |
| J-209 | 0.68 | 2998.28 | 135.31 | 0.00 |
| J-113 | 1.36 | 2997.97 | 124.34 | 0.00 |
| J-116 | 0.68 | 2997.84 | 127.32 | 0.00 |
| J-25 | 5.52 | 2993.56 | 68.49 | 0.00 |
| J-34 | 0.68 | 2999.02 | 82.77 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1417.07 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -29.47 | 0.19 | 0.03 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 111.17 | 0.71 | 0.31 | Open |
| P-4 | 105.65 | 0.67 | 0.28 | Open |
| P-5 | 100.15 | 0.64 | 0.26 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.44 | 0.02 | 0.00 | Open |
| P-8 | 1206.67 | 3.42 | 3.59 | Open |
| P-9 | 987.54 | 2.80 | 2.48 | Open |
| P-10 | 984.78 | 2.79 | 2.46 | Open |
| P-11 | 89.22 | 0.57 | 0.21 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | 35.18 | 0.10 | 0.00 | Open |

Sereno Canyon Phase 4 Max Day fire flow J13

| | | | | |
|------|----------|------|------|------|
| P-14 | 219.13 | 1.40 | 1.10 | Open |
| P-15 | 89.00 | 0.57 | 0.21 | Open |
| P-16 | -74.34 | 0.47 | 0.15 | Open |
| P-17 | -86.74 | 0.55 | 0.20 | Open |
| P-18 | -27.89 | 0.18 | 0.02 | Open |
| P-19 | -147.89 | 0.94 | 0.53 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 453.91 | 2.90 | 4.23 | Open |
| P-24 | -110.03 | 0.70 | 0.31 | Open |
| P-25 | -206.15 | 1.32 | 0.98 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | 150.93 | 0.96 | 0.55 | Open |
| P-29 | 1130.19 | 3.21 | 3.18 | Open |
| P-30 | 1124.33 | 3.19 | 3.15 | Open |
| P-31 | 910.61 | 2.58 | 2.13 | Open |
| P-32 | 452.56 | 1.28 | 0.58 | Open |
| P-33 | 12.70 | 0.04 | 0.00 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 202.09 | 1.29 | 0.95 | Open |
| P-36 | -1005.96 | 2.85 | 2.56 | Open |
| P-37 | -760.69 | 2.16 | 1.53 | Open |
| P-38 | -0.68 | 0.00 | 0.00 | Open |
| P-39 | -7.44 | 0.02 | 0.00 | Open |
| P-40 | -20.26 | 0.06 | 0.00 | Open |
| P-41 | 116.13 | 0.74 | 0.34 | Open |
| P-42 | 113.41 | 0.72 | 0.32 | Open |
| P-43 | 110.03 | 0.70 | 0.31 | Open |
| P-44 | 107.99 | 0.69 | 0.30 | Open |
| P-45 | 122.23 | 0.78 | 0.37 | Open |
| P-46 | 112.79 | 0.72 | 0.32 | Open |
| P-47 | 98.61 | 0.28 | 0.03 | Open |
| P-48 | -108.92 | 0.31 | 0.04 | Open |
| P-49 | -354.19 | 2.26 | 2.67 | Open |
| P-50 | -359.69 | 2.30 | 2.75 | Open |
| P-51 | -262.30 | 1.67 | 1.53 | Open |
| P-52 | -377.95 | 2.41 | 3.01 | Open |
| P-53 | -203.61 | 1.30 | 0.96 | Open |
| P-54 | 34.99 | 0.22 | 0.04 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J13

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 223.39 | 1.43 | 1.14 | Open |
| P-58 | 82.27 | 0.53 | 0.18 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1165.17 | 3.31 | 3.36 | Open |
| P-62 | 941.78 | 2.67 | 2.27 | Open |
| P-63 | -140.45 | 0.40 | 0.07 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -143.83 | 0.41 | 0.07 | Open |
| P-66 | -212.76 | 1.36 | 1.04 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -218.16 | 1.39 | 1.09 | Open |
| P-69 | 118.91 | 0.76 | 0.35 | Open |
| P-70 | 118.91 | 0.76 | 0.35 | Open |
| P-71 | -112.07 | 0.72 | 0.32 | Open |
| P-72 | 251.90 | 1.61 | 1.42 | Open |
| P-73 | 125.57 | 0.80 | 0.39 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -17.61 | 0.11 | 0.01 | Open |
| P-77 | -67.57 | 0.19 | 0.02 | Open |
| P-78 | -68.25 | 0.19 | 0.02 | Open |
| P-79 | -546.09 | 3.49 | 5.96 | Open |
| P-80 | 211.65 | 1.35 | 1.03 | Open |
| P-81 | -62.28 | 0.40 | 0.11 | Open |
| P-82 | 67.80 | 0.43 | 0.13 | Open |
| P-83 | 762.71 | 2.16 | 1.53 | Open |
| P-84 | 174.35 | 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 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 15.59 | 0.10 | 0.01 | Open |
| P-90 | -63.51 | 0.41 | 0.11 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -43.21 | 0.28 | 0.05 | Open |
| P-93 | -69.25 | 0.44 | 0.13 | Open |
| P-94 | 134.36 | 0.86 | 0.44 | Open |
| P-95 | -46.59 | 0.30 | 0.06 | Open |
| P-96 | -47.27 | 0.30 | 0.06 | Open |
| P-97 | 85.65 | 0.55 | 0.19 | Open |
| P-98 | -205.51 | 1.31 | 0.97 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1417.07 | 1.00 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J13



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -204.15 | 1.30 | 0.96 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1417.08 | 0.00 | -283.72 | Open Pump |
| 1 | 1417.07 | 4.02 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J14

Page 1

12/2/2017 10:29:24 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality              *
*                               Analysis for Pipe Networks                *
*                               Version 2.0                              *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J14.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J14

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J14

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J14

| | | | | | | |
|-------|--------|-------|---------|--------|--------|------|
| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1189.54 | 100.89 | 100.89 | 0.00 |

Demand Charge: 0.00
Total Cost: 0.00

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-14 | 1000.00 | 2989.38 | 89.43 | 0.00 |
| J-32 | 3.44 | 2999.26 | 90.24 | 0.00 |
| J-36 | 3.80 | 2999.28 | 74.65 | 0.00 |
| J-37 | 1.72 | 2999.28 | 71.18 | 0.00 |
| J-30 | 4.48 | 2998.89 | 98.96 | 0.00 |
| J-38 | 5.52 | 2998.60 | 82.15 | 0.00 |
| J-39 | 3.44 | 2998.48 | 88.60 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2998.27 | 94.36 | 0.00 |
| J-40 | 2.06 | 2998.48 | 88.39 | 0.00 |
| J-28 | 3.44 | 2997.96 | 102.67 | 0.00 |
| J-27 | 2.06 | 2997.96 | 90.98 | 0.00 |
| J-2 | 1.38 | 2995.82 | 93.95 | 0.00 |
| J-3 | 0.00 | 2994.20 | 86.49 | 0.00 |
| J-4 | 1.38 | 2993.72 | 87.19 | 0.00 |
| J-41 | 5.52 | 2993.36 | 88.03 | 0.00 |
| J-11 | 4.14 | 2990.83 | 96.99 | 0.00 |
| J-12 | 49.90 | 2990.83 | 90.92 | 0.00 |
| J-9 | 0.00 | 2990.98 | 105.72 | 0.00 |
| J-6 | 2.07 | 2992.19 | 88.48 | 0.00 |
| J-19 | 3.44 | 2993.96 | 81.01 | 0.00 |
| J-24 | 3.44 | 2993.79 | 80.94 | 0.00 |
| J-20 | 31.00 | 2993.81 | 72.93 | 0.00 |
| J-21 | 12.40 | 2993.74 | 72.90 | 0.00 |
| J-22 | 3.10 | 2993.76 | 72.69 | 0.00 |
| J-5 | 2.76 | 2992.81 | 88.31 | 0.00 |
| J-17 | 3.10 | 2992.81 | 101.31 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J14

| | | | | |
|-------|-------|---------|--------|------|
| J-18 | 1.38 | 2993.72 | 95.64 | 0.00 |
| J-7 | 4.14 | 2991.50 | 97.71 | 0.00 |
| J-13 | 3.45 | 2991.27 | 108.01 | 0.00 |
| J-8 | 3.80 | 2991.13 | 101.88 | 0.00 |
| J-15 | 3.44 | 2990.88 | 79.46 | 0.00 |
| J-16 | 2.06 | 2990.88 | 74.91 | 0.00 |
| J-23 | 9.30 | 2993.76 | 70.52 | 0.00 |
| J-303 | 11.48 | 2997.23 | 111.46 | 0.00 |
| J-301 | 2.02 | 2997.48 | 116.33 | 0.00 |
| J-10 | 47.88 | 2990.97 | 112.65 | 0.00 |
| J-26 | 2.06 | 2996.32 | 99.80 | 0.00 |
| J-1 | 0.00 | 2997.24 | 95.43 | 0.00 |
| J-102 | 2.70 | 2998.39 | 101.13 | 0.00 |
| J-105 | 3.38 | 2998.39 | 108.93 | 0.00 |
| J-107 | 4.72 | 2998.39 | 113.69 | 0.00 |
| J-111 | 4.06 | 2998.39 | 116.73 | 0.00 |
| J-112 | 1.36 | 2998.24 | 125.33 | 0.00 |
| J-114 | 1.36 | 2998.17 | 126.60 | 0.00 |
| J-115 | 1.36 | 2998.11 | 127.87 | 0.00 |
| J-118 | 1.36 | 2998.06 | 128.28 | 0.00 |
| J-300 | 7.42 | 2997.48 | 117.20 | 0.00 |
| J-302 | 2.70 | 2997.24 | 109.29 | 0.00 |
| J-304 | 2.02 | 2997.22 | 102.35 | 0.00 |
| J-42 | 0.00 | 2999.02 | 99.67 | 0.00 |
| J-31 | 0.00 | 2999.21 | 96.72 | 0.00 |
| J-35 | 0.00 | 2999.30 | 77.26 | 0.00 |
| J-101 | 4.72 | 2999.68 | 115.34 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2998.39 | 116.73 | 0.00 |
| J-33 | 0.00 | 2999.27 | 85.04 | 0.00 |
| J-123 | 3.38 | 2999.27 | 93.28 | 0.00 |
| J-100 | 0.00 | 3000.73 | 122.07 | 0.00 |
| J-103 | 3.38 | 2999.65 | 109.47 | 0.00 |
| J-104 | 3.38 | 2999.44 | 85.55 | 0.00 |
| J-117 | 2.02 | 2998.17 | 123.56 | 0.00 |
| J-110 | 4.06 | 2998.39 | 108.93 | 0.00 |
| J-108 | 2.02 | 2998.39 | 108.49 | 0.00 |
| J-109 | 2.02 | 2998.39 | 107.63 | 0.00 |
| J-305 | 1.36 | 2996.73 | 103.01 | 0.00 |
| S145 | 0.00 | 3000.98 | 123.91 | 0.00 |
| J-207 | 2.70 | 2998.48 | 114.17 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J14

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2998.48 | 116.77 | 0.00 |
| J-206 | 0.68 | 2998.56 | 135.86 | 0.00 |
| J-204 | 2.70 | 2998.88 | 129.07 | 0.00 |
| J-205 | 2.70 | 2998.88 | 120.84 | 0.00 |
| J-203 | 12.82 | 2999.58 | 121.58 | 0.00 |
| J-200 | 7.42 | 3000.51 | 126.31 | 0.00 |
| J-211 | 0.00 | 2999.77 | 118.19 | 0.00 |
| J-201 | 3.38 | 3000.25 | 136.60 | 0.00 |
| J-202 | 10.12 | 3000.25 | 117.97 | 0.00 |
| J-119 | 0.00 | 2998.07 | 132.19 | 0.00 |
| J-120 | 2.02 | 2998.07 | 136.52 | 0.00 |
| J-121 | 0.00 | 2998.07 | 136.52 | 0.00 |
| J-122 | 45.90 | 2998.06 | 139.12 | 0.00 |
| J-210 | 4.06 | 2998.53 | 137.59 | 0.00 |
| J-209 | 0.68 | 2998.55 | 135.43 | 0.00 |
| J-113 | 1.36 | 2998.24 | 124.46 | 0.00 |
| J-116 | 0.68 | 2998.11 | 127.44 | 0.00 |
| J-25 | 5.52 | 2993.85 | 68.61 | 0.00 |
| J-34 | 0.68 | 2999.28 | 82.88 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1413.63 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -29.39 | 0.19 | 0.03 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 110.89 | 0.71 | 0.31 | Open |
| P-4 | 105.37 | 0.67 | 0.28 | Open |
| P-5 | 99.87 | 0.64 | 0.26 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.44 | 0.02 | 0.00 | Open |
| P-8 | 1203.22 | 3.41 | 3.57 | Open |
| P-9 | 984.61 | 2.79 | 2.46 | Open |
| P-10 | 981.85 | 2.79 | 2.45 | Open |
| P-11 | -271.03 | 1.73 | 1.63 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -325.07 | 0.92 | 0.32 | Open |

Sereno Canyon Phase 4 Max Day fire flow J14

| | | | | |
|------|----------|------|------|------|
| P-14 | 218.61 | 1.40 | 1.09 | Open |
| P-15 | 88.72 | 0.57 | 0.21 | Open |
| P-16 | -74.08 | 0.47 | 0.15 | Open |
| P-17 | -86.48 | 0.55 | 0.20 | Open |
| P-18 | -27.81 | 0.18 | 0.02 | Open |
| P-19 | -147.53 | 0.94 | 0.53 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 121.91 | 0.78 | 0.37 | Open |
| P-24 | 367.99 | 2.35 | 2.87 | Open |
| P-25 | -360.98 | 2.30 | 2.77 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | 150.41 | 0.96 | 0.55 | Open |
| P-29 | 1126.74 | 3.20 | 3.16 | Open |
| P-30 | 1120.88 | 3.18 | 3.13 | Open |
| P-31 | 752.33 | 2.13 | 1.50 | Open |
| P-32 | 626.28 | 1.78 | 1.07 | Open |
| P-33 | 372.95 | 1.06 | 0.41 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 201.50 | 1.29 | 0.94 | Open |
| P-36 | -1003.10 | 2.85 | 2.55 | Open |
| P-37 | -758.58 | 2.15 | 1.52 | Open |
| P-38 | -0.48 | 0.00 | 0.00 | Open |
| P-39 | -7.24 | 0.02 | 0.00 | Open |
| P-40 | -20.06 | 0.06 | 0.00 | Open |
| P-41 | 115.91 | 0.74 | 0.34 | Open |
| P-42 | 113.19 | 0.72 | 0.32 | Open |
| P-43 | 109.81 | 0.70 | 0.31 | Open |
| P-44 | 107.77 | 0.69 | 0.30 | Open |
| P-45 | 121.86 | 0.78 | 0.37 | Open |
| P-46 | 112.42 | 0.72 | 0.32 | Open |
| P-47 | 98.24 | 0.28 | 0.03 | Open |
| P-48 | -108.70 | 0.31 | 0.04 | Open |
| P-49 | -353.22 | 2.25 | 2.66 | Open |
| P-50 | -358.72 | 2.29 | 2.73 | Open |
| P-51 | -261.61 | 1.67 | 1.53 | Open |
| P-52 | -376.98 | 2.41 | 3.00 | Open |
| P-53 | -203.06 | 1.30 | 0.95 | Open |
| P-54 | 34.91 | 0.22 | 0.04 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J14

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 222.84 | 1.42 | 1.13 | Open |
| P-58 | 82.06 | 0.52 | 0.18 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1162.28 | 3.30 | 3.35 | Open |
| P-62 | 939.43 | 2.66 | 2.26 | Open |
| P-63 | -140.03 | 0.40 | 0.07 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -143.41 | 0.41 | 0.07 | Open |
| P-66 | -212.20 | 1.35 | 1.03 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -217.60 | 1.39 | 1.08 | Open |
| P-69 | 118.63 | 0.76 | 0.35 | Open |
| P-70 | 118.63 | 0.76 | 0.35 | Open |
| P-71 | -111.80 | 0.71 | 0.32 | Open |
| P-72 | 251.34 | 1.60 | 1.42 | Open |
| P-73 | 125.30 | 0.80 | 0.39 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -17.47 | 0.11 | 0.01 | Open |
| P-77 | -67.43 | 0.19 | 0.02 | Open |
| P-78 | -68.11 | 0.19 | 0.02 | Open |
| P-79 | 118.46 | 0.76 | 0.35 | Open |
| P-80 | 366.48 | 2.34 | 2.85 | Open |
| P-81 | -62.12 | 0.40 | 0.11 | Open |
| P-82 | 67.64 | 0.43 | 0.12 | Open |
| P-83 | 760.80 | 2.16 | 1.53 | Open |
| P-84 | 173.92 | 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 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 15.45 | 0.10 | 0.01 | Open |
| P-90 | -63.37 | 0.40 | 0.11 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -43.09 | 0.28 | 0.05 | Open |
| P-93 | -69.04 | 0.44 | 0.13 | Open |
| P-94 | 134.02 | 0.86 | 0.44 | Open |
| P-95 | -46.47 | 0.30 | 0.06 | Open |
| P-96 | -47.15 | 0.30 | 0.06 | Open |
| P-97 | 85.44 | 0.55 | 0.19 | Open |
| P-98 | -204.92 | 1.31 | 0.97 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1413.63 | 1.00 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J14



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -203.56 | 1.30 | 0.96 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1413.63 | 0.00 | -283.98 | Open Pump |
| 1 | 1413.62 | 4.01 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J15

Page 1

12/2/2017 10:29:37 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality              *
*                               Analysis for Pipe Networks                *
*                               Version 2.0                              *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J15.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J15

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J15

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J15

| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|----------------|--------|-------|---------|--------|--------|------|
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1188.46 | 101.05 | 101.05 | 0.00 |
| Demand Charge: | | | | | | 0.00 |
| Total Cost: | | | | | | 0.00 |

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-15 | 1000.00 | 2988.67 | 78.50 | 0.00 |
| J-32 | 3.44 | 2998.99 | 90.12 | 0.00 |
| J-36 | 3.80 | 2999.02 | 74.53 | 0.00 |
| J-37 | 1.72 | 2999.02 | 71.07 | 0.00 |
| J-30 | 4.48 | 2998.63 | 98.85 | 0.00 |
| J-38 | 5.52 | 2998.33 | 82.04 | 0.00 |
| J-39 | 3.44 | 2998.21 | 88.49 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2998.00 | 94.24 | 0.00 |
| J-40 | 2.06 | 2998.21 | 88.27 | 0.00 |
| J-28 | 3.44 | 2997.69 | 102.56 | 0.00 |
| J-27 | 2.06 | 2997.69 | 90.86 | 0.00 |
| J-2 | 1.38 | 2995.53 | 93.82 | 0.00 |
| J-3 | 0.00 | 2993.91 | 86.36 | 0.00 |
| J-4 | 1.38 | 2993.43 | 87.06 | 0.00 |
| J-41 | 5.52 | 2993.06 | 87.90 | 0.00 |
| J-14 | 6.90 | 2990.54 | 89.93 | 0.00 |
| J-11 | 4.14 | 2991.18 | 97.14 | 0.00 |
| J-12 | 49.90 | 2991.17 | 91.07 | 0.00 |
| J-9 | 0.00 | 2991.25 | 105.83 | 0.00 |
| J-6 | 2.07 | 2991.89 | 88.35 | 0.00 |
| J-19 | 3.44 | 2993.67 | 80.88 | 0.00 |
| J-24 | 3.44 | 2993.50 | 80.81 | 0.00 |
| J-20 | 31.00 | 2993.51 | 72.80 | 0.00 |
| J-21 | 12.40 | 2993.45 | 72.77 | 0.00 |
| J-22 | 3.10 | 2993.46 | 72.56 | 0.00 |
| J-5 | 2.76 | 2992.51 | 88.18 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J15

| | | | | |
|-------|-------|---------|--------|------|
| J-17 | 3.10 | 2992.51 | 101.18 | 0.00 |
| J-18 | 1.38 | 2993.43 | 95.51 | 0.00 |
| J-7 | 4.14 | 2991.53 | 97.72 | 0.00 |
| J-13 | 3.45 | 2991.41 | 108.07 | 0.00 |
| J-8 | 3.80 | 2991.34 | 101.97 | 0.00 |
| J-16 | 2.06 | 2988.67 | 73.95 | 0.00 |
| J-23 | 9.30 | 2993.46 | 70.39 | 0.00 |
| J-303 | 11.48 | 2996.96 | 111.34 | 0.00 |
| J-301 | 2.02 | 2997.20 | 116.21 | 0.00 |
| J-10 | 47.88 | 2991.25 | 112.77 | 0.00 |
| J-26 | 2.06 | 2996.04 | 99.67 | 0.00 |
| J-1 | 0.00 | 2996.96 | 95.31 | 0.00 |
| J-102 | 2.70 | 2998.12 | 101.01 | 0.00 |
| J-105 | 3.38 | 2998.12 | 108.81 | 0.00 |
| J-107 | 4.72 | 2998.12 | 113.57 | 0.00 |
| J-111 | 4.06 | 2998.12 | 116.61 | 0.00 |
| J-112 | 1.36 | 2997.97 | 125.21 | 0.00 |
| J-114 | 1.36 | 2997.90 | 126.48 | 0.00 |
| J-115 | 1.36 | 2997.84 | 127.75 | 0.00 |
| J-118 | 1.36 | 2997.79 | 128.17 | 0.00 |
| J-300 | 7.42 | 2997.20 | 117.08 | 0.00 |
| J-302 | 2.70 | 2996.96 | 109.17 | 0.00 |
| J-304 | 2.02 | 2996.94 | 102.23 | 0.00 |
| J-42 | 0.00 | 2998.76 | 99.55 | 0.00 |
| J-31 | 0.00 | 2998.94 | 96.60 | 0.00 |
| J-35 | 0.00 | 2999.03 | 77.14 | 0.00 |
| J-101 | 4.72 | 2999.41 | 115.22 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2998.11 | 116.61 | 0.00 |
| J-33 | 0.00 | 2999.00 | 84.93 | 0.00 |
| J-123 | 3.38 | 2999.00 | 93.16 | 0.00 |
| J-100 | 0.00 | 3000.47 | 121.96 | 0.00 |
| J-103 | 3.38 | 2999.38 | 109.36 | 0.00 |
| J-104 | 3.38 | 2999.17 | 85.43 | 0.00 |
| J-117 | 2.02 | 2997.90 | 123.45 | 0.00 |
| J-110 | 4.06 | 2998.11 | 108.81 | 0.00 |
| J-108 | 2.02 | 2998.11 | 108.37 | 0.00 |
| J-109 | 2.02 | 2998.11 | 107.51 | 0.00 |
| J-305 | 1.36 | 2996.45 | 102.89 | 0.00 |
| S145 | 0.00 | 3000.72 | 123.80 | 0.00 |
| J-207 | 2.70 | 2998.21 | 114.05 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J15

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2998.21 | 116.65 | 0.00 |
| J-206 | 0.68 | 2998.29 | 135.75 | 0.00 |
| J-204 | 2.70 | 2998.62 | 128.96 | 0.00 |
| J-205 | 2.70 | 2998.62 | 120.72 | 0.00 |
| J-203 | 12.82 | 2999.32 | 121.46 | 0.00 |
| J-200 | 7.42 | 3000.25 | 126.20 | 0.00 |
| J-211 | 0.00 | 2999.51 | 118.08 | 0.00 |
| J-201 | 3.38 | 2999.99 | 136.49 | 0.00 |
| J-202 | 10.12 | 2999.99 | 117.85 | 0.00 |
| J-119 | 0.00 | 2997.80 | 132.07 | 0.00 |
| J-120 | 2.02 | 2997.80 | 136.40 | 0.00 |
| J-121 | 0.00 | 2997.80 | 136.40 | 0.00 |
| J-122 | 45.90 | 2997.79 | 139.00 | 0.00 |
| J-210 | 4.06 | 2998.26 | 137.47 | 0.00 |
| J-209 | 0.68 | 2998.28 | 135.31 | 0.00 |
| J-113 | 1.36 | 2997.97 | 124.34 | 0.00 |
| J-116 | 0.68 | 2997.84 | 127.32 | 0.00 |
| J-25 | 5.52 | 2993.56 | 68.49 | 0.00 |
| J-34 | 0.68 | 2999.02 | 82.77 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1417.08 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -29.47 | 0.19 | 0.03 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 111.17 | 0.71 | 0.31 | Open |
| P-4 | 105.65 | 0.67 | 0.28 | Open |
| P-5 | 100.15 | 0.64 | 0.26 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.44 | 0.02 | 0.00 | Open |
| P-8 | 1206.68 | 3.42 | 3.59 | Open |
| P-9 | 987.55 | 2.80 | 2.48 | Open |
| P-10 | 984.79 | 2.79 | 2.46 | Open |
| P-11 | -173.56 | 1.11 | 0.71 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -227.60 | 0.65 | 0.16 | Open |

Sereno Canyon Phase 4 Max Day fire flow J15

| | | | | |
|------|----------|------|------|------|
| P-14 | 219.13 | 1.40 | 1.10 | Open |
| P-15 | 89.00 | 0.57 | 0.21 | Open |
| P-16 | -74.34 | 0.47 | 0.15 | Open |
| P-17 | -86.74 | 0.55 | 0.20 | Open |
| P-18 | -27.89 | 0.18 | 0.02 | Open |
| P-19 | -147.89 | 0.94 | 0.53 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 85.66 | 0.55 | 0.19 | Open |
| P-24 | 240.95 | 1.54 | 1.31 | Open |
| P-25 | 407.61 | 2.60 | 3.47 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | 150.93 | 0.96 | 0.55 | Open |
| P-29 | 1130.20 | 3.21 | 3.18 | Open |
| P-30 | 1124.34 | 3.19 | 3.15 | Open |
| P-31 | 527.82 | 1.50 | 0.78 | Open |
| P-32 | 438.01 | 1.24 | 0.55 | Open |
| P-33 | 275.48 | 0.78 | 0.23 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 202.09 | 1.29 | 0.94 | Open |
| P-36 | -1005.97 | 2.85 | 2.56 | Open |
| P-37 | -760.70 | 2.16 | 1.53 | Open |
| P-38 | -0.68 | 0.00 | 0.00 | Open |
| P-39 | -7.44 | 0.02 | 0.00 | Open |
| P-40 | -20.26 | 0.06 | 0.00 | Open |
| P-41 | 116.13 | 0.74 | 0.34 | Open |
| P-42 | 113.41 | 0.72 | 0.32 | Open |
| P-43 | 110.03 | 0.70 | 0.31 | Open |
| P-44 | 107.99 | 0.69 | 0.30 | Open |
| P-45 | 122.23 | 0.78 | 0.37 | Open |
| P-46 | 112.79 | 0.72 | 0.32 | Open |
| P-47 | 98.61 | 0.28 | 0.03 | Open |
| P-48 | -108.92 | 0.31 | 0.04 | Open |
| P-49 | -354.20 | 2.26 | 2.67 | Open |
| P-50 | -359.70 | 2.30 | 2.75 | Open |
| P-51 | -262.31 | 1.67 | 1.53 | Open |
| P-52 | -377.96 | 2.41 | 3.02 | Open |
| P-53 | -203.61 | 1.30 | 0.96 | Open |
| P-54 | 34.99 | 0.22 | 0.04 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J15

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 223.39 | 1.43 | 1.14 | Open |
| P-58 | 82.27 | 0.53 | 0.18 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1165.17 | 3.31 | 3.36 | Open |
| P-62 | 941.78 | 2.67 | 2.27 | Open |
| P-63 | -140.45 | 0.40 | 0.07 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -143.83 | 0.41 | 0.07 | Open |
| P-66 | -212.77 | 1.36 | 1.04 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -218.17 | 1.39 | 1.09 | Open |
| P-69 | 118.91 | 0.76 | 0.35 | Open |
| P-70 | 118.91 | 0.76 | 0.35 | Open |
| P-71 | -112.07 | 0.72 | 0.32 | Open |
| P-72 | 251.91 | 1.61 | 1.42 | Open |
| P-73 | 125.57 | 0.80 | 0.39 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -17.61 | 0.11 | 0.01 | Open |
| P-77 | -67.57 | 0.19 | 0.02 | Open |
| P-78 | -68.25 | 0.19 | 0.02 | Open |
| P-79 | 82.21 | 0.52 | 0.18 | Open |
| P-80 | 594.45 | 3.79 | 6.97 | Open |
| P-81 | -62.28 | 0.40 | 0.11 | Open |
| P-82 | 67.80 | 0.43 | 0.13 | Open |
| P-83 | 762.72 | 2.16 | 1.53 | Open |
| P-84 | 174.35 | 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 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 15.59 | 0.10 | 0.01 | Open |
| P-90 | -63.51 | 0.41 | 0.11 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -43.21 | 0.28 | 0.05 | Open |
| P-93 | -69.25 | 0.44 | 0.13 | Open |
| P-94 | 134.36 | 0.86 | 0.44 | Open |
| P-95 | -46.59 | 0.30 | 0.06 | Open |
| P-96 | -47.27 | 0.30 | 0.06 | Open |
| P-97 | 85.65 | 0.55 | 0.19 | Open |
| P-98 | -205.51 | 1.31 | 0.97 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1417.08 | 1.00 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J15



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -204.15 | 1.30 | 0.96 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1417.09 | 0.00 | -283.72 | Open Pump |
| 1 | 1417.08 | 4.02 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J16

Page 1

12/2/2017 10:29:53 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality              *
*                               Analysis for Pipe Networks                *
*                               Version 2.0                              *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J16.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J16

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J16

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J16

| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|-------|--------|-------|---------|--------|----------------|------|
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1188.02 | 101.11 | 101.11 | 0.00 |
| | | | | | Demand Charge: | 0.00 |
| | | | | | Total Cost: | 0.00 |

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-16 | 1000.00 | 2984.43 | 72.12 | 0.00 |
| J-32 | 3.44 | 2998.88 | 90.08 | 0.00 |
| J-36 | 3.80 | 2998.91 | 74.49 | 0.00 |
| J-37 | 1.72 | 2998.91 | 71.02 | 0.00 |
| J-30 | 4.48 | 2998.52 | 98.80 | 0.00 |
| J-38 | 5.52 | 2998.22 | 81.99 | 0.00 |
| J-39 | 3.44 | 2998.10 | 88.44 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2997.89 | 94.19 | 0.00 |
| J-40 | 2.06 | 2998.10 | 88.22 | 0.00 |
| J-28 | 3.44 | 2997.58 | 102.51 | 0.00 |
| J-27 | 2.06 | 2997.58 | 90.81 | 0.00 |
| J-2 | 1.38 | 2995.42 | 93.77 | 0.00 |
| J-3 | 0.00 | 2993.79 | 86.31 | 0.00 |
| J-4 | 1.38 | 2993.31 | 87.01 | 0.00 |
| J-41 | 5.52 | 2992.94 | 87.85 | 0.00 |
| J-14 | 6.90 | 2990.42 | 89.87 | 0.00 |
| J-11 | 4.14 | 2991.05 | 97.08 | 0.00 |
| J-12 | 49.90 | 2991.05 | 91.01 | 0.00 |
| J-9 | 0.00 | 2991.13 | 105.78 | 0.00 |
| J-6 | 2.07 | 2991.77 | 88.29 | 0.00 |
| J-19 | 3.44 | 2993.55 | 80.83 | 0.00 |
| J-24 | 3.44 | 2993.38 | 80.76 | 0.00 |
| J-20 | 31.00 | 2993.39 | 72.75 | 0.00 |
| J-21 | 12.40 | 2993.33 | 72.72 | 0.00 |
| J-22 | 3.10 | 2993.34 | 72.51 | 0.00 |
| J-5 | 2.76 | 2992.39 | 88.13 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J16

| | | | | |
|-------|-------|---------|--------|------|
| J-17 | 3.10 | 2992.39 | 101.13 | 0.00 |
| J-18 | 1.38 | 2993.31 | 95.46 | 0.00 |
| J-7 | 4.14 | 2991.41 | 97.67 | 0.00 |
| J-13 | 3.45 | 2991.29 | 108.02 | 0.00 |
| J-8 | 3.80 | 2991.22 | 101.92 | 0.00 |
| J-15 | 3.44 | 2988.54 | 78.44 | 0.00 |
| J-23 | 9.30 | 2993.34 | 70.34 | 0.00 |
| J-303 | 11.48 | 2996.85 | 111.29 | 0.00 |
| J-301 | 2.02 | 2997.09 | 116.16 | 0.00 |
| J-10 | 47.88 | 2991.12 | 112.71 | 0.00 |
| J-26 | 2.06 | 2995.92 | 99.63 | 0.00 |
| J-1 | 0.00 | 2996.85 | 95.26 | 0.00 |
| J-102 | 2.70 | 2998.01 | 100.96 | 0.00 |
| J-105 | 3.38 | 2998.01 | 108.76 | 0.00 |
| J-107 | 4.72 | 2998.01 | 113.53 | 0.00 |
| J-111 | 4.06 | 2998.01 | 116.56 | 0.00 |
| J-112 | 1.36 | 2997.86 | 125.16 | 0.00 |
| J-114 | 1.36 | 2997.79 | 126.43 | 0.00 |
| J-115 | 1.36 | 2997.73 | 127.71 | 0.00 |
| J-118 | 1.36 | 2997.68 | 128.12 | 0.00 |
| J-300 | 7.42 | 2997.09 | 117.03 | 0.00 |
| J-302 | 2.70 | 2996.85 | 109.13 | 0.00 |
| J-304 | 2.02 | 2996.83 | 102.19 | 0.00 |
| J-42 | 0.00 | 2998.65 | 99.51 | 0.00 |
| J-31 | 0.00 | 2998.83 | 96.55 | 0.00 |
| J-35 | 0.00 | 2998.93 | 77.09 | 0.00 |
| J-101 | 4.72 | 2999.31 | 115.17 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2998.01 | 116.56 | 0.00 |
| J-33 | 0.00 | 2998.90 | 84.88 | 0.00 |
| J-123 | 3.38 | 2998.90 | 93.11 | 0.00 |
| J-100 | 0.00 | 3000.36 | 121.91 | 0.00 |
| J-103 | 3.38 | 2999.28 | 109.31 | 0.00 |
| J-104 | 3.38 | 2999.06 | 85.39 | 0.00 |
| J-117 | 2.02 | 2997.79 | 123.40 | 0.00 |
| J-110 | 4.06 | 2998.01 | 108.76 | 0.00 |
| J-108 | 2.02 | 2998.01 | 108.33 | 0.00 |
| J-109 | 2.02 | 2998.01 | 107.46 | 0.00 |
| J-305 | 1.36 | 2996.34 | 102.84 | 0.00 |
| S145 | 0.00 | 3000.61 | 123.76 | 0.00 |
| J-207 | 2.70 | 2998.10 | 114.00 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J16

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2998.10 | 116.60 | 0.00 |
| J-206 | 0.68 | 2998.18 | 135.70 | 0.00 |
| J-204 | 2.70 | 2998.51 | 128.91 | 0.00 |
| J-205 | 2.70 | 2998.51 | 120.68 | 0.00 |
| J-203 | 12.82 | 2999.21 | 121.42 | 0.00 |
| J-200 | 7.42 | 3000.15 | 126.15 | 0.00 |
| J-211 | 0.00 | 2999.40 | 118.03 | 0.00 |
| J-201 | 3.38 | 2999.89 | 136.44 | 0.00 |
| J-202 | 10.12 | 2999.88 | 117.81 | 0.00 |
| J-119 | 0.00 | 2997.69 | 132.02 | 0.00 |
| J-120 | 2.02 | 2997.69 | 136.35 | 0.00 |
| J-121 | 0.00 | 2997.69 | 136.36 | 0.00 |
| J-122 | 45.90 | 2997.68 | 138.95 | 0.00 |
| J-210 | 4.06 | 2998.15 | 137.42 | 0.00 |
| J-209 | 0.68 | 2998.17 | 135.26 | 0.00 |
| J-113 | 1.36 | 2997.86 | 124.30 | 0.00 |
| J-116 | 0.68 | 2997.73 | 127.27 | 0.00 |
| J-25 | 5.52 | 2993.44 | 68.43 | 0.00 |
| J-34 | 0.68 | 2998.91 | 82.72 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1418.46 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -29.51 | 0.19 | 0.03 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 111.28 | 0.71 | 0.31 | Open |
| P-4 | 105.76 | 0.68 | 0.28 | Open |
| P-5 | 100.26 | 0.64 | 0.26 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.44 | 0.02 | 0.00 | Open |
| P-8 | 1208.06 | 3.43 | 3.60 | Open |
| P-9 | 988.71 | 2.80 | 2.48 | Open |
| P-10 | 985.95 | 2.80 | 2.47 | Open |
| P-11 | -173.81 | 1.11 | 0.72 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -227.85 | 0.65 | 0.16 | Open |

Sereno Canyon Phase 4 Max Day fire flow J16

| | | | | |
|------|----------|------|-------|------|
| P-14 | 219.35 | 1.40 | 1.10 | Open |
| P-15 | 89.11 | 0.57 | 0.21 | Open |
| P-16 | -74.44 | 0.48 | 0.15 | Open |
| P-17 | -86.84 | 0.55 | 0.20 | Open |
| P-18 | -27.93 | 0.18 | 0.02 | Open |
| P-19 | -148.04 | 0.94 | 0.53 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 85.76 | 0.55 | 0.19 | Open |
| P-24 | 241.27 | 1.54 | 1.31 | Open |
| P-25 | 408.18 | 2.61 | 3.48 | Open |
| P-26 | 1000.00 | 6.38 | 18.27 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | 151.15 | 0.96 | 0.55 | Open |
| P-29 | 1131.58 | 3.21 | 3.19 | Open |
| P-30 | 1125.72 | 3.19 | 3.16 | Open |
| P-31 | 528.39 | 1.50 | 0.78 | Open |
| P-32 | 438.50 | 1.24 | 0.55 | Open |
| P-33 | 275.73 | 0.78 | 0.23 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 202.32 | 1.29 | 0.95 | Open |
| P-36 | -1007.12 | 2.86 | 2.57 | Open |
| P-37 | -761.54 | 2.16 | 1.53 | Open |
| P-38 | -0.76 | 0.00 | 0.00 | Open |
| P-39 | -7.52 | 0.02 | 0.00 | Open |
| P-40 | -20.34 | 0.06 | 0.00 | Open |
| P-41 | 116.22 | 0.74 | 0.34 | Open |
| P-42 | 113.50 | 0.72 | 0.32 | Open |
| P-43 | 110.12 | 0.70 | 0.31 | Open |
| P-44 | 108.08 | 0.69 | 0.30 | Open |
| P-45 | 122.37 | 0.78 | 0.37 | Open |
| P-46 | 112.93 | 0.72 | 0.32 | Open |
| P-47 | 98.75 | 0.28 | 0.03 | Open |
| P-48 | -109.01 | 0.31 | 0.04 | Open |
| P-49 | -354.59 | 2.26 | 2.68 | Open |
| P-50 | -360.09 | 2.30 | 2.76 | Open |
| P-51 | -262.58 | 1.68 | 1.54 | Open |
| P-52 | -378.35 | 2.41 | 3.02 | Open |
| P-53 | -203.83 | 1.30 | 0.96 | Open |
| P-54 | 35.03 | 0.22 | 0.04 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J16

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 223.61 | 1.43 | 1.14 | Open |
| P-58 | 82.35 | 0.53 | 0.18 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1166.33 | 3.31 | 3.37 | Open |
| P-62 | 942.72 | 2.67 | 2.27 | Open |
| P-63 | -140.62 | 0.40 | 0.07 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -144.00 | 0.41 | 0.07 | Open |
| P-66 | -212.99 | 1.36 | 1.04 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -218.39 | 1.39 | 1.09 | Open |
| P-69 | 119.03 | 0.76 | 0.35 | Open |
| P-70 | 119.03 | 0.76 | 0.35 | Open |
| P-71 | -112.19 | 0.72 | 0.32 | Open |
| P-72 | 252.13 | 1.61 | 1.42 | Open |
| P-73 | 125.69 | 0.80 | 0.39 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -17.67 | 0.11 | 0.01 | Open |
| P-77 | -67.63 | 0.19 | 0.02 | Open |
| P-78 | -68.31 | 0.19 | 0.02 | Open |
| P-79 | 82.31 | 0.53 | 0.18 | Open |
| P-80 | 595.26 | 3.80 | 6.99 | Open |
| P-81 | -62.35 | 0.40 | 0.11 | Open |
| P-82 | 67.87 | 0.43 | 0.13 | Open |
| P-83 | 763.48 | 2.17 | 1.54 | Open |
| P-84 | 174.52 | 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 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 15.65 | 0.10 | 0.01 | Open |
| P-90 | -63.57 | 0.41 | 0.11 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -43.26 | 0.28 | 0.05 | Open |
| P-93 | -69.33 | 0.44 | 0.13 | Open |
| P-94 | 134.50 | 0.86 | 0.44 | Open |
| P-95 | -46.64 | 0.30 | 0.06 | Open |
| P-96 | -47.32 | 0.30 | 0.06 | Open |
| P-97 | 85.73 | 0.55 | 0.19 | Open |
| P-98 | -205.74 | 1.31 | 0.98 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1418.46 | 1.01 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J16



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -204.38 | 1.30 | 0.97 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1418.47 | 0.00 | -283.62 | Open Pump |
| 1 | 1418.46 | 4.02 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J17

Page 1

12/2/2017 10:30:06 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality                *
*                               Analysis for Pipe Networks                  *
*                               Version 2.0                                *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J17.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J17

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J17

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J17

| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|-------|--------|-------|---------|--------|----------------|------|
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1188.35 | 101.06 | 101.06 | 0.00 |
| | | | | | Demand Charge: | 0.00 |
| | | | | | Total Cost: | 0.00 |

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-17 | 1000.00 | 2981.75 | 96.52 | 0.00 |
| J-32 | 3.44 | 2998.96 | 90.11 | 0.00 |
| J-36 | 3.80 | 2998.99 | 74.52 | 0.00 |
| J-37 | 1.72 | 2998.99 | 71.06 | 0.00 |
| J-30 | 4.48 | 2998.60 | 98.84 | 0.00 |
| J-38 | 5.52 | 2998.30 | 82.02 | 0.00 |
| J-39 | 3.44 | 2998.19 | 88.47 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2997.97 | 94.23 | 0.00 |
| J-40 | 2.06 | 2998.19 | 88.26 | 0.00 |
| J-28 | 3.44 | 2997.66 | 102.54 | 0.00 |
| J-27 | 2.06 | 2997.66 | 90.85 | 0.00 |
| J-2 | 1.38 | 2995.51 | 93.81 | 0.00 |
| J-3 | 0.00 | 2993.88 | 86.35 | 0.00 |
| J-4 | 1.38 | 2993.40 | 87.05 | 0.00 |
| J-41 | 5.52 | 2993.03 | 87.89 | 0.00 |
| J-14 | 6.90 | 2992.45 | 90.75 | 0.00 |
| J-11 | 4.14 | 2992.44 | 97.68 | 0.00 |
| J-12 | 49.90 | 2992.43 | 91.61 | 0.00 |
| J-9 | 0.00 | 2992.44 | 106.35 | 0.00 |
| J-6 | 2.07 | 2992.47 | 88.60 | 0.00 |
| J-19 | 3.44 | 2993.64 | 80.87 | 0.00 |
| J-24 | 3.44 | 2993.47 | 80.80 | 0.00 |
| J-20 | 31.00 | 2993.48 | 72.79 | 0.00 |
| J-21 | 12.40 | 2993.42 | 72.76 | 0.00 |
| J-22 | 3.10 | 2993.43 | 72.55 | 0.00 |
| J-5 | 2.76 | 2992.48 | 88.17 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J17

| | | | | |
|-------|-------|---------|--------|------|
| J-18 | 1.38 | 2993.40 | 95.50 | 0.00 |
| J-7 | 4.14 | 2992.46 | 98.12 | 0.00 |
| J-13 | 3.45 | 2992.45 | 108.52 | 0.00 |
| J-8 | 3.80 | 2992.45 | 102.45 | 0.00 |
| J-15 | 3.44 | 2992.46 | 80.14 | 0.00 |
| J-16 | 2.06 | 2992.46 | 75.59 | 0.00 |
| J-23 | 9.30 | 2993.43 | 70.38 | 0.00 |
| J-303 | 11.48 | 2996.93 | 111.33 | 0.00 |
| J-301 | 2.02 | 2997.17 | 116.20 | 0.00 |
| J-10 | 47.88 | 2992.44 | 113.28 | 0.00 |
| J-26 | 2.06 | 2996.01 | 99.66 | 0.00 |
| J-1 | 0.00 | 2996.94 | 95.30 | 0.00 |
| J-102 | 2.70 | 2998.09 | 101.00 | 0.00 |
| J-105 | 3.38 | 2998.09 | 108.80 | 0.00 |
| J-107 | 4.72 | 2998.09 | 113.56 | 0.00 |
| J-111 | 4.06 | 2998.09 | 116.60 | 0.00 |
| J-112 | 1.36 | 2997.94 | 125.20 | 0.00 |
| J-114 | 1.36 | 2997.87 | 126.47 | 0.00 |
| J-115 | 1.36 | 2997.81 | 127.74 | 0.00 |
| J-118 | 1.36 | 2997.77 | 128.16 | 0.00 |
| J-300 | 7.42 | 2997.17 | 117.07 | 0.00 |
| J-302 | 2.70 | 2996.93 | 109.16 | 0.00 |
| J-304 | 2.02 | 2996.91 | 102.22 | 0.00 |
| J-42 | 0.00 | 2998.73 | 99.54 | 0.00 |
| J-31 | 0.00 | 2998.91 | 96.59 | 0.00 |
| J-35 | 0.00 | 2999.01 | 77.13 | 0.00 |
| J-101 | 4.72 | 2999.39 | 115.21 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2998.09 | 116.60 | 0.00 |
| J-33 | 0.00 | 2998.98 | 84.92 | 0.00 |
| J-123 | 3.38 | 2998.98 | 93.15 | 0.00 |
| J-100 | 0.00 | 3000.44 | 121.95 | 0.00 |
| J-103 | 3.38 | 2999.36 | 109.35 | 0.00 |
| J-104 | 3.38 | 2999.14 | 85.42 | 0.00 |
| J-117 | 2.02 | 2997.87 | 123.44 | 0.00 |
| J-110 | 4.06 | 2998.09 | 108.80 | 0.00 |
| J-108 | 2.02 | 2998.09 | 108.36 | 0.00 |
| J-109 | 2.02 | 2998.09 | 107.50 | 0.00 |
| J-305 | 1.36 | 2996.42 | 102.87 | 0.00 |
| S145 | 0.00 | 3000.69 | 123.79 | 0.00 |
| J-207 | 2.70 | 2998.19 | 114.04 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J17

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2998.19 | 116.64 | 0.00 |
| J-206 | 0.68 | 2998.26 | 135.74 | 0.00 |
| J-204 | 2.70 | 2998.59 | 128.95 | 0.00 |
| J-205 | 2.70 | 2998.59 | 120.71 | 0.00 |
| J-203 | 12.82 | 2999.29 | 121.45 | 0.00 |
| J-200 | 7.42 | 3000.23 | 126.19 | 0.00 |
| J-211 | 0.00 | 2999.48 | 118.07 | 0.00 |
| J-201 | 3.38 | 2999.96 | 136.47 | 0.00 |
| J-202 | 10.12 | 2999.96 | 117.84 | 0.00 |
| J-119 | 0.00 | 2997.77 | 132.06 | 0.00 |
| J-120 | 2.02 | 2997.77 | 136.39 | 0.00 |
| J-121 | 0.00 | 2997.77 | 136.39 | 0.00 |
| J-122 | 45.90 | 2997.77 | 138.99 | 0.00 |
| J-210 | 4.06 | 2998.23 | 137.46 | 0.00 |
| J-209 | 0.68 | 2998.25 | 135.30 | 0.00 |
| J-113 | 1.36 | 2997.94 | 124.33 | 0.00 |
| J-116 | 0.68 | 2997.81 | 127.31 | 0.00 |
| J-25 | 5.52 | 2993.53 | 68.47 | 0.00 |
| J-34 | 0.68 | 2998.99 | 82.76 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1417.42 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -29.48 | 0.19 | 0.03 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 111.20 | 0.71 | 0.31 | Open |
| P-4 | 105.68 | 0.67 | 0.28 | Open |
| P-5 | 100.18 | 0.64 | 0.26 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.44 | 0.02 | 0.00 | Open |
| P-8 | 1207.02 | 3.42 | 3.59 | Open |
| P-9 | 987.83 | 2.80 | 2.48 | Open |
| P-10 | 985.07 | 2.79 | 2.46 | Open |
| P-11 | 19.96 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -34.08 | 0.10 | 0.00 | Open |

Sereno Canyon Phase 4 Max Day fire flow J17

| | | | | |
|------|----------|------|-------|------|
| P-14 | 219.19 | 1.40 | 1.10 | Open |
| P-15 | 89.02 | 0.57 | 0.21 | Open |
| P-16 | -74.36 | 0.47 | 0.15 | Open |
| P-17 | -86.76 | 0.55 | 0.20 | Open |
| P-18 | -27.90 | 0.18 | 0.02 | Open |
| P-19 | -147.93 | 0.94 | 0.53 | Open |
| P-20 | 1000.00 | 6.38 | 18.27 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.52 | 0.02 | 0.00 | Open |
| P-25 | -24.34 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | 150.99 | 0.96 | 0.55 | Open |
| P-29 | 1130.54 | 3.21 | 3.18 | Open |
| P-30 | 127.78 | 0.36 | 0.06 | Open |
| P-31 | 95.87 | 0.27 | 0.03 | Open |
| P-32 | 75.84 | 0.22 | 0.02 | Open |
| P-33 | 81.96 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 202.14 | 1.29 | 0.95 | Open |
| P-36 | -1006.26 | 2.85 | 2.56 | Open |
| P-37 | -760.90 | 2.16 | 1.53 | Open |
| P-38 | -0.70 | 0.00 | 0.00 | Open |
| P-39 | -7.46 | 0.02 | 0.00 | Open |
| P-40 | -20.28 | 0.06 | 0.00 | Open |
| P-41 | 116.16 | 0.74 | 0.34 | Open |
| P-42 | 113.44 | 0.72 | 0.32 | Open |
| P-43 | 110.06 | 0.70 | 0.31 | Open |
| P-44 | 108.02 | 0.69 | 0.30 | Open |
| P-45 | 122.26 | 0.78 | 0.37 | Open |
| P-46 | 112.82 | 0.72 | 0.32 | Open |
| P-47 | 98.64 | 0.28 | 0.03 | Open |
| P-48 | -108.94 | 0.31 | 0.04 | Open |
| P-49 | -354.29 | 2.26 | 2.67 | Open |
| P-50 | -359.79 | 2.30 | 2.75 | Open |
| P-51 | -262.37 | 1.67 | 1.53 | Open |
| P-52 | -378.05 | 2.41 | 3.02 | Open |
| P-53 | -203.66 | 1.30 | 0.96 | Open |
| P-54 | 35.00 | 0.22 | 0.04 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J17

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 223.44 | 1.43 | 1.14 | Open |
| P-58 | 82.29 | 0.53 | 0.18 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1165.46 | 3.31 | 3.37 | Open |
| P-62 | 942.01 | 2.67 | 2.27 | Open |
| P-63 | -140.50 | 0.40 | 0.07 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -143.88 | 0.41 | 0.07 | Open |
| P-66 | -212.82 | 1.36 | 1.04 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -218.22 | 1.39 | 1.09 | Open |
| P-69 | 118.94 | 0.76 | 0.35 | Open |
| P-70 | 118.94 | 0.76 | 0.35 | Open |
| P-71 | -112.10 | 0.72 | 0.32 | Open |
| P-72 | 251.96 | 1.61 | 1.42 | Open |
| P-73 | 125.60 | 0.80 | 0.39 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -17.63 | 0.11 | 0.01 | Open |
| P-77 | -67.59 | 0.19 | 0.02 | Open |
| P-78 | -68.27 | 0.19 | 0.02 | Open |
| P-79 | 12.43 | 0.08 | 0.01 | Open |
| P-80 | 29.84 | 0.19 | 0.03 | Open |
| P-81 | -62.30 | 0.40 | 0.11 | Open |
| P-82 | 67.82 | 0.43 | 0.13 | Open |
| P-83 | 762.90 | 2.16 | 1.54 | Open |
| P-84 | 174.39 | 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 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 15.61 | 0.10 | 0.01 | Open |
| P-90 | -63.53 | 0.41 | 0.11 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -43.22 | 0.28 | 0.05 | Open |
| P-93 | -69.27 | 0.44 | 0.13 | Open |
| P-94 | 134.40 | 0.86 | 0.44 | Open |
| P-95 | -46.60 | 0.30 | 0.06 | Open |
| P-96 | -47.28 | 0.30 | 0.06 | Open |
| P-97 | 85.67 | 0.55 | 0.19 | Open |
| P-98 | -205.56 | 1.31 | 0.98 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1417.42 | 1.01 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J17



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -204.20 | 1.30 | 0.96 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1417.42 | 0.00 | -283.69 | Open Pump |
| 1 | 1417.42 | 4.02 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J18

Page 1

12/2/2017 10:30:20 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality              *
*                               Analysis for Pipe Networks                *
*                               Version 2.0                              *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J18.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J18

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J18

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J18

| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|----------------|--------|-------|---------|--------|--------|------|
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1187.81 | 101.14 | 101.14 | 0.00 |
| Demand Charge: | | | | | | 0.00 |
| Total Cost: | | | | | | 0.00 |

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-18 | 1000.00 | 2986.30 | 92.42 | 0.00 |
| J-32 | 3.44 | 2998.83 | 90.05 | 0.00 |
| J-36 | 3.80 | 2998.86 | 74.47 | 0.00 |
| J-37 | 1.72 | 2998.86 | 71.00 | 0.00 |
| J-30 | 4.48 | 2998.47 | 98.78 | 0.00 |
| J-38 | 5.52 | 2998.17 | 81.97 | 0.00 |
| J-39 | 3.44 | 2998.05 | 88.42 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2997.83 | 94.17 | 0.00 |
| J-40 | 2.06 | 2998.05 | 88.20 | 0.00 |
| J-28 | 3.44 | 2997.52 | 102.49 | 0.00 |
| J-27 | 2.06 | 2997.52 | 90.79 | 0.00 |
| J-2 | 1.38 | 2995.36 | 93.75 | 0.00 |
| J-3 | 0.00 | 2993.74 | 86.29 | 0.00 |
| J-4 | 1.38 | 2993.21 | 86.97 | 0.00 |
| J-41 | 5.52 | 2993.21 | 87.97 | 0.00 |
| J-14 | 6.90 | 2993.17 | 91.07 | 0.00 |
| J-11 | 4.14 | 2993.16 | 97.99 | 0.00 |
| J-12 | 49.90 | 2993.15 | 91.93 | 0.00 |
| J-9 | 0.00 | 2993.16 | 106.66 | 0.00 |
| J-6 | 2.07 | 2993.19 | 88.91 | 0.00 |
| J-19 | 3.44 | 2993.57 | 80.84 | 0.00 |
| J-24 | 3.44 | 2993.46 | 80.79 | 0.00 |
| J-20 | 31.00 | 2993.46 | 72.78 | 0.00 |
| J-21 | 12.40 | 2993.43 | 72.76 | 0.00 |
| J-22 | 3.10 | 2993.43 | 72.55 | 0.00 |
| J-5 | 2.76 | 2993.20 | 88.48 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J18

| | | | | |
|-------|-------|---------|--------|------|
| J-17 | 3.10 | 2993.20 | 101.48 | 0.00 |
| J-7 | 4.14 | 2993.18 | 98.44 | 0.00 |
| J-13 | 3.45 | 2993.17 | 108.83 | 0.00 |
| J-8 | 3.80 | 2993.17 | 102.76 | 0.00 |
| J-15 | 3.44 | 2993.18 | 80.45 | 0.00 |
| J-16 | 2.06 | 2993.18 | 75.90 | 0.00 |
| J-23 | 9.30 | 2993.43 | 70.38 | 0.00 |
| J-303 | 11.48 | 2996.79 | 111.27 | 0.00 |
| J-301 | 2.02 | 2997.04 | 116.14 | 0.00 |
| J-10 | 47.88 | 2993.15 | 113.59 | 0.00 |
| J-26 | 2.06 | 2995.87 | 99.60 | 0.00 |
| J-1 | 0.00 | 2996.80 | 95.24 | 0.00 |
| J-102 | 2.70 | 2997.95 | 100.94 | 0.00 |
| J-105 | 3.38 | 2997.95 | 108.74 | 0.00 |
| J-107 | 4.72 | 2997.95 | 113.50 | 0.00 |
| J-111 | 4.06 | 2997.96 | 116.54 | 0.00 |
| J-112 | 1.36 | 2997.80 | 125.14 | 0.00 |
| J-114 | 1.36 | 2997.74 | 126.41 | 0.00 |
| J-115 | 1.36 | 2997.68 | 127.68 | 0.00 |
| J-118 | 1.36 | 2997.63 | 128.10 | 0.00 |
| J-300 | 7.42 | 2997.04 | 117.01 | 0.00 |
| J-302 | 2.70 | 2996.79 | 109.10 | 0.00 |
| J-304 | 2.02 | 2996.78 | 102.16 | 0.00 |
| J-42 | 0.00 | 2998.60 | 99.48 | 0.00 |
| J-31 | 0.00 | 2998.78 | 96.53 | 0.00 |
| J-35 | 0.00 | 2998.87 | 77.07 | 0.00 |
| J-101 | 4.72 | 2999.25 | 115.15 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2997.95 | 116.54 | 0.00 |
| J-33 | 0.00 | 2998.84 | 84.86 | 0.00 |
| J-123 | 3.38 | 2998.84 | 93.09 | 0.00 |
| J-100 | 0.00 | 3000.31 | 121.89 | 0.00 |
| J-103 | 3.38 | 2999.23 | 109.29 | 0.00 |
| J-104 | 3.38 | 2999.01 | 85.37 | 0.00 |
| J-117 | 2.02 | 2997.74 | 123.38 | 0.00 |
| J-110 | 4.06 | 2997.95 | 108.74 | 0.00 |
| J-108 | 2.02 | 2997.95 | 108.30 | 0.00 |
| J-109 | 2.02 | 2997.95 | 107.44 | 0.00 |
| J-305 | 1.36 | 2996.28 | 102.81 | 0.00 |
| S145 | 0.00 | 3000.56 | 123.73 | 0.00 |
| J-207 | 2.70 | 2998.05 | 113.98 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J18

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2998.05 | 116.58 | 0.00 |
| J-206 | 0.68 | 2998.12 | 135.68 | 0.00 |
| J-204 | 2.70 | 2998.46 | 128.89 | 0.00 |
| J-205 | 2.70 | 2998.46 | 120.65 | 0.00 |
| J-203 | 12.82 | 2999.16 | 121.39 | 0.00 |
| J-200 | 7.42 | 3000.10 | 126.13 | 0.00 |
| J-211 | 0.00 | 2999.35 | 118.01 | 0.00 |
| J-201 | 3.38 | 2999.83 | 136.42 | 0.00 |
| J-202 | 10.12 | 2999.83 | 117.78 | 0.00 |
| J-119 | 0.00 | 2997.63 | 132.00 | 0.00 |
| J-120 | 2.02 | 2997.63 | 136.33 | 0.00 |
| J-121 | 0.00 | 2997.64 | 136.33 | 0.00 |
| J-122 | 45.90 | 2997.63 | 138.93 | 0.00 |
| J-210 | 4.06 | 2998.10 | 137.40 | 0.00 |
| J-209 | 0.68 | 2998.12 | 135.24 | 0.00 |
| J-113 | 1.36 | 2997.80 | 124.27 | 0.00 |
| J-116 | 0.68 | 2997.68 | 127.25 | 0.00 |
| J-25 | 5.52 | 2993.49 | 68.46 | 0.00 |
| J-34 | 0.68 | 2998.86 | 82.70 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1419.14 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -29.52 | 0.19 | 0.03 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 111.34 | 0.71 | 0.31 | Open |
| P-4 | 105.82 | 0.68 | 0.29 | Open |
| P-5 | 100.32 | 0.64 | 0.26 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.44 | 0.02 | 0.00 | Open |
| P-8 | 1208.74 | 3.43 | 3.60 | Open |
| P-9 | 1030.74 | 2.92 | 2.68 | Open |
| P-10 | 29.36 | 0.08 | 0.00 | Open |
| P-11 | 19.96 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -34.08 | 0.10 | 0.00 | Open |

Sereno Canyon Phase 4 Max Day fire flow J18

| | | | | |
|------|----------|------|-------|------|
| P-14 | 178.00 | 1.14 | 0.75 | Open |
| P-15 | 67.64 | 0.43 | 0.13 | Open |
| P-16 | -54.56 | 0.35 | 0.08 | Open |
| P-17 | -66.96 | 0.43 | 0.12 | Open |
| P-18 | -20.97 | 0.13 | 0.01 | Open |
| P-19 | -119.61 | 0.76 | 0.36 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1000.00 | 6.38 | 18.27 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.52 | 0.02 | 0.00 | Open |
| P-25 | -24.34 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | 109.80 | 0.70 | 0.31 | Open |
| P-29 | 133.64 | 0.38 | 0.06 | Open |
| P-30 | 127.78 | 0.36 | 0.06 | Open |
| P-31 | 95.87 | 0.27 | 0.03 | Open |
| P-32 | 75.84 | 0.22 | 0.02 | Open |
| P-33 | 81.96 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 202.44 | 1.29 | 0.95 | Open |
| P-36 | -1007.68 | 2.86 | 2.57 | Open |
| P-37 | -761.96 | 2.16 | 1.53 | Open |
| P-38 | -0.80 | 0.00 | 0.00 | Open |
| P-39 | -7.56 | 0.02 | 0.00 | Open |
| P-40 | -20.38 | 0.06 | 0.00 | Open |
| P-41 | 116.27 | 0.74 | 0.34 | Open |
| P-42 | 113.55 | 0.72 | 0.33 | Open |
| P-43 | 110.17 | 0.70 | 0.31 | Open |
| P-44 | 108.13 | 0.69 | 0.30 | Open |
| P-45 | 122.44 | 0.78 | 0.37 | Open |
| P-46 | 113.00 | 0.72 | 0.32 | Open |
| P-47 | 98.82 | 0.28 | 0.03 | Open |
| P-48 | -109.05 | 0.31 | 0.04 | Open |
| P-49 | -354.78 | 2.26 | 2.68 | Open |
| P-50 | -360.28 | 2.30 | 2.76 | Open |
| P-51 | -262.72 | 1.68 | 1.54 | Open |
| P-52 | -378.54 | 2.42 | 3.02 | Open |
| P-53 | -203.93 | 1.30 | 0.96 | Open |
| P-54 | 35.04 | 0.22 | 0.04 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J18

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 223.71 | 1.43 | 1.14 | Open |
| P-58 | 82.39 | 0.53 | 0.18 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1166.90 | 3.31 | 3.37 | Open |
| P-62 | 943.18 | 2.68 | 2.27 | Open |
| P-63 | -140.71 | 0.40 | 0.07 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -144.09 | 0.41 | 0.07 | Open |
| P-66 | -213.10 | 1.36 | 1.04 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -218.50 | 1.39 | 1.09 | Open |
| P-69 | 119.08 | 0.76 | 0.35 | Open |
| P-70 | 119.08 | 0.76 | 0.36 | Open |
| P-71 | -112.24 | 0.72 | 0.32 | Open |
| P-72 | 252.24 | 1.61 | 1.43 | Open |
| P-73 | 125.74 | 0.80 | 0.39 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -17.70 | 0.11 | 0.01 | Open |
| P-77 | -67.66 | 0.19 | 0.02 | Open |
| P-78 | -68.34 | 0.19 | 0.02 | Open |
| P-79 | 12.43 | 0.08 | 0.00 | Open |
| P-80 | 29.84 | 0.19 | 0.03 | Open |
| P-81 | -49.43 | 0.32 | 0.07 | Open |
| P-82 | 54.95 | 0.35 | 0.08 | Open |
| P-83 | 763.86 | 2.17 | 1.54 | Open |
| P-84 | 174.60 | 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 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 15.68 | 0.10 | 0.01 | Open |
| P-90 | -63.60 | 0.41 | 0.11 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -43.28 | 0.28 | 0.05 | Open |
| P-93 | -69.37 | 0.44 | 0.13 | Open |
| P-94 | 134.57 | 0.86 | 0.45 | Open |
| P-95 | -46.66 | 0.30 | 0.06 | Open |
| P-96 | -47.34 | 0.30 | 0.06 | Open |
| P-97 | 85.77 | 0.55 | 0.19 | Open |
| P-98 | -205.86 | 1.31 | 0.98 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1419.14 | 1.01 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J18



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -204.50 | 1.31 | 0.97 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1419.15 | 0.00 | -283.56 | Open Pump |
| 1 | 1419.14 | 4.03 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J19

Page 1

12/2/2017 11:24:51 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality              *
*                               Analysis for Pipe Networks                *
*                               Version 2.0                              *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J19.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J19

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J19

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J19

| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|----------------|--------|-------|---------|--------|--------|------|
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1188.46 | 101.05 | 101.05 | 0.00 |
| Demand Charge: | | | | | | 0.00 |
| Total Cost: | | | | | | 0.00 |

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-19 | 1000.00 | 2991.61 | 79.99 | 0.00 |
| J-32 | 3.44 | 2998.99 | 90.12 | 0.00 |
| J-36 | 3.80 | 2999.02 | 74.53 | 0.00 |
| J-37 | 1.72 | 2999.02 | 71.07 | 0.00 |
| J-30 | 4.48 | 2998.63 | 98.85 | 0.00 |
| J-38 | 5.52 | 2998.33 | 82.04 | 0.00 |
| J-39 | 3.44 | 2998.21 | 88.49 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2998.00 | 94.24 | 0.00 |
| J-40 | 2.06 | 2998.21 | 88.27 | 0.00 |
| J-28 | 3.44 | 2997.69 | 102.56 | 0.00 |
| J-27 | 2.06 | 2997.69 | 90.86 | 0.00 |
| J-2 | 1.38 | 2995.53 | 93.82 | 0.00 |
| J-3 | 0.00 | 2993.91 | 86.36 | 0.00 |
| J-4 | 1.38 | 2993.79 | 87.22 | 0.00 |
| J-41 | 5.52 | 2993.69 | 88.17 | 0.00 |
| J-14 | 6.90 | 2993.65 | 91.27 | 0.00 |
| J-11 | 4.14 | 2993.64 | 98.20 | 0.00 |
| J-12 | 49.90 | 2993.63 | 92.13 | 0.00 |
| J-9 | 0.00 | 2993.64 | 106.87 | 0.00 |
| J-6 | 2.07 | 2993.67 | 89.12 | 0.00 |
| J-24 | 3.44 | 2991.89 | 80.11 | 0.00 |
| J-20 | 31.00 | 2991.85 | 72.08 | 0.00 |
| J-21 | 12.40 | 2992.04 | 72.16 | 0.00 |
| J-22 | 3.10 | 2991.98 | 71.92 | 0.00 |
| J-5 | 2.76 | 2993.68 | 88.69 | 0.00 |
| J-17 | 3.10 | 2993.68 | 101.69 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J19

| | | | | |
|-------|-------|---------|--------|------|
| J-18 | 1.38 | 2993.79 | 95.67 | 0.00 |
| J-7 | 4.14 | 2993.66 | 98.64 | 0.00 |
| J-13 | 3.45 | 2993.65 | 109.04 | 0.00 |
| J-8 | 3.80 | 2993.65 | 102.97 | 0.00 |
| J-15 | 3.44 | 2993.66 | 80.66 | 0.00 |
| J-16 | 2.06 | 2993.66 | 76.11 | 0.00 |
| J-23 | 9.30 | 2991.98 | 69.75 | 0.00 |
| J-303 | 11.48 | 2996.96 | 111.34 | 0.00 |
| J-301 | 2.02 | 2997.20 | 116.21 | 0.00 |
| J-10 | 47.88 | 2993.64 | 113.80 | 0.00 |
| J-26 | 2.06 | 2996.04 | 99.67 | 0.00 |
| J-1 | 0.00 | 2996.96 | 95.31 | 0.00 |
| J-102 | 2.70 | 2998.12 | 101.01 | 0.00 |
| J-105 | 3.38 | 2998.12 | 108.81 | 0.00 |
| J-107 | 4.72 | 2998.12 | 113.57 | 0.00 |
| J-111 | 4.06 | 2998.12 | 116.61 | 0.00 |
| J-112 | 1.36 | 2997.97 | 125.21 | 0.00 |
| J-114 | 1.36 | 2997.90 | 126.48 | 0.00 |
| J-115 | 1.36 | 2997.84 | 127.75 | 0.00 |
| J-118 | 1.36 | 2997.79 | 128.17 | 0.00 |
| J-300 | 7.42 | 2997.20 | 117.08 | 0.00 |
| J-302 | 2.70 | 2996.96 | 109.17 | 0.00 |
| J-304 | 2.02 | 2996.94 | 102.23 | 0.00 |
| J-42 | 0.00 | 2998.76 | 99.55 | 0.00 |
| J-31 | 0.00 | 2998.94 | 96.60 | 0.00 |
| J-35 | 0.00 | 2999.03 | 77.14 | 0.00 |
| J-101 | 4.72 | 2999.41 | 115.22 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2998.11 | 116.61 | 0.00 |
| J-33 | 0.00 | 2999.00 | 84.93 | 0.00 |
| J-123 | 3.38 | 2999.00 | 93.16 | 0.00 |
| J-100 | 0.00 | 3000.47 | 121.96 | 0.00 |
| J-103 | 3.38 | 2999.38 | 109.36 | 0.00 |
| J-104 | 3.38 | 2999.17 | 85.43 | 0.00 |
| J-117 | 2.02 | 2997.90 | 123.45 | 0.00 |
| J-110 | 4.06 | 2998.11 | 108.81 | 0.00 |
| J-108 | 2.02 | 2998.11 | 108.37 | 0.00 |
| J-109 | 2.02 | 2998.11 | 107.51 | 0.00 |
| J-305 | 1.36 | 2996.45 | 102.89 | 0.00 |
| S145 | 0.00 | 3000.72 | 123.80 | 0.00 |
| J-207 | 2.70 | 2998.21 | 114.05 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J19

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2998.21 | 116.65 | 0.00 |
| J-206 | 0.68 | 2998.29 | 135.75 | 0.00 |
| J-204 | 2.70 | 2998.62 | 128.96 | 0.00 |
| J-205 | 2.70 | 2998.62 | 120.72 | 0.00 |
| J-203 | 12.82 | 2999.32 | 121.46 | 0.00 |
| J-200 | 7.42 | 3000.25 | 126.20 | 0.00 |
| J-211 | 0.00 | 2999.51 | 118.08 | 0.00 |
| J-201 | 3.38 | 2999.99 | 136.49 | 0.00 |
| J-202 | 10.12 | 2999.99 | 117.85 | 0.00 |
| J-119 | 0.00 | 2997.80 | 132.07 | 0.00 |
| J-120 | 2.02 | 2997.80 | 136.40 | 0.00 |
| J-121 | 0.00 | 2997.80 | 136.40 | 0.00 |
| J-122 | 45.90 | 2997.79 | 139.00 | 0.00 |
| J-210 | 4.06 | 2998.26 | 137.47 | 0.00 |
| J-209 | 0.68 | 2998.28 | 135.31 | 0.00 |
| J-113 | 1.36 | 2997.97 | 124.34 | 0.00 |
| J-116 | 0.68 | 2997.84 | 127.32 | 0.00 |
| J-25 | 5.52 | 2991.78 | 67.71 | 0.00 |
| J-34 | 0.68 | 2999.02 | 82.77 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1417.08 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -29.47 | 0.19 | 0.03 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 111.17 | 0.71 | 0.31 | Open |
| P-4 | 105.65 | 0.67 | 0.28 | Open |
| P-5 | 100.15 | 0.64 | 0.26 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.44 | 0.02 | 0.00 | Open |
| P-8 | 1206.68 | 3.42 | 3.59 | Open |
| P-9 | 473.62 | 1.34 | 0.64 | Open |
| P-10 | 470.86 | 1.34 | 0.63 | Open |
| P-11 | 19.96 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -34.08 | 0.10 | 0.00 | Open |

Sereno Canyon Phase 4 Max Day fire flow J19

| | | | | |
|------|----------|------|-------|------|
| P-14 | 733.06 | 4.68 | 10.28 | Open |
| P-15 | -161.85 | 1.03 | 0.63 | Open |
| P-16 | 157.45 | 1.00 | 0.59 | Open |
| P-17 | 145.05 | 0.93 | 0.51 | Open |
| P-18 | 52.78 | 0.34 | 0.08 | Open |
| P-19 | 183.63 | 1.17 | 0.79 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.52 | 0.02 | 0.00 | Open |
| P-25 | -24.34 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | -331.70 | 2.12 | 2.37 | Open |
| P-29 | 133.64 | 0.38 | 0.06 | Open |
| P-30 | 127.78 | 0.36 | 0.06 | Open |
| P-31 | 95.87 | 0.27 | 0.03 | Open |
| P-32 | 75.84 | 0.22 | 0.02 | Open |
| P-33 | 81.96 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 202.09 | 1.29 | 0.94 | Open |
| P-36 | -1005.97 | 2.85 | 2.56 | Open |
| P-37 | -760.70 | 2.16 | 1.53 | Open |
| P-38 | -0.68 | 0.00 | 0.00 | Open |
| P-39 | -7.44 | 0.02 | 0.00 | Open |
| P-40 | -20.26 | 0.06 | 0.00 | Open |
| P-41 | 116.13 | 0.74 | 0.34 | Open |
| P-42 | 113.41 | 0.72 | 0.32 | Open |
| P-43 | 110.03 | 0.70 | 0.31 | Open |
| P-44 | 107.99 | 0.69 | 0.30 | Open |
| P-45 | 122.23 | 0.78 | 0.37 | Open |
| P-46 | 112.79 | 0.72 | 0.32 | Open |
| P-47 | 98.61 | 0.28 | 0.03 | Open |
| P-48 | -108.92 | 0.31 | 0.04 | Open |
| P-49 | -354.20 | 2.26 | 2.67 | Open |
| P-50 | -359.70 | 2.30 | 2.75 | Open |
| P-51 | -262.31 | 1.67 | 1.53 | Open |
| P-52 | -377.96 | 2.41 | 3.02 | Open |
| P-53 | -203.61 | 1.30 | 0.96 | Open |
| P-54 | 34.99 | 0.22 | 0.04 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J19

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 223.39 | 1.43 | 1.14 | Open |
| P-58 | 82.27 | 0.53 | 0.18 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1165.17 | 3.31 | 3.36 | Open |
| P-62 | 941.78 | 2.67 | 2.27 | Open |
| P-63 | -140.45 | 0.40 | 0.07 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -143.83 | 0.41 | 0.07 | Open |
| P-66 | -212.77 | 1.36 | 1.04 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -218.17 | 1.39 | 1.09 | Open |
| P-69 | 118.91 | 0.76 | 0.35 | Open |
| P-70 | 118.91 | 0.76 | 0.35 | Open |
| P-71 | -112.07 | 0.72 | 0.32 | Open |
| P-72 | 251.91 | 1.61 | 1.42 | Open |
| P-73 | 125.57 | 0.80 | 0.39 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -17.61 | 0.11 | 0.01 | Open |
| P-77 | -67.57 | 0.19 | 0.02 | Open |
| P-78 | -68.25 | 0.19 | 0.02 | Open |
| P-79 | 12.43 | 0.08 | 0.01 | Open |
| P-80 | 29.84 | 0.19 | 0.03 | Open |
| P-81 | 88.83 | 0.57 | 0.21 | Open |
| P-82 | -83.31 | 0.53 | 0.18 | Open |
| P-83 | 762.72 | 2.16 | 1.53 | Open |
| P-84 | 174.35 | 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 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 15.59 | 0.10 | 0.01 | Open |
| P-90 | -63.51 | 0.41 | 0.11 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -43.21 | 0.28 | 0.05 | Open |
| P-93 | -69.25 | 0.44 | 0.13 | Open |
| P-94 | 134.36 | 0.86 | 0.44 | Open |
| P-95 | -46.59 | 0.30 | 0.06 | Open |
| P-96 | -47.27 | 0.30 | 0.06 | Open |
| P-97 | 85.65 | 0.55 | 0.19 | Open |
| P-98 | -205.51 | 1.31 | 0.97 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1417.08 | 1.00 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J19



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -204.15 | 1.30 | 0.96 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1417.09 | 0.00 | -283.72 | Open Pump |
| 1 | 1417.08 | 4.02 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J20

Page 1

12/2/2017 10:31:00 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality              *
*                               Analysis for Pipe Networks                *
*                               Version 2.0                              *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J20.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 12 |
| P-20 | J-5 | J-17 | 587.4 | 8 |
| P-22 | J-18 | J-4 | 378.4 | 8 |
| P-23 | J-7 | J-13 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J20

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J20

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J20

| PUMP1 | 100.00 | 75.00 | 1176.84 | 30.75 | 30.75 | 0.00 |
|----------------|--------|-------|---------|--------|--------|------|
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1176.84 | 102.67 | 102.67 | 0.00 |
| Demand Charge: | | | | | | 0.00 |
| Total Cost: | | | | | | 0.00 |

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-20 | 1500.00 | 2983.97 | 68.67 | 0.00 |
| J-32 | 3.44 | 2994.99 | 88.39 | 0.00 |
| J-36 | 3.80 | 2995.04 | 72.81 | 0.00 |
| J-37 | 1.72 | 2995.04 | 69.35 | 0.00 |
| J-30 | 4.48 | 2994.34 | 96.99 | 0.00 |
| J-38 | 5.52 | 2993.82 | 80.08 | 0.00 |
| J-39 | 3.44 | 2993.62 | 86.50 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2993.23 | 92.17 | 0.00 |
| J-40 | 2.06 | 2993.62 | 86.28 | 0.00 |
| J-28 | 3.44 | 2992.67 | 100.38 | 0.00 |
| J-27 | 2.06 | 2992.67 | 88.68 | 0.00 |
| J-2 | 1.38 | 2988.73 | 90.88 | 0.00 |
| J-3 | 0.00 | 2985.74 | 82.82 | 0.00 |
| J-4 | 1.38 | 2985.64 | 83.69 | 0.00 |
| J-41 | 5.52 | 2985.56 | 84.65 | 0.00 |
| J-14 | 6.90 | 2985.52 | 87.75 | 0.00 |
| J-11 | 4.14 | 2985.51 | 94.68 | 0.00 |
| J-12 | 49.90 | 2985.50 | 88.61 | 0.00 |
| J-9 | 0.00 | 2985.51 | 103.35 | 0.00 |
| J-6 | 2.07 | 2985.54 | 85.59 | 0.00 |
| J-19 | 3.44 | 2984.88 | 77.08 | 0.00 |
| J-24 | 3.44 | 2984.30 | 76.82 | 0.00 |
| J-21 | 12.40 | 2984.31 | 68.81 | 0.00 |
| J-22 | 3.10 | 2984.30 | 68.59 | 0.00 |
| J-5 | 2.76 | 2985.55 | 85.17 | 0.00 |
| J-17 | 3.10 | 2985.55 | 98.16 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J20

| | | | | |
|-------|-------|---------|--------|------|
| J-18 | 1.38 | 2985.64 | 92.14 | 0.00 |
| J-7 | 4.14 | 2985.53 | 95.12 | 0.00 |
| J-13 | 3.45 | 2985.52 | 105.52 | 0.00 |
| J-8 | 3.80 | 2985.52 | 99.45 | 0.00 |
| J-15 | 3.44 | 2985.53 | 77.14 | 0.00 |
| J-16 | 2.06 | 2985.53 | 72.59 | 0.00 |
| J-23 | 9.30 | 2984.30 | 66.43 | 0.00 |
| J-303 | 11.48 | 2991.37 | 108.92 | 0.00 |
| J-301 | 2.02 | 2991.85 | 113.89 | 0.00 |
| J-10 | 47.88 | 2985.50 | 110.28 | 0.00 |
| J-26 | 2.06 | 2989.66 | 96.91 | 0.00 |
| J-1 | 0.00 | 2991.36 | 92.88 | 0.00 |
| J-102 | 2.70 | 2993.46 | 98.99 | 0.00 |
| J-105 | 3.38 | 2993.46 | 106.79 | 0.00 |
| J-107 | 4.72 | 2993.46 | 111.56 | 0.00 |
| J-111 | 4.06 | 2993.47 | 114.59 | 0.00 |
| J-112 | 1.36 | 2993.23 | 123.16 | 0.00 |
| J-114 | 1.36 | 2993.13 | 124.41 | 0.00 |
| J-115 | 1.36 | 2993.04 | 125.67 | 0.00 |
| J-118 | 1.36 | 2992.96 | 126.07 | 0.00 |
| J-300 | 7.42 | 2991.85 | 114.76 | 0.00 |
| J-302 | 2.70 | 2991.37 | 106.75 | 0.00 |
| J-304 | 2.02 | 2991.33 | 99.80 | 0.00 |
| J-42 | 0.00 | 2994.57 | 97.74 | 0.00 |
| J-31 | 0.00 | 2994.90 | 94.85 | 0.00 |
| J-35 | 0.00 | 2995.07 | 75.42 | 0.00 |
| J-101 | 4.72 | 2995.70 | 113.61 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2993.46 | 114.59 | 0.00 |
| J-33 | 0.00 | 2995.01 | 83.20 | 0.00 |
| J-123 | 3.38 | 2995.01 | 91.43 | 0.00 |
| J-100 | 0.00 | 2997.51 | 120.68 | 0.00 |
| J-103 | 3.38 | 2995.67 | 107.75 | 0.00 |
| J-104 | 3.38 | 2995.31 | 83.76 | 0.00 |
| J-117 | 2.02 | 2993.13 | 121.38 | 0.00 |
| J-110 | 4.06 | 2993.46 | 106.79 | 0.00 |
| J-108 | 2.02 | 2993.46 | 106.36 | 0.00 |
| J-109 | 2.02 | 2993.46 | 105.49 | 0.00 |
| J-305 | 1.36 | 2990.42 | 100.28 | 0.00 |
| S145 | 0.00 | 2997.94 | 122.60 | 0.00 |
| J-207 | 2.70 | 2993.65 | 112.07 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J20

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2993.65 | 114.67 | 0.00 |
| J-206 | 0.68 | 2993.79 | 133.80 | 0.00 |
| J-204 | 2.70 | 2994.37 | 127.12 | 0.00 |
| J-205 | 2.70 | 2994.37 | 118.88 | 0.00 |
| J-203 | 12.82 | 2995.60 | 119.85 | 0.00 |
| J-200 | 7.42 | 2997.18 | 124.87 | 0.00 |
| J-211 | 0.00 | 2995.92 | 116.52 | 0.00 |
| J-201 | 3.38 | 2996.75 | 135.08 | 0.00 |
| J-202 | 10.12 | 2996.75 | 116.45 | 0.00 |
| J-119 | 0.00 | 2992.98 | 129.98 | 0.00 |
| J-120 | 2.02 | 2992.98 | 134.31 | 0.00 |
| J-121 | 0.00 | 2992.99 | 134.32 | 0.00 |
| J-122 | 45.90 | 2992.99 | 136.92 | 0.00 |
| J-210 | 4.06 | 2993.74 | 135.51 | 0.00 |
| J-209 | 0.68 | 2993.78 | 133.36 | 0.00 |
| J-113 | 1.36 | 2993.23 | 122.29 | 0.00 |
| J-116 | 0.68 | 2993.04 | 125.24 | 0.00 |
| J-25 | 5.52 | 2984.51 | 64.56 | 0.00 |
| J-34 | 0.68 | 2995.04 | 81.05 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1889.52 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -40.91 | 0.26 | 0.05 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 149.60 | 0.95 | 0.54 | Open |
| P-4 | 144.08 | 0.92 | 0.51 | Open |
| P-5 | 138.58 | 0.88 | 0.47 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.44 | 0.02 | 0.00 | Open |
| P-8 | 1679.12 | 4.76 | 6.62 | Open |
| P-9 | 427.06 | 1.21 | 0.52 | Open |
| P-10 | 424.30 | 1.20 | 0.52 | Open |
| P-11 | 19.94 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -34.10 | 0.10 | 0.00 | Open |

Sereno Canyon Phase 4 Max Day fire flow J20

| | | | | |
|------|----------|------|------|------|
| P-14 | 1252.06 | 3.55 | 3.84 | Open |
| P-15 | -219.56 | 1.40 | 1.10 | Open |
| P-16 | 53.18 | 0.34 | 0.08 | Open |
| P-17 | 40.78 | 0.26 | 0.05 | Open |
| P-18 | 163.22 | 1.04 | 0.64 | Open |
| P-19 | -1117.23 | 3.17 | 3.11 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.48 | 0.02 | 0.00 | Open |
| P-25 | -24.35 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | -285.14 | 1.82 | 1.79 | Open |
| P-29 | 133.64 | 0.38 | 0.06 | Open |
| P-30 | 127.78 | 0.36 | 0.06 | Open |
| P-31 | 95.86 | 0.27 | 0.03 | Open |
| P-32 | 75.84 | 0.22 | 0.02 | Open |
| P-33 | 81.98 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 281.98 | 1.80 | 1.75 | Open |
| P-36 | -1398.52 | 3.97 | 4.72 | Open |
| P-37 | -1049.62 | 2.98 | 2.77 | Open |
| P-38 | -27.55 | 0.08 | 0.00 | Open |
| P-39 | -34.31 | 0.10 | 0.01 | Open |
| P-40 | -47.13 | 0.13 | 0.01 | Open |
| P-41 | 146.93 | 0.94 | 0.52 | Open |
| P-42 | 144.21 | 0.92 | 0.51 | Open |
| P-43 | 140.83 | 0.90 | 0.48 | Open |
| P-44 | 138.79 | 0.89 | 0.47 | Open |
| P-45 | 172.32 | 1.10 | 0.70 | Open |
| P-46 | 162.88 | 1.04 | 0.63 | Open |
| P-47 | 148.70 | 0.42 | 0.07 | Open |
| P-48 | -138.72 | 0.39 | 0.07 | Open |
| P-49 | -487.62 | 3.11 | 4.83 | Open |
| P-50 | -493.12 | 3.15 | 4.93 | Open |
| P-51 | -357.30 | 2.28 | 2.72 | Open |
| P-52 | -511.38 | 3.26 | 5.28 | Open |
| P-53 | -278.07 | 1.77 | 1.71 | Open |
| P-54 | 46.43 | 0.30 | 0.06 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J20

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 297.85 | 1.90 | 1.94 | Open |
| P-58 | 110.38 | 0.70 | 0.31 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1560.65 | 4.43 | 5.78 | Open |
| P-62 | 1262.80 | 3.58 | 3.90 | Open |
| P-63 | -198.12 | 0.56 | 0.13 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -201.50 | 0.57 | 0.13 | Open |
| P-66 | -289.73 | 1.85 | 1.84 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -295.13 | 1.88 | 1.91 | Open |
| P-69 | 157.95 | 1.01 | 0.60 | Open |
| P-70 | 157.95 | 1.01 | 0.60 | Open |
| P-71 | -150.00 | 0.96 | 0.54 | Open |
| P-72 | 328.87 | 2.10 | 2.33 | Open |
| P-73 | 163.50 | 1.04 | 0.64 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -36.91 | 0.24 | 0.04 | Open |
| P-77 | -86.87 | 0.25 | 0.03 | Open |
| P-78 | -87.55 | 0.25 | 0.03 | Open |
| P-79 | 12.43 | 0.08 | 0.01 | Open |
| P-80 | 29.85 | 0.19 | 0.03 | Open |
| P-81 | -125.88 | 0.80 | 0.39 | Open |
| P-82 | 131.40 | 0.84 | 0.43 | Open |
| P-83 | 1024.77 | 2.91 | 2.65 | Open |
| P-84 | 233.31 | 1.49 | 1.23 | Open |
| P-85 | -8.10 | 0.05 | 0.00 | Open |
| P-86 | -1.36 | 0.01 | 0.00 | Open |
| P-87 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 34.89 | 0.22 | 0.04 | Open |
| P-90 | -82.81 | 0.53 | 0.18 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -59.90 | 0.38 | 0.10 | Open |
| P-93 | -97.36 | 0.62 | 0.24 | Open |
| P-94 | 180.71 | 1.15 | 0.77 | Open |
| P-95 | -63.28 | 0.40 | 0.11 | Open |
| P-96 | -63.96 | 0.41 | 0.11 | Open |
| P-97 | 113.76 | 0.73 | 0.33 | Open |
| P-98 | -285.40 | 1.82 | 1.79 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1889.52 | 1.34 | 0.29 | Open |

Sereno Canyon Phase 4 Max Day fire flow J20



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -284.04 | 1.81 | 1.78 | Open |
| PUMP1 | 435.46 | 0.00 | -280.95 | Open Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1454.07 | 0.00 | -280.95 | Open Pump |
| 1 | 1889.52 | 5.36 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J21

Page 1

12/2/2017 10:31:13 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality                 *
*                               Analysis for Pipe Networks                   *
*                               Version 2.0                                 *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J21.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J21

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J21

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J21

| | | | | | | |
|-------|--------|-------|---------|--------|--------|------|
| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1001.92 | 114.71 | 114.71 | 0.00 |

Demand Charge: 0.00
Total Cost: 0.00

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-21 | 1500.00 | 2937.11 | 48.36 | 0.00 |
| J-32 | 3.44 | 2953.18 | 70.27 | 0.00 |
| J-36 | 3.80 | 2953.23 | 54.70 | 0.00 |
| J-37 | 1.72 | 2953.23 | 51.23 | 0.00 |
| J-30 | 4.48 | 2952.52 | 78.87 | 0.00 |
| J-38 | 5.52 | 2951.99 | 61.96 | 0.00 |
| J-39 | 3.44 | 2951.78 | 68.37 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2951.38 | 74.04 | 0.00 |
| J-40 | 2.06 | 2951.78 | 68.15 | 0.00 |
| J-28 | 3.44 | 2950.82 | 82.25 | 0.00 |
| J-27 | 2.06 | 2950.82 | 70.55 | 0.00 |
| J-2 | 1.38 | 2946.80 | 72.71 | 0.00 |
| J-3 | 0.00 | 2943.74 | 64.62 | 0.00 |
| J-4 | 1.38 | 2943.41 | 65.39 | 0.00 |
| J-41 | 5.52 | 2943.15 | 66.28 | 0.00 |
| J-14 | 6.90 | 2943.11 | 69.38 | 0.00 |
| J-11 | 4.14 | 2943.10 | 76.30 | 0.00 |
| J-12 | 49.90 | 2943.10 | 70.24 | 0.00 |
| J-9 | 0.00 | 2943.10 | 84.97 | 0.00 |
| J-6 | 2.07 | 2943.13 | 67.22 | 0.00 |
| J-19 | 3.44 | 2940.46 | 57.83 | 0.00 |
| J-24 | 3.44 | 2938.09 | 56.80 | 0.00 |
| J-20 | 31.00 | 2938.34 | 48.89 | 0.00 |
| J-22 | 3.10 | 2937.42 | 48.28 | 0.00 |
| J-5 | 2.76 | 2943.14 | 66.79 | 0.00 |
| J-17 | 3.10 | 2943.14 | 79.79 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J21

| | | | | |
|-------|-------|---------|--------|------|
| J-18 | 1.38 | 2943.41 | 73.84 | 0.00 |
| J-7 | 4.14 | 2943.12 | 76.74 | 0.00 |
| J-13 | 3.45 | 2943.11 | 87.14 | 0.00 |
| J-8 | 3.80 | 2943.11 | 81.07 | 0.00 |
| J-15 | 3.44 | 2943.12 | 58.76 | 0.00 |
| J-16 | 2.06 | 2943.12 | 54.21 | 0.00 |
| J-23 | 9.30 | 2937.42 | 46.11 | 0.00 |
| J-303 | 11.48 | 2949.48 | 90.77 | 0.00 |
| J-301 | 2.02 | 2949.97 | 95.75 | 0.00 |
| J-10 | 47.88 | 2943.10 | 91.90 | 0.00 |
| J-26 | 2.06 | 2947.75 | 78.75 | 0.00 |
| J-1 | 0.00 | 2949.48 | 74.74 | 0.00 |
| J-102 | 2.70 | 2951.61 | 80.86 | 0.00 |
| J-105 | 3.38 | 2951.62 | 88.66 | 0.00 |
| J-107 | 4.72 | 2951.62 | 93.43 | 0.00 |
| J-111 | 4.06 | 2951.63 | 96.47 | 0.00 |
| J-112 | 1.36 | 2951.39 | 105.03 | 0.00 |
| J-114 | 1.36 | 2951.29 | 106.28 | 0.00 |
| J-115 | 1.36 | 2951.19 | 107.54 | 0.00 |
| J-118 | 1.36 | 2951.11 | 107.94 | 0.00 |
| J-300 | 7.42 | 2949.97 | 96.61 | 0.00 |
| J-302 | 2.70 | 2949.48 | 88.60 | 0.00 |
| J-304 | 2.02 | 2949.45 | 81.65 | 0.00 |
| J-42 | 0.00 | 2952.75 | 79.62 | 0.00 |
| J-31 | 0.00 | 2953.08 | 76.73 | 0.00 |
| J-35 | 0.00 | 2953.26 | 57.31 | 0.00 |
| J-101 | 4.72 | 2953.90 | 95.50 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2951.62 | 96.46 | 0.00 |
| J-33 | 0.00 | 2953.20 | 65.08 | 0.00 |
| J-123 | 3.38 | 2953.20 | 73.32 | 0.00 |
| J-100 | 0.00 | 2955.75 | 102.58 | 0.00 |
| J-103 | 3.38 | 2953.87 | 89.64 | 0.00 |
| J-104 | 3.38 | 2953.50 | 65.65 | 0.00 |
| J-117 | 2.02 | 2951.29 | 103.25 | 0.00 |
| J-110 | 4.06 | 2951.62 | 88.66 | 0.00 |
| J-108 | 2.02 | 2951.62 | 88.23 | 0.00 |
| J-109 | 2.02 | 2951.62 | 87.36 | 0.00 |
| J-305 | 1.36 | 2948.52 | 82.12 | 0.00 |
| S145 | 0.00 | 2956.18 | 104.51 | 0.00 |
| J-207 | 2.70 | 2951.81 | 93.95 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J21

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2951.81 | 96.55 | 0.00 |
| J-206 | 0.68 | 2951.95 | 115.67 | 0.00 |
| J-204 | 2.70 | 2952.55 | 109.00 | 0.00 |
| J-205 | 2.70 | 2952.55 | 100.76 | 0.00 |
| J-203 | 12.82 | 2953.80 | 101.74 | 0.00 |
| J-200 | 7.42 | 2955.41 | 106.77 | 0.00 |
| J-211 | 0.00 | 2954.13 | 98.41 | 0.00 |
| J-201 | 3.38 | 2954.98 | 116.98 | 0.00 |
| J-202 | 10.12 | 2954.97 | 98.35 | 0.00 |
| J-119 | 0.00 | 2951.13 | 111.85 | 0.00 |
| J-120 | 2.02 | 2951.13 | 116.18 | 0.00 |
| J-121 | 0.00 | 2951.15 | 116.19 | 0.00 |
| J-122 | 45.90 | 2951.14 | 118.78 | 0.00 |
| J-210 | 4.06 | 2951.91 | 117.38 | 0.00 |
| J-209 | 0.68 | 2951.95 | 115.23 | 0.00 |
| J-113 | 1.36 | 2951.39 | 104.16 | 0.00 |
| J-116 | 0.68 | 2951.19 | 107.11 | 0.00 |
| J-25 | 5.52 | 2938.96 | 44.83 | 0.00 |
| J-34 | 0.68 | 2953.23 | 62.93 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1908.12 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -41.36 | 0.26 | 0.05 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 151.12 | 0.96 | 0.55 | Open |
| P-4 | 145.60 | 0.93 | 0.52 | Open |
| P-5 | 140.10 | 0.89 | 0.48 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.44 | 0.02 | 0.00 | Open |
| P-8 | 1697.72 | 4.82 | 6.76 | Open |
| P-9 | 809.53 | 2.30 | 1.71 | Open |
| P-10 | 806.77 | 2.29 | 1.70 | Open |
| P-11 | 19.94 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -34.10 | 0.10 | 0.00 | Open |

Sereno Canyon Phase 4 Max Day fire flow J21

| | | | | |
|------|----------|------|-------|------|
| P-14 | 888.19 | 5.67 | 14.66 | Open |
| P-15 | 436.60 | 2.79 | 3.94 | Open |
| P-16 | -395.79 | 2.53 | 3.28 | Open |
| P-17 | -408.19 | 2.61 | 3.48 | Open |
| P-18 | -140.06 | 0.89 | 0.48 | Open |
| P-19 | -607.66 | 3.88 | 7.26 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.48 | 0.02 | 0.00 | Open |
| P-25 | -24.35 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | -667.61 | 4.26 | 8.64 | Open |
| P-29 | 133.64 | 0.38 | 0.06 | Open |
| P-30 | 127.78 | 0.36 | 0.06 | Open |
| P-31 | 95.86 | 0.27 | 0.03 | Open |
| P-32 | 75.84 | 0.22 | 0.02 | Open |
| P-33 | 81.98 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 285.13 | 1.82 | 1.79 | Open |
| P-36 | -1413.97 | 4.01 | 4.81 | Open |
| P-37 | -1060.99 | 3.01 | 2.83 | Open |
| P-38 | -28.60 | 0.08 | 0.00 | Open |
| P-39 | -35.36 | 0.10 | 0.01 | Open |
| P-40 | -48.18 | 0.14 | 0.01 | Open |
| P-41 | 148.15 | 0.95 | 0.53 | Open |
| P-42 | 145.43 | 0.93 | 0.51 | Open |
| P-43 | 142.05 | 0.91 | 0.49 | Open |
| P-44 | 140.01 | 0.89 | 0.48 | Open |
| P-45 | 174.29 | 1.11 | 0.72 | Open |
| P-46 | 164.85 | 1.05 | 0.65 | Open |
| P-47 | 150.67 | 0.43 | 0.08 | Open |
| P-48 | -139.90 | 0.40 | 0.07 | Open |
| P-49 | -492.88 | 3.15 | 4.93 | Open |
| P-50 | -498.38 | 3.18 | 5.03 | Open |
| P-51 | -361.04 | 2.30 | 2.77 | Open |
| P-52 | -516.64 | 3.30 | 5.38 | Open |
| P-53 | -281.00 | 1.79 | 1.74 | Open |
| P-54 | 46.88 | 0.30 | 0.06 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J21

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 300.78 | 1.92 | 1.97 | Open |
| P-58 | 111.49 | 0.71 | 0.31 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1576.22 | 4.47 | 5.89 | Open |
| P-62 | 1275.44 | 3.62 | 3.98 | Open |
| P-63 | -200.39 | 0.57 | 0.13 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -203.77 | 0.58 | 0.13 | Open |
| P-66 | -292.76 | 1.87 | 1.88 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -298.16 | 1.90 | 1.94 | Open |
| P-69 | 159.49 | 1.02 | 0.61 | Open |
| P-70 | 159.49 | 1.02 | 0.61 | Open |
| P-71 | -151.49 | 0.97 | 0.55 | Open |
| P-72 | 331.90 | 2.12 | 2.37 | Open |
| P-73 | 164.99 | 1.05 | 0.65 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -37.66 | 0.24 | 0.04 | Open |
| P-77 | -87.62 | 0.25 | 0.03 | Open |
| P-78 | -88.30 | 0.25 | 0.03 | Open |
| P-79 | 12.43 | 0.08 | 0.00 | Open |
| P-80 | 29.85 | 0.19 | 0.03 | Open |
| P-81 | -271.57 | 1.73 | 1.63 | Open |
| P-82 | 277.09 | 1.77 | 1.70 | Open |
| P-83 | 1035.09 | 2.94 | 2.70 | Open |
| P-84 | 235.63 | 1.50 | 1.26 | Open |
| P-85 | -8.10 | 0.05 | 0.00 | Open |
| P-86 | -1.36 | 0.01 | 0.00 | Open |
| P-87 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 35.64 | 0.23 | 0.04 | Open |
| P-90 | -83.56 | 0.53 | 0.18 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -60.55 | 0.39 | 0.10 | Open |
| P-93 | -98.47 | 0.63 | 0.25 | Open |
| P-94 | 182.53 | 1.17 | 0.78 | Open |
| P-95 | -63.93 | 0.41 | 0.11 | Open |
| P-96 | -64.61 | 0.41 | 0.11 | Open |
| P-97 | 114.87 | 0.73 | 0.33 | Open |
| P-98 | -288.55 | 1.84 | 1.83 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1908.12 | 1.35 | 0.29 | Open |

Sereno Canyon Phase 4 Max Day fire flow J21



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -287.19 | 1.83 | 1.81 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1908.13 | 0.00 | -239.19 | Open Pump |
| 1 | 1908.12 | 5.41 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J22

Page 1

12/2/2017 10:31:25 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality              *
*                               Analysis for Pipe Networks                *
*                               Version 2.0                              *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J22.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J22

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J22

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J22

| | | | | | | |
|-------|--------|-------|--------|--------|--------|------|
| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 998.03 | 114.82 | 114.82 | 0.00 |

Demand Charge: 0.00
Total Cost: 0.00

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-22 | 1500.00 | 2934.96 | 47.21 | 0.00 |
| J-32 | 3.44 | 2952.22 | 69.86 | 0.00 |
| J-36 | 3.80 | 2952.27 | 54.28 | 0.00 |
| J-37 | 1.72 | 2952.27 | 50.81 | 0.00 |
| J-30 | 4.48 | 2951.55 | 78.45 | 0.00 |
| J-38 | 5.52 | 2951.02 | 61.54 | 0.00 |
| J-39 | 3.44 | 2950.81 | 67.95 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2950.41 | 73.62 | 0.00 |
| J-40 | 2.06 | 2950.81 | 67.73 | 0.00 |
| J-28 | 3.44 | 2949.84 | 81.82 | 0.00 |
| J-27 | 2.06 | 2949.84 | 70.12 | 0.00 |
| J-2 | 1.38 | 2945.78 | 72.26 | 0.00 |
| J-3 | 0.00 | 2942.69 | 64.17 | 0.00 |
| J-4 | 1.38 | 2942.37 | 64.94 | 0.00 |
| J-41 | 5.52 | 2942.13 | 65.83 | 0.00 |
| J-14 | 6.90 | 2942.09 | 68.93 | 0.00 |
| J-11 | 4.14 | 2942.08 | 75.86 | 0.00 |
| J-12 | 49.90 | 2942.07 | 69.79 | 0.00 |
| J-9 | 0.00 | 2942.08 | 84.53 | 0.00 |
| J-6 | 2.07 | 2942.11 | 66.78 | 0.00 |
| J-19 | 3.44 | 2939.19 | 57.28 | 0.00 |
| J-24 | 3.44 | 2936.23 | 56.00 | 0.00 |
| J-20 | 31.00 | 2937.08 | 48.35 | 0.00 |
| J-21 | 12.40 | 2936.47 | 48.08 | 0.00 |
| J-5 | 2.76 | 2942.12 | 66.35 | 0.00 |
| J-17 | 3.10 | 2942.12 | 79.35 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J22

| | | | | |
|-------|-------|---------|--------|------|
| J-18 | 1.38 | 2942.37 | 73.39 | 0.00 |
| J-7 | 4.14 | 2942.10 | 76.30 | 0.00 |
| J-13 | 3.45 | 2942.09 | 86.70 | 0.00 |
| J-8 | 3.80 | 2942.09 | 80.63 | 0.00 |
| J-15 | 3.44 | 2942.10 | 58.32 | 0.00 |
| J-16 | 2.06 | 2942.10 | 53.77 | 0.00 |
| J-23 | 9.30 | 2934.96 | 45.05 | 0.00 |
| J-303 | 11.48 | 2948.49 | 90.34 | 0.00 |
| J-301 | 2.02 | 2948.99 | 95.32 | 0.00 |
| J-10 | 47.88 | 2942.07 | 91.46 | 0.00 |
| J-26 | 2.06 | 2946.74 | 78.31 | 0.00 |
| J-1 | 0.00 | 2948.49 | 74.31 | 0.00 |
| J-102 | 2.70 | 2950.64 | 80.44 | 0.00 |
| J-105 | 3.38 | 2950.65 | 88.24 | 0.00 |
| J-107 | 4.72 | 2950.65 | 93.01 | 0.00 |
| J-111 | 4.06 | 2950.66 | 96.04 | 0.00 |
| J-112 | 1.36 | 2950.42 | 104.61 | 0.00 |
| J-114 | 1.36 | 2950.31 | 105.86 | 0.00 |
| J-115 | 1.36 | 2950.21 | 107.12 | 0.00 |
| J-118 | 1.36 | 2950.14 | 107.52 | 0.00 |
| J-300 | 7.42 | 2948.99 | 96.19 | 0.00 |
| J-302 | 2.70 | 2948.49 | 88.17 | 0.00 |
| J-304 | 2.02 | 2948.45 | 81.22 | 0.00 |
| J-42 | 0.00 | 2951.79 | 79.20 | 0.00 |
| J-31 | 0.00 | 2952.13 | 76.32 | 0.00 |
| J-35 | 0.00 | 2952.30 | 56.89 | 0.00 |
| J-101 | 4.72 | 2952.95 | 95.09 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2950.65 | 96.04 | 0.00 |
| J-33 | 0.00 | 2952.25 | 64.67 | 0.00 |
| J-123 | 3.38 | 2952.25 | 72.90 | 0.00 |
| J-100 | 0.00 | 2954.81 | 102.18 | 0.00 |
| J-103 | 3.38 | 2952.92 | 89.22 | 0.00 |
| J-104 | 3.38 | 2952.55 | 65.23 | 0.00 |
| J-117 | 2.02 | 2950.31 | 102.83 | 0.00 |
| J-110 | 4.06 | 2950.65 | 88.24 | 0.00 |
| J-108 | 2.02 | 2950.65 | 87.81 | 0.00 |
| J-109 | 2.02 | 2950.65 | 86.94 | 0.00 |
| J-305 | 1.36 | 2947.52 | 81.68 | 0.00 |
| S145 | 0.00 | 2955.25 | 104.10 | 0.00 |
| J-207 | 2.70 | 2950.84 | 93.53 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J22

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2950.84 | 96.12 | 0.00 |
| J-206 | 0.68 | 2950.98 | 115.25 | 0.00 |
| J-204 | 2.70 | 2951.59 | 108.58 | 0.00 |
| J-205 | 2.70 | 2951.59 | 100.35 | 0.00 |
| J-203 | 12.82 | 2952.85 | 101.33 | 0.00 |
| J-200 | 7.42 | 2954.47 | 106.36 | 0.00 |
| J-211 | 0.00 | 2953.18 | 98.00 | 0.00 |
| J-201 | 3.38 | 2954.04 | 116.57 | 0.00 |
| J-202 | 10.12 | 2954.03 | 97.94 | 0.00 |
| J-119 | 0.00 | 2950.15 | 111.43 | 0.00 |
| J-120 | 2.02 | 2950.15 | 115.76 | 0.00 |
| J-121 | 0.00 | 2950.17 | 115.77 | 0.00 |
| J-122 | 45.90 | 2950.16 | 118.36 | 0.00 |
| J-210 | 4.06 | 2950.94 | 116.96 | 0.00 |
| J-209 | 0.68 | 2950.98 | 114.81 | 0.00 |
| J-113 | 1.36 | 2950.42 | 103.74 | 0.00 |
| J-116 | 0.68 | 2950.21 | 106.68 | 0.00 |
| J-25 | 5.52 | 2937.32 | 44.12 | 0.00 |
| J-34 | 0.68 | 2952.27 | 62.51 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1917.42 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -41.58 | 0.27 | 0.05 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 151.87 | 0.97 | 0.56 | Open |
| P-4 | 146.35 | 0.93 | 0.52 | Open |
| P-5 | 140.85 | 0.90 | 0.48 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.44 | 0.02 | 0.00 | Open |
| P-8 | 1707.02 | 4.84 | 6.82 | Open |
| P-9 | 786.79 | 2.23 | 1.63 | Open |
| P-10 | 784.03 | 2.22 | 1.62 | Open |
| P-11 | 19.94 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -34.10 | 0.10 | 0.00 | Open |

Sereno Canyon Phase 4 Max Day fire flow J22

| | | | | |
|------|----------|------|-------|------|
| P-14 | 920.23 | 5.87 | 15.66 | Open |
| P-15 | 300.34 | 1.92 | 1.97 | Open |
| P-16 | 932.81 | 5.95 | 16.06 | Open |
| P-17 | -576.49 | 3.68 | 6.59 | Open |
| P-18 | -273.63 | 1.75 | 1.66 | Open |
| P-19 | -604.98 | 3.86 | 7.20 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.48 | 0.02 | 0.00 | Open |
| P-25 | -24.35 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | -644.87 | 4.12 | 8.11 | Open |
| P-29 | 133.64 | 0.38 | 0.06 | Open |
| P-30 | 127.78 | 0.36 | 0.06 | Open |
| P-31 | 95.86 | 0.27 | 0.03 | Open |
| P-32 | 75.84 | 0.22 | 0.02 | Open |
| P-33 | 81.98 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 286.70 | 1.83 | 1.81 | Open |
| P-36 | -1421.70 | 4.03 | 4.86 | Open |
| P-37 | -1066.68 | 3.03 | 2.86 | Open |
| P-38 | -29.13 | 0.08 | 0.00 | Open |
| P-39 | -35.89 | 0.10 | 0.01 | Open |
| P-40 | -48.71 | 0.14 | 0.01 | Open |
| P-41 | 148.76 | 0.95 | 0.54 | Open |
| P-42 | 146.04 | 0.93 | 0.52 | Open |
| P-43 | 142.66 | 0.91 | 0.50 | Open |
| P-44 | 140.62 | 0.90 | 0.48 | Open |
| P-45 | 175.28 | 1.12 | 0.73 | Open |
| P-46 | 165.84 | 1.06 | 0.66 | Open |
| P-47 | 151.66 | 0.43 | 0.08 | Open |
| P-48 | -140.48 | 0.40 | 0.07 | Open |
| P-49 | -495.50 | 3.16 | 4.98 | Open |
| P-50 | -501.00 | 3.20 | 5.08 | Open |
| P-51 | -362.91 | 2.32 | 2.79 | Open |
| P-52 | -519.26 | 3.31 | 5.43 | Open |
| P-53 | -282.47 | 1.80 | 1.76 | Open |
| P-54 | 47.10 | 0.30 | 0.06 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J22

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 302.25 | 1.93 | 1.99 | Open |
| P-58 | 112.04 | 0.72 | 0.32 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1584.01 | 4.49 | 5.94 | Open |
| P-62 | 1281.76 | 3.64 | 4.01 | Open |
| P-63 | -201.53 | 0.57 | 0.13 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -204.91 | 0.58 | 0.13 | Open |
| P-66 | -294.27 | 1.88 | 1.90 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -299.67 | 1.91 | 1.96 | Open |
| P-69 | 160.25 | 1.02 | 0.62 | Open |
| P-70 | 160.25 | 1.02 | 0.62 | Open |
| P-71 | -152.23 | 0.97 | 0.56 | Open |
| P-72 | 333.41 | 2.13 | 2.39 | Open |
| P-73 | 165.73 | 1.06 | 0.65 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -38.04 | 0.24 | 0.04 | Open |
| P-77 | -88.00 | 0.25 | 0.03 | Open |
| P-78 | -88.68 | 0.25 | 0.03 | Open |
| P-79 | 12.43 | 0.08 | 0.01 | Open |
| P-80 | 29.85 | 0.19 | 0.03 | Open |
| P-81 | -306.29 | 1.96 | 2.04 | Open |
| P-82 | 311.81 | 1.99 | 2.11 | Open |
| P-83 | 1040.25 | 2.95 | 2.73 | Open |
| P-84 | 236.79 | 1.51 | 1.27 | Open |
| P-85 | -8.10 | 0.05 | 0.00 | Open |
| P-86 | -1.36 | 0.01 | 0.00 | Open |
| P-87 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 36.02 | 0.23 | 0.04 | Open |
| P-90 | -83.94 | 0.54 | 0.19 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -60.88 | 0.39 | 0.10 | Open |
| P-93 | -99.02 | 0.63 | 0.25 | Open |
| P-94 | 183.45 | 1.17 | 0.79 | Open |
| P-95 | -64.26 | 0.41 | 0.11 | Open |
| P-96 | -64.94 | 0.41 | 0.12 | Open |
| P-97 | 115.42 | 0.74 | 0.34 | Open |
| P-98 | -290.12 | 1.85 | 1.85 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1917.42 | 1.36 | 0.29 | Open |

Sereno Canyon Phase 4 Max Day fire flow J22



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -288.76 | 1.84 | 1.83 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1917.43 | 0.00 | -238.26 | Open Pump |
| 1 | 1917.42 | 5.44 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J23

Page 1

12/2/2017 10:31:39 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality                 *
*                               Analysis for Pipe Networks                   *
*                               Version 2.0                                 *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J23.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J23

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J23

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J23

| | | | | | | |
|-------|--------|-------|---------|--------|--------|------|
| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1000.62 | 114.75 | 114.75 | 0.00 |

Demand Charge: 0.00
Total Cost: 0.00

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-23 | 1500.00 | 2930.75 | 43.22 | 0.00 |
| J-32 | 3.44 | 2952.86 | 70.13 | 0.00 |
| J-36 | 3.80 | 2952.91 | 54.56 | 0.00 |
| J-37 | 1.72 | 2952.91 | 51.09 | 0.00 |
| J-30 | 4.48 | 2952.20 | 78.73 | 0.00 |
| J-38 | 5.52 | 2951.67 | 61.82 | 0.00 |
| J-39 | 3.44 | 2951.46 | 68.23 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2951.06 | 73.90 | 0.00 |
| J-40 | 2.06 | 2951.46 | 68.01 | 0.00 |
| J-28 | 3.44 | 2950.49 | 82.11 | 0.00 |
| J-27 | 2.06 | 2950.49 | 70.41 | 0.00 |
| J-2 | 1.38 | 2946.46 | 72.56 | 0.00 |
| J-3 | 0.00 | 2943.39 | 64.47 | 0.00 |
| J-4 | 1.38 | 2943.08 | 65.24 | 0.00 |
| J-41 | 5.52 | 2942.84 | 66.14 | 0.00 |
| J-14 | 6.90 | 2942.79 | 69.24 | 0.00 |
| J-11 | 4.14 | 2942.78 | 76.17 | 0.00 |
| J-12 | 49.90 | 2942.78 | 70.10 | 0.00 |
| J-9 | 0.00 | 2942.78 | 84.83 | 0.00 |
| J-6 | 2.07 | 2942.82 | 67.08 | 0.00 |
| J-19 | 3.44 | 2939.92 | 57.59 | 0.00 |
| J-24 | 3.44 | 2936.98 | 56.32 | 0.00 |
| J-20 | 31.00 | 2937.82 | 48.67 | 0.00 |
| J-21 | 12.40 | 2937.21 | 48.41 | 0.00 |
| J-22 | 3.10 | 2935.72 | 47.54 | 0.00 |
| J-5 | 2.76 | 2942.83 | 66.65 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J23

| | | | | |
|-------|-------|---------|--------|------|
| J-17 | 3.10 | 2942.83 | 79.65 | 0.00 |
| J-18 | 1.38 | 2943.08 | 73.69 | 0.00 |
| J-7 | 4.14 | 2942.80 | 76.61 | 0.00 |
| J-13 | 3.45 | 2942.80 | 87.00 | 0.00 |
| J-8 | 3.80 | 2942.79 | 80.94 | 0.00 |
| J-15 | 3.44 | 2942.80 | 58.63 | 0.00 |
| J-16 | 2.06 | 2942.80 | 54.08 | 0.00 |
| J-303 | 11.48 | 2949.15 | 90.63 | 0.00 |
| J-301 | 2.02 | 2949.64 | 95.60 | 0.00 |
| J-10 | 47.88 | 2942.78 | 91.76 | 0.00 |
| J-26 | 2.06 | 2947.41 | 78.60 | 0.00 |
| J-1 | 0.00 | 2949.15 | 74.59 | 0.00 |
| J-102 | 2.70 | 2951.29 | 80.72 | 0.00 |
| J-105 | 3.38 | 2951.29 | 88.52 | 0.00 |
| J-107 | 4.72 | 2951.30 | 93.29 | 0.00 |
| J-111 | 4.06 | 2951.31 | 96.33 | 0.00 |
| J-112 | 1.36 | 2951.07 | 104.89 | 0.00 |
| J-114 | 1.36 | 2950.96 | 106.14 | 0.00 |
| J-115 | 1.36 | 2950.86 | 107.40 | 0.00 |
| J-118 | 1.36 | 2950.79 | 107.80 | 0.00 |
| J-300 | 7.42 | 2949.64 | 96.47 | 0.00 |
| J-302 | 2.70 | 2949.15 | 88.46 | 0.00 |
| J-304 | 2.02 | 2949.12 | 81.51 | 0.00 |
| J-42 | 0.00 | 2952.43 | 79.48 | 0.00 |
| J-31 | 0.00 | 2952.77 | 76.59 | 0.00 |
| J-35 | 0.00 | 2952.94 | 57.17 | 0.00 |
| J-101 | 4.72 | 2953.58 | 95.36 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2951.29 | 96.32 | 0.00 |
| J-33 | 0.00 | 2952.88 | 64.94 | 0.00 |
| J-123 | 3.38 | 2952.88 | 73.18 | 0.00 |
| J-100 | 0.00 | 2955.44 | 102.45 | 0.00 |
| J-103 | 3.38 | 2953.55 | 89.50 | 0.00 |
| J-104 | 3.38 | 2953.18 | 65.51 | 0.00 |
| J-117 | 2.02 | 2950.96 | 103.11 | 0.00 |
| J-110 | 4.06 | 2951.29 | 88.52 | 0.00 |
| J-108 | 2.02 | 2951.30 | 88.09 | 0.00 |
| J-109 | 2.02 | 2951.30 | 87.22 | 0.00 |
| J-305 | 1.36 | 2948.19 | 81.97 | 0.00 |
| S145 | 0.00 | 2955.87 | 104.37 | 0.00 |
| J-207 | 2.70 | 2951.49 | 93.81 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J23

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2951.49 | 96.41 | 0.00 |
| J-206 | 0.68 | 2951.63 | 115.53 | 0.00 |
| J-204 | 2.70 | 2952.23 | 108.86 | 0.00 |
| J-205 | 2.70 | 2952.23 | 100.62 | 0.00 |
| J-203 | 12.82 | 2953.48 | 101.60 | 0.00 |
| J-200 | 7.42 | 2955.10 | 106.63 | 0.00 |
| J-211 | 0.00 | 2953.81 | 98.28 | 0.00 |
| J-201 | 3.38 | 2954.66 | 116.84 | 0.00 |
| J-202 | 10.12 | 2954.66 | 98.21 | 0.00 |
| J-119 | 0.00 | 2950.80 | 111.71 | 0.00 |
| J-120 | 2.02 | 2950.80 | 116.04 | 0.00 |
| J-121 | 0.00 | 2950.82 | 116.05 | 0.00 |
| J-122 | 45.90 | 2950.81 | 118.64 | 0.00 |
| J-210 | 4.06 | 2951.59 | 117.24 | 0.00 |
| J-209 | 0.68 | 2951.62 | 115.09 | 0.00 |
| J-113 | 1.36 | 2951.07 | 104.02 | 0.00 |
| J-116 | 0.68 | 2950.86 | 106.97 | 0.00 |
| J-25 | 5.52 | 2938.06 | 44.44 | 0.00 |
| J-34 | 0.68 | 2952.91 | 62.79 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1911.22 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -41.43 | 0.26 | 0.05 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 151.37 | 0.97 | 0.55 | Open |
| P-4 | 145.85 | 0.93 | 0.52 | Open |
| P-5 | 140.35 | 0.90 | 0.48 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.44 | 0.02 | 0.00 | Open |
| P-8 | 1700.82 | 4.82 | 6.78 | Open |
| P-9 | 784.20 | 2.22 | 1.62 | Open |
| P-10 | 781.44 | 2.22 | 1.61 | Open |
| P-11 | 19.94 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -34.10 | 0.10 | 0.00 | Open |

Sereno Canyon Phase 4 Max Day fire flow J23

| | | | | |
|------|----------|------|-------|------|
| P-14 | 916.62 | 5.85 | 15.55 | Open |
| P-15 | 299.10 | 1.91 | 1.95 | Open |
| P-16 | 928.98 | 5.93 | 15.94 | Open |
| P-17 | -574.12 | 3.66 | 6.54 | Open |
| P-18 | -272.50 | 1.74 | 1.64 | Open |
| P-19 | -602.60 | 3.85 | 7.15 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.48 | 0.02 | 0.00 | Open |
| P-25 | -24.35 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 1500.00 | 9.57 | 38.70 | Open |
| P-28 | -642.28 | 4.10 | 8.05 | Open |
| P-29 | 133.64 | 0.38 | 0.06 | Open |
| P-30 | 127.78 | 0.36 | 0.06 | Open |
| P-31 | 95.86 | 0.27 | 0.03 | Open |
| P-32 | 75.84 | 0.22 | 0.02 | Open |
| P-33 | 81.98 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 285.65 | 1.82 | 1.79 | Open |
| P-36 | -1416.55 | 4.02 | 4.83 | Open |
| P-37 | -1062.89 | 3.02 | 2.84 | Open |
| P-38 | -28.78 | 0.08 | 0.00 | Open |
| P-39 | -35.54 | 0.10 | 0.01 | Open |
| P-40 | -48.36 | 0.14 | 0.01 | Open |
| P-41 | 148.35 | 0.95 | 0.53 | Open |
| P-42 | 145.63 | 0.93 | 0.52 | Open |
| P-43 | 142.25 | 0.91 | 0.49 | Open |
| P-44 | 140.21 | 0.89 | 0.48 | Open |
| P-45 | 174.62 | 1.11 | 0.72 | Open |
| P-46 | 165.18 | 1.05 | 0.65 | Open |
| P-47 | 151.00 | 0.43 | 0.08 | Open |
| P-48 | -140.09 | 0.40 | 0.07 | Open |
| P-49 | -493.75 | 3.15 | 4.94 | Open |
| P-50 | -499.25 | 3.19 | 5.05 | Open |
| P-51 | -361.66 | 2.31 | 2.78 | Open |
| P-52 | -517.51 | 3.30 | 5.39 | Open |
| P-53 | -281.49 | 1.80 | 1.75 | Open |
| P-54 | 46.95 | 0.30 | 0.06 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J23

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 301.27 | 1.92 | 1.98 | Open |
| P-58 | 111.67 | 0.71 | 0.32 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1578.82 | 4.48 | 5.90 | Open |
| P-62 | 1277.55 | 3.62 | 3.99 | Open |
| P-63 | -200.77 | 0.57 | 0.13 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -204.15 | 0.58 | 0.13 | Open |
| P-66 | -293.26 | 1.87 | 1.88 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -298.66 | 1.91 | 1.95 | Open |
| P-69 | 159.74 | 1.02 | 0.61 | Open |
| P-70 | 159.74 | 1.02 | 0.61 | Open |
| P-71 | -151.74 | 0.97 | 0.56 | Open |
| P-72 | 332.40 | 2.12 | 2.38 | Open |
| P-73 | 165.24 | 1.05 | 0.65 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -37.79 | 0.24 | 0.04 | Open |
| P-77 | -87.75 | 0.25 | 0.03 | Open |
| P-78 | -88.43 | 0.25 | 0.03 | Open |
| P-79 | 12.43 | 0.08 | 0.01 | Open |
| P-80 | 29.85 | 0.19 | 0.03 | Open |
| P-81 | -305.06 | 1.95 | 2.03 | Open |
| P-82 | 310.58 | 1.98 | 2.10 | Open |
| P-83 | 1036.81 | 2.94 | 2.71 | Open |
| P-84 | 236.02 | 1.51 | 1.26 | Open |
| P-85 | -8.10 | 0.05 | 0.00 | Open |
| P-86 | -1.36 | 0.01 | 0.00 | Open |
| P-87 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 35.77 | 0.23 | 0.04 | Open |
| P-90 | -83.69 | 0.53 | 0.18 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -60.66 | 0.39 | 0.10 | Open |
| P-93 | -98.65 | 0.63 | 0.25 | Open |
| P-94 | 182.84 | 1.17 | 0.79 | Open |
| P-95 | -64.04 | 0.41 | 0.11 | Open |
| P-96 | -64.72 | 0.41 | 0.11 | Open |
| P-97 | 115.05 | 0.73 | 0.33 | Open |
| P-98 | -289.07 | 1.85 | 1.83 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1911.22 | 1.36 | 0.29 | Open |

Sereno Canyon Phase 4 Max Day fire flow J23



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -287.71 | 1.84 | 1.82 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1911.23 | 0.00 | -238.88 | Open Pump |
| 1 | 1911.22 | 5.42 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J24

Page 1

12/2/2017 11:16:51 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality                 *
*                               Analysis for Pipe Networks                   *
*                               Version 2.0                                 *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J24.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 12 |
| P-20 | J-5 | J-17 | 587.4 | 8 |
| P-22 | J-18 | J-4 | 378.4 | 8 |
| P-23 | J-7 | J-13 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J24

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J24

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J24

| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|-------|--------|-------|--------|--------|----------------|------|
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 998.17 | 114.81 | 114.81 | 0.00 |
| | | | | | Demand Charge: | 0.00 |
| | | | | | Total Cost: | 0.00 |

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-24 | 1500.00 | 2938.43 | 56.95 | 0.00 |
| J-32 | 3.44 | 2952.26 | 69.87 | 0.00 |
| J-36 | 3.80 | 2952.31 | 54.30 | 0.00 |
| J-37 | 1.72 | 2952.31 | 50.83 | 0.00 |
| J-30 | 4.48 | 2951.59 | 78.47 | 0.00 |
| J-38 | 5.52 | 2951.06 | 61.55 | 0.00 |
| J-39 | 3.44 | 2950.85 | 67.96 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2950.44 | 73.64 | 0.00 |
| J-40 | 2.06 | 2950.85 | 67.75 | 0.00 |
| J-28 | 3.44 | 2949.87 | 81.84 | 0.00 |
| J-27 | 2.06 | 2949.87 | 70.14 | 0.00 |
| J-2 | 1.38 | 2945.81 | 72.28 | 0.00 |
| J-3 | 0.00 | 2942.73 | 64.18 | 0.00 |
| J-4 | 1.38 | 2942.60 | 65.04 | 0.00 |
| J-41 | 5.52 | 2942.50 | 65.99 | 0.00 |
| J-14 | 6.90 | 2942.45 | 69.09 | 0.00 |
| J-11 | 4.14 | 2942.44 | 76.02 | 0.00 |
| J-12 | 49.90 | 2942.44 | 69.95 | 0.00 |
| J-9 | 0.00 | 2942.44 | 84.69 | 0.00 |
| J-6 | 2.07 | 2942.48 | 66.93 | 0.00 |
| J-19 | 3.44 | 2941.91 | 58.46 | 0.00 |
| J-20 | 31.00 | 2941.34 | 50.19 | 0.00 |
| J-21 | 12.40 | 2940.69 | 49.91 | 0.00 |
| J-22 | 3.10 | 2939.93 | 49.37 | 0.00 |
| J-5 | 2.76 | 2942.49 | 66.51 | 0.00 |
| J-17 | 3.10 | 2942.49 | 79.51 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J24

| | | | | |
|-------|-------|---------|--------|------|
| J-18 | 1.38 | 2942.60 | 73.49 | 0.00 |
| J-7 | 4.14 | 2942.46 | 76.46 | 0.00 |
| J-13 | 3.45 | 2942.46 | 86.86 | 0.00 |
| J-8 | 3.80 | 2942.45 | 80.79 | 0.00 |
| J-15 | 3.44 | 2942.46 | 58.48 | 0.00 |
| J-16 | 2.06 | 2942.46 | 53.93 | 0.00 |
| J-23 | 9.30 | 2939.93 | 47.20 | 0.00 |
| J-303 | 11.48 | 2948.53 | 90.35 | 0.00 |
| J-301 | 2.02 | 2949.02 | 95.34 | 0.00 |
| J-10 | 47.88 | 2942.44 | 91.62 | 0.00 |
| J-26 | 2.06 | 2946.77 | 78.33 | 0.00 |
| J-1 | 0.00 | 2948.52 | 74.32 | 0.00 |
| J-102 | 2.70 | 2950.68 | 80.45 | 0.00 |
| J-105 | 3.38 | 2950.68 | 88.26 | 0.00 |
| J-107 | 4.72 | 2950.68 | 93.02 | 0.00 |
| J-111 | 4.06 | 2950.69 | 96.06 | 0.00 |
| J-112 | 1.36 | 2950.45 | 104.62 | 0.00 |
| J-114 | 1.36 | 2950.35 | 105.88 | 0.00 |
| J-115 | 1.36 | 2950.25 | 107.13 | 0.00 |
| J-118 | 1.36 | 2950.17 | 107.53 | 0.00 |
| J-300 | 7.42 | 2949.02 | 96.20 | 0.00 |
| J-302 | 2.70 | 2948.53 | 88.19 | 0.00 |
| J-304 | 2.02 | 2948.49 | 81.24 | 0.00 |
| J-42 | 0.00 | 2951.82 | 79.22 | 0.00 |
| J-31 | 0.00 | 2952.16 | 76.33 | 0.00 |
| J-35 | 0.00 | 2952.34 | 56.91 | 0.00 |
| J-101 | 4.72 | 2952.98 | 95.10 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2950.68 | 96.05 | 0.00 |
| J-33 | 0.00 | 2952.28 | 64.68 | 0.00 |
| J-123 | 3.38 | 2952.28 | 72.92 | 0.00 |
| J-100 | 0.00 | 2954.85 | 102.19 | 0.00 |
| J-103 | 3.38 | 2952.95 | 89.24 | 0.00 |
| J-104 | 3.38 | 2952.58 | 65.25 | 0.00 |
| J-117 | 2.02 | 2950.35 | 102.84 | 0.00 |
| J-110 | 4.06 | 2950.68 | 88.26 | 0.00 |
| J-108 | 2.02 | 2950.68 | 87.82 | 0.00 |
| J-109 | 2.02 | 2950.68 | 86.96 | 0.00 |
| J-305 | 1.36 | 2947.55 | 81.70 | 0.00 |
| S145 | 0.00 | 2955.29 | 104.12 | 0.00 |
| J-207 | 2.70 | 2950.88 | 93.54 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J24

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2950.88 | 96.14 | 0.00 |
| J-206 | 0.68 | 2951.02 | 115.27 | 0.00 |
| J-204 | 2.70 | 2951.62 | 108.59 | 0.00 |
| J-205 | 2.70 | 2951.62 | 100.36 | 0.00 |
| J-203 | 12.82 | 2952.88 | 101.34 | 0.00 |
| J-200 | 7.42 | 2954.51 | 106.38 | 0.00 |
| J-211 | 0.00 | 2953.21 | 98.02 | 0.00 |
| J-201 | 3.38 | 2954.07 | 116.59 | 0.00 |
| J-202 | 10.12 | 2954.07 | 97.95 | 0.00 |
| J-119 | 0.00 | 2950.19 | 111.44 | 0.00 |
| J-120 | 2.02 | 2950.19 | 115.77 | 0.00 |
| J-121 | 0.00 | 2950.21 | 115.78 | 0.00 |
| J-122 | 45.90 | 2950.20 | 118.38 | 0.00 |
| J-210 | 4.06 | 2950.98 | 116.98 | 0.00 |
| J-209 | 0.68 | 2951.01 | 114.83 | 0.00 |
| J-113 | 1.36 | 2950.45 | 103.75 | 0.00 |
| J-116 | 0.68 | 2950.25 | 106.70 | 0.00 |
| J-25 | 5.52 | 2939.72 | 45.16 | 0.00 |
| J-34 | 0.68 | 2952.31 | 62.53 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1917.08 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -41.57 | 0.27 | 0.05 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 151.85 | 0.97 | 0.56 | Open |
| P-4 | 146.33 | 0.93 | 0.52 | Open |
| P-5 | 140.83 | 0.90 | 0.48 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.44 | 0.02 | 0.00 | Open |
| P-8 | 1706.68 | 4.84 | 6.82 | Open |
| P-9 | 489.76 | 1.39 | 0.68 | Open |
| P-10 | 487.00 | 1.38 | 0.67 | Open |
| P-11 | 19.94 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -34.10 | 0.10 | 0.00 | Open |

Sereno Canyon Phase 4 Max Day fire flow J24

| | | | | |
|------|----------|------|------|------|
| P-14 | 1216.92 | 3.45 | 3.65 | Open |
| P-15 | 309.13 | 1.97 | 2.08 | Open |
| P-16 | 644.57 | 4.11 | 8.10 | Open |
| P-17 | 632.17 | 4.03 | 7.81 | Open |
| P-18 | -532.76 | 3.40 | 5.69 | Open |
| P-19 | -872.89 | 2.48 | 1.97 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.48 | 0.02 | 0.00 | Open |
| P-25 | -24.35 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | -347.84 | 2.22 | 2.58 | Open |
| P-29 | 133.64 | 0.38 | 0.06 | Open |
| P-30 | 127.78 | 0.36 | 0.06 | Open |
| P-31 | 95.86 | 0.27 | 0.03 | Open |
| P-32 | 75.84 | 0.22 | 0.02 | Open |
| P-33 | 81.98 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 286.64 | 1.83 | 1.81 | Open |
| P-36 | -1421.42 | 4.03 | 4.86 | Open |
| P-37 | -1066.47 | 3.03 | 2.86 | Open |
| P-38 | -29.11 | 0.08 | 0.00 | Open |
| P-39 | -35.87 | 0.10 | 0.01 | Open |
| P-40 | -48.69 | 0.14 | 0.01 | Open |
| P-41 | 148.73 | 0.95 | 0.54 | Open |
| P-42 | 146.01 | 0.93 | 0.52 | Open |
| P-43 | 142.63 | 0.91 | 0.50 | Open |
| P-44 | 140.59 | 0.90 | 0.48 | Open |
| P-45 | 175.24 | 1.12 | 0.73 | Open |
| P-46 | 165.80 | 1.06 | 0.66 | Open |
| P-47 | 151.62 | 0.43 | 0.08 | Open |
| P-48 | -140.46 | 0.40 | 0.07 | Open |
| P-49 | -495.41 | 3.16 | 4.97 | Open |
| P-50 | -500.91 | 3.20 | 5.08 | Open |
| P-51 | -362.84 | 2.32 | 2.79 | Open |
| P-52 | -519.17 | 3.31 | 5.42 | Open |
| P-53 | -282.42 | 1.80 | 1.76 | Open |
| P-54 | 47.09 | 0.30 | 0.06 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J24

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 302.20 | 1.93 | 1.99 | Open |
| P-58 | 112.02 | 0.72 | 0.32 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1583.73 | 4.49 | 5.94 | Open |
| P-62 | 1281.53 | 3.64 | 4.01 | Open |
| P-63 | -201.49 | 0.57 | 0.13 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -204.87 | 0.58 | 0.13 | Open |
| P-66 | -294.21 | 1.88 | 1.89 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -299.61 | 1.91 | 1.96 | Open |
| P-69 | 160.23 | 1.02 | 0.61 | Open |
| P-70 | 160.23 | 1.02 | 0.61 | Open |
| P-71 | -152.21 | 0.97 | 0.56 | Open |
| P-72 | 333.35 | 2.13 | 2.39 | Open |
| P-73 | 165.71 | 1.06 | 0.65 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -38.03 | 0.24 | 0.04 | Open |
| P-77 | -87.99 | 0.25 | 0.03 | Open |
| P-78 | -88.67 | 0.25 | 0.03 | Open |
| P-79 | 12.43 | 0.08 | 0.01 | Open |
| P-80 | 29.85 | 0.19 | 0.03 | Open |
| P-81 | -335.07 | 2.14 | 2.41 | Open |
| P-82 | 340.59 | 2.17 | 2.49 | Open |
| P-83 | 1040.06 | 2.95 | 2.73 | Open |
| P-84 | 236.75 | 1.51 | 1.27 | Open |
| P-85 | -8.10 | 0.05 | 0.00 | Open |
| P-86 | -1.36 | 0.01 | 0.00 | Open |
| P-87 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 36.01 | 0.23 | 0.04 | Open |
| P-90 | -83.93 | 0.54 | 0.19 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -60.87 | 0.39 | 0.10 | Open |
| P-93 | -99.00 | 0.63 | 0.25 | Open |
| P-94 | 183.41 | 1.17 | 0.79 | Open |
| P-95 | -64.25 | 0.41 | 0.11 | Open |
| P-96 | -64.93 | 0.41 | 0.12 | Open |
| P-97 | 115.40 | 0.74 | 0.33 | Open |
| P-98 | -290.06 | 1.85 | 1.85 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1917.08 | 1.36 | 0.29 | Open |

Sereno Canyon Phase 4 Max Day fire flow J24



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -288.70 | 1.84 | 1.83 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1917.08 | 0.00 | -238.29 | Open Pump |
| 1 | 1917.08 | 5.44 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J25

Page 1

12/2/2017 10:32:08 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality                *
*                               Analysis for Pipe Networks                  *
*                               Version 2.0                                *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J25.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J25

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J25

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J25

| | | | | | | |
|-------|--------|-------|---------|--------|--------|------|
| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1188.24 | 101.08 | 101.08 | 0.00 |

Demand Charge: 0.00
 Total Cost: 0.00

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-25 | 1000.00 | 2987.85 | 66.01 | 0.00 |
| J-32 | 3.44 | 2998.94 | 90.10 | 0.00 |
| J-36 | 3.80 | 2998.96 | 74.51 | 0.00 |
| J-37 | 1.72 | 2998.96 | 71.05 | 0.00 |
| J-30 | 4.48 | 2998.57 | 98.82 | 0.00 |
| J-38 | 5.52 | 2998.27 | 82.01 | 0.00 |
| J-39 | 3.44 | 2998.16 | 88.46 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2997.94 | 94.22 | 0.00 |
| J-40 | 2.06 | 2998.16 | 88.25 | 0.00 |
| J-28 | 3.44 | 2997.63 | 102.53 | 0.00 |
| J-27 | 2.06 | 2997.63 | 90.83 | 0.00 |
| J-2 | 1.38 | 2995.48 | 93.80 | 0.00 |
| J-3 | 0.00 | 2993.85 | 86.34 | 0.00 |
| J-4 | 1.38 | 2993.71 | 87.18 | 0.00 |
| J-41 | 5.52 | 2993.60 | 88.13 | 0.00 |
| J-14 | 6.90 | 2993.55 | 91.23 | 0.00 |
| J-11 | 4.14 | 2993.54 | 98.16 | 0.00 |
| J-12 | 49.90 | 2993.54 | 92.09 | 0.00 |
| J-9 | 0.00 | 2993.54 | 106.83 | 0.00 |
| J-6 | 2.07 | 2993.57 | 89.08 | 0.00 |
| J-19 | 3.44 | 2991.81 | 80.08 | 0.00 |
| J-24 | 6.20 | 2990.89 | 79.68 | 0.00 |
| J-20 | 31.00 | 2991.49 | 71.92 | 0.00 |
| J-21 | 12.40 | 2991.50 | 71.93 | 0.00 |
| J-22 | 3.10 | 2991.29 | 71.62 | 0.00 |
| J-5 | 2.76 | 2993.59 | 88.65 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J25

| | | | | |
|-------|-------|---------|--------|------|
| J-17 | 3.10 | 2993.59 | 101.65 | 0.00 |
| J-18 | 1.38 | 2993.71 | 95.63 | 0.00 |
| J-7 | 4.14 | 2993.56 | 98.60 | 0.00 |
| J-13 | 3.45 | 2993.55 | 109.00 | 0.00 |
| J-8 | 3.80 | 2993.55 | 102.93 | 0.00 |
| J-15 | 3.44 | 2993.56 | 80.62 | 0.00 |
| J-16 | 2.06 | 2993.56 | 76.07 | 0.00 |
| J-23 | 9.30 | 2991.29 | 69.45 | 0.00 |
| J-303 | 11.48 | 2996.90 | 111.32 | 0.00 |
| J-301 | 2.02 | 2997.15 | 116.19 | 0.00 |
| J-10 | 47.88 | 2993.54 | 113.76 | 0.00 |
| J-26 | 2.06 | 2995.98 | 99.65 | 0.00 |
| J-1 | 0.00 | 2996.91 | 95.29 | 0.00 |
| J-102 | 2.70 | 2998.06 | 100.99 | 0.00 |
| J-105 | 3.38 | 2998.06 | 108.79 | 0.00 |
| J-107 | 4.72 | 2998.06 | 113.55 | 0.00 |
| J-111 | 4.06 | 2998.06 | 116.59 | 0.00 |
| J-112 | 1.36 | 2997.91 | 125.19 | 0.00 |
| J-114 | 1.36 | 2997.85 | 126.46 | 0.00 |
| J-115 | 1.36 | 2997.78 | 127.73 | 0.00 |
| J-118 | 1.36 | 2997.74 | 128.14 | 0.00 |
| J-300 | 7.42 | 2997.15 | 117.05 | 0.00 |
| J-302 | 2.70 | 2996.90 | 109.15 | 0.00 |
| J-304 | 2.02 | 2996.89 | 102.21 | 0.00 |
| J-42 | 0.00 | 2998.70 | 99.53 | 0.00 |
| J-31 | 0.00 | 2998.89 | 96.58 | 0.00 |
| J-35 | 0.00 | 2998.98 | 77.12 | 0.00 |
| J-101 | 4.72 | 2999.36 | 115.20 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2998.06 | 116.58 | 0.00 |
| J-33 | 0.00 | 2998.95 | 84.90 | 0.00 |
| J-123 | 3.38 | 2998.95 | 93.14 | 0.00 |
| J-100 | 0.00 | 3000.42 | 121.94 | 0.00 |
| J-103 | 3.38 | 2999.33 | 109.34 | 0.00 |
| J-104 | 3.38 | 2999.12 | 85.41 | 0.00 |
| J-117 | 2.02 | 2997.85 | 123.42 | 0.00 |
| J-110 | 4.06 | 2998.06 | 108.78 | 0.00 |
| J-108 | 2.02 | 2998.06 | 108.35 | 0.00 |
| J-109 | 2.02 | 2998.06 | 107.49 | 0.00 |
| J-305 | 1.36 | 2996.39 | 102.86 | 0.00 |
| S145 | 0.00 | 3000.67 | 123.78 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J25

| | | | | |
|-------|----------|---------|--------|----------------|
| J-207 | 2.70 | 2998.16 | 114.03 | 0.00 |
| J-208 | 0.68 | 2998.16 | 116.63 | 0.00 |
| J-206 | 0.68 | 2998.23 | 135.72 | 0.00 |
| J-204 | 2.70 | 2998.56 | 128.93 | 0.00 |
| J-205 | 2.70 | 2998.56 | 120.70 | 0.00 |
| J-203 | 12.82 | 2999.26 | 121.44 | 0.00 |
| J-200 | 7.42 | 3000.20 | 126.18 | 0.00 |
| J-211 | 0.00 | 2999.45 | 118.05 | 0.00 |
| J-201 | 3.38 | 2999.94 | 136.46 | 0.00 |
| J-202 | 10.12 | 2999.94 | 117.83 | 0.00 |
| J-119 | 0.00 | 2997.74 | 132.04 | 0.00 |
| J-120 | 2.02 | 2997.74 | 136.38 | 0.00 |
| J-121 | 0.00 | 2997.75 | 136.38 | 0.00 |
| J-122 | 45.90 | 2997.74 | 138.98 | 0.00 |
| J-210 | 4.06 | 2998.21 | 137.44 | 0.00 |
| J-209 | 0.68 | 2998.23 | 135.29 | 0.00 |
| J-113 | 1.36 | 2997.91 | 124.32 | 0.00 |
| J-116 | 0.68 | 2997.78 | 127.30 | 0.00 |
| J-34 | 0.68 | 2998.96 | 82.75 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1417.76 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -29.49 | 0.19 | 0.03 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 111.23 | 0.71 | 0.31 | Open |
| P-4 | 105.71 | 0.67 | 0.28 | Open |
| P-5 | 100.21 | 0.64 | 0.26 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.44 | 0.02 | 0.00 | Open |
| P-8 | 1207.36 | 3.43 | 3.59 | Open |
| P-9 | 518.54 | 1.47 | 0.75 | Open |
| P-10 | 515.78 | 1.46 | 0.74 | Open |
| P-11 | 19.96 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -34.08 | 0.10 | 0.01 | Open |

Sereno Canyon Phase 4 Max Day fire flow J25

| | | | | |
|------|----------|------|------|------|
| P-14 | 688.82 | 4.40 | 9.16 | Open |
| P-15 | -40.87 | 0.26 | 0.05 | Open |
| P-16 | 323.35 | 2.06 | 2.26 | Open |
| P-17 | 310.95 | 1.98 | 2.10 | Open |
| P-18 | -227.34 | 1.45 | 1.18 | Open |
| P-19 | -217.47 | 1.39 | 1.08 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.52 | 0.02 | 0.00 | Open |
| P-25 | -24.34 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | -376.62 | 2.40 | 2.99 | Open |
| P-29 | 133.64 | 0.38 | 0.06 | Open |
| P-30 | 127.78 | 0.36 | 0.06 | Open |
| P-31 | 95.87 | 0.27 | 0.03 | Open |
| P-32 | 75.84 | 0.22 | 0.02 | Open |
| P-33 | 81.96 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 202.20 | 1.29 | 0.95 | Open |
| P-36 | -1006.54 | 2.86 | 2.57 | Open |
| P-37 | -761.11 | 2.16 | 1.53 | Open |
| P-38 | -0.72 | 0.00 | 0.00 | Open |
| P-39 | -7.48 | 0.02 | 0.00 | Open |
| P-40 | -20.30 | 0.06 | 0.00 | Open |
| P-41 | 116.18 | 0.74 | 0.34 | Open |
| P-42 | 113.46 | 0.72 | 0.32 | Open |
| P-43 | 110.08 | 0.70 | 0.31 | Open |
| P-44 | 108.04 | 0.69 | 0.30 | Open |
| P-45 | 122.30 | 0.78 | 0.37 | Open |
| P-46 | 112.86 | 0.72 | 0.32 | Open |
| P-47 | 98.68 | 0.28 | 0.03 | Open |
| P-48 | -108.96 | 0.31 | 0.04 | Open |
| P-49 | -354.39 | 2.26 | 2.67 | Open |
| P-50 | -359.89 | 2.30 | 2.75 | Open |
| P-51 | -262.44 | 1.68 | 1.53 | Open |
| P-52 | -378.15 | 2.41 | 3.02 | Open |
| P-53 | -203.72 | 1.30 | 0.96 | Open |
| P-54 | 35.01 | 0.22 | 0.04 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J25

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 223.50 | 1.43 | 1.14 | Open |
| P-58 | 82.31 | 0.53 | 0.18 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1165.74 | 3.31 | 3.36 | Open |
| P-62 | 942.25 | 2.67 | 2.27 | Open |
| P-63 | -140.54 | 0.40 | 0.07 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -143.92 | 0.41 | 0.07 | Open |
| P-66 | -212.88 | 1.36 | 1.04 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -218.28 | 1.39 | 1.09 | Open |
| P-69 | 118.97 | 0.76 | 0.35 | Open |
| P-70 | 118.97 | 0.76 | 0.35 | Open |
| P-71 | -112.13 | 0.72 | 0.32 | Open |
| P-72 | 252.02 | 1.61 | 1.42 | Open |
| P-73 | 125.63 | 0.80 | 0.39 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -17.64 | 0.11 | 0.01 | Open |
| P-77 | -67.60 | 0.19 | 0.02 | Open |
| P-78 | -68.28 | 0.19 | 0.02 | Open |
| P-79 | 12.43 | 0.08 | 0.01 | Open |
| P-80 | 29.84 | 0.19 | 0.03 | Open |
| P-81 | 532.09 | 3.40 | 5.68 | Open |
| P-82 | 467.91 | 2.99 | 4.47 | Open |
| P-83 | 763.09 | 2.16 | 1.54 | Open |
| P-84 | 174.43 | 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 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 15.62 | 0.10 | 0.01 | Open |
| P-90 | -63.54 | 0.41 | 0.11 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -43.24 | 0.28 | 0.05 | Open |
| P-93 | -69.29 | 0.44 | 0.13 | Open |
| P-94 | 134.43 | 0.86 | 0.44 | Open |
| P-95 | -46.62 | 0.30 | 0.06 | Open |
| P-96 | -47.30 | 0.30 | 0.06 | Open |
| P-97 | 85.69 | 0.55 | 0.19 | Open |
| P-98 | -205.62 | 1.31 | 0.98 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1417.76 | 1.01 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J25



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -204.26 | 1.30 | 0.96 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1417.76 | 0.00 | -283.67 | Open Pump |
| 1 | 1417.76 | 4.02 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J26

Page 1

12/2/2017 10:32:20 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality              *
*                               Analysis for Pipe Networks                *
*                               Version 2.0                             *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J26.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J26

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J26

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J26

| | | | | | | |
|-------|--------|-------|---------|--------|--------|------|
| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1187.16 | 101.23 | 101.23 | 0.00 |

Demand Charge: 0.00
 Total Cost: 0.00

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-26 | 1000.00 | 2992.58 | 98.18 | 0.00 |
| J-32 | 3.44 | 2998.67 | 89.99 | 0.00 |
| J-36 | 3.80 | 2998.70 | 74.40 | 0.00 |
| J-37 | 1.72 | 2998.70 | 70.93 | 0.00 |
| J-30 | 4.48 | 2998.31 | 98.71 | 0.00 |
| J-38 | 5.52 | 2998.01 | 81.90 | 0.00 |
| J-39 | 3.44 | 2997.90 | 88.35 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2997.68 | 94.10 | 0.00 |
| J-40 | 2.06 | 2997.90 | 88.13 | 0.00 |
| J-28 | 3.44 | 2997.37 | 102.42 | 0.00 |
| J-27 | 2.06 | 2997.37 | 90.72 | 0.00 |
| J-2 | 1.38 | 2995.79 | 93.93 | 0.00 |
| J-3 | 0.00 | 2995.72 | 87.15 | 0.00 |
| J-4 | 1.38 | 2995.71 | 88.05 | 0.00 |
| J-41 | 5.52 | 2995.69 | 89.04 | 0.00 |
| J-14 | 6.90 | 2995.65 | 92.14 | 0.00 |
| J-11 | 4.14 | 2995.64 | 99.07 | 0.00 |
| J-12 | 49.90 | 2995.63 | 93.00 | 0.00 |
| J-9 | 0.00 | 2995.64 | 107.74 | 0.00 |
| J-6 | 2.07 | 2995.67 | 89.98 | 0.00 |
| J-19 | 3.44 | 2995.70 | 81.76 | 0.00 |
| J-24 | 6.20 | 2995.69 | 81.76 | 0.00 |
| J-20 | 31.00 | 2995.69 | 73.74 | 0.00 |
| J-21 | 12.40 | 2995.69 | 73.74 | 0.00 |
| J-22 | 3.10 | 2995.69 | 73.53 | 0.00 |
| J-5 | 2.76 | 2995.68 | 89.56 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J26

| | | | | |
|-------|-------|---------|--------|------|
| J-17 | 3.10 | 2995.68 | 102.55 | 0.00 |
| J-18 | 1.38 | 2995.71 | 96.50 | 0.00 |
| J-7 | 4.14 | 2995.66 | 99.51 | 0.00 |
| J-13 | 3.45 | 2995.65 | 109.91 | 0.00 |
| J-8 | 3.80 | 2995.65 | 103.84 | 0.00 |
| J-15 | 3.44 | 2995.66 | 81.53 | 0.00 |
| J-16 | 2.06 | 2995.66 | 76.98 | 0.00 |
| J-23 | 9.30 | 2995.69 | 71.36 | 0.00 |
| J-303 | 11.48 | 2996.49 | 111.14 | 0.00 |
| J-301 | 2.02 | 2996.76 | 116.02 | 0.00 |
| J-10 | 47.88 | 2995.64 | 114.67 | 0.00 |
| J-1 | 0.00 | 2996.65 | 95.17 | 0.00 |
| J-102 | 2.70 | 2997.79 | 100.87 | 0.00 |
| J-105 | 3.38 | 2997.79 | 108.67 | 0.00 |
| J-107 | 4.72 | 2997.79 | 113.43 | 0.00 |
| J-111 | 4.06 | 2997.79 | 116.47 | 0.00 |
| J-112 | 1.36 | 2997.62 | 125.06 | 0.00 |
| J-114 | 1.36 | 2997.55 | 126.33 | 0.00 |
| J-115 | 1.36 | 2997.48 | 127.60 | 0.00 |
| J-118 | 1.36 | 2997.43 | 128.01 | 0.00 |
| J-300 | 7.42 | 2996.76 | 116.89 | 0.00 |
| J-302 | 2.70 | 2996.49 | 108.97 | 0.00 |
| J-304 | 2.02 | 2996.47 | 102.03 | 0.00 |
| J-42 | 0.00 | 2998.44 | 99.42 | 0.00 |
| J-31 | 0.00 | 2998.62 | 96.46 | 0.00 |
| J-35 | 0.00 | 2998.72 | 77.00 | 0.00 |
| J-101 | 4.72 | 2999.10 | 115.08 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2997.79 | 116.47 | 0.00 |
| J-33 | 0.00 | 2998.69 | 84.79 | 0.00 |
| J-123 | 3.38 | 2998.69 | 93.02 | 0.00 |
| J-100 | 0.00 | 3000.15 | 121.82 | 0.00 |
| J-103 | 3.38 | 2999.07 | 109.22 | 0.00 |
| J-104 | 3.38 | 2998.86 | 85.30 | 0.00 |
| J-117 | 2.02 | 2997.55 | 123.29 | 0.00 |
| J-110 | 4.06 | 2997.79 | 108.67 | 0.00 |
| J-108 | 2.02 | 2997.79 | 108.23 | 0.00 |
| J-109 | 2.02 | 2997.79 | 107.37 | 0.00 |
| J-305 | 1.36 | 2994.35 | 101.98 | 0.00 |
| S145 | 0.00 | 3000.41 | 123.67 | 0.00 |
| J-207 | 2.70 | 2997.88 | 113.91 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J26

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2997.88 | 116.51 | 0.00 |
| J-206 | 0.68 | 2997.95 | 135.60 | 0.00 |
| J-204 | 2.70 | 2998.29 | 128.81 | 0.00 |
| J-205 | 2.70 | 2998.29 | 120.58 | 0.00 |
| J-203 | 12.82 | 2998.99 | 121.32 | 0.00 |
| J-200 | 7.42 | 2999.94 | 126.06 | 0.00 |
| J-211 | 0.00 | 2999.19 | 117.94 | 0.00 |
| J-201 | 3.38 | 2999.67 | 136.35 | 0.00 |
| J-202 | 10.12 | 2999.67 | 117.71 | 0.00 |
| J-119 | 0.00 | 2997.43 | 131.91 | 0.00 |
| J-120 | 2.02 | 2997.43 | 136.24 | 0.00 |
| J-121 | 0.00 | 2997.44 | 136.25 | 0.00 |
| J-122 | 45.90 | 2997.43 | 138.84 | 0.00 |
| J-210 | 4.06 | 2997.93 | 137.32 | 0.00 |
| J-209 | 0.68 | 2997.95 | 135.17 | 0.00 |
| J-113 | 1.36 | 2997.62 | 124.19 | 0.00 |
| J-116 | 0.68 | 2997.48 | 127.17 | 0.00 |
| J-25 | 5.52 | 2995.69 | 69.41 | 0.00 |
| J-34 | 0.68 | 2998.70 | 82.63 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1421.22 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -29.52 | 0.19 | 0.03 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 111.18 | 0.71 | 0.31 | Open |
| P-4 | 105.66 | 0.67 | 0.28 | Open |
| P-5 | 100.16 | 0.64 | 0.26 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.44 | 0.02 | 0.00 | Open |
| P-8 | 212.88 | 0.60 | 0.14 | Open |
| P-9 | 155.77 | 0.44 | 0.08 | Open |
| P-10 | 153.01 | 0.43 | 0.08 | Open |
| P-11 | 19.94 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -34.10 | 0.10 | 0.01 | Open |

Sereno Canyon Phase 4 Max Day fire flow J26

| | | | | |
|------|---------|------|------|------|
| P-14 | 57.11 | 0.36 | 0.09 | Open |
| P-15 | 4.46 | 0.03 | 0.00 | Open |
| P-16 | 5.91 | 0.04 | 0.00 | Open |
| P-17 | -6.49 | 0.04 | 0.00 | Open |
| P-18 | -0.81 | 0.01 | 0.00 | Open |
| P-19 | -36.27 | 0.23 | 0.04 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.48 | 0.02 | 0.00 | Open |
| P-25 | -24.35 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | -13.85 | 0.09 | 0.01 | Open |
| P-29 | 133.64 | 0.38 | 0.06 | Open |
| P-30 | 127.78 | 0.36 | 0.06 | Open |
| P-31 | 95.86 | 0.27 | 0.03 | Open |
| P-32 | 75.84 | 0.22 | 0.02 | Open |
| P-33 | 81.98 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | -550.42 | 3.51 | 6.05 | Open |
| P-36 | -764.68 | 2.17 | 1.54 | Open |
| P-37 | -756.66 | 2.15 | 1.51 | Open |
| P-38 | 6.43 | 0.02 | 0.00 | Open |
| P-39 | -0.33 | 0.00 | 0.00 | Open |
| P-40 | -13.15 | 0.04 | 0.00 | Open |
| P-41 | 122.24 | 0.78 | 0.37 | Open |
| P-42 | 119.52 | 0.76 | 0.36 | Open |
| P-43 | 116.14 | 0.74 | 0.34 | Open |
| P-44 | 114.10 | 0.73 | 0.33 | Open |
| P-45 | 130.38 | 0.83 | 0.42 | Open |
| P-46 | 120.94 | 0.77 | 0.37 | Open |
| P-47 | 106.76 | 0.30 | 0.04 | Open |
| P-48 | -346.20 | 0.98 | 0.36 | Open |
| P-49 | -354.22 | 2.26 | 2.67 | Open |
| P-50 | -359.72 | 2.30 | 2.75 | Open |
| P-51 | -262.32 | 1.67 | 1.53 | Open |
| P-52 | -377.98 | 2.41 | 3.01 | Open |
| P-53 | -203.89 | 1.30 | 0.96 | Open |
| P-54 | 35.04 | 0.22 | 0.04 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J26

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 223.67 | 1.43 | 1.14 | Open |
| P-58 | 82.37 | 0.53 | 0.18 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1168.28 | 3.31 | 3.38 | Open |
| P-62 | 944.61 | 2.68 | 2.28 | Open |
| P-63 | -139.45 | 0.40 | 0.07 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -142.83 | 0.41 | 0.07 | Open |
| P-66 | -213.80 | 1.36 | 1.05 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -219.20 | 1.40 | 1.10 | Open |
| P-69 | 119.44 | 0.76 | 0.36 | Open |
| P-70 | 119.44 | 0.76 | 0.36 | Open |
| P-71 | -112.58 | 0.72 | 0.32 | Open |
| P-72 | 252.94 | 1.61 | 1.43 | Open |
| P-73 | 126.08 | 0.80 | 0.39 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -19.66 | 0.13 | 0.01 | Open |
| P-77 | -69.62 | 0.20 | 0.02 | Open |
| P-78 | -70.30 | 0.20 | 0.02 | Open |
| P-79 | 12.43 | 0.08 | 0.01 | Open |
| P-80 | 29.85 | 0.19 | 0.03 | Open |
| P-81 | -11.88 | 0.08 | 0.01 | Open |
| P-82 | 17.40 | 0.11 | 0.01 | Open |
| P-83 | 765.80 | 2.17 | 1.55 | Open |
| P-84 | 174.09 | 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 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 17.64 | 0.11 | 0.01 | Open |
| P-90 | -65.56 | 0.42 | 0.12 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -43.27 | 0.28 | 0.05 | Open |
| P-93 | -69.35 | 0.44 | 0.13 | Open |
| P-94 | 134.54 | 0.86 | 0.44 | Open |
| P-95 | -46.65 | 0.30 | 0.06 | Open |
| P-96 | -47.33 | 0.30 | 0.06 | Open |
| P-97 | 85.75 | 0.55 | 0.19 | Open |
| P-98 | -450.94 | 2.88 | 4.18 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1421.22 | 1.01 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J26



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -449.58 | 2.87 | 4.16 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1421.23 | 0.00 | -283.41 | Open Pump |
| 1 | 1421.22 | 4.03 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J27

Page 1

12/2/2017 10:32:33 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality              *
*                               Analysis for Pipe Networks                *
*                               Version 2.0                              *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J27.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J27

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J27

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J27

| | | | | | | |
|-------|--------|-------|---------|--------|--------|------|
| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1187.15 | 101.23 | 101.23 | 0.00 |

Demand Charge: 0.00
Total Cost: 0.00

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-27 | 1000.00 | 2995.86 | 90.07 | 0.00 |
| J-32 | 3.44 | 2998.08 | 89.73 | 0.00 |
| J-36 | 3.80 | 2998.12 | 74.15 | 0.00 |
| J-37 | 1.72 | 2998.12 | 70.68 | 0.00 |
| J-30 | 4.48 | 2997.52 | 98.37 | 0.00 |
| J-38 | 5.52 | 2997.00 | 81.46 | 0.00 |
| J-39 | 3.44 | 2996.80 | 87.87 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2996.41 | 93.55 | 0.00 |
| J-40 | 2.06 | 2996.80 | 87.66 | 0.00 |
| J-28 | 3.44 | 2995.86 | 101.76 | 0.00 |
| J-2 | 1.38 | 2997.24 | 94.56 | 0.00 |
| J-3 | 0.00 | 2997.17 | 87.77 | 0.00 |
| J-4 | 1.38 | 2997.16 | 88.68 | 0.00 |
| J-41 | 5.52 | 2997.14 | 89.67 | 0.00 |
| J-14 | 6.90 | 2997.10 | 92.77 | 0.00 |
| J-11 | 4.14 | 2997.09 | 99.70 | 0.00 |
| J-12 | 49.90 | 2997.09 | 93.63 | 0.00 |
| J-9 | 0.00 | 2997.09 | 108.36 | 0.00 |
| J-6 | 2.07 | 2997.12 | 90.61 | 0.00 |
| J-19 | 3.44 | 2997.15 | 82.39 | 0.00 |
| J-24 | 6.20 | 2997.14 | 82.39 | 0.00 |
| J-20 | 31.00 | 2997.14 | 74.37 | 0.00 |
| J-21 | 12.40 | 2997.14 | 74.37 | 0.00 |
| J-22 | 3.10 | 2997.14 | 74.15 | 0.00 |
| J-5 | 2.76 | 2997.13 | 90.18 | 0.00 |
| J-17 | 3.10 | 2997.13 | 103.18 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J27

| | | | | |
|-------|-------|---------|--------|------|
| J-18 | 1.38 | 2997.16 | 97.13 | 0.00 |
| J-7 | 4.14 | 2997.11 | 100.14 | 0.00 |
| J-13 | 3.45 | 2997.10 | 110.54 | 0.00 |
| J-8 | 3.80 | 2997.10 | 104.47 | 0.00 |
| J-15 | 3.44 | 2997.11 | 82.16 | 0.00 |
| J-16 | 2.06 | 2997.11 | 77.61 | 0.00 |
| J-23 | 9.30 | 2997.14 | 71.99 | 0.00 |
| J-303 | 11.48 | 2997.31 | 111.49 | 0.00 |
| J-301 | 2.02 | 2997.48 | 116.33 | 0.00 |
| J-10 | 47.88 | 2997.09 | 115.30 | 0.00 |
| J-26 | 2.07 | 2997.26 | 100.20 | 0.00 |
| J-1 | 0.00 | 2997.30 | 95.45 | 0.00 |
| J-102 | 2.70 | 2998.16 | 101.03 | 0.00 |
| J-105 | 3.38 | 2998.16 | 108.83 | 0.00 |
| J-107 | 4.72 | 2998.16 | 113.60 | 0.00 |
| J-111 | 4.06 | 2998.17 | 116.63 | 0.00 |
| J-112 | 1.36 | 2998.04 | 125.24 | 0.00 |
| J-114 | 1.36 | 2997.99 | 126.52 | 0.00 |
| J-115 | 1.36 | 2997.94 | 127.80 | 0.00 |
| J-118 | 1.36 | 2997.91 | 128.22 | 0.00 |
| J-300 | 7.42 | 2997.48 | 117.20 | 0.00 |
| J-302 | 2.70 | 2997.31 | 109.33 | 0.00 |
| J-304 | 2.02 | 2997.30 | 102.39 | 0.00 |
| J-42 | 0.00 | 2997.74 | 99.12 | 0.00 |
| J-31 | 0.00 | 2998.01 | 96.20 | 0.00 |
| J-35 | 0.00 | 2998.14 | 76.76 | 0.00 |
| J-101 | 4.72 | 2999.14 | 115.10 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2998.16 | 116.63 | 0.00 |
| J-33 | 0.00 | 2998.10 | 84.54 | 0.00 |
| J-123 | 3.38 | 2998.10 | 92.77 | 0.00 |
| J-100 | 0.00 | 3000.15 | 121.82 | 0.00 |
| J-103 | 3.38 | 2998.63 | 109.03 | 0.00 |
| J-104 | 3.38 | 2998.34 | 85.07 | 0.00 |
| J-117 | 2.02 | 2997.99 | 123.49 | 0.00 |
| J-110 | 4.06 | 2998.16 | 108.83 | 0.00 |
| J-108 | 2.02 | 2998.16 | 108.40 | 0.00 |
| J-109 | 2.02 | 2998.16 | 107.53 | 0.00 |
| J-305 | 1.36 | 2997.28 | 103.24 | 0.00 |
| S145 | 0.00 | 3000.41 | 123.67 | 0.00 |
| J-207 | 2.70 | 2998.25 | 114.07 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J27

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2998.25 | 116.67 | 0.00 |
| J-206 | 0.68 | 2998.31 | 135.76 | 0.00 |
| J-204 | 2.70 | 2998.59 | 128.95 | 0.00 |
| J-205 | 2.70 | 2998.59 | 120.71 | 0.00 |
| J-203 | 12.82 | 2999.19 | 121.41 | 0.00 |
| J-200 | 7.42 | 3000.00 | 126.09 | 0.00 |
| J-211 | 0.00 | 2999.35 | 118.01 | 0.00 |
| J-201 | 3.38 | 2999.77 | 136.39 | 0.00 |
| J-202 | 10.12 | 2999.77 | 117.76 | 0.00 |
| J-119 | 0.00 | 2997.91 | 132.12 | 0.00 |
| J-120 | 2.02 | 2997.91 | 136.45 | 0.00 |
| J-121 | 0.00 | 2997.91 | 136.45 | 0.00 |
| J-122 | 45.90 | 2997.90 | 139.05 | 0.00 |
| J-210 | 4.06 | 2998.29 | 137.48 | 0.00 |
| J-209 | 0.68 | 2998.31 | 135.32 | 0.00 |
| J-113 | 1.36 | 2998.04 | 124.38 | 0.00 |
| J-116 | 0.68 | 2997.94 | 127.37 | 0.00 |
| J-25 | 5.52 | 2997.14 | 70.04 | 0.00 |
| J-34 | 0.68 | 2998.12 | 82.38 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1421.23 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -36.24 | 0.23 | 0.04 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 149.02 | 0.95 | 0.54 | Open |
| P-4 | 143.50 | 0.92 | 0.50 | Open |
| P-5 | 138.00 | 0.88 | 0.47 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.44 | 0.02 | 0.00 | Open |
| P-8 | 212.88 | 0.60 | 0.14 | Open |
| P-9 | 155.77 | 0.44 | 0.08 | Open |
| P-10 | 153.01 | 0.43 | 0.08 | Open |
| P-11 | 19.94 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -34.10 | 0.10 | 0.00 | Open |

Sereno Canyon Phase 4 Max Day fire flow J27

| | | | | |
|------|---------|------|------|------|
| P-14 | 57.11 | 0.36 | 0.09 | Open |
| P-15 | 4.46 | 0.03 | 0.00 | Open |
| P-16 | 5.91 | 0.04 | 0.00 | Open |
| P-17 | -6.49 | 0.04 | 0.00 | Open |
| P-18 | -0.81 | 0.01 | 0.00 | Open |
| P-19 | -36.27 | 0.23 | 0.04 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.48 | 0.02 | 0.00 | Open |
| P-25 | -24.35 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | -13.85 | 0.09 | 0.01 | Open |
| P-29 | 133.64 | 0.38 | 0.06 | Open |
| P-30 | 127.78 | 0.36 | 0.06 | Open |
| P-31 | 95.86 | 0.27 | 0.03 | Open |
| P-32 | 75.84 | 0.22 | 0.02 | Open |
| P-33 | 81.98 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 35.66 | 0.23 | 0.04 | Open |
| P-36 | -178.60 | 0.51 | 0.10 | Open |
| P-37 | -653.00 | 1.85 | 1.15 | Open |
| P-38 | -2.48 | 0.01 | 0.00 | Open |
| P-39 | -9.24 | 0.03 | 0.00 | Open |
| P-40 | -22.06 | 0.06 | 0.00 | Open |
| P-41 | 102.97 | 0.66 | 0.27 | Open |
| P-42 | 100.25 | 0.64 | 0.26 | Open |
| P-43 | 96.87 | 0.62 | 0.24 | Open |
| P-44 | 94.83 | 0.61 | 0.23 | Open |
| P-45 | 102.68 | 0.66 | 0.27 | Open |
| P-46 | 93.24 | 0.60 | 0.23 | Open |
| P-47 | 79.06 | 0.22 | 0.02 | Open |
| P-48 | 37.94 | 0.11 | 0.01 | Open |
| P-49 | 512.35 | 3.27 | 5.29 | Open |
| P-50 | -491.09 | 3.13 | 4.89 | Open |
| P-51 | -355.85 | 2.27 | 2.69 | Open |
| P-52 | -509.35 | 3.25 | 5.24 | Open |
| P-53 | -247.68 | 1.58 | 1.38 | Open |
| P-54 | 41.76 | 0.27 | 0.05 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J27

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 267.45 | 1.71 | 1.59 | Open |
| P-58 | 98.91 | 0.63 | 0.25 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1187.07 | 3.37 | 3.48 | Open |
| P-62 | 919.61 | 2.61 | 2.17 | Open |
| P-63 | -129.09 | 0.37 | 0.06 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -132.47 | 0.38 | 0.06 | Open |
| P-66 | -195.02 | 1.24 | 0.89 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -200.42 | 1.28 | 0.93 | Open |
| P-69 | 109.91 | 0.70 | 0.31 | Open |
| P-70 | 109.91 | 0.70 | 0.31 | Open |
| P-71 | -103.33 | 0.66 | 0.27 | Open |
| P-72 | 234.16 | 1.49 | 1.24 | Open |
| P-73 | 116.83 | 0.75 | 0.34 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -11.23 | 0.07 | 0.00 | Open |
| P-77 | -61.19 | 0.17 | 0.01 | Open |
| P-78 | -61.87 | 0.18 | 0.01 | Open |
| P-79 | 12.43 | 0.08 | 0.00 | Open |
| P-80 | 29.85 | 0.19 | 0.03 | Open |
| P-81 | -11.88 | 0.08 | 0.01 | Open |
| P-82 | 17.40 | 0.11 | 0.01 | Open |
| P-83 | 653.22 | 1.85 | 1.15 | Open |
| P-84 | 261.68 | 1.67 | 1.53 | Open |
| P-85 | -8.10 | 0.05 | 0.00 | Open |
| P-86 | -1.36 | 0.01 | 0.00 | Open |
| P-87 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 9.21 | 0.06 | 0.00 | Open |
| P-90 | -57.13 | 0.36 | 0.09 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -53.09 | 0.34 | 0.08 | Open |
| P-93 | -85.89 | 0.55 | 0.19 | Open |
| P-94 | 161.79 | 1.03 | 0.63 | Open |
| P-95 | -56.47 | 0.36 | 0.09 | Open |
| P-96 | -57.15 | 0.36 | 0.09 | Open |
| P-97 | 102.29 | 0.65 | 0.27 | Open |
| P-98 | -39.09 | 0.25 | 0.05 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1421.23 | 1.01 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J27



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -37.73 | 0.24 | 0.04 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1421.24 | 0.00 | -283.41 | Open Pump |
| 1 | 1421.23 | 4.03 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J28

Page 1

12/2/2017 10:32:46 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality                 *
*                               Analysis for Pipe Networks                   *
*                               Version 2.0                                 *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J28.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J28

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J28

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J28

| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|-------|--------|-------|---------|--------|----------------|------|
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1187.58 | 101.17 | 101.17 | 0.00 |
| | | | | | Demand Charge: | 0.00 |
| | | | | | Total Cost: | 0.00 |

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-28 | 1000.00 | 2986.74 | 97.81 | 0.00 |
| J-32 | 3.44 | 2998.19 | 89.78 | 0.00 |
| J-36 | 3.80 | 2998.23 | 74.19 | 0.00 |
| J-37 | 1.72 | 2998.23 | 70.73 | 0.00 |
| J-30 | 4.48 | 2997.63 | 98.41 | 0.00 |
| J-38 | 5.52 | 2997.11 | 81.51 | 0.00 |
| J-39 | 3.44 | 2996.91 | 87.92 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2996.52 | 93.60 | 0.00 |
| J-40 | 2.06 | 2996.91 | 87.71 | 0.00 |
| J-27 | 2.07 | 2995.97 | 90.11 | 0.00 |
| J-2 | 1.38 | 2997.35 | 94.61 | 0.00 |
| J-3 | 0.00 | 2997.28 | 87.82 | 0.00 |
| J-4 | 1.38 | 2997.26 | 88.72 | 0.00 |
| J-41 | 5.52 | 2997.25 | 89.72 | 0.00 |
| J-14 | 6.90 | 2997.21 | 92.82 | 0.00 |
| J-11 | 4.14 | 2997.20 | 99.74 | 0.00 |
| J-12 | 49.90 | 2997.19 | 93.68 | 0.00 |
| J-9 | 0.00 | 2997.20 | 108.41 | 0.00 |
| J-6 | 2.07 | 2997.23 | 90.66 | 0.00 |
| J-19 | 3.44 | 2997.26 | 82.44 | 0.00 |
| J-24 | 6.20 | 2997.25 | 82.43 | 0.00 |
| J-20 | 31.00 | 2997.25 | 74.42 | 0.00 |
| J-21 | 12.40 | 2997.25 | 74.42 | 0.00 |
| J-22 | 3.10 | 2997.25 | 74.20 | 0.00 |
| J-5 | 2.76 | 2997.24 | 90.23 | 0.00 |
| J-17 | 3.10 | 2997.24 | 103.23 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J28

| | | | | |
|-------|-------|---------|--------|------|
| J-18 | 1.38 | 2997.26 | 97.17 | 0.00 |
| J-7 | 4.14 | 2997.22 | 100.19 | 0.00 |
| J-13 | 3.45 | 2997.21 | 110.58 | 0.00 |
| J-8 | 3.80 | 2997.21 | 104.52 | 0.00 |
| J-15 | 3.44 | 2997.22 | 82.21 | 0.00 |
| J-16 | 2.06 | 2997.22 | 77.66 | 0.00 |
| J-23 | 9.30 | 2997.25 | 72.04 | 0.00 |
| J-303 | 11.48 | 2997.42 | 111.54 | 0.00 |
| J-301 | 2.02 | 2997.59 | 116.38 | 0.00 |
| J-10 | 47.88 | 2997.19 | 115.34 | 0.00 |
| J-26 | 2.07 | 2997.37 | 100.25 | 0.00 |
| J-1 | 0.00 | 2997.40 | 95.50 | 0.00 |
| J-102 | 2.70 | 2998.27 | 101.08 | 0.00 |
| J-105 | 3.38 | 2998.27 | 108.88 | 0.00 |
| J-107 | 4.72 | 2998.27 | 113.64 | 0.00 |
| J-111 | 4.06 | 2998.27 | 116.68 | 0.00 |
| J-112 | 1.36 | 2998.15 | 125.29 | 0.00 |
| J-114 | 1.36 | 2998.10 | 126.57 | 0.00 |
| J-115 | 1.36 | 2998.05 | 127.85 | 0.00 |
| J-118 | 1.36 | 2998.02 | 128.26 | 0.00 |
| J-300 | 7.42 | 2997.59 | 117.25 | 0.00 |
| J-302 | 2.70 | 2997.42 | 109.37 | 0.00 |
| J-304 | 2.02 | 2997.41 | 102.44 | 0.00 |
| J-42 | 0.00 | 2997.85 | 99.16 | 0.00 |
| J-31 | 0.00 | 2998.12 | 96.24 | 0.00 |
| J-35 | 0.00 | 2998.25 | 76.80 | 0.00 |
| J-101 | 4.72 | 2999.24 | 115.15 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2998.27 | 116.68 | 0.00 |
| J-33 | 0.00 | 2998.21 | 84.58 | 0.00 |
| J-123 | 3.38 | 2998.21 | 92.82 | 0.00 |
| J-100 | 0.00 | 3000.25 | 121.87 | 0.00 |
| J-103 | 3.38 | 2998.74 | 109.08 | 0.00 |
| J-104 | 3.38 | 2998.45 | 85.12 | 0.00 |
| J-117 | 2.02 | 2998.10 | 123.53 | 0.00 |
| J-110 | 4.06 | 2998.27 | 108.88 | 0.00 |
| J-108 | 2.02 | 2998.27 | 108.44 | 0.00 |
| J-109 | 2.02 | 2998.27 | 107.58 | 0.00 |
| J-305 | 1.36 | 2997.38 | 103.29 | 0.00 |
| S145 | 0.00 | 3000.51 | 123.71 | 0.00 |
| J-207 | 2.70 | 2998.35 | 114.11 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J28

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2998.35 | 116.71 | 0.00 |
| J-206 | 0.68 | 2998.42 | 135.80 | 0.00 |
| J-204 | 2.70 | 2998.70 | 128.99 | 0.00 |
| J-205 | 2.70 | 2998.70 | 120.76 | 0.00 |
| J-203 | 12.82 | 2999.30 | 121.45 | 0.00 |
| J-200 | 7.42 | 3000.10 | 126.13 | 0.00 |
| J-211 | 0.00 | 2999.46 | 118.06 | 0.00 |
| J-201 | 3.38 | 2999.87 | 136.44 | 0.00 |
| J-202 | 10.12 | 2999.87 | 117.80 | 0.00 |
| J-119 | 0.00 | 2998.02 | 132.16 | 0.00 |
| J-120 | 2.02 | 2998.02 | 136.50 | 0.00 |
| J-121 | 0.00 | 2998.02 | 136.50 | 0.00 |
| J-122 | 45.90 | 2998.01 | 139.09 | 0.00 |
| J-210 | 4.06 | 2998.39 | 137.53 | 0.00 |
| J-209 | 0.68 | 2998.41 | 135.37 | 0.00 |
| J-113 | 1.36 | 2998.15 | 124.42 | 0.00 |
| J-116 | 0.68 | 2998.05 | 127.41 | 0.00 |
| J-25 | 5.52 | 2997.25 | 70.09 | 0.00 |
| J-34 | 0.68 | 2998.23 | 82.43 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1419.86 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -36.20 | 0.23 | 0.04 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 148.85 | 0.95 | 0.54 | Open |
| P-4 | 143.33 | 0.91 | 0.50 | Open |
| P-5 | 137.83 | 0.88 | 0.47 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -1000.00 | 6.38 | 18.27 | Open |
| P-8 | 212.88 | 0.60 | 0.14 | Open |
| P-9 | 155.77 | 0.44 | 0.08 | Open |
| P-10 | 153.01 | 0.43 | 0.08 | Open |
| P-11 | 19.94 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -34.10 | 0.10 | 0.00 | Open |

Sereno Canyon Phase 4 Max Day fire flow J28

| | | | | |
|------|---------|------|------|------|
| P-14 | 57.11 | 0.36 | 0.09 | Open |
| P-15 | 4.46 | 0.03 | 0.00 | Open |
| P-16 | 5.91 | 0.04 | 0.00 | Open |
| P-17 | -6.49 | 0.04 | 0.00 | Open |
| P-18 | -0.81 | 0.01 | 0.00 | Open |
| P-19 | -36.27 | 0.23 | 0.04 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.48 | 0.02 | 0.00 | Open |
| P-25 | -24.35 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | -13.85 | 0.09 | 0.01 | Open |
| P-29 | 133.64 | 0.38 | 0.06 | Open |
| P-30 | 127.78 | 0.36 | 0.06 | Open |
| P-31 | 95.86 | 0.27 | 0.03 | Open |
| P-32 | 75.84 | 0.22 | 0.02 | Open |
| P-33 | 81.98 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 35.66 | 0.23 | 0.04 | Open |
| P-36 | -178.60 | 0.51 | 0.10 | Open |
| P-37 | -652.34 | 1.85 | 1.15 | Open |
| P-38 | -2.40 | 0.01 | 0.00 | Open |
| P-39 | -9.16 | 0.03 | 0.00 | Open |
| P-40 | -21.98 | 0.06 | 0.00 | Open |
| P-41 | 102.90 | 0.66 | 0.27 | Open |
| P-42 | 100.18 | 0.64 | 0.26 | Open |
| P-43 | 96.80 | 0.62 | 0.24 | Open |
| P-44 | 94.76 | 0.60 | 0.23 | Open |
| P-45 | 102.56 | 0.65 | 0.27 | Open |
| P-46 | 93.12 | 0.59 | 0.23 | Open |
| P-47 | 78.94 | 0.22 | 0.02 | Open |
| P-48 | 37.83 | 0.11 | 0.01 | Open |
| P-49 | 511.58 | 3.27 | 5.28 | Open |
| P-50 | -490.49 | 3.13 | 4.88 | Open |
| P-51 | -355.43 | 2.27 | 2.69 | Open |
| P-52 | -508.75 | 3.25 | 5.23 | Open |
| P-53 | -247.39 | 1.58 | 1.37 | Open |
| P-54 | 41.72 | 0.27 | 0.05 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J28

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 267.17 | 1.71 | 1.58 | Open |
| P-58 | 98.80 | 0.63 | 0.25 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1185.89 | 3.36 | 3.48 | Open |
| P-62 | 918.73 | 2.61 | 2.17 | Open |
| P-63 | -128.94 | 0.37 | 0.06 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -132.32 | 0.38 | 0.06 | Open |
| P-66 | -194.83 | 1.24 | 0.88 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -200.23 | 1.28 | 0.93 | Open |
| P-69 | 109.81 | 0.70 | 0.31 | Open |
| P-70 | 109.81 | 0.70 | 0.31 | Open |
| P-71 | -103.23 | 0.66 | 0.27 | Open |
| P-72 | 233.97 | 1.49 | 1.24 | Open |
| P-73 | 116.73 | 0.75 | 0.34 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -11.19 | 0.07 | 0.00 | Open |
| P-77 | -61.15 | 0.17 | 0.01 | Open |
| P-78 | -61.83 | 0.18 | 0.01 | Open |
| P-79 | 12.43 | 0.08 | 0.00 | Open |
| P-80 | 29.85 | 0.19 | 0.03 | Open |
| P-81 | -11.88 | 0.08 | 0.01 | Open |
| P-82 | 17.40 | 0.11 | 0.01 | Open |
| P-83 | 652.64 | 1.85 | 1.15 | Open |
| P-84 | 261.37 | 1.67 | 1.52 | Open |
| P-85 | -8.10 | 0.05 | 0.00 | Open |
| P-86 | -1.36 | 0.01 | 0.00 | Open |
| P-87 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 9.17 | 0.06 | 0.00 | Open |
| P-90 | -57.09 | 0.36 | 0.09 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -53.02 | 0.34 | 0.08 | Open |
| P-93 | -85.78 | 0.55 | 0.19 | Open |
| P-94 | 161.61 | 1.03 | 0.62 | Open |
| P-95 | -56.40 | 0.36 | 0.09 | Open |
| P-96 | -57.08 | 0.36 | 0.09 | Open |
| P-97 | 102.18 | 0.65 | 0.27 | Open |
| P-98 | -39.09 | 0.25 | 0.05 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1419.86 | 1.01 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J28



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -37.73 | 0.24 | 0.04 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1419.87 | 0.00 | -283.51 | Open Pump |
| 1 | 1419.86 | 4.03 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J29

Page 1

12/2/2017 10:33:04 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality                 *
*                               Analysis for Pipe Networks                   *
*                               Version 2.0                                 *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J29.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J29

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J29

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J29

| | | | | | | |
|-------|--------|-------|---------|--------|--------|------|
| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1187.37 | 101.20 | 101.20 | 0.00 |

Demand Charge: 0.00
 Total Cost: 0.00

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 1000.00 | 2995.91 | 93.34 | 0.00 |
| J-32 | 3.44 | 2997.88 | 89.64 | 0.00 |
| J-36 | 3.80 | 2997.92 | 74.06 | 0.00 |
| J-37 | 1.72 | 2997.92 | 70.59 | 0.00 |
| J-30 | 4.48 | 2997.22 | 98.24 | 0.00 |
| J-38 | 5.52 | 2996.62 | 81.29 | 0.00 |
| J-39 | 3.44 | 2996.38 | 87.69 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-40 | 2.06 | 2996.38 | 87.47 | 0.00 |
| J-28 | 3.45 | 2996.39 | 101.99 | 0.00 |
| J-27 | 2.07 | 2996.39 | 90.30 | 0.00 |
| J-2 | 1.38 | 2997.52 | 94.69 | 0.00 |
| J-3 | 0.00 | 2997.46 | 87.90 | 0.00 |
| J-4 | 1.38 | 2997.44 | 88.80 | 0.00 |
| J-41 | 5.52 | 2997.43 | 89.79 | 0.00 |
| J-14 | 6.90 | 2997.39 | 92.89 | 0.00 |
| J-11 | 4.14 | 2997.37 | 99.82 | 0.00 |
| J-12 | 49.90 | 2997.37 | 93.75 | 0.00 |
| J-9 | 0.00 | 2997.38 | 108.49 | 0.00 |
| J-6 | 2.07 | 2997.41 | 90.74 | 0.00 |
| J-19 | 3.44 | 2997.44 | 82.52 | 0.00 |
| J-24 | 6.20 | 2997.43 | 82.51 | 0.00 |
| J-20 | 31.00 | 2997.43 | 74.50 | 0.00 |
| J-21 | 12.40 | 2997.43 | 74.50 | 0.00 |
| J-22 | 3.10 | 2997.43 | 74.28 | 0.00 |
| J-5 | 2.76 | 2997.42 | 90.31 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J29

| | | | | |
|-------|-------|---------|--------|------|
| J-17 | 3.10 | 2997.42 | 103.31 | 0.00 |
| J-18 | 1.38 | 2997.44 | 97.25 | 0.00 |
| J-7 | 4.14 | 2997.39 | 100.26 | 0.00 |
| J-13 | 3.45 | 2997.39 | 110.66 | 0.00 |
| J-8 | 3.80 | 2997.39 | 104.59 | 0.00 |
| J-15 | 3.44 | 2997.40 | 82.28 | 0.00 |
| J-16 | 2.06 | 2997.40 | 77.73 | 0.00 |
| J-23 | 9.30 | 2997.42 | 72.11 | 0.00 |
| J-303 | 11.48 | 2997.59 | 111.61 | 0.00 |
| J-301 | 2.02 | 2997.74 | 116.44 | 0.00 |
| J-10 | 47.88 | 2997.37 | 115.42 | 0.00 |
| J-26 | 2.07 | 2997.54 | 100.33 | 0.00 |
| J-1 | 0.00 | 2997.58 | 95.58 | 0.00 |
| J-102 | 2.70 | 2998.35 | 101.11 | 0.00 |
| J-105 | 3.38 | 2998.35 | 108.91 | 0.00 |
| J-107 | 4.72 | 2998.35 | 113.68 | 0.00 |
| J-111 | 4.06 | 2998.35 | 116.71 | 0.00 |
| J-112 | 1.36 | 2998.24 | 125.33 | 0.00 |
| J-114 | 1.36 | 2998.19 | 126.61 | 0.00 |
| J-115 | 1.36 | 2998.15 | 127.89 | 0.00 |
| J-118 | 1.36 | 2998.11 | 128.31 | 0.00 |
| J-300 | 7.42 | 2997.74 | 117.31 | 0.00 |
| J-302 | 2.70 | 2997.59 | 109.45 | 0.00 |
| J-304 | 2.02 | 2997.58 | 102.51 | 0.00 |
| J-42 | 0.00 | 2997.49 | 99.01 | 0.00 |
| J-31 | 0.00 | 2997.79 | 96.10 | 0.00 |
| J-35 | 0.00 | 2997.95 | 76.67 | 0.00 |
| J-101 | 4.72 | 2999.21 | 115.13 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2998.35 | 116.71 | 0.00 |
| J-33 | 0.00 | 2997.90 | 84.45 | 0.00 |
| J-123 | 3.38 | 2997.90 | 92.68 | 0.00 |
| J-100 | 0.00 | 3000.19 | 121.84 | 0.00 |
| J-103 | 3.38 | 2998.50 | 108.97 | 0.00 |
| J-104 | 3.38 | 2998.16 | 85.00 | 0.00 |
| J-117 | 2.02 | 2998.19 | 123.57 | 0.00 |
| J-110 | 4.06 | 2998.35 | 108.91 | 0.00 |
| J-108 | 2.02 | 2998.35 | 108.48 | 0.00 |
| J-109 | 2.02 | 2998.35 | 107.61 | 0.00 |
| J-305 | 1.36 | 2997.56 | 103.37 | 0.00 |
| S145 | 0.00 | 3000.46 | 123.69 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J29

| | | | | |
|-------|----------|---------|--------|----------------|
| J-207 | 2.70 | 2998.43 | 114.14 | 0.00 |
| J-208 | 0.68 | 2998.43 | 116.74 | 0.00 |
| J-206 | 0.68 | 2998.49 | 135.83 | 0.00 |
| J-204 | 2.70 | 2998.75 | 129.01 | 0.00 |
| J-205 | 2.70 | 2998.75 | 120.78 | 0.00 |
| J-203 | 12.82 | 2999.31 | 121.46 | 0.00 |
| J-200 | 7.42 | 3000.07 | 126.12 | 0.00 |
| J-211 | 0.00 | 2999.47 | 118.06 | 0.00 |
| J-201 | 3.38 | 2999.86 | 136.43 | 0.00 |
| J-202 | 10.12 | 2999.85 | 117.79 | 0.00 |
| J-119 | 0.00 | 2998.12 | 132.21 | 0.00 |
| J-120 | 2.02 | 2998.12 | 136.54 | 0.00 |
| J-121 | 0.00 | 2998.12 | 136.54 | 0.00 |
| J-122 | 45.90 | 2998.11 | 139.14 | 0.00 |
| J-210 | 4.06 | 2998.47 | 137.56 | 0.00 |
| J-209 | 0.68 | 2998.48 | 135.40 | 0.00 |
| J-113 | 1.36 | 2998.24 | 124.46 | 0.00 |
| J-116 | 0.68 | 2998.15 | 127.45 | 0.00 |
| J-25 | 5.52 | 2997.43 | 70.16 | 0.00 |
| J-34 | 0.68 | 2997.92 | 82.29 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1420.55 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -38.90 | 0.25 | 0.04 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 162.99 | 1.04 | 0.63 | Open |
| P-4 | 157.47 | 1.01 | 0.60 | Open |
| P-5 | 151.97 | 0.97 | 0.56 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.45 | 0.02 | 0.00 | Open |
| P-8 | 212.88 | 0.60 | 0.14 | Open |
| P-9 | 155.77 | 0.44 | 0.08 | Open |
| P-10 | 153.01 | 0.43 | 0.08 | Open |
| P-11 | 19.94 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |

Sereno Canyon Phase 4 Max Day fire flow J29

| | | | | |
|------|---------|------|------|------|
| P-13 | -34.10 | 0.10 | 0.00 | Open |
| P-14 | 57.11 | 0.36 | 0.09 | Open |
| P-15 | 4.46 | 0.03 | 0.00 | Open |
| P-16 | 5.91 | 0.04 | 0.00 | Open |
| P-17 | -6.49 | 0.04 | 0.00 | Open |
| P-18 | -0.81 | 0.01 | 0.00 | Open |
| P-19 | -36.27 | 0.23 | 0.04 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.48 | 0.02 | 0.00 | Open |
| P-25 | -24.35 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | -13.85 | 0.09 | 0.01 | Open |
| P-29 | 133.64 | 0.38 | 0.06 | Open |
| P-30 | 127.78 | 0.36 | 0.06 | Open |
| P-31 | 95.86 | 0.27 | 0.03 | Open |
| P-32 | 75.84 | 0.22 | 0.02 | Open |
| P-33 | 81.98 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 35.41 | 0.23 | 0.04 | Open |
| P-36 | -178.85 | 0.51 | 0.10 | Open |
| P-37 | -610.86 | 1.73 | 1.02 | Open |
| P-38 | -2.67 | 0.01 | 0.00 | Open |
| P-39 | -9.43 | 0.03 | 0.00 | Open |
| P-40 | -22.25 | 0.06 | 0.00 | Open |
| P-41 | 98.26 | 0.63 | 0.25 | Open |
| P-42 | 95.54 | 0.61 | 0.24 | Open |
| P-43 | 92.16 | 0.59 | 0.22 | Open |
| P-44 | 90.12 | 0.58 | 0.21 | Open |
| P-45 | 95.61 | 0.61 | 0.24 | Open |
| P-46 | 86.17 | 0.55 | 0.19 | Open |
| P-47 | 71.99 | 0.20 | 0.02 | Open |
| P-48 | 31.12 | 0.09 | 0.00 | Open |
| P-49 | 463.14 | 2.96 | 4.39 | Open |
| P-50 | 457.62 | 2.92 | 4.29 | Open |
| P-51 | -390.41 | 2.49 | 3.20 | Open |
| P-52 | -557.88 | 3.56 | 6.20 | Open |
| P-53 | -265.00 | 1.69 | 1.56 | Open |
| P-54 | 44.42 | 0.28 | 0.06 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J29

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 284.78 | 1.82 | 1.78 | Open |
| P-58 | 105.45 | 0.67 | 0.28 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1193.28 | 3.39 | 3.52 | Open |
| P-62 | 908.50 | 2.58 | 2.12 | Open |
| P-63 | -124.57 | 0.35 | 0.05 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -127.95 | 0.36 | 0.06 | Open |
| P-66 | -188.13 | 1.20 | 0.83 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -193.53 | 1.24 | 0.87 | Open |
| P-69 | 106.42 | 0.68 | 0.29 | Open |
| P-70 | 106.42 | 0.68 | 0.29 | Open |
| P-71 | -99.93 | 0.64 | 0.26 | Open |
| P-72 | 227.27 | 1.45 | 1.17 | Open |
| P-73 | 113.43 | 0.72 | 0.32 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -8.86 | 0.06 | 0.00 | Open |
| P-77 | -58.82 | 0.17 | 0.01 | Open |
| P-78 | -59.50 | 0.17 | 0.01 | Open |
| P-79 | 12.43 | 0.08 | 0.01 | Open |
| P-80 | 29.85 | 0.19 | 0.03 | Open |
| P-81 | -11.88 | 0.08 | 0.01 | Open |
| P-82 | 17.40 | 0.11 | 0.01 | Open |
| P-83 | 610.90 | 1.73 | 1.02 | Open |
| P-84 | 292.89 | 1.87 | 1.88 | Open |
| P-85 | -8.10 | 0.05 | 0.00 | Open |
| P-86 | -1.36 | 0.01 | 0.00 | Open |
| P-87 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 6.84 | 0.04 | 0.00 | Open |
| P-90 | -54.76 | 0.35 | 0.08 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -56.97 | 0.36 | 0.09 | Open |
| P-93 | -92.43 | 0.59 | 0.22 | Open |
| P-94 | 172.57 | 1.10 | 0.71 | Open |
| P-95 | -60.35 | 0.39 | 0.10 | Open |
| P-96 | -61.03 | 0.39 | 0.10 | Open |
| P-97 | 108.83 | 0.69 | 0.30 | Open |
| P-98 | -38.84 | 0.25 | 0.04 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1420.55 | 1.01 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J29



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -37.48 | 0.24 | 0.04 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1420.56 | 0.00 | -283.46 | Open Pump |
| 1 | 1420.55 | 4.03 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J30

Page 1

12/2/2017 10:33:16 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality              *
*                               Analysis for Pipe Networks                *
*                               Version 2.0                              *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J30.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J30

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J30

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J30

| | | | | | | |
|-------|--------|-------|---------|--------|--------|------|
| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1187.91 | 101.13 | 101.13 | 0.00 |

Demand Charge: 0.00
 Total Cost: 0.00

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-32 | 3.44 | 2997.41 | 89.44 | 0.00 |
| J-36 | 3.80 | 2997.46 | 73.86 | 0.00 |
| J-37 | 1.72 | 2997.46 | 70.39 | 0.00 |
| J-30 | 1000.00 | 2996.55 | 97.95 | 0.00 |
| J-38 | 5.52 | 2996.77 | 81.36 | 0.00 |
| J-39 | 3.44 | 2996.87 | 87.90 | 0.00 |



Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2997.11 | 93.86 | 0.00 |
| J-40 | 2.06 | 2996.87 | 87.69 | 0.00 |
| J-28 | 3.45 | 2997.41 | 102.44 | 0.00 |
| J-27 | 2.07 | 2997.41 | 90.74 | 0.00 |
| J-2 | 1.38 | 2998.10 | 94.94 | 0.00 |
| J-3 | 0.00 | 2998.04 | 88.15 | 0.00 |
| J-4 | 1.38 | 2998.02 | 89.05 | 0.00 |
| J-41 | 5.52 | 2998.01 | 90.04 | 0.00 |
| J-14 | 6.90 | 2997.97 | 93.15 | 0.00 |
| J-11 | 4.14 | 2997.96 | 100.07 | 0.00 |
| J-12 | 49.90 | 2997.95 | 94.01 | 0.00 |
| J-9 | 0.00 | 2997.96 | 108.74 | 0.00 |
| J-6 | 2.07 | 2997.99 | 90.99 | 0.00 |
| J-19 | 3.44 | 2998.02 | 82.77 | 0.00 |
| J-24 | 6.20 | 2998.01 | 82.76 | 0.00 |
| J-20 | 31.00 | 2998.01 | 74.75 | 0.00 |
| J-21 | 12.40 | 2998.01 | 74.75 | 0.00 |
| J-22 | 3.10 | 2998.01 | 74.53 | 0.00 |
| J-5 | 2.76 | 2998.00 | 90.56 | 0.00 |
| J-17 | 3.10 | 2998.00 | 103.56 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J30

| | | | | |
|-------|-------|---------|--------|------|
| J-18 | 1.38 | 2998.02 | 97.50 | 0.00 |
| J-7 | 4.14 | 2997.97 | 100.51 | 0.00 |
| J-13 | 3.45 | 2997.97 | 110.91 | 0.00 |
| J-8 | 3.80 | 2997.97 | 104.84 | 0.00 |
| J-15 | 3.44 | 2997.98 | 82.53 | 0.00 |
| J-16 | 2.06 | 2997.98 | 77.98 | 0.00 |
| J-23 | 9.30 | 2998.01 | 72.36 | 0.00 |
| J-303 | 11.48 | 2998.17 | 111.86 | 0.00 |
| J-301 | 2.02 | 2998.27 | 116.68 | 0.00 |
| J-10 | 47.88 | 2997.95 | 115.67 | 0.00 |
| J-26 | 2.07 | 2998.12 | 100.58 | 0.00 |
| J-1 | 0.00 | 2998.16 | 95.83 | 0.00 |
| J-102 | 2.70 | 2998.74 | 101.28 | 0.00 |
| J-105 | 3.38 | 2998.74 | 109.08 | 0.00 |
| J-107 | 4.72 | 2998.74 | 113.84 | 0.00 |
| J-111 | 4.06 | 2998.74 | 116.88 | 0.00 |
| J-112 | 1.36 | 2998.65 | 125.51 | 0.00 |
| J-114 | 1.36 | 2998.61 | 126.79 | 0.00 |
| J-115 | 1.36 | 2998.57 | 128.07 | 0.00 |
| J-118 | 1.36 | 2998.55 | 128.49 | 0.00 |
| J-300 | 7.42 | 2998.27 | 117.54 | 0.00 |
| J-302 | 2.70 | 2998.17 | 109.70 | 0.00 |
| J-304 | 2.02 | 2998.16 | 102.76 | 0.00 |
| J-42 | 0.00 | 2996.91 | 98.75 | 0.00 |
| J-31 | 0.00 | 2997.30 | 95.89 | 0.00 |
| J-35 | 0.00 | 2997.49 | 76.47 | 0.00 |
| J-101 | 4.72 | 2999.38 | 115.21 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2998.74 | 116.88 | 0.00 |
| J-33 | 0.00 | 2997.43 | 84.25 | 0.00 |
| J-123 | 3.38 | 2997.43 | 92.48 | 0.00 |
| J-100 | 0.00 | 3000.32 | 121.90 | 0.00 |
| J-103 | 3.38 | 2998.19 | 108.84 | 0.00 |
| J-104 | 3.38 | 2997.77 | 84.83 | 0.00 |
| J-117 | 2.02 | 2998.61 | 123.75 | 0.00 |
| J-110 | 4.06 | 2998.74 | 109.08 | 0.00 |
| J-108 | 2.02 | 2998.74 | 108.64 | 0.00 |
| J-109 | 2.02 | 2998.74 | 107.78 | 0.00 |
| J-305 | 1.36 | 2998.14 | 103.62 | 0.00 |
| S145 | 0.00 | 3000.59 | 123.74 | 0.00 |
| J-207 | 2.70 | 2998.81 | 114.31 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J30

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2998.81 | 116.91 | 0.00 |
| J-206 | 0.68 | 2998.86 | 135.99 | 0.00 |
| J-204 | 2.70 | 2999.09 | 129.16 | 0.00 |
| J-205 | 2.70 | 2999.09 | 120.93 | 0.00 |
| J-203 | 12.82 | 2999.57 | 121.57 | 0.00 |
| J-200 | 7.42 | 3000.24 | 126.20 | 0.00 |
| J-211 | 0.00 | 2999.71 | 118.17 | 0.00 |
| J-201 | 3.38 | 3000.05 | 136.51 | 0.00 |
| J-202 | 10.12 | 3000.05 | 117.88 | 0.00 |
| J-119 | 0.00 | 2998.55 | 132.39 | 0.00 |
| J-120 | 2.02 | 2998.55 | 136.73 | 0.00 |
| J-121 | 0.00 | 2998.55 | 136.73 | 0.00 |
| J-122 | 45.90 | 2998.54 | 139.32 | 0.00 |
| J-210 | 4.06 | 2998.84 | 137.72 | 0.00 |
| J-209 | 0.68 | 2998.86 | 135.56 | 0.00 |
| J-113 | 1.36 | 2998.65 | 124.64 | 0.00 |
| J-116 | 0.68 | 2998.57 | 127.64 | 0.00 |
| J-25 | 5.52 | 2998.01 | 70.42 | 0.00 |
| J-34 | 0.68 | 2997.46 | 82.09 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1418.83 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -44.62 | 0.28 | 0.06 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | -94.49 | 0.60 | 0.23 | Open |
| P-4 | -100.01 | 0.64 | 0.26 | Open |
| P-5 | -105.51 | 0.67 | 0.28 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.45 | 0.02 | 0.00 | Open |
| P-8 | 212.88 | 0.60 | 0.14 | Open |
| P-9 | 155.77 | 0.44 | 0.08 | Open |
| P-10 | 153.01 | 0.43 | 0.08 | Open |
| P-11 | 19.94 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -34.10 | 0.10 | 0.00 | Open |

Sereno Canyon Phase 4 Max Day fire flow J30

| | | | | |
|------|---------|------|------|------|
| P-14 | 57.11 | 0.36 | 0.09 | Open |
| P-15 | 4.46 | 0.03 | 0.00 | Open |
| P-16 | 5.91 | 0.04 | 0.00 | Open |
| P-17 | -6.49 | 0.04 | 0.00 | Open |
| P-18 | -0.81 | 0.01 | 0.00 | Open |
| P-19 | -36.27 | 0.23 | 0.04 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.48 | 0.02 | 0.00 | Open |
| P-25 | -24.35 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | -13.85 | 0.09 | 0.01 | Open |
| P-29 | 133.64 | 0.38 | 0.06 | Open |
| P-30 | 127.78 | 0.36 | 0.06 | Open |
| P-31 | 95.86 | 0.27 | 0.03 | Open |
| P-32 | 75.84 | 0.22 | 0.02 | Open |
| P-33 | 81.98 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 35.02 | 0.22 | 0.04 | Open |
| P-36 | -179.24 | 0.51 | 0.11 | Open |
| P-37 | -523.17 | 1.48 | 0.76 | Open |
| P-38 | -3.37 | 0.01 | 0.00 | Open |
| P-39 | -10.13 | 0.03 | 0.00 | Open |
| P-40 | -22.95 | 0.07 | 0.00 | Open |
| P-41 | 88.43 | 0.56 | 0.20 | Open |
| P-42 | 85.71 | 0.55 | 0.19 | Open |
| P-43 | 82.33 | 0.53 | 0.18 | Open |
| P-44 | 80.29 | 0.51 | 0.17 | Open |
| P-45 | 80.83 | 0.52 | 0.17 | Open |
| P-46 | 71.39 | 0.46 | 0.14 | Open |
| P-47 | 57.21 | 0.16 | 0.01 | Open |
| P-48 | 16.74 | 0.05 | 0.00 | Open |
| P-49 | 360.67 | 2.30 | 2.76 | Open |
| P-50 | 355.15 | 2.27 | 2.68 | Open |
| P-51 | 246.88 | 1.58 | 1.37 | Open |
| P-52 | -658.63 | 4.20 | 8.43 | Open |
| P-53 | -302.27 | 1.93 | 1.99 | Open |
| P-54 | 50.14 | 0.32 | 0.07 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J30

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 322.05 | 2.06 | 2.24 | Open |
| P-58 | 119.52 | 0.76 | 0.36 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1205.63 | 3.42 | 3.58 | Open |
| P-62 | 883.58 | 2.51 | 2.02 | Open |
| P-63 | -115.43 | 0.33 | 0.05 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -118.81 | 0.34 | 0.05 | Open |
| P-66 | -174.06 | 1.11 | 0.72 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -179.46 | 1.15 | 0.76 | Open |
| P-69 | 99.28 | 0.63 | 0.25 | Open |
| P-70 | 99.28 | 0.63 | 0.25 | Open |
| P-71 | -93.00 | 0.59 | 0.22 | Open |
| P-72 | 213.20 | 1.36 | 1.04 | Open |
| P-73 | 106.50 | 0.68 | 0.29 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -3.92 | 0.03 | 0.00 | Open |
| P-77 | -53.88 | 0.15 | 0.01 | Open |
| P-78 | -54.56 | 0.15 | 0.01 | Open |
| P-79 | 12.43 | 0.08 | 0.00 | Open |
| P-80 | 29.85 | 0.19 | 0.03 | Open |
| P-81 | -11.88 | 0.08 | 0.01 | Open |
| P-82 | 17.40 | 0.11 | 0.01 | Open |
| P-83 | 522.50 | 1.48 | 0.76 | Open |
| P-84 | 356.36 | 2.27 | 2.70 | Open |
| P-85 | -8.10 | 0.05 | 0.00 | Open |
| P-86 | -1.36 | 0.01 | 0.00 | Open |
| P-87 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 1.90 | 0.01 | 0.00 | Open |
| P-90 | -49.82 | 0.32 | 0.07 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -65.32 | 0.42 | 0.12 | Open |
| P-93 | -106.50 | 0.68 | 0.29 | Open |
| P-94 | 195.77 | 1.25 | 0.89 | Open |
| P-95 | -68.70 | 0.44 | 0.13 | Open |
| P-96 | -69.38 | 0.44 | 0.13 | Open |
| P-97 | 122.90 | 0.78 | 0.38 | Open |
| P-98 | -38.45 | 0.25 | 0.04 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1418.83 | 1.01 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J30



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -37.09 | 0.24 | 0.04 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1418.84 | 0.00 | -283.59 | Open Pump |
| 1 | 1418.83 | 4.02 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J31

Page 1

12/2/2017 10:33:41 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality              *
*                               Analysis for Pipe Networks                *
*                               Version 2.0                              *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J31.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J31

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J31

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J31

| | | | | | | |
|-------|--------|-------|---------|--------|--------|------|
| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1186.50 | 101.33 | 101.33 | 0.00 |

Demand Charge: 0.00
 Total Cost: 0.00

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-31 | 1000.00 | 2995.45 | 95.09 | 0.00 |
| J-32 | 3.44 | 2995.62 | 88.66 | 0.00 |
| J-36 | 3.80 | 2995.71 | 73.10 | 0.00 |
| J-37 | 1.72 | 2995.71 | 69.64 | 0.00 |
| J-30 | 4.48 | 2996.97 | 98.13 | 0.00 |
| J-38 | 5.52 | 2997.12 | 81.51 | 0.00 |
| J-39 | 3.44 | 2997.20 | 88.04 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2997.37 | 93.97 | 0.00 |
| J-40 | 2.06 | 2997.20 | 87.83 | 0.00 |
| J-28 | 3.45 | 2997.59 | 102.51 | 0.00 |
| J-27 | 2.07 | 2997.59 | 90.81 | 0.00 |
| J-2 | 1.38 | 2998.07 | 94.92 | 0.00 |
| J-3 | 0.00 | 2998.01 | 88.14 | 0.00 |
| J-4 | 1.38 | 2997.99 | 89.04 | 0.00 |
| J-41 | 5.52 | 2997.98 | 90.03 | 0.00 |
| J-14 | 6.90 | 2997.94 | 93.13 | 0.00 |
| J-11 | 4.14 | 2997.92 | 100.06 | 0.00 |
| J-12 | 49.90 | 2997.92 | 93.99 | 0.00 |
| J-9 | 0.00 | 2997.93 | 108.73 | 0.00 |
| J-6 | 2.07 | 2997.96 | 90.98 | 0.00 |
| J-19 | 3.44 | 2997.99 | 82.75 | 0.00 |
| J-24 | 6.20 | 2997.98 | 82.75 | 0.00 |
| J-20 | 31.00 | 2997.98 | 74.73 | 0.00 |
| J-21 | 12.40 | 2997.98 | 74.73 | 0.00 |
| J-22 | 3.10 | 2997.98 | 74.52 | 0.00 |
| J-5 | 2.76 | 2997.97 | 90.55 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J31

| | | | | |
|-------|-------|---------|--------|------|
| J-17 | 3.10 | 2997.97 | 103.55 | 0.00 |
| J-18 | 1.38 | 2997.99 | 97.49 | 0.00 |
| J-7 | 4.14 | 2997.94 | 100.50 | 0.00 |
| J-13 | 3.45 | 2997.94 | 110.90 | 0.00 |
| J-8 | 3.80 | 2997.94 | 104.83 | 0.00 |
| J-15 | 3.44 | 2997.95 | 82.52 | 0.00 |
| J-16 | 2.06 | 2997.95 | 77.97 | 0.00 |
| J-23 | 9.30 | 2997.98 | 72.35 | 0.00 |
| J-303 | 11.48 | 2998.14 | 111.85 | 0.00 |
| J-301 | 2.02 | 2998.22 | 116.65 | 0.00 |
| J-10 | 47.88 | 2997.92 | 115.66 | 0.00 |
| J-26 | 2.07 | 2998.09 | 100.57 | 0.00 |
| J-1 | 0.00 | 2998.13 | 95.82 | 0.00 |
| J-102 | 2.70 | 2998.61 | 101.22 | 0.00 |
| J-105 | 3.38 | 2998.61 | 109.02 | 0.00 |
| J-107 | 4.72 | 2998.61 | 113.79 | 0.00 |
| J-111 | 4.06 | 2998.61 | 116.82 | 0.00 |
| J-112 | 1.36 | 2998.53 | 125.45 | 0.00 |
| J-114 | 1.36 | 2998.50 | 126.74 | 0.00 |
| J-115 | 1.36 | 2998.47 | 128.03 | 0.00 |
| J-118 | 1.36 | 2998.44 | 128.45 | 0.00 |
| J-300 | 7.42 | 2998.22 | 117.52 | 0.00 |
| J-302 | 2.70 | 2998.14 | 109.68 | 0.00 |
| J-304 | 2.02 | 2998.13 | 102.75 | 0.00 |
| J-42 | 0.00 | 2996.89 | 98.75 | 0.00 |
| J-35 | 0.00 | 2995.76 | 75.72 | 0.00 |
| J-101 | 4.72 | 2999.16 | 115.11 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2998.61 | 116.82 | 0.00 |
| J-33 | 0.00 | 2995.66 | 83.48 | 0.00 |
| J-123 | 3.38 | 2995.66 | 91.71 | 0.00 |
| J-100 | 0.00 | 2999.98 | 121.75 | 0.00 |
| J-103 | 3.38 | 2996.79 | 108.23 | 0.00 |
| J-104 | 3.38 | 2996.17 | 84.14 | 0.00 |
| J-117 | 2.02 | 2998.50 | 123.71 | 0.00 |
| J-110 | 4.06 | 2998.61 | 109.02 | 0.00 |
| J-108 | 2.02 | 2998.61 | 108.59 | 0.00 |
| J-109 | 2.02 | 2998.61 | 107.72 | 0.00 |
| J-305 | 1.36 | 2998.11 | 103.61 | 0.00 |
| S145 | 0.00 | 3000.25 | 123.60 | 0.00 |
| J-207 | 2.70 | 2998.67 | 114.25 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J31

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2998.67 | 116.85 | 0.00 |
| J-206 | 0.68 | 2998.72 | 135.93 | 0.00 |
| J-204 | 2.70 | 2998.92 | 129.09 | 0.00 |
| J-205 | 2.70 | 2998.92 | 120.85 | 0.00 |
| J-203 | 12.82 | 2999.35 | 121.47 | 0.00 |
| J-200 | 7.42 | 2999.94 | 126.07 | 0.00 |
| J-211 | 0.00 | 2999.47 | 118.06 | 0.00 |
| J-201 | 3.38 | 2999.77 | 136.39 | 0.00 |
| J-202 | 10.12 | 2999.77 | 117.76 | 0.00 |
| J-119 | 0.00 | 2998.44 | 132.35 | 0.00 |
| J-120 | 2.02 | 2998.44 | 136.68 | 0.00 |
| J-121 | 0.00 | 2998.44 | 136.68 | 0.00 |
| J-122 | 45.90 | 2998.43 | 139.28 | 0.00 |
| J-210 | 4.06 | 2998.70 | 137.66 | 0.00 |
| J-209 | 0.68 | 2998.71 | 135.50 | 0.00 |
| J-113 | 1.36 | 2998.53 | 124.59 | 0.00 |
| J-116 | 0.68 | 2998.47 | 127.59 | 0.00 |
| J-25 | 5.52 | 2997.98 | 70.40 | 0.00 |
| J-34 | 0.68 | 2995.71 | 81.34 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1423.31 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -56.56 | 0.36 | 0.09 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | -78.00 | 0.50 | 0.16 | Open |
| P-4 | -83.52 | 0.53 | 0.18 | Open |
| P-5 | -89.02 | 0.57 | 0.21 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.45 | 0.02 | 0.00 | Open |
| P-8 | 212.88 | 0.60 | 0.14 | Open |
| P-9 | 155.77 | 0.44 | 0.08 | Open |
| P-10 | 153.01 | 0.43 | 0.08 | Open |
| P-11 | 19.94 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -34.10 | 0.10 | 0.00 | Open |

Sereno Canyon Phase 4 Max Day fire flow J31

| | | | | |
|------|---------|------|------|------|
| P-14 | 57.11 | 0.36 | 0.09 | Open |
| P-15 | 4.46 | 0.03 | 0.00 | Open |
| P-16 | 5.91 | 0.04 | 0.00 | Open |
| P-17 | -6.49 | 0.04 | 0.00 | Open |
| P-18 | -0.81 | 0.01 | 0.00 | Open |
| P-19 | -36.27 | 0.23 | 0.04 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.48 | 0.02 | 0.00 | Open |
| P-25 | -24.35 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | -13.85 | 0.09 | 0.01 | Open |
| P-29 | 133.64 | 0.38 | 0.06 | Open |
| P-30 | 127.78 | 0.36 | 0.06 | Open |
| P-31 | 95.86 | 0.27 | 0.03 | Open |
| P-32 | 75.84 | 0.22 | 0.02 | Open |
| P-33 | 81.98 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 34.89 | 0.22 | 0.04 | Open |
| P-36 | -179.37 | 0.51 | 0.11 | Open |
| P-37 | -474.47 | 1.35 | 0.64 | Open |
| P-38 | 0.01 | 0.00 | 0.00 | Open |
| P-39 | -6.75 | 0.02 | 0.00 | Open |
| P-40 | -19.57 | 0.06 | 0.00 | Open |
| P-41 | 83.20 | 0.53 | 0.18 | Open |
| P-42 | 80.48 | 0.51 | 0.17 | Open |
| P-43 | 77.10 | 0.49 | 0.16 | Open |
| P-44 | 75.06 | 0.48 | 0.15 | Open |
| P-45 | 72.34 | 0.46 | 0.14 | Open |
| P-46 | 62.90 | 0.40 | 0.11 | Open |
| P-47 | 48.72 | 0.14 | 0.01 | Open |
| P-48 | 8.38 | 0.02 | 0.00 | Open |
| P-49 | 303.47 | 1.94 | 2.01 | Open |
| P-50 | 297.95 | 1.90 | 1.94 | Open |
| P-51 | 206.17 | 1.32 | 0.98 | Open |
| P-52 | 279.69 | 1.79 | 1.72 | Open |
| P-53 | 619.87 | 3.96 | 7.53 | Open |
| P-54 | 62.08 | 0.40 | 0.11 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J31

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 399.91 | 2.55 | 3.35 | Open |
| P-58 | 148.90 | 0.95 | 0.54 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1221.99 | 3.47 | 3.68 | Open |
| P-62 | 822.07 | 2.33 | 1.76 | Open |
| P-63 | -106.83 | 0.30 | 0.04 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -110.21 | 0.31 | 0.04 | Open |
| P-66 | -162.18 | 1.04 | 0.63 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -167.58 | 1.07 | 0.67 | Open |
| P-69 | 93.26 | 0.60 | 0.23 | Open |
| P-70 | 93.26 | 0.60 | 0.23 | Open |
| P-71 | -87.14 | 0.56 | 0.20 | Open |
| P-72 | 201.32 | 1.29 | 0.94 | Open |
| P-73 | 100.64 | 0.64 | 0.26 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -0.66 | 0.00 | 0.00 | Open |
| P-77 | -50.62 | 0.14 | 0.01 | Open |
| P-78 | -51.30 | 0.15 | 0.01 | Open |
| P-79 | 12.43 | 0.08 | 0.00 | Open |
| P-80 | 29.85 | 0.19 | 0.03 | Open |
| P-81 | -11.88 | 0.08 | 0.01 | Open |
| P-82 | 17.40 | 0.11 | 0.01 | Open |
| P-83 | 477.18 | 1.35 | 0.64 | Open |
| P-84 | 340.17 | 2.17 | 2.48 | Open |
| P-85 | -8.10 | 0.05 | 0.00 | Open |
| P-86 | -1.36 | 0.01 | 0.00 | Open |
| P-87 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | -1.36 | 0.01 | 0.00 | Open |
| P-90 | -46.56 | 0.30 | 0.06 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -82.76 | 0.53 | 0.18 | Open |
| P-93 | -135.88 | 0.87 | 0.45 | Open |
| P-94 | 244.25 | 1.56 | 1.34 | Open |
| P-95 | -86.14 | 0.55 | 0.20 | Open |
| P-96 | -86.82 | 0.55 | 0.20 | Open |
| P-97 | 152.28 | 0.97 | 0.56 | Open |
| P-98 | -38.32 | 0.24 | 0.04 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1423.31 | 1.01 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J31



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -36.96 | 0.24 | 0.04 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1423.32 | 0.00 | -283.25 | Open Pump |
| 1 | 1423.31 | 4.04 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J32

Page 1

12/2/2017 10:33:56 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality              *
*                               Analysis for Pipe Networks                *
*                               Version 2.0                              *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J32.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J32

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J32

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J32

| | | | | | | |
|-------|--------|-------|---------|--------|--------|------|
| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1187.58 | 101.17 | 101.17 | 0.00 |

Demand Charge: 0.00
Total Cost: 0.00

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-32 | 1000.00 | 2992.36 | 87.25 | 0.00 |
| J-36 | 3.80 | 2992.69 | 71.79 | 0.00 |
| J-37 | 1.72 | 2992.69 | 68.33 | 0.00 |
| J-30 | 4.48 | 2997.48 | 98.35 | 0.00 |
| J-38 | 5.52 | 2997.62 | 81.73 | 0.00 |
| J-39 | 3.44 | 2997.68 | 88.25 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2997.83 | 94.17 | 0.00 |
| J-40 | 2.06 | 2997.68 | 88.04 | 0.00 |
| J-28 | 3.45 | 2998.03 | 102.70 | 0.00 |
| J-27 | 2.07 | 2998.03 | 91.00 | 0.00 |
| J-2 | 1.38 | 2998.45 | 95.09 | 0.00 |
| J-3 | 0.00 | 2998.38 | 88.30 | 0.00 |
| J-4 | 1.38 | 2998.37 | 89.20 | 0.00 |
| J-41 | 5.52 | 2998.36 | 90.19 | 0.00 |
| J-14 | 6.90 | 2998.31 | 93.29 | 0.00 |
| J-11 | 4.14 | 2998.30 | 100.22 | 0.00 |
| J-12 | 49.90 | 2998.30 | 94.15 | 0.00 |
| J-9 | 0.00 | 2998.30 | 108.89 | 0.00 |
| J-6 | 2.07 | 2998.33 | 91.14 | 0.00 |
| J-19 | 3.44 | 2998.36 | 82.92 | 0.00 |
| J-24 | 6.20 | 2998.35 | 82.91 | 0.00 |
| J-20 | 31.00 | 2998.35 | 74.90 | 0.00 |
| J-21 | 12.40 | 2998.35 | 74.90 | 0.00 |
| J-22 | 3.10 | 2998.35 | 74.68 | 0.00 |
| J-5 | 2.76 | 2998.35 | 90.71 | 0.00 |
| J-17 | 3.10 | 2998.35 | 103.71 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J32

| | | | | |
|-------|-------|---------|--------|------|
| J-18 | 1.38 | 2998.37 | 97.65 | 0.00 |
| J-7 | 4.14 | 2998.32 | 100.66 | 0.00 |
| J-13 | 3.45 | 2998.31 | 111.06 | 0.00 |
| J-8 | 3.80 | 2998.31 | 104.99 | 0.00 |
| J-15 | 3.44 | 2998.32 | 82.68 | 0.00 |
| J-16 | 2.06 | 2998.32 | 78.13 | 0.00 |
| J-23 | 9.30 | 2998.35 | 72.51 | 0.00 |
| J-303 | 11.48 | 2998.51 | 112.01 | 0.00 |
| J-301 | 2.02 | 2998.59 | 116.81 | 0.00 |
| J-10 | 47.88 | 2998.30 | 115.82 | 0.00 |
| J-26 | 2.07 | 2998.47 | 100.73 | 0.00 |
| J-1 | 0.00 | 2998.51 | 95.98 | 0.00 |
| J-102 | 2.70 | 2998.96 | 101.37 | 0.00 |
| J-105 | 3.38 | 2998.96 | 109.17 | 0.00 |
| J-107 | 4.72 | 2998.96 | 113.94 | 0.00 |
| J-111 | 4.06 | 2998.96 | 116.97 | 0.00 |
| J-112 | 1.36 | 2998.88 | 125.61 | 0.00 |
| J-114 | 1.36 | 2998.85 | 126.89 | 0.00 |
| J-115 | 1.36 | 2998.82 | 128.18 | 0.00 |
| J-118 | 1.36 | 2998.79 | 128.60 | 0.00 |
| J-300 | 7.42 | 2998.59 | 117.68 | 0.00 |
| J-302 | 2.70 | 2998.51 | 109.85 | 0.00 |
| J-304 | 2.02 | 2998.51 | 102.91 | 0.00 |
| J-42 | 0.00 | 2997.42 | 98.97 | 0.00 |
| J-31 | 0.00 | 2996.13 | 95.38 | 0.00 |
| J-35 | 0.00 | 2992.85 | 74.46 | 0.00 |
| J-101 | 4.72 | 2999.47 | 115.25 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2998.96 | 116.97 | 0.00 |
| J-33 | 0.00 | 2992.51 | 82.12 | 0.00 |
| J-123 | 3.38 | 2992.51 | 90.35 | 0.00 |
| J-100 | 0.00 | 3000.23 | 121.86 | 0.00 |
| J-103 | 3.38 | 2996.54 | 108.13 | 0.00 |
| J-104 | 3.38 | 2994.35 | 83.35 | 0.00 |
| J-117 | 2.02 | 2998.85 | 123.86 | 0.00 |
| J-110 | 4.06 | 2998.96 | 109.17 | 0.00 |
| J-108 | 2.02 | 2998.96 | 108.74 | 0.00 |
| J-109 | 2.02 | 2998.96 | 107.87 | 0.00 |
| J-305 | 1.36 | 2998.49 | 103.77 | 0.00 |
| S145 | 0.00 | 3000.51 | 123.71 | 0.00 |
| J-207 | 2.70 | 2999.01 | 114.40 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J32

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2999.01 | 117.00 | 0.00 |
| J-206 | 0.68 | 2999.05 | 136.08 | 0.00 |
| J-204 | 2.70 | 2999.24 | 129.23 | 0.00 |
| J-205 | 2.70 | 2999.24 | 121.00 | 0.00 |
| J-203 | 12.82 | 2999.65 | 121.61 | 0.00 |
| J-200 | 7.42 | 3000.21 | 126.18 | 0.00 |
| J-211 | 0.00 | 2999.76 | 118.19 | 0.00 |
| J-201 | 3.38 | 3000.05 | 136.51 | 0.00 |
| J-202 | 10.12 | 3000.05 | 117.88 | 0.00 |
| J-119 | 0.00 | 2998.79 | 132.50 | 0.00 |
| J-120 | 2.02 | 2998.79 | 136.83 | 0.00 |
| J-121 | 0.00 | 2998.79 | 136.83 | 0.00 |
| J-122 | 45.90 | 2998.79 | 139.43 | 0.00 |
| J-210 | 4.06 | 2999.04 | 137.81 | 0.00 |
| J-209 | 0.68 | 2999.05 | 135.65 | 0.00 |
| J-113 | 1.36 | 2998.88 | 124.74 | 0.00 |
| J-116 | 0.68 | 2998.82 | 127.74 | 0.00 |
| J-25 | 5.52 | 2998.35 | 70.56 | 0.00 |
| J-34 | 0.68 | 2992.69 | 80.03 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1419.87 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -116.98 | 0.75 | 0.34 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | -72.36 | 0.46 | 0.14 | Open |
| P-4 | -77.88 | 0.50 | 0.16 | Open |
| P-5 | -83.38 | 0.53 | 0.18 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.45 | 0.02 | 0.00 | Open |
| P-8 | 212.88 | 0.60 | 0.14 | Open |
| P-9 | 155.77 | 0.44 | 0.08 | Open |
| P-10 | 153.01 | 0.43 | 0.08 | Open |
| P-11 | 19.94 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -34.10 | 0.10 | 0.00 | Open |

Sereno Canyon Phase 4 Max Day fire flow J32

| | | | | |
|------|---------|------|------|------|
| P-14 | 57.11 | 0.36 | 0.09 | Open |
| P-15 | 4.46 | 0.03 | 0.00 | Open |
| P-16 | 5.91 | 0.04 | 0.00 | Open |
| P-17 | -6.49 | 0.04 | 0.00 | Open |
| P-18 | -0.81 | 0.01 | 0.00 | Open |
| P-19 | -36.27 | 0.23 | 0.04 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.48 | 0.02 | 0.00 | Open |
| P-25 | -24.35 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | -13.85 | 0.09 | 0.01 | Open |
| P-29 | 133.64 | 0.38 | 0.06 | Open |
| P-30 | 127.78 | 0.36 | 0.06 | Open |
| P-31 | 95.86 | 0.27 | 0.03 | Open |
| P-32 | 75.84 | 0.22 | 0.02 | Open |
| P-33 | 81.98 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 34.86 | 0.22 | 0.04 | Open |
| P-36 | -179.40 | 0.51 | 0.11 | Open |
| P-37 | -457.85 | 1.30 | 0.60 | Open |
| P-38 | 2.15 | 0.01 | 0.00 | Open |
| P-39 | -4.61 | 0.01 | 0.00 | Open |
| P-40 | -17.43 | 0.05 | 0.00 | Open |
| P-41 | 81.47 | 0.52 | 0.18 | Open |
| P-42 | 78.75 | 0.50 | 0.17 | Open |
| P-43 | 75.37 | 0.48 | 0.15 | Open |
| P-44 | 73.33 | 0.47 | 0.15 | Open |
| P-45 | 69.37 | 0.44 | 0.13 | Open |
| P-46 | 59.93 | 0.38 | 0.10 | Open |
| P-47 | 45.75 | 0.13 | 0.01 | Open |
| P-48 | 5.44 | 0.02 | 0.00 | Open |
| P-49 | 283.89 | 1.81 | 1.77 | Open |
| P-50 | 278.37 | 1.78 | 1.71 | Open |
| P-51 | 192.23 | 1.23 | 0.86 | Open |
| P-52 | 260.11 | 1.66 | 1.51 | Open |
| P-53 | 583.01 | 3.72 | 6.73 | Open |
| P-54 | 122.50 | 0.78 | 0.37 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J32

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 433.33 | 2.77 | 3.88 | Open |
| P-58 | 297.63 | 1.90 | 1.94 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1223.66 | 3.47 | 3.68 | Open |
| P-62 | 790.32 | 2.24 | 1.64 | Open |
| P-63 | -102.96 | 0.29 | 0.04 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -106.34 | 0.30 | 0.04 | Open |
| P-66 | -157.07 | 1.00 | 0.59 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -162.47 | 1.04 | 0.63 | Open |
| P-69 | 90.67 | 0.58 | 0.21 | Open |
| P-70 | 90.67 | 0.58 | 0.21 | Open |
| P-71 | -84.62 | 0.54 | 0.19 | Open |
| P-72 | 196.21 | 1.25 | 0.89 | Open |
| P-73 | 98.12 | 0.63 | 0.25 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | 0.59 | 0.00 | 0.00 | Open |
| P-77 | -49.37 | 0.14 | 0.01 | Open |
| P-78 | -50.05 | 0.14 | 0.01 | Open |
| P-79 | 12.43 | 0.08 | 0.01 | Open |
| P-80 | 29.85 | 0.19 | 0.03 | Open |
| P-81 | -11.88 | 0.08 | 0.01 | Open |
| P-82 | 17.40 | 0.11 | 0.01 | Open |
| P-83 | 462.70 | 1.31 | 0.61 | Open |
| P-84 | 322.90 | 2.06 | 2.25 | Open |
| P-85 | -8.10 | 0.05 | 0.00 | Open |
| P-86 | -1.36 | 0.01 | 0.00 | Open |
| P-87 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | -2.61 | 0.02 | 0.00 | Open |
| P-90 | -45.31 | 0.29 | 0.06 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -171.07 | 1.09 | 0.69 | Open |
| P-93 | 711.95 | 4.54 | 9.74 | Open |
| P-94 | 128.94 | 0.82 | 0.41 | Open |
| P-95 | -174.45 | 1.11 | 0.72 | Open |
| P-96 | -175.13 | 1.12 | 0.73 | Open |
| P-97 | 301.01 | 1.92 | 1.98 | Open |
| P-98 | -38.29 | 0.24 | 0.04 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1419.87 | 1.01 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J32



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -36.93 | 0.24 | 0.04 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1419.88 | 0.00 | -283.51 | Open Pump |
| 1 | 1419.87 | 4.03 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J33

Page 1

12/2/2017 10:34:15 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality                 *
*                               Analysis for Pipe Networks                   *
*                               Version 2.0                                 *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J33.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J33

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J33

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J33

| | | | | | | |
|-------|--------|-------|---------|--------|--------|------|
| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1186.50 | 101.33 | 101.33 | 0.00 |

Demand Charge: 0.00
Total Cost: 0.00

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-33 | 1000.00 | 2990.61 | 81.29 | 0.00 |
| J-32 | 3.44 | 2992.27 | 87.21 | 0.00 |
| J-36 | 3.80 | 2992.13 | 71.55 | 0.00 |
| J-37 | 1.72 | 2992.13 | 68.08 | 0.00 |
| J-30 | 4.48 | 2997.23 | 98.24 | 0.00 |
| J-38 | 5.52 | 2997.36 | 81.62 | 0.00 |
| J-39 | 3.44 | 2997.43 | 88.15 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2997.58 | 94.06 | 0.00 |
| J-40 | 2.06 | 2997.43 | 87.93 | 0.00 |
| J-28 | 3.45 | 2997.77 | 102.59 | 0.00 |
| J-27 | 2.07 | 2997.77 | 90.89 | 0.00 |
| J-2 | 1.38 | 2998.19 | 94.98 | 0.00 |
| J-3 | 0.00 | 2998.13 | 88.19 | 0.00 |
| J-4 | 1.38 | 2998.11 | 89.09 | 0.00 |
| J-41 | 5.52 | 2998.10 | 90.08 | 0.00 |
| J-14 | 6.90 | 2998.06 | 93.18 | 0.00 |
| J-11 | 4.14 | 2998.04 | 100.11 | 0.00 |
| J-12 | 49.90 | 2998.04 | 94.04 | 0.00 |
| J-9 | 0.00 | 2998.05 | 108.78 | 0.00 |
| J-6 | 2.07 | 2998.08 | 91.03 | 0.00 |
| J-19 | 3.44 | 2998.11 | 82.81 | 0.00 |
| J-24 | 6.20 | 2998.10 | 82.80 | 0.00 |
| J-20 | 31.00 | 2998.10 | 74.79 | 0.00 |
| J-21 | 12.40 | 2998.10 | 74.79 | 0.00 |
| J-22 | 3.10 | 2998.10 | 74.57 | 0.00 |
| J-5 | 2.76 | 2998.09 | 90.60 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J33

| | | | | |
|-------|-------|---------|--------|------|
| J-17 | 3.10 | 2998.09 | 103.60 | 0.00 |
| J-18 | 1.38 | 2998.11 | 97.54 | 0.00 |
| J-7 | 4.14 | 2998.06 | 100.55 | 0.00 |
| J-13 | 3.45 | 2998.06 | 110.95 | 0.00 |
| J-8 | 3.80 | 2998.06 | 104.88 | 0.00 |
| J-15 | 3.44 | 2998.07 | 82.57 | 0.00 |
| J-16 | 2.06 | 2998.07 | 78.02 | 0.00 |
| J-23 | 9.30 | 2998.10 | 72.40 | 0.00 |
| J-303 | 11.48 | 2998.26 | 111.90 | 0.00 |
| J-301 | 2.02 | 2998.33 | 116.70 | 0.00 |
| J-10 | 47.88 | 2998.04 | 115.71 | 0.00 |
| J-26 | 2.07 | 2998.21 | 100.62 | 0.00 |
| J-1 | 0.00 | 2998.25 | 95.87 | 0.00 |
| J-102 | 2.70 | 2998.70 | 101.26 | 0.00 |
| J-105 | 3.38 | 2998.70 | 109.06 | 0.00 |
| J-107 | 4.72 | 2998.70 | 113.83 | 0.00 |
| J-111 | 4.06 | 2998.70 | 116.86 | 0.00 |
| J-112 | 1.36 | 2998.62 | 125.49 | 0.00 |
| J-114 | 1.36 | 2998.59 | 126.78 | 0.00 |
| J-115 | 1.36 | 2998.56 | 128.07 | 0.00 |
| J-118 | 1.36 | 2998.54 | 128.49 | 0.00 |
| J-300 | 7.42 | 2998.33 | 117.57 | 0.00 |
| J-302 | 2.70 | 2998.26 | 109.74 | 0.00 |
| J-304 | 2.02 | 2998.25 | 102.80 | 0.00 |
| J-42 | 0.00 | 2997.16 | 98.86 | 0.00 |
| J-31 | 0.00 | 2995.88 | 95.27 | 0.00 |
| J-35 | 0.00 | 2992.07 | 74.12 | 0.00 |
| J-101 | 4.72 | 2999.21 | 115.13 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2998.70 | 116.86 | 0.00 |
| J-123 | 3.38 | 2990.61 | 89.52 | 0.00 |
| J-100 | 0.00 | 2999.97 | 121.75 | 0.00 |
| J-103 | 3.38 | 2996.21 | 107.98 | 0.00 |
| J-104 | 3.38 | 2993.76 | 83.09 | 0.00 |
| J-117 | 2.02 | 2998.59 | 123.75 | 0.00 |
| J-110 | 4.06 | 2998.70 | 109.06 | 0.00 |
| J-108 | 2.02 | 2998.70 | 108.63 | 0.00 |
| J-109 | 2.02 | 2998.70 | 107.76 | 0.00 |
| J-305 | 1.36 | 2998.23 | 103.66 | 0.00 |
| S145 | 0.00 | 3000.25 | 123.60 | 0.00 |
| J-207 | 2.70 | 2998.76 | 114.29 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J33

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2998.76 | 116.89 | 0.00 |
| J-206 | 0.68 | 2998.80 | 135.97 | 0.00 |
| J-204 | 2.70 | 2998.99 | 129.12 | 0.00 |
| J-205 | 2.70 | 2998.99 | 120.88 | 0.00 |
| J-203 | 12.82 | 2999.39 | 121.49 | 0.00 |
| J-200 | 7.42 | 2999.96 | 126.07 | 0.00 |
| J-211 | 0.00 | 2999.51 | 118.08 | 0.00 |
| J-201 | 3.38 | 2999.79 | 136.40 | 0.00 |
| J-202 | 10.12 | 2999.79 | 117.77 | 0.00 |
| J-119 | 0.00 | 2998.54 | 132.39 | 0.00 |
| J-120 | 2.02 | 2998.54 | 136.72 | 0.00 |
| J-121 | 0.00 | 2998.54 | 136.72 | 0.00 |
| J-122 | 45.90 | 2998.53 | 139.32 | 0.00 |
| J-210 | 4.06 | 2998.78 | 137.70 | 0.00 |
| J-209 | 0.68 | 2998.80 | 135.53 | 0.00 |
| J-113 | 1.36 | 2998.62 | 124.63 | 0.00 |
| J-116 | 0.68 | 2998.56 | 127.63 | 0.00 |
| J-25 | 5.52 | 2998.10 | 70.45 | 0.00 |
| J-34 | 0.68 | 2991.37 | 79.45 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1423.31 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | 74.00 | 0.47 | 0.15 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | -72.20 | 0.46 | 0.14 | Open |
| P-4 | -77.72 | 0.50 | 0.16 | Open |
| P-5 | -83.22 | 0.53 | 0.18 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.45 | 0.02 | 0.00 | Open |
| P-8 | 212.88 | 0.60 | 0.14 | Open |
| P-9 | 155.77 | 0.44 | 0.08 | Open |
| P-10 | 153.01 | 0.43 | 0.08 | Open |
| P-11 | 19.94 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -34.10 | 0.10 | 0.00 | Open |

Sereno Canyon Phase 4 Max Day fire flow J33

| | | | | |
|------|---------|------|------|------|
| P-14 | 57.11 | 0.36 | 0.09 | Open |
| P-15 | 4.46 | 0.03 | 0.00 | Open |
| P-16 | 5.91 | 0.04 | 0.00 | Open |
| P-17 | -6.49 | 0.04 | 0.00 | Open |
| P-18 | -0.81 | 0.01 | 0.00 | Open |
| P-19 | -36.27 | 0.23 | 0.04 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.48 | 0.02 | 0.00 | Open |
| P-25 | -24.35 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | -13.85 | 0.09 | 0.01 | Open |
| P-29 | 133.64 | 0.38 | 0.06 | Open |
| P-30 | 127.78 | 0.36 | 0.06 | Open |
| P-31 | 95.86 | 0.27 | 0.03 | Open |
| P-32 | 75.84 | 0.22 | 0.02 | Open |
| P-33 | 81.98 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 34.86 | 0.22 | 0.04 | Open |
| P-36 | -179.40 | 0.51 | 0.11 | Open |
| P-37 | -457.38 | 1.30 | 0.60 | Open |
| P-38 | 2.15 | 0.01 | 0.00 | Open |
| P-39 | -4.61 | 0.01 | 0.00 | Open |
| P-40 | -17.43 | 0.05 | 0.00 | Open |
| P-41 | 81.42 | 0.52 | 0.18 | Open |
| P-42 | 78.70 | 0.50 | 0.17 | Open |
| P-43 | 75.32 | 0.48 | 0.15 | Open |
| P-44 | 73.28 | 0.47 | 0.15 | Open |
| P-45 | 69.29 | 0.44 | 0.13 | Open |
| P-46 | 59.85 | 0.38 | 0.10 | Open |
| P-47 | 45.67 | 0.13 | 0.01 | Open |
| P-48 | 5.35 | 0.02 | 0.00 | Open |
| P-49 | 283.33 | 1.81 | 1.77 | Open |
| P-50 | 277.81 | 1.77 | 1.70 | Open |
| P-51 | 191.83 | 1.22 | 0.86 | Open |
| P-52 | 259.55 | 1.66 | 1.51 | Open |
| P-53 | 581.96 | 3.71 | 6.70 | Open |
| P-54 | -68.48 | 0.44 | 0.13 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J33

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 437.82 | 2.79 | 3.96 | Open |
| P-58 | 316.92 | 2.02 | 2.17 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1227.17 | 3.48 | 3.70 | Open |
| P-62 | 789.35 | 2.24 | 1.64 | Open |
| P-63 | -102.91 | 0.29 | 0.04 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -106.29 | 0.30 | 0.04 | Open |
| P-66 | -157.00 | 1.00 | 0.59 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -162.40 | 1.04 | 0.63 | Open |
| P-69 | 90.63 | 0.58 | 0.21 | Open |
| P-70 | 90.63 | 0.58 | 0.21 | Open |
| P-71 | -84.59 | 0.54 | 0.19 | Open |
| P-72 | 196.14 | 1.25 | 0.89 | Open |
| P-73 | 98.09 | 0.63 | 0.25 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | 0.61 | 0.00 | 0.00 | Open |
| P-77 | -49.35 | 0.14 | 0.01 | Open |
| P-78 | -50.03 | 0.14 | 0.01 | Open |
| P-79 | 12.43 | 0.08 | 0.01 | Open |
| P-80 | 29.85 | 0.19 | 0.03 | Open |
| P-81 | -11.88 | 0.08 | 0.01 | Open |
| P-82 | 17.40 | 0.11 | 0.01 | Open |
| P-83 | 462.23 | 1.31 | 0.61 | Open |
| P-84 | 322.40 | 2.06 | 2.24 | Open |
| P-85 | -8.10 | 0.05 | 0.00 | Open |
| P-86 | -1.36 | 0.01 | 0.00 | Open |
| P-87 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | -2.63 | 0.02 | 0.00 | Open |
| P-90 | -45.29 | 0.29 | 0.06 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | 618.66 | 3.95 | 7.51 | Open |
| P-93 | 696.10 | 4.44 | 9.34 | Open |
| P-94 | 114.15 | 0.73 | 0.33 | Open |
| P-95 | -384.72 | 2.46 | 3.11 | Open |
| P-96 | -385.40 | 2.46 | 3.12 | Open |
| P-97 | 320.30 | 2.04 | 2.22 | Open |
| P-98 | -38.29 | 0.24 | 0.04 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1423.31 | 1.01 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J33



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -36.93 | 0.24 | 0.04 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1423.31 | 0.00 | -283.25 | Open Pump |
| 1 | 1423.31 | 4.04 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J34

Page 1

12/2/2017 10:34:32 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality                 *
*                               Analysis for Pipe Networks                   *
*                               Version 2.0                                 *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J34.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J34

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J34

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J34

| | | | | | | |
|-------|--------|-------|---------|--------|--------|------|
| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1186.71 | 101.30 | 101.30 | 0.00 |

Demand Charge: 0.00
Total Cost: 0.00

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-34 | 1000.00 | 2990.33 | 79.00 | 0.00 |
| J-32 | 3.44 | 2992.58 | 87.34 | 0.00 |
| J-36 | 3.80 | 2991.84 | 71.43 | 0.00 |
| J-37 | 1.72 | 2991.84 | 67.96 | 0.00 |
| J-30 | 4.48 | 2997.31 | 98.27 | 0.00 |
| J-38 | 5.52 | 2997.44 | 81.65 | 0.00 |
| J-39 | 3.44 | 2997.50 | 88.18 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2997.65 | 94.09 | 0.00 |
| J-40 | 2.06 | 2997.50 | 87.96 | 0.00 |
| J-28 | 3.45 | 2997.84 | 102.62 | 0.00 |
| J-27 | 2.07 | 2997.84 | 90.92 | 0.00 |
| J-2 | 1.38 | 2998.26 | 95.00 | 0.00 |
| J-3 | 0.00 | 2998.19 | 88.22 | 0.00 |
| J-4 | 1.38 | 2998.18 | 89.12 | 0.00 |
| J-41 | 5.52 | 2998.16 | 90.11 | 0.00 |
| J-14 | 6.90 | 2998.12 | 93.21 | 0.00 |
| J-11 | 4.14 | 2998.11 | 100.14 | 0.00 |
| J-12 | 49.90 | 2998.10 | 94.07 | 0.00 |
| J-9 | 0.00 | 2998.11 | 108.81 | 0.00 |
| J-6 | 2.07 | 2998.14 | 91.05 | 0.00 |
| J-19 | 3.44 | 2998.17 | 82.83 | 0.00 |
| J-24 | 6.20 | 2998.16 | 82.83 | 0.00 |
| J-20 | 31.00 | 2998.16 | 74.81 | 0.00 |
| J-21 | 12.40 | 2998.16 | 74.81 | 0.00 |
| J-22 | 3.10 | 2998.16 | 74.60 | 0.00 |
| J-5 | 2.76 | 2998.15 | 90.63 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J34

| | | | | |
|-------|-------|---------|--------|------|
| J-17 | 3.10 | 2998.15 | 103.62 | 0.00 |
| J-18 | 1.38 | 2998.18 | 97.57 | 0.00 |
| J-7 | 4.14 | 2998.13 | 100.58 | 0.00 |
| J-13 | 3.45 | 2998.12 | 110.98 | 0.00 |
| J-8 | 3.80 | 2998.12 | 104.91 | 0.00 |
| J-15 | 3.44 | 2998.13 | 82.60 | 0.00 |
| J-16 | 2.06 | 2998.13 | 78.05 | 0.00 |
| J-23 | 9.30 | 2998.16 | 72.43 | 0.00 |
| J-303 | 11.48 | 2998.32 | 111.93 | 0.00 |
| J-301 | 2.02 | 2998.39 | 116.73 | 0.00 |
| J-10 | 47.88 | 2998.10 | 115.74 | 0.00 |
| J-26 | 2.07 | 2998.28 | 100.65 | 0.00 |
| J-1 | 0.00 | 2998.31 | 95.90 | 0.00 |
| J-102 | 2.70 | 2998.76 | 101.29 | 0.00 |
| J-105 | 3.38 | 2998.76 | 109.09 | 0.00 |
| J-107 | 4.72 | 2998.76 | 113.85 | 0.00 |
| J-111 | 4.06 | 2998.76 | 116.89 | 0.00 |
| J-112 | 1.36 | 2998.68 | 125.52 | 0.00 |
| J-114 | 1.36 | 2998.65 | 126.81 | 0.00 |
| J-115 | 1.36 | 2998.62 | 128.09 | 0.00 |
| J-118 | 1.36 | 2998.60 | 128.52 | 0.00 |
| J-300 | 7.42 | 2998.39 | 117.59 | 0.00 |
| J-302 | 2.70 | 2998.32 | 109.76 | 0.00 |
| J-304 | 2.02 | 2998.31 | 102.83 | 0.00 |
| J-42 | 0.00 | 2997.24 | 98.90 | 0.00 |
| J-31 | 0.00 | 2995.97 | 95.31 | 0.00 |
| J-35 | 0.00 | 2991.52 | 73.89 | 0.00 |
| J-101 | 4.72 | 2999.27 | 115.16 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2998.76 | 116.89 | 0.00 |
| J-33 | 0.00 | 2991.50 | 81.68 | 0.00 |
| J-123 | 3.38 | 2991.50 | 89.91 | 0.00 |
| J-100 | 0.00 | 3000.02 | 121.77 | 0.00 |
| J-103 | 3.38 | 2996.21 | 107.98 | 0.00 |
| J-104 | 3.38 | 2993.43 | 82.95 | 0.00 |
| J-117 | 2.02 | 2998.65 | 123.77 | 0.00 |
| J-110 | 4.06 | 2998.76 | 109.09 | 0.00 |
| J-108 | 2.02 | 2998.76 | 108.65 | 0.00 |
| J-109 | 2.02 | 2998.76 | 107.79 | 0.00 |
| J-305 | 1.36 | 2998.29 | 103.69 | 0.00 |
| S145 | 0.00 | 3000.30 | 123.62 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J34

| | | | | |
|-------|----------|---------|--------|----------------|
| J-207 | 2.70 | 2998.82 | 114.31 | 0.00 |
| J-208 | 0.68 | 2998.82 | 116.91 | 0.00 |
| J-206 | 0.68 | 2998.86 | 135.99 | 0.00 |
| J-204 | 2.70 | 2999.04 | 129.14 | 0.00 |
| J-205 | 2.70 | 2999.04 | 120.91 | 0.00 |
| J-203 | 12.82 | 2999.45 | 121.52 | 0.00 |
| J-200 | 7.42 | 3000.01 | 126.09 | 0.00 |
| J-211 | 0.00 | 2999.56 | 118.10 | 0.00 |
| J-201 | 3.38 | 2999.84 | 136.42 | 0.00 |
| J-202 | 10.12 | 2999.84 | 117.79 | 0.00 |
| J-119 | 0.00 | 2998.60 | 132.42 | 0.00 |
| J-120 | 2.02 | 2998.60 | 136.75 | 0.00 |
| J-121 | 0.00 | 2998.60 | 136.75 | 0.00 |
| J-122 | 45.90 | 2998.59 | 139.34 | 0.00 |
| J-210 | 4.06 | 2998.84 | 137.72 | 0.00 |
| J-209 | 0.68 | 2998.85 | 135.56 | 0.00 |
| J-113 | 1.36 | 2998.68 | 124.65 | 0.00 |
| J-116 | 0.68 | 2998.62 | 127.66 | 0.00 |
| J-25 | 5.52 | 2998.16 | 70.48 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1422.63 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | 180.84 | 1.15 | 0.77 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | -71.61 | 0.46 | 0.14 | Open |
| P-4 | -77.13 | 0.49 | 0.16 | Open |
| P-5 | -82.63 | 0.53 | 0.18 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.45 | 0.02 | 0.00 | Open |
| P-8 | 212.88 | 0.60 | 0.14 | Open |
| P-9 | 155.77 | 0.44 | 0.08 | Open |
| P-10 | 153.01 | 0.43 | 0.08 | Open |
| P-11 | 19.94 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -34.10 | 0.10 | 0.01 | Open |

Sereno Canyon Phase 4 Max Day fire flow J34

| | | | | |
|------|---------|------|------|------|
| P-14 | 57.11 | 0.36 | 0.09 | Open |
| P-15 | 4.46 | 0.03 | 0.00 | Open |
| P-16 | 5.91 | 0.04 | 0.00 | Open |
| P-17 | -6.49 | 0.04 | 0.00 | Open |
| P-18 | -0.81 | 0.01 | 0.00 | Open |
| P-19 | -36.27 | 0.23 | 0.04 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.48 | 0.02 | 0.00 | Open |
| P-25 | -24.35 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | -13.85 | 0.09 | 0.01 | Open |
| P-29 | 133.64 | 0.38 | 0.06 | Open |
| P-30 | 127.78 | 0.36 | 0.06 | Open |
| P-31 | 95.86 | 0.27 | 0.03 | Open |
| P-32 | 75.84 | 0.22 | 0.02 | Open |
| P-33 | 81.98 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 34.86 | 0.22 | 0.04 | Open |
| P-36 | -179.40 | 0.51 | 0.11 | Open |
| P-37 | -455.64 | 1.29 | 0.59 | Open |
| P-38 | 2.38 | 0.01 | 0.00 | Open |
| P-39 | -4.38 | 0.01 | 0.00 | Open |
| P-40 | -17.20 | 0.05 | 0.00 | Open |
| P-41 | 81.24 | 0.52 | 0.17 | Open |
| P-42 | 78.52 | 0.50 | 0.17 | Open |
| P-43 | 75.14 | 0.48 | 0.15 | Open |
| P-44 | 73.10 | 0.47 | 0.14 | Open |
| P-45 | 68.97 | 0.44 | 0.13 | Open |
| P-46 | 59.53 | 0.38 | 0.10 | Open |
| P-47 | 45.35 | 0.13 | 0.01 | Open |
| P-48 | 5.05 | 0.01 | 0.00 | Open |
| P-49 | 281.28 | 1.80 | 1.74 | Open |
| P-50 | 275.76 | 1.76 | 1.68 | Open |
| P-51 | 190.37 | 1.22 | 0.85 | Open |
| P-52 | 257.50 | 1.64 | 1.48 | Open |
| P-53 | 578.10 | 3.69 | 6.62 | Open |
| P-54 | -175.32 | 1.12 | 0.73 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J34

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 441.00 | 2.81 | 4.01 | Open |
| P-58 | 339.04 | 2.16 | 2.46 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1227.03 | 3.48 | 3.70 | Open |
| P-62 | 786.03 | 2.23 | 1.62 | Open |
| P-63 | -102.50 | 0.29 | 0.04 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -105.88 | 0.30 | 0.04 | Open |
| P-66 | -156.46 | 1.00 | 0.59 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -161.86 | 1.03 | 0.63 | Open |
| P-69 | 90.36 | 0.58 | 0.21 | Open |
| P-70 | 90.36 | 0.58 | 0.21 | Open |
| P-71 | -84.32 | 0.54 | 0.19 | Open |
| P-72 | 195.60 | 1.25 | 0.89 | Open |
| P-73 | 97.82 | 0.62 | 0.25 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | 0.74 | 0.00 | 0.00 | Open |
| P-77 | -49.22 | 0.14 | 0.01 | Open |
| P-78 | -49.90 | 0.14 | 0.01 | Open |
| P-79 | 12.43 | 0.08 | 0.01 | Open |
| P-80 | 29.85 | 0.19 | 0.03 | Open |
| P-81 | -11.88 | 0.08 | 0.01 | Open |
| P-82 | 17.40 | 0.11 | 0.01 | Open |
| P-83 | 460.71 | 1.31 | 0.60 | Open |
| P-84 | 320.60 | 2.05 | 2.22 | Open |
| P-85 | -8.10 | 0.05 | 0.00 | Open |
| P-86 | -1.36 | 0.01 | 0.00 | Open |
| P-87 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | -2.76 | 0.02 | 0.00 | Open |
| P-90 | -45.16 | 0.29 | 0.06 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | 489.01 | 3.12 | 4.86 | Open |
| P-93 | 673.30 | 4.30 | 8.78 | Open |
| P-94 | 95.20 | 0.61 | 0.23 | Open |
| P-95 | 485.63 | 3.10 | 4.79 | Open |
| P-96 | -514.37 | 3.28 | 5.33 | Open |
| P-97 | 342.42 | 2.19 | 2.51 | Open |
| P-98 | -38.29 | 0.24 | 0.04 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1422.63 | 1.01 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J34



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -36.93 | 0.24 | 0.04 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1422.64 | 0.00 | -283.30 | Open Pump |
| 1 | 1422.63 | 4.04 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J35

Page 1

12/2/2017 10:34:46 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality              *
*                               Analysis for Pipe Networks                *
*                               Version 2.0                              *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J35.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J35

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J35

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J35

| | | | | | | |
|-------|--------|-------|---------|--------|--------|------|
| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1186.50 | 101.33 | 101.33 | 0.00 |

Demand Charge: 0.00
 Total Cost: 0.00

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-35 | 1000.00 | 2990.70 | 73.53 | 0.00 |
| J-32 | 3.44 | 2992.80 | 87.44 | 0.00 |
| J-36 | 3.80 | 2991.34 | 71.21 | 0.00 |
| J-37 | 1.72 | 2991.34 | 67.74 | 0.00 |
| J-30 | 4.48 | 2997.27 | 98.26 | 0.00 |
| J-38 | 5.52 | 2997.41 | 81.64 | 0.00 |
| J-39 | 3.44 | 2997.47 | 88.16 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2997.62 | 94.08 | 0.00 |
| J-40 | 2.06 | 2997.47 | 87.95 | 0.00 |
| J-28 | 3.45 | 2997.81 | 102.61 | 0.00 |
| J-27 | 2.07 | 2997.81 | 90.91 | 0.00 |
| J-2 | 1.38 | 2998.21 | 94.99 | 0.00 |
| J-3 | 0.00 | 2998.15 | 88.20 | 0.00 |
| J-4 | 1.38 | 2998.13 | 89.10 | 0.00 |
| J-41 | 5.52 | 2998.12 | 90.09 | 0.00 |
| J-14 | 6.90 | 2998.08 | 93.19 | 0.00 |
| J-11 | 4.14 | 2998.07 | 100.12 | 0.00 |
| J-12 | 49.90 | 2998.06 | 94.05 | 0.00 |
| J-9 | 0.00 | 2998.07 | 108.79 | 0.00 |
| J-6 | 2.07 | 2998.10 | 91.04 | 0.00 |
| J-19 | 3.44 | 2998.13 | 82.82 | 0.00 |
| J-24 | 6.20 | 2998.12 | 82.81 | 0.00 |
| J-20 | 31.00 | 2998.12 | 74.80 | 0.00 |
| J-21 | 12.40 | 2998.12 | 74.80 | 0.00 |
| J-22 | 3.10 | 2998.12 | 74.58 | 0.00 |
| J-5 | 2.76 | 2998.11 | 90.61 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J35

| | | | | |
|-------|-------|---------|--------|------|
| J-17 | 3.10 | 2998.11 | 103.61 | 0.00 |
| J-18 | 1.38 | 2998.13 | 97.55 | 0.00 |
| J-7 | 4.14 | 2998.08 | 100.56 | 0.00 |
| J-13 | 3.45 | 2998.08 | 110.96 | 0.00 |
| J-8 | 3.80 | 2998.08 | 104.89 | 0.00 |
| J-15 | 3.44 | 2998.09 | 82.58 | 0.00 |
| J-16 | 2.06 | 2998.09 | 78.03 | 0.00 |
| J-23 | 9.30 | 2998.12 | 72.41 | 0.00 |
| J-303 | 11.48 | 2998.28 | 111.91 | 0.00 |
| J-301 | 2.02 | 2998.35 | 116.71 | 0.00 |
| J-10 | 47.88 | 2998.06 | 115.72 | 0.00 |
| J-26 | 2.07 | 2998.23 | 100.63 | 0.00 |
| J-1 | 0.00 | 2998.27 | 95.88 | 0.00 |
| J-102 | 2.70 | 2998.72 | 101.27 | 0.00 |
| J-105 | 3.38 | 2998.72 | 109.07 | 0.00 |
| J-107 | 4.72 | 2998.72 | 113.84 | 0.00 |
| J-111 | 4.06 | 2998.72 | 116.87 | 0.00 |
| J-112 | 1.36 | 2998.64 | 125.50 | 0.00 |
| J-114 | 1.36 | 2998.61 | 126.79 | 0.00 |
| J-115 | 1.36 | 2998.58 | 128.07 | 0.00 |
| J-118 | 1.36 | 2998.55 | 128.50 | 0.00 |
| J-300 | 7.42 | 2998.35 | 117.58 | 0.00 |
| J-302 | 2.70 | 2998.28 | 109.74 | 0.00 |
| J-304 | 2.02 | 2998.27 | 102.81 | 0.00 |
| J-42 | 0.00 | 2997.21 | 98.88 | 0.00 |
| J-31 | 0.00 | 2995.96 | 95.31 | 0.00 |
| J-101 | 4.72 | 2999.22 | 115.14 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2998.72 | 116.87 | 0.00 |
| J-33 | 0.00 | 2992.12 | 81.95 | 0.00 |
| J-123 | 3.38 | 2992.12 | 90.18 | 0.00 |
| J-100 | 0.00 | 2999.97 | 121.75 | 0.00 |
| J-103 | 3.38 | 2996.10 | 107.93 | 0.00 |
| J-104 | 3.38 | 2992.90 | 82.72 | 0.00 |
| J-117 | 2.02 | 2998.61 | 123.75 | 0.00 |
| J-110 | 4.06 | 2998.72 | 109.07 | 0.00 |
| J-108 | 2.02 | 2998.72 | 108.64 | 0.00 |
| J-109 | 2.02 | 2998.72 | 107.77 | 0.00 |
| J-305 | 1.36 | 2998.25 | 103.67 | 0.00 |
| S145 | 0.00 | 3000.25 | 123.60 | 0.00 |
| J-207 | 2.70 | 2998.77 | 114.29 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J35

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2998.77 | 116.89 | 0.00 |
| J-206 | 0.68 | 2998.81 | 135.97 | 0.00 |
| J-204 | 2.70 | 2999.00 | 129.12 | 0.00 |
| J-205 | 2.70 | 2999.00 | 120.89 | 0.00 |
| J-203 | 12.82 | 2999.40 | 121.50 | 0.00 |
| J-200 | 7.42 | 2999.96 | 126.07 | 0.00 |
| J-211 | 0.00 | 2999.51 | 118.08 | 0.00 |
| J-201 | 3.38 | 2999.80 | 136.40 | 0.00 |
| J-202 | 10.12 | 2999.79 | 117.77 | 0.00 |
| J-119 | 0.00 | 2998.55 | 132.40 | 0.00 |
| J-120 | 2.02 | 2998.55 | 136.73 | 0.00 |
| J-121 | 0.00 | 2998.55 | 136.73 | 0.00 |
| J-122 | 45.90 | 2998.55 | 139.33 | 0.00 |
| J-210 | 4.06 | 2998.80 | 137.70 | 0.00 |
| J-209 | 0.68 | 2998.81 | 135.54 | 0.00 |
| J-113 | 1.36 | 2998.64 | 124.63 | 0.00 |
| J-116 | 0.68 | 2998.58 | 127.64 | 0.00 |
| J-25 | 5.52 | 2998.12 | 70.46 | 0.00 |
| J-34 | 0.68 | 2991.38 | 79.46 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1423.31 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | 261.44 | 1.67 | 1.52 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | -71.14 | 0.45 | 0.14 | Open |
| P-4 | -76.66 | 0.49 | 0.16 | Open |
| P-5 | -82.16 | 0.52 | 0.18 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.45 | 0.02 | 0.00 | Open |
| P-8 | 212.88 | 0.60 | 0.14 | Open |
| P-9 | 155.77 | 0.44 | 0.08 | Open |
| P-10 | 153.01 | 0.43 | 0.08 | Open |
| P-11 | 19.94 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -34.10 | 0.10 | 0.00 | Open |

Sereno Canyon Phase 4 Max Day fire flow J35

| | | | | |
|------|---------|------|------|------|
| P-14 | 57.11 | 0.36 | 0.09 | Open |
| P-15 | 4.46 | 0.03 | 0.00 | Open |
| P-16 | 5.91 | 0.04 | 0.00 | Open |
| P-17 | -6.49 | 0.04 | 0.00 | Open |
| P-18 | -0.81 | 0.01 | 0.00 | Open |
| P-19 | -36.27 | 0.23 | 0.04 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.48 | 0.02 | 0.00 | Open |
| P-25 | -24.35 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | -13.85 | 0.09 | 0.01 | Open |
| P-29 | 133.64 | 0.38 | 0.06 | Open |
| P-30 | 127.78 | 0.36 | 0.06 | Open |
| P-31 | 95.86 | 0.27 | 0.03 | Open |
| P-32 | 75.84 | 0.22 | 0.02 | Open |
| P-33 | 81.98 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 34.86 | 0.22 | 0.04 | Open |
| P-36 | -179.40 | 0.51 | 0.11 | Open |
| P-37 | -454.25 | 1.29 | 0.59 | Open |
| P-38 | 2.53 | 0.01 | 0.00 | Open |
| P-39 | -4.23 | 0.01 | 0.00 | Open |
| P-40 | -17.05 | 0.05 | 0.00 | Open |
| P-41 | 81.09 | 0.52 | 0.17 | Open |
| P-42 | 78.37 | 0.50 | 0.16 | Open |
| P-43 | 74.99 | 0.48 | 0.15 | Open |
| P-44 | 72.95 | 0.47 | 0.14 | Open |
| P-45 | 68.73 | 0.44 | 0.13 | Open |
| P-46 | 59.29 | 0.38 | 0.10 | Open |
| P-47 | 45.11 | 0.13 | 0.01 | Open |
| P-48 | 4.80 | 0.01 | 0.00 | Open |
| P-49 | 279.64 | 1.78 | 1.73 | Open |
| P-50 | 274.12 | 1.75 | 1.66 | Open |
| P-51 | 189.21 | 1.21 | 0.84 | Open |
| P-52 | 255.86 | 1.63 | 1.47 | Open |
| P-53 | 575.02 | 3.67 | 6.55 | Open |
| P-54 | -255.92 | 1.63 | 1.46 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J35

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 444.76 | 2.84 | 4.07 | Open |
| P-58 | 365.94 | 2.34 | 2.84 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1228.12 | 3.48 | 3.71 | Open |
| P-62 | 783.36 | 2.22 | 1.61 | Open |
| P-63 | -102.20 | 0.29 | 0.04 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -105.58 | 0.30 | 0.04 | Open |
| P-66 | -156.05 | 1.00 | 0.59 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -161.45 | 1.03 | 0.62 | Open |
| P-69 | 90.15 | 0.58 | 0.21 | Open |
| P-70 | 90.15 | 0.58 | 0.21 | Open |
| P-71 | -84.12 | 0.54 | 0.19 | Open |
| P-72 | 195.19 | 1.25 | 0.89 | Open |
| P-73 | 97.62 | 0.62 | 0.25 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | 0.85 | 0.01 | 0.00 | Open |
| P-77 | -49.11 | 0.14 | 0.01 | Open |
| P-78 | -49.79 | 0.14 | 0.01 | Open |
| P-79 | 12.43 | 0.08 | 0.01 | Open |
| P-80 | 29.85 | 0.19 | 0.03 | Open |
| P-81 | -11.88 | 0.08 | 0.01 | Open |
| P-82 | 17.40 | 0.11 | 0.01 | Open |
| P-83 | 459.48 | 1.30 | 0.60 | Open |
| P-84 | 319.16 | 2.04 | 2.20 | Open |
| P-85 | -8.10 | 0.05 | 0.00 | Open |
| P-86 | -1.36 | 0.01 | 0.00 | Open |
| P-87 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | -2.87 | 0.02 | 0.00 | Open |
| P-90 | -45.05 | 0.29 | 0.06 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | 382.20 | 2.44 | 3.08 | Open |
| P-93 | 647.08 | 4.13 | 8.16 | Open |
| P-94 | 72.06 | 0.46 | 0.14 | Open |
| P-95 | 378.82 | 2.42 | 3.03 | Open |
| P-96 | 378.14 | 2.41 | 3.02 | Open |
| P-97 | 369.32 | 2.36 | 2.89 | Open |
| P-98 | -38.29 | 0.24 | 0.04 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1423.31 | 1.01 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J35



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -36.93 | 0.24 | 0.04 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1423.32 | 0.00 | -283.25 | Open Pump |
| 1 | 1423.31 | 4.04 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J36

Page 1

12/2/2017 10:35:00 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality              *
*                               Analysis for Pipe Networks                *
*                               Version 2.0                              *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J36.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J36

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J36

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J36

| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|-------|--------|-------|---------|--------|----------------|------|
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1187.69 | 101.16 | 101.16 | 0.00 |
| | | | | | Demand Charge: | 0.00 |
| | | | | | Total Cost: | 0.00 |

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-32 | 3.44 | 2992.80 | 87.44 | 0.00 |
| J-36 | 1000.00 | 2989.11 | 70.24 | 0.00 |
| J-37 | 1.72 | 2989.11 | 66.77 | 0.00 |
| J-30 | 4.48 | 2997.55 | 98.38 | 0.00 |
| J-38 | 5.52 | 2997.68 | 81.76 | 0.00 |
| J-39 | 3.44 | 2997.74 | 88.28 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2997.90 | 94.20 | 0.00 |
| J-40 | 2.06 | 2997.74 | 88.07 | 0.00 |
| J-28 | 3.45 | 2998.08 | 102.73 | 0.00 |
| J-27 | 2.07 | 2998.08 | 91.03 | 0.00 |
| J-2 | 1.38 | 2998.50 | 95.11 | 0.00 |
| J-3 | 0.00 | 2998.43 | 88.32 | 0.00 |
| J-4 | 1.38 | 2998.41 | 89.22 | 0.00 |
| J-41 | 5.52 | 2998.40 | 90.21 | 0.00 |
| J-14 | 6.90 | 2998.36 | 93.31 | 0.00 |
| J-11 | 4.14 | 2998.35 | 100.24 | 0.00 |
| J-12 | 49.90 | 2998.34 | 94.17 | 0.00 |
| J-9 | 0.00 | 2998.35 | 108.91 | 0.00 |
| J-6 | 2.07 | 2998.38 | 91.16 | 0.00 |
| J-19 | 3.44 | 2998.41 | 82.94 | 0.00 |
| J-24 | 6.20 | 2998.40 | 82.93 | 0.00 |
| J-20 | 31.00 | 2998.40 | 74.92 | 0.00 |
| J-21 | 12.40 | 2998.40 | 74.92 | 0.00 |
| J-22 | 3.10 | 2998.40 | 74.70 | 0.00 |
| J-5 | 2.76 | 2998.39 | 90.73 | 0.00 |
| J-17 | 3.10 | 2998.39 | 103.73 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J36

| | | | | |
|-------|-------|---------|--------|------|
| J-18 | 1.38 | 2998.41 | 97.67 | 0.00 |
| J-7 | 4.14 | 2998.37 | 100.68 | 0.00 |
| J-13 | 3.45 | 2998.36 | 111.08 | 0.00 |
| J-8 | 3.80 | 2998.36 | 105.01 | 0.00 |
| J-15 | 3.44 | 2998.37 | 82.70 | 0.00 |
| J-16 | 2.06 | 2998.37 | 78.15 | 0.00 |
| J-23 | 9.30 | 2998.40 | 72.53 | 0.00 |
| J-303 | 11.48 | 2998.56 | 112.03 | 0.00 |
| J-301 | 2.02 | 2998.63 | 116.83 | 0.00 |
| J-10 | 47.88 | 2998.34 | 115.84 | 0.00 |
| J-26 | 2.07 | 2998.51 | 100.75 | 0.00 |
| J-1 | 0.00 | 2998.55 | 96.00 | 0.00 |
| J-102 | 2.70 | 2999.00 | 101.39 | 0.00 |
| J-105 | 3.38 | 2999.00 | 109.19 | 0.00 |
| J-107 | 4.72 | 2999.00 | 113.96 | 0.00 |
| J-111 | 4.06 | 2999.00 | 116.99 | 0.00 |
| J-112 | 1.36 | 2998.92 | 125.62 | 0.00 |
| J-114 | 1.36 | 2998.89 | 126.91 | 0.00 |
| J-115 | 1.36 | 2998.86 | 128.20 | 0.00 |
| J-118 | 1.36 | 2998.84 | 128.62 | 0.00 |
| J-300 | 7.42 | 2998.63 | 117.70 | 0.00 |
| J-302 | 2.70 | 2998.56 | 109.87 | 0.00 |
| J-304 | 2.02 | 2998.55 | 102.93 | 0.00 |
| J-42 | 0.00 | 2997.49 | 99.00 | 0.00 |
| J-31 | 0.00 | 2996.22 | 95.42 | 0.00 |
| J-35 | 0.00 | 2991.93 | 74.06 | 0.00 |
| J-101 | 4.72 | 2999.51 | 115.26 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2999.00 | 116.99 | 0.00 |
| J-33 | 0.00 | 2992.52 | 82.12 | 0.00 |
| J-123 | 3.38 | 2992.52 | 90.35 | 0.00 |
| J-100 | 0.00 | 3000.26 | 121.87 | 0.00 |
| J-103 | 3.38 | 2996.47 | 108.10 | 0.00 |
| J-104 | 3.38 | 2993.78 | 83.10 | 0.00 |
| J-117 | 2.02 | 2998.89 | 123.88 | 0.00 |
| J-110 | 4.06 | 2999.00 | 109.19 | 0.00 |
| J-108 | 2.02 | 2999.00 | 108.76 | 0.00 |
| J-109 | 2.02 | 2999.00 | 107.89 | 0.00 |
| J-305 | 1.36 | 2998.53 | 103.79 | 0.00 |
| S145 | 0.00 | 3000.53 | 123.72 | 0.00 |
| J-207 | 2.70 | 2999.05 | 114.41 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J36

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2999.05 | 117.01 | 0.00 |
| J-206 | 0.68 | 2999.09 | 136.10 | 0.00 |
| J-204 | 2.70 | 2999.28 | 129.25 | 0.00 |
| J-205 | 2.70 | 2999.28 | 121.01 | 0.00 |
| J-203 | 12.82 | 2999.68 | 121.62 | 0.00 |
| J-200 | 7.42 | 3000.24 | 126.20 | 0.00 |
| J-211 | 0.00 | 2999.80 | 118.20 | 0.00 |
| J-201 | 3.38 | 3000.08 | 136.52 | 0.00 |
| J-202 | 10.12 | 3000.08 | 117.89 | 0.00 |
| J-119 | 0.00 | 2998.84 | 132.52 | 0.00 |
| J-120 | 2.02 | 2998.84 | 136.85 | 0.00 |
| J-121 | 0.00 | 2998.84 | 136.85 | 0.00 |
| J-122 | 45.90 | 2998.83 | 139.45 | 0.00 |
| J-210 | 4.06 | 2999.08 | 137.82 | 0.00 |
| J-209 | 0.68 | 2999.09 | 135.66 | 0.00 |
| J-113 | 1.36 | 2998.92 | 124.76 | 0.00 |
| J-116 | 0.68 | 2998.86 | 127.76 | 0.00 |
| J-25 | 5.52 | 2998.40 | 70.58 | 0.00 |
| J-34 | 0.68 | 2992.21 | 79.82 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1419.51 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | 432.52 | 2.76 | 3.87 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | -71.42 | 0.46 | 0.14 | Open |
| P-4 | -76.94 | 0.49 | 0.16 | Open |
| P-5 | -82.44 | 0.53 | 0.18 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.45 | 0.02 | 0.00 | Open |
| P-8 | 212.88 | 0.60 | 0.14 | Open |
| P-9 | 155.77 | 0.44 | 0.08 | Open |
| P-10 | 153.01 | 0.43 | 0.08 | Open |
| P-11 | 19.94 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -34.10 | 0.10 | 0.00 | Open |

Sereno Canyon Phase 4 Max Day fire flow J36

| | | | | |
|------|---------|------|------|------|
| P-14 | 57.11 | 0.36 | 0.09 | Open |
| P-15 | 4.46 | 0.03 | 0.00 | Open |
| P-16 | 5.91 | 0.04 | 0.00 | Open |
| P-17 | -6.49 | 0.04 | 0.00 | Open |
| P-18 | -0.81 | 0.01 | 0.00 | Open |
| P-19 | -36.27 | 0.23 | 0.04 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.48 | 0.02 | 0.00 | Open |
| P-25 | -24.35 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | -13.85 | 0.09 | 0.01 | Open |
| P-29 | 133.64 | 0.38 | 0.06 | Open |
| P-30 | 127.78 | 0.36 | 0.06 | Open |
| P-31 | 95.86 | 0.27 | 0.03 | Open |
| P-32 | 75.84 | 0.22 | 0.02 | Open |
| P-33 | 81.98 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 34.86 | 0.22 | 0.04 | Open |
| P-36 | -179.40 | 0.51 | 0.11 | Open |
| P-37 | -455.07 | 1.29 | 0.59 | Open |
| P-38 | 2.50 | 0.01 | 0.00 | Open |
| P-39 | -4.26 | 0.01 | 0.00 | Open |
| P-40 | -17.08 | 0.05 | 0.00 | Open |
| P-41 | 81.18 | 0.52 | 0.18 | Open |
| P-42 | 78.46 | 0.50 | 0.16 | Open |
| P-43 | 75.08 | 0.48 | 0.15 | Open |
| P-44 | 73.04 | 0.47 | 0.14 | Open |
| P-45 | 68.87 | 0.44 | 0.13 | Open |
| P-46 | 59.43 | 0.38 | 0.10 | Open |
| P-47 | 45.25 | 0.13 | 0.01 | Open |
| P-48 | 4.94 | 0.01 | 0.00 | Open |
| P-49 | 280.61 | 1.79 | 1.74 | Open |
| P-50 | 275.09 | 1.76 | 1.67 | Open |
| P-51 | 189.90 | 1.21 | 0.84 | Open |
| P-52 | 256.83 | 1.64 | 1.48 | Open |
| P-53 | 576.86 | 3.68 | 6.59 | Open |
| P-54 | 569.20 | 3.63 | 6.43 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J36

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 439.12 | 2.80 | 3.98 | Open |
| P-58 | 333.58 | 2.13 | 2.39 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1224.14 | 3.47 | 3.69 | Open |
| P-62 | 785.02 | 2.23 | 1.62 | Open |
| P-63 | -102.32 | 0.29 | 0.04 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -105.70 | 0.30 | 0.04 | Open |
| P-66 | -156.23 | 1.00 | 0.59 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -161.63 | 1.03 | 0.62 | Open |
| P-69 | 90.24 | 0.58 | 0.21 | Open |
| P-70 | 90.24 | 0.58 | 0.21 | Open |
| P-71 | -84.21 | 0.54 | 0.19 | Open |
| P-72 | 195.37 | 1.25 | 0.89 | Open |
| P-73 | 97.71 | 0.62 | 0.25 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | 0.79 | 0.01 | 0.00 | Open |
| P-77 | -49.17 | 0.14 | 0.01 | Open |
| P-78 | -49.85 | 0.14 | 0.01 | Open |
| P-79 | 12.43 | 0.08 | 0.01 | Open |
| P-80 | 29.85 | 0.19 | 0.03 | Open |
| P-81 | -11.88 | 0.08 | 0.01 | Open |
| P-82 | 17.40 | 0.11 | 0.01 | Open |
| P-83 | 460.28 | 1.31 | 0.60 | Open |
| P-84 | 320.02 | 2.04 | 2.21 | Open |
| P-85 | -8.10 | 0.05 | 0.00 | Open |
| P-86 | -1.36 | 0.01 | 0.00 | Open |
| P-87 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | -2.81 | 0.02 | 0.00 | Open |
| P-90 | -45.11 | 0.29 | 0.06 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | 239.68 | 1.53 | 1.30 | Open |
| P-93 | 675.64 | 4.31 | 8.84 | Open |
| P-94 | 98.78 | 0.63 | 0.25 | Open |
| P-95 | 236.30 | 1.51 | 1.26 | Open |
| P-96 | 235.62 | 1.50 | 1.26 | Open |
| P-97 | 336.96 | 2.15 | 2.44 | Open |
| P-98 | -38.29 | 0.24 | 0.04 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1419.51 | 1.01 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J36



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -36.93 | 0.24 | 0.04 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1419.52 | 0.00 | -283.54 | Open Pump |
| 1 | 1419.51 | 4.03 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J37

Page 1

12/2/2017 10:35:18 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality              *
*                               Analysis for Pipe Networks                *
*                               Version 2.0                              *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J37.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J37

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J37

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J37

| | | | | | | |
|-------|--------|-------|---------|--------|--------|------|
| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1187.04 | 101.25 | 101.25 | 0.00 |

Demand Charge: 0.00
Total Cost: 0.00

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-32 | 3.44 | 2992.62 | 87.36 | 0.00 |
| J-36 | 3.80 | 2988.91 | 70.15 | 0.00 |
| J-37 | 1000.00 | 2986.69 | 65.73 | 0.00 |
| J-30 | 4.48 | 2997.38 | 98.31 | 0.00 |
| J-38 | 5.52 | 2997.52 | 81.68 | 0.00 |
| J-39 | 3.44 | 2997.58 | 88.21 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2997.73 | 94.13 | 0.00 |
| J-40 | 2.06 | 2997.58 | 87.99 | 0.00 |
| J-28 | 3.45 | 2997.92 | 102.66 | 0.00 |
| J-27 | 2.07 | 2997.92 | 90.96 | 0.00 |
| J-2 | 1.38 | 2998.33 | 95.04 | 0.00 |
| J-3 | 0.00 | 2998.27 | 88.25 | 0.00 |
| J-4 | 1.38 | 2998.25 | 89.15 | 0.00 |
| J-41 | 5.52 | 2998.24 | 90.14 | 0.00 |
| J-14 | 6.90 | 2998.20 | 93.24 | 0.00 |
| J-11 | 4.14 | 2998.19 | 100.17 | 0.00 |
| J-12 | 49.90 | 2998.18 | 94.11 | 0.00 |
| J-9 | 0.00 | 2998.19 | 108.84 | 0.00 |
| J-6 | 2.07 | 2998.22 | 91.09 | 0.00 |
| J-19 | 3.44 | 2998.25 | 82.87 | 0.00 |
| J-24 | 6.20 | 2998.24 | 82.86 | 0.00 |
| J-20 | 31.00 | 2998.24 | 74.85 | 0.00 |
| J-21 | 12.40 | 2998.24 | 74.85 | 0.00 |
| J-22 | 3.10 | 2998.24 | 74.63 | 0.00 |
| J-5 | 2.76 | 2998.23 | 90.66 | 0.00 |
| J-17 | 3.10 | 2998.23 | 103.66 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J37

| | | | | |
|-------|-------|---------|--------|------|
| J-18 | 1.38 | 2998.25 | 97.60 | 0.00 |
| J-7 | 4.14 | 2998.20 | 100.61 | 0.00 |
| J-13 | 3.45 | 2998.20 | 111.01 | 0.00 |
| J-8 | 3.80 | 2998.20 | 104.94 | 0.00 |
| J-15 | 3.44 | 2998.21 | 82.63 | 0.00 |
| J-16 | 2.06 | 2998.21 | 78.08 | 0.00 |
| J-23 | 9.30 | 2998.24 | 72.46 | 0.00 |
| J-303 | 11.48 | 2998.40 | 111.96 | 0.00 |
| J-301 | 2.02 | 2998.47 | 116.76 | 0.00 |
| J-10 | 47.88 | 2998.18 | 115.77 | 0.00 |
| J-26 | 2.07 | 2998.35 | 100.68 | 0.00 |
| J-1 | 0.00 | 2998.39 | 95.93 | 0.00 |
| J-102 | 2.70 | 2998.84 | 101.32 | 0.00 |
| J-105 | 3.38 | 2998.84 | 109.12 | 0.00 |
| J-107 | 4.72 | 2998.84 | 113.89 | 0.00 |
| J-111 | 4.06 | 2998.84 | 116.92 | 0.00 |
| J-112 | 1.36 | 2998.76 | 125.55 | 0.00 |
| J-114 | 1.36 | 2998.73 | 126.84 | 0.00 |
| J-115 | 1.36 | 2998.70 | 128.13 | 0.00 |
| J-118 | 1.36 | 2998.68 | 128.55 | 0.00 |
| J-300 | 7.42 | 2998.47 | 117.63 | 0.00 |
| J-302 | 2.70 | 2998.40 | 109.80 | 0.00 |
| J-304 | 2.02 | 2998.39 | 102.86 | 0.00 |
| J-42 | 0.00 | 2997.32 | 98.93 | 0.00 |
| J-31 | 0.00 | 2996.05 | 95.35 | 0.00 |
| J-35 | 0.00 | 2991.74 | 73.98 | 0.00 |
| J-101 | 4.72 | 2999.35 | 115.19 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2998.84 | 116.92 | 0.00 |
| J-33 | 0.00 | 2992.33 | 82.04 | 0.00 |
| J-123 | 3.38 | 2992.33 | 90.27 | 0.00 |
| J-100 | 0.00 | 3000.10 | 121.80 | 0.00 |
| J-103 | 3.38 | 2996.30 | 108.02 | 0.00 |
| J-104 | 3.38 | 2993.60 | 83.02 | 0.00 |
| J-117 | 2.02 | 2998.73 | 123.81 | 0.00 |
| J-110 | 4.06 | 2998.84 | 109.12 | 0.00 |
| J-108 | 2.02 | 2998.84 | 108.69 | 0.00 |
| J-109 | 2.02 | 2998.84 | 107.82 | 0.00 |
| J-305 | 1.36 | 2998.37 | 103.72 | 0.00 |
| S145 | 0.00 | 3000.38 | 123.65 | 0.00 |
| J-207 | 2.70 | 2998.89 | 114.35 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J37

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2998.89 | 116.94 | 0.00 |
| J-206 | 0.68 | 2998.94 | 136.03 | 0.00 |
| J-204 | 2.70 | 2999.12 | 129.18 | 0.00 |
| J-205 | 2.70 | 2999.12 | 120.94 | 0.00 |
| J-203 | 12.82 | 2999.52 | 121.55 | 0.00 |
| J-200 | 7.42 | 3000.09 | 126.13 | 0.00 |
| J-211 | 0.00 | 2999.64 | 118.13 | 0.00 |
| J-201 | 3.38 | 2999.92 | 136.46 | 0.00 |
| J-202 | 10.12 | 2999.92 | 117.82 | 0.00 |
| J-119 | 0.00 | 2998.68 | 132.45 | 0.00 |
| J-120 | 2.02 | 2998.68 | 136.78 | 0.00 |
| J-121 | 0.00 | 2998.68 | 136.78 | 0.00 |
| J-122 | 45.90 | 2998.67 | 139.38 | 0.00 |
| J-210 | 4.06 | 2998.92 | 137.75 | 0.00 |
| J-209 | 0.68 | 2998.93 | 135.59 | 0.00 |
| J-113 | 1.36 | 2998.76 | 124.69 | 0.00 |
| J-116 | 0.68 | 2998.70 | 127.69 | 0.00 |
| J-25 | 5.52 | 2998.24 | 70.52 | 0.00 |
| J-34 | 0.68 | 2992.02 | 79.74 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1421.59 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | 433.42 | 2.77 | 3.88 | Open |
| P-2 | 1000.00 | 6.38 | 18.27 | Open |
| P-3 | -71.61 | 0.46 | 0.14 | Open |
| P-4 | -77.13 | 0.49 | 0.16 | Open |
| P-5 | -82.63 | 0.53 | 0.18 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.45 | 0.02 | 0.00 | Open |
| P-8 | 212.88 | 0.60 | 0.14 | Open |
| P-9 | 155.77 | 0.44 | 0.08 | Open |
| P-10 | 153.01 | 0.43 | 0.08 | Open |
| P-11 | 19.94 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -34.10 | 0.10 | 0.00 | Open |

Sereno Canyon Phase 4 Max Day fire flow J37

| | | | | |
|------|---------|------|------|------|
| P-14 | 57.11 | 0.36 | 0.09 | Open |
| P-15 | 4.46 | 0.03 | 0.00 | Open |
| P-16 | 5.91 | 0.04 | 0.00 | Open |
| P-17 | -6.49 | 0.04 | 0.00 | Open |
| P-18 | -0.81 | 0.01 | 0.00 | Open |
| P-19 | -36.27 | 0.23 | 0.04 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.48 | 0.02 | 0.00 | Open |
| P-25 | -24.35 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | -13.85 | 0.09 | 0.01 | Open |
| P-29 | 133.64 | 0.38 | 0.06 | Open |
| P-30 | 127.78 | 0.36 | 0.06 | Open |
| P-31 | 95.86 | 0.27 | 0.03 | Open |
| P-32 | 75.84 | 0.22 | 0.02 | Open |
| P-33 | 81.98 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 34.86 | 0.22 | 0.04 | Open |
| P-36 | -179.40 | 0.51 | 0.11 | Open |
| P-37 | -455.64 | 1.29 | 0.59 | Open |
| P-38 | 2.39 | 0.01 | 0.00 | Open |
| P-39 | -4.37 | 0.01 | 0.00 | Open |
| P-40 | -17.19 | 0.05 | 0.00 | Open |
| P-41 | 81.24 | 0.52 | 0.18 | Open |
| P-42 | 78.52 | 0.50 | 0.16 | Open |
| P-43 | 75.14 | 0.48 | 0.15 | Open |
| P-44 | 73.10 | 0.47 | 0.14 | Open |
| P-45 | 68.97 | 0.44 | 0.13 | Open |
| P-46 | 59.53 | 0.38 | 0.10 | Open |
| P-47 | 45.35 | 0.13 | 0.01 | Open |
| P-48 | 5.05 | 0.01 | 0.00 | Open |
| P-49 | 281.29 | 1.80 | 1.74 | Open |
| P-50 | 275.77 | 1.76 | 1.68 | Open |
| P-51 | 190.38 | 1.22 | 0.85 | Open |
| P-52 | 257.51 | 1.64 | 1.48 | Open |
| P-53 | 578.12 | 3.69 | 6.62 | Open |
| P-54 | 570.38 | 3.64 | 6.46 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J37

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 439.94 | 2.81 | 3.99 | Open |
| P-58 | 334.26 | 2.13 | 2.40 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1226.01 | 3.48 | 3.70 | Open |
| P-62 | 786.07 | 2.23 | 1.62 | Open |
| P-63 | -102.49 | 0.29 | 0.04 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -105.87 | 0.30 | 0.04 | Open |
| P-66 | -156.44 | 1.00 | 0.59 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -161.84 | 1.03 | 0.63 | Open |
| P-69 | 90.35 | 0.58 | 0.21 | Open |
| P-70 | 90.35 | 0.58 | 0.21 | Open |
| P-71 | -84.31 | 0.54 | 0.19 | Open |
| P-72 | 195.58 | 1.25 | 0.89 | Open |
| P-73 | 97.81 | 0.62 | 0.25 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | 0.75 | 0.00 | 0.00 | Open |
| P-77 | -49.21 | 0.14 | 0.01 | Open |
| P-78 | -49.89 | 0.14 | 0.01 | Open |
| P-79 | 12.43 | 0.08 | 0.00 | Open |
| P-80 | 29.85 | 0.19 | 0.03 | Open |
| P-81 | -11.88 | 0.08 | 0.01 | Open |
| P-82 | 17.40 | 0.11 | 0.01 | Open |
| P-83 | 460.74 | 1.31 | 0.60 | Open |
| P-84 | 320.61 | 2.05 | 2.22 | Open |
| P-85 | -8.10 | 0.05 | 0.00 | Open |
| P-86 | -1.36 | 0.01 | 0.00 | Open |
| P-87 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | -2.77 | 0.02 | 0.00 | Open |
| P-90 | -45.15 | 0.29 | 0.06 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | 240.18 | 1.53 | 1.30 | Open |
| P-93 | 677.04 | 4.32 | 8.87 | Open |
| P-94 | 98.92 | 0.63 | 0.25 | Open |
| P-95 | 236.80 | 1.51 | 1.27 | Open |
| P-96 | 236.12 | 1.51 | 1.26 | Open |
| P-97 | 337.64 | 2.16 | 2.45 | Open |
| P-98 | -38.29 | 0.24 | 0.04 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1421.59 | 1.01 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J37



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -36.93 | 0.24 | 0.04 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1421.60 | 0.00 | -283.38 | Open Pump |
| 1 | 1421.59 | 4.03 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J38

Page 1

12/2/2017 10:35:38 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality                 *
*                               Analysis for Pipe Networks                   *
*                               Version 2.0                                 *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J38.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J38

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J38

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J38

| | | | | | | |
|-------|--------|-------|---------|--------|--------|------|
| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1188.23 | 101.08 | 101.08 | 0.00 |

Demand Charge: 0.00
Total Cost: 0.00

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-32 | 3.44 | 2997.71 | 89.57 | 0.00 |
| J-36 | 3.80 | 2997.76 | 73.99 | 0.00 |
| J-37 | 1.72 | 2997.76 | 70.52 | 0.00 |
| J-30 | 4.48 | 2996.92 | 98.11 | 0.00 |
| J-38 | 1000.00 | 2991.36 | 79.02 | 0.00 |
| J-39 | 3.44 | 2993.10 | 86.27 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2996.85 | 93.75 | 0.00 |
| J-40 | 2.06 | 2993.10 | 86.05 | 0.00 |
| J-28 | 3.45 | 2997.21 | 102.35 | 0.00 |
| J-27 | 2.07 | 2997.21 | 90.65 | 0.00 |
| J-2 | 1.38 | 2998.04 | 94.91 | 0.00 |
| J-3 | 0.00 | 2997.97 | 88.12 | 0.00 |
| J-4 | 1.38 | 2997.96 | 89.02 | 0.00 |
| J-41 | 5.52 | 2997.95 | 90.02 | 0.00 |
| J-14 | 6.90 | 2997.90 | 93.12 | 0.00 |
| J-11 | 4.14 | 2997.89 | 100.04 | 0.00 |
| J-12 | 49.90 | 2997.89 | 93.98 | 0.00 |
| J-9 | 0.00 | 2997.89 | 108.71 | 0.00 |
| J-6 | 2.07 | 2997.92 | 90.96 | 0.00 |
| J-19 | 3.44 | 2997.95 | 82.74 | 0.00 |
| J-24 | 6.20 | 2997.94 | 82.73 | 0.00 |
| J-20 | 31.00 | 2997.94 | 74.72 | 0.00 |
| J-21 | 12.40 | 2997.94 | 74.72 | 0.00 |
| J-22 | 3.10 | 2997.94 | 74.50 | 0.00 |
| J-5 | 2.76 | 2997.94 | 90.53 | 0.00 |
| J-17 | 3.10 | 2997.94 | 103.53 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J38

| | | | | |
|-------|-------|---------|--------|------|
| J-18 | 1.38 | 2997.96 | 97.47 | 0.00 |
| J-7 | 4.14 | 2997.91 | 100.49 | 0.00 |
| J-13 | 3.45 | 2997.90 | 110.88 | 0.00 |
| J-8 | 3.80 | 2997.90 | 104.82 | 0.00 |
| J-15 | 3.44 | 2997.91 | 82.51 | 0.00 |
| J-16 | 2.06 | 2997.91 | 77.96 | 0.00 |
| J-23 | 9.30 | 2997.94 | 72.34 | 0.00 |
| J-303 | 11.48 | 2998.10 | 111.84 | 0.00 |
| J-301 | 2.02 | 2998.22 | 116.65 | 0.00 |
| J-10 | 47.88 | 2997.89 | 115.64 | 0.00 |
| J-26 | 2.07 | 2998.06 | 100.55 | 0.00 |
| J-1 | 0.00 | 2998.10 | 95.80 | 0.00 |
| J-102 | 2.70 | 2998.73 | 101.28 | 0.00 |
| J-105 | 3.38 | 2998.73 | 109.08 | 0.00 |
| J-107 | 4.72 | 2998.73 | 113.84 | 0.00 |
| J-111 | 4.06 | 2998.74 | 116.88 | 0.00 |
| J-112 | 1.36 | 2998.64 | 125.50 | 0.00 |
| J-114 | 1.36 | 2998.60 | 126.78 | 0.00 |
| J-115 | 1.36 | 2998.56 | 128.07 | 0.00 |
| J-118 | 1.36 | 2998.53 | 128.49 | 0.00 |
| J-300 | 7.42 | 2998.22 | 117.52 | 0.00 |
| J-302 | 2.70 | 2998.10 | 109.67 | 0.00 |
| J-304 | 2.02 | 2998.10 | 102.73 | 0.00 |
| J-42 | 0.00 | 2997.25 | 98.90 | 0.00 |
| J-31 | 0.00 | 2997.60 | 96.02 | 0.00 |
| J-35 | 0.00 | 2997.79 | 76.60 | 0.00 |
| J-101 | 4.72 | 2999.45 | 115.24 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2998.73 | 116.88 | 0.00 |
| J-33 | 0.00 | 2997.73 | 84.38 | 0.00 |
| J-123 | 3.38 | 2997.73 | 92.61 | 0.00 |
| J-100 | 0.00 | 3000.40 | 121.93 | 0.00 |
| J-103 | 3.38 | 2998.43 | 108.94 | 0.00 |
| J-104 | 3.38 | 2998.04 | 84.94 | 0.00 |
| J-117 | 2.02 | 2998.60 | 123.75 | 0.00 |
| J-110 | 4.06 | 2998.73 | 109.08 | 0.00 |
| J-108 | 2.02 | 2998.73 | 108.64 | 0.00 |
| J-109 | 2.02 | 2998.73 | 107.78 | 0.00 |
| J-305 | 1.36 | 2998.08 | 103.59 | 0.00 |
| S145 | 0.00 | 3000.66 | 123.78 | 0.00 |
| J-207 | 2.70 | 2998.81 | 114.31 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J38

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2998.81 | 116.91 | 0.00 |
| J-206 | 0.68 | 2998.86 | 136.00 | 0.00 |
| J-204 | 2.70 | 2999.10 | 129.17 | 0.00 |
| J-205 | 2.70 | 2999.10 | 120.93 | 0.00 |
| J-203 | 12.82 | 2999.61 | 121.59 | 0.00 |
| J-200 | 7.42 | 3000.31 | 126.22 | 0.00 |
| J-211 | 0.00 | 2999.75 | 118.18 | 0.00 |
| J-201 | 3.38 | 3000.11 | 136.54 | 0.00 |
| J-202 | 10.12 | 3000.10 | 117.90 | 0.00 |
| J-119 | 0.00 | 2998.53 | 132.39 | 0.00 |
| J-120 | 2.02 | 2998.53 | 136.72 | 0.00 |
| J-121 | 0.00 | 2998.53 | 136.72 | 0.00 |
| J-122 | 45.90 | 2998.52 | 139.32 | 0.00 |
| J-210 | 4.06 | 2998.84 | 137.72 | 0.00 |
| J-209 | 0.68 | 2998.86 | 135.56 | 0.00 |
| J-113 | 1.36 | 2998.64 | 124.63 | 0.00 |
| J-116 | 0.68 | 2998.56 | 127.63 | 0.00 |
| J-25 | 5.52 | 2997.94 | 70.39 | 0.00 |
| J-34 | 0.68 | 2997.76 | 82.22 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1417.79 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -42.58 | 0.27 | 0.05 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 538.73 | 3.44 | 5.81 | Open |
| P-4 | -461.27 | 2.94 | 4.36 | Open |
| P-5 | -466.77 | 2.98 | 4.45 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.45 | 0.02 | 0.00 | Open |
| P-8 | 212.88 | 0.60 | 0.14 | Open |
| P-9 | 155.77 | 0.44 | 0.08 | Open |
| P-10 | 153.01 | 0.43 | 0.08 | Open |
| P-11 | 19.94 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -34.10 | 0.10 | 0.01 | Open |

Sereno Canyon Phase 4 Max Day fire flow J38

| | | | | |
|------|---------|------|------|------|
| P-14 | 57.11 | 0.36 | 0.09 | Open |
| P-15 | 4.46 | 0.03 | 0.00 | Open |
| P-16 | 5.91 | 0.04 | 0.00 | Open |
| P-17 | -6.49 | 0.04 | 0.00 | Open |
| P-18 | -0.81 | 0.01 | 0.00 | Open |
| P-19 | -36.27 | 0.23 | 0.04 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.48 | 0.02 | 0.00 | Open |
| P-25 | -24.35 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | -13.85 | 0.09 | 0.01 | Open |
| P-29 | 133.64 | 0.38 | 0.06 | Open |
| P-30 | 127.78 | 0.36 | 0.06 | Open |
| P-31 | 95.86 | 0.27 | 0.03 | Open |
| P-32 | 75.84 | 0.22 | 0.02 | Open |
| P-33 | 81.98 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 35.13 | 0.22 | 0.04 | Open |
| P-36 | -179.13 | 0.51 | 0.10 | Open |
| P-37 | -552.44 | 1.57 | 0.84 | Open |
| P-38 | -2.97 | 0.01 | 0.00 | Open |
| P-39 | -9.73 | 0.03 | 0.00 | Open |
| P-40 | -22.55 | 0.06 | 0.00 | Open |
| P-41 | 91.73 | 0.59 | 0.22 | Open |
| P-42 | 89.01 | 0.57 | 0.21 | Open |
| P-43 | 85.63 | 0.55 | 0.19 | Open |
| P-44 | 83.59 | 0.53 | 0.18 | Open |
| P-45 | 85.77 | 0.55 | 0.19 | Open |
| P-46 | 76.33 | 0.49 | 0.16 | Open |
| P-47 | 62.15 | 0.18 | 0.02 | Open |
| P-48 | 21.57 | 0.06 | 0.00 | Open |
| P-49 | 394.88 | 2.52 | 3.27 | Open |
| P-50 | 389.36 | 2.49 | 3.18 | Open |
| P-51 | -80.17 | 0.51 | 0.17 | Open |
| P-52 | -623.38 | 3.98 | 7.61 | Open |
| P-53 | -288.98 | 1.84 | 1.83 | Open |
| P-54 | 48.10 | 0.31 | 0.07 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J38

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 308.76 | 1.97 | 2.07 | Open |
| P-58 | 114.50 | 0.73 | 0.33 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1200.05 | 3.40 | 3.55 | Open |
| P-62 | 891.29 | 2.53 | 2.05 | Open |
| P-63 | -118.34 | 0.34 | 0.05 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -121.72 | 0.35 | 0.05 | Open |
| P-66 | -178.60 | 1.14 | 0.75 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -184.00 | 1.17 | 0.79 | Open |
| P-69 | 101.59 | 0.65 | 0.26 | Open |
| P-70 | 101.59 | 0.65 | 0.26 | Open |
| P-71 | -95.23 | 0.61 | 0.23 | Open |
| P-72 | 217.74 | 1.39 | 1.09 | Open |
| P-73 | 108.73 | 0.69 | 0.30 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -5.56 | 0.04 | 0.00 | Open |
| P-77 | -55.52 | 0.16 | 0.01 | Open |
| P-78 | -56.20 | 0.16 | 0.01 | Open |
| P-79 | 12.43 | 0.08 | 0.01 | Open |
| P-80 | 29.85 | 0.19 | 0.03 | Open |
| P-81 | -11.88 | 0.08 | 0.01 | Open |
| P-82 | 17.40 | 0.11 | 0.01 | Open |
| P-83 | 552.17 | 1.57 | 0.84 | Open |
| P-84 | 334.40 | 2.13 | 2.40 | Open |
| P-85 | -8.10 | 0.05 | 0.00 | Open |
| P-86 | -1.36 | 0.01 | 0.00 | Open |
| P-87 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 3.54 | 0.02 | 0.00 | Open |
| P-90 | -51.46 | 0.33 | 0.08 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -62.34 | 0.40 | 0.11 | Open |
| P-93 | -101.48 | 0.65 | 0.26 | Open |
| P-94 | 187.50 | 1.20 | 0.82 | Open |
| P-95 | -65.72 | 0.42 | 0.12 | Open |
| P-96 | -66.40 | 0.42 | 0.12 | Open |
| P-97 | 117.88 | 0.75 | 0.35 | Open |
| P-98 | -38.56 | 0.25 | 0.04 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1417.79 | 1.01 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J38



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -37.20 | 0.24 | 0.04 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1417.80 | 0.00 | -283.67 | Open Pump |
| 1 | 1417.79 | 4.02 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J39

Page 1

12/2/2017 10:35:50 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality              *
*                               Analysis for Pipe Networks                *
*                               Version 2.0                              *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J39.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J39

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J39

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J39

| | | | | | | |
|-------|--------|-------|---------|--------|--------|------|
| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1187.58 | 101.17 | 101.17 | 0.00 |

Demand Charge: 0.00
Total Cost: 0.00

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-32 | 3.44 | 2997.60 | 89.52 | 0.00 |
| J-36 | 3.80 | 2997.65 | 73.94 | 0.00 |
| J-37 | 1.72 | 2997.65 | 70.48 | 0.00 |
| J-30 | 4.48 | 2996.84 | 98.07 | 0.00 |
| J-38 | 5.52 | 2992.91 | 79.69 | 0.00 |
| J-39 | 1000.00 | 2991.31 | 85.49 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2996.58 | 93.63 | 0.00 |
| J-40 | 2.06 | 2991.31 | 85.28 | 0.00 |
| J-28 | 3.45 | 2996.96 | 102.24 | 0.00 |
| J-27 | 2.07 | 2996.96 | 90.54 | 0.00 |
| J-2 | 1.38 | 2997.83 | 94.82 | 0.00 |
| J-3 | 0.00 | 2997.77 | 88.03 | 0.00 |
| J-4 | 1.38 | 2997.75 | 88.93 | 0.00 |
| J-41 | 5.52 | 2997.74 | 89.93 | 0.00 |
| J-14 | 6.90 | 2997.69 | 93.03 | 0.00 |
| J-11 | 4.14 | 2997.68 | 99.95 | 0.00 |
| J-12 | 49.90 | 2997.68 | 93.89 | 0.00 |
| J-9 | 0.00 | 2997.68 | 108.62 | 0.00 |
| J-6 | 2.07 | 2997.72 | 90.87 | 0.00 |
| J-19 | 3.44 | 2997.75 | 82.65 | 0.00 |
| J-24 | 6.20 | 2997.73 | 82.64 | 0.00 |
| J-20 | 31.00 | 2997.73 | 74.63 | 0.00 |
| J-21 | 12.40 | 2997.73 | 74.63 | 0.00 |
| J-22 | 3.10 | 2997.73 | 74.41 | 0.00 |
| J-5 | 2.76 | 2997.73 | 90.44 | 0.00 |
| J-17 | 3.10 | 2997.73 | 103.44 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J39

| | | | | |
|-------|-------|---------|--------|------|
| J-18 | 1.38 | 2997.75 | 97.38 | 0.00 |
| J-7 | 4.14 | 2997.70 | 100.40 | 0.00 |
| J-13 | 3.45 | 2997.70 | 110.79 | 0.00 |
| J-8 | 3.80 | 2997.69 | 104.73 | 0.00 |
| J-15 | 3.44 | 2997.70 | 82.42 | 0.00 |
| J-16 | 2.06 | 2997.70 | 77.87 | 0.00 |
| J-23 | 9.30 | 2997.73 | 72.25 | 0.00 |
| J-303 | 11.48 | 2997.90 | 111.75 | 0.00 |
| J-301 | 2.02 | 2998.02 | 116.57 | 0.00 |
| J-10 | 47.88 | 2997.68 | 115.55 | 0.00 |
| J-26 | 2.07 | 2997.85 | 100.46 | 0.00 |
| J-1 | 0.00 | 2997.89 | 95.71 | 0.00 |
| J-102 | 2.70 | 2998.55 | 101.20 | 0.00 |
| J-105 | 3.38 | 2998.55 | 109.00 | 0.00 |
| J-107 | 4.72 | 2998.55 | 113.76 | 0.00 |
| J-111 | 4.06 | 2998.55 | 116.80 | 0.00 |
| J-112 | 1.36 | 2998.45 | 125.42 | 0.00 |
| J-114 | 1.36 | 2998.41 | 126.70 | 0.00 |
| J-115 | 1.36 | 2998.37 | 127.98 | 0.00 |
| J-118 | 1.36 | 2998.34 | 128.40 | 0.00 |
| J-300 | 7.42 | 2998.02 | 117.43 | 0.00 |
| J-302 | 2.70 | 2997.90 | 109.58 | 0.00 |
| J-304 | 2.02 | 2997.89 | 102.64 | 0.00 |
| J-42 | 0.00 | 2997.16 | 98.86 | 0.00 |
| J-31 | 0.00 | 2997.50 | 95.98 | 0.00 |
| J-35 | 0.00 | 2997.68 | 76.56 | 0.00 |
| J-101 | 4.72 | 2999.28 | 115.16 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2998.55 | 116.79 | 0.00 |
| J-33 | 0.00 | 2997.63 | 84.33 | 0.00 |
| J-123 | 3.38 | 2997.63 | 92.56 | 0.00 |
| J-100 | 0.00 | 3000.24 | 121.86 | 0.00 |
| J-103 | 3.38 | 2998.31 | 108.89 | 0.00 |
| J-104 | 3.38 | 2997.93 | 84.90 | 0.00 |
| J-117 | 2.02 | 2998.41 | 123.67 | 0.00 |
| J-110 | 4.06 | 2998.55 | 109.00 | 0.00 |
| J-108 | 2.02 | 2998.55 | 108.56 | 0.00 |
| J-109 | 2.02 | 2998.55 | 107.70 | 0.00 |
| J-305 | 1.36 | 2997.87 | 103.50 | 0.00 |
| S145 | 0.00 | 3000.51 | 123.71 | 0.00 |
| J-207 | 2.70 | 2998.62 | 114.23 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J39

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2998.62 | 116.83 | 0.00 |
| J-206 | 0.68 | 2998.68 | 135.92 | 0.00 |
| J-204 | 2.70 | 2998.92 | 129.09 | 0.00 |
| J-205 | 2.70 | 2998.92 | 120.86 | 0.00 |
| J-203 | 12.82 | 2999.44 | 121.51 | 0.00 |
| J-200 | 7.42 | 3000.15 | 126.15 | 0.00 |
| J-211 | 0.00 | 2999.58 | 118.11 | 0.00 |
| J-201 | 3.38 | 2999.94 | 136.47 | 0.00 |
| J-202 | 10.12 | 2999.94 | 117.83 | 0.00 |
| J-119 | 0.00 | 2998.34 | 132.30 | 0.00 |
| J-120 | 2.02 | 2998.34 | 136.64 | 0.00 |
| J-121 | 0.00 | 2998.34 | 136.64 | 0.00 |
| J-122 | 45.90 | 2998.33 | 139.23 | 0.00 |
| J-210 | 4.06 | 2998.66 | 137.64 | 0.00 |
| J-209 | 0.68 | 2998.67 | 135.48 | 0.00 |
| J-113 | 1.36 | 2998.45 | 124.55 | 0.00 |
| J-116 | 0.68 | 2998.37 | 127.55 | 0.00 |
| J-25 | 5.52 | 2997.74 | 70.30 | 0.00 |
| J-34 | 0.68 | 2997.66 | 82.18 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1419.87 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -42.07 | 0.27 | 0.05 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 446.54 | 2.85 | 4.10 | Open |
| P-4 | 441.02 | 2.81 | 4.01 | Open |
| P-5 | -561.04 | 3.58 | 6.26 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.45 | 0.02 | 0.00 | Open |
| P-8 | 212.88 | 0.60 | 0.14 | Open |
| P-9 | 155.77 | 0.44 | 0.08 | Open |
| P-10 | 153.01 | 0.43 | 0.08 | Open |
| P-11 | 19.94 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -34.10 | 0.10 | 0.00 | Open |

Sereno Canyon Phase 4 Max Day fire flow J39

| | | | | |
|------|---------|------|------|------|
| P-14 | 57.11 | 0.36 | 0.09 | Open |
| P-15 | 4.46 | 0.03 | 0.00 | Open |
| P-16 | 5.91 | 0.04 | 0.00 | Open |
| P-17 | -6.49 | 0.04 | 0.00 | Open |
| P-18 | -0.81 | 0.01 | 0.00 | Open |
| P-19 | -36.27 | 0.23 | 0.04 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.48 | 0.02 | 0.00 | Open |
| P-25 | -24.35 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | -13.85 | 0.09 | 0.01 | Open |
| P-29 | 133.64 | 0.38 | 0.06 | Open |
| P-30 | 127.78 | 0.36 | 0.06 | Open |
| P-31 | 95.86 | 0.27 | 0.03 | Open |
| P-32 | 75.84 | 0.22 | 0.02 | Open |
| P-33 | 81.98 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 35.17 | 0.22 | 0.04 | Open |
| P-36 | -179.09 | 0.51 | 0.10 | Open |
| P-37 | -562.12 | 1.59 | 0.87 | Open |
| P-38 | -3.01 | 0.01 | 0.00 | Open |
| P-39 | -9.77 | 0.03 | 0.00 | Open |
| P-40 | -22.59 | 0.06 | 0.00 | Open |
| P-41 | 92.80 | 0.59 | 0.22 | Open |
| P-42 | 90.08 | 0.57 | 0.21 | Open |
| P-43 | 86.70 | 0.55 | 0.20 | Open |
| P-44 | 84.66 | 0.54 | 0.19 | Open |
| P-45 | 87.41 | 0.56 | 0.20 | Open |
| P-46 | 77.97 | 0.50 | 0.16 | Open |
| P-47 | 63.79 | 0.18 | 0.02 | Open |
| P-48 | 23.16 | 0.07 | 0.00 | Open |
| P-49 | 406.19 | 2.59 | 3.44 | Open |
| P-50 | 400.67 | 2.56 | 3.36 | Open |
| P-51 | -163.13 | 1.04 | 0.64 | Open |
| P-52 | -614.15 | 3.92 | 7.40 | Open |
| P-53 | -285.63 | 1.82 | 1.79 | Open |
| P-54 | 47.59 | 0.30 | 0.07 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J39

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 305.41 | 1.95 | 2.03 | Open |
| P-58 | 113.24 | 0.72 | 0.32 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1200.46 | 3.41 | 3.56 | Open |
| P-62 | 895.04 | 2.54 | 2.06 | Open |
| P-63 | -119.45 | 0.34 | 0.05 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -122.83 | 0.35 | 0.05 | Open |
| P-66 | -180.27 | 1.15 | 0.76 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -185.67 | 1.19 | 0.81 | Open |
| P-69 | 102.43 | 0.65 | 0.27 | Open |
| P-70 | 102.43 | 0.65 | 0.27 | Open |
| P-71 | -96.06 | 0.61 | 0.24 | Open |
| P-72 | 219.41 | 1.40 | 1.10 | Open |
| P-73 | 109.56 | 0.70 | 0.30 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -6.12 | 0.04 | 0.00 | Open |
| P-77 | -56.08 | 0.16 | 0.01 | Open |
| P-78 | -56.76 | 0.16 | 0.01 | Open |
| P-79 | 12.43 | 0.08 | 0.01 | Open |
| P-80 | 29.85 | 0.19 | 0.03 | Open |
| P-81 | -11.88 | 0.08 | 0.01 | Open |
| P-82 | 17.40 | 0.11 | 0.01 | Open |
| P-83 | 561.81 | 1.59 | 0.87 | Open |
| P-84 | 328.51 | 2.10 | 2.32 | Open |
| P-85 | -8.10 | 0.05 | 0.00 | Open |
| P-86 | -1.36 | 0.01 | 0.00 | Open |
| P-87 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 4.10 | 0.03 | 0.00 | Open |
| P-90 | -52.02 | 0.33 | 0.08 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -61.59 | 0.39 | 0.10 | Open |
| P-93 | -100.22 | 0.64 | 0.26 | Open |
| P-94 | 185.42 | 1.18 | 0.81 | Open |
| P-95 | -64.97 | 0.41 | 0.12 | Open |
| P-96 | -65.65 | 0.42 | 0.12 | Open |
| P-97 | 116.62 | 0.74 | 0.34 | Open |
| P-98 | -38.60 | 0.25 | 0.04 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1419.87 | 1.01 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J39



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -37.24 | 0.24 | 0.04 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1419.88 | 0.00 | -283.51 | Open Pump |
| 1 | 1419.87 | 4.03 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J40

Page 1

12/2/2017 10:53:38 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality              *
*                               Analysis for Pipe Networks                *
*                               Version 2.0                              *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J40.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J40

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J40

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J40

| | | | | | | |
|-------|--------|-------|---------|--------|--------|------|
| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1187.15 | 101.23 | 101.23 | 0.00 |

Demand Charge: 0.00
 Total Cost: 0.00

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-40 | 1000.00 | 2989.66 | 84.56 | 0.00 |
| J-32 | 3.44 | 2997.49 | 89.47 | 0.00 |
| J-36 | 3.80 | 2997.54 | 73.90 | 0.00 |
| J-37 | 1.72 | 2997.54 | 70.43 | 0.00 |
| J-30 | 4.48 | 2996.73 | 98.02 | 0.00 |
| J-38 | 5.52 | 2992.79 | 79.64 | 0.00 |
| J-39 | 3.44 | 2991.18 | 85.44 | 0.00 |



Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2996.47 | 93.58 | 0.00 |
| J-28 | 3.45 | 2996.84 | 102.19 | 0.00 |
| J-27 | 2.07 | 2996.84 | 90.49 | 0.00 |
| J-2 | 1.38 | 2997.72 | 94.77 | 0.00 |
| J-3 | 0.00 | 2997.66 | 87.98 | 0.00 |
| J-4 | 1.38 | 2997.64 | 88.89 | 0.00 |
| J-41 | 5.52 | 2997.63 | 89.88 | 0.00 |
| J-14 | 6.90 | 2997.59 | 92.98 | 0.00 |
| J-11 | 4.14 | 2997.57 | 99.91 | 0.00 |
| J-12 | 49.90 | 2997.57 | 93.84 | 0.00 |
| J-9 | 0.00 | 2997.58 | 108.57 | 0.00 |
| J-6 | 2.07 | 2997.61 | 90.82 | 0.00 |
| J-19 | 3.44 | 2997.64 | 82.60 | 0.00 |
| J-24 | 6.20 | 2997.63 | 82.60 | 0.00 |
| J-20 | 31.00 | 2997.63 | 74.58 | 0.00 |
| J-21 | 12.40 | 2997.63 | 74.58 | 0.00 |
| J-22 | 3.10 | 2997.63 | 74.37 | 0.00 |
| J-5 | 2.76 | 2997.62 | 90.39 | 0.00 |
| J-17 | 3.10 | 2997.62 | 103.39 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J40

| | | | | |
|-------|-------|---------|--------|------|
| J-18 | 1.38 | 2997.64 | 97.34 | 0.00 |
| J-7 | 4.14 | 2997.59 | 100.35 | 0.00 |
| J-13 | 3.45 | 2997.59 | 110.75 | 0.00 |
| J-8 | 3.80 | 2997.59 | 104.68 | 0.00 |
| J-15 | 3.44 | 2997.60 | 82.37 | 0.00 |
| J-16 | 2.06 | 2997.60 | 77.82 | 0.00 |
| J-23 | 9.30 | 2997.62 | 72.20 | 0.00 |
| J-303 | 11.48 | 2997.79 | 111.70 | 0.00 |
| J-301 | 2.02 | 2997.91 | 116.52 | 0.00 |
| J-10 | 47.88 | 2997.57 | 115.51 | 0.00 |
| J-26 | 2.07 | 2997.74 | 100.41 | 0.00 |
| J-1 | 0.00 | 2997.78 | 95.66 | 0.00 |
| J-102 | 2.70 | 2998.44 | 101.15 | 0.00 |
| J-105 | 3.38 | 2998.44 | 108.95 | 0.00 |
| J-107 | 4.72 | 2998.44 | 113.72 | 0.00 |
| J-111 | 4.06 | 2998.44 | 116.75 | 0.00 |
| J-112 | 1.36 | 2998.34 | 125.37 | 0.00 |
| J-114 | 1.36 | 2998.30 | 126.65 | 0.00 |
| J-115 | 1.36 | 2998.26 | 127.94 | 0.00 |
| J-118 | 1.36 | 2998.23 | 128.36 | 0.00 |
| J-300 | 7.42 | 2997.91 | 117.39 | 0.00 |
| J-302 | 2.70 | 2997.79 | 109.53 | 0.00 |
| J-304 | 2.02 | 2997.78 | 102.60 | 0.00 |
| J-42 | 0.00 | 2997.05 | 98.81 | 0.00 |
| J-31 | 0.00 | 2997.39 | 95.93 | 0.00 |
| J-35 | 0.00 | 2997.57 | 76.51 | 0.00 |
| J-101 | 4.72 | 2999.18 | 115.12 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2998.44 | 116.75 | 0.00 |
| J-33 | 0.00 | 2997.52 | 84.28 | 0.00 |
| J-123 | 3.38 | 2997.52 | 92.52 | 0.00 |
| J-100 | 0.00 | 3000.14 | 121.82 | 0.00 |
| J-103 | 3.38 | 2998.20 | 108.85 | 0.00 |
| J-104 | 3.38 | 2997.82 | 84.85 | 0.00 |
| J-117 | 2.02 | 2998.30 | 123.62 | 0.00 |
| J-110 | 4.06 | 2998.44 | 108.95 | 0.00 |
| J-108 | 2.02 | 2998.44 | 108.52 | 0.00 |
| J-109 | 2.02 | 2998.44 | 107.65 | 0.00 |
| J-305 | 1.36 | 2997.76 | 103.45 | 0.00 |
| S145 | 0.00 | 3000.40 | 123.67 | 0.00 |
| J-207 | 2.70 | 2998.51 | 114.18 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J40

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2998.51 | 116.78 | 0.00 |
| J-206 | 0.68 | 2998.57 | 135.87 | 0.00 |
| J-204 | 2.70 | 2998.81 | 129.04 | 0.00 |
| J-205 | 2.70 | 2998.81 | 120.81 | 0.00 |
| J-203 | 12.82 | 2999.33 | 121.47 | 0.00 |
| J-200 | 7.42 | 3000.04 | 126.11 | 0.00 |
| J-211 | 0.00 | 2999.48 | 118.06 | 0.00 |
| J-201 | 3.38 | 2999.84 | 136.42 | 0.00 |
| J-202 | 10.12 | 2999.84 | 117.79 | 0.00 |
| J-119 | 0.00 | 2998.23 | 132.26 | 0.00 |
| J-120 | 2.02 | 2998.23 | 136.59 | 0.00 |
| J-121 | 0.00 | 2998.23 | 136.59 | 0.00 |
| J-122 | 45.90 | 2998.22 | 139.19 | 0.00 |
| J-210 | 4.06 | 2998.55 | 137.59 | 0.00 |
| J-209 | 0.68 | 2998.57 | 135.43 | 0.00 |
| J-113 | 1.36 | 2998.34 | 124.51 | 0.00 |
| J-116 | 0.68 | 2998.26 | 127.50 | 0.00 |
| J-25 | 5.52 | 2997.63 | 70.25 | 0.00 |
| J-34 | 0.68 | 2997.55 | 82.13 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1421.25 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -42.12 | 0.27 | 0.05 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 447.14 | 2.85 | 4.11 | Open |
| P-4 | 441.62 | 2.82 | 4.02 | Open |
| P-5 | -561.82 | 3.59 | 6.28 | Open |
| P-6 | 1000.00 | 6.38 | 18.27 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.45 | 0.02 | 0.00 | Open |
| P-8 | 212.88 | 0.60 | 0.14 | Open |
| P-9 | 155.77 | 0.44 | 0.08 | Open |
| P-10 | 153.01 | 0.43 | 0.08 | Open |
| P-11 | 19.94 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -34.10 | 0.10 | 0.00 | Open |

Sereno Canyon Phase 4 Max Day fire flow J40

| | | | | |
|------|---------|------|------|------|
| P-14 | 57.11 | 0.36 | 0.09 | Open |
| P-15 | 4.46 | 0.03 | 0.00 | Open |
| P-16 | 5.91 | 0.04 | 0.00 | Open |
| P-17 | -6.49 | 0.04 | 0.00 | Open |
| P-18 | -0.81 | 0.01 | 0.00 | Open |
| P-19 | -36.27 | 0.23 | 0.04 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.48 | 0.02 | 0.00 | Open |
| P-25 | -24.35 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | -13.85 | 0.09 | 0.01 | Open |
| P-29 | 133.64 | 0.38 | 0.06 | Open |
| P-30 | 127.78 | 0.36 | 0.06 | Open |
| P-31 | 95.86 | 0.27 | 0.03 | Open |
| P-32 | 75.84 | 0.22 | 0.02 | Open |
| P-33 | 81.98 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 35.17 | 0.22 | 0.04 | Open |
| P-36 | -179.09 | 0.51 | 0.11 | Open |
| P-37 | -562.65 | 1.60 | 0.87 | Open |
| P-38 | -3.09 | 0.01 | 0.00 | Open |
| P-39 | -9.85 | 0.03 | 0.00 | Open |
| P-40 | -22.67 | 0.06 | 0.00 | Open |
| P-41 | 92.86 | 0.59 | 0.22 | Open |
| P-42 | 90.14 | 0.58 | 0.21 | Open |
| P-43 | 86.76 | 0.55 | 0.20 | Open |
| P-44 | 84.72 | 0.54 | 0.19 | Open |
| P-45 | 87.50 | 0.56 | 0.20 | Open |
| P-46 | 78.06 | 0.50 | 0.16 | Open |
| P-47 | 63.88 | 0.18 | 0.02 | Open |
| P-48 | 23.26 | 0.07 | 0.00 | Open |
| P-49 | 406.82 | 2.60 | 3.45 | Open |
| P-50 | 401.30 | 2.56 | 3.37 | Open |
| P-51 | -163.28 | 1.04 | 0.64 | Open |
| P-52 | -614.90 | 3.92 | 7.42 | Open |
| P-53 | -285.98 | 1.83 | 1.80 | Open |
| P-54 | 47.64 | 0.30 | 0.06 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J40

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 305.76 | 1.95 | 2.04 | Open |
| P-58 | 113.37 | 0.72 | 0.32 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1201.66 | 3.41 | 3.56 | Open |
| P-62 | 895.90 | 2.54 | 2.07 | Open |
| P-63 | -119.58 | 0.34 | 0.05 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -122.96 | 0.35 | 0.05 | Open |
| P-66 | -180.45 | 1.15 | 0.77 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -185.85 | 1.19 | 0.81 | Open |
| P-69 | 102.52 | 0.65 | 0.27 | Open |
| P-70 | 102.52 | 0.65 | 0.27 | Open |
| P-71 | -96.15 | 0.61 | 0.24 | Open |
| P-72 | 219.59 | 1.40 | 1.10 | Open |
| P-73 | 109.65 | 0.70 | 0.30 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -6.16 | 0.04 | 0.00 | Open |
| P-77 | -56.12 | 0.16 | 0.01 | Open |
| P-78 | -56.80 | 0.16 | 0.01 | Open |
| P-79 | 12.43 | 0.08 | 0.01 | Open |
| P-80 | 29.85 | 0.19 | 0.03 | Open |
| P-81 | -11.88 | 0.08 | 0.01 | Open |
| P-82 | 17.40 | 0.11 | 0.01 | Open |
| P-83 | 562.26 | 1.60 | 0.87 | Open |
| P-84 | 328.92 | 2.10 | 2.33 | Open |
| P-85 | -8.10 | 0.05 | 0.00 | Open |
| P-86 | -1.36 | 0.01 | 0.00 | Open |
| P-87 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 4.14 | 0.03 | 0.00 | Open |
| P-90 | -52.06 | 0.33 | 0.08 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -61.67 | 0.39 | 0.10 | Open |
| P-93 | -100.35 | 0.64 | 0.26 | Open |
| P-94 | 185.63 | 1.18 | 0.81 | Open |
| P-95 | -65.05 | 0.42 | 0.12 | Open |
| P-96 | -65.73 | 0.42 | 0.12 | Open |
| P-97 | 116.75 | 0.75 | 0.34 | Open |
| P-98 | -38.60 | 0.25 | 0.04 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1421.25 | 1.01 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J40



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -37.24 | 0.24 | 0.04 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1421.26 | 0.00 | -283.41 | Open Pump |
| 1 | 1421.25 | 4.03 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J41

Page 1

12/2/2017 10:36:36 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality              *
*                               Analysis for Pipe Networks                *
*                               Version 2.0                              *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J41.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J41

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J41

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J41

| | | | | | | |
|-------|--------|-------|---------|--------|--------|------|
| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1189.12 | 100.96 | 100.96 | 0.00 |

Demand Charge: 0.00
Total Cost: 0.00

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-41 | 1000.00 | 2993.24 | 87.98 | 0.00 |
| J-32 | 3.44 | 2999.15 | 90.19 | 0.00 |
| J-36 | 3.80 | 2999.18 | 74.60 | 0.00 |
| J-37 | 1.72 | 2999.18 | 71.14 | 0.00 |
| J-30 | 4.48 | 2998.79 | 98.92 | 0.00 |
| J-38 | 5.52 | 2998.49 | 82.11 | 0.00 |
| J-39 | 3.44 | 2998.38 | 88.56 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2998.16 | 94.31 | 0.00 |
| J-40 | 2.06 | 2998.38 | 88.34 | 0.00 |
| J-28 | 3.44 | 2997.85 | 102.63 | 0.00 |
| J-27 | 2.06 | 2997.85 | 90.93 | 0.00 |
| J-2 | 1.38 | 2995.71 | 93.90 | 0.00 |
| J-3 | 0.00 | 2994.09 | 86.44 | 0.00 |
| J-4 | 1.38 | 2993.61 | 87.14 | 0.00 |
| J-14 | 6.90 | 2993.20 | 91.08 | 0.00 |
| J-11 | 4.14 | 2993.19 | 98.01 | 0.00 |
| J-12 | 49.90 | 2993.18 | 91.94 | 0.00 |
| J-9 | 0.00 | 2993.19 | 106.67 | 0.00 |
| J-6 | 2.06 | 2993.22 | 88.92 | 0.00 |
| J-19 | 3.44 | 2993.84 | 80.96 | 0.00 |
| J-24 | 3.44 | 2993.68 | 80.89 | 0.00 |
| J-20 | 31.00 | 2993.69 | 72.88 | 0.00 |
| J-21 | 12.40 | 2993.63 | 72.85 | 0.00 |
| J-22 | 3.10 | 2993.64 | 72.64 | 0.00 |
| J-5 | 2.76 | 2993.23 | 88.49 | 0.00 |
| J-17 | 3.10 | 2993.23 | 101.49 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J41

| | | | | |
|-------|-------|---------|--------|------|
| J-18 | 1.38 | 2993.61 | 95.59 | 0.00 |
| J-7 | 4.14 | 2993.21 | 98.45 | 0.00 |
| J-13 | 3.44 | 2993.20 | 108.85 | 0.00 |
| J-8 | 3.80 | 2993.20 | 102.78 | 0.00 |
| J-15 | 3.44 | 2993.21 | 80.47 | 0.00 |
| J-16 | 2.06 | 2993.21 | 75.92 | 0.00 |
| J-23 | 9.30 | 2993.64 | 70.47 | 0.00 |
| J-303 | 11.48 | 2997.13 | 111.41 | 0.00 |
| J-301 | 2.02 | 2997.37 | 116.28 | 0.00 |
| J-10 | 47.88 | 2993.18 | 113.60 | 0.00 |
| J-26 | 2.06 | 2996.21 | 99.75 | 0.00 |
| J-1 | 0.00 | 2997.13 | 95.38 | 0.00 |
| J-102 | 2.70 | 2998.28 | 101.08 | 0.00 |
| J-105 | 3.38 | 2998.28 | 108.88 | 0.00 |
| J-107 | 4.72 | 2998.28 | 113.65 | 0.00 |
| J-111 | 4.06 | 2998.28 | 116.68 | 0.00 |
| J-112 | 1.36 | 2998.13 | 125.28 | 0.00 |
| J-114 | 1.36 | 2998.06 | 126.55 | 0.00 |
| J-115 | 1.36 | 2998.00 | 127.82 | 0.00 |
| J-118 | 1.36 | 2997.96 | 128.24 | 0.00 |
| J-300 | 7.42 | 2997.37 | 117.15 | 0.00 |
| J-302 | 2.70 | 2997.13 | 109.25 | 0.00 |
| J-304 | 2.02 | 2997.11 | 102.31 | 0.00 |
| J-42 | 0.00 | 2998.92 | 99.62 | 0.00 |
| J-31 | 0.00 | 2999.10 | 96.67 | 0.00 |
| J-35 | 0.00 | 2999.19 | 77.21 | 0.00 |
| J-101 | 4.72 | 2999.57 | 115.29 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2998.28 | 116.68 | 0.00 |
| J-33 | 0.00 | 2999.16 | 85.00 | 0.00 |
| J-123 | 3.38 | 2999.16 | 93.23 | 0.00 |
| J-100 | 0.00 | 3000.62 | 122.03 | 0.00 |
| J-103 | 3.38 | 2999.54 | 109.43 | 0.00 |
| J-104 | 3.38 | 2999.33 | 85.50 | 0.00 |
| J-117 | 2.02 | 2998.06 | 123.52 | 0.00 |
| J-110 | 4.06 | 2998.28 | 108.88 | 0.00 |
| J-108 | 2.02 | 2998.28 | 108.45 | 0.00 |
| J-109 | 2.02 | 2998.28 | 107.58 | 0.00 |
| J-305 | 1.36 | 2996.62 | 102.96 | 0.00 |
| S145 | 0.00 | 3000.87 | 123.87 | 0.00 |
| J-207 | 2.70 | 2998.38 | 114.12 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J41

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2998.38 | 116.72 | 0.00 |
| J-206 | 0.68 | 2998.45 | 135.82 | 0.00 |
| J-204 | 2.70 | 2998.78 | 129.03 | 0.00 |
| J-205 | 2.70 | 2998.78 | 120.79 | 0.00 |
| J-203 | 12.82 | 2999.48 | 121.53 | 0.00 |
| J-200 | 7.42 | 3000.41 | 126.27 | 0.00 |
| J-211 | 0.00 | 2999.67 | 118.15 | 0.00 |
| J-201 | 3.38 | 3000.15 | 136.55 | 0.00 |
| J-202 | 10.12 | 3000.15 | 117.92 | 0.00 |
| J-119 | 0.00 | 2997.96 | 132.14 | 0.00 |
| J-120 | 2.02 | 2997.96 | 136.47 | 0.00 |
| J-121 | 0.00 | 2997.97 | 136.47 | 0.00 |
| J-122 | 45.90 | 2997.96 | 139.07 | 0.00 |
| J-210 | 4.06 | 2998.42 | 137.54 | 0.00 |
| J-209 | 0.68 | 2998.45 | 135.38 | 0.00 |
| J-113 | 1.36 | 2998.13 | 124.41 | 0.00 |
| J-116 | 0.68 | 2998.00 | 127.39 | 0.00 |
| J-25 | 5.52 | 2993.73 | 68.56 | 0.00 |
| J-34 | 0.68 | 2999.18 | 82.84 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1414.99 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -29.42 | 0.19 | 0.03 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | 111.00 | 0.71 | 0.31 | Open |
| P-4 | 105.48 | 0.67 | 0.28 | Open |
| P-5 | 99.98 | 0.64 | 0.26 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.44 | 0.02 | 0.00 | Open |
| P-8 | 1204.58 | 3.42 | 3.58 | Open |
| P-9 | 985.77 | 2.80 | 2.47 | Open |
| P-10 | 983.01 | 2.79 | 2.46 | Open |
| P-11 | 19.96 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -34.08 | 0.10 | 0.00 | Open |

Sereno Canyon Phase 4 Max Day fire flow J41

| | | | | |
|------|----------|------|------|------|
| P-14 | 218.81 | 1.40 | 1.10 | Open |
| P-15 | 88.83 | 0.57 | 0.21 | Open |
| P-16 | -74.18 | 0.47 | 0.15 | Open |
| P-17 | -86.58 | 0.55 | 0.20 | Open |
| P-18 | -27.84 | 0.18 | 0.02 | Open |
| P-19 | -147.67 | 0.94 | 0.53 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.52 | 0.02 | 0.00 | Open |
| P-25 | -24.34 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | 150.61 | 0.96 | 0.55 | Open |
| P-29 | 133.62 | 0.38 | 0.06 | Open |
| P-30 | 127.76 | 0.36 | 0.06 | Open |
| P-31 | 95.86 | 0.27 | 0.03 | Open |
| P-32 | 75.84 | 0.22 | 0.02 | Open |
| P-33 | 81.96 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 201.73 | 1.29 | 0.94 | Open |
| P-36 | -1004.23 | 2.85 | 2.55 | Open |
| P-37 | -759.41 | 2.15 | 1.52 | Open |
| P-38 | -0.56 | 0.00 | 0.00 | Open |
| P-39 | -7.32 | 0.02 | 0.00 | Open |
| P-40 | -20.14 | 0.06 | 0.00 | Open |
| P-41 | 116.00 | 0.74 | 0.34 | Open |
| P-42 | 113.28 | 0.72 | 0.32 | Open |
| P-43 | 109.90 | 0.70 | 0.31 | Open |
| P-44 | 107.86 | 0.69 | 0.30 | Open |
| P-45 | 122.00 | 0.78 | 0.37 | Open |
| P-46 | 112.56 | 0.72 | 0.32 | Open |
| P-47 | 98.38 | 0.28 | 0.03 | Open |
| P-48 | -108.79 | 0.31 | 0.04 | Open |
| P-49 | -353.60 | 2.26 | 2.66 | Open |
| P-50 | -359.10 | 2.29 | 2.74 | Open |
| P-51 | -261.88 | 1.67 | 1.53 | Open |
| P-52 | -377.36 | 2.41 | 3.00 | Open |
| P-53 | -203.28 | 1.30 | 0.96 | Open |
| P-54 | 34.94 | 0.22 | 0.04 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J41

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 223.06 | 1.42 | 1.13 | Open |
| P-58 | 82.14 | 0.52 | 0.18 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1163.42 | 3.30 | 3.36 | Open |
| P-62 | 940.36 | 2.67 | 2.26 | Open |
| P-63 | -140.20 | 0.40 | 0.07 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -143.58 | 0.41 | 0.07 | Open |
| P-66 | -212.42 | 1.36 | 1.04 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -217.82 | 1.39 | 1.09 | Open |
| P-69 | 118.74 | 0.76 | 0.35 | Open |
| P-70 | 118.74 | 0.76 | 0.35 | Open |
| P-71 | -111.91 | 0.71 | 0.32 | Open |
| P-72 | 251.56 | 1.61 | 1.42 | Open |
| P-73 | 125.41 | 0.80 | 0.39 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -17.53 | 0.11 | 0.01 | Open |
| P-77 | -67.49 | 0.19 | 0.02 | Open |
| P-78 | -68.17 | 0.19 | 0.02 | Open |
| P-79 | 12.44 | 0.08 | 0.01 | Open |
| P-80 | 29.84 | 0.19 | 0.03 | Open |
| P-81 | -62.18 | 0.40 | 0.11 | Open |
| P-82 | 67.70 | 0.43 | 0.12 | Open |
| P-83 | 761.55 | 2.16 | 1.53 | Open |
| P-84 | 174.09 | 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 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 15.51 | 0.10 | 0.01 | Open |
| P-90 | -63.43 | 0.40 | 0.11 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -43.14 | 0.28 | 0.05 | Open |
| P-93 | -69.12 | 0.44 | 0.13 | Open |
| P-94 | 134.16 | 0.86 | 0.44 | Open |
| P-95 | -46.52 | 0.30 | 0.06 | Open |
| P-96 | -47.20 | 0.30 | 0.06 | Open |
| P-97 | 85.52 | 0.55 | 0.19 | Open |
| P-98 | -205.15 | 1.31 | 0.97 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1414.99 | 1.00 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J41



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -203.79 | 1.30 | 0.96 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1414.99 | 0.00 | -283.88 | Open Pump |
| 1 | 1414.98 | 4.01 | 0.00 | Open Valve |

Sereno Canyon Phase 4 Max Day fire flow J42

Page 1

12/2/2017 10:36:49 AM

```
*****
*                               E P A N E T                               *
*                               Hydraulic and Water Quality              *
*                               Analysis for Pipe Networks                *
*                               Version 2.0                              *
*****
```

Input File: Sereno Canyon Phase 4 Max Day fire flow J42.net

Sereno Canyon

Link - Node Table:

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| P-1 | J-32 | J-36 | 955.6 | 8 |
| P-2 | J-36 | J-37 | 121.6 | 8 |
| P-3 | J-30 | 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 | 83.23 | 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 | 8 |
| P-15 | J-20 | J-21 | 310.5 | 8 |
| P-16 | J-21 | J-22 | 93.71 | 8 |
| P-17 | J-22 | J-24 | 192.7 | 8 |
| P-18 | J-24 | J-20 | 511.2 | 8 |
| P-19 | J-20 | J-19 | 293.1 | 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 | 601.7 | 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 |

Sereno Canyon Phase 4 Max Day fire flow J42

| | | | | |
|------|-------|-------|-------|----|
| P-33 | J-8 | J-9 | 384 | 12 |
| P-34 | J-9 | J-10 | 522 | 12 |
| P-35 | J-26 | J-2 | 531.2 | 8 |
| 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 |



Page 2

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in |
|---------|------------|----------|-----------|-------------|
| 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 |
| 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 | 469.1 | 12 |
| P-48 | J-304 | J-1 | 500.9 | 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-61 | S145 | J-100 | 74.44 | 12 |
| 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-72 | S145 | J-200 | 327.3 | 8 |

Sereno Canyon Phase 4 Max Day fire flow J42

| | | | | |
|------|-------|-------|-------|----|
| 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 | 394 | 8 |
| P-80 | J-6 | J-15 | 462 | 8 |
| P-81 | J-24 | J-25 | 535 | 8 |
| 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 |



Page 3

Sereno Canyon

Link - Node Table: (continued)

| Link ID | Start Node | End Node | Length ft | Diameter in | |
|---------|------------|----------|-----------|-------------|-------|
| 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 | |
| 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 | 506.9 | 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-21 | J-26 | J-305 | 427 | 8 | |
| PUMP1 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP2 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP3 | J-400 | J-401 | #N/A | #N/A | Pump |
| PUMP4 | J-400 | J-401 | #N/A | #N/A | Pump |
| 1 | J-401 | S145 | #N/A | 12 | Valve |

Energy Usage:

| Pump | Usage Factor | Avg. Effic. | Kw-hr /Mgal | Avg. Kw | Peak Kw | Cost /day |
|------|--------------|-------------|-------------|---------|---------|-----------|
|------|--------------|-------------|-------------|---------|---------|-----------|

Sereno Canyon Phase 4 Max Day fire flow J42

| | | | | | | |
|-------|--------|-------|---------|--------|--------|------|
| PUMP1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| PUMP4 | 100.00 | 75.00 | 1186.50 | 101.33 | 101.33 | 0.00 |

Demand Charge: 0.00
 Total Cost: 0.00

Node Results:

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-42 | 1000.00 | 2996.37 | 98.52 | 0.00 |
| J-32 | 3.44 | 2996.90 | 89.22 | 0.00 |
| J-36 | 3.80 | 2996.96 | 73.64 | 0.00 |
| J-37 | 1.72 | 2996.96 | 70.18 | 0.00 |
| J-30 | 4.48 | 2996.47 | 97.91 | 0.00 |
| J-38 | 5.52 | 2996.66 | 81.31 | 0.00 |
| J-39 | 3.44 | 2996.76 | 87.85 | 0.00 |



Page 4

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-29 | 2.76 | 2996.97 | 93.80 | 0.00 |
| J-40 | 2.06 | 2996.76 | 87.64 | 0.00 |
| J-28 | 3.45 | 2997.24 | 102.36 | 0.00 |
| J-27 | 2.07 | 2997.24 | 90.66 | 0.00 |
| J-2 | 1.38 | 2997.85 | 94.83 | 0.00 |
| J-3 | 0.00 | 2997.78 | 88.04 | 0.00 |
| J-4 | 1.38 | 2997.77 | 88.94 | 0.00 |
| J-41 | 5.52 | 2997.76 | 89.93 | 0.00 |
| J-14 | 6.90 | 2997.71 | 93.03 | 0.00 |
| J-11 | 4.14 | 2997.70 | 99.96 | 0.00 |
| J-12 | 49.90 | 2997.70 | 93.89 | 0.00 |
| J-9 | 0.00 | 2997.70 | 108.63 | 0.00 |
| J-6 | 2.07 | 2997.73 | 90.88 | 0.00 |
| J-19 | 3.44 | 2997.76 | 82.66 | 0.00 |
| J-24 | 6.20 | 2997.75 | 82.65 | 0.00 |
| J-20 | 31.00 | 2997.75 | 74.64 | 0.00 |
| J-21 | 12.40 | 2997.75 | 74.64 | 0.00 |
| J-22 | 3.10 | 2997.75 | 74.42 | 0.00 |
| J-5 | 2.76 | 2997.75 | 90.45 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J42

| | | | | |
|-------|-------|---------|--------|------|
| J-17 | 3.10 | 2997.75 | 103.45 | 0.00 |
| J-18 | 1.38 | 2997.77 | 97.39 | 0.00 |
| J-7 | 4.14 | 2997.72 | 100.40 | 0.00 |
| J-13 | 3.45 | 2997.71 | 110.80 | 0.00 |
| J-8 | 3.80 | 2997.71 | 104.73 | 0.00 |
| J-15 | 3.44 | 2997.72 | 82.42 | 0.00 |
| J-16 | 2.06 | 2997.72 | 77.87 | 0.00 |
| J-23 | 9.30 | 2997.75 | 72.25 | 0.00 |
| J-303 | 11.48 | 2997.91 | 111.75 | 0.00 |
| J-301 | 2.02 | 2998.01 | 116.56 | 0.00 |
| J-10 | 47.88 | 2997.70 | 115.56 | 0.00 |
| J-26 | 2.07 | 2997.87 | 100.47 | 0.00 |
| J-1 | 0.00 | 2997.91 | 95.72 | 0.00 |
| J-102 | 2.70 | 2998.45 | 101.15 | 0.00 |
| J-105 | 3.38 | 2998.45 | 108.95 | 0.00 |
| J-107 | 4.72 | 2998.45 | 113.72 | 0.00 |
| J-111 | 4.06 | 2998.45 | 116.75 | 0.00 |
| J-112 | 1.36 | 2998.36 | 125.38 | 0.00 |
| J-114 | 1.36 | 2998.32 | 126.66 | 0.00 |
| J-115 | 1.36 | 2998.29 | 127.95 | 0.00 |
| J-118 | 1.36 | 2998.27 | 128.37 | 0.00 |
| J-300 | 7.42 | 2998.01 | 117.43 | 0.00 |
| J-302 | 2.70 | 2997.91 | 109.59 | 0.00 |
| J-304 | 2.02 | 2997.91 | 102.65 | 0.00 |
| J-31 | 0.00 | 2996.78 | 95.66 | 0.00 |
| J-35 | 0.00 | 2996.99 | 76.26 | 0.00 |
| J-101 | 4.72 | 2999.05 | 115.06 | 0.00 |



Page 5

Sereno Canyon

Node Results: (continued)

| Node ID | Demand GPM | Head ft | Pressure psi | Quality |
|---------|------------|---------|--------------|---------|
| J-106 | 3.38 | 2998.45 | 116.75 | 0.00 |
| J-33 | 0.00 | 2996.93 | 84.03 | 0.00 |
| J-123 | 3.38 | 2996.93 | 92.26 | 0.00 |
| J-100 | 0.00 | 2999.98 | 121.75 | 0.00 |
| J-103 | 3.38 | 2997.72 | 108.64 | 0.00 |
| J-104 | 3.38 | 2997.28 | 84.62 | 0.00 |
| J-117 | 2.02 | 2998.32 | 123.63 | 0.00 |
| J-110 | 4.06 | 2998.45 | 108.95 | 0.00 |
| J-108 | 2.02 | 2998.45 | 108.52 | 0.00 |
| J-109 | 2.02 | 2998.45 | 107.65 | 0.00 |
| J-305 | 1.36 | 2997.89 | 103.51 | 0.00 |
| S145 | 0.00 | 3000.25 | 123.60 | 0.00 |
| J-207 | 2.70 | 2998.51 | 114.18 | 0.00 |

Sereno Canyon Phase 4 Max Day fire flow J42

| | | | | |
|-------|----------|---------|--------|----------------|
| J-208 | 0.68 | 2998.51 | 116.78 | 0.00 |
| J-206 | 0.68 | 2998.56 | 135.87 | 0.00 |
| J-204 | 2.70 | 2998.79 | 129.03 | 0.00 |
| J-205 | 2.70 | 2998.79 | 120.80 | 0.00 |
| J-203 | 12.82 | 2999.26 | 121.44 | 0.00 |
| J-200 | 7.42 | 2999.92 | 126.05 | 0.00 |
| J-211 | 0.00 | 2999.39 | 118.03 | 0.00 |
| J-201 | 3.38 | 2999.73 | 136.37 | 0.00 |
| J-202 | 10.12 | 2999.72 | 117.74 | 0.00 |
| J-119 | 0.00 | 2998.27 | 132.27 | 0.00 |
| J-120 | 2.02 | 2998.27 | 136.60 | 0.00 |
| J-121 | 0.00 | 2998.27 | 136.60 | 0.00 |
| J-122 | 45.90 | 2998.26 | 139.20 | 0.00 |
| J-210 | 4.06 | 2998.55 | 137.59 | 0.00 |
| J-209 | 0.68 | 2998.56 | 135.43 | 0.00 |
| J-113 | 1.36 | 2998.36 | 124.51 | 0.00 |
| J-116 | 0.68 | 2998.29 | 127.52 | 0.00 |
| J-25 | 5.52 | 2997.75 | 70.30 | 0.00 |
| J-34 | 0.68 | 2996.96 | 81.88 | 0.00 |
| J-400 | 0.00 | 2717.00 | 0.00 | 0.00 |
| R-1 | -1423.31 | 2717.00 | 0.00 | 0.00 Reservoir |

Link Results:

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-1 | -46.15 | 0.29 | 0.06 | Open |
| P-2 | 1.72 | 0.01 | 0.00 | Open |
| P-3 | -88.37 | 0.56 | 0.20 | Open |
| P-4 | -93.89 | 0.60 | 0.23 | Open |
| P-5 | -99.39 | 0.63 | 0.25 | Open |
| P-6 | 2.06 | 0.01 | 0.00 | Open |



Page 6

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
| P-7 | -3.45 | 0.02 | 0.00 | Open |
| P-8 | 212.88 | 0.60 | 0.14 | Open |
| P-9 | 155.77 | 0.44 | 0.08 | Open |
| P-10 | 153.01 | 0.43 | 0.08 | Open |
| P-11 | 19.94 | 0.13 | 0.01 | Open |
| P-12 | -49.90 | 0.14 | 0.01 | Open |
| P-13 | -34.10 | 0.10 | 0.00 | Open |

Sereno Canyon Phase 4 Max Day fire flow J42

| | | | | |
|------|---------|------|------|------|
| P-14 | 57.11 | 0.36 | 0.09 | Open |
| P-15 | 4.46 | 0.03 | 0.00 | Open |
| P-16 | 5.91 | 0.04 | 0.00 | Open |
| P-17 | -6.49 | 0.04 | 0.00 | Open |
| P-18 | -0.81 | 0.01 | 0.00 | Open |
| P-19 | -36.27 | 0.23 | 0.04 | Open |
| P-20 | 3.10 | 0.02 | 0.00 | Open |
| P-22 | -1.38 | 0.01 | 0.00 | Open |
| P-23 | 15.88 | 0.10 | 0.01 | Open |
| P-24 | 2.48 | 0.02 | 0.00 | Open |
| P-25 | -24.35 | 0.16 | 0.02 | Open |
| P-26 | 2.06 | 0.01 | 0.00 | Open |
| P-27 | 9.30 | 0.06 | 0.00 | Open |
| P-28 | -13.85 | 0.09 | 0.01 | Open |
| P-29 | 133.64 | 0.38 | 0.06 | Open |
| P-30 | 127.78 | 0.36 | 0.06 | Open |
| P-31 | 95.86 | 0.27 | 0.03 | Open |
| P-32 | 75.84 | 0.22 | 0.02 | Open |
| P-33 | 81.98 | 0.23 | 0.02 | Open |
| P-34 | 47.88 | 0.14 | 0.01 | Open |
| P-35 | 34.97 | 0.22 | 0.04 | Open |
| P-36 | -179.29 | 0.51 | 0.11 | Open |
| P-37 | -505.00 | 1.43 | 0.72 | Open |
| P-38 | -3.89 | 0.01 | 0.00 | Open |
| P-39 | -10.65 | 0.03 | 0.00 | Open |
| P-40 | -23.47 | 0.07 | 0.00 | Open |
| P-41 | 86.36 | 0.55 | 0.20 | Open |
| P-42 | 83.64 | 0.53 | 0.19 | Open |
| P-43 | 80.26 | 0.51 | 0.17 | Open |
| P-44 | 78.22 | 0.50 | 0.16 | Open |
| P-45 | 77.78 | 0.50 | 0.16 | Open |
| P-46 | 68.34 | 0.44 | 0.13 | Open |
| P-47 | 54.16 | 0.15 | 0.01 | Open |
| P-48 | 13.74 | 0.04 | 0.00 | Open |
| P-49 | 339.45 | 2.17 | 2.47 | Open |
| P-50 | 333.93 | 2.13 | 2.40 | Open |
| P-51 | 231.78 | 1.48 | 1.22 | Open |
| P-52 | 315.67 | 2.01 | 2.16 | Open |
| P-53 | -312.22 | 1.99 | 2.12 | Open |
| P-54 | 51.67 | 0.33 | 0.08 | Open |



Page 7

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|--------|
|---------|----------|--------------|----------------------|--------|

Sereno Canyon Phase 4 Max Day fire flow J42

| | | | | |
|-------|---------|------|------|------|
| P-55 | -3.38 | 0.02 | 0.00 | Open |
| P-56 | 3.38 | 0.02 | 0.00 | Open |
| P-57 | 332.00 | 2.12 | 2.37 | Open |
| P-58 | 123.27 | 0.79 | 0.38 | Open |
| P-59 | -4.06 | 0.03 | 0.00 | Open |
| P-60 | 2.02 | 0.01 | 0.00 | Open |
| P-61 | 1212.64 | 3.44 | 3.62 | Open |
| P-62 | 880.65 | 2.50 | 2.00 | Open |
| P-63 | -113.89 | 0.32 | 0.05 | Open |
| P-64 | 0.68 | 0.00 | 0.00 | Open |
| P-65 | -117.27 | 0.33 | 0.05 | Open |
| P-66 | -171.53 | 1.09 | 0.70 | Open |
| P-67 | -2.70 | 0.02 | 0.00 | Open |
| P-68 | -176.93 | 1.13 | 0.74 | Open |
| P-69 | 98.00 | 0.63 | 0.25 | Open |
| P-70 | 98.00 | 0.63 | 0.25 | Open |
| P-71 | -91.75 | 0.59 | 0.22 | Open |
| P-72 | 210.67 | 1.34 | 1.02 | Open |
| P-73 | 105.25 | 0.67 | 0.28 | Open |
| P-74 | 10.12 | 0.06 | 0.00 | Open |
| P-75 | -2.02 | 0.01 | 0.00 | Open |
| P-76 | -2.93 | 0.02 | 0.00 | Open |
| P-77 | -52.89 | 0.15 | 0.01 | Open |
| P-78 | -53.57 | 0.15 | 0.01 | Open |
| P-79 | 12.43 | 0.08 | 0.01 | Open |
| P-80 | 29.85 | 0.19 | 0.03 | Open |
| P-81 | -11.88 | 0.08 | 0.01 | Open |
| P-82 | 17.40 | 0.11 | 0.01 | Open |
| P-83 | 503.81 | 1.43 | 0.71 | Open |
| P-84 | 372.11 | 2.38 | 2.93 | Open |
| P-85 | -8.10 | 0.05 | 0.00 | Open |
| P-86 | -1.36 | 0.01 | 0.00 | Open |
| P-87 | -2.02 | 0.01 | 0.00 | Open |
| P-88 | -0.68 | 0.00 | 0.00 | Open |
| P-89 | 0.91 | 0.01 | 0.00 | Open |
| P-90 | -48.83 | 0.31 | 0.07 | Open |
| P-91 | 45.90 | 0.29 | 0.06 | Open |
| P-92 | -67.55 | 0.43 | 0.12 | Open |
| P-93 | -110.25 | 0.70 | 0.31 | Open |
| P-94 | 201.97 | 1.29 | 0.94 | Open |
| P-95 | -70.93 | 0.45 | 0.14 | Open |
| P-96 | -71.61 | 0.46 | 0.14 | Open |
| P-97 | 126.65 | 0.81 | 0.40 | Open |
| P-98 | -38.40 | 0.25 | 0.04 | Open |
| P-99 | -11.48 | 0.03 | 0.00 | Open |
| P-100 | -2.02 | 0.01 | 0.00 | Open |
| P-101 | 1423.31 | 1.01 | 0.17 | Open |

Sereno Canyon Phase 4 Max Day fire flow J42



Page 8

Sereno Canyon

Link Results: (continued)

| Link ID | Flow GPM | Velocity fps | Unit Headloss ft/Kft | Status |
|---------|----------|--------------|----------------------|-------------|
| P-21 | -37.04 | 0.24 | 0.04 | Open |
| PUMP1 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP2 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP3 | 0.00 | 0.00 | 0.00 | Closed Pump |
| PUMP4 | 1423.32 | 0.00 | -283.25 | Open Pump |
| 1 | 1423.31 | 4.04 | 0.00 | Open Valve |